

VINYL CHLORIDE EPIDEMIOLOGY STUDY

PROGRESS REPORT: FEBRUARY 20, 1974

This is a report of a study in progress. Its purpose is to characterize the mortality experience of vinyl chloride workers up to the end of 1972. The study began in mid 1973 and consequently no attempt was made to obtain mortality data for 1973.

The study population consists of individuals who worked for at least one year in a job involving exposure to vinyl chloride before December 31, 1972, and was obtained in the following way.

We were supplied by the Manufacturing Chemists Association with the names of 43 North American plants involved in the manufacture of vinyl chloride or polyvinyl chloride. Four of these, which had begun operation after 1968, were ruled out of the study because of the brevity and recency of the exposures. Of the remaining 39, data reduction has been completed for 26, and data are in hand and being coded for six more. Of the remaining plants, four are now forwarding data to complete the required records on their workers. Study of one has been deferred because it stopped producing vinyl chloride 7 years ago, two others remain to be visited. Data are also in hand, but not yet processed, for a group of European plants.

In every plant, information on eligible workers as defined above was obtained for as far back as each plant's personnel records extended. Those who were not still employed, and who were not known from plant records to be either alive or dead, were traced by mail

CMA 013817

or by a retail credit check to determine their vital status as of the end of 1972. The following tables, with the exception of the mortality data, deal with the 26 plants for which coding and key-punching are complete.

Table 1 shows the follow-up status of the study population of 4415 workers, 89 percent of whom have been traced. The 507 unknowns are still under active follow-up.

In any study in which follow-up is incomplete, it is important to examine the differences between those who have been found and those who have not. Tables 2 and 3 show the lengths of employment in exposed jobs by date of birth for the two groups. The median birth date is 1934 for those on whom follow-up is complete, and 1933 for those not yet found. The median duration of exposure is 69 months in the first group and 45 months in the second.

Similarly, Tables 4 and 5 show length of employment in exposed jobs versus the year in which exposure began for the found and not-found groups. The median date on which exposure began was 1963 for the first group and 1960 for the second.

In summary, those not yet found have about the same birth dates as those found, but have a much shorter exposure which began at an earlier age.

One interesting fact revealed by Table 2 is that there were 259 workers in the study with 20 years or more exposure and 658 with 15 years or more. These provide an excellent data base for prospective study.

Table 6 shows a distribution by selected causes for 131 deaths for whom death certificates were obtained. Certificates were included in this table even if the plants from which they came had not yet been processed. For comparison, the corresponding distribution of all U.S. male deaths in 1967 is shown. Because the age distribution of the study population is not the same as that of all U.S. males, and because the number at risk in the study population is not considered, this table is only descriptive. The main point of the table is to show that for rare conditions such as cancers of specific sites, the number of cases appearing in the study is too small to enable definite conclusions to be drawn. In order to investigate such rare conditions, the deaths must be studied in more detail than is possible from information contained in the death certificate itself.

When the remainder of the study plants have been processed, an estimated 150 - 200 more deaths will be found, since some of the oldest plants are in the group still being processed. At that time, calculations of the risk of death by broad cause groups will be made.

In summary, this study of the mortality of workers occupationally exposed to vinyl chloride is still incomplete. Of the 5000 to 5500 workers ultimately to be included, 4415 have so far been identified. So far the vital status of only 89% of these has been determined. Reports are still coming in on some of the oldest plants, so that the 128 deaths so far known will probably rise to 300 or more as data accumulate.

Because rare tumors of the kind suspected in recent weeks as being associated with VCM are not clearly identifiable in mortality statistics, a routine study of mortality ratios would not be expected to reveal them unless the incidence was quite high. For this reason this type of mortality study must be supplemented by case analyses. It should also be emphasized that the collection of identifying information on a population known to have been exposed for periods exceeding 10, 15 and 20 years provides a data base that will facilitate prospective studies.