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Decreased Susceptibility of *Neisseria gonorrhoeae* to Fluoroquinolones — Ohio and Hawaii, 1992–1994

Until 1992, virtually all strains of *N. gonorrhoeae* tested were susceptible to fluoroquinolones, including ciprofloxacin (minimal inhibitory concentrations [MICs] of ≤0.06 μg/mL) (*1*). However, gonococcal strains with decreased susceptibilities to ciprofloxacin (MICs of 0.13–0.25 μg/mL) have been isolated sporadically from patients in the United States through the Gonococcal Isolate Surveillance Project (GISP), which measures antimicrobial susceptibilities of urethral isolates from men each month (*2*). This report describes findings from Ohio and Hawaii that suggest the emergence of fluoroquinolone resistance in *N. gonorrhoeae*.

Ohio. From January 1992 through June 1993, 450 isolates of *N. gonorrhoeae* in the GISP sample were tested; 25 (5.6%) had decreased susceptibilities to ciprofloxacin. When tested at CDC, these isolates had MICs of 0.13–0.25 μg/mL of ciprofloxacin. Expanded screening of all isolates from men at one sexually transmitted disease (STD) clinic during November–December 1993 identified 17 (13.7%) of 124 isolates with MICs of 0.13–0.25 μg/mL of ciprofloxacin. Infections caused by strains with these MICs apparently were not linked to recent travel outside the United States by the patients or their sex partners and may have been transmitted locally. All patients were treated with ceftriaxone and doxycycline.

Hawaii. From May 1993 through February 1994, gonococcal strains exhibiting MICs of 2.0 μg/mL of ciprofloxacin were isolated from three patients in Hawaii. These strains were detected during an evaluation of antimicrobial resistance in 37 penicillinase-producing *N. gonorrhoeae* isolates. All three infected persons had traveled to or had had sex partners who had recently traveled to Southeast Asia. The three patients were treated with ceftriaxone and doxycycline.

Analysis of findings. Agar dilution and disk-diffusion susceptibilities to ciprofloxacin and ofloxacin of the isolates from Ohio and Hawaii were determined as recommended by the National Committee for Clinical Laboratory Standards (Table 1) (*1,3*). Disk-diffusion susceptibility testing of isolates from Ohio produced zone diameters similar to those of susceptible strains (i.e., ≥36 mm and ≥31 mm for ciprofloxacin and ofloxacin, respectively) (*3*). Inhibition zone diameters for strains from Hawaii were smaller. All isolates were susceptible to ceftriaxone and cefixime.

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Neisseria gonorrhoeae — *Continued*

TABLE 1. Agar dilution and disk-diffusion susceptibilities to ciprofloxacin and ofloxacin of strains of *Neisseria gonorrhoeae* with decreased susceptibilities to ciprofloxacin — Ohio and Hawaii

Source	Agent	MIC* range (μg/mL)†	Zone diameters (mm)†§
Ohio	Ciprofloxacin	0.13–0.25	31–39
	Ofloxacin	0.13–0.50	28–35
Hawaii	Ciprofloxacin	2.0	22–24
	Ofloxacin	2.0	18–20

* Minimal inhibitory concentration.
† Susceptibility testing performed on GC II agar base supplemented with 1% IsoVitaleX according to the methods recommended by the National Committee for Clinical Laboratory Standards (*1,3*).
§ Ciprofloxacin and ofloxacin disks, each 5 μg mass.

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Editorial Note: The reports from Ohio and Hawaii suggest that the epidemiology of gonorrhea caused by strains with decreased susceptibility to fluoroquinolones may be changing. The Ohio report is the first that describes the repeated isolation of strains with this resistance phenotype in a community in the United States and indicates that, in that community, these strains may have become endemic. The Hawaii report documents MICs higher than those previously reported in the United States; strains with similar MICs have been reported in Thailand and Australia (*4,5*). As a result of these findings, Ohio and Hawaii have expanded surveillance efforts to detect gonococcal strains with decreased susceptibilities to fluoroquinolones.

Gonococcal organisms with decreased in vitro susceptibilities to ciprofloxacin have decreased susceptibilities to all fluoroquinolones, including ofloxacin, enoxacin, lomefloxacin, and norfloxacin (*6*). However, pharmacokinetics, as well as susceptibilities, must be considered in evaluating the potential for treatment failure. Reported treatment failures have resulted from decreased susceptibility of the infecting strain to enoxacin and norfloxacin (*7,8*) and have occurred after treatment with ciprofloxacin (500 mg) (*5*).

Although the MICs of strains from Ohio exceed the National Committee for Clinical Laboratory Standards criterion for susceptibility to ciprofloxacin, serum levels achieved with the recommended dose of this agent suggest that these strains should respond to therapy (*9*). However, no treatment efficacy data are available to confirm this interpretation. In contrast, strains that have MICs of 2.0 μg/mL ciprofloxacin may not respond to therapy with the recommended dose of ciprofloxacin (or other fluoroquinolones) (*5*).

Because treatment failure can occur following any antimicrobial regimen, patients treated for gonorrhea should be advised to return for reevaluation if symptoms persist. Reevaluated patients who have a gonococcal infection within 2 weeks after treatment should be interviewed regarding possible reinfection, and a specimen should be collected for culture and susceptibility testing (*1,3*). If susceptibility testing

Neisseria gonorrhoeae — *Continued*

cannot be performed locally, isolates should be forwarded to a reference laboratory for testing. Thus, local laboratories that routinely use nonculture tests for the diagnosis of gonorrhea should maintain the ability to isolate *N. gonorrhoeae* to facilitate susceptibility testing of posttreatment isolates.

Antimicrobial resistance in *N. gonorrhoeae* is an increasing and costly public health problem. Because of increasing resistance to inexpensive therapeutic antimicrobial agents (e.g., penicillin and tetracycline), in 1989 CDC recommended alternative but more costly regimens, including fluoroquinolones, for the treatment of gonorrhea (*10*). The findings in these reports of *N. gonorrhoeae* strains with decreased susceptibilities to fluoroquinolones do not justify changes at this time in recommendations for the routine treatment of gonorrhea in the United States. However, because infections with *N. gonorrhoeae* strains with MICs of 1.0–2.0 μg/mL of ciprofloxacin have been acquired in Southeast Asia and Australia (*4,5*), clinicians treating persons believed to have been infected in these areas should consider using other antimicrobials.

Clinics using fluoroquinolones to treat gonorrhea should monitor the susceptibilities of gonococcal isolates to these agents. CDC will continue to monitor the susceptibilities of *N. gonorrhoeae* strains to fluoroquinolones and other antimicrobial agents through GISP and other surveillance systems and is reassessing the appropriateness of fluoroquinolones in gonorrhea therapy in the United States.

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Frequent Alcohol Consumption Among Women of Childbearing Age — Behavioral Risk Factor Surveillance System, 1991

Alcohol use during pregnancy can cause fetal alcohol syndrome and other congenital anomalies (*1,2*). Substantial prenatal alcohol use can occur before a woman knows she is pregnant, and teratogenic risk increases if she continues to drink during pregnancy. Characterization of alcohol consumption patterns among women of childbearing age (i.e., age 18–44 years) can help identify the magnitude of this problem, the subpopulations at greatest risk, and the geographic areas in which increased prevention efforts are needed. This report presents state-specific data on the prevalence of frequent alcohol consumption among women of childbearing age.

Data were analyzed from 26,829 women aged 18–44 years who resided in 47 states and the District of Columbia and participated in the 1991 Behavioral Risk Factor Surveillance System (BRFSS) survey. The BRFSS is a state-based, random-digit–dialed telephone survey that collects self-reported data from a representative sample of civilian, noninstitutionalized persons aged ≥18 years (*3*). In 1991, the BRFSS included questions about the amount of alcohol consumed and the number of times alcohol was consumed during the month preceding the survey. Women of childbearing age were classified as nondrinker (no alcohol use reported during the preceding month), light drinker (≤30 drinks during the preceding month), moderate drinker (31–59 drinks during the preceding month), and heavy drinker (≥60 drinks during the preceding month). The survey also asked about the prevalence of binge drinking (five or more drinks on at least one occasion during the preceding month). All women who reported moderate, heavy, or binge drinking during the preceding month were classified as frequent drinkers. Weighted prevalence estimates were age-adjusted using the 1991 U.S. census of women aged 18–44 years (*4*). States were grouped into four categories according to quartiles of the prevalence of frequent alcohol consumption (3.6%–8.6%, 8.7%–11.4%, 11.5%–14.3%, and 14.4%–21.0%).

Alcohol consumption patterns during the month preceding the survey could be determined for 26,615 respondents. A total of 13,389 (50%) were nondrinkers; 11,927 (45%), light drinkers; 899 (3%), moderate drinkers; and 400 (2%), heavy drinkers. Among all drinkers, 2778 (21%) reported binge drinking. Among the binge drinkers, 1907 (69%) were light drinkers; 581 (21%), moderate drinkers; and 291 (11%), heavy drinkers. A total of 3205 (12%) were frequent drinkers.

A total of 1067 women reported being pregnant at the time of the interview. Of these, 14 (1.3%) reported binge drinking. A total of 143 (13.4%) reported light drinking; three (0.3%), heavy drinking; and one (0.1%), moderate drinking.

Estimates of frequent alcohol consumption varied widely between states, with a median of 11.5%. The highest prevalences of frequent drinking were reported in Wisconsin (21.0%), New Hampshire (20.4%), Massachusetts (19.8%), Minnesota (18.2%), and Alaska (17.6%) (Figure 1). The lowest prevalences were reported in Mississippi (3.6%), Tennessee (3.9%), North Carolina (6.3%), Kentucky (6.9%), and Oklahoma (6.9%).

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Editorial Note: The findings in this report indicate a higher prevalence of frequent drinking among women of childbearing age in the northern regions of the United States than in other regions of the country. These findings are consistent with previous studies that found regional differences in drinking patterns (*5*). Results of this study indicate the need for surveillance of alcohol consumption patterns during pregnancy and for scrutiny of alcohol-related congenital anomalies in states with high prevalences of frequent drinking.

Women of childbearing age who are frequent drinkers are at risk for delivering an alcohol-affected infant if they become pregnant, especially if they continue to drink during pregnancy. Moderate consumption of one or more drinks per day and binge drinking have been associated with adverse birth outcomes, such as physical anoma-

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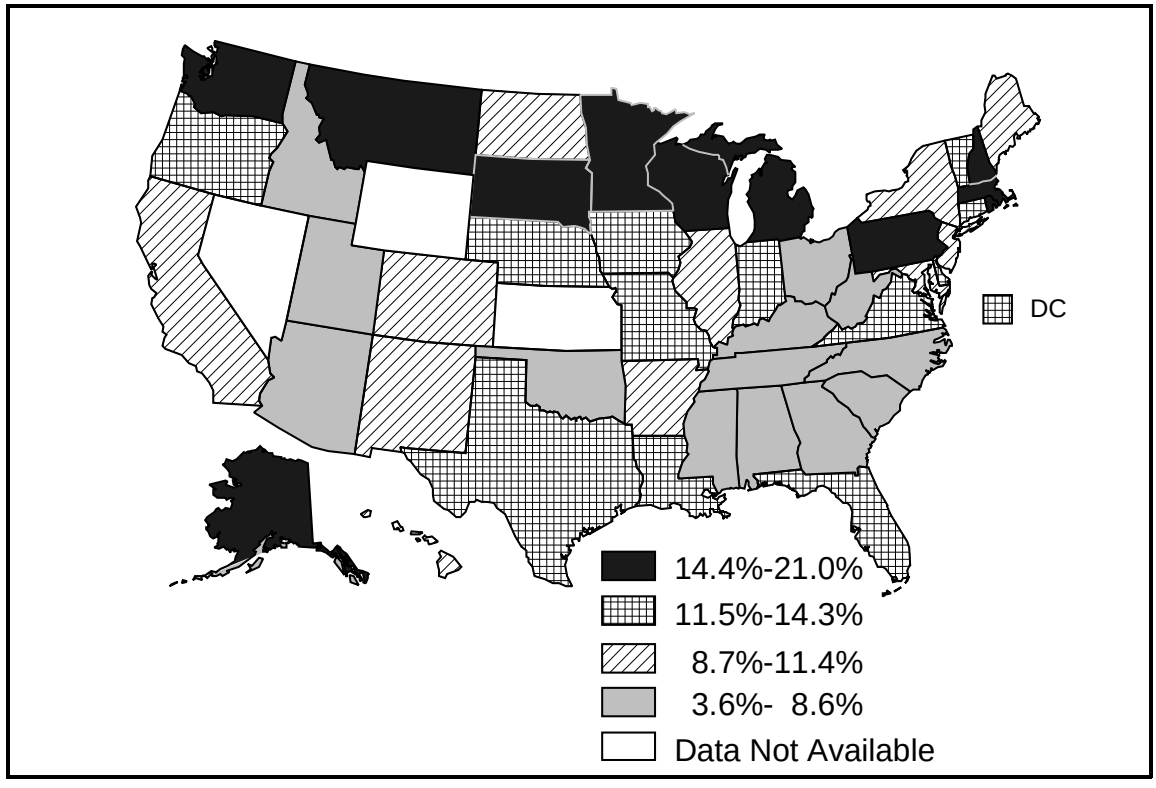
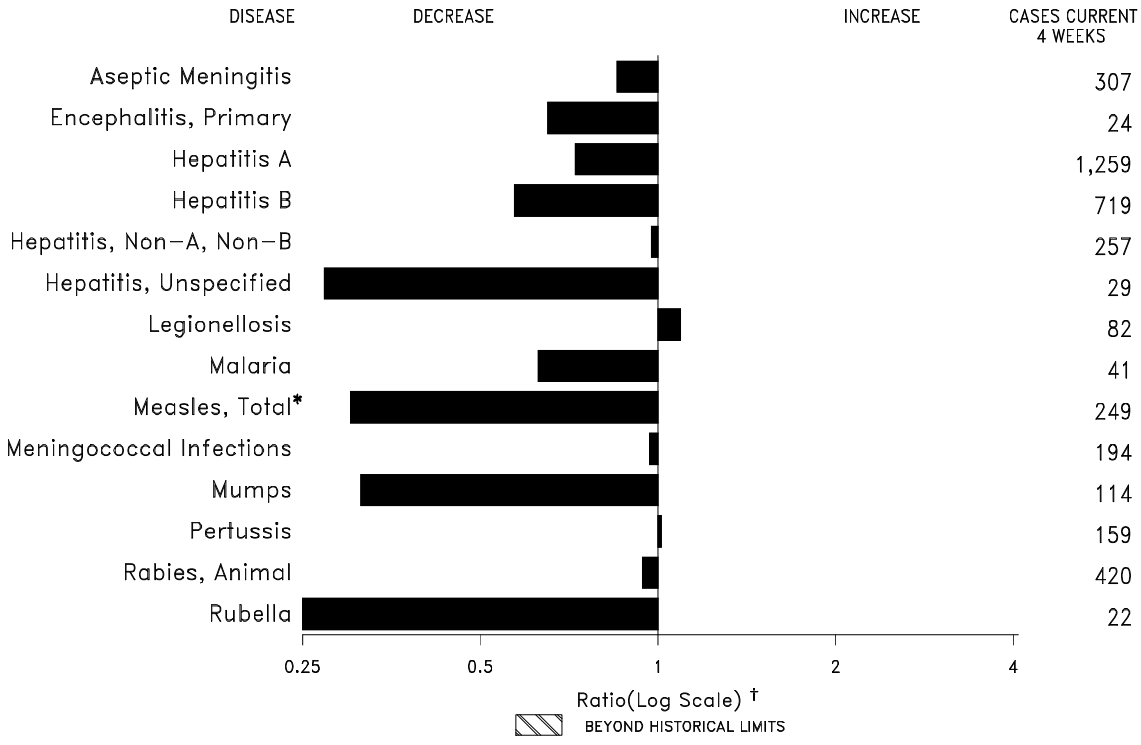
FIGURE 1. Percentage of frequent drinkers* among women of childbearing age, by quartile — Behavioral Risk Factor Surveillance System, 1991



*Consumed >30 drinks during the preceding month or ≥5 drinks on at least one occasion during the past month.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending May 7, 1994, with historical data — United States



*The large apparent decrease in 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 May 7, 1994 (18th Week)

	Cum. 1994		Cum. 1994
AIDS*	26,335	Measles: imported	186
Anthrax	-	indigenous	189
Botulism: Foodborne	17	Plague	1
Infant	25	Poliomyelitis, Paralytic§	-
Other	7	Psittacosis	8
Brucellosis	20	Rabies, human	-
Cholera	4	Syphilis, primary & secondary	7,095
Congenital rubella syndrome	3	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	13
Encephalitis, post-infectious	41	Toxic shock syndrome	89
Gonorrhea	125,190	Trichinosis	24
Haemophilus influenzae (invasive disease)†	420	Tuberculosis	6,178
Hansen Disease	36	Tularemia	4
Leptospirosis	11	Typhoid fever	120
Lyme Disease	1,209	Typhus fever, tickborne (RMSF)	45

*Updated monthly; last update April 26, 1994.
†Of 394 cases of known age, 113 (29%) were reported among children less than 5 years of age.
§No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending May 7, 1994, and May 8, 1993 (18th Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	26,335	1,650	182	41	125,190	131,320	6,677	3,868	1,479	133	527	1,209
NEW ENGLAND	994	59	6	2	2,780	2,660	120	174	48	14	16	112
Maine	30	7	1	-	24	32	11	6	-	-	-	-
N.H.	24	2	-	1	-	18	4	8	6	-	-	4
Vt.	15	10	-	-	8	11	-	-	-	-	-	2
Mass.	513	19	4	-	1,018	1,012	57	136	31	13	12	49
R.I.	93	21	1	1	153	130	12	3	11	1	4	23
Conn.	319	-	-	-	1,577	1,457	36	21	-	-	-	34
MID. ATLANTIC	7,735	165	22	11	15,413	13,553	398	385	201	4	72	833
Upstate N.Y.	582	68	8	1	2,911	2,918	172	130	94	-	17	530
N.Y. City	4,921	6	1	-	4,459	4,329	37	20	-	-	-	1
N.J.	1,532	-	-	-	1,650	1,986	113	128	85	-	9	93
Pa.	700	91	13	10	6,393	4,320	76	107	22	4	46	209
E.N. CENTRAL	1,859	286	50	8	23,505	25,905	593	390	106	2	155	13
Ohio	346	78	16	-	8,060	7,883	189	68	4	-	68	10
Ind.	285	54	2	-	2,712	2,707	121	77	3	-	49	2
Ill.	768	41	15	2	5,269	8,116	145	61	13	1	4	-
Mich.	342	109	16	6	5,696	4,985	89	128	86	1	26	1
Wis.	118	4	1	-	1,768	2,214	49	56	-	-	8	-
W.N. CENTRAL	550	113	8	1	6,605	6,884	294	196	70	3	57	19
Minn.	134	7	1	-	1,119	922	66	23	5	-	-	7
Iowa	22	39	-	-	454	600	11	12	7	2	20	1
Mo.	237	31	-	-	3,692	3,582	138	138	50	1	25	8
N. Dak.	5	1	2	-	7	18	1	-	-	-	2	-
S. Dak.	9	-	1	-	45	78	14	-	-	-	-	-
Nebr.	31	5	3	1	-	421	31	10	3	-	8	-
Kans.	112	30	1	-	1,288	1,263	33	13	5	-	2	3
S. ATLANTIC	5,517	367	30	12	34,767	36,041	451	941	320	11	136	176
Del.	78	2	-	-	620	472	8	11	19	-	1	40
Md.	489	56	6	1	6,466	6,045	59	121	13	4	32	47
D.C.	422	12	-	-	2,685	1,827	9	16	-	-	4	1
Va.	414	52	10	5	4,361	3,495	42	36	15	2	2	13
W. Va.	10	7	-	-	243	202	4	9	11	-	1	5
N.C.	455	53	13	-	8,253	7,940	37	101	24	-	8	23
S.C.	444	11	-	-	4,258	3,171	11	14	2	-	3	-
Ga.	684	15	1	-	-	4,660	34	386	150	-	63	43
Fla.	2,521	159	-	6	7,881	8,229	247	247	86	5	22	4
E.S. CENTRAL	714	111	18	1	15,298	13,555	155	401	279	1	23	9
Ky.	126	40	7	1	1,527	1,593	71	26	8	-	3	5
Tenn.	213	22	7	-	4,650	3,454	45	349	266	1	13	3
Ala.	210	37	4	-	5,468	5,085	22	26	5	-	5	1
Miss.	165	12	-	-	3,653	3,423	17	-	-	-	2	-
W.S. CENTRAL	2,841	126	9	1	14,105	15,007	955	424	126	30	11	22
Ark.	78	7	-	-	2,277	1,829	20	7	3	-	4	-
La.	306	7	2	-	4,313	3,934	35	67	34	1	-	-
Okla.	91	-	-	-	496	1,265	84	116	65	-	7	13
Tex.	2,366	112	7	1	7,019	7,979	816	234	24	29	-	9
MOUNTAIN	846	48	4	-	2,981	4,012	1,366	173	132	12	28	4
Mont.	10	-	-	-	29	18	10	7	2	-	11	-
Idaho	15	1	-	-	25	58	117	28	37	1	-	1
Wyo.	10	-	-	-	30	28	6	7	38	-	1	-
Colo.	362	7	1	-	850	1,322	93	10	9	4	1	-
N. Mex.	59	7	-	-	367	338	398	71	26	3	1	3
Ariz.	208	18	-	-	975	1,443	516	17	4	3	1	-
Utah	52	4	-	-	115	117	149	13	12	-	1	-
Nev.	130	11	3	-	590	688	77	20	4	1	12	-
PACIFIC	5,279	375	35	5	9,736	13,703	2,345	784	197	56	29	21
Wash.	324	-	-	-	1,032	1,368	135	29	26	-	5	-
Oreg.	225	-	-	-	337	526	113	18	2	1	-	-
Calif.	4,636	310	34	4	7,817	11,470	2,006	711	164	53	22	21
Alaska	15	12	1	-	304	174	77	6	-	-	-	-
Hawaii	79	53	-	1	246	165	14	20	5	2	2	-
Guam	1	6	-	-	46	41	3	-	-	4	2	-
P.R.	719	10	-	-	177	191	25	108	28	3	-	-
V.I.	7	-	-	-	9	29	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	14	9	4	-	-	-	-	-
C.N.M.I.	1	-	-	-	19	25	2	-	-	-	-	-

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

*Updated monthly; last update April 26, 1994.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending May 7, 1994, and May 8, 1993 (18th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	1994	Cum. 1994	Cum. 1993
UNITED STATES	313	17	189	164	186	104	1,142	29	481	71	1,129	1,016	2	133	70
NEW ENGLAND	27	-	9	2	5	53	68	-	10	-	108	208	-	90	1
Maine	1	-	-	2§	2	-	10	-	3	-	2	5	-	-	1
N.H.	3	-	-	-	-	-	4	-	4	-	30	55	-	-	-
Vt.	2	-	-	-	1	30	2	-	-	-	20	41	-	-	-
Mass.	9	-	3	-	-	14	29	-	-	-	47	96	-	90	-
R.I.	4	-	3	-	2	1	-	-	1	-	2	3	-	-	-
Conn.	8	-	3	-	-	8	23	-	2	-	7	8	-	-	-
MID. ATLANTIC	41	1	26	-	2	9	113	1	59	2	318	156	1	8	20
Upstate N.Y.	13	1	6	-	-	1	37	1	10	2	91	54	1	8	1
N.Y. City	3	-	1	-	-	2	4	-	-	-	62	5	-	-	12
N.J.	15	-	18	-	1	6	27	-	4	-	6	29	-	-	6
Pa.	10	-	1	-	1	-	45	-	45	-	159	68	-	-	1
E.N. CENTRAL	33	-	12	23	31	4	182	1	82	-	148	231	-	8	2
Ohio	5	-	6	-	-	-	44	-	19	-	61	80	-	-	1
Ind.	9	-	-	-	1	-	46	-	5	-	31	12	-	-	-
Ill.	8	-	-	23§	30	4	58	-	33	-	20	40	-	3	-
Mich.	10	-	3	-	-	-	16	1	22	-	21	15	-	5	-
Wis.	1	-	3	-	-	-	18	-	3	-	15	84	-	-	1
W.N. CENTRAL	17	-	-	137	138	3	80	2	22	-	40	57	-	-	1
Minn.	5	-	-	-	-	-	8	-	4	-	16	22	-	-	-
Iowa	3	-	-	-	-	-	8	2	6	-	3	1	-	-	-
Mo.	7	-	-	137†	137	1	39	-	9	-	11	17	-	-	1
N. Dak.	-	-	-	-	-	-	-	-	1	-	1	3	-	-	-
S. Dak.	-	-	-	-	-	-	6	-	-	-	-	1	-	-	-
Nebr.	1	-	-	-	1	-	6	-	2	-	3	4	-	-	-
Kans.	1	-	-	-	-	2	13	-	-	-	6	9	-	-	-
S. ATLANTIC	72	1	5	-	-	17	190	5	82	6	140	80	-	5	6
Del.	3	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Md.	30	-	-	-	-	4	14	1	19	2	48	28	-	-	1
D.C.	7	-	-	-	-	-	1	-	-	-	3	1	-	-	-
Va.	8	-	1	-	-	1	26	1	19	-	13	6	-	-	-
W. Va.	-	-	-	-	-	-	8	-	3	-	2	3	-	-	-
N.C.	2	-	-	-	-	-	33	-	25	1	40	14	-	-	-
S.C.	2	-	-	-	-	-	6	-	5	-	8	5	-	-	-
Ga.	8	1	1	-	-	-	39	3	6	3	10	10	-	-	-
Fla.	12	-	3	-	-	12	63	-	5	-	16	12	-	5	3
E.S. CENTRAL	8	-	28	-	-	-	78	-	5	38	73	45	-	-	-
Ky.	2	-	-	-	-	-	17	-	-	37	52	9	-	-	-
Tenn.	4	-	28	-	-	-	21	-	-	-	13	21	-	-	-
Ala.	1	-	-	-	-	-	34	-	-	1	7	11	-	-	-
Miss.	1	-	-	-	-	-	6	-	5	-	1	4	-	-	-
W.S. CENTRAL	7	-	7	-	4	1	145	15	122	1	33	15	-	7	9
Ark.	-	-	-	-	-	-	20	-	-	-	1	1	-	-	-
La.	-	-	-	-	1	1	20	1	10	1	5	4	-	-	1
Okla.	2	-	-	-	-	-	12	-	21	-	20	10	-	4	1
Tex.	5	-	7	-	3	-	93	14	91	-	7	-	-	3	7
MOUNTAIN	11	-	81	-	1	2	81	4	14	3	60	62	-	2	4
Mont.	-	-	-	-	-	-	2	-	-	1	3	-	-	-	-
Idaho	2	-	-	-	-	-	11	-	3	1	23	11	-	1	1
Wyo.	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-
Colo.	2	-	12	-	1	2	8	-	-	-	14	22	-	-	-
N. Mex.	2	-	-	-	-	-	8	N	N	-	6	14	-	-	-
Ariz.	1	-	-	-	-	-	35	3	3	1	10	8	-	-	-
Utah	3	-	69	-	-	-	11	1	4	-	4	6	-	1	2
Nev.	1	-	-	-	-	-	4	-	3	-	-	-	-	-	1
PACIFIC	97	15	21	2	5	15	205	1	85	21	209	162	1	13	27
Wash.	3	-	-	-	-	-	16	-	3	-	12	14	-	-	-
Oreg.	7	-	-	-	-	-	35	N	N	-	22	-	-	-	1
Calif.	77	15	21	2†§	4	4	148	1	73	21	171	141	1	12	15
Alaska	-	-	-	-	-	-	1	-	2	-	-	1	-	-	1
Hawaii	10	-	-	-	1	11	5	-	7	-	4	6	-	1	10
Guam	-	U	155	U	-	1	-	U	2	U	-	-	U	1	-
P.R.	-	-	13	-	-	172	3	-	2	-	1	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	1	-	-	1	-	1	2	-	-	-
C.N.M.I.	1	U	26	U	-	1	-	U	-	U	-	-	U	-	-

*For measles only, imported cases include 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 May 7, 1994, and May 8, 1993 (18th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	7,095	9,295	89	6,178	6,955	4	120	45	2,030
NEW ENGLAND	69	153	2	125	122	-	11	3	646
Maine	4	2	-	-	7	-	-	-	-
N.H.	-	14	-	7	7	-	-	-	77
Vt.	-	-	-	-	2	-	-	-	60
Mass.	22	71	2	59	50	-	7	3	248
R.I.	6	3	-	11	24	-	1	-	5
Conn.	37	63	-	48	32	-	3	-	256
MID. ATLANTIC	487	720	15	1,110	1,391	-	34	-	242
Upstate N.Y.	61	-	7	76	198	-	6	-	45
N.Y. City	218	507	-	689	835	-	20	-	-
N.J.	65	142	-	224	128	-	8	-	117
Pa.	143	71	8	121	230	-	-	-	80
E.N. CENTRAL	892	1,513	22	656	724	-	22	6	11
Ohio	380	404	10	86	102	-	1	2	-
Ind.	89	143	2	51	64	-	1	1	1
Ill.	210	546	4	353	381	-	11	1	3
Mich.	115	247	6	151	148	-	3	2	4
Wis.	98	173	-	15	29	-	6	-	3
W.N. CENTRAL	431	610	11	157	126	3	-	3	57
Minn.	16	34	-	36	14	-	-	-	5
Iowa	16	32	6	12	10	-	-	1	23
Mo.	369	471	3	71	69	3	-	-	6
N. Dak.	-	-	-	1	4	-	-	-	-
S. Dak.	-	-	-	9	6	-	-	2	8
Nebr.	-	8	1	4	8	-	-	-	-
Kans.	30	65	1	24	15	-	-	-	15
S. ATLANTIC	2,091	2,508	5	955	1,511	-	19	27	672
Del.	9	51	-	-	14	-	1	-	9
Md.	90	133	-	115	133	-	4	-	210
D.C.	97	148	-	40	60	-	1	-	2
Va.	242	219	-	119	170	-	1	-	150
W. Va.	8	1	-	33	25	-	-	-	28
N.C.	644	660	1	140	137	-	-	10	66
S.C.	253	413	-	139	130	-	-	-	60
Ga.	423	439	-	310	258	-	1	17	139
Fla.	325	444	4	59	584	-	11	-	8
E.S. CENTRAL	1,352	1,148	1	309	457	-	-	3	38
Ky.	86	100	-	111	114	-	-	-	3
Tenn.	330	254	1	1	99	-	-	2	-
Ala.	255	291	-	135	156	-	-	-	35
Miss.	681	503	-	62	88	-	-	1	-
W.S. CENTRAL	1,413	1,973	-	753	588	-	5	3	259
Ark.	184	235	-	85	54	-	-	1	11
La.	663	861	-	-	-	-	2	-	41
Okla.	15	124	-	72	51	-	1	2	17
Tex.	551	753	-	596	483	-	2	-	190
MOUNTAIN	109	87	4	144	175	1	6	-	25
Mont.	-	-	-	-	5	-	-	-	-
Idaho	1	-	1	6	3	-	-	-	-
Wyo.	-	2	-	2	1	-	-	-	6
Colo.	52	28	1	1	28	-	2	-	-
N. Mex.	5	14	-	26	18	1	-	-	-
Ariz.	23	36	-	77	75	-	1	-	18
Utah	5	2	2	-	9	-	1	-	-
Nev.	23	5	-	32	36	-	2	-	1
PACIFIC	251	583	29	1,969	1,861	-	23	-	80
Wash.	14	21	-	75	89	-	1	-	-
Oreg.	12	26	-	45	30	-	-	-	-
Calif.	223	532	26	1,758	1,617	-	21	-	56
Alaska	1	2	-	24	21	-	-	-	24
Hawaii	1	2	3	67	104	-	1	-	-
Guam	1	-	-	18	25	-	-	-	-
P.R.	97	188	-	21	64	-	-	-	26
V.I.	19	18	-	-	2	-	-	-	-
Amer. Samoa	-	-	-	2	1	-	1	-	-
C.N.M.I.	1	-	-	14	7	-	1	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending May 7, 1994 (18th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	538	379	93	50	7	9	47
Boston, Mass.	151	100	29	18	1	3	19
Bridgeport, Conn.	18	11	3	3	-	1	2
Cambridge, Mass.	28	19	6	3	-	-	1
Fall River, Mass.	21	16	3	1	1	-	-
Hartford, Conn.	49	28	11	8	1	1	3
Lowell, Mass.	35	26	4	3	-	2	3
Lynn, Mass.	12	10	2	-	-	-	2
New Bedford, Mass.	28	18	7	2	-	1	-
New Haven, Conn.	21	14	4	2	-	1	1
Providence, R.I.	44	35	6	1	2	-	5
Somerville, Mass.	5	4	-	1	-	-	-
Springfield, Mass.	45	37	5	3	-	-	4
Waterbury, Conn.	23	19	3	1	-	-	1
Worcester, Mass.	58	42	10	4	2	-	6
MID. ATLANTIC	2,759	1,830	488	313	65	63	129
Albany, N.Y.	45	33	4	3	1	4	1
Allentown, Pa.	32	19	9	3	1	-	-
Buffalo, N.Y.	108	79	19	5	4	1	2
Camden, N.J.	38	22	5	7	2	2	2
Elizabeth, N.J.	18	10	5	-	-	3	-
Erie, Pa.§	38	29	7	2	-	-	2
Jersey City, N.J.	40	18	8	12	1	1	1
New York City, N.Y.	1,272	838	221	172	23	18	44
Newark, N.J.	100	38	29	26	2	5	9
Paterson, N.J.	34	17	9	5	3	-	5
Philadelphia, Pa.	597	396	107	56	20	18	31
Pittsburgh, Pa.§	79	62	10	2	3	2	7
Reading, Pa.	12	9	3	-	-	-	2
Rochester, N.Y.	129	101	13	8	2	5	11
Schenectady, N.Y.	30	22	5	3	-	-	-
Scranton, Pa.§	29	24	4	-	1	-	-
Syracuse, N.Y.	89	61	23	2	-	3	6
Trenton, N.J.	26	17	4	3	1	1	3
Utica, N.Y.	21	18	2	1	-	-	-
Yonkers, N.Y.	22	17	1	3	1	-	3
E.N. CENTRAL	2,578	1,551	503	289	175	60	116
Akron, Ohio	77	57	15	3	-	2	-
Canton, Ohio	39	29	6	3	-	1	5
Chicago, Ill.	687	275	147	134	117	14	19
Cincinnati, Ohio	166	108	32	18	4	4	17
Cleveland, Ohio	160	102	36	14	4	4	1
Columbus, Ohio	168	120	22	18	5	3	8
Dayton, Ohio	122	80	28	12	1	1	7
Detroit, Mich.	252	144	59	34	9	6	6
Evansville, Ind.	52	38	5	3	4	2	4
Fort Wayne, Ind.	55	42	4	5	2	2	1
Gary, Ind.	13	6	3	3	1	-	-
Grand Rapids, Mich.	58	39	6	4	6	3	6
Indianapolis, Ind.	230	162	48	13	4	3	12
Madison, Wis.	52	35	7	4	4	2	4
Milwaukee, Wis.	134	90	28	9	4	3	6
Peoria, Ill.	25	16	6	-	2	1	-
Rockford, Ill.	49	33	8	4	3	1	2
South Bend, Ind.	44	29	12	-	1	2	6
Toledo, Ohio	108	85	15	4	2	2	11
Youngstown, Ohio	87	61	16	4	2	4	1
W.N. CENTRAL	750	551	118	48	19	14	36
Des Moines, Iowa	56	43	9	2	1	1	7
Duluth, Minn.	29	23	6	-	-	-	2
Kansas City, Kans.	37	24	7	3	2	1	1
Kansas City, Mo.	103	76	12	14	1	-	5
Lincoln, Nebr.	43	26	12	3	1	1	5
Minneapolis, Minn.	156	122	20	6	5	3	8
Omaha, Nebr.	63	50	7	4	1	1	3
St. Louis, Mo.	129	97	19	7	2	4	-
St. Paul, Minn.	65	49	11	2	1	2	5
Wichita, Kans.	69	41	15	7	5	1	-

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,562	940	298	208	60	53	68
Atlanta, Ga.	185	105	35	31	8	6	9
Baltimore, Md.	221	134	48	35	3	1	14
Charlotte, N.C.	78	40	18	13	5	2	2
Jacksonville, Fla.	119	77	20	13	3	6	6
Miami, Fla.	147	94	25	19	5	4	1
Norfolk, Va.	63	41	13	4	5	-	1
Richmond, Va.	87	58	10	15	3	1	6
Savannah, Ga.	48	32	6	2	4	4	9
St. Petersburg, Fla.	70	52	11	4	-	3	5
Tampa, Fla.	201	126	48	20	4	3	10
Washington, D.C.	329	171	61	52	20	22	5
Wilmington, Del.	14	10	3	-	-	1	-
E.S. CENTRAL	779	513	161	60	26	17	61
Birmingham, Ala.	116	79	25	7	3	2	7
Chattanooga, Tenn.	74	48	18	3	3	2	5
Knoxville, Tenn.	71	50	15	4	1	1	7
Lexington, Ky.	93	60	23	6	2	2	9
Memphis, Tenn.	200	133	38	18	8	2	20
Mobile, Ala.	53	34	8	6	4	1	2
Montgomery, Ala.	56	37	9	7	2	1	2
Nashville, Tenn.	116	72	25	9	3	6	9
W.S. CENTRAL	1,367	827	278	170	53	39	93
Austin, Tex.	54	38	6	9	1	-	4
Baton Rouge, La.	42	27	10	3	-	2	1
Corpus Christi, Tex.	45	32	8	3	-	2	3
Dallas, Tex.	166	94	39	18	11	4	7
El Paso, Tex.	61	40	16	2	1	2	7
Ft. Worth, Tex.	102	65	18	9	5	5	6
Houston, Tex.	386	210	74	74	14	14	25
Little Rock, Ark.	82	39	24	11	4	4	4
New Orleans, La.	100	58	22	12	7	1	-
San Antonio, Tex.	176	120	28	19	8	1	24
Shreveport, La.	70	48	14	4	2	2	7
Tulsa, Okla.	83	56	19	6	-	2	5
MOUNTAIN	812	517	146	89	44	16	61
Albuquerque, N.M.	72	39	21	2	7	3	4
Colo. Springs, Colo.	48	29	11	5	3	-	2
Denver, Colo.	98	66	16	12	1	3	8
Las Vegas, Nev.	145	87	33	18	6	1	7
Ogden, Utah	17	15	1	1	-	-	5
Phoenix, Ariz.	182	90	35	35	20	2	21
Pueblo, Colo.	23	17	4	1	-	1	2
Salt Lake City, Utah	96	73	9	7	3	4	7
Tucson, Ariz.	131	101	16	8	4	2	5
PACIFIC	1,926	1,269	319	219	75	37	129
Berkeley, Calif.	18	10	4	2	2	-	1
Fresno, Calif.	86	64	4	8	8	2	9
Glendale, Calif.	37	30	6	1	-	-	3
Honolulu, Hawaii	74	55	10	4	3	2	7
Long Beach, Calif.	90	59	21	6	1	3	8
Los Angeles, Calif.	732	458	119	104	33	11	26
Pasadena, Calif.	32	23	4	3	1	1	4
Portland, Oreg.	115	76	19	14	4	2	7
Sacramento, Calif.	158	97	36	18	6	1	15
San Diego, Calif.	126	81	23	11	8	3	13
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	173	117	24	23	3	6	19
Santa Cruz, Calif.	24	18	5	1	-	-	-
Seattle, Wash.	128	83	23	15	3	4	6
Spokane, Wash.	47	35	5	5	-	2	4
Tacoma, Wash.	86	63	16	4	3	-	7
TOTAL	13,071¶	8,377	2,404	1,446	524	308	740

*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.

Alcohol — Continued

lies and lower intelligence quotients (*6,7*). Because no known safe level of alcohol use has been determined for pregnant women, those who are pregnant or who may become pregnant should abstain from alcohol.

The findings in this report are subject to at least two limitations. First, the estimates of frequent drinking are based on self-reported data, which usually underestimate actual alcohol use. Second, because the BRFSS does not include households without a telephone, the findings may not reflect patterns among population subgroups (e.g., low income and less educated women).

The findings in this report can assist states in targeting women of childbearing age and educating them about the importance of abstaining from alcohol during pregnancy and in planning health-promotion programs that help reduce alcohol use among women of childbearing age. Further analysis of these data is being conducted to determine patterns of alcohol use by demographic characteristics (e.g., income, education, and race).

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Increasing Incidence of Low Birthweight — United States, 1981–1991

A national health objective for the year 2000 is to reduce low birthweight (LBW) (<2500 g [<5 lbs, 8 oz]) to an incidence of no more than 5% of live-born infants (50.0 per 1000) (objective 14.5) (*1*). During 1970–1985, the incidence of LBW in the United States declined steadily (*2*); however, from 1985 to 1991, the incidence increased slightly, from 67.5 to 71.2 (*2,3*). In 1991, disorders relating to short gestation and LBW were the primary cause of death among black infants and the third leading cause among white infants (*4*). To characterize trends in the race-specific incidence of LBW by period of gestation from 1981 to 1991, data from birth certificates were analyzed. This report summarizes the results of that analysis.

Data were derived from birth certificates for live-born U.S. infants during 1981–1991. For this analysis, LBW infants were categorized as term-LBW (≥37 completed weeks gestation) and preterm-LBW (<37 completed weeks gestation). The date of last normal menstrual period (LMP), the basis for computing the period of gestation, was

Low Birthweight — Continued

reported by 49 states and the District of Columbia (DC) from 1981 through 1984 and all states and DC from 1985 through 1991. Weeks of gestation were imputed only when the day of LMP was missing. During 1989–1991, the clinical estimate of gestational age was used when month and/or year of LMP were missing or when gestational age based on date of LMP was not compatible with birthweight. During 1981–1988, approximately 4% of births were excluded from the analysis because of missing data; during 1989–1991, 1.0%–1.5% of births were excluded. Because both demographics and underlying risk factors for LBW vary by race (*2,5*), the analysis was stratified by race of mother. Data are presented only for blacks and whites because of the small number of births to women of other races.

From 1981 to 1991, the incidence of LBW for infants with known gestation increased 6.6%, from 66.4 per 1000 live-born infants in 1981 to 70.8 in 1991 (Table 1). The rate of term-LBW infants decreased 8.6%, from 29.0 to 26.5; for both black and white infants, the rate of term-LBW infants decreased 9.8% (from 52.3 and 24.4, respectively, to 47.2 and 22.0, respectively,). However, the rate of preterm-LBW infants increased 18.1%, from 37.5 to 44.3; for black infants, the rate of preterm-LBW infants increased 21.6% (from 72.1 to 87.7) and for white infants, 15.2% (from 31.0 to 35.7) (Table 1).

Changes occurred in the distributions of selected maternal (i.e., age, marital status, and receipt of prenatal care) and infant (i.e., singleton status) characteristics during 1981–1991 that can affect birthweight (*6*) (Table 2). Among women aged ≥35 years, the percentage of births increased 100% (from 4.7% in 1981 to 9.4% in 1991); among women who were unmarried, 58% (from 18.6% in 1981 to 29.4% in 1991); and among women who had received no prenatal care, 50% (from 1.2% in 1981 to 1.8% in 1991). Nonsingleton births (e.g., twins) increased 20% (from 2.0% in 1981 to 2.4% in 1991). The direction of trends was similar for both blacks and whites; however, the magnitude varied by race. For example, the percentage of births among women who had received no prenatal care increased 1.6 times more rapidly for black women than for white women.

To control for the changing distributions from 1981 to 1991, incidences of LBW for both years were directly standardized by using the combined 1981 and 1991 population distributions of maternal age, marital status, receipt of prenatal care, and infant's singleton status (Table 3). Combined, the changes in the distributions of maternal and infant factors explained 68.0% of the increase in incidence of preterm-LBW infants for white women and 42.9% of that for black women. The change in the distribution of maternal age alone explained few or none of the LBW trends for either race.

Reported by: Div of Nutrition, National Center for Chronic Disease Prevention and Health Promotion; Div of Vital Statistics, National Center for Health Statistics, CDC.

Editorial Note: The findings in this report indicate that the increase in incidence of LBW from 1981 to 1991 resulted from the increase in preterm-LBW infants. Compared with infants of normal birthweight (≥2500 g [≥5 lbs, 8 oz]), LBW infants are five to 10 times more likely to die within the first year of life; furthermore, preterm-LBW infants are approximately three times more likely to die than term-LBW infants (*7*).

The findings in this analysis are subject to at least one limitation—the change to include clinical estimates in the computation of gestational age in 1989. The greatest increase in the incidence of preterm-LBW infants occurred that year. However, when these estimates were removed from the computations for 1991, the increase in incidence was reduced 13% for all infants, 9% for white infants, and 6% for black infants.

TABLE 1. Rate* of low birthweight (LBW)†, by year, race of mother, and gestation§ — United States, 1981–1991

Race/Gestation	Year										
	1981	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**
White											
LBW, term	24.4	23.7	23.6	23.2	23.0	22.9	22.9	22.8	22.4	22.0	22.0
LBW, preterm	31.0	31.3	31.7	31.2	31.9	32.0	32.3	32.0	34.4	34.7	35.7
Total	**55.4**	**55.0**	**55.3**	**54.5**	**54.8**	**54.8**	**55.2**	**54.8**	**56.8**	**56.7**	**57.8**
Black											
LBW, term	52.3	50.6	50.5	49.9	48.7	48.6	48.2	48.7	48.3	46.5	47.2
LBW, preterm	72.1	72.7	74.6	72.8	74.2	75.5	77.4	79.2	85.7	85.3	87.7
Total	**124.4**	**123.3**	**125.2**	**122.7**	**122.9**	**124.1**	**125.6**	**127.9**	**134.0**	**131.8**	**134.9**
Overall¶											
LBW, term	**29.0**	**28.1**	**28.0**	**27.6**	**27.1**	**27.1**	**27.1**	**27.2**	**27.0**	**26.3**	**26.5**
LBW, preterm	**37.5**	**37.7**	**38.4**	**37.8**	**38.4**	**38.9**	**39.6**	**39.6**	**42.9**	**43.0**	**44.3**
Total	**66.4**	**65.9**	**66.4**	**65.4**	**65.5**	**66.0**	**66.7**	**66.9**	**69.9**	**69.4**	**70.8**

*Per 1000 live-born infants.
†<2500 g (<5 lbs, 8 oz).
§Term is ≥37 completed weeks of gestation; preterm is <37 completed weeks of gestation.
¶Comprises white, black, and other races.

Low Birthweight — Continued

TABLE 2. Percentage distribution of selected maternal and infant characteristics, by race of mother — United States,* 1981–1991†

Characteristic	White		Black		Overall§	
	1981	1991	1981	1991	1981	1991
Age group (yrs)						
<18	4.2%	3.8%	11.6%	10.2%	**5.3%**	**4.9%**
18–19	8.5%	7.2%	14.0%	12.8%	**9.3%**	**8.0%**
20–24	33.3%	25.6%	35.4%	32.1%	**33.3%**	**26.5%**
25–29	32.6%	30.9%	23.6%	23.9%	**31.2%**	**29.7%**
30–34	16.7%	22.8%	11.4%	14.6%	**16.1%**	**21.6%**
35–39	4.0%	8.4%	3.4%	5.5%	**4.0%**	**8.1%**
≥40	0.7%	1.3%	0.7%	0.9%	**0.7%**	**1.3%**
Marital status						
Married	88.5%	78.3%	43.4%	32.1%	**81.4%**	**70.6%**
Not married	11.5%	21.7%	56.6%	67.9%	**18.6%**	**29.4%**
Prenatal care						
First trimester	79.7%	79.6%	62.5%	62.0%	**76.8%**	**76.4%**
Second trimester	16.2%	15.8%	28.7%	27.5%	**18.3%**	**18.0%**
Third trimester	3.1%	3.3%	6.2%	6.1%	**3.7%**	**3.8%**
None	0.9%	1.3%	2.6%	4.4%	**1.2%**	**1.8%**
Singleton birth						
Yes	98.1%	97.7%	97.5%	97.2%	**98.0%**	**97.6%**
No	1.9%	2.3%	2.5%	2.8%	**2.0%**	**2.4%**

*New Mexico did not report date of last normal menstrual period on birth certificates in 1981.
†Percentages may not add to 100 because of rounding.
§Comprises white, black, and other races.

TABLE 3. Actual and standardized incidence* of low birthweight† (LBW) and change in incidence, by race of mother and gestation§ — United States, 1981–1991

Race/Gestation	Actual			Standardized¶		
	Incidence		Absolute change from	Incidence		Absolute change from
	1981	1991	1981 to 1991	1981	1991	1981 to 1991
White						
LBW, term	24.4	22.0	–2.4	25.5	21.4	–4.1
LBW, preterm	31.0	35.7	4.7	32.7	34.2	1.5
Total	**55.4**	**57.8**	**2.4**	**58.1**	**55.5**	**–2.6**
Black						
LBW, term	52.3	47.2	–5.1	54.0	45.8	–8.2
LBW, preterm	72.1	87.7	15.6	75.2	84.2	9.0
Total	**124.4**	**134.9**	**10.5**	**129.2**	**129.9**	**0.7**
Overall**						
LBW, term	**29.0**	**26.5**	**–2.5**	**30.6**	**25.4**	**–5.2**
LBW, preterm	**37.5**	**44.3**	**6.8**	**40.1**	**41.8**	**1.7**
Total	**66.4**	**70.8**	**4.4**	**70.7**	**67.3**	**–3.4**

*Per 1000 live-born infants.
†<2500 g (<5 lbs, 8 oz).
§Term is ≥37 completed weeks of gestation; preterm is <37 weeks of gestation.
¶Standardized incidences were calculated by direct standardization using the 1981 and 1991 combined population distributions of maternal age, marital status, receipt of prenatal care, and infant's singleton status.
**Comprises white, black, and other races.

Low Birthweight — Continued

Thus, 87%–94% of the increases in the incidence of preterm-LBW infants from 1981 to 1991 were unrelated to the inclusion of clinical estimates in the computation of gestational age.

The etiology of term-LBW infants and preterm-LBW infants differs (*8*). For term-LBW infants, most underlying causes (e.g., maternal smoking, weight at conception, and gestational weight gain) have been identified; for preterm-LBW infants, the etiology largely remains unexplained (*6,8*). In the United States, the increase in incidence of preterm-LBW infants during 1981–1991 reflects in part changes in the distribution of selected maternal and infant characteristics. In particular, the percentage of births to unmarried women and women receiving no prenatal care may be markers for behavioral risk factors (e.g., cocaine use), psychosocial risk factors (e.g., stress), and environmental risk factors (e.g., infection) for preterm delivery (6,9). In addition, race may be a marker for these factors. Risk markers may be useful for identifying groups at greatest risk for preterm delivery and for targeting prevention and education efforts. Moreover, race-specific variation in the rate of preterm-LBW infants may reflect differences in these behavioral, psychosocial, or environmental factors.

In the United States, race-specific differences in the incidences of LBW, particularly preterm-LBW infants, and infant mortality have increased (*3,10*). Further studies are needed to evaluate the relative importance of risk factors and to test strategies for prevention of preterm delivery (e.g., increasing access to comprehensive health care) in specific population subgroups.

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