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A feasibility study of organizing occupational health services for farmers

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VOHLONEN IJ, HUSMAN K, KALIMO E, NUUTINEN J, RAITASALO R, TUPI K, VIROLAINEN R. A feasibility study of organizing occupational health services for farmers. *Scand j work environ health* 8 (1982): suppl 1, 26—29. In Finland the Occupational Health Care Act of 1979 provides farmers the possibility of purchasing occupational health services. The main objective of the present study is to develop a national model for the organization of occupational health services for farmers. The problems of providing and specifying occupational health services for farmers can be described by two parameters. The first is the type of farm production. The occupational health services to be provided are thought to depend on the occupational health risks. The risks vary with the type of farm production, which in turn depends on the geographic location of the farm. The second parameter represents the supply of occupational services to be provided by the municipal health centers. The supply has been characterized as occupational health inspections of farms, health examinations, and health education. For the optimization of the supply and the demand, the experiment consists of three models to be tested in respect to two matrices of risk. The feasibility of the models in the 2-a experiment will be evaluated by pre- and postexperimental surveys.

Key terms: evaluation of occupational health, farmer's occupational health, organization of occupational health.

In Finland the Occupational Health Care Act of 1979 provides farmers the possibility of purchasing occupational health services. This law brought about some practical problems. First, when the legislation was drafted, sufficient information about the harmful exposures and the occupational diseases of farmers was not available. Although the main purpose of the law is the prevention of occupational diseases, it is difficult to prevent anything without sufficient knowledge. Second the operational methods needed to prevent farmer's occupational diseases are not known. Third there is no model that can be used for organizing occupational health services for farmers, either in Finland or abroad.

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For these reasons, a study of the organization of occupational health services for farmers in 1983 was planned by the Research Institute for Social Security of the Social Insurance Institution in collaboration with the Kuopio Regional Institute of Occupational Health and the National Board of Health.

Objectives and the specific investigations

The main objective of the project was to develop a national model for the organization of occupational health services for farmers. The model should provide for both the organization and specification of the occupational health services to be purchased by farmers.

In Finland each large enterprise has its own occupational health center, whereas the occupational health services of small enterprises are generally provided by the

municipal health centers. Since the system of municipal health centers covers the whole country, especially rural areas, they seemed to be the most feasible provider of occupational health services for farmers. For this reason it was thought that the model to be developed should encompass the system of municipal health centers.

Before the occupational health services for farmers could be specified, it was necessary to obtain more knowledge about the epidemiology of occupational health in agriculture. Therefore one objective of the project was to explore the main occupational health risks of farm work and the occupational diseases of farmers, and it was decided that the project should include research on the following occupational diseases or health risks, which a priori knowledge indicated are found among farmers: (i) respiratory diseases (farmer's lung, chronic bronchitis, asthma); noise-induced hearing loss; occupational skin diseases (toxic eczema, allergic eczema); atopy as determined by history of infantile eczema, atopic dermatitis, allergic rhinitis, asthma, urticaria or Quincke's edema; musculoskeletal diseases; accidents related to farming; and stress symptoms.

General design of the study

The problem of providing and specifying occupational health services for farmers has two main aspects. The first involves the variation in the demand for different types of occupational health services. The types of occupational health services to be provided are thought to be dependent on the types of occupational exposure. The variation in occupational health risks is expected to depend on the variation in the type of farm production; in Finland this variation clearly depends on the geographic location of the farm. The three main types of farm production in Finland are: (i) production of livestock (eastern and northern Finland), (ii) production of grain (western and southern Finland), and (iii) production of timber (the entire country).

Occupational health services have already been organized for the forest workers of large enterprises, and their occupational risks have already been studied. Therefore, the production of timber was not included in the present project.

The second aspect represents the availability of occupational health services to be provided by the municipal health centers, ie, the supply of occupational health services. Traditionally, occupational health services comprise the examination of personal health in relation to exposure to health risks in a particular occupation.

In order that the relationship between the supply of and the demand for occupational health services for farmers be optimized, three different models have been implemented for two different matrices of occupational health risks (exposure).

Fourteen municipalities were chosen to test the different models for balancing the supply of and the need for occupational health services. Two municipalities located in northern Finland were grouped together and will be the focus of a study on the feasibility of providing occupational health services for farmers with a mobile clinic. The remaining 12 municipalities were grouped according to their geographic location — six as eastern municipalities and six as western municipalities. The main product of the western experimental municipalities is grain, while livestock is the main product of the eastern experimental municipalities. Half of both the eastern and the western municipalities were designated as experimental municipalities and half formed a reference group.

Specific design

The supply of occupational health services in the three experimental models of the present study is characterized by the following three main components, derived from the Occupational Health Care Act of 1979: (i) occupational health inspection of the farm (observation and measurement of exposures), (ii) health examination (medical examination in relation to the exposures observed), and (iii) health education (the recognition of occupational exposures, health risks and their prevention).

Model 1 represents the most expensive and most extensive services. In this model all of the farms located in the municipalities are inspected; the health of all

of the farmers in the municipalities is examined; and health education is carried out when the farm is inspected, during the health examination, and at farmer's meetings.

Model 2 comprises the inspection of only those farms with problems (about 20 % of the farms). On the basis of interviews, the doctors and the nurses of the municipal health centers make decisions about each farmer's work conditions; on the basis of health examinations, the medical personnel decide which farms should be inspected. All of the farmers undergo health examinations, and health education is carried out only at farmer's meetings.

Model 3 was planned to represent the most inexpensive provision of occupational health services for farmers in municipal health centers. The model comprises a health examination for every farmer. In addition, each farmer is interviewed about the prevalent occupational health risks of his work environment. Health education is provided during these health examinations. As a part of the evaluation of the interview technique used in model 3, about 50 of the farms of interviewed farmers will be visited.

Material and methods

The study was planned on the basis of a postal survey made of a 5 % sample of all Finnish farmers in 1979. This sample, about 12,000 farmers, consisted of all farmers in the 14 municipalities chosen to represent different geographic areas of Finland. The survey provided baseline information about the work conditions and the general status of the health of the farmers within the experiment. The preliminary report of the major results of the survey will be published in the spring of 1982.

In addition to the information gathered by the survey about the risks and the health of farmers, the model for delivering occupational health services was field-tested during the spring of 1980 in a pilot study involving two health centers. The pilot study was launched to specify the services to be delivered during the 2-a experiment.

During the study some farmers are to be examined for their health and informed about risks, and their farms are to be inspected for occupational health exposures. These farmers are to be selected by a computer to represent the general work conditions and the known work-related exposures. Occupational health services will be provided for them by one of the three models. The types of services offered have been determined from the results of the survey, the operational pilot study, and previous experience with occupational health services for other occupational groups.

Evaluation

The evaluation will lead to recommendations for the organization of the occupational health services for farmers. It will have two major divisions: (i) the operations carried out according to the three experimental models and (ii) the effects of such operations. The operational evaluation of the various types of services provided during the experiment will analyze, eg, the amount of time necessary for health examinations, interviews, and farm inspections and the expenses of the different components of the models. In the seven experimental municipalities information will be collected about the operationalization of the three models and the mobile clinic. This information is necessary for the practical organization of occupational health services for farmers once the appropriate model has been determined. Also the medical personnel and the farmers of the experimental municipalities will be interviewed about the operations of the experiment.

When the occupational health services are evaluated, epidemiologic knowledge of occupational risks and diseases will provide the basic information necessary to plan preventive programs. Once the special studies have been completed, the results of the epidemiologic analysis will be used to finalize the types of services to be provided in 1983.

The measurements of the effects of the experimentation are to be done by pre- and postexperiment surveys. The changes in work-related exposures, in farmer's preventive behavior, and possibly in the

incidences of diseases with a short latency time will be analyzed. To control the confounding effects of other sectors of health services, 14 cohorts (14 municipalities) will be followed for a 3-a period.

In the long run more evaluative information will be available and analyzed on the organization of the occupational health services of farmers. This feasibility study is a part of the research program of the Social Insurance Institution, which also investigates the coverage and the financial characteristics of the occupational health services of small enterprises in general.