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Irradiation Pasteurization of Solid Foods

To the Editor: Osterholm and Potter have made a strong case for irradiation pasteurization of solid foods that enter kitchens as raw agricultural commodities, such as meat, poultry, and seafood (1). Irradiation pasteurization was advocated to protect against foodborne diseases caused by common pathogens such as *Campylobacter*, *Cryptosporidium*, *Escherichia coli*, *Listeria*, *Salmonella*, and *Toxoplasma* (2). An additional rationale for irradiation pasteurization is bacterial resistance to antimicrobial drugs, a major health concern, which will undoubtedly increase in magnitude unless new approaches become available (3). The widespread use of antibiotics in animal husbandry may be the cause of some of this resistance, for example, in vancomycin-resistant enterococci associated with the agricultural use of glycopeptide antibiotics (4,5). Furthermore, resistance to glycopeptide antibitiotics can be transferred from enterococci to other gram-positive organisms, at least in the laboratory (6). Thus, resistant bacterial strains from animal sources may enter the human population through contaminated food without necessarily causing immediate disease but resulting in expanded human reservoirs of antimicrobial resistance through horizontal gene transfer (7). When such bacterial strains are subsequently transmitted to a susceptible person, serious disease could result, which would be exceedingly difficult to treat (8). Irradiation pasteurization of solid foods could reduce the magnitude of transfer of resistance genes through contaminated foods.

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Emerging Infectious Diseases in Brazil

To the Editor: Hooman Momen's update on emerging infectious diseases in Brazil (1) appears to be based solely on notifiable disease data, which cannot adequately describe the current situation. Additional data in several areas may be useful.

Parasitic diseases: Dr. Momen's update restricts itself to protozoal diseases and does not distinguish between mucocutaneous and visceral leishmaniasis. Visceral leishmaniasis is in fact expanding in many suburban and urban areas in the northeast. Mucocutaneous leishmaniasis, after a small retreat following extensive deforestation, has made a comeback; and in many suburban areas in Rio de Janeiro and São Paulo, in the southeast, transmission is occurring, probably because of changes in sandfly ecology (1).

A helminthic disease of interest is mansoni schistosomiasis, which has been expanding its area of transmission, reaching over to Santa Catarina, in the south, to Pará in the north, expanding also westward, to Mato Grosso and Mato Grosso do Sul. The number of cases, as well as the associated illness, has possibly been reduced, but there is no doubt that the disease can be found in a much larger area than 20 years ago. Other emerging helminthiases of interest, albeit not of public health concern, are

onchocerciasis, still restricted to the Yanomami group in Roraima, bordering Venezuela; *Angiostrongylus costaricensis* infection (2), found in the south, Rio Grande do Sul; and some cases of lagochilascariasis, reported from Pará.

Viral diseases: As Dr. Momen pointed out, dengue is by far the most serious emerging viral disease in Brazil, and the area occupied by *Aedes aegypti* is expanding. Dengue hemorrhagic fever has occurred occasionally, but no outbreaks have been recorded. However, measles is no longer a problem; the outbreaks have been controlled.

There is no evidence to support that hepatitis B is declining because of vaccination. Vaccination is still restricted to areas of high prevalence. Other states are beginning vaccination programs in newborns, but it will be some time before these programs have any effect on prevalence. As to hepatitis C, because diagnostic testing is only recently becoming widespread, we are probably experiencing an increase in detection rather than in incidence.

Other notable agents are Mayaro and Oropouche viruses, which are arthropod-borne and among the most common causes of febrile illness in the Amazon region. *Aedes albopictus*, found all over the country, could be a potential vector (3). Apart from HIV, other retroviruses are cause for concern: HTLV-I and HTLV-II screening is recommended for blood banks, and enough data exist to conclude that the infection is widespread in the country but with a low prevalence (0.4% and 0.1%, respectively). Clusters of disease have not been identified, but adult T-cell leukemia/lymphoma is far from a curiosity (4).

Bacterial diseases: Brazilian purpuric fever, caused by *Haemophilus influenzae* biogroup aegyptius, was first reported in outbreaks in the central-south part of the country (western São Paulo, eastern Mato Grosso do Sul, and northwestern Paraná) about 10 years ago, causing a syndrome much like meningococcemia (5). For enteric infections, the limited data available present interesting trends. *Salmonella* Enteritidis is rising and *S.* Typhimurium is declining in São Paulo and the southern states. These trends may reflect improved sanitation and increased use of industrialized foods and contaminated animal feeds (6).

Fungal diseases are not reportable, but many epidemiologic studies have been conducted. Paracoccidioidomycosis (South American blastomycosis) was unheard of in the Amazon region, never being found in native habitants; however, because of environmental and socioeconomic changes, the infection is now being identified (7).

Antimicrobial resistance is a serious problem, not only within hospitals, but also in the community. Penicillin-resistant pneumococcus is not yet a widespread problem, but it has been detected (8); the same situation exists with regard to *Mycobacterium tuberculosis* (9).

The problem of emerging infectious disease is gaining increasing attention in Brazil, and published reports together with notifiable disease data underline the main points of concern.

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