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Epidemiologic Notes and Reports

Follow-up on Toxic-Shock Syndrome — United States

In a recent MMWR (*1*), 55 cases of toxic-shock syndrome (TSS) were reported. TSS is a recently recognized syndrome characterized by sudden onset of high fever, vomiting, and diarrhea with rapid progression to hypotension and shock. These symptoms are accompanied by a sunburn-like rash which later desquamates, particularly on the palms and soles. The disease primarily affects young women during their menstrual periods, although a small number of cases have been recognized in women who are not menstruating at the time of onset, and in men. Since the earlier report, more than 50 additional cases of TSS that have occurred since September 1978 have been reported to CDC; 96% of these cases have occurred in women aged 12-52 during their menstrual periods.

Because of the striking association with menses, the Wisconsin State Department of Health and Social Services, the Utah State Department of Health, and CDC undertook separate studies to look at various practices and products associated with the menstrual cycle. The CDC study consisted of administering a telephone questionnaire to 52 women who had illness meeting a clinical case definition of TSS and 52 age- and sex-matched controls. With 1 exception, none of these were among the 55 originally reported cases. Controls were chosen by TSS patients from among their acquaintances. No significant differences were found between the patients and controls in marital status, parity, contraceptive methods used, frequency of sexual intercourse, frequency of sexual intercourse during menstruation, brand of tampon or sanitary napkin used, absorbency, or use of deodorized tampons. However, 50 of 50 cases with onset during menstruation (100%) used tampons as compared to 43 of 50 controls (86%) ($p = .02$ by McNemar test with continuity correction). Among case-control pairs who used tampons, more cases than controls used tampons at all times (day and night) while menstruating ($p < .05$; McNemar). Of the 52 cases included in the case-control study, vaginal cultures had been taken from 17 before antibiotic therapy was begun; of these, 16 (94%) were positive for *Staphylococcus aureus*. It is not known what proportion of women without TSS have vaginal cultures positive for *S. aureus* at the time of a menstrual period; estimates of the prevalence of *S. aureus* in the vagina and cervix range from 2%-15%, but it has been shown that aerobes are found in higher concentrations during the menstrual period than in the week preceding its onset (*2*). All of 5 isolates submitted to CDC have been penicillin-resistant, and a variety of phage-typing patterns have been found.

A similar study has been conducted by epidemiologists at the Wisconsin Division of Health, using 31 TSS patients from Wisconsin and 93 controls, matched only for menstruation, from gynecologic clinics. In this study, 30 of 31 patients (97%) and 71 of 93 controls (76%) used tampons during every menstrual period ($p = .014$; Fisher's exact 2-tail test). Controls were not matched with respect to marital status (32% of patients were

Toxic-Shock Syndrome — Continued

married as opposed to 60% of controls). A significant difference was found in the use of contraceptive devices: 22 of 31 TSS patients (71%) used no contraception as opposed to 26 of 91 controls (29%). No differences were found in the brand of tampon used, use of deodorized tampons, or duration and intensity of menstrual flow.

Of 24 Wisconsin patients who have had at least 2 periods after their first occurrence of TSS, 10 (42%) had at least 1 recurrence. The first recurrences occurred within 2 months after the initial episodes. Those treated with penicillinase-resistant antibiotics were less likely to have recurrences than those who did not receive such antibiotics. One of 9 (11.1%) patients receiving parenteral penicillinase-resistant penicillins or cephalosporins during their first episode had a recurrent episode within 2 months as opposed to 9 of 15 (60%) patients who received neither drug ($p = .02$; Fisher's exact 2-tail test).

The Utah study consisted of administering a questionnaire to 12 TSS patients and 40 neighborhood-matched controls. Although the difference in tampon use between patients and controls was not significantly different, the trend was similar to that seen in the CDC and Wisconsin studies. Twelve of 12 patients (100%) and 32 of 40 controls (80%) used tampons. No significant differences or trends were found in contraceptive method used, number of sexual partners, sexual intercourse during menstruation, history of herpes infections, history of previous vaginal infections, or use of douches or sprays during menstruation.

In no instance has person-to-person transmission been documented.

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Editorial Note: Although these studies suggest that use of tampons, especially continuous use throughout menstruation, is associated with development of TSS in some women, a causal role has not been shown. The risk of TSS appears to be low. Intense surveillance in Wisconsin suggests that the incidence is about 3 per 100,000 menstruating women per year (4.1/100,000 for women less than 30 and 1.2/100,000 for women more than 30 years of age).

Industry marketing data document that tampon use is frequent in the United States (70% of menstruating women). This indicates that tampon use by itself is not sufficient to cause the disease. The finding that no particular brand of tampon is associated with unusually high risk reduces the likelihood that the tampon carries or introduces the causative agent and suggests that the tampon acts as a cofactor. If TSS is the result of a bacterial toxin, as has been proposed (*3*), the use of tampons might favor growth of the bacterium in the vagina or absorption of the toxin from the vagina or uterus—but these possibilities have not been investigated.

Whatever the mechanism that leads to the association of tampon use and TSS, some recommendations, based on limited data, can be made. Women who have had TSS should probably not use tampons for at least several menstrual cycles after their illness or—if *S. aureus* has been found in the vagina—until eradication of the organism has been achieved. For the vast majority of women, the risk attributable to tampon use is so low that it seems unwarranted to recommend that use of tampons be discontinued. Moreover, in view of the low risk of disease in general, routine culturing of asymptomatic women for *S. aureus* does not appear to be warranted. However, because use of tampons continuously throughout the menstrual period is associated with increased risk of TSS, those women who wish to decrease their small risk of TSS may choose to use tampons during only part of their menstrual period or to use napkins or minipads instead. Doctors who want to use antibiotics to treat patients with TSS should probably choose a beta-lactamase-resistant antibiotic after appropriate cultures—including vaginal or cervical, blood,

Toxic-Shock Syndrome – Continued

anterior nares, urine, and stool—have been obtained. These drugs have not been documented to ameliorate the disease or to improve outcome, but they do appear to prevent recurrences. Immediate supportive therapy is necessary for severe cases.

In order to develop additional data concerning TSS, a prospective case-control study will be undertaken in consultation with the Food and Drug Administration. Physicians are encouraged to continue reporting cases to their state health departments and to the Special Pathogens Branch, Bureau of Epidemiology, CDC, Atlanta, Georgia 30333 (404-329-3687).

References

1. MMWR 1980;29:229-30.
2. Bartlett JG, Onderdonk AB, Drude E, et al. Quantitative bacteriology of the vaginal flora. J Infect Dis 1977;136:271-7.
3. Todd J, Fishaut M, Kapral F, Welch T. Toxic-shock syndrome associated with phage-group-1 staphylococci. Lancet 1978;2:1116-8.

Follow-up on Mount St. Helens

As previously reported (*1-3*), the National Institute for Occupational Safety and Health (NIOSH) has been analyzing dust samples from areas that received volcanic ashfall to determine the level of free crystalline silica that they contain. Crystalline silica—the cause of the disease silicosis—can occur in several forms: quartz, cristobalite, and tridymite. Several techniques to identify and quantitate crystalline silica have confirmed the presence of quartz and cristobalite, at levels of about 2% and 4% of the respirable (<10 μm) fraction, in settled-dust samples collected at Ellensburg, Yakima, and Spokane, Washington.

Questionnaires designed to study symptoms in the general population that could possibly be related to the ashfall were distributed the week beginning June 2 in Moses Lake, Washington, by a team of epidemiologists from the local and the state health departments and from CDC. A preliminary analysis of the questionnaires is now available. One hundred ninety-three households were randomly chosen; questionnaires were to be completed for every household member. Completed questionnaries have thus far been received for 150 (78%) of households, or 406 residents (approximately 4% of the town's total population). Among the 186 males and 216 females,* 109 (27%) were under 14 years of age and 50 (12%) were aged 65 or over. About 40% of respondents, including children, had regularly worn masks.

The preliminary review indicates that an increase in complaints of cough and mild irritation of the eyes, nose, and throat occurred in the 2 weeks following the May 18 eruption. Hemoptysis was reported in 2 people, both of whom had received heavy exposures. There was little evidence of an increase in symptoms of skin irritation, diarrhea, headache, or in fever. Twenty people (5%) had visited a physician, emergency room (ER) or clinic since the eruption, 3 for respiratory complaints and 17 for other problems seemingly unrelated to ashfall. Four people (1%) had been admitted to a hospital, 1 for respiratory disease.

*The sex of 4 subjects was unknown.

Mount St. Helens – Continued

Surveillance of hospital emergency room visits and admissions in 21 Washington hospitals continued through the weeks May 11-June 14 (*3*). In Ritzville, Moses Lake, and Othello—the 3 eastern Washington sites with the highest levels of ashfall—the numbers of weekly pulmonary† ER visits and hospital admissions for the third and fourth post-eruption weeks (June 1-7 and June 8-14) appeared to be comparable to those reported before the May 18 eruption. However, in Yakima and Spokane, an apparent sustained increase in pulmonary visits—but not admissions—was seen for the week of June 8-14.

With the exception of Centralia, the western Washington hospitals surveyed reported small or no increases in pulmonary ER visits for the week of May 25-31 (after the ashfall of May 25). Centralia—the town with the greatest ashfall (1 inch)—had a marked increase: from 17 to 44. The number of ER visits for pulmonary conditions appeared to have returned to pre-eruption levels by the second week (June 1-7). Only 1 hospital (in Aberdeen) had an increase in reported pulmonary admissions for the 2 weeks (May 24-June 7) after the ashfall (from 5 to 12 and 10).

Reported by the Div of Respiratory Disease Studies, NIOSH, and the Chronic Diseases Div, Bur of Epidemiology, CDC.

References

1. MMWR 1980;29:263-4.
2. MMWR 1980;29:283-4.
3. MMWR 1980;29:286.

†These included pneumonia, asthma, bronchitis, chronic obstructive pulmonary disease, and emphysema; upper respiratory infections were excluded.

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

[Cumulative totals include revised and delayed reports through previous weeks.]

DISEASE	25th WEEK ENDING June 21, 1980	25th WEEK ENDING June 23, 1979	MEDIAN 1975-1979	CUMULATIVE, FIRST 25 WEEKS June 21, 1980	CUMULATIVE, FIRST 25 WEEKS June 23, 1979	CUMULATIVE, FIRST 25 WEEKS MEDIAN 1975-1979
Aseptic meningitis	98	125	100	1,564	1,414	1,060
Brucellosis	6	9	6	81	56	93
Chickenpox	4,535	4,483	3,307	144,355	162,183	142,079
Diphtheria	–	–	–	2	4	112
Encephalitis: Primary (arthropod-borne & unspec.)	7	13	18	280	251	308
Post-infectious	4	4	5	93	120	120
Hepatitis, Viral: Type B	354	319	308	7,965	6,718	7,095
Type A	569	637	625	12,679	14,023	15,213
Type unspecified	226	221	159	5,644	4,797	4,128
Malaria	56	19	17	819	265	210
Measles (rubeola)	458	317	924	11,180	10,290	20,679
Meningococcal infections: Total	51	56	28	1,520	1,564	1,317
Civilian	51	55	28	1,514	1,548	1,311
Military	–	1	1	6	16	16
Mumps	156	301	476	6,378	9,759	14,257
Pertussis	25	47	34	517	596	596
Rubella (German measles)	84	362	362	2,794	9,574	13,726
Tetanus	4	1	1	28	27	29
Tuberculosis	630	655	689	12,950	13,164	14,500
Tularemia	8	4	4	60	82	57
Typhoid fever	10	11	8	168	210	164
Typhus fever, tick-borne (Rky. Mt. spotted)	37	48	48	298	287	287
Venereal diseases:						
Gonorrhea: Civilian	20,208	22,182	19,498	452,640	456,573	451,180
Military	314	499	495	12,608	13,050	13,050
Syphilis, primary & secondary: Civilian	485	567	449	12,440	11,575	11,575
Military	5	1	6	149	139	146
Rabies in animals	127	93	72	3,175	2,289	1,411

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1980		CUM. 1980
Anthrax	–	Poliomyelitis: Total	7
Botulism (Colo. 1, Alaska 1)	22	Paralytic (Wyo. 1, Calif. 1)	5
Cholera	8	Psittacosis	36
Congenital rubella syndrome	38	Rabies in man	–
Leprosy (La. 1, Calif. 1)	82	Trichinosis (Calif. 1)	64
Leptospirosis (Miss. 1, Hawaii 2)	27	Typhus fever, flea-borne (endemic, murine) (Tex. 4, Calif. 1)	28
Plague	3		

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending June 21, 1980, and June 23, 1979 (25th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-infectious	B	A	Unspecified		
	1980	1980	1980	1980	CUM. 1980	1980	1979	1980	1980	1980	1980	1980	CUM. 1980
UNITED STATES	98	6	4,535	–	2	7	13	4	354	569	226	56	819
NEW ENGLAND	5	1	518	–	–	–	1	1	9	9	10	1	60
Maine	–	–	14	–	–	–	–	–	2	1	1	–	12
N.H.	–	–	3	–	–	–	–	–	–	–	–	–	6
Vt.	–	–	8	–	–	–	–	–	–	2	–	–	–
Mass.	–	–	212	–	–	–	–	–	3	1	8	1	27
R.I.	3	–	33	–	–	–	–	–	–	4	–	–	6
Conn.	2	1	248	–	–	–	1	1	4	1	1	–	9
MID. ATLANTIC	16	–	409	–	1	2	2	–	73	63	29	3	106
Upstate N.Y.	3	–	136	–	–	–	2	–	9	18	13	1	20
N.Y. City	3	–	251	–	1	–	–	–	6	7	3	–	30
N.J.	9	–	NN	–	–	2	–	–	33	18	10	2	28
Pa.	1	–	22	–	–	–	–	–	25	20	3	–	28
E.N. CENTRAL	6	1	2,626	–	1	–	1	–	47	82	22	2	38
Ohio	–	–	162	–	–	–	–	–	7	7	9	–	7
Ind.	–	–	116	–	–	–	1	–	4	12	3	–	3
Ill.	–	1	1,148	–	–	–	–	–	14	45	7	2	9
Mich.	6	–	680	–	1	–	–	–	17	13	3	–	13
Wis.	–	–	520	–	–	–	–	–	5	5	–	–	6
W.N. CENTRAL	3	2	53	–	–	1	3	–	14	21	7	1	30
Minn.	–	–	–	–	–	–	–	–	4	15	1	–	13
Iowa	–	–	21	–	–	–	3	–	5	3	1	1	4
Mo.	1	–	5	–	–	–	–	–	5	3	1	–	7
N. Dak.	–	–	18	–	–	–	–	–	–	–	–	–	–
S. Dak.	–	1	7	–	–	–	–	–	–	–	1	–	1
Nebr.	2	–	2	–	–	–	–	–	–	–	–	–	3
Kans.	–	1	–	–	–	1	–	–	–	–	3	–	2
S. ATLANTIC	19	–	189	–	–	–	1	–	69	84	30	6	93
Del.	–	–	15	–	–	–	–	–	–	2	1	–	–
Md.	2	–	44	–	–	–	–	–	14	5	10	1	19
D.C.	–	–	–	–	–	–	–	–	–	–	–	–	1
Va.	2	–	12	–	–	–	–	–	6	7	2	3	33
W. Va.	–	–	52	–	–	–	–	–	–	1	–	–	3
N.C.	4	–	NN	–	–	–	1	–	3	2	2	–	5
S.C.	–	–	12	–	–	–	–	–	4	1	1	–	3
Ga.	–	–	–	–	–	–	–	–	11	19	–	2	13
Fla.	11	–	54	–	–	–	–	–	31	47	14	–	16
E.S. CENTRAL	12	1	64	–	–	1	–	1	19	29	2	2	8
Ky.	1	1	6	–	–	–	–	–	6	10	–	–	2
Tenn.	1	–	NN	–	–	–	–	–	8	6	–	–	–
Ala.	10	–	54	–	–	1	–	–	2	2	2	2	6
Miss.	–	–	4	–	–	–	–	1	3	11	–	–	–
W.S. CENTRAL	20	–	466	–	–	1	1	1	30	113	73	3	90
Ark.	1	–	8	–	–	–	–	–	2	4	2	–	6
La.	6	–	NN	–	–	1	–	–	8	14	8	–	37
Okla.	1	–	–	–	–	–	1	–	3	12	4	–	9
Tex.	12	–	458	–	–	–	–	1	17	83	59	3	38
MOUNTAIN	–	–	67	–	–	–	1	–	9	39	7	–	34
Mont.	–	–	26	–	–	–	1	–	–	–	–	–	–
Idaho	–	–	–	–	–	–	–	–	–	7	–	–	–
Wyo.	–	–	–	–	–	–	–	–	–	–	–	–	2
Colo.	–	–	41	–	–	–	–	–	7	14	3	–	17
N. Mex.	–	–	–	–	–	–	–	–	–	–	–	–	2
Ariz.	–	–	NN	–	–	–	–	–	–	6	3	–	10
Utah	–	–	–	–	–	–	–	–	1	5	–	–	–
Nev.	–	–	–	–	–	–	–	–	1	7	1	–	3
PACIFIC	17	1	143	–	–	2	3	1	84	129	46	38	360
Wash.	–	–	119	–	–	–	1	–	11	5	5	4	32
Oreg.	–	–	2	–	–	–	1	1	12	31	2	–	20
Calif.	13	1	–	–	–	2	1	–	59	92	37	33	295
Alaska	1	–	1	–	–	–	–	–	–	–	–	1	4
Hawaii	3	–	21	–	–	–	–	–	2	1	2	–	9
Guam	NA	NA	NA	NA	–	NA	–	NA	NA	NA	NA	NA	1
P.R.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	1
V.I.	–	–	–	–	–	–	–	–	–	–	–	–	–
Pac. Trust Terr.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–

NN: Not notifiable. NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending June 21, 1980, and June 23, 1979 (25th week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	1980	1980	CUM. 1980	CUM. 1980
UNITED STATES	458	11,180	10,290	51	1,520	1,564	156	6,378	25	84	2,794	28
NEW ENGLAND	8	636	273	6	99	78	8	523	–	2	194	–
Maine	–	32	15	–	3	3	2	277	–	–	68	–
N.H.	5	308	29	–	6	8	1	16	–	–	30	–
Vt.	–	226	112	2	13	5	1	6	–	–	3	–
Mass.	2	47	13	1	38	25	3	117	–	2	71	–
R.I.	–	2	102	–	7	4	–	17	–	–	9	–
Conn.	1	21	2	3	32	33	1	90	–	–	13	–
MID. ATLANTIC	114	3,349	1,144	10	270	226	11	697	6	10	412	2
Upstate N.Y.	13	608	513	2	91	83	3	84	3	2	160	1
N.Y. City	61	974	559	1	74	58	5	63	1	4	79	–
N.J.	40	741	50	7	56	57	2	88	–	4	65	–
Pa.	–	1,026	22	–	49	28	1	462	2	–	108	1
E.N. CENTRAL	152	1,879	2,665	4	166	158	82	2,495	6	22	707	1
Ohio	42	229	189	–	58	61	44	1,370	2	–	4	1
Ind.	1	84	161	–	31	33	–	98	–	7	299	–
Ill.	15	275	1,206	3	27	3	29	318	2	12	153	–
Mich.	3	219	703	1	39	44	4	752	2	–	120	–
Wis.	91	1,072	406	–	11	17	5	257	–	3	131	–
W.N. CENTRAL	41	1,219	1,395	4	57	48	2	230	2	6	203	3
Minn.	41	1,007	909	2	20	9	1	21	–	1	50	2
Iowa	–	–	15	1	6	5	–	35	–	–	4	–
Mo.	–	62	400	1	20	26	–	67	2	1	39	–
N. Dak.	–	–	13	–	1	1	–	3	–	–	5	–
S. Dak.	–	–	1	–	4	2	–	1	–	–	–	–
Nebr.	–	80	–	–	–	–	–	9	–	–	–	–
Kans.	–	70	57	–	6	5	1	94	–	4	105	1
S. ATLANTIC	60	1,719	1,525	12	359	393	7	808	5	5	276	5
Del.	2	3	1	–	2	5	1	37	–	–	–	–
Md.	–	47	7	1	34	34	1	264	–	–	59	–
D.C.	–	–	–	–	1	–	–	3	–	–	–	–
Va.	4	295	210	1	32	55	–	47	–	–	48	1
W. Va.	–	15	49	–	12	7	–	65	–	1	21	1
N.C.	–	113	104	3	72	54	2	81	–	–	40	–
S.C.	2	139	138	1	45	47	–	198	2	–	49	2
Ga.	47	770	344	–	64	61	–	1	2	–	–	–
Fla.	5	337	672	6	97	130	3	112	1	4	59	1
E.S. CENTRAL	3	287	161	2	144	116	21	809	1	–	73	3
Ky.	1	51	23	–	46	22	21	720	–	–	34	1
Tenn.	2	154	47	1	40	35	–	23	–	–	34	1
Ala.	–	21	71	1	37	28	–	13	–	–	4	1
Miss.	–	61	20	–	21	31	–	53	1	–	1	–
W.S. CENTRAL	4	877	853	7	175	252	11	222	1	7	98	7
Ark.	–	11	7	2	15	21	1	20	–	1	3	1
La.	–	13	234	3	65	99	–	62	–	–	9	1
Okla.	–	727	22	–	16	23	–	–	–	1	3	–
Tex.	4	126	590	2	79	109	10	140	1	5	83	5
MOUNTAIN	31	324	251	–	47	65	7	160	–	6	102	–
Mont.	–	1	51	–	2	5	2	47	–	–	29	–
Idaho	–	–	4	–	4	5	1	15	–	–	15	–
Wyo.	–	–	36	–	2	1	–	–	–	–	–	–
Colo.	1	16	33	–	12	4	3	39	–	–	5	–
N. Mex.	–	9	32	–	7	4	–	–	–	–	5	–
Ariz.	30	245	69	–	7	30	1	24	–	6	24	–
Utah	–	46	15	–	2	8	–	26	–	–	20	–
Nev.	–	7	11	–	11	8	–	9	–	–	4	–
PACIFIC	45	890	2,023	6	203	228	7	434	4	26	729	7
Wash.	–	160	1,092	–	36	37	1	114	–	–	66	–
Oreg.	–	1	48	–	37	16	1	50	–	3	47	–
Calif.	45	719	806	5	127	162	5	251	3	16	605	7
Alaska	–	5	17	–	2	5	–	10	1	7	9	–
Hawaii	–	5	60	1	1	8	–	9	–	–	2	–
Guam	NA	3	3	–	1	1	NA	6	NA	NA	–	–
P.R.	NA	71	253	–	7	2	NA	109	NA	NA	11	7
V.I.	–	5	4	–	1	3	–	2	–	–	–	–
Pac. Trust Terr.	NA	3	6	–	–	1	NA	8	NA	NA	1	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending June 21, 1980, and June 23, 1979 (25th week)

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1980	CUM. 1980	CUM. 1980	1980	CUM. 1980	1980	CUM. 1980	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	CUM. 1979	CUM. 1980
UNITED STATES	630	12,950	60	10	168	37	298	20,208	452,640	456,573	485	12,440	11,575	3,175
NEW ENGLAND	23	370	1	–	4	3	8	568	11,671	11,745	17	325	218	23
Maine	–	29	–	–	–	–	–	23	685	805	–	4	5	16
N.H.	–	6	–	–	–	–	–	19	383	419	–	1	13	1
Vt.	1	11	–	–	–	–	–	11	277	267	–	3	1	–
Mass.	15	199	–	–	2	3	5	284	4,788	4,693	10	207	128	2
R.I.	2	41	–	–	1	–	1	30	699	958	2	15	7	–
Conn.	5	84	1	–	1	–	2	201	4,839	4,603	5	95	64	4
MID. ATLANTIC	76	2,134	1	2	42	1	9	2,128	49,138	48,680	92	1,803	1,773	17
Upstate N.Y.	11	403	–	1	6	–	2	431	9,056	7,698	6	145	126	7
N.Y. City	34	786	1	–	17	–	–	708	19,143	19,255	62	1,191	1,212	–
N.J.	18	442	–	1	9	1	6	509	9,099	9,264	12	230	234	3
Pa.	13	503	–	–	10	–	1	480	11,840	12,463	12	237	201	7
E.N. CENTRAL	109	1,880	1	–	13	–	7	2,827	69,922	71,828	55	1,185	1,576	480
Ohio	11	318	–	–	5	–	6	565	18,791	19,382	22	199	291	25
Ind.	10	205	–	–	–	–	–	263	6,641	6,948	1	92	105	50
Ill.	39	683	–	–	3	–	1	1,071	21,980	22,661	29	665	953	288
Mich.	44	566	1	–	4	–	–	633	15,652	16,400	1	180	180	3
Wis.	5	108	–	–	1	–	–	295	6,858	6,437	2	49	47	114
W.N. CENTRAL	29	464	9	1	5	3	8	1,383	20,544	21,937	5	146	152	1,024
Minn.	12	78	1	–	1	–	–	222	3,440	3,794	–	54	45	90
Iowa	–	37	1	–	1	–	–	110	2,242	2,688	–	8	22	206
Mo.	7	215	6	1	1	1	5	700	8,859	9,333	4	69	58	254
N. Dak.	–	23	–	–	–	–	–	24	301	361	1	1	1	117
S. Dak.	6	28	–	–	1	–	–	32	630	760	–	1	1	212
Nebr.	–	21	1	–	–	–	–	90	1,693	1,523	–	6	2	48
Kans.	4	62	–	–	1	2	3	205	3,379	3,478	–	7	23	97
S. ATLANTIC	105	2,919	9	–	21	23	199	5,385	111,061	108,944	129	2,943	2,771	206
Del.	6	43	–	–	1	1	1	69	1,538	1,769	1	8	17	1
Md.	7	373	2	–	2	2	24	914	11,723	13,283	12	207	190	3
D.C.	11	174	–	–	3	–	–	366	7,863	6,996	8	201	220	–
Va.	4	329	–	–	3	–	17	287	9,438	10,434	10	261	257	6
W. Va.	5	110	–	–	1	–	1	76	1,394	1,537	–	12	38	6
N.C.	19	497	3	–	1	14	94	645	16,316	16,029	8	218	227	7
S.C.	–	271	–	–	3	6	49	389	10,518	10,195	4	151	132	34
Ga.	16	378	4	–	–	–	11	1,292	21,051	21,219	26	862	756	108
Fla.	37	744	–	–	7	–	2	1,347	31,220	27,482	60	1,023	934	41
E.S. CENTRAL	82	1,182	6	–	6	3	25	1,600	36,837	39,196	48	1,003	745	182
Ky.	22	250	–	–	2	–	2	203	5,389	5,156	1	72	76	79
Tenn.	24	396	6	–	–	3	15	492	12,976	13,837	15	407	324	82
Ala.	29	332	–	–	1	–	6	582	10,941	11,670	11	208	143	21
Miss.	7	204	–	–	3	–	2	323	7,531	8,533	21	316	202	–
W.S. CENTRAL	89	1,321	22	1	18	2	34	2,465	58,804	59,628	97	2,399	2,048	883
Ark.	7	128	17	–	–	–	6	360	4,448	4,483	4	79	62	113
La.	26	249	–	–	–	–	–	425	10,423	10,555	19	575	470	7
Okla.	–	120	3	–	1	1	17	247	5,812	5,440	8	50	35	147
Tex.	56	824	2	1	17	1	11	1,433	38,121	39,150	66	1,695	1,481	616
MOUNTAIN	23	344	9	1	11	1	7	840	17,342	17,982	7	297	208	76
Mont.	–	11	1	–	1	–	3	38	644	900	–	1	6	9
Idaho	6	16	1	–	1	–	1	38	794	763	–	17	15	–
Wyo.	–	15	3	–	–	1	2	26	509	419	–	7	5	1
Colo.	–	40	3	–	2	–	–	212	4,651	4,819	5	78	50	–
N. Mex.	8	74	–	–	2	–	–	149	2,228	2,245	–	54	39	22
Ariz.	9	148	1	1	3	–	–	180	4,614	4,999	–	93	60	44
Utah	–	23	–	–	2	–	1	31	811	946	–	7	3	–
Nev.	–	17	–	–	–	–	–	166	3,091	2,891	2	40	30	–
PACIFIC	94	2,336	2	5	48	1	1	3,012	77,321	76,633	35	2,339	2,084	284
Wash.	17	199	–	–	–	–	–	336	6,089	6,608	–	106	116	–
Oreg.	2	92	–	–	5	–	–	273	5,440	4,775	2	53	90	–
Calif.	75	1,971	2	5	43	1	1	2,270	62,327	61,464	29	2,084	1,815	240
Alaska	–	40	–	–	–	–	–	79	1,859	2,496	1	5	12	44
Hawaii	–	34	–	–	–	–	–	54	1,606	1,290	3	91	51	–
Guam	NA	19	–	NA	–	NA	–	NA	40	50	NA	–	–	–
P.R.	NA	71	–	NA	1	NA	–	NA	1,232	1,006	NA	250	236	25
V.I.	–	–	–	–	–	–	–	6	95	87	–	10	6	–
Pac. Trust Terr.	NA	23	–	NA	–	NA	–	NA	181	238	NA	–	1	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE IV. Deaths in 121 U.S. cities,* week ending June 21, 1980 (25th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P&I** TOTAL
	ALL AGES	>65	45-64	25-44	<1	
NEW ENGLAND	681	431	164	24	41	36
Boston, Mass.	181	110	45	7	12	10
Bridgeport, Conn.	41	27	11	1	1	3
Cambridge, Mass.	26	21	5	–	–	5
Fall River, Mass.	20	17	2	1	–	–
Hartford, Conn.	63	34	23	3	1	5
Lowell, Mass.	33	24	5	3	–	1
Lynn, Mass.	18	13	3	1	–	1
New Bedford, Mass.	19	13	6	–	–	–
New Haven, Conn.	60	22	12	1	24	–
Providence, R.I.	60	39	13	4	2	1
Somerville, Mass.	10	7	3	–	–	1
Springfield, Mass.	56	37	16	1	1	4
Waterbury, Conn.	36	26	6	1	–	1
Worcester, Mass.	58	41	14	1	–	4
MID. ATLANTIC	2,431	1,564	564	165	72	80
Albany, N.Y.	44	28	10	3	2	–
Allentown, Pa.	22	15	7	–	–	–
Buffalo, N.Y.	114	73	28	7	1	12
Camden, N.J.	37	22	10	2	2	1
Elizabeth, N.J.	32	17	11	1	–	–
Erie, Pa.†	47	32	8	3	4	–
Jersey City, N.J.	52	27	20	3	–	–
Newark, N.J.	59	31	11	9	5	3
N.Y. City, N.Y.	1,341	884	290	91	40	43
Paterson, N.J.	30	14	8	1	4	1
Philadelphia, Pa.†	223	138	58	18	3	7
Pittsburgh, Pa.†	43	27	10	5	1	–
Reading, Pa.	33	25	7	1	–	4
Rochester, N.Y.	119	79	24	9	4	5
Schenectady, N.Y.	25	20	4	–	–	1
Scranton, Pa.†	29	16	12	1	–	–
Syracuse, N.Y.	89	57	24	3	5	1
Trenton, N.J.	43	23	13	5	–	–
Utica, N.Y.	22	14	5	2	1	1
Yonkers, N.Y.	27	22	4	1	–	1
E.N. CENTRAL	2,191	1,287	555	145	101	57
Akron, Ohio	63	46	10	4	3	–
Canton, Ohio	39	22	7	6	–	–
Chicago, Ill.	544	299	138	49	30	10
Cincinnati, Ohio	132	76	38	4	9	2
Cleveland, Ohio	183	97	52	15	9	1
Columbus, Ohio	128	68	40	9	5	6
Dayton, Ohio	101	67	26	3	3	2
Detroit, Mich.	236	135	60	21	10	7
Evansville, Ind.	58	33	17	3	1	–
Fort Wayne, Ind.	50	33	12	3	–	5
Gary, Ind.	23	7	12	1	1	–
Grand Rapids, Mich.	70	44	14	2	7	2
Indianapolis, Ind.	156	92	35	9	11	2
Madison, Wis.	30	14	7	3	2	2
Milwaukee, Wis.	116	84	23	1	2	3
Peoria, Ill. ††	42	26	9	2	3	4
Rockford, Ill.	45	31	11	1	2	2
South Bend, Ind.	49	34	12	2	1	5
Toledo, Ohio	76	49	20	3	2	1
Youngstown, Ohio	50	30	12	4	–	3
W.N. CENTRAL	675	419	136	42	40	22
Des Moines, Iowa	47	33	7	3	–	1
Duluth, Minn.	25	16	6	–	1	–
Kansas City, Kans.	26	12	5	4	2	1
Kansas City, Mo.	98	65	13	10	4	2
Lincoln, Nebr.	19	14	3	–	–	2
Minneapolis, Minn.	86	52	17	8	6	4
Omaha, Nebr.	80	51	16	2	6	1
St. Louis, Mo.	162	98	40	8	12	7
St. Paul, Minn.	80	51	17	3	4	1
Wichita, Kans.	52	27	12	4	5	3

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P&I** TOTAL
	ALL AGES	>65	45-64	25-44	<1	
S. ATLANTIC	1,079	651	262	82	41	47
Atlanta, Ga.	151	85	38	14	5	4
Baltimore, Md.	130	88	28	7	6	–
Charlotte, N.C.	84	46	13	10	4	4
Jacksonville, Fla.	97	62	23	5	1	7
Miami, Fla.	104	54	30	12	6	5
Norfolk, Va.	44	24	17	2	–	3
Richmond, Va.	59	41	13	4	1	5
Savannah, Ga.	39	26	9	2	–	2
St. Petersburg, Fla.	104	86	10	1	6	8
Tampa, Fla.	57	37	10	6	3	6
Washington, D.C.	167	75	60	15	9	3
Wilmington, Del.	43	27	11	4	–	–
E.S. CENTRAL	736	416	198	55	29	26
Birmingham, Ala.	131	67	38	8	12	–
Chattanooga, Tenn.	63	40	14	5	2	3
Knoxville, Tenn.	45	31	8	3	1	–
Louisville, Ky.	100	57	26	9	4	7
Memphis, Tenn.	193	116	50	12	3	6
Mobile, Ala.	38	23	9	4	1	–
Montgomery, Ala.	55	30	13	9	1	1
Nashville, Tenn.	111	52	40	5	5	9
W.S. CENTRAL	1,268	713	316	116	57	45
Austin, Tex.	37	29	2	3	–	3
Baton Rouge, La.	34	21	9	1	1	1
Corpus Christi, Tex.	37	20	9	3	3	–
Dallas, Tex.	199	113	42	19	14	6
El Paso, Tex.	47	21	19	2	1	5
Fort Worth, Tex.	76	47	16	8	1	4
Houston, Tex.	369	164	116	51	18	3
Little Rock, Ark.	63	37	16	4	5	4
New Orleans, La.	101	56	20	8	8	1
San Antonio, Tex.	155	94	41	9	4	10
Shreveport, La.	63	46	13	3	–	–
Tulsa, Okla.	87	65	13	5	2	8
MOUNTAIN	572	342	121	47	28	17
Albuquerque, N. Mex.	60	37	11	5	3	4
Colo. Springs, Colo.	37	26	7	2	1	3
Denver, Colo.	103	66	21	9	2	3
Las Vegas, Nev.	77	40	18	13	1	2
Ogden, Utah	14	8	2	–	2	–
Phoenix, Ariz.	131	78	24	10	11	–
Pueblo, Colo.	16	8	4	3	1	1
Salt Lake City, Utah	50	28	12	1	3	4
Tucson, Ariz.	84	51	22	4	4	–
PACIFIC	1,881	1,153	449	141	54	65
Berkeley, Calif.	19	15	1	2	–	1
Fresno, Calif.	80	44	23	2	4	7
Glendale, Calif.	45	34	8	2	–	–
Honolulu, Hawaii	53	22	20	3	3	4
Long Beach, Calif.	98	61	27	5	2	4
Los Angeles, Calif.	660	405	147	64	14	16
Oakland, Calif.	67	33	23	6	1	3
Pasadena, Calif.	20	17	–	1	1	1
Portland, Oreg.	120	78	28	8	3	1
Sacramento, Calif.	67	47	12	4	3	6
San Diego, Calif.	114	66	30	8	3	–
San Francisco, Calif.	132	83	31	11	4	3
San Jose, Calif.	158	95	40	12	4	7
Seattle, Wash.	153	88	38	10	8	7
Spokane, Wash.	45	28	14	1	1	2
Tacoma, Wash.	50	37	7	2	3	3
TOTAL	11,514	6,976	2,765	817	463	395

*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.

††Data not available this week. Figures are estimates based on average percent of regional total.

Surveillance Summary

Tuberculosis — United States, 1979

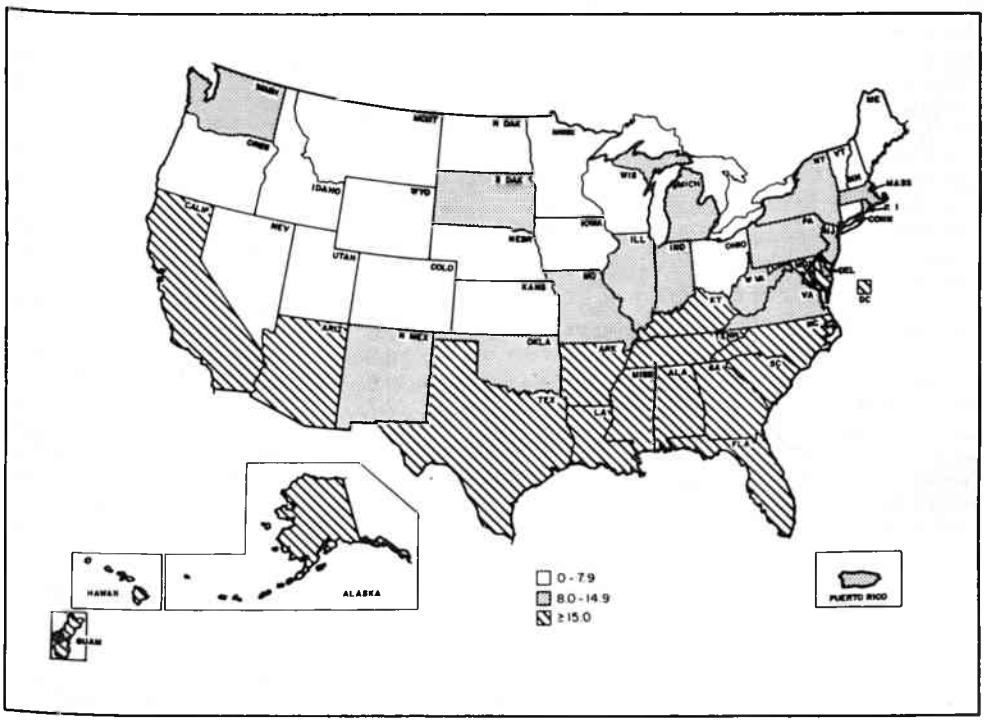
In 1979, 27,669 cases of tuberculosis were reported to CDC, for a case rate of 12.6 per 100,000. This represents a decrease from 1978 of 3.0% in the number of cases reported and 3.8% in the case rate (Table 1).

Case rates for the 50 states ranged from 34.0 per 100,000 in Hawaii to 1.9 per 100,000 in Nebraska. The rate decreased in 30 states, remained unchanged in 3, and increased in 17 states and the District of Columbia. Since 1970, the number of states showing an increase in the case rate over the previous year has ranged from 9 to 18, averaging about 14 per year. Tuberculosis rates continued to be higher in the southern half of the country (Figure 1) and in the major cities. The rate among persons living in 56 cities of more than 250,000 persons was 21.9 per 100,000—1.7 times the national rate and 2.2% less than the case rate for these same cities in 1978. Urban rates ranged from 54.5 per 100,000 in San Francisco, California, to 3.4 per 100,000 in Douglas County (Omaha), Nebraska. In 1979, the case rates increased in 26 of the country's 56 largest cities.

Reported by the Tuberculosis Control Div, Bur of State Services, CDC.

Editorial Note: This is the smallest decline in the case rate since 1966, excluding 1975, when changes occurred in the criteria for counting cases. The smaller-than-expected decrease in 1979 is attributable to the number of cases of tuberculosis among recently arrived Indochinese refugees. A survey of tuberculosis among Indochinese refugees in 1979 has recently been conducted; the results are pending.

FIGURE 1. Tuberculosis case rates per 100,000 population, by state, 1979



Tuberculosis – Continued

TABLE 1. Tuberculosis cases and case rates, by state, 1979 and 1978

State	Tuberculosis cases		Case rate per 100,000 population		Rank according to rate		Population July 1, 1979
	1979	1978	1979	1978	1979	1978	
United States	27,669	28,521	12.6	13.1	–	–	220,099,000
Alabama	644	672	17.1	18.0	9	10	3,769,000
Alaska	90	94	22.2	23.3	3	2	406,000
Arizona	417	406	17.0	17.2	11	11	2,450,000
Arkansas	382	417	17.5	19.1	8	7	2,180,000
California	3,642	3,351	16.0	15.0	14	16	22,694,000
Colorado	170	143	6.1	5.4	36	41	2,772,000
Connecticut	169	186	5.4	6.0	38	39	3,115,000
Delaware	63	58	10.8	9.9	25	30	582,000
District of Columbia*	324	314	49.4	46.6	–	–	656,000
Florida	1,628	1,724	18.4	20.1	4	4	8,860,000
Georgia	929	876	18.2	17.2	5	12	5,117,000
Hawaii	311	290	34.0	32.3	1	1	915,000
Idaho	21	38	2.3	4.3	49	45	905,000
Illinois	1,540	1,645	13.7	14.6	18	17	11,229,000
Indiana	509	544	9.4	10.1	27	28	5,400,000
Iowa	74	103	2.5	3.6	48	46	2,902,000
Kansas	104	116	4.4	4.9	43	43	2,369,000
Kentucky	635	649	18.0	18.6	6	8	3,527,000
Louisiana	647	648	16.1	16.3	13	15	4,018,000
Maine	56	70	5.1	6.4	39	38	1,097,000
Maryland	648	755	15.6	18.2	15	9	4,148,000
Massachusetts	476	580	8.3	10.0	30	29	5,769,000
Michigan	1,052	1,260	11.4	13.7	24	19	9,207,000
Minnesota	190	175	4.7	4.4	41	44	4,060,000
Mississippi	553	549	22.8	22.8	2	3	2,429,000
Missouri	500	456	10.3	9.4	26	31	4,867,000
Montana	39	58	5.0	7.4	40	37	786,000
Nebraska	30	30	1.9	1.9	50	50	1,574,000
Nevada	54	73	7.7	11.1	33	25	702,000
New Hampshire	25	21	2.8	2.4	47	49	887,000
New Jersey	933	1,003	12.7	13.7	19	20	7,332,000
New Mexico	153	149	12.3	12.3	21	21	1,241,000
New York	2,229	2,060	12.6	11.6	20	24	17,648,000
North Carolina	990	943	17.7	16.9	7	13	5,606,000
North Dakota	22	33	3.3	5.1	46	42	657,000
Ohio	764	890	7.1	8.3	34	34	10,731,000
Oklahoma	352	346	12.2	12.0	22	22	2,892,000
Oregon	179	204	7.1	8.3	35	33	2,527,000
Pennsylvania	1,076	1,278	9.2	10.9	28	27	11,731,000
Rhode Island	80	72	8.6	7.7	29	36	929,000
South Carolina	483	563	16.5	19.3	12	6	2,932,000
South Dakota	55	76	8.0	11.0	32	26	689,000
Tennessee	748	842	17.1	19.3	10	5	4,380,000
Texas	2,090	2,160	15.6	16.6	16	14	13,380,000
Utah	46	42	3.4	3.2	45	48	1,367,000
Vermont	29	41	5.9	8.4	37	32	493,000
Virginia	747	722	14.4	14.0	17	18	5,197,000
Washington	321	305	8.2	8.1	31	35	3,926,000
West Virginia	221	216	11.8	11.6	23	23	1,878,000
Wisconsin	210	260	4.4	5.6	42	40	4,720,000
Wyoming	19	15	4.2	3.5	44	47	450,000

Tuberculosis – Continued

TABLE 1. Tuberculosis cases and case rates, by state, 1979 and 1978 – *(Continued)*

State	Tuberculosis cases		Case rate per 100,000 population		Rank according to rate		Population July 1, 1979
	1979	1978	1979	1978	1979	1978	
American Samoa†	2	7	6.4	22.6	–	–	31,395
Guam†	62	67	54.5	58.8	–	–	113,800
Puerto Rico†	464	375	13.5	11.4	–	–	3,440,700
Trust Terr. Pacific Is.†	31	59	26.6	45.3	–	–	116,653
U.S. Virgin Is.†	NA	NA	NA	NA	–	–	95,900

*District of Columbia is not ranked with the states but is included in totals.
† Not included in totals.
(–) = Not ranked.
NA = Not available.

Current Trends

Working with Video Display Terminals: A Preliminary Health-Risk Evaluation

In January 1980, at the request of the Communication Workers of America, the Newspaper Guild, the Office and Professional Employees International Union, and the Typographical Workers Union, the National Institute for Occupational Safety and Health (NIOSH) conducted an evaluation of health risks due to working with video display terminals (VDTs) at 2 newspapers and 1 insurance company in the San Francisco Bay area.

There are 5-10 million VDTs and more than 7 million operators of these devices in the United States. NIOSH has been involved in evaluating these devices, primarily for radiation hazards, since 1975. Ionizing and non-ionizing radiation measurements have been conducted at 6 work sites, and to date, no radiation hazards have been found. More recently, ergonomic factors—how the workplace and job and machine design affect workers—have been examined to determine the relationship between these devices and widespread operator complaints of visual and musculoskeletal problems.

The San Francisco study included a questionnaire survey of over 500 VDT operators and a control group of 250 non-operators concerning health complaints, working conditions, psychological status, job stress, and aspects of VDT equipment and its use. In addition, site visits were undertaken, which included industrial hygiene evaluations, radiation measurements, and an ergonomic evaluation of a sample of VDTs and work areas.

The evaluation indicated the following: (1) no significant chemical exposures, (2) radiation levels below the standard set by the Occupational Safety and Health Administration, (3) significantly higher levels of visual and musculoskeletal complaints in VDT operators as compared to controls at 1 site (the insurance company) but not at the newspaper sites, (4) higher levels of psychological distress, such as anxiety and irritability, in VDT operators, when compared to controls, at all 3 sites, (5) reports of high levels of job stress in VDT operators at the insurance company but not at the newspapers, and (6) the prevalence of ergonomic problems at all 3 sites. The latter included screen glare, high-luminance contrasts in the working environment, improper screen and keyboard heights, and poorly designed tables and chairs. The last 2 factors could contribute to improper operator posture.

The findings from this evaluation have prompted the following preliminary recommendations, which are based, in part, on newly proposed European standards, a research of the literature, and NIOSH's experience with similar problems in other work situations.

Video Display Terminals — Continued

1. VDT workstations and devices should be made as flexible as possible to allow for individual operator control of:
   a. Keyboard height
   b. Screen height
   c. Screen brightness and contrast
   d. Leg room
   e. Viewing distance (should be within 450 mm-700 mm)
   f. Workstation illumination levels (if indirect lighting at the workstation is provided)
   g. Chair adjustments (of the seat height, backrest height, and tension) and operator choice of armrests or no armrests
2. The VDT screen should be positioned so that the viewing angle is 10°-20° below the horizontal plane at eye level.
3. Illumination levels should be within 500-700 lux, with individual workstation lighting provided for jobs requiring higher levels due to visual demands.
4. Screen glare should be controlled through the use of any one or all of the following means:
   a. Windows should be covered with drapes or blinds to limit direct sunlight
   b. VDTs should be positioned properly with respect to overhead lighting and high-luminance sources in the work area
   c. Hoods should be installed over screens to shield from direct or reflected light
   d. A glare shield should be installed on the screen
   e. Recessed lighting and special fixture covers should be used
5. There should be mandatory work-rest breaks of at least 15 minutes every 2 hours for VDT operators under moderate visual demands and 10 minutes every hour for operators under high visual demands.
6. Visual testing of VDT operators should include:
   a. An initial complete ophthalmologic examination including refraction, acuity, and accommodation testing, tests for color vision function, and examination of the cornea and the lens for opacity and the retina for detachment
   b. Annual refraction, acuity, and accommodation testing

Research is continuing at NIOSH to define the relationship between VDT job conditions, job task requirements, job stress, and worker health complaints; to determine the chronic health effects of VDT usage; and to precisely define the optimum working conditions, environment, and VDT machine design for VDT operators.

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