

# Backyard poultry medicine for cattle veterinarians

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## Abstract

With the continuing rise in backyard flocks comes the need for more veterinarians to treat them. This includes the (1) protection of their health and welfare, (2) prevention and relief of their suffering, as well as (3) regulations they are subject to and how these promote public health. Understanding poultry health requires knowledge of their behavior, nutrition and avenues for disease transmission. Diagnosing disease in poultry, as in any other species, requires understanding what happens when their care and management is not ideal and/or biosecurity standards are not met. Similar to other farm and food animal species, poultry are subject to a number of regulations aimed at preventing the spread of reportable and zoonotic diseases. These laws and regulations may extend from homeowner associations to federal regulatory agencies. If you are currently seeing backyard poultry or hoping to start, this seminar will be a starting point, with a plethora of resources to continue your journey.

**Key words:** backyard poultry, diseases, biosecurity

## Introduction

The definitions of backyard poultry may be jurisdiction dependent and with that, variable. The United States Department of Agriculture (USDA) defines poultry as “any domesticated bird used for food,” including chicken, turkey, goose, duck, Rock Cornish hens, pheasant, squab, guinea fowl, ostrich, emu and rhea (ratites).<sup>1</sup> The Code of Federal Regulations (CFR) defines poultry as “any domesticated bird whether live or dead”. This definition includes chickens, turkeys, ducks, geese, guineas, ratites, or squabs (9 CFR, Part 381.1).<sup>2</sup> The most important thing to remember is that regardless of how clients consider them, they are considered food animals under the federal law.

A basic understanding of the regulations that impact backyard poultry ownership can enhance our role as an advisor to our clients. There may be ordinances, laws and regulations at the neighborhood, city, state and federal levels that directly impact backyard flocks. Ensure that when suspecting infectious diseases, you contact the relevant diagnostic laboratory to ensure the adequate sample is submitted for isolation, culture and sensitivity. Poultry are considered farm animals regardless of pet status, and therefore we must be cautious regarding antimicrobial use and follow the appropriate regulations.

Evaluation of backyard birds should include subjective information, objective information, an assessment, and a plan. Knowing normal and having a general idea of common signs of disease in poultry are paramount for assessing their health.

## Laws and regulations

Before starting a backyard flock, owners should review the covenants, conditions and restrictions (CC&Rs) of the neighborhood as well as any rules the homeowner’s association may have. In addition, the city’s codified ordinances may include rules regarding zoning laws, lot sizes, setbacks and health codes.<sup>3</sup> The CFR includes the regulations of federal agencies such as the USDA and the Food and Drug Administration (FDA).

At the neighborhood, city and county level, regulations may include whether poultry can be owned, how many birds can be owned, how and/or where they can be housed and whether roosters are allowed.<sup>3,4</sup> At the state and federal level, regulations include movement of backyard birds within and between states, the vaccines and medications that can be used on certain species and the slaughter, process and distribution of meat and eggs.

The FDA has authority over shell eggs wholesomeness and safety through a number of acts, rules and standards. On the other hand, USDA oversees meat and shell eggs, diagnostics, and reportable diseases through the Animal and Plant Health Inspection Service (USDA-APHIS) and the Food Safety and Inspection Service (USDA-FSIS). FSIS focuses on food safety at the processing plant for both meat and shell eggs. USDA APHIS oversees Animal Health Emergency Management, specifically relevant for reportable diseases such as avian influenza and Newcastle disease. Veterinary Services, and the National Animal Health Laboratory Network also fall under USDA jurisdiction.

Any poultry to be moved off premises to be sold, traded or exhibited are subject to the National Poultry Improvement Plan (USDA-APHIS-NPIP), which falls under APHIS.<sup>5</sup> NPIP was established in the 1930s as a cooperative program between the poultry industry, state, and federal government for the eradication of *Salmonella enterica* subspecies *enterica* serovar Gallinarum biovar Pullorum, the causative agent of Pullorum disease. NPIP has now expanded to include *Salmonella* Gallinarum (Fowl Typhoid), *Mycoplasma gallisepticum*, *M. synoviae*, *M. meleagridis* and low pathogenicity avian influenza.

NPIP examines the health status of commercial poultry and establishes regulatory standards for sample collection, diagnostic tests performed, and the laboratory protocols for conducting tests. It includes chickens, turkeys, waterfowl (ducks, geese, swans), pheasants, quail, peafowl, guineas, chukars, grouse, ostrich, emu, rhea and cassowary.<sup>6</sup> Benefits of participation in NPIP include knowing the health status of flocks, using it for interstate movement, and using health testing as proof for shows, swaps or exhibitions.

## Antimicrobial use

Poultry are considered farm animals regardless of pet status! Ensure antibiotics are labelled for them and make sure to follow withdrawal periods. Contact FARAD with questions regarding off-label use. While a multitude of the drugs within veterinary feed directive are labeled for use in meat chickens and broilers, only chlortetracycline is labeled for use in poultry that lay eggs for human consumption.<sup>7</sup> The use of enrofloxacin was banned in poultry in 2017.

## Examination

Subjective information varies significantly between backyard flocks, and it is possible to miss factors that can impact the overall health of the bird and the flock. The subjective should include information regarding morbidity and mortality, as well as current medication, vaccines and supplements. It is common for management practices to lead to stress, which in turn increases the bird's susceptibility to disease. Use FLAWLESS as a reminder of areas to evaluate:

- F – food
- L – litter/flooring
- A – air
- W – water
- L – lights
- E – environment
- S – sanitation, staff
- S – security, space

The physical examination or objective portion of the visit should include evaluation of parameters observed in any other species. This includes weight, capillary refill time, temperature, pulse and respiratory rate. All systems should be evaluated, including integumentary, orthopedic, musculoskeletal, cardiovascular and urogenital. The assessment should include considerations of species variations, such as the lack of lymph nodes in chickens and turkeys. Poultry are subject to a variety of diseases, including infectious nutritional and genetic diseases. The plan is variable upon the assessment, and may include anything from quarantine, treatment and diagnostic sampling to euthanasia.

## Disease prevention

Disease prevention in poultry consists of a combination of biosecurity, vaccines, limiting stressors and at times the use of chemicals and ionophores. Stress secondary to mismanagement is the most predisposing factor of disease in poultry. Biosecurity of backyard flocks is typically less stringent compared to commercial flocks. Infectious agents can be introduced by instructions to the flock, humans, free-living birds and other animals, pests, and insects as well as through contaminated food, water, vehicles and equipment. Biosecurity can help minimize and prevent disease transmission.<sup>8</sup>

Biosecurity recommendations in backyard flocks include:

- Limiting visitors
- Washing hands before and after handling poultry
- Dedicated clothing and footwear
- Changing clothes before entering/ exiting the area where poultry are kept
- Keeping poultry away from free-living birds and pests
- Cleaning and disinfecting all equipment and surfaces
- Sourcing new birds from NPIP-approved flocks
- Quarantining any introductions to the flock
- Quarantining sick birds

## Reportable diseases

Reportable diseases are conditions of great public health concern that are required by law to be reported to the state when diagnosed. Reportable diseases can be notifiable or monitored diseases.<sup>9</sup> Notifiable diseases and conditions require immediate reporting by animal health professionals. Monitored diseases, on the other hand, require monthly reporting by State Animal Health Officials and Laboratories.

Each state has its own department of agriculture that sets regulations regarding poultry. The state veterinarian should be considered the primary reference. USDA works with federal, state and tribal partners, as well as industry stakeholders, to coordinate emergency response to animal disease outbreaks.

### Notifiable diseases:

- Duck viral hepatitis
- Fowl typhoid
- Highly pathogenic avian influenza
- Low pathogenic avian influenza
- Pullorum disease
- Turkey rhinotracheitis
- Virulent Newcastle disease

### Monitored diseases:

- Avian chlamydiosis
- Avian infectious bronchitis
- Avian infectious laryngotracheitis
- Avian mycoplasmosis (*M. gallisepticum* and *M. synoviae*)
- Infectious bursal disease

Notifiable reportable diseases such as highly pathogenic avian influenza will result in quarantine of the premise to restrict movement of poultry and equipment followed by humane euthanasia to minimize animal suffering and dissemination of the condition. There is normally a designated testing zone to ensure the infectious agent has not spread. The depopulated premises will be disinfected and tested to confirm that they are free of the infectious agent. If you suspect a reportable disease in a flock, contact the state veterinarian as soon as possible, and limit movement in and out of the premise.

## Other considerations

Other considerations regarding diseases of poultry include diseases that are zoonotic, as well as those that are more common in backyard and/or commercial flocks. Diseases such as avian influenza, avian tuberculosis, campylobacter, chlamydiosis, erysipelas, fowl mites, Newcastle disease and some strains of salmonellosis are zoonotic.

Some conditions such as bumble foot, coccidiosis and colibacillosis due to *Escherichia coli* are common in both commercial and backyard flocks. Conditions such as laryngotracheitis, Marek's disease, Mycoplasmosis and fowl pox are significantly more common in backyard flocks due to lack of vaccination.

When assessing the flock, consider the clinical signs and collect samples based on the diseases that are highest in your differential list. Tissue samples, for example, can be used fresh for bacterial or viral isolation, or fixed for histopathology. Swabs, serology and tissue can be used for molecular identification of the organism depending on the type of organisms and the course of the infection. For other conditions, serology can be used to identify antibodies that would indicate exposure.

Some infectious agents such as Marek's disease virus, infectious laryngotracheitis virus and pox viruses cause pathognomonic lesions that can be easily identified using histopathology. Other infections, such as avian influenza and Newcastle disease, do not result in pathognomonic lesions. Because these two viruses move through a flock very quickly, identify the agent using molecular diagnostics.

## Summary

There are a lot of conditions that impact the health of backyard flocks. And along with medical knowledge, a basic understanding of standard of care and the regulations that impact backyard poultry ownership can enhance our role as an advisor to our clients. Minimizing stress and the entry of infectious organisms into the flock are of the utmost importance in preventing disease. Trust your medical knowledge and use the tools available to you when evaluating these flocks. Make sure to always practice good biosecurity to prevent transmission of any infectious organisms between flocks, and zoonotic organisms from infecting people.

## Resources

### Organizations

- American Association of Avian Pathologists (AAAP)
- American College of Poultry Veterinarians (AAAP)
- Association of Avian Veterinarians (AAV)

### Books

- Carpenter JW, Marion C. *Exotic Animal Formulary-E-Book: Exotic Animal Formulary-E-Book*. Elsevier Health Sciences; 2017.
- Greenacre CB, Morishita TY. *Backyard Poultry Medicine and Surgery: A Guide for Veterinary Practitioners*. John Wiley & Sons; 2021.

### Courses

- Incorporating Chickens in Your Practice Course, VetAhead. <https://www.vetahead.net/join-the-flock-incorporating-chickens-in-your-practice/>
- Poultry Medicine Course for Veterinarians in Private Practice, AAAP. <https://www.aaap.info/poultry-medicine-for-veterinarians-course>

## Websites

- Atlas of Avian Diseases, Cornell University – <https://Partnersah.vet.cornell.edu/avian-atlas/#/>
- Avian Necropsy Examination , Cornell University. <https://Partnersah.vet.cornell.edu/veterinarians/avian-necropsy-examination>
- PoultryDVM - <https://poultrydvm.com/>
- Vespecon - <https://vespecon.com>

## References

1. USDA. What is poultry? <https://ask.usda.gov/s/article/What-is-poultry>
2. Code of Federal Regulations, Title 21, part 381. Office of the Federal Register. <https://www.ecfr.gov/current/title-9/part-381/section-381.1>
3. Greenacre CB, Morishita TY. *Backyard Poultry Medicine and Surgery: A Guide for Veterinary Practitioners*. John Wiley & Sons. 2021.
4. Vetstream. Laws and regulations governing backyard poultry in the USA. In: Marcano V, Blackwell W, eds. *Vetlexicon Avis*. Vetlexicon. 2024.
5. Plan NPI. National Poultry Improvement Plan USDA. 02/2025. <https://poultryimprovement.org/>
6. National Poultry Improvement Plan and Auxiliary Provisions. APHIS, USDA §56, 145, 146, 147 (Federal Register 2024).
7. Code of Federal Regulations, Title 21, part 558 (Office of the Federal Register) (2015).
8. Vetstream. Biosecurity. In: Marcano V, Pellett S, eds. *Vetlexicon Avis*; 2024.
9. APHIS USDA. Current Nationally Reportable Diseases. Accessed 02/2025. <https://www.aphis.usda.gov/livestock-poultry-disease/surveillance/reportable-diseases>

