

Avian Diseases Transmissible to Humans

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Although many diseases that are associated with poultry only affect avian species, there are some diseases that can affect both birds and humans alike. While it is extremely unlikely that you will become infected with one of these diseases from your backyard flock, you should be aware in the event that medical attention is needed. In most cases, following best management practices, providing proper sanitation, and a good dose of common sense will keep you and your birds healthy.

The technical term for an animal disease that can be spread to humans is zoonosis. Infectious agents of these diseases can be bacterial, fungal, protozoal, or viral. Seriousness of these diseases in humans is variable depending on age, prior health status, current immune status, virulence of the organism, dose level, and the type of therapy, if any, that is used. Generally, those persons that are very young, very old, or are in some way immunocompromised are at the greatest risk for acquiring disease.

Avian Influenza—Avian influenza receives a lot of attention in the media because of its virulence in birds. To date, there have only been two incidences of AI infection in humans in the United States, with both of these occurring in the early 2000s ([CDC, 2016](#)). Most cases of human contracted AI have occurred where people and birds share very close quarters and humans were exposed to infected bird secretions. Other notes of interest for AI include:

- Even though the virus has been isolated from hatching eggs, there is no evidence that birds can hatch out with the diseases as the embryo dies while still in the egg.
- Poultry that originate from areas of the world where the virus is common are not allowed to enter the US legally.
- All commercial poultry that enter Florida from other states are required to have an entry permit and come from influenza-free flocks.

Salmonella spp. & Escherichia coli—Both of these bacterial pathogens belong to the family *Enterobacteriaceae*. While *Salmonella* typically receives more attention as being associated with poultry, both types of bacteria can be acquired from poultry.

Salmonella bacteria are widespread in the environment and are associated with many animals including birds, reptiles, mammals, and amphibians. Reported outbreaks of salmonellosis have been associated with handling of chicks, ducklings and poultry.

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Salmonella spp. & Escherichia coli

Since the bacteria typically resides within the intestinal tract of the animals, particularly in the feces, care should be taken to avoid contact with the feces. Washing hands with soap and water after handling animals is always a good practice.

Escherichia coli can also be found in the intestinal tract of many animals, including humans. The primary routes of infection with this bacteria are direct fecal contamination or consumption of food or water that has been contaminated by feces. Most strains of *E. coli* are not considered to be pathogenic. However, there are some strains that can cause severe illness, including *E. coli* O157:H7.

Typical signs and symptoms of *Salmonella* or *E. coli* infection include diarrhea, vomiting, fever, and abdominal cramps. The very young, elderly, and those with compromised immune systems are more likely to develop severe symptoms from infection. The following tips will help to reduce the risk of infection by these bacteria:

- Avoid contact with the feces of animals unless you are wearing the proper protective gear.
- Anyone who handles birds of any age should wash their hands thoroughly afterwards. If soap and water are not available, use alcohol-based wipes or hand sanitizer.
- Do not allow children to nuzzle or kiss poultry of any age and make sure they wash their hands thoroughly after handling poultry.

Encephalitis Viruses—Encephalitis is defined as inflammation of the brain, caused by infection or allergic reaction. There are types of encephalitic diseases caused by viruses, such as Eastern Equine Encephalitis, St. Louis Encephalitis, and West Nile, that can also be isolated from bird populations. Birds will become infected with these viruses after being bitten by a mosquito that is carrying the virus. Humans are infected in the same manner (by mosquito-borne transmission) and not via person-to-person contact or from the consumption of meat or eggs.

Because of the nature of Florida's climate, mosquitoes can be an almost year-round problem and anyone bitten by a carrier mosquito could become sick. The reality is that only a very few people become ill each year. The Florida Department of Health and many other mosquito control districts around the state actually use adult chickens to monitor for these viruses in their areas of operation. These Sentinel Chickens are housed in coops that are very similar to the coops that would be used by owners of backyard flocks. Chickens that are bitten by a carrier mosquito do not develop the disease, but they do produce antibodies to the virus. The testing the level of antibodies in the blood of the chickens, health officials can determine the presence and level of these viruses in the area.

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According to the USDA and CDC, 90% of *Salmonella* cases are attributed to sources other than chicken.

Additional information about *Salmonella* and backyard poultry can be found [here](#).

Poultry Questions and Answers

Every now and again, I like to include a section on poultry questions and answers in the newsletter as a way to increase knowledge about some of the most common poultry questions that I receive. If you have a common (or uncommon) poultry question, please contact me via the information on page 4

How old are chickens when they begin to lay eggs? Under optimum conditions, hens should begin laying eggs sometime between 18 and 22 weeks of age.

Can eggs be produced with a rooster present? Yes. A rooster is not required for the production of eggs. In fact, most table eggs are produced this way. However, if you want fertile eggs for incubation, you need to have a rooster for fertilization.

Why do chickens and turkeys have light and dark meat? Meat comes from the muscles of the bird and poultry use the muscles in their body for different things and at varying rates. Chickens and turkeys do not regularly fly, so the muscles in the breast and wings are only used for short periods of time. Conversely, the muscles in the legs are used almost continuously when the bird is awake. Muscles contain myoglobin, which stores oxygen for the use in movement. Myoglobin is similar to hemoglobin, which is found in blood. Both myoglobin and hemoglobin are red in color. Because muscles that are used more frequently and for longer periods of time contain more myoglobin, they appear redder, or darker, in color. Thus, the legs and thighs of chickens and turkeys referred to as “dark” meat, while the wing and breast muscles appear “light” in color.

Are there nutritional differences in eggs with different shell colors? No, there is no difference. The color of the shell is determined by the breed of hen that lays the egg. Typically, white egg layers will have white earlobes, while brown egg layers will have red earlobes.

Are there nutritional differences in fertile and non-fertile eggs? No, there is no difference. In fact. Most of the eggs that are purchased for consumption have no chance to be fertile as the hens are not housed with roosters.

Are hormones used in commercial poultry production? No. Hormones are not fed to or administered to commercial poultry. In fact, it is illegal to do so in the United States. The rapid growth rate of commercial poultry are the result of genetic selection (breeding), good nutrition, and improved animal husbandry practices.

Do eggs from (insert any chicken breed here) really have no cholesterol? Eggs from all breeds of chickens contain cholesterol.

Answers to questions about poultry processing can be found [here](#).

Table 1. Persistence of Selected Poultry Diseases Outside of the Host.

Disease	Timespan
Infectious Bursal Disease	Months
Coccidiosis	Months
Fowl Cholera	Weeks
Marek’s Disease	Months to Years
Newcastle Disease	Days to Weeks
Mycoplasmosis	Hours to Days
Avian Tuberculosis	Years

Adapted from *Biosecurity for Poultry Flocks*. 1997. J.S. Jeffery, University of California Cooperative Extension, Poultry Fact Sheet No. 26.: <http://animalscience.ucdavis.edu/Avian/pfs26.htm>

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Newcastle Disease—Newcastle Disease is a serious respiratory disease in poultry. The disease is caused by a paramyxovirus. In poultry, Newcastle Disease is highly contagious between birds and mortality from the disease can reach 100% of the flock. This paramyxovirus can also infect humans; however, the disease presentation in humans is very different from the presentation in a poultry flock.

In humans the paramyxovirus causes a localized infection in the eye called conjunctivitis. This condition is commonly referred to as “pink-eye”. The infection tends to last from 5 to 10 days and resolves completely. Typical symptoms include discomfort from the localized swelling in the area and a “bloodshot” look to the eyes. Topical eye drops and ointments are available to reduce the discomfort and inflammation and also to decrease the risk of secondary bacterial infections.

The main groups that should be concerned about contracting this disease from poultry include:

- Persons administering live-virus vaccinations for Newcastle Disease to birds.
- Individuals that performing post-mortem examinations of actively infected birds.
- Individuals that work in a lab setting for isolation and concentration of the virus.

Most individuals that handle poultry or have a backyard flock should not have a concern about contracting this virus from their birds. Reputable breeders will vaccinate chicks before their sale as production animals.

Additional information about these diseases can be found at the [Centers for Disease Control and Prevention](#) website or by visiting the [UF/IFAS Extension EDIS database](#).

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Is it safe to eat raw eggs? The risk of food poisoning from bacterial contamination is highest with raw eggs. To reduce the risk of food poisoning, raw or lightly cooked eggs should not be consumed.

How long can I keep fresh poultry meat? How about frozen poultry meat? All fresh meats, including poultry, should be cooked or frozen within 1 to 2 days after purchase. Frozen poultry meat will retain its quality in the freezer for 3 to 6 months after being frozen.

Get your kids involved in food safety. Visit the [FIGHT BAC for KIDS](#) website [here](#).

Additional questions and answers about poultry can be found [here](#).

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