

In recent years, the epidemiology of foodborne disease has been changing because of the increased consumption of raw or minimally processed foods, the consumption of foods out of the home, the globalization of our food supply, and the mass production and distribution of ready-to-eat foods.¹ It is in the context of these changes in diet and industry that pathogens such as *E. coli* O157:H7 have emerged as public health problems.

In this issue of the Journal, Tilden and colleagues demonstrate how an outbreak of *E. coli* O157:H7 occurred in a traditional food-processing operation where everything seemed to be working in accordance with federal regulations and industry-developed good manufacturing practices.² A new hazard—the ability of *E. coli* O157:H7 to survive fermentation and drying—was identified. In this regard, the authors' investigation represents the best of foodborne disease surveillance: a hazard was identified, leading to the development of new control measures. It also illustrates why foodborne disease surveillance is critical to maintaining the safety of our food supply.

As manufacturing processes and distribution systems have grown in complexity, so have the outbreaks of foodborne disease associated with them. The low-level contamination of products, demonstrated by Tilden et al. and others, has resulted in the increased occurrence of widely dispersed outbreaks of disease in which individual cases appear as apparently sporadic infections.¹ To recognize these outbreaks requires the efforts of both public health laboratories and the acute disease epidemiologists who must work with them virtually hand-in-hand.

Public health surveillance of foodborne disease is critical to the perfor-

mance of food safety systems that are based on hazard analysis and critical control point plans. Surveillance is required to identify new hazards, as in the case of *E. coli* O157:H7 in dry fermented salami. It also provides the ultimate feedback on the efficacy of the standard industry safety plans. In the recent nationwide outbreak of *S. enteritidis* infections associated with Schwan's ice cream, the manufacturer's safety plan did not identify transportation as a potential hazard. The outbreak was a result of low-level contamination of pasteurized ice cream "pre-mix" that was transported in the same tanker trailers that also transported raw eggs.³ Low levels of contamination of this sort that can cause widespread outbreaks of human illness have made humans the "ultimate bioassay" for bacterial pathogens in our food supply.¹ Microbiologic testing of products is not sufficiently sensitive to prevent the occurrence of outbreaks, nor is it necessarily sensitive enough to reliably identify contaminated products during the course of an outbreak.

Epidemiologic methods of foodborne disease surveillance are needed to detect outbreaks, identify their cause, and provide the final assessment of the effectiveness of control measures. To accomplish this, public health officials need resources and the cooperation of health care providers. Surveillance systems for *E. coli* O157:H7, salmonella, and other bacterial enteropathogens begin with physicians ordering stool cultures on patients with diarrhea. Because most foodborne diseases have nonspecific clinical presentations, identification of the organism by culture is necessary to confirm the diagnosis. This is the crucial first step in any outbreak investigation. Culture should be

ordered, in particular, for patients with diarrhea and fever or bloody diarrhea, or for patients thought to be part of an outbreak. Although physicians may not always perceive a direct benefit to the patient in ordering a culture in these cases, there may be a community benefit: detecting a foodborne outbreak. Outbreaks typically are identified through individuals. It also should be noted that any individual with watery diarrhea would benefit from oral rehydration therapy.⁴ Thus, evaluating a patient with diarrhea is the first step in individual and community interventions.

Public health surveillance for foodborne disease requires resources for laboratories and epidemiologists and the active participation of health care providers. Without these resources, under modern conditions of food manufacture and supply, the role of foodborne disease surveillance in maintaining the safety of our food supply will be greatly diminished. □

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Annotation: Needle Exchange Programs and the Law—Time for a Change

In his social history of venereal disease, *No Magic Bullet*, Allan M. Brandt describes the controversy in the US military about preventing venereal disease among soldiers during World War I.¹ Should there be a disease prevention effort that recognized that many young American men would succumb to the charms of French prostitutes, or should there be a more punitive approach to discourage sexual contact? Unlike the New Zealand Expeditionary forces, which gave condoms to their soldiers, the United States decided to give American soldiers

after-the-fact, and largely ineffective, chemical prophylaxis. American soldiers also were subject to court martial if they contracted a venereal disease. These measures failed. More than 383 000 soldiers were diagnosed with venereal diseases between April 1917 and December 1919 and lost seven million days of active duty. Only influenza, which struck in an epidemic, was a more common illness among servicemen.

This grim lesson was lost on Americans back home. Campaigns against syphilis continued to emphasize abstinence. By

the 1930s, almost one in ten Americans was infected with syphilis.

During World War II, however, the American armed forces took a more realistic approach and distributed 50 million condoms each month during the war. The military's new motto—"If you can't say no, take a pro"—recognized that abstinence is the best way to prevent venereal disease, but for those who don't

Editor's Note. See related article by Burris et al. (p 1161) in this issue.

say no, the next best option is to use a condom.

America's experience with providing condoms to prevent venereal disease parallels American attitudes toward providing clean needles to intravenous drug users. Early in this century, increasing numbers of individuals began using the more potent and easily transportable, injectable opiates instead of smoking opium. It was believed, not unreasonably, that the use of these drugs could be curtailed by limiting access to the tools necessary to inject them; therefore, many states outlawed the sale and distribution of hypodermic syringes.

The acquired immunodeficiency syndrome (AIDS) epidemic presented a new public health challenge. As growing numbers of people contracted human immunodeficiency virus (HIV) by sharing contaminated syringes, many in the public health community advocated distributing clean needles to intravenous drug users to prevent this method of HIV transmission. In the "just say no" era of drug use prevention, however, opponents feared that providing clean needles to intravenous drug users would send the "wrong message."² The correct message was that drug use was unacceptable and that users should receive treatment. In effect, those who opposed clean needle distribution, like their predecessors who opposed condom distribution, argued that the only acceptable way to prevent infection was abstinence. They also argued that making clean needles available might encourage current nonusers to become intravenous drug users.³

Proponents of clean needle distribution never argued against either abstinence or treatment. Rather, they argued that those who would not abstain or be successfully treated (or even gain entry to the overburdened treatment programs) should not be required to put their lives at risk to continue their undesirable addiction.² Clean needles could prevent HIV infection in intravenous drug users and their sex partners and offsprings. The idea that some people would become intravenous drug users just because clean needles were available was seen as ridiculous. If people rationally weighed the risks and benefits of drug use, no one would choose to become a drug addict.

All the research to date demonstrates that the proponents of clean needle distribution were right. Clean needle availability has reduced HIV infection among intravenous drug users, many of whom want clean needles; and there is no evidence of increased drug use as a result.⁴ Yet, as Burris and colleagues note in this issue of the Journal, all but four states have criminal laws prohibiting the possession or distribution of drug paraphernalia, including syringes.⁵ Although these laws originally were designed to help solve one public health problem, they have blocked effective solutions to a different public health problem.

Another parallel may be drawn from our experiences with condoms. In 1977, the US Supreme Court struck down a New York law that prohibited the sale and distribution of condoms to people under 16 years of age.⁶ The state argued that even if the law did not stop sexual activity among minors, it had the symbolic value of communicating society's disapproval. In his concurring opinion, Justice Stevens wrote, "The statute is defended as a form of propaganda, rather than a regulation of behavior. . . . [I]t seems to me that an attempt to persuade by inflicting harm on the listener is an unacceptable means of conveying a message that is otherwise legitimate. The propaganda technique used in this case significantly increases the risk of unwanted pregnancy and venereal disease. It is as though a State decided to dramatize its disapproval of motorcycles by forbidding the use of safety helmets. One need not posit a constitutional right to ride a motorcycle to characterize such a restriction as irrational and perverse."

Similarly, laws that currently restrict access to clean needles are irrational and perverse. Inflicting harm on intravenous drug users is not a legitimate way to express our disapproval of their behavior. These laws do not prevent intravenous drug users from injecting drugs; they only prevent them from lawfully using clean needles. While law often is an effective tool of public health policy, these laws are a threat to disease prevention. Laws prohibiting access to clean needles are largely symbolic, but symbolism does not prevent disease. And moralism is not morality. There is nothing moral about

requiring people to become criminals in order to prevent disease.

Although Burris et al. report that some needle exchange programs have been authorized under disease prevention laws,⁵ opponents continue to block them elsewhere.⁷ In April 1996, the governor of New Jersey, the state with the highest rate of injection drug-related AIDS cases, rejected the recommendation of her Advisory Council on AIDS to distribute clean needles to intravenous drug users.⁸ Many needle exchange programs in this country operate in a gray area of the law. The public health workers who take the legal risk to provide clean needles to intravenous drug users should be commended, along with the government authorities who choose to look the other way. But the law should not require public health workers to become conscientious objectors to undertake actions that clearly further the public's health, or to rely on the kindness of the law enforcement community. It is time to change all laws that restrict access to clean needles so that we can make this important preventive measure available to all who need and want it. □

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