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Dear Clinicians,

So far this year, the New River Health District epidemiologist has confirmed twenty five cases of enteric illness (Salmonella and campylobacter) attributable to the intersection of humans, animals and the environment. During any epidemiologic case investigation we aim to identify the most likely cause or risk associated with the reportable illness. Of the twenty five cases, to date, three were associated with the practice of veterinary medicine, three were linked to recreational water activities, three were associated with a national baby chick outbreak (sold at local farm stores), two related to poor poultry preparation, two related to sick farm animals, two were associated with international travel, one case each related to poor handling of fresh farm eggs and home/farm processing of chickens for food. In seven cases staff found no specific risk. This interesting review of risks brings up a host of improvement opportunities in infection prevention and control policies and practice in veterinary medicine, education to our shared customers and staff about the risks associated with fresh farm poultry products, recreation and travel health and the need for general public knowledge about the transmission of some enteric disease causing organisms. Enteric diseases are avoidable and all of us are in a position to educate and practice good prevention strategies. Here are some links to related resources on this topic.

http://wwwnc.cdc.gov/eid/article/19/2/12-1147_article

<http://www.cdc.gov/zoonotic/gi/animals.html>

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[Poultry house dust—animals, people, and the environment, by Julie Gohlke](#)

It is well known that dust levels can be high in poultry houses and can cause respiratory disease in poultry house workers. Aerosolized poultry dust commonly contains a mixture of bird feed, bedding material, feces, feathers and dead skin, and microorganisms (viruses, bacteria, and fungi). Once inhaled the dust can cause a range of acute

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symptoms including sore throat, coughing, wheezing, shortness of breath, bronchitis, eye irritation, typically experienced 4-6 hours after exposure. Chronic disease including occupational asthma, allergic alveolitis, or hypersensitivity pneumonitis can develop in subpopulations of workers. Infectious agents found in poultry dust can cause cryptosporidiosis, histoplasmosis, psittacosis, and Newcastle disease. Latency periods could be long in this case, for example, flu-like symptoms show up 1-3 weeks post-exposure to *Chlamydia psittaci*, the bacterium responsible for psittacosis, making it difficult for surveillance programs to identify causal links between particular poultry houses and disease outbreaks.

Due to these occupational risks, the U.S. Occupational Safety and Health Administration (OSHA) requires adequate ventilation in poultry houses. While decreasing the dust levels inside the poultry house and hence decreasing dust exposures to workers, large scale ventilation fans can lead to increases in outdoor concentrations of dust and infectious agents, potentially reducing the air quality for nearby communities. Water spraying is an additional countermeasure sometimes used to reduce dust levels at poultry operations, but unless adequately contained, can lead to substantial increases in runoff from farm operations into local streams where aquatic wildlife and local swimmers can then become exposed to the infectious agents found in poultry dust.

Large concentrated poultry operations have become more common and can produce substantial amounts of poultry dust and waste that then can impact the local environment, but minimizing these discharges can be difficult. In fact, in the Shenandoah Valley, the U.S. Environmental Protection Agency has tried to regulate discharges from large poultry operations under the national concentrated animal feeding operations (CAFO) rule, which covers chicken farms greater than 125,000 birds, but farmers have challenged them in court under the grounds that agricultural storm water is generally exempt under the Clean Water Act.

All in all, poultry houses are one system that demonstrate the complicated connections between animal health, human health, and the environment.

[Salmonella: What Goes Around Can Come Around, by Bill Pierson](#)

Salmonellosis is commonly associated with consumption of contaminated poultry products or vegetables. However, this year there

have been an inordinate number of cases attributed to contact with live, young poultry. To date, 324 people in 35 states have been infected in this manner, a number which is likely low due to underreporting ([CDC](#)). Young poultry can be infected and show few if any clinical signs. Some clear the infection, while others can become colonized and live quite happily with the bacterium in their GI tracts. As they grow, fecal shedding serves as a source of environmental contamination and infection for naïve birds. Eggs can also become contaminated prior to being laid. As more people get interested in raising small backyard poultry for eggs or fun, the incidence of infection is likely to climb. As a veterinarian and poultry health specialist, it's not unusual for me to receive calls from owners for whom the chickens have become pets. That's a game changer, because unlike commercial poultry where depopulation is considered a rational business decision, taking the same approach with a "member of the family" is not something clients commonly want to consider. Since treating with antibiotics rarely solves the problem, the best advice you can give is rooted in common sense hygiene and good cooking practices (oh, and don't forget to mention preventing contact with the other family pets). Thinking "One Health" and providing clients with helpful information is just part of being a good veterinarian. For more info see: <http://www.cdc.gov/salmonella/live-poultry-05-16/advice.html>.

APHIS Notes: Chickens and Rabies, by Regina Jensen

Rabies is a disease of mammals. When you think of rabies, the animals that usually come to mind are skunks, foxes, raccoons and bats, as these are the wildlife species most often associated with rabies and are the reservoir hosts for rabies variants in various parts of the US. In regards to domestic species, rabies has been historically associated with dogs, but cats have become the domestic animal most frequently diagnosed with rabies. Other domestic animals such as livestock and horses have also been reported in Virginia, but no reports of rabid chickens or other avian species have been reported in Virginia or the United States. There are rare reports of experimentally induced rabies in birds and one recent report from India documenting a naturally infected chicken ([Baby et al., 2015](#)). While interesting, this report does not change public health recommendations in regard to rabies exposure response. Veterinarians are encouraged to report ill poultry to the Virginia Department of Agriculture and Consumer Services (VDACS) and discuss possible differentials and testing options with VDACS veterinary diagnostician and veterinary service personnel. In the unlikely event that there is a concern about rabies, these situations can then be discussed with public health authorities. Contact information for VDACS Animal Industry and Food

Services' personnel can be found at <http://www.vdacs.virginia.gov/about-division-of-animal-and-food-industry-services.shtml>.

While encountering a rabid chicken is highly unlikely for a number of reasons, we do worry about people's awareness about handling injured animals including poultry, because the wildlife species that are often involved in injuring/killing backyard chickens (other than raptors) are the very species that have the highest likelihood of being infected with rabies. When potential exposure to rabies occurs, it is natural to think of that exposure occurring through the bite of a rabid animal which is the most common route of transmission of the rabies virus. However, often overlooked, are non-bite related exposures of people through infected saliva or central nervous system tissue into open cuts or onto mucus membranes like eyes, nose or mouth.

When a chicken (or other pet) is attacked, the natural instinct for owners is to immediately touch their pet and clean the wounds on their injured animal. Normally, actions such as putting on gloves and taking precautions to avoid the possibility of infectious materials getting into eyes, nose or mouth, are not something that immediately comes to mind in the aftermath of such an attack. However, if protective measures are not taken by owners when touching/cleaning wounds or picking up dead birds, rabies virus can potentially enter through breaks in the skin or through mucus membranes. For more information about rabies, visit <http://www.vdh.virginia.gov/environmental-epidemiology/rabies-2/>.

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Introducing Our New State Veterinarian, by Julie Murphy

Charlie Broaddus began in his current role on May 11, 2016 as the State Veterinarian and Director of the Division of Animal and Food Industry Services for the Virginia Department of Agriculture and Consumer Services (VDACS). His current position involves leading the division that supports Virginia's livestock, poultry, and food industries through regulatory oversight, and protecting public health by planning for and responding infectious disease events and foodborne disease outbreaks. Prior to that, he worked for 7 years as the Program Manager for the Office of Veterinary Services at VDACS, and before that, he was a practicing veterinarian, working on both large and small animals. Broaddus received his BA in Economics from the University of Virginia, Doctor of Veterinary Medicine from Auburn University, and PhD in Veterinary Biomedical Sciences from Oklahoma State University. Broaddus also serves as a Major in the Army Reserves Veterinary Corps. His wife, Kristy, is a small animal veterinary surgeon, and they have three children, ages 9, 7, and 2. They live on a small farm in Hanover County, and farm and home projects (with the kids when possible) occupies much of his time outside of work.

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Rabies

Rabies Data to Date in 2016: 9 animals from 4 species tested positive for rabies involving 268 case investigations for human exposure, resulting in 28 persons who received rabies post-exposure prophylaxis.

For any animal bite, please call me or my staff for assistance if you are unsure about the risk of rabies. The after-hours emergency contact number to the left of this text can be used ANY time to report rabies exposure as the pager is always on and attached to a trained member of our response team.

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