



The Johns Hopkins Center for a Livable Future
Bloomberg School of Public Health
615 North Wolfe Street, W7010
Baltimore, MD 21205

October 18, 2016

Ms. Lori Brewster, Health Officer
Mr. Dennis DiCintio, Director of Environmental Health
Wicomico County Health Department
108 E. Main Street
Salisbury, MD 21801

Disclaimer: The opinions expressed herein are our own and do not necessarily reflect the views of The Johns Hopkins University.

Re: Health Impact Assessment for Proposed Concentrated Animal Feeding Operation in Wicomico County

Dear Ms. Brewster and Mr. DiCintio,

We are writing in reference to the Health Impact Assessment (HIA) you recently co-authored to assess the health risks and potential impacts of a proposed ten-house poultry operation outside the City of Salisbury. HIAs provide an opportunity to examine the potential health impact of a proposed project or policy and include recommendations to minimize negative health impacts and maximize positive health benefits.¹

We were surprised to learn that the Wicomico County Health Department (WCHD) performed an HIA and listed the Johns Hopkins Center for a Livable Future (CLF) as a stakeholder organization (HIA page 8) since we were not made aware that this effort was underway. We would have welcomed the opportunity to provide input at various stages of the HIA.

Regardless, we have reviewed the HIA and have several concerns about the process used and content of the report that largely stem from inconsistencies with the World Health Organization (WHO) HIA guidelines, which are referenced by the WCHD. The HIA guidelines, toolkits, and examples provided by the WHO, a global leader in improving health around the world, are consistent with widely accepted HIA standards. In an effort to be helpful to Wicomico County citizens, the WCHD, and the County Council, we

summarize below our most pressing concerns by category and provide additional detail in the pages that follow.

Summary of Major Concerns with the Wicomico County Health Department's Health Impact Assessment

Stakeholder Engagement

- According to the WHO HIA guidelines referenced in the WCHD HIA, the assessment process incorporates a “participatory approach” that should involve engaging a wide range of stakeholders.² Despite this, the WCHD appears to have performed this HIA without informing or involving a wide range of relevant stakeholders. In addition, descriptions of stakeholder engagement in the HIA report are misleading; we’ve learned that, like CLF, many groups listed were not made aware that an HIA was underway.
- It is critical to purposefully and meaningfully engage vulnerable groups that may be adversely affected by a proposed project, yet this was not part of WCHD’s HIA process. Vulnerable groups were listed on page 12, but relevant representatives (e.g., Wicomico County NAACP) were not consulted.

Scoping and Assessment

- The research questions used to guide the HIA are very narrow. There are numerous health concerns associated with Concentrated Animal Feeding Operations (CAFOs) that are not discussed nor recognized in the HIA, including those related to air and water quality issues and increases in insect populations. For example, the research question about air quality focused solely on the potential for asthma triggers and ignores other relevant, documented respiratory health risks, such as upper respiratory illness,³ obstructive pulmonary disorders,⁴ chronic cough and phlegm, chronic bronchitis, and allergic reactions.⁵
- Equally concerning is the limited review of the scientific literature. In the case of nitrates in drinking water, a single health issue is identified (HIA page 13): methemoglobinemia. A growing body of epidemiologic literature has found evidence for links between drinking nitrate-contaminated water and various health endpoints, including birth defects⁶⁻⁸ and cancer.^{6,9}
- References used to support statements in the HIA were also misinterpreted. For example, on page 17 of the HIA, a report by Advanced Land & Water, Inc. (HIA reference no. 15) was quoted to support the assertion that the Paleochannel is not susceptible to nitrate contamination, but a full reading of the report shows that the Paleochannel is vulnerable to point and non-point contamination and the report’s authors urge the City of Salisbury to closely monitor for nitrates because “a future finding of susceptibility is of heightened possibility,” in part due to agricultural activities.

Recommendations

- The first three recommendations in the HIA are not related to literature on health impacts. They involve adopting setbacks recommended by Delmarva Poultry Industry, Inc. (a poultry industry trade association), increasing communication between neighbors and poultry CAFO operators, and involving local officials in reviewing manure management plans. These recommendations do not reflect nor incorporate important information, such as the vulnerability of the Paleochannel, density of CAFOs, or the lack of air quality standards at the local, state and federal levels.

Reporting

- The HIA report was not disseminated to groups identified as stakeholders or the public. The lack of transparency associated with this HIA does not follow accepted HIA guidelines, and represents a missed opportunity to address concerns and build trust in the community.

Due to the serious shortcomings of the HIA outlined above, we request that another HIA be conducted using an inclusive and transparent process. Maryland and Wicomico County officials should work together to identify and fund an independent group, such as the Health Impact Project,¹⁰ to lead the effort. On the following pages, we provide additional detail on our concerns about the process and content of the HIA report.

Detailed Discussion of Major Concerns with the Wicomico County Health Department's Health Impact Assessment

Stakeholder Engagement

Active stakeholder engagement, collaborative partnerships, and effective communication are core components of the HIA process.² Stakeholder participation is critical to the production of a comprehensive, effective HIA. WCHD's HIA acknowledges this principle, stating that the primary goal of the assessment is to engage and inform community members and decision-makers.¹¹ Despite this acknowledgment, the approach to stakeholder engagement was inadequate based on the partial representation of stakeholders, and the limited interaction, involvement, and communication with them.

The number of stakeholders identified is too limited. The HIA states that several environmental advocacy, public health, and community groups were involved in the stakeholder engagement process, yet based on the WHO guidelines referenced by the WCHD, this HIA should consider and identify a number of additional stakeholders including developers, planners, health workers, employers and unions, and representatives of other affected sectors.² In addition, WHO guidelines identify the crucial role of vulnerable groups in the HIA process.² While WCHD's HIA identifies

some of these groups,* there is no documentation of whether or how the department consulted them, engaged them in the process, or considered them in the analysis, nor do the recommendations comprehensively address protections for them. Including and engaging a broader selection of these relevant stakeholders—particularly vulnerable groups—in the HIA process would greatly strengthen the assessment and better support the goal of engaging and informing community members and decision-makers.

With WHO guidelines in mind, the level of stakeholder engagement in this case was inadequate. WCHD's HIA states that community stakeholders were involved in the HIA process through public meetings, including legislative sessions, and a meeting between the health department and several community and advocacy groups. This description of stakeholder engagement in the WCHD HIA is misleading. In order for a stakeholder to collaboratively participate in the HIA process, the stakeholder must be aware that an HIA is being conducted and must agree to their role in the process. While we cannot speak for all of the groups and community members that WCHD references as stakeholders in their HIA, we can unequivocally state CLF was not informed that the WCHD was undertaking the HIA and our research and expertise were not considered in the assessment. Other groups have indicated to us that they were also unaware of the HIA, even though they are also listed as stakeholders in the document. The WCHD did not notify stakeholders at these events or at any other time that an HIA was going to be conducted or that their comments would be used to inform an HIA. WHO HIA procedural guidelines also suggest more meaningful, active involvement of stakeholders beyond what the WCHD described in their report. Examples of appropriate engagement in the early stages of an assessment include stakeholder interviews and inclusion of stakeholders in decision-making regarding the type of information to include in the HIA, the potential health impacts to investigate, and the development of research questions.¹²

In addition, in order to be aligned with accepted HIA guidelines, WCHD should have engaged stakeholders throughout all stages of the HIA. They should have distributed the preliminary findings of the assessment to the community for review and input, and created opportunities for community members to contribute to the assessment before it was finalized. Suggested methods for achieving this include publishing the findings on the health department website with comment forms, and presenting the findings at community meetings, forums, listening sessions, in newsletters and in presentations at local organizations' meetings with opportunities to solicit community feedback. The WHO recommended methods of stakeholder engagement and collaboration are necessary to produce an HIA that represents and addresses the community's health concerns and the risks associated with a proposed project or policy.

* The HIA acknowledges the following vulnerable groups: public school children, low-income children, low-income communities and children from specific ethnic or racial groups. WCHD also lists other vulnerable populations in a diagram – people with heart or lung diseases, children and older adults, infants < 6 months of age, and neighboring residents.

Scoping and Assessment

The research questions developed in the scoping stage are limited and do not encompass the full breadth of public health concerns related to the proposed CAFO. The narrowly defined research questions establish a limited scope for the evaluation of data and research in the assessment stage, which results in the exclusion of relevant studies and evidence that support community health concerns. The scope of the review is further restricted by the limited consideration of scientific literature and risk of adverse events, and by the unsound conclusions related to research gaps.

The WCHD developed three guiding research questions as the foundation of their assessment of public health impacts and the development of recommendations. We find the research questions quite restrictive, which is likely due, in part, to the flawed stakeholder engagement process. In addition, the rationale, decision-making process, and stakeholder contribution to the selection of research questions are unclear. Involving additional stakeholders, incorporating a robust collaborative process with active participation, and documenting the decision-making process would have led to more valuable research questions.

The narrowly defined research questions also precluded a comprehensive review of all relevant scientific literature and information. For example, the first research question, “Is there a relationship between CAFO emissions and the increase in asthma triggers?”¹¹ excludes consideration of the other various adverse health effects of CAFO emissions, such as upper respiratory illness,³ obstructive pulmonary disorders,⁴ chronic cough and phlegm, chronic bronchitis, and allergic reactions.⁵ It is unclear why asthma is the sole health-related endpoint considered. The HIA mentions the potential adverse impact the CAFO project may have on property values, but the health department chose to exclude this from their assessment without providing any rationale for this decision.¹¹ The report does, however, include all of the potential economic benefits of the project, thereby placing priority on the economic benefit—largely to the poultry industry—without further investigating or discussing potential negative economic impacts to community members. The assessment and research questions are also based solely on best-case scenarios, which do not account for risks posed by fires, floods, other natural disasters and weather events, or farm accidents. While these hazards can be difficult to assess, it is important to consider the risks they pose. Any of these adverse events could lead to significant contamination of the Paleochannel, an important drinking water source for Salisbury residents. More comprehensive, inclusive research questions would help broaden the review and address these limitations.

The HIA also concludes that the Paleochannel, despite being vulnerable to point and non-point contamination, is not susceptible to nitrate contamination based on a report by Advanced Land & Water, Inc (ALWI).^{11,13} A deeper review of this report reveals that this finding is caveated with the following statement: “Notwithstanding this finding, ALWI cautions that the City should continue to closely monitor nitrate concentrations in the Paleo wells, as a large proportion of lands within the Paleo SWPA are (1) in agricultural use and/or (2) outside of City sewer service. Given these conditions, a future

finding of susceptibility is of heightened possibility,” (ALWI pages 10-11).¹³ A thorough analysis of this report and other relevant information would have informed and enhanced the i) assessment of health impacts and risks to the community and ii) development of recommendations.

The review of relevant information lacked the breadth and depth necessary to adequately assess the potential health impacts of the proposed CAFO. This is evidenced by the limited selection of references and resources cited in the HIA. For example, the ALWI’s identification of the Paleochannel as vulnerable to nitrates, particularly from agricultural activities, should have led to a thorough consideration of the health impacts associated with high nitrate levels in drinking water. While the WCHD identified methemoglobinemia as a potential risk, a comprehensive review would have revealed that, in addition to the increased risk of methemoglobinemia in infants,^{7,14} a growing body of epidemiologic literature has found evidence of links between exposure to nitrates in drinking water and an increased risk of thyroid conditions,^{6,7,15} birth defects and other reproductive problems,⁶⁻⁸ diabetes^{6,7} and cancer.^{6,9}

Full consideration of the data presented by groups that the WCHD cites as stakeholders would have also widened the scope of the review. The HIA includes CLF’s summary of peer-reviewed scientific literature as an appendix to the HIA, but does not review, include, or reference any of the studies cited in the document. Including stakeholder input and relevant scientific studies, such as those referenced in our letter, would have resulted in a HIA that more accurately considers the full range of potential health impacts facing the citizens of Salisbury and Wicomico County.

Lastly, many of WCHD’s conclusions appear to be formed based on certain research gaps regarding the potential health impacts of the proposed poultry CAFO. Specifically, the HIA infers that the lack of available information and scientific research confirms the absence of risk.¹¹ However, lack of information regarding a public health concern does not automatically equate the absence of risk; rather, it signifies only the absence of information. Specifically, the WCHD HIA acknowledges a paucity of studies on health outcomes on a neighborhood or census tract scale, and on poultry CAFOs, particularly those related to cancer clusters (HIA page 12), air quality (HIA pages 15-16), groundwater quality (HIA page 18) and insect vectors (HIA page 20). In each of these cases, the HIA interprets a lack of data as supporting a position that little to no risk exists.

Recommendations

The recommendations in the WCHD HIA do not accurately reflect or address the findings of the assessment. For example, the first two recommendations introduce industry “best practices” for maintaining good relations with poultry operation neighbors, and suggest increased communication with, and early involvement of, the poultry integrator in the application and permitting process.¹¹ While these may be important management practices, they do not directly address or relate to potential health impacts, as the HIA process intends.

The HIA also states that community members will be responsible for identifying and monitoring potential problems related to an increase in insect vectors.¹¹ This is not a helpful approach if there are no regulations or processes in place to respond to an increase in insect numbers. Substantive stakeholder engagement may have resulted in this kind of suggestion being revised to reflect the reality that community members frequently experience ambiguous and elusory counsel from governing and regulatory bodies when reporting health concerns related to CAFOs.^{16,17}

Reporting

The distribution of conclusions and findings is a key component of the HIA process and is central to the purpose of conducting the assessment.¹⁸ As WCHD's HIA notes, reporting is one of the final stages of the HIA process. To serve as a community resource, the HIA must be widely disseminated and information about the availability of the assessment shared with stakeholders, partners, and the public. Recommended communication channels include emails to partners and stakeholders, announcements in newsletters and local media, social media outreach, and public service announcements. Despite being identified as a stakeholder in the HIA report, CLF did not receive any information from the WCHD regarding the completion of the assessment or its availability; we have communicated with other groups identified as stakeholders, and they indicated the same is true for them. It was reported to us that when a stakeholder indirectly discovered the HIA, Ms. Brewster was asked by email if the HIA had been shared with the stakeholders and the community. The email reply from Ms. Brewster dated July 14, 2016 was, "Not directly." The WCHD should adopt specific strategies to improve their communication with stakeholders and the public and ensure that HIAs and other assessments are disseminated in a way that allows them to serve as a resource for all.

Conclusion

The WCHD's stated goal for the HIA was to "engage and inform the community and potential decision-makers on how, if at all, CAFOs are linked to individual and community health outcomes," (page 5).¹¹ To more effectively pursue this type of goal in the future, the health department should adopt a transparent, inclusive, and participatory approach to the HIA process and utilize widely accepted strategies for conducting and disseminating HIAs. This would greatly increase the likelihood of developing comprehensive, informed research questions that will, together with a more thorough review of available information and data, result in a balanced, valuable HIA with useful recommendations.

Regarding the proposed poultry CAFO outside of the City of Salisbury, there is an urgent need for Maryland and Wicomico County officials to hire an independent group to conduct a new HIA. Experts such as those at the Health Impact Project¹⁰ may be able to assist you in locating trained professionals to perform an HIA using an appropriate process aligned with accepted guidelines.

Please do not hesitate to contact us with any questions.

Sincerely,

Robert S. Lawrence, MD

Professor emeritus, Departments of Environmental Health and Engineering and
International Health
Johns Hopkins Bloomberg School of Public Health
Founding Director
Johns Hopkins Center for a Livable Future
Johns Hopkins University

Keeve E. Nachman, PhD, MHS

Assistant Professor, Departments of Environmental Health and Engineering and Health
Policy and Management
Johns Hopkins Bloomberg School of Public Health
Program Director, Food Production and Public Health
Johns Hopkins Center for a Livable Future
Johns Hopkins University

Robert Martin

Senior Lecturer, Department of Environmental Health and Engineering
Johns Hopkins Bloomberg School of Public Health
Program Director, Food System Policy
Johns Hopkins Center for a Livable Future
Johns Hopkins University

Jillian P. Fry, PhD, MPH

Assistant Scientist, Departments of Environmental Health and Engineering and Health,
Behavior and Society
Johns Hopkins Bloomberg School of Public Health
Project Director
Johns Hopkins Center for a Livable Future
Johns Hopkins University

Claire M. Fitch, MSPH

Program Officer, Food System Policy
Johns Hopkins Center for a Livable Future
Johns Hopkins University

Carolyn R. Hricko, MPH

Research Assistant, Food System Policy
Johns Hopkins Center for a Livable Future
Johns Hopkins University

cc: Governor Larry Hogan
State of Maryland

Mr. Van Mitchell
Secretary
Maryland Department of Health and Mental Hygiene

Mr. Benjamin Grumbles
Secretary
Maryland Department of the Environment

Dr. Cliff Mitchell
Director of Environmental Health Bureau
Maryland Department of Health and Mental Hygiene

References

1. About HIA. World Health Organization Web site. <http://www.who.int/hia/about/en/>. Updated 2016. Accessed August 17, 2016.
2. Why use HIA? World Health Organization Web site. <http://www.who.int/hia/about/why/en/index1.html>. Updated 2016. Accessed August 17, 2016.
3. Nahm K. Environmental effects of chemical additives used in poultry litter and swine manure. *Crit Rev Environ Sci Technol*. 2005;35(5):487-513.
4. Viegas S, Faísca VM, Dias H, Clérigo A, Carolino E, Viegas C. Occupational exposure to poultry dust and effects on the respiratory system in workers. *Journal of Toxicology and Environmental Health, Part A*. 2013;76(4-5):230-239.
5. Cambra-López M, Aarnink AJ, Zhao Y, Calvet S, Torres AG. Airborne particulate matter from livestock production systems: A review of an air pollution problem. *Environmental Pollution*. 2010;158(1):1-17.
6. Ward MH. Too much of a good thing? Nitrate from nitrogen fertilizers and cancer. *Rev Environ Health*. 2009;24(4):357-363.
7. Burkholder J, Libra B, Weyer P, et al. Impacts of waste from concentrated animal feeding operations on water quality. *Environ Health Perspect*. 2007:308-312.
8. Manassaram DM, Backer LC, Moll DM. A review of nitrates in drinking water: Maternal exposure and adverse reproductive and developmental outcomes. *Environmental Health Perspectives*. 2006.
9. Chiu H, Tsai S, Yang C. Nitrate in drinking water and risk of death from bladder cancer: An ecological case-control study in Taiwan. *Journal of Toxicology and Environmental Health, Part A*. 2007;70(12):1000-1004.
10. The Health Impact Project. The Pew Charitable Trusts Web site. <http://www.pewtrusts.org/en/projects/health-impact-project>. Accessed September 14, 2016.
11. Wicomico County Health Department. Health impact assessment: Proposed concentrated animal feeding operation in Wicomico county. <https://www.wicomicohealth.org/file/0/0/Health%20Impact%20Assessment.pdf>. Published April 2016. Accessed August 12, 2016.
12. The HIA procedure. World Health Organization Web site. <http://www.who.int/hia/tools/process/en/index1.html>. Updated 2016. Accessed August 14, 2016.
13. Advanced Land and Water, Inc. Source water protection program benefiting the city of Salisbury water system (PWSID 022-0004). Wicomico County, Maryland. <http://www.ci.salisbury.md.us/wp-content/uploads/2013/07/075-Final-Salisbury-SWPP.pdf>. Published August 8, 2013. Accessed August 15, 2016.

14. Knobeloch L, Salna B, Hogan A, Postle J, Anderson H. Blue babies and nitrate-contaminated well water. *Environ Health Perspect.* 2000;108(7):675-678.
15. Aschebrook-Kilfoy B, Heltshel SL, Nuckols JR, et al. Modeled nitrate levels in well water supplies and prevalence of abnormal thyroid conditions among the old order Amish in Pennsylvania. *Environ Health.* 2012;11(1):1.
16. Fry JP, Laestadius LI, Grechis C, Nachman KE, Neff RA. Investigating the role of state and local health departments in addressing public health concerns related to industrial food animal production sites. *PloS one.* 2013;8(1):e54720.
17. Fry JP, Laestadius LI, Grechis C, Nachman KE, Neff RA. Investigating the role of state permitting and agriculture agencies in addressing public health concerns related to industrial food animal production. *PloS one.* 2014;9(2):e89870.
18. The HIA Procedure: Reporting. World Health Organization Web site. <http://www.who.int/hia/tools/process/en/index3.html>. Updated 2016. Accessed August 15, 2016.