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U.S. Department of Agriculture  
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Mr. John Jarosh  
Deputy Director of Public Health Science  
Food Safety and Inspection Service  
Office of Public Health Science  
1400 Independence Ave SW, Room 1131  
Washington, DC 20250-3700

**Re: Docket No. FSIS-2022-0031: National Advisory Committee on Microbiological Criteria for Foods**

Dear Mr. Jarosh:

The National Chicken Council (NCC) appreciates the opportunity to provide comments to the National Advisory Committee on Microbiological Criteria for Foods (NACMCF) report titled Enhancing *Salmonella* Control in Poultry Products.<sup>1</sup> NCC is the national, non-profit trade association that represents vertically integrated companies that produce and process more than 95 percent of the chicken marketed in the United States.

NCC appreciates the measured approach taken by NACMCF on the topic of *Salmonella* and poultry, and overall supports many of the recommendations in the report. Specifically, we appreciate the acknowledgement that there are “extensive data gaps,” the need to “complete risk assessments,” and the emphasis on a risk-based approach to food safety. Below we would like to take the opportunity to provide additional feedback on the nine recommendations made to the United States Department of Agriculture (USDA), Food Safety and Inspection Service (FSIS or the Agency) by the advisory committee.

**Recommendation #1 – Collect appropriate data to refine food attribution models to determine which form(s) of raw poultry (further processed vs. parts vs. whole carcasses)**

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<sup>1</sup> [NACMCF Salmonella-Poultry Response for Committee Review.pdf \(usda.gov\)](#)

## **and food handler practices that contribute most to salmonellosis associated with chicken and turkey.**

NCC agrees with this recommendation and also suggest that data sources be specified for all attribution models. It is imperative that data collection be improved, consumption patterns be considered, and that exposure to live birds are not used when determining salmonellosis cases attributed to consumption of poultry, overall. The route by which impacted individuals are exposed to *Salmonella* is important and perhaps we could learn even more if this information was kept separate. We suggest that FSIS continue to work closely with both the Interagency Food Safety Analytics Collaboration (IFSAC), CDC's National Outbreak Reporting System (NORS) and FoodNet Fast tracking database.

The IFSAC report makes clear several important limitations: The illness estimates “should not be interpreted as suggesting that all foods in a category are equally likely to transmit pathogens.” The authors also urge “caution” in “comparing estimates across years” as the percentages reflect a relative contribution to illness burden, which means a category could see its actual illness contribution decrease yet its relative percentage increase if other categories dropped even further. The authors expressly “advise using these results with other scientific data for decision-making.”<sup>2</sup> The IFSAC report alone cannot drive scientifically based policy. Further, the illness contribution attributed to chicken is statistically indistinguishable from that of fruits, seeded vegetables, and pork and is followed very closely by “other produce.”<sup>3</sup> This statistical parity between product categories suggests that a coordinated approach applying measured strategies against all of these categories would have a much greater public health impact than merely singling out one category without addressing the other. Unfortunately, without recognizing the limitations of the information and without including changes in consumption patterns of various food items, this information is commonly misconstrued in part due to the complicated manner in which the attribution is calculated and what actually goes into the calculations themselves.

CDC's National Outbreak Reporting System, or NORs, is a web-based platform that launched in 2009.<sup>4</sup> It is used by local, state, and territorial health departments in the United States to report all waterborne and foodborne disease outbreaks and enteric disease outbreaks transmitted by contact with environmental sources, infected persons or animals, or unknown modes of transmission to CDC. From 2009 to 2020, NORs reported 15,344 poultry-related *Salmonella* illnesses, which represents 29.3% of all *Salmonella* illnesses (there were 52,374 total *Salmonella* illnesses reported from 2009 to 2020). Critically, however, that figure lumps together illness from both live poultry (e.g., handling a backyard flock) and consumption of poultry. Separating out the live-poultry exposures yields a very different result. 8,475 of the 15,344 poultry-related illnesses were attributed to live poultry – for example, handling chicks or interacting with backyard flocks – and not related to chicken consumption at all. Chicken consumption accounts for 5,076 cases in the NORS data, which represent 9.7% of all salmonellosis cases in the U.S. from 2009 to 2020. While the industry is committed to driving this number down further, failing to properly distinguish

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<sup>2</sup> The Interagency Food Safety Analytics Collaboration, Foodborne illness source attribution estimates from 2020 for *Salmonella*, *Escherichia coli* O157, and *Listeria monocytogenes* using multi-year outbreak surveillance data, United States, at 12 (Nov. 2022), <https://www.cdc.gov/foodsafety/ifsac/pdf/P19-2020-report-TriAgency-508.pdf>.

<sup>3</sup> The Interagency Food Safety Analytics Collaboration, Foodborne illness source attribution estimates from 2020 for *Salmonella*, *Escherichia coli* O157, and *Listeria monocytogenes* using multi-year outbreak surveillance data, United States, at 8 (Nov. 2022), <https://www.cdc.gov/foodsafety/ifsac/pdf/P19-2020-report-TriAgency-508.pdf>.

<sup>4</sup> Center for Disease Control, National Outbreak Reporting System, Center for Disease Control, CDC.gov (2019), <https://www.cdc.gov/nors/index.html>.

foodborne illness and the more-prevalent live-bird exposures significantly overstates the effect of chicken consumption on illness burden in the NORs data.

As previously mentioned, the data reported from both of these groups is commonly misconstrued in part due to the complicated manner in which attribution is calculated and what actually goes into the calculations themselves. However, if FoodNet Fast, NORs, and IFSAC data were reflective of consumption patterns of chicken over time and/or did not include exposure to live birds, the overall burden of illness attributed to chicken would actually have decreased. It is important that data reported by any Federal agency is accurate, actionable, and understandable.

**Recommendation #2 – Expand systematic FSIS sampling for *Salmonella* levels, prevalence, and subtypes on poultry pre-harvest (hatcheries, feed, broiler houses) and post-harvest (slaughter through processing). Prioritize comminuted poultry products, mechanically recovered poultry meat, tenders, and breaded stuffed raw chicken products, to identify *Salmonella* levels and evolution of predominant serotypes.**

NCC agrees that expanded exploratory programs for chicken parts, comminuted poultry, and source material used to make breaded stuffed raw chicken products would be extremely valuable information. The Agency recently adopted a new enumeration platform and has been conducting exploratory sampling on hot rehang samples and post-chill samples. With this capability, it is imperative that the Agency conduct additional sampling of chicken parts, comminuted poultry, and source material used to make breaded stuffed raw chicken products in order to develop a robust baseline and determine the risk profiles of each.

We do not believe that focusing on mechanically separated poultry (MSP) to include mechanically separated chicken (MSC) or mechanically separated turkey (MST) would have an impact on public health as most of these products are fully-cooked prior to reaching the consumer. Moreover, in 1995, FSIS published a final rule on MSP indicating that the product was safe and could be used without restrictions. However, it is a regulatory requirement that product containing MSC or MST must be labeled as such in the product's ingredients statement.<sup>5</sup> Only MSP that does not receive a lethality step should be considered in any expanded sampling program.

Additionally, we question why chicken tenders are singled out in this recommendation. Overall, the Agency considers most chicken parts as a "part" and has developed performance standards for these parts. If chicken tenders are to be singled out, we suggest that the risk profile associated with these products be considered prior to any action by the Agency.

Finally, as FSIS lacks jurisdiction to mandate on-farm testing, NCC does not support an FSIS sampling program pre-harvest. An expanded sampling program should be focused in the processing plant only.

**Recommendation #3 – Incentivize industry to deposit data (anonymized, non-punitive) on levels of indicator organisms and *Salmonella* prevalence, concentration and serotypes, found at various stages of processing (pre-harvest through final product) along with practices that may mitigate contamination.**

NCC has frequently expressed concern about the lack of data and scientific analysis used to support the current direction of the Agency as it pertains to *Salmonella* in poultry. We agree with the advisory committee's recommendation three on a need to develop a data depository that is anonymized and non-punitive. Chicken processors collected substantial quantities of data,

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<sup>5</sup> [95-27305.pdf \(govinfo.gov\)](#)

dwarfing that collected by FSIS through verification and exploratory sampling. For more than a decade, NCC has sought a mechanism to facilitate aggregate data sharing with FSIS. NCC members are interested in developing an appropriate data-sharing process. In particular, NCC urges FSIS to develop a data-sharing framework that is consistent with the Freedom of Information Act exemption (b)(3), either with FSIS or a sister agency within USDA.<sup>6</sup> This data would provide FSIS with substantially more insight into food safety systems throughout the industry and would facilitate policy development and risk assessment modeling.

Once established, the Agency could analyze the data to include indicator organisms, *Salmonella* prevalence, and other parameters that the industry routinely evaluates. This information could be used to perform trend analysis and determine where risks may be present.

**Recommendation #4 – Frequently (e.g., every 2-3 years) compare the serotypes that are isolated from patients with those isolated from poultry products to determine if intervention strategies used by the industry are effective against all *Salmonella* equally or are selecting for specific serotypes.**

NCC agrees that it is important to frequently compare serotypes that are causing illnesses in the human population with those isolated from poultry products. However, it is extremely difficult if not impossible to determine which intervention(s) are having an impact or shifting serotypes over time. The industry uses a multi-hurdle approach to controlling *Salmonella* by implementing numerous preharvest intervention strategies to reduce *Salmonella* loads coming into establishments. For example, robust preharvest *Salmonella* control strategies are widely implemented across the industry to include programs in the hatchery, feed mill, breeder house, and broiler house. These programs include, but are not limited to:

- Biosecurity programs
- Equipment sanitation
- Feed treatment
- Litter treatment
- Water sanitation programs
- Feeding of prebiotics and probiotics
- Rodent/insect control
- Cleanout programs
- Vaccinations

Pre-harvest programs are distinctive to each complex depending on their unique challenges. There are no preharvest “validated mitigation strategies” and what may seem effective on one farm, may not be on another. Intervention strategies are used in concert with one another and industry benefits from the cumulative effect of a multi-hurdle approach. Singling out the effectiveness of one intervention over another is impossible.

To even attempt to determine which intervention strategy is effective against all *Salmonella* equally or are selecting for specific serotypes as mentioned in the recommendation, this would require that all preharvest interventions be discontinued for a period of time and then to try only one intervention at a time. Since industry knows that a multi-hurdle approach is critical to reducing *Salmonella* load, performing this type of experiment could negatively impact both bird health and public health. The only way to determine which interventions are having an effect (or not) would be to develop a multifactorial study on a research farm that could also evaluate the cumulative effect

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<sup>6</sup> 5 U.S.C. § 552(b)(3).

of interventions. We suggest that FSIS work with the Agriculture Research Service (ARS) to help address this research need.

**Recommendation # 5 – Develop and validate quantitative testing methods to determine if and how testing and processing scheduling can reduce the likelihood that carcasses and parts with higher levels of *Salmonella* that are most capable of causing illness are released into commerce.**

NCC suggests that FSIS work with the Agriculture Research Service (ARS) to help address this research need. In today’s poultry industry, logistical scheduling presents many challenges. There is little to no research that demonstrates that processing birds in any particular order would impact public health. Overall, the industry has developed their HACCP system to account for fluctuations in incoming loads and, from a food safety standpoint, this has proven to be a successful endeavor. However, it is imperative that FSIS perform a baseline on chicken parts to determine which product(s) may have a higher level of *Salmonella*. This would be a truly risk-based approach to controlling *Salmonella* with the ultimate goal of positively impacting public health.

**Recommendation #6 – Consider changes to performance standards based on enumeration of *Salmonella* in the product rather than prevalence of *Salmonella* only or on serotype found.**

This recommendation – focusing on enumeration of *Salmonella* – coupled with a risk assessment, is a scientifically-valid and risk-based approach. NCC believes that an enumerative performance standard would advance FSIS’s public health goals in a much simpler and easier-to-implement manner. A properly constructed enumerative performance standard would achieve the same objective of driving down levels of *Salmonella* on finished product raw poultry with several benefits. An enumerative performance standard:

1. Provides the Agency and establishments with greater flexibility;
2. Can be implemented relatively quickly – after baseline information is collected and data analysis is conducted;
3. Is more responsive to existing supply chains and distribution practices;
4. Would not require new rapid testing technologies or complex test and hold programs; and
5. Would generate valuable long-term data about *Salmonella* levels on finished product.

Further, the advisory committee goes on to state that there is a need to “**predict** the public health impact of hypothetical changes in *Salmonella* control strategies in poultry products **prior to their implementation.**” NCC could not agree more with this statement and remains concerned that the Agency’s proposed *Salmonella* Framework and other announcements by FSIS go way beyond the data collection, data analysis, and fundamentally understanding what changes, if any, may impact public health.

**Recommendation #7 – Complete risk assessments for chicken and poultry to assesses public health impacts of different risk-based *Salmonella* control strategies.**

NCC agrees completely that a completed risk assessment is a prerequisite for a science-based, risk-based approach prior to any proposed regulatory changes. We reiterate that it is imperative that FSIS prioritize generating and making publicly available key data and complete the two quantitative risk assessments prior to any further action by the Agency. FSIS is currently working towards the development of two quantitative risk assessments – one focused on *Salmonella* in chicken and the other focused on *Salmonella* in turkey. In the July 1, 2022, Constituent Update, FSIS announced that it has signed a cooperative agreement with the University of Maryland’s Joint

Institute for Food Safety and Applied Nutrition (JIFSAN) in partnership with EpiX Analytics to help in the Agency's data collection effort for these risk assessments. NCC has engaged with JIFSAN routinely since July 2022 to understand this group's approach to data collection, the specific data needs, and how NCC and our member companies can aid in this process. Unfortunately, FSIS only provided the JIFSAN team three months to work with trade associations like NCC to understand data needs, develop a platform by which data could be shared, and fully understand the goals of the Agency. This timeline has proven to be insufficient as we are at the end of 2022 and this group, in conjunction with several trade associations, industry representatives, and FSIS, has still not been able to execute the intended data collection effort. Although the process has not progressed as quickly as FSIS seemed to expect, NCC believes that the approach to formalize two risk assessments is appropriate. Moreover, we support the risk management questions that the risk assessments intend to address including:

1. What public health impact (change in illnesses, hospitalizations, and deaths) is achieved by eliminating a proportion of chicken (or turkey) at receiving contaminated with specific levels of *Salmonella* and/or specific *Salmonella* subtypes?
2. What is the public health impact (change in illnesses, hospitalizations, and deaths) achieved by eliminating final product contaminated with specific levels of *Salmonella* and/or specific *Salmonella* subtypes?
3. What is the public health impact of monitoring/enforcing process control from re-hang to post-chill? Monitoring could include analytes such as Enterobacteriaceae, Aerobic Plate Count, or other indicator organisms, analysis could include presence/absence or levels and the monitoring could also include variability of actual result versus expected result, log reduction, absolute sample result, or other individual establishment specific criteria.
4. What is the public health impact of implementing combinations of the risk management options listed above?

As stated in the July 1, 2022, Constituent Update, "These risk management questions reflect the information needed to evaluate and compare the public health benefits of policy options for controlling *Salmonella* in poultry." The Agency went on to state that the risk assessments would undergo an independent peer review and be released publicly once completed. To reiterate, NCC fully supports the completion of and the independent peer review of both risk assessments. NCC believes that it is imperative that any policy changes rely on the results of the risk assessments and without that information, it is impossible to understand what regulatory changes, if any, would impact public health. Without the completion, peer review, and publication of the two risk assessments, the Agency risks operating without the benefit of a robust record, undermining informed decision making.

**Recommendation #8 – Incentivize industry to universally implement robust *Salmonella* mitigation programs and qualitative *Salmonella* testing at the breeder, hatchery, grow out, and transport levels. Eliminate conditions in houses that harbor and transmit *Salmonella* by implementation of known and validated mitigation strategies.**

As previously mentioned, the broiler chicken industry already implements robust *Salmonella* mitigation programs in the preharvest space to include most, if not all, of the recommendations made in the report and many others depending on the *Salmonella* challenges in the areas in which the broilers are raised. The industry works tirelessly to eliminate conditions in houses that may harbor and transmit *Salmonella* and we encourage FSIS to work closely with ARS to expand viable solutions for the industry.

As mentioned previously, there are no preharvest “validated mitigation strategies” and what may seem effective on one farm, may not be on another. Intervention strategies are used in concert with one another and industry benefits from the cumulative effect of a multi-hurdle approach.

**Recommendation #9 – Due to extensive data gaps identified by the Committee, the agency should reevaluate this document in three to five years after appropriate data has been collected and risk assessments are complete.**

NCC agrees with the advisory committee on this point and also suggests that the advisory committee develop a comprehensive list of research needs from data collection and analysis, to on-farm and in-plant *Salmonella* control strategies. The completion of the previously-mentioned risk assessments are critical in determining the most robust regulatory pathway forward.

### **Conclusion**

NCC appreciates the opportunity to provide comments on the NACMCF report. Food safety is a top priority for the broiler industry, and we support changes in food safety regulations that are based on sound science, robust data, and are demonstrated to positively impact public health. This approach is reflected in many of the committee’s recommendations. First, gather data. Then, analyze the data to understand what it tells us. Finally, propose policy informed by the data. Please feel free to contact us with any questions regarding the above comments. Thank you for your consideration.

Respectfully submitted,

A handwritten signature in cursive script that reads "Ashley B. Peterson".

Ashley B. Peterson, Ph.D.  
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