

Report identifies top 10 pathogen-food combinations that cause illness

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Researchers at the University of Florida Emerging Pathogens Institute have identified the Top 10 riskiest combinations of foods and disease-causing microorganisms, providing an important tool for food safety officials charged with protecting consumers from these costly and potentially life-threatening bugs.

The report, “Ranking the Risks: The 10 Pathogen-Food Combinations with the Greatest Burden on Public Health,” lists the number of illnesses, costs, and overall public health burden of specific microbes in particular types of food –such as Salmonella in poultry and Listeria in deli meat. This is the first comprehensive ranking of pathogen-food combinations that has been computed for the United States.

See: Video: Top 10 risky food pathogens

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Millions of Americans get food poisoning each year and thousands die. Federal agencies such as the Food and Drug Administration, U.S. Department of Agriculture, and more than 3,000 state and local governments are charged with protecting consumers from these risks, but their efforts often are fragmented and uncoordinated.

“The number of hazards and scale of the food system make for a critical challenge for consumers and government alike,” said Michael Batz, lead author of the report and head of [Food Safety](#) Programs at the [Emerging Pathogens](#) Institute. “Government agencies must work together to

effectively target their efforts. If we don't identify which pairs of foods and microbes present the greatest burden, we'll waste time and resources and put even more people at risk."

Of these, the new report concludes that five leading [bugs](#) — Campylobacter, Salmonella, Listeria monocytogenes, Toxoplasma gondii, and norovirus — result in \$12.7 billion in annual economic loss — with the Top 10 pathogen-food combinations responsible for more than \$8 billion.

That burden includes the cost of medical care and lost productivity from employee sick days, as well as the expense of serious complications or chronic disabilities that result from the acute illness or sometimes strike after acute illness goes away.

The report, which was supported by a grant from the Robert Wood Johnson Foundation, includes the following key findings and recommendations for food safety officials:

- Poultry contaminated with Campylobacter bacteria topped the list, sickening more than 600,000 Americans at a cost of \$1.3 billion per year. Salmonella in poultry also ranks in the Top 10, with \$700 million due to costs of illness. Infections with these microorganisms can cause acute illness such as vomiting but also can lead to hospitalization or death. Campylobacter infection can also cause paralysis and other neuromuscular problems. The report questions whether new safety standards announced by the USDA for young chickens and turkeys are sufficient, and recommends evaluating and tightening these standards over time.
- Salmonella is the leading disease-causing bug overall, causing more than \$3 billion in disease burden annually. In addition to

poultry, Salmonella-contaminated produce, eggs and multi-ingredient foods all rank in the Top 10. The report recommends that the FDA and USDA develop a joint Salmonella initiative that coordinates efforts in a number of foods.

- Four combinations in the Top 10 – Listeria in deli meats and soft cheeses, and Toxoplasma in pork and beef – pose serious risks to pregnant women and developing fetuses, causing stillbirth or infants born with irreversible mental and physical disabilities. The report recommends that agencies strengthen prevention programs for these pathogens and improve education efforts aimed at pregnant women.

Norovirus is the most common foodborne pathogen and is largely associated with multi-ingredient items that can become contaminated, often by service-industry workers who handle food. The researchers recommend strengthening state and local food safety programs through increased funding, training and adoption by states of the most recent FDA Food Code.

The report lists *E. coli* O157:H7 as the sixth pathogen in overall burden, with the majority due to contaminated beef and produce. The report recommends federal agencies continue to target *E. coli* O157:H7, due to the particularly devastating injuries it causes in small children, including kidney failure, lifetime health complications, and death.

Last year, Congress passed the Food Safety Modernization Act, which broadly directs the FDA to adopt a more preventative, risk-based approach, but doesn't spell out exactly how this should be done. The risk-based analysis in the report provides the agency with one tool it can use to prioritize limited resources in ways that best protect consumers.

The UF researchers suggest that people should use this report not as a

top 10 list of foods to avoid but as a reminder that many of the foods we eat every day can become contaminated. While some food safety risks are outside of our control as [consumers](#), the researchers say that effective food safety practices – such as making sure you wash your hands frequently and using separate cutting boards and knives for meat and produce – can help to keep your family safe from foodborne illness.

For more information on good food safety practices or for a copy of the report, visit the Emerging Pathogens Institute website at www.epi.ufl.edu

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Provided by University of Florida

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