MEDICAL EXAMINATIONS FOR DAIRY PLANT PERSONNEL

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SUMMARY

The evidence suggests that periodical medical examinations for milk and milk product handlers can be abolished without an increase in disease transmission through milk and milk products. A saving of expenses and/or time for the plant employee would result. The alternative that would benefit the dairy industry would be the establishment of specific details of the medical examination and their uniform adoption by the states and municipalities.

Reevaluation of national, state and local statutes seem appropriate periodically in a rapidly changing society. The regulations pertaining to health requirements of dairy plant personnel certainly should not be an exception. Many of the codes regulating health of dairy product handlers were promulgated a decade or more ago.

Large improvements in the technology of processing, packaging and distribution of dairy products have occurred in recent years. Mechanization of processing and packaging of dairy products has substantially reduced the opportunity for pathogenic contamination by employees. Not only is product exposure time less due to the trend to closed systems of processing and packaging, but the labor per unit of product has decreased substantially. With the increasing volume of individual dairy plants the marketing area has expanded. Thus, compliance with a larger number of regulations of local and state health agencies becomes necessary. Consequently, management has experienced a replication of inspections and the application of various codes that has presented difficulties as well as additional costs.

Some authorities question the need of health certificates for dairy product handlers. Roadhouse and Henderson (3) reported that physicians are not agreed on the value of health certificates that are not based upon a very complete medical examination. Furthermore, repeated examinations may be necessary to finally identify human spreaders of a pathogen. Others question the value of requiring routine periodical examinations.

The total cases of all milk-borne diseases reported by health authorities declined from 2,161 in 1945 to 48 in 1960. Deaths were 17 and 0 for the same years (5). No deaths were attributed to dairy products during 1955 through 1960. The number of illnesses were 1,780. Most of these were attributed to raw milk products, improperly pasteurized products or toxins from bacterial growth.

Purpose of this paper is to present initial results of a general study on the health regulations for milk product handlers. Of pertinence were: (a) the extent of the dissimilarity of the specific laws and their applications among the different jurisdictional units of the government in the various sections of the U. S.; (b) the uniformity of factors considered in medical examinations; frequency, limitations and cost of medical examinations; the percentage of applicants who are rejected because of communicable disease requirements; and (c) the changes that would be beneficial for safeguarding the interests of both the industry and public and possibly the actual need for routine examinations.

The intention of this study was to consider the physical examination from only the viewpoint of public health laws on communicable (contagious) diseases. No thought was given to dairy plant requirements on other aspects of fitness either mental or physical regarding current or prospective future disabilities.

NATIONAL STANDARDS FOR MEDICAL EXAMINATION

Probably the most closely regulated dairy employees are those engaged in production, processing and handling of Certified Milk (1). A medical officer is appointed by the American Association of Medical Milk Commissions (AAMMC) for medical supervision of all personnel. A satisfactory medical examination is a must before employment. Specifically required are a chest x-ray, Widal and bacterial tests of stools, throat culture, Wasserman or equivalent, smallpox vaccination and complete history with emphasis on diseases that may be milk-borne. The medical examination shall be yearly. The medical officer is required to make on-the-premise monthly inspections of the employees and may conduct any medical examination he thinks necessary. He may check oftener if advisable. The employee must report any illness and the superintendent must exclude him from work and notify the medical officer. Copies of the employee's medical records are held in the dairy office and in AAMMC secretary's office.

Milk Ordinance and Code, 1953 Recommendations
of the U. S. Public Health Service (4) specified, "The health officer or a physician authorized by him shall examine and take careful morbidity history of each person connected with a pasteurization plant or about to be employed by one, whose work will bring him into contact with the processing, handling, storage, or transportation of milk, milk products, or equipment. If such examination or history should suggest that person may be a carrier of, or infected with organisms of typhoid, paratyphoid, or any other communicable disease likely to be transmitted through milk, he shall secure appropriate specimens of body discharges and cause them to be examined in a laboratory approved by him or the state health authorities for such examinations, and, if results justify, such person shall be barred from such employment.

"Such persons shall furnish such information, submit to such physical examinations, and submit such laboratory specimens as the health officer may require for the purpose of determining freedom from infection.

"No person with an infected cut, lesion on hands or arms shall handle milk, milk products, milk containers or milk equipment."

**Results**

Most of the sources of information were obtained from: the printed recommendations of U. S. Public Health Service, health or dairy division of the 50 states and health department of the 18 large metropolitan areas in the U. S.; information provided by the dairy industry, the medical profession and public health officials of Michigan in 1963. The medical regulations of the various state and metropolitan codes, in general, applied to all dairy products.

Survey of all state and 18 major city codes.

All 50 states had provisions to prevent personnel with communicable disease from working in a dairy plant. Twenty-three (46.0%) of the states had adopted the medical requirements of the Milk Ordinance and Code, 1953 Recommendations of the U. S. Public Health Service, per se. Fifteen of the other states (30.0%) had similarly worded codes and/or the same plus additional or more specific requirements. The remaining 12 states (24.0%) apparently had developed their own codes. Much variation existed. Two states did not specify medical examinations. Three states required medical examinations only at the request of the health official. One state used a medical examination and test of knowledge of sanitary practices to grant workers permits. Another state required a yearly medical examination and a re-examination each time an employee was sick for more than 4 consecutive days. However, an examination before employment only, each 6 months, yearly or as required by health officer were the most common.

Thirteen (72.2%) of the 18 metropolitan health departments that were surveyed enforced the Milk Ordinance and Code, 1953 Recommendations of the U. S. Public Health Service. Five of these thirteen metropolitan codes also specified annual medical examinations and two required one each 6 months. Of the other five (27.8%), one required a "valid health permit", the other four did not specify a medical examination, but indicated no person infected or a carrier of communicable diseases could work in a dairy plant.

Of the total 68 state and city codes, the following requirements were observed: (a) 40 did not have a definite interval for repeat medical examinations after the pre-employment examination, (b) 17 had a compulsory yearly examination, (c) four specified 6-month intervals, and (d) one had a 2-year time limit. Six had no medical examination requirement.

Although all states and the 18 metropolitan areas had the terms, "infectious", "contagious" and/or "communicable disease" in their regulations, only one city and one state defined these terms. This city's code definition for infectious disease was, "An illness which is transmitted directly or indirectly by a person, animal, arthropod or through an intermediate host, vector or the inanimate environment to another person." The state reference was, "Communicable diseases shall include, typhoid fever, tuberculosis, septic sore throat, scarlet fever, diphtheria, undulant fever, foot and mouth disease, dysentery, all intestinal infections and any disease described as communicable or infectious in the manual of the American Public Health Association current at adoption of this chapter." One state code required, "only healthy persons can be employed", but gave no definition. Only one of the many regulations which required notification of the health officer of suspicion of employee infections clearly specified the method and time: firm must telephone immediately and confirm the notice by mail in 24 hours.

The state and city codes were quite general as to the nature of the medical examination. Apparently, the specific details were left to the discretion of the physician conducting the examination. Laboratory tests may or may not be specified. Codes requiring laboratory tests varied from a single test such as a chest x-ray, Widal, Wasserman, to combinations of these and others. Frequently, tests for a disease(s) or on a body discharge were required without indicating a standardized method or the laboratory eligible to perform the laboratory tests. The interpretation of results was left to the judgment of the examining officer.

Of interest was the fact that many codes did not
specify who shall keep the medical records on each employee. Of the 16 states and 10 cities that had regulations for this factor, 14 required the dairy plant to maintain the medical record; six specified each employee carry a permit or health certificate and one provided for the employee to carry the permit or place it on file with the employer. The other five codes assigned the record to a designated government official usually the local health officer.

None of the state or city codes provided guidelines for the examining physician if the applicant had an illness on the day of examination. The presumption was that the applicant would be reexamined after apparent recovery. However, the possibility of an employee voluntarily reporting for an examination to obtain a certificate while ill is remote. Only one state had a provision for a right to appeal. This applied to employees whose permit had been revoked. He (or she) could apply for a review by the local or state health board. The appeal must be in writing and within 10 days of revocation.

The question of a minor illness such as a mild cold, sore throat, diarrhea, etc., is likely to be overlooked or adherence to the code less strictly applied. Only one of 68 codes mentioned these ailments specifically. However, Section 14 of Milk Ordinance and Code, 1953 Recommendations of the U. S. Public Health Service and the similar worded regulations were definitely assumed to include all communicable diseases including those of minor effects and symptoms regardless of the actual practice of plant management and the health officer.

Codes of two states and two cities apparently include all plant employees in the health provisions. The others limit the regulation to individuals in contact with the product, containers and/or equipment. The application of these medical requirements to office employees was not clear. Supposedly, they were exempt.

The state and city codes, patterned closely to the Milk Ordinance and Code, 1953 Recommendations of the U. S. Public Health Service, maintain an implied joint responsibility of the employee and employer. A few were specific in naming a joint obligation. Nine states and two city codes assigned the employer the duty of adherence to the medical regulation. Several codes placed the burden on the employee by requiring that he have a valid permit.

The penalties usually were limited to revoking the permit or license. Other codes placed violations in the misdemeanor class with a fine of $100.00 to $500.00 and/or 10- to 90-day sentence to jail.

Survey of dairy plant managers.

The manager of 250 market milk and milk product manufacturing plants in Michigan received a survey in 1963 regarding communicable disease aspects of medical examination. Seventy-nine replies were sufficiently complete to be usable. Incidentally, the state code specified that only healthy persons could be employed, but did not stipulate a medical examination before or during employment. Consequently, management had a choice unless the local city or county codes required medical examinations.

Fifty-one (64.6%) of the 79 respondents required the employees to pass a medical examination. The breakdown was as follows: annually, 17 (21.5%); before employment only, 15 (19.0%); x-ray check only without a stated frequency, 7 (8.9%); before employment plus annual x-ray, 6 (7.7%); miscellaneous requirements, 3 (3.8%); and 3 failed to answer the appropriate subquestion.

Approximately 1,100 applicants for employment in the 51 plants had been given medical examinations during the last 5 years. Not one of these applicants had been rejected for failure to pass the communicable disease portion of the medical examination. Most managers, who required an examination that was not demanded by a code, did not list specific medical tests. The local regulations occasionally included a chest x-ray and less often tests on blood and urine. Presumably the details of the examination were the volition of the physician and thus varied markedly among physicians or health officers.

Costs of the medical examination ranged from $2.00 to $25.00. When the company paid the cost of the initial examination it averaged $6.02. The employees had to pay an average of $6.64 initially. Subsequent fees averaged $4.69 for the firm and if employee paid, his average cost was $5.70. In a few localities the city or county incurred the expense of the medical examination. Also, in a few firms the expense was shared by plant and employees. The survey indicated the ratio was 2 to 1: company policy of payment versus obligating the employee to pay the examination fee.


Ten physicians gave the following answers in checking for freedom from communicable disease to permit a person to handle dairy products: eight obtained the history of the applicant's health; four requested a record of immunization; nine required a laboratory test for tuberculosis; one required a laboratory test for typhoid; six required one of the tests for syphilis; one suggested that laboratory tests be required if history indicated a need; and none of the physicians required a laboratory test for diphtheria, paratyphoid or dysentery.

One of the 10 physicians was not sure that the communicable disease portion of the employee medical examination served a useful purpose. Another volunteered that the present examination was not
adequate. Comments regarding important health precautions to control transfer of communicable diseases were predominately to give close attention to cleanliness and sanitation. Other comments included: “sick employees should stay home”; “sterilization and processing by machine methods to eliminate human contact”.

**DISCUSSION**

The study of numerous state and city codes on the communicable disease section of medical examination for milk product handling indicates a serious lack of uniformity. The required frequency of these examinations differ from none, occasionally, each two years, one year or every six months.

Particularly noteworthy as additional evidence in the lack of uniformity is variation in specific details considered necessary by the examining physician or health officer to determine freedom from communicable disease. The variability also applies to the number and nature of the laboratory tests and the method used.

The range in cost of $2.00 to $25.00 for medical examinations reported in the survey implied that the thoroughness varied greatly. In addition to the possibility of the fees, the savings in time are worth consideration when examinations plus travel are incurred by the plant.

The responsibility for adherence to the medical regulations may be directed to management, the employees or both, depending upon the code in effect.

Presumably in view of several factors, some health officers as well as authorities in the dairy industry question the value of medical examination for communicable diseases and seriously recommend its abolition. In addition to the questionable value because of variability of medical examination details, several supporting reasons are given below. Improved methods and equipment have drastically reduced the possibility of a dairy plant employee induced contamination. The decrease in number of employees per unit of dairy product processed and merchandised has been substantial the last 15 years. As the trend continues, automation will eliminate direct human contact. Generally improved medical practices of personnel have decreased opportunity for serving as a source of communicable diseases. This fact is verified by the exceedingly low number of employees who failed to pass the medical examination requirements. Fifty-one dairy plant managers reported that not one of more than 1,000 applicants failed to pass the medical examination during a recent five-year period. Obviously a prospective employee does not apply for an examination unless he is reasonably certain of passing it. Records do not indicate a greater problem of disease transmission through dairy products in areas where the health officers do not require medical examinations except upon suspicion or symptoms of disease. Further substantiation is that most of the reported illnesses from dairy products were due to raw products, improper pasteurization or toxins from microbiological growth prior to pasteurization.

The dubious value of the periodical medical examination is not only being recognized, but influencing code revision. In New York City the annual medical examination was recently deleted (2) because “It gave a false sense of security and detracted from the observance of the basic requirement—free from communicable diseases at all times.” The effect of this change will be interesting to observe.

The proposed revision of the U. S. Public Health Service, Third Draft, Part III, Pasteurized Milk Ordinance (August 1964) appears to have eliminated routine medical examinations. Section 12 excludes handlers with any communicable disease from contact with all phases of production through distribution of milk and immediate notification of health officer upon suspicion or occurrence of disease or contacts with disease by any handler. Section 13 provides for immediate exclusion of the person and the milk supply and adequate medical and bacteriological examination of the person and his body discharge and the same of his associates if reasonable cause for suspicion of infectious transmission exists.

Obviously another course of action for various local and state public health agencies is to officially adopt uniform requirements. However, unless specific details of the medical examination including laboratory tests are provided as a guideline for the medical officer, very likely little standardization would materialize. Current variations in the actual routine periodical medical examinations for food handlers that are given by different officials indicate that standardization may be a difficult task.

The data lead to the conclusion that effective and most efficient protection against human transmission of communicable diseases through dairy products will result by codes that require freedom from these diseases. Logically the responsibility for compliance should be placed upon both employee and management.

**REFERENCES**


William J. Dixon, a graduate of the University of Kansas with a BS degree in Civil Engineering, Sanitary Option; eight years experience in design and construction of water purification and sewage treatment systems and other engineering activities; eighteen years in the public health field at state and local levels including supervision of milk and food sanitation programs, environmental sanitation, plumbing inspection, mosquito control, housing, rodent control and industrial hygiene. From 1940 through 1948, he was Commissioner of Public Health Engineering with the Kansas City, Missouri Health Department, supervising an extensive municipal program.

For the last sixteen years, Bill has been with Klenzade Products of Beloit, Wisconsin, now a division of Economics Laboratory, Inc. His responsibilities have included management of National Accounts and Food Processing sales activities, development of sales promotion programs, sales training and technical writing. Since 1950, he has organized and managed the well-known Klenzade Educational Seminar including procurement, editing and distribution of the many, many fine technical papers presented at these meetings.

Not only is he a member of our Association, but also of the American Public Health Association, Conference of Municipal Public Health Engineers, Association of Food and Drug Officials of the United States, Institute of Food Technologists and a number of state and local public health and industry organizations.

On January 1, 1965, Bill Dixon retires from Klenzade but will continue as consultant on a part time basis with various assigned responsibilities. We are indeed fortunate that Bill has agreed to join our staff on a part time basis. You will be seeing and hearing more from him in the future, but for now, we all join in welcoming Bill Dixon to the Editorial Staff of the Journal.

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