

THE BIGGEST PROBLEM IN FOOD HYGIENE—PEOPLE

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ABSTRACT

The importance of the behavior of the people who are involved in food handling is emphasized. It is through their behavior that potential health hazards are avoided and acceptable standards of cleanliness are maintained. Education is seen as the key to the modification of or the change of behavior. Food handler's training courses "as usually given" are criticized and suggestions are offered for improving the courses. The place of the sanitarian in these programs is reviewed. While health departments have usually conducted the training programs, there are certain disadvantages involved. Perhaps the responsibility in this area should rest with the food industry.

The late J. L. Pomeroy is quoted as saying, "It isn't the hazard of 10 waitresses contaminating the glassware that serves 1,000 people that is the matter for concern. It is the 1,000 persons whom the waitresses have served; there is the real danger" (1). The potential for food-borne disease is very great. The actual amount of illness that is transmitted through food is not known, but The Gross Report conservatively estimates that one million cases of food poisoning occur annually in the United States (21). The million cases would not, of course, include food-borne illnesses, not classified as food poisoning, which I believe are more prevalent than generally thought to be. If a food serves as a vehicle for food poisoning, then obviously this food is also capable of carrying other diseases, because of its exposure to contamination and favorable environmental conditions. These other diseases may include those caused by the enteric viruses such as infectious hepatitis, poliomyelitis and others, some higher fungi (molds), protozoa such as *Endameba histolytica*, various of the nematodes and helmenthic ova, as well as the bacterial agents both enteric, e.g. *Salmonella typhimurium* and the recently discovered *Vibrio parahemolyticus* (Sakazakia, 1963) and the respiratory group such as the hemolytic streptococci (13). Most disease agents get into food because of things done or things not done by persons responsible for some phase of food production, transportation, processing, preparation, storage, or serving.

In food sanitation programs, the traditional role of communicable disease prevention is still valid. Because the spectacular outbreaks of typhoid fever,

scarlet fever, and diphtheria have been eliminated, this aspect has been given, in my opinion, less importance than it deserves. It may well be, however, that even that attention which has been paid to the control of food-borne disease has been misdirected. Perhaps we should have noted with more care the words of C. V. Chapin when he commented on the conquest of acute infectious diseases in 1934.

"We have learned the true nature of infection and we have learned that the parasites which are its essence rarely propagate in filth and are seldom air-borne. We have, in the language of a distinguished American hygienist, been to a large extent 'barking up the wrong tree.' Instead of indiscriminate attack on dirt, we must learn the nature and mode of transmission of each infection, and discover its most vulnerable point of attack. Some of the most recent works on sanitation still reiterate the time-worn phrase about dirt and disease. The daily press, and even the medical press, speaks as if street cleaning, scavenging, modern plumbing, and tenement house reform were the mainstay in fighting infection and reducing the death rate. The majority of even intelligent people today believe that Havana was made healthy by municipal engineering, while it was really accomplished by scientific effort specifically directed against infections. Our medical schools are also doubtless at fault, for many of even our younger physicians look for the source of malaria, typhoid fever, and diphtheria in 'unsanitary conditions' by which they usually mean defective plumbing, decaying vegetation, heaps of stable manure, or general yard rubbish. The great problem of sanitation today is how to deal with mild or recognized cases of contagious disease and with those persons who, though well, are yet infected. This problem is not likely to be solved so long as physicians trace infection to the class of things mentioned instead of to persons" (5).

To what extent have we, that is the sanitarians and the public health engineers, been "barking up the wrong tree?" Looking back to the 1943 U. S. Public Health Service *Recommended Ordinance and Code for Eating and Drinking Establishments*, we find its main emphasis was on physical elements of the environment. For example, things that could be measured: cleanability of surfaces (smoothness), foot candles, and face-velocity of air to check ventilation via hoods; not to mention the hoods themselves and the three-compartment sink. At least, if the ordinance itself did not stress "things", those who were

undertaking the control of food-borne disease under the ordinance stressed "things." Sanitarians came to be known as the "floors, walls, and ceilings men." Physical things are important, but they are, I believe, considerably less important than people in the prevention of food-borne illness. The 1962 revision of the U. S. Public Health Service model ordinance has listed the sanitation items in a different order with "floors, walls and ceilings" listed in the last section F, and from the last place on the 1943 list "personnel" has moved up to section C, which is a step in the right direction (20).

CHANGES IN FOOD TECHNOLOGY

Food handlers are also the critical factor in what Lemaul Shattuck, in 1850, suggested was very important to the welfare of the population; the prevention of the intentional or unintentional addition of harmful substances to food (15). The revolution in food technology since Shattuck's time has increased a thousandfold the possibility of harmful food additives reaching large numbers of people from even one mistake. Pesticides, herbicides, and animal feed additives are examples of substances that may reach the consumer in his food (from the producer). Whenever food-stuff is processed chemical substances may be a hazard as well as disease transmission in the traditional sense. One figure that indicates the increase in the processing of food is this from the frozen food industry: the frozen food output in the U. S. in 1942 was 647.5 million pounds. In 1959 the total had risen to 6,565 million pounds (13). Practically all of the food which is consumed today in the United States has been handled by many people before it reaches the consumer. In the U. S. 78 million meals were eaten away from home each day of 1962 (19). This figure would likely be higher for 1968. The problem of the control of potential hazards in food is great and becoming greater, and methods of coping with the problem must also expand.

FOOD HANDLER'S NEED ATTENTION

I think the problem of people involved in food handling has not been given adequate attention in part because it is considerably more difficult to deal with the human element than it is to engineer and to measure (with a meter or tape that is). There have been some attempts to meet the "people-problem" in food hygiene, but often without remarkable success. One of the earliest attempts was the food handler's HEALTH CARD which was required by law and was renewed annually after a physical examination. This examination usually consisted of a chest x-ray, a Wasserman Test, and sometimes a stool examination. I believe that health cards on this

basis are now generally recognized for what they are; case-finding techniques perhaps, but not valid parts of a food hygiene program. Tuberculosis and syphilis are seldom transmitted through food! Even if they were, a worker could manage to have the disease and a valid "Health Card" for about 11 months of each year. The card system had some value in that it made the food worker known to the health department and vice versa.

TRAINING OF FOOD HANDLERS

A second and more meaningful program aimed at the human element is the training of food handlers in food hygiene. The military, during World War II, developed short course training programs for their food service workers. Following the war, several state health departments and many local health departments undertook to give food handler's training. The mark of a progressive sanitation division was whether or not it conducted a food handler's training course as part of its food sanitation program. California State Health Department published a guide for conducting a food sanitation class in 1950 and a revised edition in 1956. Three communities in California, according to the above reference, have compulsory food handler's courses for all food workers in their jurisdictions, and over the years many courses have been held on a more or less voluntary attendance basis. The California guide mentions studies done in 1950 and 1951 to determine the effectiveness of food sanitation training programs. The results, they say, "indicated that the training of restaurant personnel does produce a recognizable improvement (4). There was a survey evaluation done in a community in Massachusetts where the rating score rose from 20.8% in 2 years time to 79.6% (1944-1946), (8). At the time of the first rating, the community had no food sanitation program at all, and during the interval between ratings they developed a fairly complete program which included food handler's training. I do not think that there have been any really valid evaluation of these training courses. However, there is a growing concern that the courses as given are not meeting the problem.

ARE COURSES ADEQUATE?

If they are not, we should not be surprised. The key phrase is "as usually given." As usually given, the course is between 6 and 10 hr of instruction given in 3 to 5 sessions. These sessions are broadly laced with 16 mm films that were made 15 to 20 years ago and are not very topical. The "students" are usually coerced to attend either by their employer, or more likely the health department, after a full shift of work. Those instructing the classes

are handicapped by too little time in the course to do more than generalize, by having pressure of other work, and often by having no special training or aptitude for teaching adults. A critical review of the course content is beyond the scope of this paper, but one comment is appropriate. The California guide suggests seven subjects: Bacteria and Disease, Personal Hygiene and Food Service, Food Protection, Dishwashing, Good Housekeeping, Rodent and Insect Control, and Laws and Inspections (4). These subject areas are quite standard as they appear in almost every course outline. These may well be proper subjects, but are they all equally important as is usually implied and each worth only an hour? Another major weakness of the courses as they are usually given is that they seldom involve the operators and the managers. *Without the "boss" giving visible moral support, without him knowing what the food worker knows, without any planned followup of instruction, change in behavior of the "trainee" is quite unlikely or at least haphazard.*

Are food handler's training courses to be abandoned along with the x-rays and the Wassermans? There does not seem to be any plausible alternative way to change behavior except through education. Coercion works as long as "the gun is at the back," but lasting change is only with a change of will. It is probably in this that the food handler's courses have fallen short. It is not the failure of education per se, but rather a failure to educate.

We know that everybody does not hold health in the same high regard that we health workers do, and yet we assume that food handlers will readily accept our value judgement and will forthwith change their behavior accordingly. Perhaps this doesn't happen. There is not space to expound on this important area, but it surely must be a factor in the evaluation of any training program.

Education is a process which occurs to and within people. Education must include change; a change of attitude which leads to a change of behavior (9). Very often, I think, we equate knowledge with education. One educator has said, "(it) . . . is a gross over-simplification to assume that knowledge is sufficient to change behavior (this) is very naive" (7). Knowledge or ignorance is only one factor. Other factors are the value orientations and the habits and customs of the people seeking education. Habits and customs arise because these ways of behavior fulfill some need the individual has. These may persist because they continue to fill a need or because the ways have become expected or routine. I suspect that a large part of the food handler's activity and behavior is routine and habitual.

Food handler's are not a special breed of people with a special culture and a special set of values.

They are a fair cross section of the general population; and, I would suspect, just about as varied. They do, of course have special skills and knowledge which is relevant to food handling; some of which pertains to food hygiene. Training programs should not only take the special knowledge of the food handler into consideration, but should utilize it to the fullest extent in developing curriculum and teaching methods.

THE TEACHER'S RESPONSIBILITY

I believe there is truth in the old saw that if the student hasn't learned, the teacher hasn't taught. This puts a great obligation on the teacher, especially if he is teaching adults. It is a risky thing for an instructor to lay down all the rules and answers. No matter how acceptable these may be to him, his adult students may not accept them. "It indicates a subtle lack of respect for other persons—for their ability to cope, for their values . . . even if he (the tutor) is right and he very well may be (6)." Exploring for solutions with the students is a reasonable way to gain student acceptance of the concepts developed. Thus the instructor may go step by step with the students in the development of the theme, improved food hygiene practice. This method would surely require more time than the 6 to 10 hr allowed. It would also require a competence that most sanitarians do not now have but could certainly acquire. The instructor must have a depth of knowledge about the actual food preparation or processing in the industry; he must have a proper perspective of the health hazards and the aesthetics involved; and, perhaps this is the most important, he must be an able teacher of adults. I think this area presents a real challenge to the sanitarian. The sanitarians are, more than any other group, in a unique position to fill this need.

CRITICAL EVALUATION OF EDUCATIONAL PROGRAMS

If health departments are going to continue to give food handler's training courses, the methods and techniques by which this training is to be accomplished must be looked at more critically than we have in the past. But perhaps the health department is not the best organization to conduct food handler's training. The health department has several disadvantages. There is a stigma of police power and legal enforcement attached to most environmental health divisions. Those instructing often lack in background or aptitude in teaching, and are not well enough versed with the food industry. One of the most serious disadvantages is that the health department is seldom in a position to follow-up the training in the on-the-job practical application. Health agencies

also offer some advantages. They usually have some status or prestige in the community which adds luster to the course. Personnel of the health department have a wide range of specialities from which talent can be drawn.

An alternative to health department operated courses which is gaining acceptance is to place the responsibility for employee training in food hygiene squarely with the employers, i.e., industry. It is likely that industry will do more of this training. It is good business for a restaurant or a food industry to maintain high standards, and it is recognized by many that personnel performance is a key factor (2, 17, 18). A third possibility is that educational institutions could operate courses on a fee basis with the individual or industry paying the bill.

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