USDA says current poultry food safety guidelines do not stop salmonella outbreaks

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Current poultry food safety guidelines for Salmonella, the leading cause of foodborne illness outbreaks, are inadequate. A new study conducted by Thomas Oscar, USDA Agricultural Research Service, "Salmonella prevalence alone is not a good indicator of poultry food safety," published in *Risk Analysis*, explores additional factors that must be considered in order to identify poultry products that are truly safe for human consumption.

The poultry industry currently uses Salmonella prevalence or positivity rate as an indicator of food safety, but there are numerous other factors that influence the level of risk to public health. This study showed that even though other meats like ground chicken could have a lower Salmonella prevalence than ground turkey at meal preparation, they could pose a higher risk of salmonellosis if they are contaminated with higher numbers of more virulent serotypes of Salmonella.

The current approach to food safety in the poultry industry consists of two pillars:

- Pathogen reduction and process control to reduce consumer exposure to these harmful pathogens;
- Active surveillance to identify foodborne illness outbreaks with subsequent recalls of implicated foods.

These approaches are limited because pathogen prevalence is not the only risk factor for an outbreak and in the second pillar, harm to public health occurs before corrective action is taken.

Present food safety reviews do not include data such as Salmonella serotype and virulence and number, incidence and extent of temperature abuse, incidence and extent of undercooking, incidence and extent of cross-contamination during meal preparation, food consumption behavior, and host resistance which are important risk factors for salmonellosis from ground turkey and other poultry products.

Processing plants with a high prevalence of Salmonella on its poultry meat do not necessarily pose a higher risk of salmonellosis. Rather, poultry meat from a processing plant with a lower prevalence of Salmonella could pose a higher risk if:

- A more virulent serotype(s) is(are) present;
- The meat is shipped to a distribution channel with:
- A higher incidence or extent of temperature abuse;
- A higher incidence or extent of undercooking;
- A higher incidence or extent of cross-contamination of ready-to-eat food;
- A higher proportion of higher-risk food consumption behaviors;
- A higher proportion of high-risk customers.

The study concludes that to increase food safety, a process risk model or computer model should be

applied at the processing plant exit to integrate pathogen contamination data and post-processing risk factors to provide an objective description regarding the safety of individual lots of food before they are shipped to consumers. A more holistic approach to poultry food safety that considers Salmonella serotype, virulence, and number, and incidence and extent of temperature abuse, undercooking and cross-contamination, and food consumption behavior and host resistance is needed to better protect the public from foodborne pathogens like Salmonella.

More information: Thomas Oscar, Salmonella Prevalence Alone Is Not a Good Indicator of Poultry Food Safety, *Risk Analysis* (2020). DOI: 10.1111/risa.13563

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