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Current Trends

Evaluation of Consumer Complaints Related to Aspartame Use

In February 1984, the U.S. Food and Drug Administration (FDA) requested CDC's assistance in evaluating consumer complaints that FDA had received about consumption of aspartame-containing products. The request followed an increase in aspartame-related complaints in the latter half of 1983. Complaints to the FDA increased from 108 in the first 6 months of 1983 to 248 in the last 6 months. This increase coincided with approval of aspartame for use in soft drinks in July 1983.

The CDC investigation had two major purposes: (1) to provide a basic descriptive analysis of the symptoms reported and the epidemiologic characteristics of the persons reporting those symptoms; and (2) to determine whether specific individual symptoms or constellations of symptoms were reported with enough consistency to indicate where further clinical studies, should they seem necessary, would be most productive. It was recognized from the outset that this investigation alone would be unlikely to establish any cause-and-effect relationship between the ingestion of aspartame and the occurrence of reported symptoms.

Application of criteria

The quality and type of evidence that may be obtained by a passive surveillance system does not allow definitive determination of whether given symptoms are or are not caused by the agent under question—in this case, aspartame. Passive surveillance implies that cases or reports are not actively solicited by the agency or organization concerned but, rather, are initiated on the part of the consumer or complainant. In such a passive surveillance system, serious problems may be more likely to be reported, even if they occur less often than mild problems. Problems occurring soon after use of a product are more likely to be thought to be caused by the product and, hence, reported. Thus, passive surveillance systems are more likely to detect rare and serious conditions and symptoms occurring shortly after use of a product than common symptoms or symptoms occurring at some longer period after product use. However, symptoms that are common in the general populace and are reported in a passive surveillance system are more likely to have occurred by chance in association with use of the product than are more rare symptoms.

Criteria originally developed to assess potential adverse reactions to medications were adapted to evaluate the likelihood that symptoms reported by individuals through this passive surveillance system could be due to aspartame consumption (*1,2*). However, application of these criteria was limited by a number of factors. For example, when evaluating reactions to medications, physician reports indicating concurrent illness and use of other medications are usually available. In the case of aspartame use, because few of the complainants sought medical aid, few physician reports containing information specific to the aspartame complaints were available. For this reason, information about other potential causes of symptoms, such as concurrent illnesses or medications, was often limited. Moreover, details relating to the

Aspartame Use — Continued

time between ingestion of aspartame and onset of symptoms often were incomplete because aspartame consumption was part of the daily routine.

From the clinical studies performed before FDA approval of aspartame, there was little to suggest that acute reactions would be likely to occur. Therefore, no defined symptom constellation could be specifically sought in reinterviewing complainants. As far as is known, complaints, such as those reported in this analysis as being related to aspartame use, have not been commonly reported in other countries in which aspartame is also in use.

An important criterion in assessing potential adverse reactions is the consistency of reported symptoms with rechallenge, i.e., the recurrence of symptoms after consuming aspartame-containing products a second time. Even the application of this criterion has substantial limitations. People who experience symptoms once may be primed to experience them on repeated use. Conversely, persons with particularly serious or unpleasant complaints would be unlikely to use aspartame again, and, therefore, there would be no information on the effects of rechallenge.

Evaluation of dose-response relationships might have been fruitful had individuals reported symptoms with increasingly high consumption of aspartame-containing products. However, due to the difficulties in quantifying intake from the available data, evaluation of dose-response relationships was not possible.

General Findings

In carrying out this analysis, attempts were made to interview in depth all complainants who had reported problems before mid-April 1984 to the FDA; to G. D. Searle and Company, the manufacturer of aspartame; to the Arizona Department of Health Services; to Dr. Woodrow C. Monte, Director, Food Science and Nutrition Laboratory, Arizona State University; and to Mr. James C. Turner, Counselor, Community Nutrition Institute, Washington, D.C. Of 592 complaints received by these combined sources, CDC was able to interview 517 (87%).

By June 15, 1984, the date on which the CDC analysis began, 231 (45%) of the interviews had been completely coded and reviewed. These cases were analyzed in depth. The remaining 286 case interviews subsequently submitted to CDC were reviewed for demographic characteristics and symptom category to assure that their exclusion from the in-depth analysis would be unlikely to bias the findings. The demographic characteristics and symptom categories of the two groups were similar. Although some fairly minor differences were found between the two groups, such as state of residence and date of report, these differences were not felt to be substantial enough to affect the overall conclusions.

Overall, the 517 interviewed complainants were predominantly white (96%), female (76%), and between the ages of 21 and 60 years (79%). Complainants were approximately 1.5 times more likely to be female and 2.5 times more likely to be women between the ages of 20 and 59 than expected from 1980 census estimates. Reports came from all geographic regions of the country, with a heavy concentration of cases from Arizona, where the possibility of aspartame use leading to illness received particularly extensive press coverage. Although aspartame-containing products are widely distributed in the United States and are likely to be consumed by millions of users, there is no specific marketing information available as to who were likely users and/or what groups were most likely to consume the largest per-capita amounts of aspartame. Thus, CDC is unable to estimate a specific complaint rate in relation to the actual number of users.

Many complainants reported a variety of symptoms involving several organ systems. Overall, 346 (67%) complainants reported neurological/behavioral symptoms, including headaches, dizziness, and mood alterations. One hundred twenty-four (24%) reported experiencing gastrointestinal symptoms, and 76 (15%) reported allergic type and/or dermatologic symp-

Aspartame Use — Continued

toms. Thirty-two women (6% of case reports) reported alterations in their usual menstrual patterns. Forty-seven (9%) reported other symptoms of various types. Because persons often reported symptoms from more than one category, the total number of symptoms reported was greater than the actual number of complainants.

Overall, of the 231 complaints analyzed in depth, 13% reported that symptoms recurred after rechallenge with more than one product, and another 15% reported that symptoms recurred on second use of the same product. One physician, anecdotally, has reported on a child who underwent a double-blind trial, which, by verbal report, supported the patient's history of hyperactivity following consumption of aspartame.

Conclusions

This investigation of consumer complaints of symptoms experienced after consumption of aspartame-containing products identified no specific constellation of symptoms clearly related to aspartame consumption. The overrepresentation of women reporting symptoms could not be explained with available data. Despite great variety overall, the majority of frequently reported symptoms were mild and are symptoms that are common in the general populace. While some reports are undoubtedly due to the coincidence of symptoms and aspartame consumption, and others may be due to the suggestibility of some persons, still others may be attributable to some as yet undefined sensitivity of some individuals to aspartame in commonly consumed amounts. The only way these possibilities can be thoroughly evaluated would be through focused clinical studies.

In summary, currently available information, based on data with limitations as described in the report, indicates a wide variety of complaints that are generally of a mild nature. Although it may be that certain individuals have an unusual sensitivity to the product, these data do not provide evidence for the existence of serious, widespread, adverse health consequences attendant to the use of aspartame.

Reported by Div of Nutrition, Center for Health Promotion and Education, CDC.

References

1. Kramer MS, Leventhal JM, Hutchinson TA, Feinstein AR. An algorithm for the operational assessment of adverse drug reactions. I. Background, description, and instructions for use. JAMA 1979;242: 623-32.
2. Hutchinson TA, Leventhal JM, Kramer MS, Karch FE, Lipman AG, Feinstein AR. An algorithm for the operational assessment of adverse drug reactions. II. Demonstration of reproducibility and validity. JAMA 1979;242:633-8.

International Notes

Update: Acquired Immunodeficiency Syndrome — Europe

Ten countries provide the World Health Organization (WHO) Collaborating Centre on Acquired Immunodeficiency Syndrome (AIDS), Paris, France, with regular data, making follow-up and study of the AIDS situation possible in Europe (*1*); these countries are: Denmark, France, the Federal Republic of Germany, Greece, Italy, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom.

A total of 421 AIDS cases were diagnosed in these 10 countries (although onset of illness may have occurred elsewhere) up to July 15, 1984 (Table 1). In October 1983, the same countries reported 215 cases at the first meeting on AIDS, organized by the WHO Regional

AIDS – Continued

Office for Europe in Aarhus, Denmark (*2*). AIDS cases have increased nearly 100% in 8 months. Estimates of the rate of AIDS cases per million population vary considerably from one country to another. However, uneven geographic case distribution was found within the individual countries and also in other parts of the world.

Seven percent of the cases reported in these 10 countries occurred among women. Forty-nine percent of all patients were in the 30- to 39-year age group. Two cases occurring in children under 1 year of age were reported in France, the first in a Zairian child whose mother also had AIDS, and the second, in a Haitian child whose parents both had the disease.

Of the total patients recorded, 349 (83%) came from the 10 countries mentioned above (Table 2). Three other groups accounted for a considerable percentage: (1) the group of patients from countries in the Caribbean region, with 18 cases (4.3% of the total), including 17 Haitian patients (reported in France) and one patient from Dominica (reported in the United Kingdom). Except for three Haitians, these patients were living in Europe before the appearance of the first signs of the disease; (2) the group of patients from Africa included 39 cases (9.3% of the total). These patients came from Zaire (18), Congo (nine), Gabon (three), Mali (two), Zambia (two), Cameroon (one), Cape Verde (one), Ghana (one), Togo (one), and Uganda (one). The cases were diagnosed and reported in France (27 cases), Switzerland (six), the United Kingdom (two), the Federal Republic of Germany (two), Greece (one), and Italy (one). Thirty-two of these patients were living in Europe before the appearance of the initial symptoms; (3) the third group ("other nationalities") included 15 patients (3.6% of the total), consisting mainly of patients coming from the Americas: United States (seven), Argentina (one), Canada (one), Nicaragua (one), and Peru (one). The four other patients came from the following countries: Albania (one), Pakistan (one), Portugal (one), and Yugoslavia (one). Seven of them (four United States citizens, one Argentine, one Canadian, and one Pakistani) were not living in Europe when the first symptoms appeared.

Of the patients from the 10 European countries, 87.4% were male homosexuals, 3.4%, hemophilia patients, and 1.4%, drug abusers, while none of the known risk factors could be found for 6.9% of patients of both sexes. Among the latter, women comprised slightly more than 2% of the total. The 12 hemophilia patients were reported in the Federal Republic of Germany (five cases), Spain (three), France (two), and the United Kingdom (two). The five drug-abuse patients were reported in Spain (three cases) and the Federal Republic of Germany (two). The two patients for whom the only risk factor identified was blood transfusion were

TABLE 1. Reported AIDS cases — 10 European countries as of July 15, 1984

Country	No. cases	Rates per million population*
Denmark	28	5.5
France	180	3.4
Federal Republic of Germany	79	1.3
Greece	2	0.2
Italy	8	0.1
Netherlands	21	1.5
Spain	14	0.4
Sweden	7	0.8
Switzerland	28	4.4
United Kingdom	54	1.0
Total	**421**	**1.4**

*Source of population figures: *World Health Statistics Annual*, Geneva, WHO, 1981.

AIDS — Continued

reported in France. The first had received transfusions in Haiti and Martinique at an interval of a few days; the second had received a transfusion in Paris. Both were given transfusions following traffic accidents.

In almost all patients from the Caribbean and Africa observed in Europe, none of the known AIDS risk factors were found. One Haitian patient (out of 17) and one African patient (out of 39) said they were homosexuals.

Women without known risk factors comprised 22% of the Caribbean cases and 33% of the African cases. Among patients of other nationalities, 13 were homosexuals; two were also drug abusers. The two patients (one Pakistani and one Portuguese) for whom no risk factor was found had lived in Equatorial Africa during the 5 years preceding diagnosis of the disease.

Reported in WHO Weekly Epidemiological Record *1984;59:305-7.*

References

1. World Health Organization. [No. 32, get title] Wkly Epidem Rec 1984;59:249-50.
2. World Health Organization. Acquired immune deficiency syndrome (AIDS) update. Wkly Epidem Rec 1983;58:351.

TABLE 2. Distribution of AIDS cases, by identified risk group and origin of patients — Denmark, France, Federal Republic of Germany, Greece, Italy, Netherlands, Spain, Sweden, Switzerland, United Kindgom, as of July 15, 1984

Risk group	Europe (10 countries)	Caribbean	Africa	Other	Total
1. Male homosexuals	305	1	1	11	**318**
2. Drug abusers	5	—	—	—	**5**
3. Hemophilia patients	12	—	—	—	**12**
4. Transfusion recipients (without other risk factors)	2	—	—	—	**2**
Groups 1 & 2	1	—	—	2	**3**
No known risk factors					
Males	16	13	25	2	**56**
Females	8	4	13	—	**25**
Total	**349**	**18**	**39**	**15**	**421**

Trends in Self-Reported Marijuana Use among Teenagers — Canada, 1981-1983

In February 1983, the Canadian Gallup Poll Ltd. carried out a national survey of 12- to 19-year-old Canadians on behalf of the Health Promotion Directorate of Health and Welfare Canada (*1*). Among other things, respondents were asked to answer a number of questions regarding their use of marijuana. These questions were identical to questions asked in earlier surveys. Following is a comparison to the findings of the earlier surveys.

The sampling design incorporated stratification by six community-sized groups based on 1976 census of Canada data. The population was arrayed in geographic order by community size and, within these classifications, by enumeration area. Approximately 200 enumeration areas were selected. The overall sample was designed to be representative of 12- to 19-year-olds living in Canada, although the number of 18- to 19-year-olds was augmented using the monthly Gallup Poll Omnibus Survey. Within the selected enumeration areas, Gallup inter-

Marijuana Use — Continued

viewers were instructed to administer seven questionnaires according to the following quotas: three with 12- to 14-year-olds; three with 15- to 17-year-olds; and one with 15- to 19-year-olds. Three were to be male, and four, female.

A total of 1,419 12- to 19-year-olds completed a self-administered questionnaire. In addition to cannabis use, the questionnaire covered perceptions of the risks and benefits of cannabis use, perceptions of the prevalence and changes in the use of marijuana in Canada, attitudes toward use, and awareness of messages regarding marijuana use. Similar topics were covered for alcohol and tobacco.

The earlier studies with which the 1983 study is compared were carried out in 1981 and 1982 for Health and Welfare Canada by Gallup using Gallup's Young Omnibus Survey, which is done in May of each year (*2,3*). The sampling procedures used were similar to those used in the 1983 study, except that the sample of 18- to 19-year-olds was not augmented. The 1982 survey covered alcohol and tobacco, as well as marijuana, whereas the 1981 survey dealt only with marijuana. While there were variations in questions asked on the surveys, all

(Continued on page 615)

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

Disease	43rd Week Ending			Cumulative, 43rd Week Ending		
	Oct. 27, 1984	Oct. 29, 1983	Median 1979-1983	Oct. 27, 1984	Oct. 29, 1983	Median 1979-1983
Acquired Immunodeficiency Syndrome (AIDS)*	100	61	N	3,452	1,642	N
Aseptic meningitis	211	307	307	6,512	10,542	7,776
Encephalitis: Primary (arthropod-borne & unspec.)	45	41	32	947	1,565	1,272
Post-infectious	-	1	1	79	78	78
Gonorrhea: Civilian	17,398	18,299	19,008	691,672	746,297	828,419
Military	431	527	453	17,380	20,263	22,824
Hepatitis: Type A	479	713	551	17,616	17,630	20,816
Type B	556	453	440	21,227	19,649	16,915
Non A, Non B	67	41	N	3,033	2,782	N
Unspecified	96	161	207	4,712	6,073	8,516
Legionellosis	18	21	N	543	595	N
Leprosy	6	-	3	192	200	178
Malaria	16	11	18	779	679	907
Measles: Total**	32	20	28	2,409	1,350	2,739
Indigenous	29	15	N	2,134	1,089	N
Imported	3	5	N	275	261	N
Meningococcal infections: Total	45	44	44	2,247	2,264	2,264
Civilian	45	44	44	2,242	2,249	2,249
Military	-	-	-	5	15	15
Mumps	48	64	64	2,461	2,743	4,564
Pertussis	29	33	24	1,891	2,007	1,422
Rubella (German measles)	11	36	18	670	855	2,109
Syphilis (Primary & Secondary): Civilian	521	695	675	22,924	26,843	25,464
Military	2	11	10	249	337	325
Toxic Shock syndrome	9	8	N	400	358	N
Tuberculosis	429	497	552	17,695	19,323	22,381
Tularemia	1	9	3	264	249	226
Typhoid fever	5	10	9	293	395	427
Typhus fever, tick-borne (RMSF)	7	13	12	790	1,063	1,063
Rabies, animal	73	115	115	4,471	5,198	5,291

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1984		Cum. 1984
Anthrax	1	Plague	30
Botulism: Foodborne	15	Poliomyelitis: Total	3
Infant	74	Paralytic	3
Other	6	Psittacosis (Vt. 1, Calif. 1)	76
Brucellosis (Minn. 1, Ark. 3)	101	Rabies, human	2
Cholera	-	Tetanus (Penn. 1, Ga. 1)	50
Congenital rubella syndrome	4	Trichinosis (Alaska 1)	61
Diphtheria	1	Typhus fever, flea-borne (endemic, murine) (Tex. 3)	26
Leptospirosis	26		

*The 1983 reports which appear in this table were collected before AIDS became a notifiable condition.

**Three of the 32 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending October 27, 1984 and October 29, 1983 (43rd Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1984	1984	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1983	1984	1984	1984	1984	1984	Cum. 1984
UNITED STATES	3,452	211	947	79	691,672	746,297	479	556	67	96	18	192
NEW ENGLAND	108	9	42	2	19,378	19,087	6	39	2	16	-	10
Maine	-	-	-	-	834	935	-	2	-	-	-	-
N.H.	1	1	7	-	590	617	-	2	-	-	-	-
Vt.	1	-	5	-	311	373	-	-	2	1	-	-
Mass.	60	4	18	-	8,270	8,027	2	16	-	15	-	6
R.I.	6	1	-	-	1,344	1,063	1	6	-	-	-	4
Conn.	40	3	12	2	8,029	8,072	3	13	-	-	-	-
MID ATLANTIC	1,509	32	117	10	93,376	94,227	42	99	7	8	-	36
Upstate N.Y.	135	11	39	7	14,833	15,661	8	14	-	1	-	3
N.Y. City	1,087	2	11	-	37,289	36,768	10	32	-	2	-	31
N.J.	206	4	26	-	16,384	17,588	15	21	1	3	-	-
Pa.	81	15	41	3	24,870	24,210	9	32	6	2	-	2
E.N. CENTRAL	150	47	267	18	98,431	109,092	17	61	-	5	7	6
Ohio	16	23	85	9	25,848	28,220	10	15	-	3	6	2
Ind.	22	7	69	-	10,892	10,685	2	9	-	-	-	-
Ill.	78	-	27	6	22,013	31,746	2	5	-	2	-	2
Mich.	24	17	56	-	28,785	28,827	3	32	-	-	1	2
Wis.	10	-	30	3	10,893	9,614	-	-	-	-	-	-
W.N. CENTRAL	35	3	79	3	34,054	35,489	24	22	1	-	-	2
Minn.	9	2	34	-	5,170	4,906	4	17	-	-	-	1
Iowa	2	-	29	-	3,701	3,841	2	2	-	-	-	1
Mo.	20	-	8	-	16,153	17,481	-	1	-	-	-	-
N. Dak.	-	-	-	-	333	380	-	-	-	-	-	-
S. Dak.	-	1	2	1	808	890	8	-	-	-	-	-
Nebr.	2	-	1	-	2,503	2,242	-	-	-	-	-	-
Kans.	2	-	5	2	5,386	5,749	10	2	1	-	-	-
S. ATLANTIC	479	46	142	16	172,967	192,156	32	137	15	19	5	8
Del.	5	-	1	-	3,250	3,553	-	-	-	-	-	-
Md.	39	6	28	-	20,456	24,745	1	21	3	7	1	1
D.C.	74	-	-	-	12,670	13,207	3	1	-	-	-	1
Va.	31	7	27	5	16,709	17,737	4	7	2	1	-	4
W. Va.	4	4	31	-	2,187	2,111	-	2	-	-	-	-
N.C.	11	9	24	7	28,741	29,989	3	22	3	1	-	-
S.C.	7	2	4	-	17,774	17,944	-	14	-	3	-	-
Ga.	47	3	2	2	28,722	38,039	3	21	-	1	4	1
Fla.	261	15	25	2	42,458	44,831	18	49	7	6	-	1
E.S. CENTRAL	21	11	51	7	62,699	62,592	6	28	2	-	2	-
Ky.	9	7	13	-	7,475	7,375	2	1	-	-	-	-
Tenn.	6	2	16	1	25,428	25,742	2	18	1	-	-	-
Ala.	4	-	19	5	19,319	19,285	2	6	1	-	2	-
Miss.	2	2	3	1	10,477	10,190	-	3	-	-	-	-
W.S. CENTRAL	250	10	83	4	94,058	104,999	41	24	7	16	2	17
Ark.	1	-	-	2	8,443	8,195	4	3	1	-	-	1
La.	38	-	8	-	20,859	20,231	-	-	-	-	-	1
Okla.	8	4	19	1	10,353	12,159	2	7	1	2	-	-
Tex.	203	6	56	1	54,403	64,414	35	14	5	14	2	15
MOUNTAIN	55	11	26	10	22,919	23,834	75	30	8	4	-	8
Mont.	-	-	2	-	901	982	2	-	-	-	-	-
Idaho	-	-	-	-	1,096	1,043	4	1	-	-	-	-
Wyo.	1	2	-	-	618	626	-	1	-	-	-	-
Colo.	29	-	8	-	6,546	6,707	-	-	-	-	-	-
N. Mex.	1	-	-	-	2,780	2,957	2	2	-	-	-	-
Ariz.	11	4	9	3	6,299	6,769	23	9	6	3	-	6
Utah	7	5	7	7	1,088	1,134	12	4	2	1	-	1
Nev.	6	-	-	-	3,591	3,616	32	13	-	-	-	1
PACIFIC	845	42	140	9	93,790	104,821	236	116	25	28	2	105
Wash.	43	10	7	-	6,912	8,269	15	4	5	1	1	3
Oreg.	7	-	-	-	5,476	5,610	23	11	3	3	-	1
Calif.	781	31	130	9	77,457	86,245	193	100	15	24	1	86
Alaska	1	-	-	-	2,346	2,705	4	-	-	-	-	-
Hawaii	13	1	3	-	1,599	1,992	1	1	2	-	-	15
Guam	-	U	-	-	95	114	U	U	U	U	U	-
P.R.	51	2	3	2	2,766	2,365	5	6	-	2	-	5
V.I.	-	U	-	-	365	240	U	U	U	U	U	-
Pac. Trust Terr.	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 27, 1984 and October 29, 1983 (43rd Week)

Reporting Area	Malaria	Measles (Rubeola) Indigenous		Measles Imported *		Measles Total	Meningococcal Infections	Mumps		Pertussis			Rubella		
	Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	1984	Cum. 1984	Cum. 1983
UNITED STATES	779	29	2,134	3	275	1,350	2,247	48	2,461	29	1,891	2,007	11	670	855
NEW ENGLAND	46	-	94	-	12	18	152	3	83	1	55	66	-	20	15
Maine	-	-	-	-	-	-	1	-	26	-	2	5	-	1	-
N.H.	-	-	33	-	3	3	8	1	16	1	9	9	-	1	4
Vt.	6	-	2	-	5	-	26	-	5	-	23	8	-	-	5
Mass.	26	-	49	-	-	6	63	2	17	-	14	34	-	18	6
R.I.	4	-	-	-	-	-	14	-	10	-	3	5	-	-	-
Conn.	10	-	10	-	4	9	40	-	9	-	4	5	-	-	-
MID ATLANTIC	125	-	118	1	40	115	385	8	290	12	174	340	2	223	141
Upstate N.Y.	25	-	24	-	12	15	124	1	84	-	97	107	-	99	29
N.Y. City	39	-	90	1	18	70	79	1	25	-	7	55	2	103	86
N.J.	35	-	4	-	3	27	75	-	132	1	12	19	-	17	3
Pa.	26	-	-	-	7	3	107	6	49	11	58	159	-	4	23
E.N. CENTRAL	72	2	617	-	74	692	361	13	953	-	428	452	1	88	121
Ohio	16	-	3	-	6	87	122	10	462	-	70	138	-	2	2
Ind.	2	-	2	-	1	406	45	-	59	-	229	54	-	5	23
Ill.	25	2	179	-	1	191	78	-	177	-	25	151	1	53	51
Mich.	15	-	411	-	54	7	70	3	172	-	28	39	-	20	16
Wis.	14	-	22	-	12	1	46	-	83	-	76	70	-	8	29
W.N. CENTRAL	21	-	48	-	8	8	138	1	102	2	119	127	-	39	40
Minn.	7	-	44	-	3	1	28	-	6	-	15	43	-	4	8
Iowa	2	-	-	-	-	-	22	-	23	2	12	6	-	1	-
Mo.	6	-	4	-	-	1	42	-	10	-	20	23	-	-	-
N. Dak.	1	-	-	-	-	-	2	-	2	-	-	2	-	3	-
S. Dak.	1	-	-	-	-	-	6	-	-	-	9	8	-	-	-
Nebr.	2	-	-	-	-	-	11	-	4	-	11	3	-	-	-
Kans.	2	-	-	-	5	6	27	1	57	-	52	42	-	31	32
S. ATLANTIC	114	-	18	-	32	205	471	2	180	1	145	240	-	23	96
Del.	4	-	-	-	-	-	5	-	2	-	2	5	-	-	-
Md.	28	-	8	-	14	10	36	-	37	-	13	30	-	1	3
D.C.	1	-	-	-	5	-	8	-	-	-	-	-	-	-	-
Va.	28	-	1	-	4	23	54	-	17	-	15	50	-	-	2
W. Va.	1	-	-	-	-	-	5	-	38	-	11	9	-	-	-
N.C.	11	-	-	-	-	1	75	-	17	-	32	27	-	-	10
S.C.	2	-	-	-	-	4	54	1	5	-	1	13	-	-	1
Ga.	13	-	-	-	1	8	88	1	22	-	13	65	-	2	13
Fla.	26	-	9	-	8	159	146	-	42	1	58	41	-	20	67
E.S. CENTRAL	9	-	4	-	2	6	128	-	52	-	14	33	-	20	17
Ky.	1	-	1	-	-	1	49	-	11	-	2	14	-	14	16
Tenn.	2	-	-	-	2	-	31	-	17	-	7	8	-	-	-
Ala.	6	-	3	-	-	5	33	-	6	-	1	5	-	3	1
Miss.	-	-	-	-	-	-	15	-	18	-	4	6	-	3	-
W.S. CENTRAL	74	10	540	-	25	77	239	6	141	1	293	412	-	61	111
Ark.	-	-	8	-	-	13	39	-	7	1	16	21	-	3	-
La.	9	-	8	-	-	28	47	-	-	-	8	11	-	-	10
Okla.	9	-	-	-	8	1	24	N	N	-	236	302	-	-	-
Tex.	56	10	524	-	17	35	129	6	134	-	33	78	-	58	101
MOUNTAIN	24	-	113	-	32	17	74	3	228	-	111	217	-	21	30
Mont.	1	-	-	-	-	3	2	1	8	-	19	1	-	-	3
Idaho	2	-	-	-	23	10	8	-	9	-	7	16	-	1	8
Wyo.	-	-	-	-	-	1	3	-	2	-	6	6	-	2	4
Colo.	6	-	-	-	6	2	26	2	23	-	39	133	-	2	1
N. Mex.	1	-	88	-	-	-	7	N	N	-	8	13	-	1	-
Ariz.	9	-	-	-	1	1	16	-	171	-	23	24	-	4	6
Utah	5	-	25	-	2	-	7	-	11	-	7	24	-	7	7
Nev.	-	-	-	-	-	-	5	-	4	-	2	-	-	4	1
PACIFIC	294	17	582	2	50	212	299	12	432	12	552	120	8	175	284
Wash.	13	13	138	1	15	21	47	3	49	7	311	16	-	1	9
Oreg.	11	-	-	-	-	10	44	N	N	1	29	8	-	2	14
Calif.	266	4	285	1	31	178	200	4	345	4	136	89	8	166	259
Alaska	-	-	-	-	-	2	7	4	15	-	1	4	-	1	1
Hawaii	4	-	159	-	4	1	1	1	23	-	75	3	-	5	1
Guam	1	U	83	U	2	2	1	U	5	U	-	-	U	2	-
P.R.	4	-	1	-	-	94	4	-	162	-	1	13	-	14	6
V.I.	-	U	-	U	-	5	-	U	5	U	-	-	U	-	2
Pac. Trust Terr.	-	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 III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 27, 1984 and October 29, 1983 (43rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1984	Cum. 1983	1984	Cum. 1984	Cum. 1983	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1984
UNITED STATES	22,924	26,843	9	17,695	19,323	264	293	790	4,471
NEW ENGLAND	446	572	2	530	579	7	18	5	46
Maine	7	19	-	24	31	-	-	-	12
N.H.	13	19	-	25	31	-	-	-	16
Vt.	1	3	1	8	7	-	-	-	-
Mass.	257	360	1	292	305	7	15	4	10
R.I.	18	19	-	44	50	-	-	-	-
Conn.	150	152	-	137	155	-	3	1	8
MID ATLANTIC	3,073	3,558	1	3,199	3,457	1	48	24	423
Upstate N.Y.	250	334	-	515	537	-	12	8	88
N.Y. City	1,897	2,068	-	1,286	1,358	1	14	2	-
N.J.	540	681	-	711	733	-	16	3	31
Pa.	386	475	1	687	829	-	6	11	304
E.N. CENTRAL	1,099	1,435	1	2,313	2,595	8	50	56	194
Ohio	199	373	-	412	408	-	6	37	24
Ind.	119	102	-	270	291	-	9	6	21
Ill.	400	687	-	964	1,127	8	21	10	70
Mich.	316	199	1	521	630	-	7	3	21
Wis.	65	74	-	146	139	-	7	-	58
W.N. CENTRAL	316	330	2	537	624	79	10	48	643
Minn.	84	125	-	89	133	1	3	1	71
Iowa	11	21	1	55	59	-	-	6	134
Mo.	156	120	1	268	315	41	5	14	59
N. Dak.	9	2	-	11	6	-	-	-	128
S. Dak.	-	11	-	21	35	34	-	5	163
Nebr.	15	15	-	29	20	-	-	4	40
Kans.	41	36	-	64	56	3	2	18	48
S. ATLANTIC	6,663	7,210	-	3,735	3,864	8	31	377	1,310
Del.	18	31	-	50	54	-	-	1	7
Md.	421	436	-	374	299	-	2	29	725
D.C.	271	317	-	144	160	1	6	-	-
Va.	351	496	-	381	415	1	8	52	186
W. Va.	16	23	-	115	119	-	-	7	38
N.C.	700	712	-	553	584	1	1	161	25
S.C.	645	467	-	440	369	-	1	78	57
Ga.	1,059	1,272	-	572	665	4	1	46	165
Fla.	3,182	3,456	-	1,106	1,199	1	12	3	107
E.S. CENTRAL	1,646	1,841	-	1,667	1,723	6	8	84	219
Ky.	89	149	-	380	440	-	2	16	49
Tenn.	431	499	-	488	510	5	2	43	73
Ala.	549	713	-	495	446	-	2	15	97
Miss.	577	480	-	304	327	1	2	10	-
W.S. CENTRAL	5,647	6,878	-	2,070	2,355	113	18	180	897
Ark.	169	162	-	230	277	80	-	30	98
La.	1,031	1,411	-	288	374	7	1	3	52
Okla.	181	170	-	198	212	19	3	118	93
Tex.	4,266	5,135	-	1,354	1,492	7	14	29	654
MOUNTAIN	526	576	3	469	535	32	13	12	253
Mont.	3	7	-	17	42	3	1	8	109
Idaho	21	7	1	27	27	7	-	1	11
Wyo.	4	12	-	1	12	1	-	3	19
Colo.	141	132	1	56	75	6	5	-	39
N. Mex.	79	160	-	90	95	2	3	-	11
Ariz.	177	147	-	221	208	4	3	-	42
Utah	18	20	1	32	37	4	-	-	6
Nev.	83	91	-	25	39	5	1	-	16
PACIFIC	3,508	4,443	-	3,175	3,591	10	97	4	486
Wash.	120	163	-	166	204	2	3	-	3
Oreg.	99	119	-	128	152	2	2	1	1
Calif.	3,219	4,081	-	2,646	2,976	6	87	2	474
Alaska	6	12	-	52	65	-	1	1	8
Hawaii	64	68	-	183	194	-	4	-	-
Guam	-	-	U	5	5	-	-	-	-
P.R.	664	820	-	316	393	-	3	-	58
V.I.	8	17	U	3	2	-	3	-	-
Pac. Trust Terr.	-	-	U	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 27, 1984 (43rd Week Ending)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	628	472	100	26	13	17	47
Boston, Mass.	175	122	28	10	6	9	20
Bridgeport, Conn.	33	23	7	2	-	1	1
Cambridge, Mass.	22	17	5	-	-	-	3
Fall River, Mass.	32	21	9	1	1	-	-
Hartford, Conn.	51	41	4	3	1	2	1
Lowell, Mass.	20	13	4	2	1	-	-
Lynn, Mass.	20	15	3	1	1	-	-
New Bedford, Mass.	24	19	5	-	-	-	-
New Haven, Conn.	51	40	6	2	1	2	3
Providence, R.I.	66	56	8	1	1	-	6
Somerville, Mass.	6	5	-	1	-	-	-
Springfield, Mass.	36	30	4	1	-	1	1
Waterbury, Conn.	19	15	3	1	-	-	1
Worcester, Mass.	73	55	14	1	1	2	11
MID. ATLANTIC	2,305	1,518	518	176	50	43	100
Albany, N.Y.	46	29	11	3	2	1	-
Allentown, Pa.	14	12	2	-	-	-	-
Buffalo, N.Y.	106	69	24	5	2	6	6
Camden, N.J.	42	27	8	4	2	1	3
Elizabeth, N.J.	29	20	6	3	-	-	-
Erie, Pa.†	37	27	8	1	1	-	4
Jersey City, N.J.	59	33	13	9	-	4	1
N.Y. City, N.Y.	1,301	848	295	114	29	15	46
Newark, N.J.	50	24	16	6	1	3	1
Paterson, N.J.	53	33	14	2	3	1	-
Philadelphia, Pa.†	159	97	43	12	4	3	10
Pittsburgh, Pa.†	54	34	12	3	1	4	4
Reading, Pa.	26	22	4	-	-	-	4
Rochester, N.Y.	114	81	24	6	1	2	9
Schenectady, N.Y.	23	18	4	1	-	-	1
Scranton, Pa.†	35	29	5	1	-	-	3
Syracuse, N.Y.	71	54	9	3	3	2	-
Trenton, N.J.	37	22	12	1	1	1	1
Utica, N.Y.	21	15	5	1	-	-	1
Yonkers, N.Y.	28	24	3	1	-	-	6
E.N. CENTRAL	2,188	1,366	538	150	60	74	89
Akron, Ohio	62	37	16	5	3	1	-
Canton, Ohio	43	34	8	1	-	-	3
Chicago, Ill.	480	290	138	32	12	8	11
Cincinnati, Ohio	145	85	40	13	2	5	15
Cleveland, Ohio	180	110	41	11	10	8	7
Columbus, Ohio	130	70	39	12	6	3	2
Dayton, Ohio	114	69	34	5	3	3	9
Detroit, Mich.	247	148	47	25	10	17	10
Evansville, Ind.	51	39	9	2	-	1	3
Fort Wayne, Ind.	49	36	9	1	2	1	2
Gary, Ind.	14	7	6	1	-	-	-
Grand Rapids, Mich.	60	40	15	3	1	1	4
Indianapolis, Ind.	136	75	45	7	2	7	2
Madison, Wis.	51	27	9	10	1	4	1
Milwaukee, Wis.	138	101	23	5	3	6	5
Peoria, Ill.	35	19	9	4	2	1	3
Rockford, Ill.	50	35	9	1	1	4	2
South Bend, Ind.	45	31	8	5	-	1	5
Toledo, Ohio	97	67	20	6	1	3	4
Youngstown, Ohio	61	46	13	1	1	-	1
W.N. CENTRAL	699	488	128	34	25	24	37
Des Moines, Iowa	65	50	7	3	4	1	2
Duluth, Minn.	10	6	3	1	-	-	-
Kansas City, Kans.	30	22	5	1	2	-	3
Kansas City, Mo.	136	95	27	7	2	5	8
Lincoln, Nebr.	29	26	2	-	-	1	3
Minneapolis, Minn.	92	57	21	4	5	5	3
Omaha, Nebr.	76	49	19	3	3	2	6
St. Louis, Mo.	128	98	16	5	5	4	3
St. Paul, Minn.	71	50	12	4	3	2	2
Wichita, Kans.	62	35	16	6	1	4	7

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,162	739	267	78	31	47	56
Atlanta, Ga.	141	83	38	9	5	6	5
Baltimore, Md.	188	120	42	15	5	6	2
Charlotte, N.C.	60	41	9	2	2	6	8
Jacksonville, Fla.	110	62	32	9	2	5	12
Miami, Fla.	136	75	37	11	5	8	2
Norfolk, Va.	50	30	17	1	-	2	3
Richmond, Va.	63	42	12	5	3	1	3
Savannah, Ga.	49	37	6	2	4	-	2
St. Petersburg, Fla.	103	93	6	3	-	1	5
Tampa, Fla.	64	42	14	6	1	1	6
Washington, D.C.	160	89	46	11	4	10	6
Wilmington, Del.	38	25	8	4	-	1	2
E.S. CENTRAL	834	489	212	59	25	49	38
Birmingham, Ala.	120	68	37	7	5	3	2
Chattanooga, Tenn.	74	49	16	4	5	-	4
Knoxville, Tenn.	77	45	22	4	2	4	3
Louisville, Ky.	88	62	18	6	-	2	8
Memphis, Tenn.	201	101	45	20	6	29	8
Mobile, Ala.	65	42	15	6	1	1	7
Montgomery, Ala.	63	38	17	4	2	2	-
Nashville, Tenn.	146	84	42	8	4	8	6
W.S. CENTRAL	1,204	672	315	112	57	47	46
Austin, Tex.	51	33	11	5	2	-	7
Baton Rouge, La.	23	14	6	-	3	-	5
Corpus Christi, Tex.	41	29	11	-	-	1	-
Dallas, Tex.	206	125	44	24	5	8	4
El Paso, Tex.	59	32	16	4	2	5	2
Fort Worth, Tex.	88	52	12	9	7	7	5
Houston, Tex.	264	131	75	31	18	9	6
Little Rock, Ark.	48	22	16	3	2	5	1
New Orleans, La.	104	50	35	12	6	1	1
San Antonio, Tex.	177	96	53	14	10	4	12
Shreveport, La.	43	23	10	7	-	3	-
Tulsa, Okla.	100	65	26	3	2	4	3
MOUNTAIN	668	435	142	42	22	27	27
Albuquerque, N.Mex.	79	55	15	6	1	2	2
Colo. Springs, Colo.	46	28	13	3	-	2	8
Denver, Colo.	130	81	30	6	4	9	3
Las Vegas, Nev.	71	39	23	8	1	-	2
Ogden, Utah	29	19	8	-	-	2	-
Phoenix, Ariz.	169	115	26	13	10	5	4
Pueblo, Colo.	19	15	2	2	-	-	-
Salt Lake City, Utah	43	30	4	1	3	5	2
Tucson, Ariz.	82	53	21	3	3	2	6
PACIFIC	1,695	1,040	398	131	55	65	71
Berkeley, Calif.	15	12	3	-	-	-	-
Fresno, Calif.	65	45	10	2	3	5	7
Glendale, Calif.	12	10	2	-	-	-	-
Honolulu, Hawaii	70	40	25	2	2	1	4
Long Beach, Calif.	95	65	18	6	1	5	4
Los Angeles, Calif.	405	235	81	48	28	7	14
Oakland, Calif.	85	46	28	1	2	8	3
Pasadena, Calif.	28	17	4	3	1	3	3
Portland, Oreg.	120	75	27	10	3	5	4
Sacramento, Calif.	106	58	29	9	4	6	5
San Diego, Calif.	129	85	22	13	2	7	10
San Francisco, Calif.	155	96	42	11	3	3	5
San Jose, Calif.	176	100	54	13	3	6	7
Seattle, Wash.	142	96	30	9	2	5	3
Spokane, Wash.	56	34	16	2	-	4	1
Tacoma, Wash.	36	26	7	2	1	-	1
TOTAL	11,383††	7,219	2,618	808	338	393	511

* 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 4 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.

Marijuana Use — Continued

three asked identical questions about marijuana use. In all cases, results were weighted by age and sex to match national estimates.

There were statistically significant declines in all frequencies of self-reported marijuana use between 1981 and 1983, with the exception of daily use, where the decline was not statistically significant (Table 3). There were also statistically significant declines from 1981 to 1982 in all frequencies except daily use, and a significant decline in use in the last 30 days between 1982 and 1983. Greater declines appeared to take place between 1981 and 1982 than between 1982 and 1983, although it is possible that greater differences would have appeared between the two latter years had the 1983 survey been carried out in May rather than February. In any case, these findings strongly suggest that there has been a recent decline in marijuana use among Canadian teenagers.

Editorial Note: Other data are consistent with those presented here. For example, surveys carried out among Vancouver secondary schoolchildren between 1970 and 1982 (*4*) showed declines in self-reported use of cannabis in the last 6 months and last 30 days between 1978 and 1982. Similarly, studies of students in grades 7-13 in Ontario carried out since 1977 found a decline in reported cannabis use in the past year between 1981 and 1983 (*5*). In addition, national surveys of U.S. high school seniors carried out between 1977 and 1982 found declines in self-reported annual, monthly, and daily marijuana use (*6*) since 1980. Concerns about health and strong peer pressure against use have been reported as factors reponsible for the declines (*7*).

It is possible that the declines are only apparent as more young people are becoming increasingly reluctant to admit using cannabis. However, there is no reason to believe this, since the three Canadian surveys were carried out independently and in such a way as to preserve the confidentiality of the responses. Thus, it seems reasonable to conclude that there has in fact been a real decline in recent use of marijuana by Canadian teenagers. Whether this decline is due to a secular trend or the influence of educational and other programs is, however, difficult to determine.

Reported in Chronic Diseases in Canada *1984;5:8-9 by WJ Bradley, N Jennings, Analytical Svcs Div, Information Systems Directorate, W Millar, I Rootman, Health Promotion Directorate, Health and Welfare Canada.*

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TABLE 3. Frequency of self-reported marijuana use among 12- to 19-year-olds interviewed by the Canadian Gallup Poll Ltd. (weighted by age and sex) — Canada, May 1981, May 1982, and February 1983

	Percentage, by year		
	1981	1982	1983
Use in last 12 months	22.9	18.8*	16.7†
Use in past 30 days	17.2	13.9*	10.5†§
Use in past week	9.1	6.3*	5.5†
Daily use	2.1	1.6	0.9
(Weighted total)	(1,212)	(1,544)	(925)

*1982 significantly different from 1981 ($p < 0.05$).

†1983 significantly different from 1981 ($p < 0.05$).

§1983 significantly different from 1982 ($p < 0.05$).

Marijuana Use — Continued

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Current Trends

Shigellosis — United States, 1983

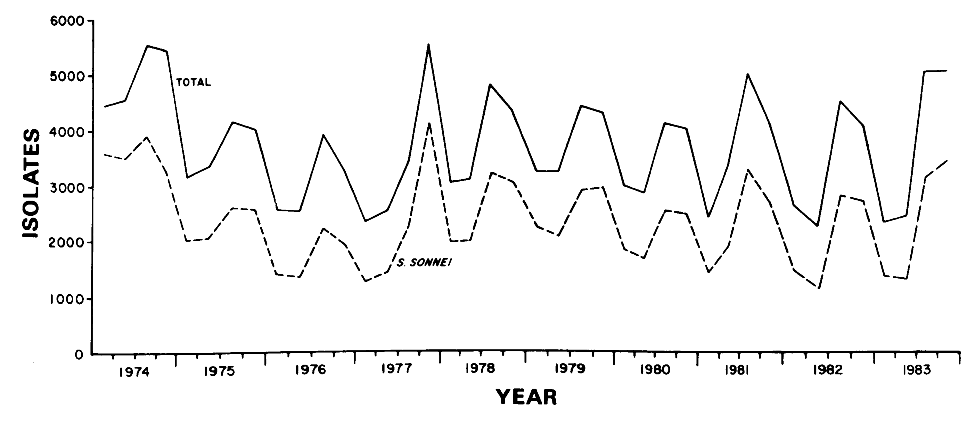
In 1983, 14,946 *Shigella* isolates from humans were reported to CDC. This is a 10.5% increase from the 13,523 isolates reported in 1982. The number of isolates is still less than the 15,334 reported during the peak year, 1978 (Figure 1).

Shigella serotypes were reported for 14,089 of the 14,946 isolates. The most frequently isolated serotype, *S. sonnei*, comprised 65.8% of all isolates serotyped (Table 1). When compared with 1982, the number of reported isolates increased notably in all serotypes except for *S. flexneri*, which remained relatively constant (Table 4). *S. flexneri* 1a accounted for 13.5% of all *S. flexneri* subtyped; 1b, 13.2%; 2a, 25.4%; 3a, 18.5%; and 6, 11.3%.

The reported increases in the number of isolates from specific serotypes were not confined to one state or region. However, from 1982 to 1983, reported *S. sonnei* isolates increased notably in Indiana (35 to 193), Maryland (85 to 199), Missouri (35 to 217), and New York (134 to 899). The increase in New York was associated with an outbreak in New York City.

The age-specific attack rate for persons from whom isolates were reported was highest for 2-year-old children, lower for older children, and lowest for adults. The age-specific attack rate for 20- to 29-year-olds was slightly higher than the attack rates for the older children and the remaining age groups (Figure 2). In addition, in the 20- to 29-year age group,

FIGURE 1. Reported *Shigella* isolates from humans, by quarter — United States, 1974-1983



Shigellosis — Continued

a slightly higher isolation rate was reported for females than for males. The isolation rates by sex were similar for the remaining age groups.

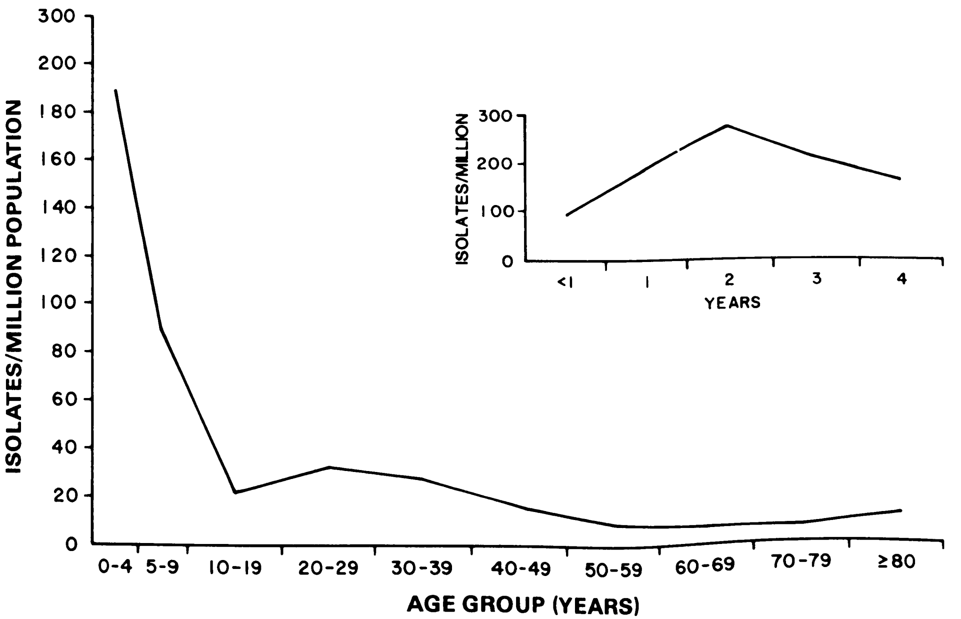
Since some populations have a higher attack rate than others, data were tabulated separately for patients residing in certain institutions (e.g., nursing homes, facilities for the mentally ill, and other resident-care centers) and on American Indian reservations. Only 4,124 (27.6%) of the reports included data on residence at the time of onset of illness. Of those specified, 49 (1.2%) lived in institutions and 54 (1.3%) on Indian reservations. Forty-eight (97.8%) of the reported isolates from residents of institutions were *S. sonnei*, and one (2.0%) was *S. flexneri*. Thirty-four (63.0%) of the reported isolates from Indian reservation residents were *S. sonnei* and 20 (37%) were *S. flexneri*. For other known residences, *S. sonnei* accounted for 2,918 (74.4%); *S. flexneri* 936 (23.9%); *S. boydii* for 39 (1.0%); and *S. dysenteriae* for 27 (0.7%).

Reported by Statistical Svcs Activity, Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

TABLE 4. ***Shigella*** **serotypes isolated from humans — United States, 1983**

Serotype	No. isolates reported in 1983	Isolates serotyped in 1983 (%)	Increase over 1982 (%)
S. sonnei	9,267	65.8	12.6
S. flexneri	4,222	30.0	1.4
S. boydii	415	2.9	41.2
S. dysenteriae	185	1.3	41.2

FIGURE 2. Rate of reported ***Shigella*** **isolates, by age of patient — United States,* 1983**



*Age date unavailable for California.

Shigellosis — Continued

Editoral Note: This report is based on CDC's *Shigella* Surveillance Activity, a passive laboratory-based system that receives reports from the 50 states and the District of Columbia. These reports do not distinguish between clinical or subclinical infections or between chronic or convalescent carriers.

Epidemiologic Notes and Reports

Epidemic Typhus — Georgia

On January 3, 1984, a 12-year-old male resident of middle Georgia became ill with a fever of 40 C (104 F) and a mild sore throat. No other symptoms or signs, including rash, were noted. Treatment with erythromycin for 4 days provided no clinical improvement, and the patient was hospitalized for further evaluation. Physical examination remained unchanged. No antibiotics were administered during the 8-day hospitalization, and the patient was discharged with the diagnosis of fever of undetermined origin. During the next 2 weeks, he gradually recovered.

Acute- and convalescent-phase serum specimens obtained from the patient were submitted to the Georgia Department of Human Resources, where testing indicated infection with either spotted fever group or typhus group rickettsiae. Additional testing at CDC revealed a fourfold increase in antibody titer against *Rickettsia prowazekii*, the causative agent of epidemic typhus. In February, state and CDC investigators visited the patient's residence and found a colony of eastern flying squirrels (*Glaucomys volans*) in the attic near the patient's bedroom. Four flying squirrels were trapped and returned to the CDC laboratories. Three of the four captured squirrels had antibodies against *R. prowazekii*.

Blood specimens obtained from the patient's parents showed no antibodies against *R. prowazekii*. Specimens were also obtained from 30 residents of 13 neighboring homes, including two residents of a house known to have been infested with flying squirrels. None of these persons had antibodies against *R. prowazekii;* no additional flying squirrels were captured in their homes.

Reported by ER Watson, MD, P Monroe, PhD, Medical Center of Central Georgia, Macon, H Coleman, Bleckley County Health Dept, JD Smith, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources; Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The characteristics of sporadically occurring *R. prowazekii* infection have been previously described (*1*). To date, 33 cases have been confirmed since 1976 (*2-4*); all but one have occurred in the eastern United States. Seventy percent of the patients have been 20 years of age or older, and 55% have been male. Like classic louse-borne epidemic typhus, these illnesses have been characterized by fever (100% of patients), headache (82%), skin rash (61%), myalgia (42%), and confusion (41%). The skin rash has been characterized as maculopapular, usually involving the trunk and spreading to the extremities. Seventy-four percent of patients have received therapy with tetracycline or chloramphenicol; recovery has been much more rapid among these patients than among those not receiving appropriate antibiotics. However, no patient with sporadic *R. prowazekii* infection, regardless of antibiotic therapy, has died. Transmission of *R. prowazekii* infection from flying squirrels to humans is unproven but highly suggested by the high prevalence of *R. prowazekii* antibodies and the isolation of the agent from flying squirrels (*5,6*) and the high proportion of patients (57%)

Typhus — Continued

that have either handled the squirrels or their nests or reported squirrels in their homes. Seventy percent of the typhus cases have occurred in the colder months of the year—December, January, February—when flying squirrels tend to congregate and nest in attics of homes to which they can find access. Possible mechanisms of transmission of the infection from flying squirrels to humans include vector (fleas, lice, or other ectoparasites) and airborne transmission of dried, aerosolized excretions (of ectoparasites or of flying squirrels). The limited community study conducted following this case suggests that unrecognized infection in the vicinity of cases is uncommon, even among residents of homes in which flying squirrels have been present.

The evolutionary histories of *R. prowazekii* infection in flying squirrels and in humans remain unclear; *R. prowazekii* probably evolved from *R. typhi*, the causative agent of endemic (murine) typhus, or from a common ancestor (*7*), but it is not known whether *R. prowazekii* appeared first in flying squirrels or in humans. Furthermore, it is not known whether flying squirrel-associated typhus infection can be transmitted from human to human by the classic epidemic typhus vector, since these sporadically occurring infections in the United States have not occurred in persons infested with body lice.

CDC is interested in studying cases of flying squirrel-associated epidemic typhus, and particularly, in obtaining an isolate of the causative organism from a patient before antibiotics have been administered. In the coming winter months, therefore, physicians should be alerted to the possibility of this infection and should report any suspicious illness promptly to their local and state health departments and to CDC. A blood specimen should be obtained from the patient before treatment.

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Notice to Readers

Pentamidine Isethionate Commercially Available

On October 16, 1984, pentamidine isethionate was approved by the U.S. Food and Drug Administration for the treatment of *Pneumocystis carinii* pneumonia. Hospital pharmacies can purchase pentamidine isethionate either through pharmaceutical wholesalers or directly from LyphoMed, Inc. Since pentamidine isethionate is now commercially available, CDC will no longer continue to supply this drug.

All product requests should be directed to:

LyphoMed, Inc.
2020 Ruby Street
Melrose Park, Illinois 60160

In an emergency, pentamidine isethionate can be obtained by calling (312) 345-9746.

Erratum: Vol. 33, No. 42

p. 502. In the article, "Organophosphate Insecticide Poisoning among Siblings—Mississippi," the third footnote of table 2 (p. 593) should read: §SNARL not established; typical ambient air values from a similar area in Mississippi were 200-400 ng/m^3 (*2*).

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