

INJURY TRENDS IN A CANADIAN TELECOMMUNICATION SYSTEM

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ABSTRACT

An occupational health and safety study was carried out in a major Canadian telecommunication system (CTS) from 1971 to 1977. During this period, marked by a 27.5% increase in the number of employees, rates of all work injuries (WI) changed only slightly from 7.1 to 7.4 per 100 employees. However, disabling WI rates increased markedly from 0.8 to 1.7 per 100 employees (+112.5%). Disabling WI accounted for 12% of all WI in 1971, and for 23% in 1977. Work fatalities during a 13-year period (1965-1977) averaged 1.15 per year. Off-duty deaths were 6 times higher (6.85 per year), the average of all accidental fatalities accounted for a total of 8 CTS employees yearly. Almost 25% of all WI occurred in the first year of employment. Considerable regional discrepancies were found in injury rates and trends. The CTS is among medium-rated industries as far as frequency and severity of WI are concerned.

From 1971 to 1977, we followed problems related to accidents of workers within a major Canadian telecommunication system (CTS). Cross-sectional and retrospective studies of work and off-work injuries were carried out in the Eastern Region (Québec), Western Region (Ontario), in common facilities (headquarters, etc.) and in the whole system. Some trends could be followed since 1965.

One of the objectives was the identification of high-risk occupations by regions as well as special hazards involved, the main goal of the retrospective study was to introduce new health programs and safety measures aiming to reduce the frequency and severity of work and off-work injuries. The following risk-related occupations in CTS (Québec Region) were identified:

"High" risk: cable splicers and helpers*, framemen, switchmen, linemen*, installers and repairmen, coin telephone collectors, drivers, material and supply services, automobile equipment and maintenance and building maintenance.

"Low" risk: telephone operators, representatives, office clerks, typists, cashiers-tellers, computer employees, and other predominantly sedentary jobs.

Special hazards encountered in CTS (Québec Region) relate to: poles, ladders, tools (knives), manholes (toxic gases and substances), electrical current,

* Work outside in all-weather conditions, often on construction sites.

hazards related to construction, motor vehicles (driving, repair, maintenance), lifting and carrying heavy materials, animal bites and stings: poison ivy (*Rhus radicans*) and hazards related to meteorological factors.

About 50% of the employees were women working mostly in low-risk tasks. The total number of employees was around 39 000 in 1971 and rose to about 50 000 in 1977, a 27.5% increase. During that period, the Eastern Region participated in the total number with 30 to 33%, the Western Region with 47 to 51% and the remaining 23–16% were within the common facilities. The age group distribution shows a peak at 20–29 years, accounting for 42% in 1973 and 30% in 1977. Figure 1 shows the distribution of employees and of work injuries for 1976, by age groups.

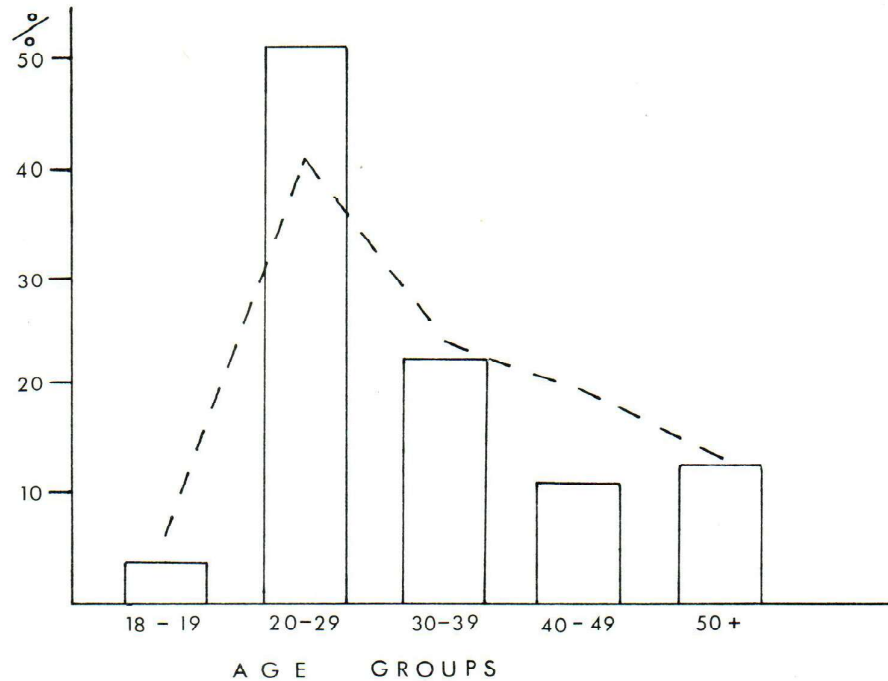


FIG. 1 – Distribution by age groups of the percentage of employees (curve) and of the work injuries (columns) of CTS employees for 1976.

Experience proved to be an important factor in CTS work injury records. During the first twelve months of employment, nearly 25% of all work accidents and about a similar proportion of disabling work injuries (at least one day of absence beyond the day of injury) occurred in this group of newly hired young workers despite an extensive task and safety training, immediately after hiring. Figure 2 shows a histogram of work injuries by years of experience. Table 1 summarizes the injury and fatality rates and trends in CTS. From these figures,

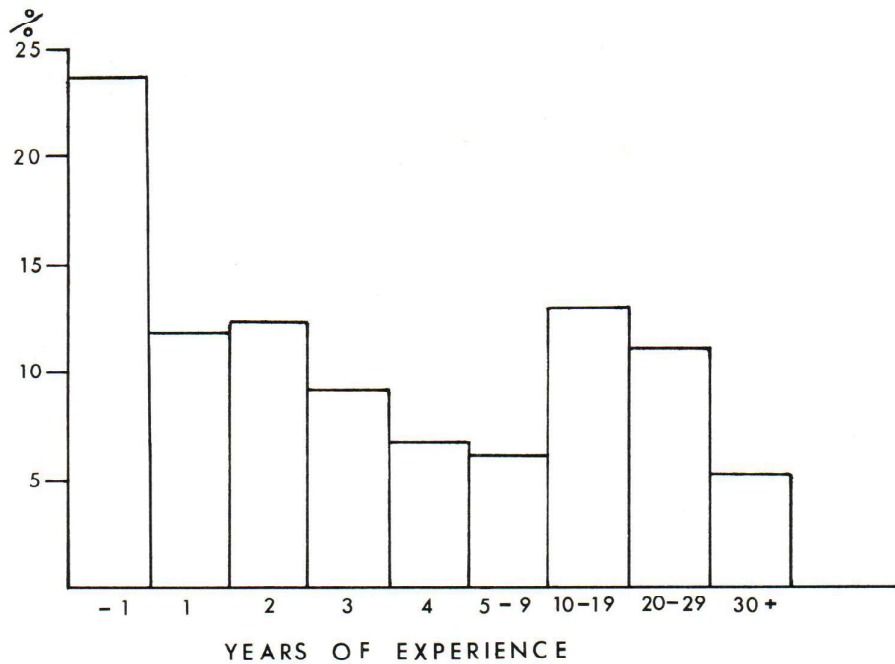


FIG. 2 - Histogram of the distribution of work injuries in CTS by years of experience, for 1976.

TABLE 1

Synopsis of work injuries and fatalities in a Canadian telecommunication system. All rates are per 100 employees.

Parameter	Year	
	1971	1977
Total number of employees (thousands, rounded)	39	50
Frequency rate of all working injuries	7.1	7.4
Frequency rate of disabling work injuries	0.8	1.7
Percent ratio of disabling work injuries vs all work injuries	12%	23%
Severity of disabling work injuries		
- number of cases	383	882
- number of lost days	8 114	11 333
- days of absence, per case	21.2	12.8
Frequency rate of off-duty injuries	3.7	4.8
Frequency rate of all injuries	10.8	12.2
Total number of work fatalities (13 years*)		15
Yearly average		1.15
Fatality rate per 100 000 employees (13 years*)		2.75
Yearly average		0.21

* 1965-1977

the following trends can be detected. Between 1971 and 1977, the CTS was among the medium-rated industries, as far as frequency and severity of work injuries are concerned. The frequency of disabling work injuries had a continuously increasing tendency, from 0.8 in 1971 to 1.7 in 1977, per 100 employees, with ratios of disabling vs all work injuries of 12% to 23%, during the same period. These trends are consistent with trends in most industrial branches all over Canada.

In 1971, there were 4.4 times more disabling off-work injuries (including "commuting accidents") than at work but this ratio decreased to 2.8 times in 1977. The decline is due to the increasing trend of disabling work injury with a relative improving record of motor vehicle accidents since the implementation of safety belts regulations. During the 13-year period of 1965-1977, the work fatalities yearly average accounted for 1.15 and off-work fatalities for 6.85 (a 6:1 ratio).

A special unresolved problem remains the relatively high work injury frequency among young employees during the first twelve months of employment. Identification of high-risk tasks and of special hazards involved helped to introduce some promising preventive health and safety measures. The study yielded considerable regional discrepancies in injury trends and rates. Further intensive studies are needed in order to interpret correctly the reasons for those differences.

Further intensive studies are needed in order to better understand the chain of events leading to a work injury. We assume that education toward safety, beginning in childhood, may help to eliminate the majority of unsafe acts, unsafe working conditions, obvious ergonomic deficiencies at the task, and hence reduce accident frequency. Accident prevention research represents a great challenge for a modern society whose most active and productive age groups are affected by work injuries. All effort will be made to test the efficiency of new promising health programs and safety measures aiming at the prevention of work injuries in the Canadian telecommunication system.