SOME FACTORS INFLUENCING THE RESPONSE OF INDUSTRIAL WORKERS TO MASS RADIOGRAPHY

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The measure of control of respiratory tuberculosis in industry through mass radiography, assuming the service to be accepted and organized at regular intervals, depends mainly on how great a proportion of employees volunteer for radiological examination at any one time. The response varies between different factories and in our experience may be from 5 to 100%. Such a wide range cannot be explained solely by differences in the attitude of individual workers. There are obviously other factors to be considered. One of the more tangible factors which may affect participation in a mass radiography survey, and one which could influence both employees and management, is the distance which volunteers have to travel from their place of work to the unit. It is reasonable to assume that the nearer the unit is situated to the employees, the better the response will be. In practice, however, it is not easy to move rapidly the complicated machinery of a radiography unit, and the premises of small factories may be inadequate, with the result that surveys of small groups of employees may prove uneconomical. It is, therefore, a matter of some importance to explore the extent to which attendance figures depend on the distance separating examinees from the unit in relation to the size of the factory concerned.

With this aim in view, a mass radiography survey covering a compact industrial estate was organized in 1955 on the following lines:—

(1) At 52 factories the unit operated successively in the centre of a number of areas, the radius of which did not exceed 100 yards. (2) Twenty-four factories were visited individually, with the unit operating in the factory grounds. The attendance figures were then compared with those of the 1953 survey in which the unit worked on a single site and all the factories were situated within approximately one mile of it. In both surveys the same 76 factories were involved and the same type of propaganda was used. In only four factories was the number of employees in 1955 much different from that in 1953. The results are shown in Table 1.

There was no appreciable difference between the responses in the two surveys. The slightly higher response for smaller factories in 1955 was compensated by a slightly lower response in the larger establishments. Both surveys covered the same factories, with little change in the age and sex structure of their respective employees. In our experience repeat surveys result, if anything, in a higher response than first surveys. It appears, therefore, that by bringing the unit almost to the doorstep of the factory, no improvement in attendance was

TABLE 1
RESPONSE OF VOLUNTEERS ACCORDING TO DISTANCE FROM MASS RADIOGRAPHY UNIT AND SIZE OF FACTORY

Factories Employing	Unit Operating from Site of Radius One Mile from Farthest Factory				Unit Operating in Sectors of Radius 100 Yards			
	1953				1955			
	No. of Firms	No. of Employees	No. Radio- graphed	Percentage Response	No. of Firms	No. of Employees	No. Radio- graphed	Percentage Response
Less than 25 persons	14	210	125	60	13	214	137	64
26-50 "	13	529	291	55	12	449	266	59
51-200 "	20	1,887	989	52	22	2,417	1,116	46
201+ "	5	1,583	837	53	5	1,224	568	46
Total	52	4,209	2,242	53	52	4,304	2,087	49

achieved, and no support was found for the contention that attendance and distance are closely inter-related.

Table 1 is also of interest because there is a suggestion of a response gradient favouring the smaller factories. This is surprising in view of the existence of better welfare facilities and health education in larger industrial establishments. It is also unexpected because in the industrial estate concerned the larger factories usually employ a higher proportion of women and young men and these groups generally respond more readily to mass radiography. Nevertheless, better attendances were obtained in the smaller factories. An explanation for this anomaly may perhaps be found in the differences between the ratio of unskilled to skilled workers in factories of different sizes. It is generally accepted that this ratio increases with the size of factories. At the same time it is known that the response to mass radiography is lowest in unskilled workers (Brett, Benjamin, Wallace, and Freeman 1956). It is also possible to speculate on the more personal contact between management and workers in small factories and its effect on attendance figures. Probably all these factors took some part in producing the results shown in the present analysis.

Although the percentages shown in Table 1 indicate the general levels of response in different sizes of factory, the fluctuations from these levels are much greater in the smaller factories. Clearly a small variation in the number attending may have a large effect on the percentage response for a small factory. The wider scatter of attendances in the small factories is illustrated in Fig. 1. Table 1, therefore, indicates only the general trend and cannot be used to predict the response in an individual small factory.

In the second part of the 1955 survey 24 factories were visited individually. The results are given in Table 2.

In contrast to Table 1 the response from these factories showed an average increase of 20% com-

pared with the 1953 survey. A repeat survey might be expected to give this result. However, it cannot be explained merely by the proximity of the unit, for the following reasons:—(1) Distance from the unit does not appear to affect attendances. (2) The number of those who volunteered for radiological examination when called upon by the internal organizing body of the factory (managements and shop stewards) did not increase in the course of the survey, when it might have been expected that the sight of the unit at work would act as an added stimulus to those who could not make up their minds. Nor is it likely that the attitude of workers to mass radiography varies much according to place of employment. The main variable element appears to be the attitude of managements; this, however, is not directly accessible to analysis. Yet experience in mass radiography suggests that it is the cooperation of managements that decides the success of a survey. Managements are aware of the many valuable aspects of mass radiography, but they are equally alive to the degree of interruption caused by a survey; the balance of the two factors finally decides their attitude. It would not be unreasonable to assume that managements would take a greater interest in, and perhaps use their full administrative machinery to promote, a survey which, being on their premises, remains under their visual control. If this interpretation is true, the figures in Table 2 fall into a logical pattern.

The findings of this survey lead to the conclusion that industrial workers who want to avail themselves of mass radiography will not be deterred by having to travel a reasonable distance from the unit, while those who, for reasons of their own, refuse to take part in a survey, will not be made to do so by bringing the unit to their doorstep. Our experience in "open sessions" supports this contention for the public at large. The survey did, however, suggest that managements do influence a proportion of those who would otherwise not have come forward when the unit is in the factory grounds. This means that factories employing 50 workers and over should be

TABLE 2
COMPARISON OF RESPONSE OF VOLUNTEERS FROM CERTAIN FACTORIES WHEN VISITED INDIVIDUALLY
BY M.R. UNIT (1955) AND WHEN M.R. UNIT OPERATED FROM A SINGLE SITE (1953)

Factories Employing	Unit Operating from Site of Radius One Mile from Farthest Factory				Factories Visited Individually			
	1953				1955			
	No. of Firms	No. of Employees	No. Radio- graphed	Percentage Response	No. of Firms	No. of Employees	No. Radio- graphed	Percentage Response
Less than 25 persons	None	—	—	—	—	—	—	—
26-50 "	None	768	434	57	6	750	520	69
51-200 "	6	11,359	5,543	49	18	12,756	8,746	69
201+ "	18							
Total	24	12,127	5,977	49	24	13,506	9,266	69

FIG. 1a

FIG. 1.—Response to mass radiography in relation to size in 52 individual factories.

(a) Unit operating from site of radius one mile from farthest factory (1953).

(b) Unit operating in sectors of radius 100 yards (1955).

Slough Industrial Health Service, for his help in organizing the survey. I should also like to pay tribute to Miss B. Butcher, Organizing Secretary of the Unit, for the ingenious and economical way which she adopted in arranging the survey.

REFERENCES

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visited individually, with the unit operating on the premises, however difficult it may be to put such a policy into practice.

Summary

Mass radiography surveys conducted on sites varying in distance from 100 yards to one mile from places of work showed that the siting of the unit did not influence the response of factory workers.

The increased attendance in surveys carried out on factory premises is attributed to the cooperation of managements.

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FIG. 1b