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International classification of radiographs of pneumoconioses

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This simple little booklet is essential not only for the writers but the readers of journals describing radiological appearances in occupational lung disease. Those who actually have to read and classify the radiographs will need the standard set of films which go with it but they cost U.S. \$30.00.

The first classification was issued by the International Labour Office in 1950 and was revised and re-issued in 1958. However, the early versions were designed to deal with the changes produced by coal and silica dusts. As these pneumoconioses came under control, so the importance of others increased and the classification required modification to increase its usefulness and to meet users' complaints. The current classification is at two levels, a short relatively simple one for use in the assessment of individual cases and an extension of this for use in more detailed comparative surveys. The two classifications are entirely compatible and the extended form can be applied to all aspects of the radiographic changes or simply to those aspects which are appropriate to the study for which it is used.

The layout and description of the new short classification are reproduced from the booklet (Table 2). Compared with the 1958 classification it will be noted that the category Z is retained for those films which show some small opacities but they are insufficient in number or distribution to be attributed with certainty to inhaled dust. This category is not included in the extended classification where the changes from none to severe are regarded as a continuum. The size classification of the small opacities has had q and r inserted as alternative symbols to m and n to make phonetic distinction easier. The rib space quantification of small opacities has been omitted. More 'additional symbols' have been added to the classification. Those listed under 'obligatory' refer to findings which may be considered particularly relevant to or associated with the pneumoconioses. The 'optional symbols' are less relevant or less easily defined. In either case the meaning of the symbol must be explained by a comment in the report.

In the extended classification (Table 3) opacities

Table 2

INTERNATIONAL CLASSIFICATION
OF RADIOGRAPHS OF PNEUMOCONIOSES, (REVISED, 1968)
(SHORT CLASSIFICATION)

No pneumoconiosis	SUSPECT	PNEUMOCONIOSIS																		
0	Z	Small opacities						Large opacities												
		1		2		3		A	B	C										
		p m n (q) (r)	p m n (q) (r)	p m n (q) (r)																
OBLIGATORY SYMBOLS																				
plc	pl	co	es	tba	ca	od														
OPTIONAL SYMBOLS																				
ax	cn	cp	cv	di	em	hi	ho	px	rl	tb	K									
DESCRIPTION																				
No pneumoconiosis	0: No radiographic evidence of pneumoconiosis																			
Suspect	Z: Abnormal lung or hilar shadows the nature of which is uncertain and which may or may not represent a stage of pneumoconiosis.																			
PNEUMOCONIOSIS	<p style="text-align: center;">Small opacities:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;"><u>Category</u> (according to profusion)</td> <td style="width: 50%; text-align: center;"><u>Symbols</u> (according to the greatest diameter of opacities)</td> </tr> <tr> <td>1: a small number of opacities</td> <td>p: diameter up to about 1.5 mm</td> </tr> <tr> <td>2: opacities are more numerous</td> <td>m (q): diameter exceeding 1.5 mm up to about 3 mm</td> </tr> <tr> <td>3: opacities are very numerous</td> <td>n (r): diameter exceeding 3 mm up to about 10 mm</td> </tr> </table>						<u>Category</u> (according to profusion)	<u>Symbols</u> (according to the greatest diameter of opacities)	1: a small number of opacities	p: diameter up to about 1.5 mm	2: opacities are more numerous	m (q): diameter exceeding 1.5 mm up to about 3 mm	3: opacities are very numerous	n (r): diameter exceeding 3 mm up to about 10 mm						
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2: opacities are more numerous	m (q): diameter exceeding 1.5 mm up to about 3 mm																			
3: opacities are very numerous	n (r): diameter exceeding 3 mm up to about 10 mm																			
<p style="text-align: center;">Large opacities</p> <p>A: An opacity having a greatest diameter of between 1 and 5 cm, or several opacities each greater than 1 cm, the sum of whose greatest diameters does not exceed 5 cm.</p> <p>B: One or more opacities, larger or more numerous than those in category A, whose combined area does not exceed one-third of the right lung field.</p> <p>C: One or more large opacities, whose combined area exceeds one-third of the right lung field.</p>																				
ADDITIONAL SYMBOLS																				
<u>Obligatory</u>																				
plc - calcified pleural plaques. pl - significant pleural abnormalities. co - abnormalities of the cardiac size and shape. es - eggshell calcifications of lymph nodes. tba - opacities suggestive of active tuberculosis. ca - suspect neoplasm. od - other significant diseases not covered by one of the other obligatory or optional symbols. (In each case this should be described briefly under Remarks.)																				
<u>Optional</u>																				
ax - suspect coalescence of small rounded opacities. cn - calcification in small rounded opacities. cp - cor pulmonale. cv - cavity. di - significant displacement or distortion of the thoracic structure. em - significant emphysema including large bullae. hi - significant enlargement of the hilar shadows. ho - honeycombing. px - pneumothorax. rl - pneumoconiosis modified by the rheumatoid process. tb - opacities suggestive of inactive tuberculosis, excluding the calcified primary complex. K - Kerley lines.																				

are divided into rounded and irregular and classified as to size in three grades (p, q, r and s, t, u respectively). The frequency of these opacities is on a 12-point scale, the first figure being the standard film category considered nearest to the film being classified and the figure after the oblique being the nearest alternative standard film. Thus, if the observer classifies a film as category 2 but would consider as the nearest alternative classification category 1, then the grading is 2/1. This means that category Z in the short version would be classified as 0/1 or 1/0 in the extended, according to whether the observer felt the 0 or the 1 standard film approximated more closely to the appearance seen. When the observer is in no doubt and considers the changes the same as one of the standards, he uses the grade number twice, viz. 1/1 or 2/2. In this extended scheme there is detailed grading of changes in the pleura and pericardium which have been developed with particular reference to those produced by asbestos exposure. The separation of isolated 'costophrenic angle' (cpa) pleural thickening from the other

categories is due to its greater prevalence and lack of correlation with dust exposure.

The booklet gives lucid instructions as to how the classification should be used and also the best techniques for obtaining suitable radiographs. It mentions briefly the history of the development and testing of this and preceding classifications but makes scant reference to the long, tedious hours which many devoted workers have put in front of x-ray viewing boxes, in long-distance air transport, and around committee tables to make this classification work.

Tables 2 and 3 are reproduced from the *International Classification of Radiographs of Pneumoconioses* with the permission of the International Labour Office.

Reference

International Classification of Radiographs of Pneumoconioses. Occupational Health Series, No. 22, 1970, I.L.O. Occupational Health and Safety Branch, CH 1211, Geneva 22. Free of charge. 24 pp., 3 tables.

Gas chromatographic determination of phosgene and dichloroacetylene in air¹

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Jeltes, R., Burghardt, E., and Breman, J. (1971). *Brit. J. industr. Med.*, **28**, 96-99. Gas chromatographic determination of phosgene and dichloroacetylene in air. Phosgene and dichloroacetylene vapours may be present in the working environment near places where chlorinated hydrocarbons are used, including exposure chambers and the like in which people or animals are deliberately exposed to chlorinated hydrocarbons to investigate the effects of these substances. A gas liquid chromatographic method was developed for the determination of sub-Threshold Limit Value concentrations of phosgene and dichloroacetylene. Using electron capture detection, concentrations from 0.02 ppm of each compound could be determined.

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