

HYGIENE OF DAIRY WORKERS IN THE USSR

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A great deal of attention is paid to the question of hygiene of dairy personnel in the Soviet Union. The general principles necessary for ensuring that safe milk escapes contamination from handling during production, storage and distribution may thus be illustrated from a detailed consideration of this aspect of dairy practice in the USSR.

In accordance with the health legislation at present in force, all workers in the food industry, including workers on dairy farms, dairy plants in the cities, and shops in which milk is sold, are kept under constant medical supervision. Before he can be employed in a food enterprise every worker must undergo medical examinations, including a chest X-ray and examinations to show whether he is a carrier of bacteria or affected with helminthiases. The management is not permitted to allow anyone to begin work who has not undergone the necessary examinations and who does not, if necessary, submit a medical certificate to say that there is no obstacle to his working in the food industry.

Thereafter, dairy-industry workers are medically examined regularly every three months, and undergo an examination for tuberculosis once a year. Examinations to detect carriers of pathogenic bacteria or helminths are made at times determined by the local health inspectorate.

With a view to preventing cases of acute intestinal infections, all workers in dairy enterprises, when they first take up the employment, are vaccinated against typhoid and paratyphoid A and B. Thereafter they are revaccinated with the same vaccine every year.

The pre-employment medical examinations, the subsequent regular examinations and the laboratory tests are carried out in hospitals and clinics of the Ministry of Health. In dairy enterprises employing more than 50 workers the periodic medical examinations may be carried out on the premises; in such cases the management must provide suitable rooms and the necessary equipment.

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The information obtained by means of medical examinations, radioscopy and bacteriological and helminthological investigations, together with entries certifying that preventive inoculations have been duly carried out, are entered by the physician in the personal health book of the worker concerned. The Ministry of Health has approved a standard type of health book for this purpose.

Expenditure connected with medical examinations is chargeable to the enterprise itself. Examinations for tuberculosis, pathogenic bacterial infection and helminthiases, and the preventive inoculations, are carried out at the expense of the Ministry of Health.

The physician responsible for granting medical certificates has the right to forbid the examined person to work in the food industry, or to take him temporarily off his work if he is discovered to be suffering from a disease through which the food products concerned might be infected. Such temporary displacement may be ordered if the worker is found to be suffering from catarrh of the upper respiratory tract, sore throat, suppurative diseases, abscesses of all kinds, unhealed cuts and burns, etc. Those found to be carriers of bacteria are suspended from work involving the possibility of contact with milk until a second negative result is obtained from bacteriological examination.

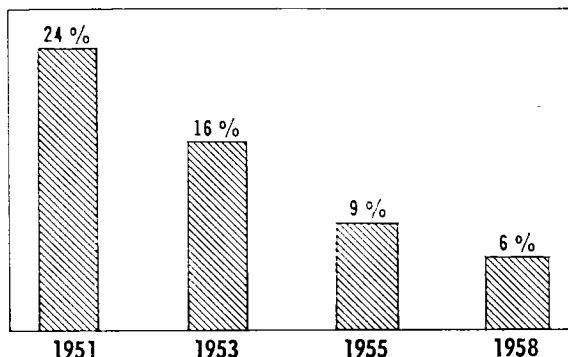
When helminthological examination discloses tapeworms (*Taenia*), roundworms (*Ascaris*), hookworms (*Ancylostoma*) or dwarf tapeworms (*Hymenolepis nana*), the worker concerned has to undergo compulsory anthelmintic medication in a clinic or polyclinic, or in the health centre of the dairy enterprise, and the fact is noted in his personal health book. Persons undergoing anthelmintic treatment are not dismissed from dairy enterprises.

Regular helminthological examinations and compulsory anthelmintic medication have considerably reduced the number of cases among food-industry workers. Thus, in Moscow the number of cases of helminthiasis among food workers in 1958 was only a quarter of the number in 1951, and the improvement continues (see figure).

Workers in dairy enterprises are required to observe the rules of personal hygiene very strictly. They must keep their bodies, and particularly their hands, clean, their finger-nails must be kept short and neat, and they must wear clean underclothes and working clothes. The dairy enterprise must make it possible for them to fulfil these requirements.

Much official attention is paid to questions of hygiene in the dairy industry; there are "Health Planning Standards" binding on all enterprises, which lay down the requirements governing the general layout of the enterprise, the planning of production and auxiliary premises, and the equipment needed to ensure hygienic working. A special section lays down the compulsory requirements for the construction of premises to provide services for the workers and to give them an opportunity of complying with the

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rules of personal hygiene. Such premises include cloakrooms, lavatories, washrooms, showers, rooms for the breast-feeding of babies, women's rest rooms, manicure rooms and a laundry equipped for the disinfection of underclothes and working clothing.

Separate cloakrooms must be provided for top clothing, ordinary outer-wear, and special working clothing. The cloakroom for working clothing must contain separate sections for clean and dirty working clothes and underclothes; the position of the dirty-linen section must be such that the soiled clothes can be taken to the laundry without going through the cloakroom or the showers.

The layout of cloakrooms varies, and so do the methods of hanging clothes in them. Under the closed system, each worker has a separate locker in the cloakroom, with a vertical partition separating it inside into two compartments, one for top clothing and one for his ordinary outer-wear. An individual locker is also provided for his working clothes.

Under the open system, a hook in a general cloakroom is allotted to each worker, the distance between hooks being at least 20 cm, while separate open lockers are provided for his ordinary outer-wear and working clothing. There are also mixed systems in which top clothing is hung on hooks in a cloakroom, and ordinary outer-wear and working clothing in individual closed lockers. To ensure that sufficient air circulates in the closed lockers, they should be raised on legs about 15 cm off the floor. The bottom of the locker should be made in the form of a grating or grid and a few holes should be drilled in the doors.

Before beginning work, all employees engaged in the reception, processing, bottling and issue of milk, and those engaged in the preparation of dairy products, must take a hot shower. Shower-baths are therefore an essential feature of dairy enterprises. According to existing health regulations in the USSR, one shower-bath cubicle must be provided for every seven workers on the shift on which the greatest number work.

On reaching work, the employee takes off his overcoat and hangs it on a hook in the cloakroom for top clothing; he then goes into the cloakroom for ordinary outer-wear, undresses, places his clothes and underclothes in his individual locker and goes into the shower-bath cubicle. When he has taken a shower, he obtains his underclothes, working footwear and working clothing in the cloakroom for working clothing, puts them on and proceeds to his place of work.

From a hygienic point of view the best arrangement for shower-baths is one in which the worker cannot reach his place of work without passing under the shower. There are many different ways in which this may be arranged. In one case the workers, after leaving their clothes and underlinen in the cloakroom, reach the production premises through a tunnel, along the walls of which perforated pipes are fitted horizontally, from which jets of warm water spurt over the body but leave the hair dry. This system is suitable for enterprises employing a large number of women. Another more simple arrangement is for the outer-wear cloakroom and the working-clothes cloakroom to communicate by means of short corridors, in the ceiling of which there are several rows of pipes from which warm water pours continuously.

However, this system of compulsory showers is not practicable for all enterprises, since it means supplying all workers with a full set of underclothes plus working clothes and footwear. In most cases the workers put on their own underclothes again, after taking a shower, and wear the working clothes provided by the management over them. It is of particularly great importance in the dairy industry that the hands should be spotlessly clean. Wash-basins with hot and cold water and mixing taps must be provided at the rate of at least one basin per 20 workers on the largest shift.

It is of especial importance that the wash-basins should be rationally distributed. They should be fitted at the entrance to workshops and to lavatories, and in the canteen. Dairy workers are obliged by the regulations to wash their hands before beginning work and after each break. The hands must be washed with particular care and disinfected after each visit to the lavatory.

Soap must be provided at the wash-basins and a disinfecting apparatus fitted. For this purpose a container of disinfectant is placed above the wash-basin on a shelf. It has a hole in the bottom with a rubber tube and a clip. Special stands with foot pedals, like those used in hospital dressing stations, are convenient for the purpose. To disinfect the hands, hypochlorite solutions containing 100-150 mg/l of available chlorine can be used. The solutions should be prepared under the supervision of the works laboratory and should be changed every day.

An important question is the drying of the hands after washing. If a common towel is used, the washed and disinfected hands may again be abundantly contaminated by the microflora on the towel. What are known

as electric towels, in which a stream of hot air plays on the hands, do not prove suitable in practice; when a fairly large volume of air, taken from the premises and sometimes containing considerable numbers of microbes, is blown on to the hands, they again become contaminated. The best method of drying the hands is to use an individual towel once. These are placed in a pile in a special container next to the wash-basin, and after use are thrown into a basket and subsequently sent for laundering. It is also possible to use paper tissues, which are thrown away after drying the hands.

In dairy plants in cities in the USSR, the arrangements for ensuring good personal hygiene among the workers include a manicure room where a manicurist who belongs to the factory staff looks after the nails of the women workers who come into direct contact with milk and dairy products, since badly kept nails may serve as a source of infection of products with helminth ova and microbes of various kinds, including toxigenic staphylococcus.

Great attention must be paid to checking the cleanliness of the hands in the production shops. In this connexion the election of "public health plenipotentiaries" from among the workers in the shop or department is of great importance. These persons undergo special courses of instruction and their duties include ensuring that working clothes are correctly worn, that hands are clean and that there are no cuts, burns or abscesses on the uncovered parts of the body.

Very good results are obtained by objective examination of hand-cleanliness carried out in the bacteriological laboratory, by taking washings from the hands by means of sterile cotton-wool pads or gauze napkins, and then inoculating the washings on to nutrient media. When washings are being taken, the surfaces of the palms of both hands and the fingers are rubbed at least five times with each pad, which is then used to rub the spaces between the fingers, the nails and the space underneath the nails.

The results of the examination are communicated to the workers and discussed with them, and they are shown the bacterial cultures growing on Petri dishes. In the USSR, the Ministry of the Meat and Dairy Industry has approved a scale of marks for judging the results of bacterial examination of equipment and containers in dairy enterprises and the workers' hands. The mark "excellent" is given to the workers from whose hands washings show less than 2000 bacteria per 1 ml; the mark "good" corresponds to contamination with a total of 2000-5000 bacteria; where the number of bacteria is between 5000 and 10 000, the mark given is "fair", and if there are over 10 000, the mark is "bad". If gas appears in the fermentation liquid, a "bad" mark is given, independently of the total number of bacteria. These figures are considered as limit figures, and in enterprises with the best standards of hygiene the management has the right to reduce them and thus to make the marking stricter.

The workers are personally interested in obtaining good marks, since on this depends the possibility of obtaining bonuses; no bonuses can be won if a bad mark is obtained.

The use of objective indices of cleanliness, while it undoubtedly plays a great role in maintaining a high standard of hygiene in the dairy industry, does not play a decisive part. The main factor is the general level of hygiene in production and the clear understanding by all workers of the importance of strict hygienic rules and, in particular, of the importance of personal hygiene in obtaining high-quality production and protecting the health of consumers.

In the USSR, as stated above, all workers seeking employment in the food industry must first of all undergo training in accordance with a special syllabus. This syllabus covers 20 hours' teaching in the case of dairy workers and includes the following subjects:

- (a) the foundations of rational nutrition;
- (b) microbes;
- (c) food poisoning and its prevention;
- (d) health requirements in the building and maintenance of dairy enterprises;
- (e) production hygiene;
- (f) personal hygiene.

In addition to following this course of training, which is called the "health minimum", employees attend regular talks given by a doctor on the importance of hygiene, and every two years all members of the staff attend a one-day seminar to test their knowledge. The lectures for the "health minimum" are given either in the enterprise itself or in special permanent schools of the Ministry of Health. The courses are conducted by sanitation experts who are well acquainted with production conditions.
