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.

Reported by the Div of Biomedical and Behavioral Sciences, and the Div of Surveillance, Hazard Evaluations, and Field Studies, NIOSH, CDC.

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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