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Pneumoconiosis Mortality in Pennsylvania

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PENNSYLVANIA has had a pneumoconiosis problem for many years, and an active aggressive preventive program is long overdue.

The need for such a program is partially revealed by the records of the Pennsylvania Occupational Disease Fund, which indicate that these diseases have a tremendous physical and financial impact. During the 1957-1959 biennium $21,000,000 was paid from Commonwealth funds to 5800 claimants. These payments are made under the Pennsylvania Occupational Disease Act of 1939 which provides for procedures that are separate and distinct from the Workman's Compensation Act in connection with cases of silicosis, anthracosilicosis, and asbestosis. This act was amended in 1953 and further provides "that in those cases where disability or death is not conclusively proved to be the result of the last occupational exposure all compensation shall be paid by the Commonwealth."

Since occupational pneumoconiosis is a chronic disease and most workmen do not stay on the same job throughout their working lives, most of the claims are paid in full by the Commonwealth rather than by an insurance carrier or the industry responsible for the dust hazard. The State assumed 100 per cent financial responsibility for 92 per cent of the claims paid during 1957-1959, and shared responsibility with employers in the remaining cases.

The planning of the preventive program is based on chest x-ray surveys of coal mining employees and dust studies in the mines which will result in recommendations for reduction of dust exposures. Both are currently being conducted.

Mr. Vinyard is chief of statistical methods and Dr. Lieben is director of occupational health of the Pennsylvania Department of Health.

Half of the deaths from pneumoconiosis in the United States occur right here in Pennsylvania. This startling fact is selected from this informative paper to indicate the need for doctors to know more about this problem.

The findings of these studies will be reported at a later date.

Further insight into the problem can be gained through the examination of mortality records. According to the most recent figures compiled by the National Office of Vital Statistics of the U. S. Department of Health, Education, and Welfare, 50 per cent of the pneumoconiosis mortality in the United States occurs in Pennsylvania. Their figures also indicate that approximately 93 per cent of all deaths from anthracosilicosis are reported from Pennsylvania (see Table I).

The number of Pennsylvanians dying each year with occupational lung disease indicated to be the underlying cause of death has increased slightly since 1950 as shown in Table II.

It is also of interest to note that since 1950 the number of deaths attributed to tuberculosis complicated by occupational lung disease (code number 001 of the International Statistical Classification of Diseases, WHO) has remained fairly constant (1950, 152 deaths; 1954, 116; 1955, 135; 1956, 148; 1957, 144; and 1958, 144), although mortality from all forms of tuberculosis during the same period has been reduced 59 per cent (2474 deaths in 1950 to 1016 deaths in 1958). On the basis of tabulations for the first ten months of 1959, it is estimated that for the entire year about 850 deaths will be classified as due to pneumoconiosis and about 150 will be reported as due to tuberculosis with mention of an associated occupational lung disease.

When the age of decedents is examined, it is nd that occupational lung disease is the eighth st frequent cause of death among males aged years and older, and is 1.2 per cent of total le mortality in this age group. Among males ed 45 to 64 years, pneumoconiosis is the ninth st frequent underlying cause and is 1.7 per nt of total male mortality in this age group. ly 1 per cent of the males dying from this sease were under 45 years of age.

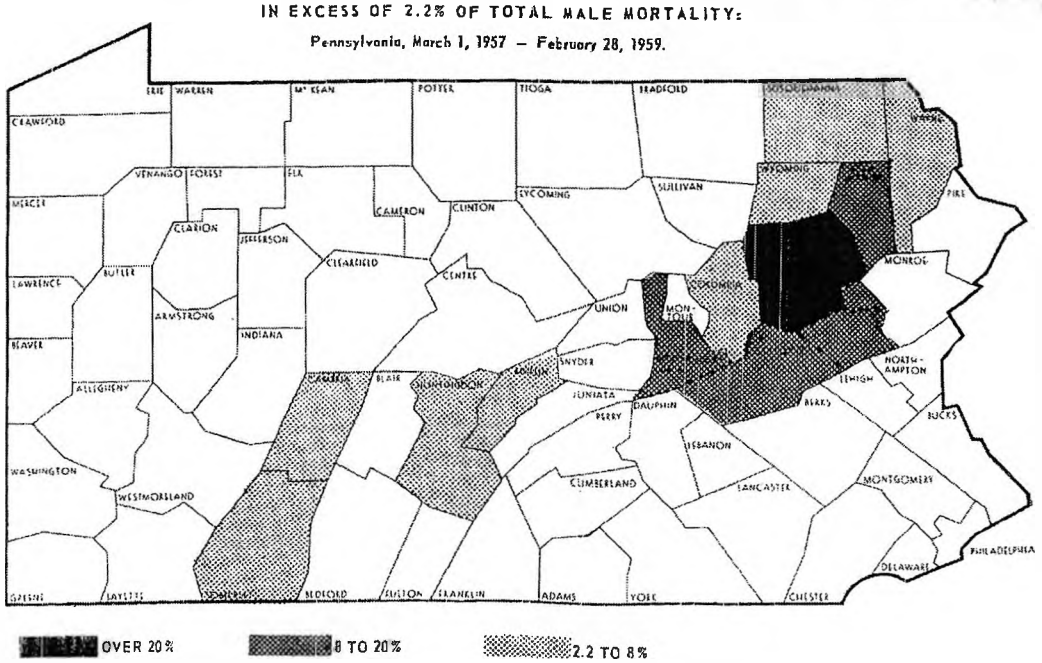
In the five Pennsylvania counties where most the occupational lung disease is concentrated, ortality from this cause among males over 44 ars of age is far more frequent. Pneumoconio- is the second most frequent underlying cause death in Luzerne and Schuylkill counties, ing exceeded in frequency only by heart dis- ses. These lung diseases ranked fourth in fre- ency as an underlying cause of death among ales in this age group in Carbon, Lackawanna, d Northumberland counties, being exceeded ly by heart diseases, cancer, and vascular sions affecting the central nervous system.

The figures indicated in the foregoing do not ll the whole story, since they are based only on bulation of the underlying cause of death. An xamination of 237,471 death certificates filed uring the two-year period March 1, 1957, rough Feb. 28, 1959, was made to determine ow frequently pneumoconiosis was reported as complication or contributory cause in addition to the number of times this condition was indicated to be the underlying cause of death. During the period there were 2957 male deaths reported with mention of occupational lung disease in the certification of cause of death. Slightly more than one-half of these reports (1604) stated that the occupational lung disease was the underlying cause of death, while for the other 1353 deaths pneumoconiosis was specified to be an associated morbid condition existing at the time of death.

The 2957 deaths involving pneumoconiosis were 2.2 per cent of the 132,600 males who died from all causes during the two-year period. In 13 of the 67 counties in Pennsylvania the proportion of males dying with pneumoconiosis exceeded 2.2 per cent. Of the total deaths involving pneumoconiosis in the State, 80.2 per cent occurred in these same 13 counties, and 73.6 per cent of the total were concentrated in five counties (Luzerne, Schuylkill, Lackawanna, Carbon, and Northumberland). Fig. 1 indicates the 13 counties in which the proportion of male mortality involving pneumoconiosis exceeded 2.2 per cent. These counties include nine hard coal and four bituminous coal producing areas.

The specific types of occupational lung disease were reported as follows: anthracosilicosis, 2101 deaths; silicosis, 376; pneumoconiosis, unqualified 283; silicotuberculosis, 226; anthracosis, 63; asbestosis, 17; and one death from berylliosis.

FIGURE 1. COUNTIES WITH MALE MORTALITY FROM PNEUMOCONIOSIS IN EXCESS OF 2.2% OF TOTAL MALE MORTALITY: Pennsylvania, March 1, 1957 – February 28, 1959.



MORTALITY FROM (
UNITED STAT

Underlying Cause of Death

Silicosis	
Anthracosilicosis	
Asbestosis	
Pneumoconiosis	
Other specified (unqualified) pneumoconiosis (not due to silica)	
Total	

[1] International Statist and Causes of Death,
† Pennsylvania/U. S.
SOURCE: For all tab Office of Vital Statisti Pennsylvania Departmer

The underlying ca where occupationa be only an associat in Table III. The quite different fron over 44 years of ag example, in Penn the deaths of male older are attribute this group of mal cupational lung c 21.4 per cent died per cent of the ma Pennsylvania are fluenza, while in per cent of the d causes. The prop the pneumoconiosi State (13.9 and 1

NUMBER OF DEA PENNSYL

Year

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1957	
1956	
1955	
1954	
1950	

TABLE I

MORTALITY FROM OCCUPATIONAL PNEUMOCONIOSIS IN UNITED STATES AND PENNSYLVANIA, 1957

Underlying Cause of Death	*Code**	*Number of Deaths*		
		United States	*Pennsylvania*	*Per cent†*
Silicosis	523.0	618	97	15.7
Anthracosilicosis	523.1	658	614	93.3
Asbestosis	523.2	21	9	42.9
Pneumoconiosis	523.4	219	55	25.1
Other specified (unqualified) pneumoconiosis (not due to silica)	524.0	74	20	27.0
Total		1590	795	50.0

* International Statistical Classification of Diseases, Injuries, and Causes of Death, WHO, 1955 Revision.

† Pennsylvania/U. S. x 100.

SOURCE: For all tables, United States data from National Office of Vital Statistics, HEW, and Pennsylvania data from Pennsylvania Department of Health.

The underlying causes of death for the 1353 men where occupational lung disease was indicated to be only an associated morbid condition are shown in Table III. The distribution of these causes is quite different from that found for male decedents over 44 years of age in the State as a whole. For example, in Pennsylvania only 1.2 per cent of the deaths of males who are 45 years of age or older are attributed to tuberculosis, whereas in this group of males known to have had an occupational lung condition at the time of death 21.4 per cent died from tuberculosis. About 2.7 per cent of the males dying in this age group in Pennsylvania are victims of pneumonia and influenza, while in the pneumoconiosis group, 5 per cent of the deaths are attributed to these causes. The proportion dying from cancer in the pneumoconiosis group is less than that in the State (13.9 and 16.2 per cent); however, 31.9 per cent of those dying of cancer with occupational lung disease complications were specified to be due to cancer of the respiratory system, while without pneumoconiosis as an associated condition only 23.2 per cent of the total cancer deaths in this sex-age group are attributed to neoplasm of the respiratory system.

The three most frequent causes of death for males in this broad age group (heart disease, cancer, and vascular lesions affecting the central nervous system) generally amount to at least 74 per cent of the total deaths. In the group with associated occupational lung disease, these three causes claim only 58.8 per cent of the total because of the predominance of deaths from tuberculosis, pneumonia and influenza, and other chronic respiratory diseases.

When the occupations which are reported on this group of death certificates were examined, it was found that 2257 or 76.3 per cent of the total indicated work which may be associated with an inhalant hazard. Occupations which were reported are shown in Table IV. Since the occupation entered on the death certificate is usually the latest employment of the decedent, it is very possible that those reported as farmers and hotel workers may have been miners, steel workers, and brickyard workers earlier in their lives. It is possible that the railroad workers had worked in the railway yard foundry, and the laborers could be exposed to many different inhalant hazards.

TABLE II

NUMBER OF DEATHS FROM PNEUMOCONIOSIS IN PENNSYLVANIA, 1950, 1954-1958

Year	*Number of Deaths*
1958	793
1957	795
1956	740
1955	695
1954	627
1950	728

TABLE III

UNDERLYING CAUSES OF DEATH REPORTED ON CERTIFICATES MENTIONING PNEUMOCONIOSIS AS AN ASSOCIATED MORBID CONDITION IN PENNSYLVANIA, MARCH 1, 1957, TO FEB. 28, 1959

Underlying Cause of Death	*Number of Deaths*	*Per cent of Total*
All causes	1353	100.0
Heart disease	560	41.4
Tuberculosis	289	21.4
Malignant neoplasms (respiratory system, 60 deaths)	188	13.9
Pneumonia and influenza	67	5.0
Vascular lesions of central nervous system	48	3.5
Accidents	26	1.9
General arteriosclerosis	25	1.8
Bronchitis	12	0.9
Asthma	5	0.4
All other causes	133	9.8

TABLE IV

OCCUPATIONS REPORTED ON DEATH CERTIFICATES FILED FOR MALES DYING WITH SOME MENTION OF OCCUPATIONAL LUNG DISEASE IN PENNSYLVANIA, MARCH 1, 1957, TO FEB. 28, 1959

Occupation	*Number of Deaths*
All occupations	2957
Mine worker	2007
Laborer	199
Steel mill worker	123
Stone worker	65
Railroad worker	38
Carpenter	37
Farmer	33
Hotel worker	32
Machinist	17
Bricklayer	15
Blacksmith	8
Weaver	5
Pottery worker	3
Other, specified	214
Retired and unspecified	161

Summary

1. Mortality statistics indicate that the number of deaths in Pennsylvania from pneumoconiosis (primarily anthracosilicosis) has increased during the last ten years, even though coal mining operations in the State have been curtailed and there are fewer mines in operation.

2. Occupational lung disease is the ninth most frequent underlying cause of death among Pennsylvania males aged 45 to 64 years, and is ranked eighth in frequency among males who are over 64 years of age.

3. In Luzerne and Schuylkill counties pneumoconiosis is the second most frequent underlying cause of death among males over 44 years of age, and in Carbon, Lackawanna, and Northumberland counties this disease is the fourth most frequent underlying cause in that sex-age group.

4. When death certificates filed during a two-year period were examined, it was found that 1353 records indicated occupational lung disease to be a morbid condition existing at the time of death (but not the underlying cause) in addition to 1604 certificates which stated pneumoconiosis to be the underlying cause of death.

5. The total of 2957 deaths involving occupational lung disease was 2.2 per cent of the 132,600 males who died during the same two-year period, and 80.2 per cent of these deaths were reported from the 13 counties that comprise the larger part of Pennsylvania's coal mining areas.

6. Where pneumoconiosis was a morbid condition mentioned on the death certificate but not the underlying cause, it was found that the underlying causes were distributed differently in frequency than causes of death in the general population of males over 44 years of age. There was a distinct predominance of deaths attributed to tuberculosis, pneumonia, influenza, and other respiratory diseases.

7. Seventy-six per cent of the occupations indicated on the death certificates of persons dying from or with pneumoconiosis could be associated with an inhalant hazard.

Why a Medical Society

I am ashamed now to confess that not many years ago I seriously considered not paying my dues and drifting out of the medical society. The dues seemed always to be getting higher and I resented going to meetings in general and, too, it seemed that the outfit was run by a clique who seemed to perpetuate themselves in office.

The possible loss of hospital privileges and malpractice insurance was the deciding factor, so I stayed.

The reason I bring this up is that I know there are quite a few right now who feel as I once did. Some of you readers will now say, "Old Clyde has been brainwashed." You can call it that if you wish, but it took about five years to do it—one year on the Professional Committee and about four years on the Board of Directors. The less opinionated among you could see the light sooner, I'm sure.

I wish everyone at some time could be on the Grievance Committee or Professional Committee, or on the Board of Directors. It's interesting, educational, and revealing, and makes you want to strive to be a better physician.

Come to the medical meetings and get up on your hind legs and speak your piece; perhaps something needs changing or improving.

New ideas are welcome both at the general and at the Board of Directors meetings. Add a few names to the list of candidates for offices, serve on committees when asked, and if you have a pet one, ask to be put on it.

If you never attend a meeting and make yourself heard, you have no more reason to gripe than the taxpayer who yells but never bothers to vote.—CLYDE J. BARKER, JR., M.D., president of Maricopa County Medical Society, Phoenix, Ariz.

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