TRENDS IN CLASSIFICATION OF SMALL OPACITY TYPE IN THE COAL WORKER'S X-RAY SURVEILLANCE PROGRAM, 1970-1989

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The objective of this study was to examine trends in the classification of small radiographic opacities in the Coalworkers' X-ray Surveillance Program (CWXSP), a NIOSH-administered medical monitoring program for underground coal miners. Data were restricted to classifications of 15,403 chest radiographs classified as category 1 CWP by 88 B-readers from 1970 to 1989. For films classified under the 1971 ILO U/C system, the predominant type of small opacity was taken as the type with the highest profusion. For films classified under the 1980 ILO system, the predominant type of small opacity was assigned by G-readers. The most striking classification trend observed was a general decrease over time in the proportion of films with a predominance of type p opacities. This decrease occurred largely between 1979 and 1982. Before that time the proportion of category 1 films with predominant type p opacities was fairly stable and averaging above 30%, while after that time the proportion was very stable at about 10%. Type t opacities were the major beneficiary of the reduction in p type opacities, although type q opacities also showed a slight increase over the study period. Proportions of films with a predominance of one of the other three types of small opacities (i.e., r, s, and u) varied little over time. The trend toward a predominance of irregular opacities at the expense of rounded opacities may, in part, relate to a change in the ILO system for classifying radiographs for pneumoconioses, but the trend appears to have begun before the CWXSP adopted the 1980 ILO Classification scheme. The observed trend held when each minor profusion category (1/0, 1/1, and 1/2) was examined separately, when miner tenure was controlled for, and after excluding readings from the seven B-readers who had read the largest numbers of films. The trend also remained evident when the data set was restricted to films from a subset of miners who worked

with high volatile bituminous A coals. In conclusion, a general trend over time for category 1 radiographs from the CWXSP to be classified by B-readers as having a predominance of irregular small opacities at the expense of rounded (especially p) types was noted. Although the change in the ILO classification system has played a role, no definite explanation for the observed trend was found.

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