

THOUGHTS ON TODAY'S FOOD SAFETY...



A Call for a New Surveillance System for Sporadic Foodborne Illness Using a Weight-loss Web Site

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Introduction

I wish to describe a new approach to conducting surveillance for sporadic foodborne illness and other environmental hazards and organizing the inspection programs that control them (4, 5). The system I am suggesting would show the actual risk of specific foods and processing errors. It also applies to other environmental exposures.

According to the CDC (8) there are 81 million cases of foodborne disease every year in the United States. Only a small fraction of these (approximately 0.032%) are investigated as outbreaks (7). We should investigate more of these sporadic cases partly because they may have different causes than outbreaks do. More important, we need to find out how much of a deviation from control is necessary to cause illness. For example: we know the percentage of outbreaks caused by improper cooling, but we do not know the percentage of improperly cooled foods that cause illness. What is the probability that bean soup cooled in a huge pot for eight hours will cause illness? To answer this question we would have to investigate meals eaten by people who did and did not get sick.

Why people would participate

This would require a group of people who were motivated to record everything they ate for a period of time. People are not likely to devote the effort necessary to record everything they eat unless they need to control their weight or have a diet-related chronic disease. It is no secret that we have an obesity epidemic going on, although, whether it is a health crisis is being debated – see, for example, the article by Goetz (2). Still, we seem to think telling people to eat less and exercise more will

solve the problem. It seems to me we need a way to help people keep track, like one keeps track of money when on a budget. Most other weight-loss Web sites merely provide advice and sample meal plans. This proposed Web site could be promoted as a way to lower health insurance premiums to participants.

Web pages for diet and physical activity

My proposal begins with a set of user-friendly interactive Web pages for monitoring diet and physical activity to control health problems. This Web site would collect actual diet and physical activity records. It also would provide the opportunity to report illness symptoms.

The unlucky few users who were using the Web pages to control other diet-related diseases, but who experienced symptoms of foodborne illness, would be referred to their local health department, which would receive their complete food and illness history, including sources of foods.

Enteric disease epidemiology program

The system I am proposing would require a team of health department sanitarians who could investigate foods reported by cases, and controls matched to cases, using the same techniques used in outbreak investigations. Many (or most) inspections in a jurisdiction would be targeted to investigate restaurants or other sources of foods identified by the Web site. A data-processing system to tabulate and compare food processes used by restaurants involved with cases and those involved with controls would be necessary (6).

Amazingly, according to the CDC (8), foodborne illness is so common that if 50 people keep a 7-day diet record, one of them will get sick from something in his or her record. CDC's estimate for the incidence was 1.4 episodes per person per year. Knowing a person's symptoms and incubation period and what might go wrong with the preparation process would tend to implicate specific meals and foods.

The near real-time essence of this approach would require rapid microbiological methods like ATP-bioluminescence surface hygiene meters during inspections and immunomagnetic separation (1)

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followed up with PCR, which is being condensed into field tests costing \$50 (3).

Framework for bioterrorism surveillance

Because of its nearly instantaneous data-collection and microbiological analysis capabilities, the system I'm proposing will even be capable of detecting a bioterrorism attack, most obviously by strengthening existing surveillance systems. An existing emergency detection system in California (9) collects weather alerts, natural disaster information, and other official warnings, potentially even 911 calls, into a common database, then makes them available to subscribers. My system could generate an automatic warning when a threshold number of Web users report similar symptoms, such as those associated with the prodromal period for smallpox, at the same time in a given locale. Cases would be able to see the number and location of other cases.

This proposed surveillance system is intended to supplement, not replace, existing systems such as Food Net and the official reporting systems. But I believe this proposal is the future of foodborne and environmental disease surveillance.

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