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Perspectives in Disease Prevention and Health Promotion

Urinary Incontinence Among Hospitalized Persons Aged 65 Years and Older — United States, 1984–1987

Urinary incontinence (the involuntary loss of urine so severe as to have social or hygienic consequences [*1*]) affects at least 10 million persons in the United States. This problem is particularly common among persons aged ≥65 years; in this age group, urinary incontinence is present in 15%–30% of community-dwelling (i.e., not hospitalized or in long-term–care institutions) persons, 15%–34% of those hospitalized in acute-care institutions, and about 50% of all long-term–care institution residents (*2*). This report summarizes a study of urinary incontinence among persons ≥65 years of age discharged from hospitals in the United States from 1984 through 1987.

Data from the Health Care Financing Administration's Medicare Part A hospital discharge records were used to characterize the occurrence of urinary incontinence* among hospitalized persons by sex, race (white or black), age, type of urinary incontinence, and place of residence (*3*). Because a person may have been discharged from a hospital more than once during the period, a case was defined as the first mention of urinary incontinence on all discharge records for a person during the period. Denominators for calculating annual hospitalization rates were obtained from intercensal population estimates (*4*). Where appropriate, rates were age-standardized directly to the 1980 U.S. population aged ≥65 years.

From 41,456,685 discharge records, 159,380 (0.38%) cases of urinary incontinence were identified. For all types of urinary incontinence, the annual age-standardized rate for women (16.6 per 10,000 population) was 64% higher than that for men (10.1 per

**International Classification of Diseases, Ninth Revision, Clinical Modification* rubrics 307.6 (enuresis), 625.6 (stress incontinence, female), or 788.3 (incontinence of urine).

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10,000 population). The age-standardized rate for whites (13.5 per 10,000 population) was 22% higher than that for blacks (11.1 per 10,000 population). Overall, rates were highest among white women, followed by black men, black women, and white men; rates increased directly with age (Table 1). For all patients aged <80 years, age-specific rates for all women exceeded those for all men.

Of the specific types of incontinence listed on the discharge records, 57% cited incontinence of urine; 43%, stress incontinence, female; and 0.2%, enuresis. Two percent of discharge records cited two or all three diagnoses. The highest annual age-standardized rate for incontinence of urine occurred among black men (13.6 per 10,000 population; 95% confidence interval [CI] = 13.2–14.0), followed by white men (9.5; 95% CI = 9.4–9.6), black women (6.8; 95% CI = 6.5–7.0), and white women (6.1; 95% CI = 6.0–6.2); rates also increased directly with age. For stress incontinence, the age-standardized rate among white women (10.7; 95% CI = 10.6–10.8) was 3.7 times that among black women (3.0; 95% CI = 2.8–3.1); rates varied inversely by age among white women, but for black women remained stable by age.

For all three types of urinary incontinence, annual hospitalization rates for women were highest in the northwest (including Alaska) and the central states (Table 2). For men, hospitalization rates were highest in the north central states. Rates for men and women were lowest in southern New England, the mid-Atlantic states, and Hawaii.

Reported by: Div of Chronic Disease Control and Community Intervention, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: The findings in this report indicate that annual hospital discharge rates for urinary incontinence that are based on Medicare records are substantially less than the reported prevalence of urinary incontinence among community-dwelling persons aged ≥65 years or among those hospitalized in acute-care institutions (*2*). There are at least three potential explanations for this difference. First, this difference probably reflects underdiagnosis of urinary incontinence in the hospital

TABLE 1. Rate* of urinary incontinence† for persons ≥65 years of age, by sex, race, and age — United States, 1984–1987

	Women				Men			
	White		Black		White		Black	
Age (yrs)	Rate	(95% CI§)	Rate	(95% CI)	Rate	(95% CI)	Rate	(95% CI)
65–69	15.5	(15.3–15.7)	5.8	(5.4– 6.2)	3.0	(2.9– 3.1)	4.8	(4.5– 5.2)
70–74	15.6	(15.4–15.8)	7.7	(7.3– 8.2)	6.1	(5.9– 6.2)	10.0	(9.4–10.6)
75–79	17.2	(16.9–17.4)	10.3	(9.7–10.9)	11.2	(10.9–11.4)	17.1	(16.2–18.1)
80–84	19.2	(18.9–19.5)	16.6	(15.5–17.6)	19.4	(18.9–19.8)	29.0	(27.2–30.8)
≥85	21.9	(21.5–22.2)	21.0	(19.8–22.2)	29.6	(29.0–30.3)	31.1	(29.0–33.3)
Crude rate	17.1	(17.0–17.2)	9.8	(9.6–10.1)	8.8	(8.7– 8.9)	12.5	(12.1–12.8)
Standardized¶ rate	16.8	(16.7–16.9)	9.7	(9.5–10.0)	9.6	(9.5– 9.7)	13.6	(13.2–14.0)

*First hospital discharges per 10,000 population per year.
†*International Classification of Diseases, Ninth Revision, Clinical Modification* rubrics 307.6 (enuresis), 625.6 (stress incontinence, female), or 788.3 (incontinence of urine).
§Confidence interval.
¶Age-standardized directly to the 1980 U.S. population aged ≥65 years.

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TABLE 2. Age-standardized* rate† of urinary incontinence§ for persons ≥65 years of age, by sex and place of residence — United States, 1984–1987

State	Men		Women	
	Rate	(95% CI¶)	Rate	(95% CI)
Alabama	11.6	(10.8–12.4)	18.8	(18.0–19.6)
Alaska	13.4	(8.3–18.4)	24.5	(19.2–29.8)
Arizona	7.8	(7.1– 8.5)	19.0	(18.1–19.9)
Arkansas	10.3	(9.4–11.2)	19.5	(18.5–20.4)
California	10.0	(9.7–10.3)	18.8	(18.5–19.1)
Colorado	12.0	(11.0–13.1)	21.3	(20.2–22.4)
Connecticut	6.6	(5.8– 7.1)	10.1	(9.5–10.7)
Delaware	5.8	(4.3– 7.3)	12.1	(10.4–13.7)
District of Columbia	11.5	(9.4–13.5)	11.4	(9.9–12.9)
Florida	8.1	(7.7– 8.4)	14.5	(14.2–14.9)
Georgia	11.4	(10.6–12.1)	18.7	(18.0–19.4)
Hawaii	6.0	(4.8– 7.2)	11.2	(9.8–12.7)
Idaho	9.8	(8.4–11.3)	25.9	(23.9–27.9)
Illinois	11.4	(10.9–11.9)	16.9	(16.5–17.3)
Indiana	10.7	(10.0–11.3)	16.7	(16.0–17.3)
Iowa	10.8	(10.0–11.5)	16.9	(16.0–17.7)
Kansas	11.8	(10.9–12.8)	25.8	(24.6–26.9)
Kentucky	10.7	(10.0–11.5)	17.4	(16.6–18.2)
Louisiana	13.0	(12.1–13.8)	19.0	(18.1–19.8)
Maine	13.1	(11.7–14.6)	17.0	(15.7–18.3)
Maryland	8.6	(7.9– 9.3)	15.2	(14.4–15.9)
Massachusetts	8.3	(7.8– 8.8)	11.6	(11.1–12.0)
Michigan	10.6	(10.1–11.2)	17.5	(17.0–18.0)
Minnesota	12.6	(11.9–13.4)	18.5	(17.7–19.3)
Mississippi	12.9	(11.8–13.9)	16.5	(15.6–17.4)
Missouri	11.1	(10.4–11.7)	22.0	(21.3–22.8)
Montana	14.6	(12.7–16.6)	23.7	(21.6–25.7)
Nebraska	11.6	(10.4–12.7)	21.5	(20.2–22.8)
Nevada	9.4	(7.6–11.2)	17.3	(15.5–19.1)
New Hampshire	10.5	(8.9–12.0)	15.0	(13.6–16.4)
New Jersey	7.5	(7.0– 8.0)	9.2	(8.8– 9.6)
New Mexico	11.4	(10.0–12.8)	19.3	(17.8–20.9)
New York	6.7	(6.5– 7.0)	9.4	(9.1– 9.6)
North Carolina	9.9	(9.3–10.6)	15.4	(14.8–16.0)
North Dakota	14.8	(12.8–16.7)	21.7	(19.7–23.8)
Ohio	10.5	(10.0–11.0)	15.7	(15.3–16.2)
Oklahoma	10.8	(10.0–11.6)	23.0	(22.0–23.9)
Oregon	11.6	(10.7–12.5)	22.4	(21.4–23.4)
Pennsylvania	9.8	(9.4–10.2)	13.9	(13.6–14.3)
Rhode Island	6.4	(5.3– 7.5)	8.9	(7.9– 9.9)
South Carolina	11.3	(10.2–12.3)	17.5	(16.6–18.4)
South Dakota	14.8	(13.0–16.7)	20.1	(18.2–21.9)
Tennessee	10.1	(9.5–10.8)	18.8	(18.0–19.5)
Texas	11.7	(11.3–12.2)	20.5	(20.1–21.0)
Utah	11.6	(10.1–13.0)	26.4	(24.5–28.2)
Vermont	14.3	(11.9–16.7)	18.9	(16.7–21.0)
Virginia	10.4	(9.7–11.2)	14.1	(13.5–14.7)
Washington	12.2	(11.4–13.0)	25.5	(24.6–26.5)
West Virginia	11.7	(10.6–12.8)	19.0	(17.9–20.1)
Wisconsin	12.6	(11.9–13.3)	18.0	(17.3–18.7)
Wyoming	13.3	(10.6–16.1)	26.4	(23.2–29.7)
Total	**10.1**	**(10.0–10.2)**	**16.6**	**(16.5–16.7)**

*Age-standardized directly to the 1980 U.S. population aged ≥65 years.
†First hospital discharges per 10,000 population per year.
§*International Classification of Diseases, Ninth Revision, Clinical Modification* rubrics 307.6 (enuresis), 625.6 (stress incontinence, female), or 788.3 (incontinence of urine).
¶Confidence interval.

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and underreporting of urinary incontinence on medical discharge summaries. Second, because computerized Medicare hospitalization records include only the first five diagnoses from the discharge summary, some cases of urinary incontinence among persons with multiple diagnoses may have been excluded. Many of those patients who met the case definition for this study may have more severe manifestations of or were admitted to the hospital because of urinary incontinence (e.g., surgery for stress incontinence). Finally, use of denominators derived from U.S. census estimates, rather than from the Medicare-enrolled population, can lead to underestimating the Medicare hospitalization rates by as much as 27% (*5*).

The higher overall rates of urinary incontinence among women and the increase in rates with age are consistent with findings reported previously (*2*). The development of urinary incontinence may be associated with age-related changes in bladder capacity, residual urine, and involuntary bladder contractions (*6*). Overflow incontinence related to increased occurrence of benign prostatic hypertrophy and prostatic cancer may account for the higher rates for men than for women among persons ≥80 years of age.

The geographic differences in hospitalization rates for urinary incontinence may reflect regional variations in 1) the diagnosis of the disorder and the recording of the diagnosis on discharge summaries, 2) the likelihood of hospital admission for urinary incontinence, or 3) the distribution of diseases and conditions that cause urinary incontinence (e.g., central nervous system disorders, or acontractile or neurogenic bladder associated with diabetes mellitus or spinal cord lesions). Because almost all persons aged ≥65 years can obtain hospitalization under Medicare, differences in access to health care appear unlikely to account for these geographic variations.

Because urinary incontinence is prevalent among the elderly, and because the size of this age group continues to increase, the number of persons with urinary incontinence is likely to increase. One of the national health objectives for the year 2000 is to increase to at least 60% the proportion of primary-care providers for older adults who routinely evaluate persons aged ≥65 years for urinary incontinence and other problems (*7*).

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Epidemiologic Notes and Reports

Anaphylactic Reactions during General Anesthesia Among Pediatric Patients — United States, January 1990–January 1991

From March 1990 through January 1991, nine patients at one children's hospital in Wisconsin (hospital A) had onset of anaphylactic reactions (ARs) within 30 minutes following the start of general anesthesia; no patient had had a surgical incision at the time of their reaction. Eight of these patients required admission to the intensive care unit for supportive care. To determine the extent and potential source of the problem, an epidemiologic investigation was conducted at hospital A.

An AR was defined as hypotension (≥30 mm Hg fall in systolic blood pressure from the preinduction blood pressure) and at least one of the following during a general anesthesia procedure at hospital A from January 1989 through January 1991: rash, angioedema, stridor, wheezing, or bronchospasm. Review of anesthesia records identified a total of 11 case-patients, representing 12 ARs. All were pediatric patients aged 3–14 years (mean: 6.9 years). Ten of these patients had a meningomyelocele (i.e., spina bifida), and one patient had a congenital genitourinary tract abnormality. In addition, the risk for AR was higher among patients with a meningomyelocele and/or congenital genitourinary abnormality than among all other surgical patients (12/152 vs. 0/7684, $p<0.001$).

The investigation also included a case-control study of the 11 case-patients and all noncase-patients with a meningomyelocele ($n=64$) who had undergone general anesthesia at hospital A from January 1990 through January 1991 (controls). Case- and control-patients were similar with respect to age, sex, race, day of surgery, anesthesiology personnel, preoperative medications, type of anesthesia induction, anesthetic gas, surgical procedure, and receipt of intraoperative antimicrobials. Case-patients were, however, more likely to have a history of allergy (odds ratio [OR] = 4.8; 95% confidence interval [CI] = 1.1–23.3), asthma (OR = 7.6; 95% CI = 1.0–61.7), or multiple surgical procedures ($p=0.04$). Before their ARs, all case-patients had been exposed to the anesthesia circuitry and had intravenous catheters in place. Ten of the 11 case-patients reportedly had skin, radioallergosorbent, and/or enzyme-linked immunosorbent assay tests suggesting latex allergy; one patient was not tested.

Personnel at hospital A have instituted the following measures to minimize the risk for ARs among patients with a meningomyelocele or congenital genitourinary dysplasias: 1) use of nonlatex supplies during routine care and surgical procedures and 2) combined administration of H2-blockers, corticosteroids, and diphenhydramine hydrochloride during the 24-hour periods before and after all scheduled surgical procedures. Although no further ARs have occurred, the efficacy of these interventions has not been evaluated.

Preliminary results of a nationwide survey of children's hospitals have identified at least 25 other institutions that have reported similar reactions since January 1990 among approximately 75 patients (range: 1–6 patients per institution) with a meningomyelocele and/or congenital genitourinary dysplasias.

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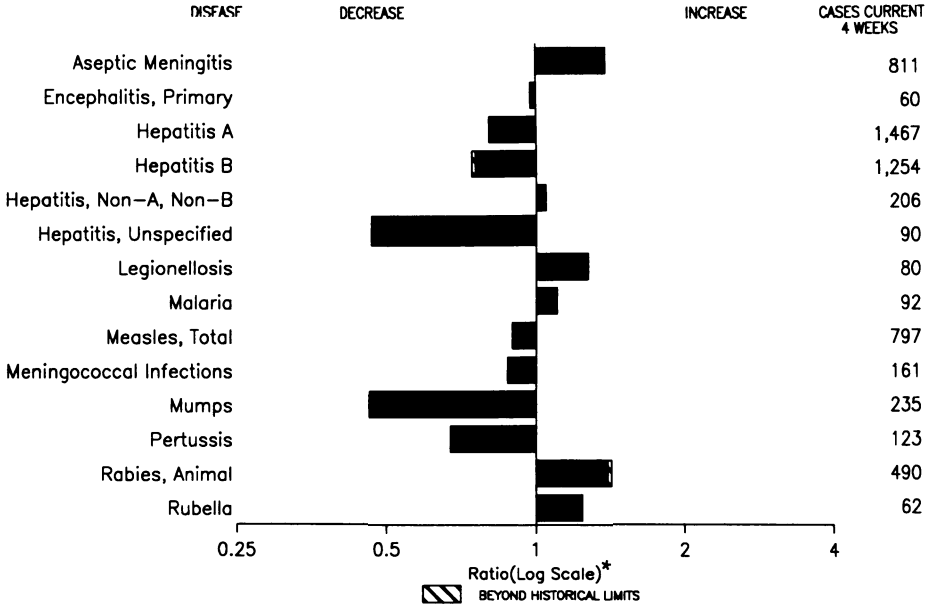
FIGURE I. Notifiable disease reports, comparison of 4-week totals ending June 29, 1991, with historical data — United States



*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 June 29, 1991 (26th Week)

	Cum. 1991		Cum. 1991
AIDS	21,472	Measles: imported	109
Anthrax	-	indigenous	6,895
Botulism: Foodborne	11	Plague	-
Infant	28	Poliomyelitis, Paralytic*	-
Other	4	Psittacosis	54
Brucellosis	28	Rabies, human	-
Cholera	14	Syphilis, primary & secondary	21,435
Congenital rubella syndrome	11	Syphilis, congenital, age < 1 year	12
Diphtheria	1	Tetanus	12
Encephalitis, post-infectious	41	Toxic shock syndrome	163
Gonorrhea	285,393	Trichinosis	11
Haemophilus influenzae (invasive disease)	1,762	Tuberculosis	10,583
Hansen Disease	68	Tularemia	55
Leptospirosis	34	Typhoid fever	159
Lyme Disease	2,579	Typhus fever, tickborne (RMSF)	156

*No cases of suspected poliomyelitis have been reported in 1991; none of the 6 suspected cases in 1990 have been confirmed to date. Five of 13 suspected cases in 1989 were confirmed and all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending June 29, 1991, and June 30, 1990 (26th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	21,472	3,082	319	41	285,393	337,587	12,319	8,205	1,481	679	563	2,579
NEW ENGLAND	919	173	16	1	7,079	9,021	296	420	49	25	41	112
Maine	31	9	3	-	81	118	13	15	2	-	-	-
N.H.	20	11	2	-	154	100	21	15	4	-	2	13
Vt.	10	63	1	-	25	32	14	4	4	-	2	1
Mass.	539	48	8	1	2,892	3,616	147	314	27	23	34	48
R.I.	36	35	-	-	595	543	54	16	10	2	3	38
Conn.	283	7	2	-	3,332	4,612	47	56	2	-	-	12
MID. ATLANTIC	5,908	356	25	10	34,973	47,672	1,063	729	149	13	161	1,822
Upstate N.Y.	751	180	12	6	6,389	7,383	497	298	94	7	50	1,219
N.Y. City	3,309	64	-	-	13,010	20,123	258	78	5	-	18	-
N.J.	1,295	-	-	-	5,858	7,879	145	176	27	-	20	298
Pa.	553	112	13	4	9,716	12,287	163	177	23	6	73	305
E.N. CENTRAL	1,472	518	91	6	52,566	63,869	1,499	980	249	31	105	100
Ohio	243	152	33	2	15,868	19,090	213	234	113	13	54	56
Ind.	152	63	11	1	5,590	5,484	220	124	1	1	10	6
Ill.	714	90	20	3	16,404	20,219	616	131	26	1	4	1
Mich.	262	198	24	-	11,800	14,827	185	313	70	16	27	37
Wis.	101	15	3	-	2,904	4,249	265	178	39	-	10	-
W.N. CENTRAL	548	191	10	5	14,004	17,313	1,283	361	160	12	29	115
Minn.	108	31	5	-	1,379	2,158	189	36	11	2	4	9
Iowa	60	44	-	3	986	1,262	33	21	6	3	8	7
Mo.	291	74	3	2	8,640	10,172	335	252	139	4	10	95
N. Dak.	4	1	-	-	22	65	28	3	2	1	1	-
S. Dak.	1	4	2	-	170	113	487	2	-	-	3	-
Nebr.	32	12	-	-	906	867	162	22	1	-	3	-
Kans.	52	25	-	-	1,901	2,676	49	25	1	2	-	4
S. ATLANTIC	5,261	717	66	15	85,406	95,635	870	1,707	209	133	95	171
Del.	45	11	1	-	1,209	1,554	6	27	4	2	2	18
Md.	506	62	11	-	8,757	9,997	161	231	36	13	20	66
D.C.	351	22	1	-	4,944	6,477	48	77	1	1	-	-
Va.	360	115	19	3	8,674	8,830	99	106	19	92	7	43
W. Va.	24	3	1	-	565	653	12	32	1	6	-	7
N.C.	260	73	21	-	16,107	15,859	89	250	83	-	12	22
S.C.	162	18	-	-	6,105	7,795	27	379	16	3	18	3
Ga.	597	82	6	2	21,445	21,212	94	237	19	-	9	6
Fla.	2,956	331	6	10	17,600	23,258	334	368	30	16	27	6
E.S. CENTRAL	547	239	17	-	26,516	26,932	123	686	178	3	30	58
Ky.	91	48	3	-	2,895	3,291	17	86	5	2	12	20
Tenn.	171	69	9	-	9,940	8,152	74	518	160	-	9	28
Ala.	176	94	5	-	6,770	8,839	26	74	9	1	8	10
Miss.	109	28	-	-	6,911	6,650	6	8	4	-	1	-
W.S. CENTRAL	1,951	373	31	1	34,623	35,851	1,768	1,052	49	121	22	37
Ark.	94	32	3	-	3,635	4,437	175	57	1	4	5	12
La.	344	45	8	-	7,811	6,900	75	144	4	4	5	-
Okla.	91	1	3	-	3,296	3,141	161	120	20	8	5	21
Tex.	1,422	295	17	1	19,881	21,373	1,357	731	24	105	7	4
MOUNTAIN	618	84	11	1	5,865	6,999	2,041	518	83	95	40	7
Mont.	19	2	1	-	57	91	56	39	3	5	1	-
Idaho	9	-	-	-	76	61	48	41	-	-	3	-
Wyo.	8	-	-	-	54	98	75	5	-	-	-	5
Colo.	239	31	2	1	1,514	1,790	297	76	33	16	7	-
N. Mex.	54	10	-	-	558	631	561	120	7	27	1	-
Ariz.	111	21	8	-	2,294	2,760	656	102	12	38	15	-
Utah	59	8	-	-	166	216	150	28	11	9	4	-
Nev.	119	12	-	-	1,146	1,352	198	107	17	-	9	2
PACIFIC	4,248	431	52	2	24,361	34,295	3,376	1,752	355	246	40	157
Wash.	297	-	6	-	2,160	3,078	313	244	86	13	1	-
Oreg.	116	-	-	-	1,028	1,281	204	162	68	6	1	-
Calif.	3,722	389	44	2	20,446	28,965	2,764	1,302	187	226	36	157
Alaska	12	15	2	-	399	605	76	18	12	1	-	-
Hawaii	101	27	-	-	328	366	19	26	2	-	2	-
Guam	1	-	-	-	-	139	-	-	-	-	-	-
P.R.	859	147	-	1	330	432	55	239	91	31	-	-
V.I.	4	-	-	-	249	224	-	4	-	-	-	-
Amer. Samoa	-	-	-	-	-	50	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	122	-	-	-	-	-	-

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending June 29, 1991, and June 30, 1990 (26th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1991	1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	Cum. 1991	1991	Cum. 1991	1991	Cum. 1991	Cum. 1990	1991	Cum. 1991	Cum. 1990
UNITED STATES	496	183	6,895	3	109	14,432	1,217	29	2,490	29	1,011	1,598	20	999	612
NEW ENGLAND	35	-	34	-	10	247	82	-	20	1	170	191	-	2	5
Maine	1	-	-	-	-	29	6	-	-	-	44	6	-	-	-
N.H.	2	-	-	-	-	8	7	-	3	-	12	12	-	1	1
Vt.	1	-	5	-	-	1	10	-	2	-	3	6	-	-	-
Mass.	17	-	9	-	8	17	45	-	-	-	98	155	-	1	-
R.I.	7	-	2	-	-	30	-	-	3	-	-	2	-	-	1
Conn.	7	-	18	-	2	162	14	-	12	1	13	10	-	-	3
MID. ATLANTIC	71	83	3,708	-	6	985	127	-	186	2	90	309	-	555	2
Upstate N.Y.	17	20	301	-	4	293	71	-	71	1	62	243	-	534	1
N.Y. City	25	50	1,475	-	-	164	7	-	-	-	-	-	-	-	-
N.J.	23	-	430	-	1	189	24	-	53	-	1	18	-	-	-
Pa.	6	13	1,502	-	1	339	25	-	62	1	27	48	-	21	1
E.N. CENTRAL	43	-	65	-	8	3,298	180	4	242	7	177	400	-	162	30
Ohio	10	-	-	-	1	439	62	3	54	-	68	80	-	147	1
Ind.	2	-	-	-	1	405	8	-	6	7	44	60	-	1	-
Ill.	15	-	24	-	-	1,256	51	-	93	-	30	139	-	3	18
Mich.	14	-	39	-	-	450	40	1	74	-	22	36	-	11	9
Wis.	2	-	2	-	6	748	19	-	15	-	13	85	-	-	2
W.N. CENTRAL	18	-	24	-	2	670	75	-	68	1	63	51	-	15	6
Minn.	6	-	6	-	2	232	15	-	6	-	19	7	-	6	1
Iowa	3	-	15	-	-	24	7	-	14	-	7	6	-	5	4
Mo.	4	-	-	-	-	80	28	-	20	-	23	31	-	4	-
N. Dak.	1	-	-	-	-	-	1	-	-	-	1	1	-	-	1
S. Dak.	-	-	-	-	-	23	2	-	-	1	2	1	-	-	-
Nebr.	-	-	-	-	-	105	6	-	4	-	5	2	-	-	-
Kans.	4	-	3	-	-	206	16	-	24	-	6	3	-	-	-
S. ATLANTIC	94	4	399	-	15	903	224	10	910	5	93	138	-	10	13
Del.	1	-	21	-	-	11	1	-	6	-	-	3	-	-	-
Md.	29	2	166	-	-	190	23	2	181	-	15	36	-	6	1
D.C.	5	-	-	-	-	17	6	1	21	-	-	14	-	1	1
Va.	16	-	21	-	3	68	23	-	38	-	10	13	-	-	1
W. Va.	1	-	-	-	-	6	11	-	16	-	6	9	-	-	-
N.C.	3	-	29	-	2	26	45	-	171	-	15	31	-	-	-
S.C.	6	-	12	-	-	4	24	5	303	-	9	5	-	-	-
Ga.	11	-	10	-	4	78	47	-	26	-	21	13	-	-	-
Fla.	22	2	140	-	6	503	44	2	148	5	17	14	-	3	10
E.S. CENTRAL	10	-	5	-	-	100	88	1	139	2	32	75	17	100	1
Ky.	2	-	-	-	-	25	31	-	-	-	-	-	-	-	-
Tenn.	5	-	5	-	-	32	27	1	114	-	14	28	17	100	1
Ala.	3	-	-	-	-	17	29	-	7	2	18	42	-	-	-
Miss.	-	-	-	-	-	26	1	-	18	-	-	5	-	-	-
W.S. CENTRAL	29	17	43	-	12	3,416	90	4	273	1	23	30	3	4	2
Ark.	3	-	-	-	5	40	15	-	38	1	3	2	-	1	1
La.	7	-	-	-	-	10	21	-	18	-	9	10	-	-	-
Okla.	2	-	-	-	-	147	12	-	6	-	11	18	-	-	1
Tex.	17	17	43	-	7	3,219	42	4	211	-	-	-	3	3	-
MOUNTAIN	19	78	762	-	15	712	50	7	239	1	123	160	-	4	94
Mont.	1	-	-	-	-	1	7	-	-	-	-	23	-	-	13
Idaho	1	40	276	-	2	21	7	-	6	-	20	31	-	2	47
Wyo.	-	-	-	-	-	15	1	-	3	-	3	-	-	-	-
Colo.	5	-	1	-	4	110	10	5	93	-	61	57	-	-	3
N. Mex.	4	1	113	-	5	90	7	N	N	-	15	8	-	-	-
Ariz.	6	-	274	-	-	244	13	1	114	-	8	27	-	-	26
Utah	1	37	82	-	4	55	-	1	13	1	14	10	-	-	1
Nev.	1	-	16	-	-	176	5	-	10	-	2	4	-	2	4
PACIFIC	177	1	1,855	3	41	4,101	301	3	413	9	240	244	-	147	459
Wash.	14	-	1	-	3	245	37	-	88	3	65	58	-	-	-
Oreg.	4	1	34	3†	26	192	39	N	N	-	31	21	-	1	7
Calif.	155	-	1,816	-	9	3,577	217	-	301	5	109	146	-	144	444
Alaska	-	-	-	-	1	80	7	-	9	-	5	-	-	-	-
Hawaii	4	-	4	-	2	7	1	3	15	1	30	19	-	2	8
Guam	-	U	-	U	-	1	-	U	-	U	-	-	U	-	-
P.R.	1	-	80	-	1	914	15	-	8	6	22	5	-	1	-
V.I.	-	U	-	U	-	21	-	U	5	U	-	-	U	-	-
Amer. Samoa	-	U	-	U	-	225	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	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 II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending June 29, 1991, and June 30, 1990 (26th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1990	Cum. 1991	Cum. 1991	Cum. 1991	Cum. 1991
UNITED STATES	21,435	24,684	163	10,583	11,086	55	159	156	2,917
NEW ENGLAND	571	914	7	276	247	-	12	4	18
Maine	-	5	3	11	-	-	1	-	-
N.H.	12	39	1	-	3	-	-	-	1
Vt.	1	1	-	3	7	-	-	-	-
Mass.	270	348	3	144	130	-	10	3	-
R.I.	33	7	-	27	35	-	-	-	-
Conn.	255	514	-	91	72	-	1	1	17
MID. ATLANTIC	3,704	5,332	26	2,437	2,651	-	33	3	936
Upstate N.Y.	103	447	11	182	230	-	6	3	332
N.Y. City	1,851	2,312	1	1,499	1,608	-	16	-	-
N.J.	741	848	-	436	441	-	9	-	429
Pa.	1,009	1,725	14	320	372	-	2	-	175
E.N. CENTRAL	2,461	1,710	30	1,073	1,030	2	13	11	51
Ohio	319	270	20	146	158	-	2	7	7
Ind.	68	33	-	76	92	-	-	4	2
Ill.	1,188	642	4	575	531	-	3	-	10
Mich.	647	568	6	225	205	2	7	-	8
Wis.	239	197	-	51	44	-	1	-	24
W.N. CENTRAL	363	237	30	270	285	17	2	10	435
Minn.	40	48	7	55	53	-	2	-	161
Iowa	33	29	6	37	32	-	-	1	85
Mo.	245	117	8	114	133	15	-	4	7
N. Dak.	-	1	-	3	12	-	-	-	52
S. Dak.	1	1	1	20	9	1	-	-	97
Nebr.	9	8	1	11	14	-	-	2	9
Kans.	35	33	7	30	32	1	-	3	24
S. ATLANTIC	6,350	7,787	15	1,969	2,045	4	31	61	711
Del.	83	97	1	16	24	-	-	-	84
Md.	522	582	-	187	165	-	6	10	256
D.C.	403	469	1	108	74	-	2	-	5
Va.	515	435	3	158	159	-	7	5	141
W. Va.	17	7	-	39	38	-	1	1	31
N.C.	964	882	7	249	261	1	-	20	-
S.C.	796	470	-	208	262	1	-	16	57
Ga.	1,541	1,990	-	386	310	1	4	8	117
Fla.	1,509	2,855	3	618	752	1	11	1	20
E.S. CENTRAL	2,319	2,119	8	793	859	6	2	28	81
Ky.	37	39	4	154	206	2	2	8	22
Tenn.	831	847	4	266	234	4	-	14	18
Ala.	823	664	-	202	264	-	-	6	41
Miss.	628	569	-	171	155	-	-	-	-
W.S. CENTRAL	4,018	3,915	5	1,257	1,334	19	6	36	383
Ark.	323	279	2	97	143	12	-	6	21
La.	1,235	1,205	-	109	186	-	1	-	4
Okla.	99	121	3	80	98	7	-	30	115
Tex.	2,361	2,310	-	971	907	-	5	-	243
MOUNTAIN	295	469	20	266	234	6	5	2	89
Mont.	2	-	-	3	10	5	-	2	16
Idaho	3	6	-	4	5	-	-	-	1
Wyo.	3	1	-	3	3	1	-	-	49
Colo.	42	28	4	6	13	-	1	-	3
N. Mex.	19	24	5	30	48	-	-	-	1
Ariz.	195	333	4	155	117	-	3	-	16
Utah	4	4	7	25	12	-	-	-	-
Nev.	27	73	-	40	26	-	1	-	3
PACIFIC	1,354	2,201	22	2,242	2,401	1	55	1	213
Wash.	76	236	3	149	134	1	2	-	1
Oreg.	38	75	-	52	62	-	2	1	1
Calif.	1,233	1,864	19	1,910	2,094	-	50	-	207
Alaska	3	11	-	29	24	-	-	-	3
Hawaii	4	15	-	102	87	-	1	-	1
Guam	-	1	-	-	22	-	-	-	-
P.R.	243	187	-	94	51	-	6	-	22
V.I.	61	1	-	1	4	-	-	-	-
Amer. Samoa	-	-	-	-	11	-	-	-	-
C.N.M.I.	-	1	-	-	24	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending June 29, 1991 (26th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	564	400	94	44	11	15	29
Boston, Mass.	175	100	46	20	4	5	10
Bridgeport, Conn.	42	31	7	1	1	2	-
Cambridge, Mass.	17	16	-	1	-	-	2
Fall River, Mass.	16	13	1	2	-	-	-
Hartford, Conn.	51	31	11	5	1	3	1
Lowell, Mass.	18	16	1	1	-	-	-
Lynn, Mass.	12	10	-	2	-	-	-
New Bedford, Mass.	29	25	3	1	-	-	3
New Haven, Conn.	30	18	4	6	1	1	2
Providence, R.I.	34	32	2	-	-	-	3
Somerville, Mass.	4	2	2	-	-	-	-
Springfield, Mass.	45	33	8	1	2	1	1
Waterbury, Conn.	26	21	3	1	-	1	2
Worcester, Mass.	65	52	6	3	2	2	5
MID. ATLANTIC	2,625	1,730	464	292	59	79	124
Albany, N.Y.	47	30	9	3	2	3	5
Allentown, Pa.	17	14	1	1	1	-	-
Buffalo, N.Y.	99	70	20	4	3	2	5
Camden, N.J.	37	23	6	3	1	4	-
Elizabeth, N.J.	30	18	8	1	-	3	1
Erie, Pa.†	40	29	5	4	-	2	2
Jersey City, N.J.	56	37	10	5	-	4	-
New York City, N.Y.	1,354	843	249	195	32	35	52
Newark, N.J.	67	28	14	18	-	7	3
Paterson, N.J.	20	12	2	6	-	-	3
Philadelphia, Pa.	393	283	75	22	8	5	20
Pittsburgh, Pa.†	59	38	11	3	1	6	3
Reading, Pa.	39	29	7	2	-	1	7
Rochester, N.Y.	126	91	16	12	5	2	2
Schenectady, N.Y.	26	21	5	-	-	-	1
Scranton, Pa.†	43	39	3	1	-	-	3
Syracuse, N.Y.	91	65	11	7	4	4	9
Trenton, N.J.	33	21	8	2	2	-	3
Utica, N.Y.	17	15	1	1	-	-	2
Yonkers, N.Y.	31	24	3	2	-	1	3
E.N. CENTRAL	2,089	1,271	379	228	130	81	90
Akron, Ohio	48	37	5	4	2	-	-
Canton, Ohio	32	25	5	2	-	-	2
Chicago, Ill.	432	146	91	95	68	32	12
Cincinnati, Ohio	114	72	29	8	2	3	10
Cleveland, Ohio	151	90	27	17	7	10	3
Columbus, Ohio	184	126	33	14	8	3	9
Dayton, Ohio	118	80	27	7	1	3	6
Detroit, Mich.	242	134	49	35	15	9	4
Evansville, Ind.	46	33	10	1	-	2	1
Fort Wayne, Ind.	48	32	10	4	-	2	2
Gary, Ind.	13	7	2	3	1	-	-
Grand Rapids, Mich.	50	40	6	-	4	-	5
Indianapolis, Ind.	160	102	28	13	7	10	8
Madison, Wis.	41	31	4	4	-	2	2
Milwaukee, Wis.	114	85	17	7	3	2	8
Peoria, Ill.	42	33	5	3	1	-	1
Rockford, Ill.	42	36	3	-	3	-	2
South Bend, Ind.	47	40	5	-	1	1	4
Toledo, Ohio	107	84	10	7	5	1	6
Youngstown, Ohio	58	38	13	4	2	1	5
W.N. CENTRAL	769	523	142	53	19	32	37
Des Moines, Iowa	67	47	15	2	2	1	4
Duluth, Minn.	36	28	5	3	-	-	-
Kansas City, Kans.	36	24	9	2	1	-	2
Kansas City, Mo.	110	75	19	7	2	7	4
Lincoln, Nebr.	42	33	8	1	-	-	4
Minneapolis, Minn.	138	90	32	8	2	6	11
Omaha, Nebr.	89	55	20	7	4	3	2
St. Louis, Mo.	141	95	20	13	4	9	7
St. Paul, Minn.	55	39	9	3	2	2	1

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,287	776	266	156	46	41	47
Atlanta, Ga.	137	83	29	17	4	4	5
Baltimore, Md.	232	136	47	30	10	9	13
Charlotte, N.C.	98	63	14	13	4	4	3
Jacksonville, Fla.	129	72	26	20	5	6	8
Miami, Fla.	110	58	30	15	4	3	1
Norfolk, Va.	67	38	17	8	1	3	3
Richmond, Va.	68	39	18	8	2	1	1
Savannah, Ga.	47	34	8	3	2	-	4
St. Petersburg, Fla.	79	64	6	5	3	1	-
Tampa, Fla.	137	79	40	11	2	3	6
Washington, D.C.	150	84	28	22	9	7	3
Wilmington, Del.	33	26	3	4	-	-	-
E.S. CENTRAL	789	506	159	74	22	27	41
Birmingham, Ala.	95	54	22	12	3	4	3
Chattanooga, Tenn.	61	45	13	2	-	1	1
Knoxville, Tenn.	77	55	16	1	4	1	6
Louisville, Ky.	60	35	13	5	2	5	3
Memphis, Tenn.	195	122	37	21	4	11	13
Mobile, Ala.	142	90	30	12	6	3	4
Montgomery, Ala.	34	22	8	2	2	-	-
Nashville, Tenn.	125	83	20	19	1	2	11
W.S. CENTRAL	1,503	921	315	168	61	38	63
Austin, Tex.	53	37	11	2	-	3	2
Baton Rouge, La.	64	39	14	9	2	-	1
Corpus Christi, Tex.	42	28	10	-	1	3	1
Dallas, Tex.	201	114	37	32	11	7	8
El Paso, Tex.	61	41	11	4	3	2	3
Ft. Worth, Tex.	113	69	26	11	4	3	6
Houston, Tex.	302	162	68	46	20	6	18
Little Rock, Ark.	76	42	16	11	6	1	1
New Orleans, La.	230	146	55	16	6	7	-
San Antonio, Tex.	186	120	33	24	5	4	11
Shreveport, La.	56	42	8	5	-	1	5
Tulsa, Okla.	119	81	26	8	3	1	7
MOUNTAIN	685	454	129	65	21	16	41
Albuquerque, N.M.	80	50	15	10	3	2	7
Colo. Springs, Colo.	44	25	11	4	2	2	3
Denver, Colo.	111	75	19	10	4	3	10
Las Vegas, Nev.	123	84	24	14	-	1	5
Ogden, Utah	24	20	2	-	1	1	6
Phoenix, Ariz.	123	72	27	14	6	4	-
Pueblo, Colo.	22	16	4	1	-	1	2
Salt Lake City, Utah	39	20	10	7	2	-	4
Tucson, Ariz.	119	92	17	5	3	2	4
PACIFIC	1,903	1,229	339	204	68	56	101
Berkeley, Calif.	17	10	4	3	-	-	2
Fresno, Calif.	136	84	27	9	7	9	10
Glendale, Calif.	21	18	1	1	-	1	1
Honolulu, Hawaii	93	70	17	3	1	2	5
Long Beach, Calif.	78	51	14	5	2	6	2
Los Angeles, Calif.	545	344	89	70	28	9	16
Oakland, Calif.§	U	U	U	U	U	U	U
Pasadena, Calif.	31	23	5	2	-	1	3
Portland, Oreg.	126	91	20	7	2	6	9
Sacramento, Calif.	128	78	24	17	6	3	15
San Diego, Calif.	159	94	32	17	7	8	16
San Francisco, Calif.	168	86	34	39	6	3	4
San Jose, Calif.	137	100	26	6	2	2	8
Seattle, Wash.	143	94	24	15	7	3	1
Spokane, Wash.	51	37	8	5	-	1	4
Tacoma, Wash.	70	49	14	5	-	2	5
TOTAL	12,214††	7,810	2,287	1,284	437	385	573

*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.

§Report for this week is unavailable (U).

Anaphylactic Reactions — Continued

Health and Injury Control; Div of Field Epidemiology, Epidemiology Program Office; Chronic Disease Surveillance Br, Office of Surveillance and Analysis, National Center for Chronic Disease Prevention and Health Promotion; Epidemiology Br, Hospital Infections Program, National Center for Infectious Diseases, CDC.

Editorial Note: ARs during surgery are a rare but life-threatening complication. Although these reactions are commonly attributed to anesthetic agents, muscle relaxants, or antimicrobials that are administered intraoperatively, water-soluble proteins in latex are now well-recognized allergens in IgE-mediated ARs (*1–3*). Many commonly used medical products (e.g., gloves, endotracheal tubes, and urinary catheters) are latex-derived, and reports of ARs among persons in the United States who are exposed to latex-containing medical devices (e.g., barium enema tips) and other consumer products have increased substantially (*4*). Because patients with meningomyelocele and genitourinary dysplasias undergo multiple surgical procedures and frequently require clean intermittent bladder catheterization, these patients may be at increased risk for developing latex sensitization. Therefore, until the exact mechanism of these ARs is determined, postponement of elective surgical procedures for these patients should be considered. If surgical procedures are performed, consideration should be given to avoidance of unnecessary patient exposure to latex by presurgical washing and wiping of gloves in an area away from the patient. Epidemiologic and laboratory studies are underway to further assess the relation between exposure to latex antigens and ARs.

The Food and Drug Administration has recommended that all patients be questioned for potential latex allergy, particularly those with spina bifida or any patient scheduled for diagnostic and/or surgical procedures. Once latex allergy is suspected, use of nonlatex items should be considered (*4*).

Physicians are requested to report all episodes of anaphylaxis during procedures requiring general anesthesia through state health departments to the Epidemiology Branch, Hospital Infections Program, in CDC's National Center for Infectious Diseases; telephone (404) 639-1550.

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3. Sussman GL, Tarlo S, Dolovich J. The spectrum of IgE-mediated responses to latex. JAMA 1991;265:2844–7.
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International Notes

Public Health Consequences of Acute Displacement of Iraqi Citizens — March–May 1991

In late March 1991, following military and civil strife in Iraq, approximately 400,000 ethnic Kurds and other Iraqi minority groups sought refuge in rugged mountains on the border of Iraq and Turkey (Figure 1); an additional estimated 1.3 million Iraqi refugees fled to Iran. In contrast to groups affected in other recent refugee emergencies, a large proportion of this displaced population comprised educated urban

Refugees — Continued

dwellers. This report describes the major public health consequences of this population displacement and international relief efforts directed toward these problems.

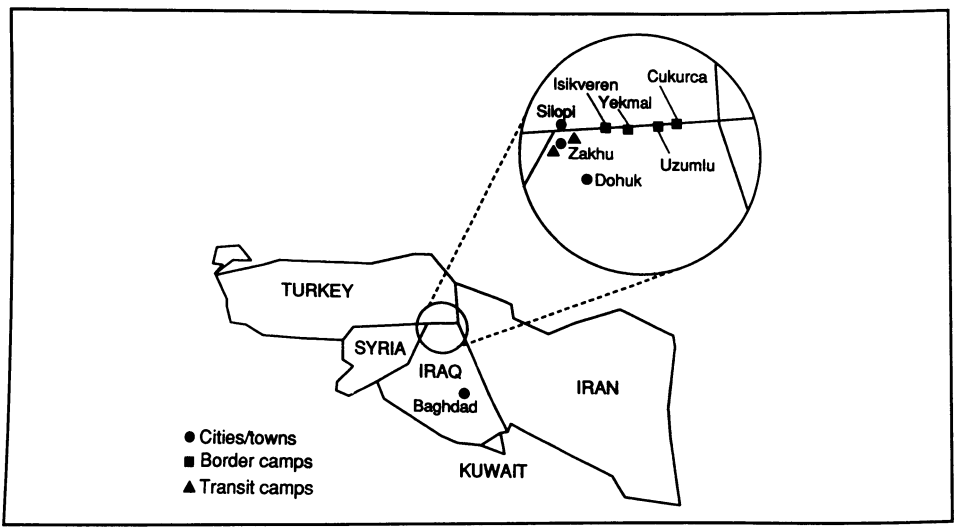
Beginning in early April, the international community mounted a massive relief effort to prevent excess mortality among displaced civilians on the Turkey-Iraq border. Relief assistance was provided by the military forces of different countries, private voluntary organizations (PVOs), national and international Red Cross and Red Crescent societies, United Nations (U.N.) agencies, the Turkish government, and a Disaster Assistance and Response Team from the Office of U.S. Foreign Disaster Assistance, including CDC staff, which provided technical advice and liaison between civilian and military agencies. A similar relief operation led by the U.N. was launched in Iran.

Mortality and Morbidity Surveillance

A simple, standardized mortality and morbidity surveillance system was established in the six main border camps by PVOs (Médecins Sans Frontières [MSF]/France and MSF/Holland) and by U.S. Army Special Forces (USASF). In some camps, mortality surveillance was limited because there were no designated burial sites. In at least three camps (Cukurca, Isikveren, and Uzumlu), mortality reporting commenced as early as April 11; in a fourth large camp (Yekmal), reporting began April 26. Crude mortality rates (CMR) in the first three camps ranged from 4.0 to 10.4 per 10,000 population per day during April 4–18 (MSF and USASF, unpublished data). The highest rate was reported in Cukurca and is equivalent to an annual CMR of 380 per 1000, more than 45 times the expected CMR reported for Iraq (*1*). By the week of May 3–9, death rates in all four camps had declined to less than 2 per 10,000 per day. More than 60% of deaths occurred in children aged <5 years, who comprised approximately 18% of the population. The most commonly reported causes of death were diarrhea, acute respiratory infections, and trauma.

During the first 2 weeks of April, more than 60% of all clinic outpatient visits in the main border camps were for diarrhea; by early May, this proportion decreased to

FIGURE 1. Locations of Iraqi refugees — Turkey-Iraq border, 1991



Refugees – Continued

approximately 20%. Population surveys conducted early in April indicated that as many as 70% of all refugees had diarrhea on the days of the survey (MSF and USASF, unpublished data). Because *Vibrio cholerae* O1, El Tor, Ogawa, was isolated from the stools of some patients with severe diarrhea in two camps (Cukurca and Uzumlu), guidelines for cholera control were implemented in these camps. Other causes of morbidity included acute respiratory infections, malnutrition, and trauma. A total of 34 cases of measles were reported, all in Yekmal camp.

Relief Measures

For all camps, major priorities were the equitable distribution of adequate and culturally acceptable food rations; the provision of adequate shelter, clean water, and sanitation facilities; measles vaccination for children aged <5 years; diarrheal disease control, including appropriate case management with oral rehydration salts; and surveillance for diseases and injuries of public health importance. Because surveys conducted in April indicated that acute malnutrition was not a major health problem, there was limited implementation of selective feeding programs.

Military forces made a unique contribution to this refugee relief effort. Upon arrival in the camps during the second week of April, USASF rapidly organized an orderly food and tent distribution system, coordinated with PVOs to improve water and sanitation facilities, and provided prevention-oriented, community-based health care. The military logistics system enabled the rapid and efficient delivery of essential relief supplies to these remote camps. British military medical teams established an effective system of medical way stations for the repatriation program; and Canadian, French, and Dutch military teams helped restore health facilities in the Iraqi towns to which the majority of refugees have returned.

Overall Mortality and Acute Malnutrition

During the voluntary repatriation of refugees to northern Iraq, which occurred during May, a population census was conducted in one Zakhu transit camp (N = 17,863) to estimate mortality during the period of displacement (March 29–May 24). In addition, anthropometry was used to assess current nutritional status in a systematic sample of children aged <5 years (n = 816). During this 2-month period, the overall CMR was 169 per 10,000; 63% of all deaths occurred among children aged <5 years. Seventy-four percent of deaths were associated with diarrhea, dehydration, or malnutrition. Death rates peaked during April 13–26 (mean daily CMR = 5.7 per 10,000), and then declined to a mean daily CMR of 2.2 per 10,000 during April 27–May 10. This trend was consistent with routine surveillance data collected in the border camps. Based on these data from the transit camp, of approximately 400,000 Iraqi refugees, an estimated minimum 6700 persons died while camped on the Turkey-Iraq border. According to published mortality rates for Iraq, however, approximately 500 of these persons would have died during this period under routine conditions in their normal places of residence (*1*).

The nutritional status assessment of children indicated the prevalence of acute malnutrition (defined as weight-for-height <–2 standard deviation units from the CDC's National Center for Health Statistics/World Health Organization reference median) was 4.1% (95% confidence interval [CI] = 2.8%–5.4%). However, among children aged 12–23 months, the prevalence of acute malnutrition was substantially higher (13.5%; 95% CI = 8.0%–19.0%) than in each of the other age groups in the sample ($p<0.01$; chi-square goodness of fit).

Refugees — Continued

In early May, following the creation of "safe havens" by allied military forces, the displaced persons and refugees in the border camps began to return to their homes in northern Iraq, either directly or via transit camps. As of June 6, approximately 10,000 refugees remained in the border camps.

Reported by: Epicentre and Médecins Sans Frontières, Paris, France. Artsen Zonder Grenzen/ Médecins Sans Frontières Holland, Amsterdam, The Netherlands. International Rescue Committee, New York. Bur for Refugee Programs, US Dept of State, Washington, DC. US Navy Environmental and Preventive Medicine Unit Seven, Naples, Italy. Combined Task Force Provide Comfort Surgeon's Office, Incirlik, Turkey. US Army Special Operations Command, Fort Bragg, North Carolina. International Health Program Office; Div of Nutrition, National Center for Chronic Disease Prevention and Health Promotion; Global EIS Program, Div of Field Epidemiology, Epidemiology Program Office, CDC.

Editorial Note: The sudden migration of Kurds and other Iraqi minorities was associated with substantial mortality; however, death rates declined rapidly as soon as relief efforts focused on providing basic needs (i.e., food, shelter, and clean water). Death rates among these refugees during the first month of their displacement were approximately one half those reported among Ethiopian refugees in Sudan in January 1985 and Cambodian refugees in Thailand in October 1979—two recent large-scale refugee movements (*2*). However, the general health status of the northern Iraqis before their displacement was probably substantially better than that of the latter two refugee populations.

As in previous refugee emergencies, diarrheal illness was a major cause of death among the northern Iraqis. In addition, recurrent or persistent diarrheal illness may have been responsible for increased malnutrition among children aged 12–23 months (*3*). This finding underscores the need for relief workers to be trained in the case management of diarrheal diseases, including both the treatment of dehydration and continued feeding. The widespread use of baby bottles and infant formulas may have contributed to the high incidence of diarrhea in toddlers; this practice has been officially discouraged under existing U.N. policies (*4*).

The low incidence of measles may have reflected the reportedly high rates of measles immunization coverage in Iraq before January 1991 (*1*). However, because reliable measles immunization coverage rates specific to the northern areas of Iraq were not available to relief workers, a mass vaccination campaign was implemented for children aged <5 years to prevent a potentially lethal outbreak of measles in the border camps.

Although programs that addressed the most critical public health problems of the displaced persons and refugees were eventually implemented, delays occurred initially in the absence of an international coordinating focus. The U.N. system for coordinating disaster preparedness and relief permits a consistent and politically neutral response. For this international response, the cooperation between military and civilian relief agencies was noteworthy and unprecedented.

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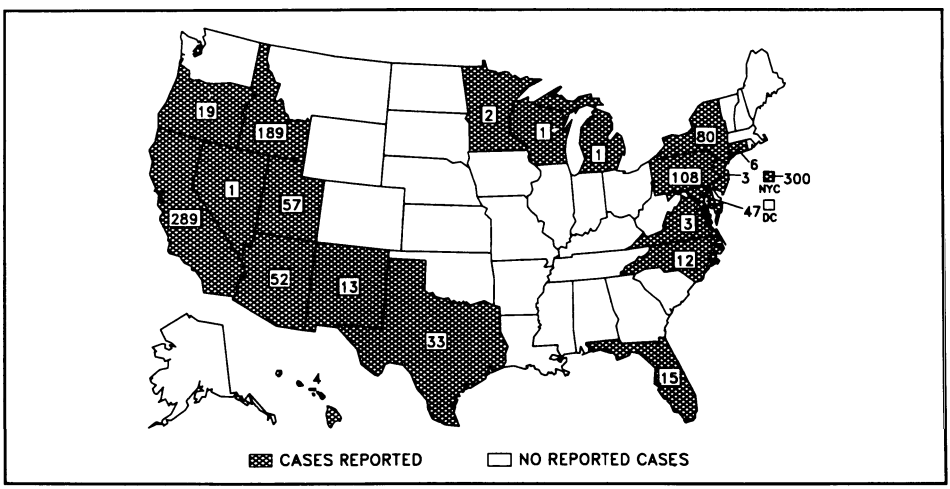
Erratum: Vol. 40, No. 25

In the article "Violence Education in Family Practice Residency Programs—United States, 1989," the first sentence of the second paragraph on page 429 should read, "Most program directors believed that education regarding violence was not addressed in other residencies. . . ."

In Table II. Cases of selected notifiable diseases, United States, weeks ending June 22, 1991, and June 23, 1990 (25th week), page 424, the number of rubella cases reported in the United States for the 25th week should be 30. The cumulative 1991 total for the United States should be 979; for the Middle Atlantic reporting area, 555; and for the Upstate New York reporting area, 534.

Reported cases of measles, by state — United States, weeks 22–26, 1991



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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. Accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials, as well as matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Mailstop C-08, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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