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Too Much Food Safety? Conundrums, Paradoxes, and Unintended Consequences

With the advent of the 2011 U.S. Food Safety Modernization Act, the U.S. Food & Drug Administration (FDA) now has the authority to intervene, catch, try, and execute food pathogens before any crimes can be committed. In other words, the FDA can enter any food plant to seek out pathogens before public health problems arise, and thus, one more layer of protection has been added to our food supply. The question I raise is, when does it become too much?

In a February 2012 online LinkedIn discussion on food safety, participants discussed contrasting views regarding the relative food safety merits of localized, farm-grown foods that are not subject to rigid food safety controls versus large, mass production of foods that are subject to very tight controls. For now, the FDA's regulatory umbrella applies only to food processors. For now! Sometimes more regulatory control at the local level is warranted, however, as is likely to occur in the wake of the recent U.S. Centers for Disease Control report documenting the risks of raw milk consumption (2).

Farmers' markets (even children's lemonade stands) are already coming under regulatory scrutiny at the local and state levels. It is only a matter of time before consumers discover that products such as locally grown ears of corn and locally pressed ciders can harbor diverse flora and fauna that merit oversight on a national level. Ditto for the whole grains and, in my view rather scary, raw foods movements.

LinkedIn discussion participants acknowledged that although the chances of infection from locally grown, farmers' market products are probably (but not necessarily) greater than those from mass-produced foods the consequences are generally far less serious. Small, localized outbreaks may occur under the radar, whereas large national outbreaks make headline news because the numbers affected are much greater. Small versus large—it's a conundrum.

Small-Company Compliance Costs

It is an economic reality that the greater the imposition of controls upon the food supply, the greater must be the volume of food sales and profit margins to absorb the costs of compliance. As the overhead burdens of regulatory compliance grow, small entrepreneurial companies risk being squeezed out of the market. In a podcast interview conducted by Thermo Scientific, Inc., former FDA Associate Commissioner of Foods David Acheson, rather cavalierly pronounced that small- to medium-sized companies could expect to be "swamped" by

the regulatory burden and that, as a consequence, "we'll see consolidations going on in the food industry" (1). In other words, for small companies, it's just tough luck.

This certainly would be bad news for food industry innovation and initiative and, I propose, the health and nutritional well being of society at large. It is small companies that frequently incubate breakthrough products and product categories, which are often created to promote enhanced nutritional value. Look around at all the package label claims for vitamin content, antioxidants, omega-3s, gluten-free, dietary fiber, etc.—they all began with small companies willing to test the market. There are reasons for this: small, entrepreneurially driven companies are less risk averse and better positioned to cater to small market niches that may eventually grow into mass market opportunities. In contrast, large companies cannot move their stock share values by investing in small, nascent market niches. Small companies, however, cannot afford the high overhead costs associated with complex regulatory compliance schemes. It will be an unintended consequence if public health and wellbeing suffer as the drive and innovation of small companies are squelched.

Too Clean?

There is also the long-running argument that our food supply has become far too clean for our own good, resulting in multiplication of immune disorders and lowered resistance to infections. The concern is that, especially in their early years, children in many modern societies are nurtured in protective "bubbles" with filtered air, filtered water, and pasteurized foods.

At a recent professional meeting, Catherine Adams Hutt, president of RdR Solutions Consulting, quoted an immunologist's take that "an allergy is the immune system looking for something to do" (Chicago Section-IFT meeting, February 13, 2012). According to this view, by denying our children exposure to food pathogens and allergenic proteins, we deny their immune systems the training regimens required to help them transition from aseptic childhood environments into the harsh, dirty microbial realities of the world at large.

In a thought-provoking paper published in 2006, U.S. Department of Agriculture scientists posited the "devil's advocacy" proposition: "the hygiene hypothesis states that as our environment has become cleaner, the risks of illnesses (including food-borne illness) have paradoxically increased" (3) due to desensitization of immune systems and gut flora to food pathogens and allergens. Concern about a "too clean" food-manufacturing environment, incidentally, is one of the

rationales that underpin the growing raw food movement.

Let it never be said that science cannot rise to the occasion by devising elegant solutions to complex problems, however. Scientists at the National University of Singapore have been experimenting with the use of parasitic nematodes to “reinfect” gastrointestinal tracts and properly train (i.e., sensitize) immune systems (4). Alternatively, we could just let children play in the dirt again. The paradox is that dirtier foods may protect us, whereas safer foods may make us more susceptible to food-related disorders.

What Is the Solution?

As a famous economist once put it—there are no solutions, only tradeoffs. Speaking as someone who has been intimately involved in the development of three food safety technologies—one for shell eggs, one for Hispanic cheeses, and one for specialty grains—I recognize the overriding public and political mandates for cleaner and safer foods and drinking water.

But, I also recognize that the greater and more sophisticated the controls imposed on complex systems, the greater the implications for inevitable system failure. Two great failures of complex systems were the destruction of the U.S. space shuttles Challenger (1986) and Columbia (2003). Both were destroyed because of unanticipated circumstances that defied the enormously complex quality control systems already in place. There are numbers of reasons why complex systems fail (e.g., they generate complacency) that are too complex for this column to address. The take-away point is that they do fail, and, when they do, it can be with profound and devastating consequences.

It may or may not be good public health policy to ease off on food safety regulations, but that is beside the point. The reality is that no one in the food industry can afford to expose themselves to the legal liabilities of having been knowingly responsible for any real or potential vectors for allergen or food pathogen contamination of their products. Food companies, thus, are fated to submit to the ever-tightening screws of regulatory controls, leading to larger and more complex compliance systems.

Food safety regulatory agencies are similarly trapped: political constraints prevent them from accepting anything less than a 100% commitment to the protection of citizens from foodborne allergens and pathogens. If new protocols or technologies make it possible to reduce the real or perceived risks of foodborne infections, they cannot say “no” without assuming unacceptable political liabilities, no matter what the practical realities of a particular situation may be.

So, we’re stuck on our current trajectories. As for me, myself, and I, of course, talk is cheap. As an independent food industry consultant, I risk nothing by pointing out a contrarian point of

view and desultorily waving red flags of concern about where societal, food manufacturing, and regulatory trends appear to be taking us. I am just not sure that these trend lines point to a brighter future for public health, our food industry, and our personal enjoyment of food. That’s the conundrum.

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