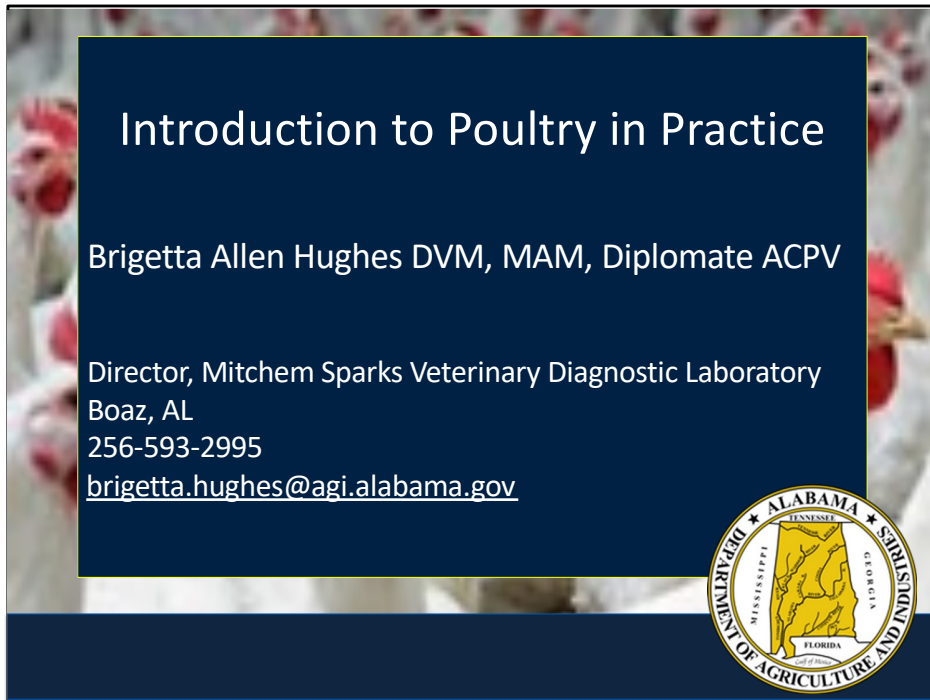


A Chicken Walks Into an Exam Room -- Now What Do I Do?

This course will review the basic information you need to know to start seeing backyard poultry in your practice. Basic poultry medicine, regulatory considerations, and common diseases will be reviewed.

Learning Objectives:


1. Understand basic avian anatomy, handling, and clinical procedures.
2. Understand common diseases, diagnoses, and treatments in poultry.
3. Understand regulations involved in poultry medicine and where to find resources.

A presentation slide with a dark blue background and white text. The title is "Introduction to Poultry in Practice". Below it is the name "Brigetta Allen Hughes DVM, MAM, Diplomate ACPV". Her title is "Director, Mitchem Sparks Veterinary Diagnostic Laboratory, Boaz, AL". Contact information includes the phone number "256-593-2995" and the email address "brigetta.hughes@agi.alabama.gov". In the bottom right corner is the seal of the Alabama Department of Agriculture and Forestry, which features a map of Alabama and the text "ALABAMA DEPARTMENT OF AGRICULTURE AND FORESTRY".

Introduction to Poultry in Practice

Brigetta Allen Hughes DVM, MAM, Diplomate ACPV

Director, Mitchem Sparks Veterinary Diagnostic Laboratory
Boaz, AL
256-593-2995
brigetta.hughes@agi.alabama.gov



Our speaker tonight is Dr. Brigetta Allen Hughes, and she is one of the diagnosticians and the directors of our state lab down here in Alabama. And I thought this would be an interesting topic. We've had some requests for it. With the pandemic, everybody seemed to get backyard birds. And I know a lot of veterinarians are getting requests for how to treat them, how to handle them. If they can treat them, what options there are.

So we invited Dr. Brigetta Allen Hughes to walk us through some of the basics at the foundation. And then hopefully, we can have some additional ones later on to dig into some more in depth issues with poultry. So I will hand it off to her now. Thank you.

Thank you, Katie. I am so glad. Anyone who's out there listening about poultry. We do get a lot of requests here for veterinarians that will see poultry. And a lot of owners that have difficulty finding a veterinarian to see their poultry. As a diagnostic lab, we deal with samples from the birds. And we also deal with birds once they're deceased. But we aren't able to fix them and make them healthy. And a lot of owners I hear from, that's what they're looking for.

They're looking for diagnostics, and treatments, and they're looking for surgeries. They're looking for things that you might not think right off the top of your head about with poultry. Please be sure keep my phone number, my email. I'm happy to field any emails or

phone questions that you might have. If you think of something in a few days, or you see a case, don't hesitate to drop me a note. And we'll go ahead and get into this.

Super Fast Introduction to Poultry in Practice

1. Reasons to add poultry to your practice
2. Basic of regulations (local, state, fed, veterinary)
3. Common veterinary services for small flocks
4. Transporting Samples/Birds to Diagnostic Lab
5. Physical Exam – What to do/Handling/Anatomy
6. Primary Health Concerns

This is a really super fast-paced introduction. We're going to cover some real basics. You could probably talk on any of these subjects for an hour each in and of themselves. But basically, we're going to cover some reasons why you should add poultry to your practice and open your doors to them and these owners.

Some of the basic regulations to keep you out of trouble, common veterinary services that you can provide for small flocks, the transporting of samples and getting birds into your state diagnostic lab, and how to utilize that if you're not familiar with it, basic physical exam information, how to handle them, what to look for, and some basic anatomy. And then we'll get into some of the primary health concerns.

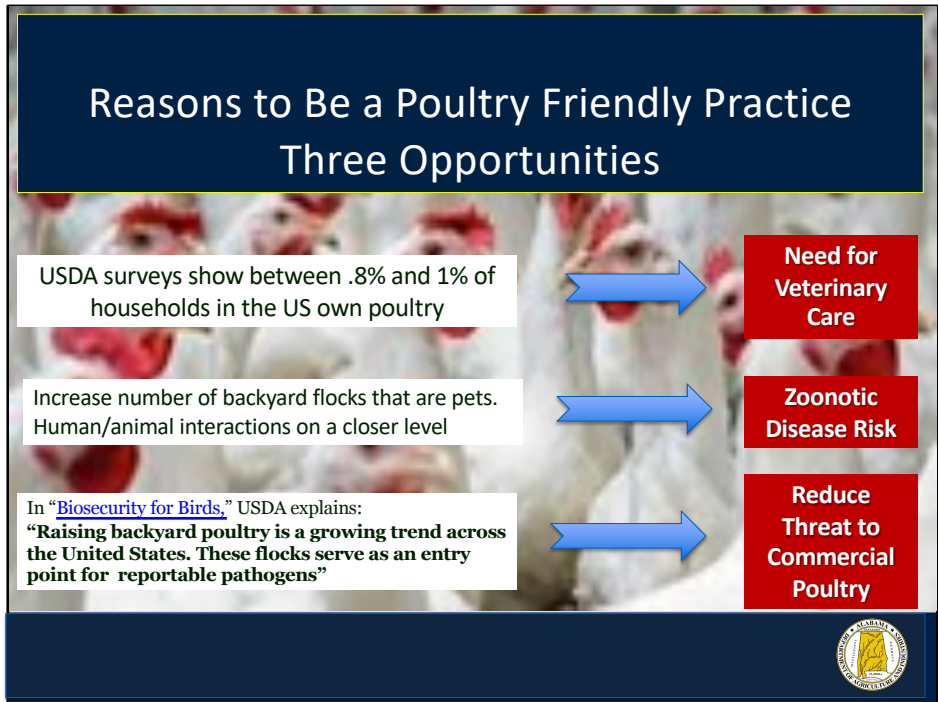
That will be very superficial. There will not be a whole lot of things. But hopefully, we'll get some resources to you and some ideas and on what to look for and get you started from there.



So to begin with, we think of all chickens kind of maybe living this wonderful farm life.



But some of them are a little bit different, and they come with owners that can be a little bit different, too. They can be extremely entertaining.



There's three really big reasons to be a poultry-friendly practice. And one of those is basically there's a lot of poultry out there. And particularly during the pandemic, we saw people get birds and have small flocks. They've become very attached to them. And they need veterinary care. And there are lots of times willing to pay for this. So it should be part of your practice.

There's also an increased number of these backyard flocks where people are very close with them. They're attached emotionally to their chickens. And they're going to kiss them and snuggle them. And unfortunately, chickens do carry salmonella, and it's a zoonotic disease risk that we need to let them be known inform them about.

Another thing is the small flocks often co-mingle with some of the wild birds, and there's not as much biosecurity there as there might be in a commercial flock. So these small flocks serve as an introduction point for a lot of pathogens that could be spread to the commercial poultry industry and could be just have a huge economic impact. So it's really good for us to go ahead and know how to recognize those diseases and get them to the right places and diagnosed as soon as possible before a disease situation can spread into the commercial poultry industry.

OPPORTUNITY – Need for Veterinary Care

If an owner purchases a chicken or duckling for \$1-\$5, will they be willing to provide for the cost of veterinary care?

This is not predictable.
Owners of chickens can have a profound emotional attachment to their birds.

So go into those a little bit more. If an owner purchases a chick or a duckling for like \$1 to \$5, aren't they going to be willing to pay for the cost of Veterinary care? We used to talk about this possibly in terms of-- well, it's kind of an ugly term-- use it as a disposable pet. I don't like that term. And people don't either. Owners don't think of them that way.

Chicken Coops and Tractor Markets



Owners of these chickens have a profound emotional attachment to these birds. And they want them to be taken care of. I mean they have these wonderful chicken coops and chicken tractors on the market.

There are numerous suppliers of clothes, leashes, costumes, and chicken enrichment supplies



Please don't forget the Halloween costume controversy—

- The CDC did NOT state that chickens should not be dressed up in costumes, it advises owner to "handle them carefully to keep their family and chickens safe and healthy."

There's all kinds of numerous suppliers for clothes, and leashes, and costumes, enrichment, all kinds of different supplies. So I think that if they're willing to do those sort of things and get them into Halloween costumes, I think they'll probably be willing to do some veterinary care.

OPPORTUNITY – Lower Zoonotic Disease Risk

“Don't 'kiss' or 'snuggle' backyard chickens or you could get salmonella”, CDC warns
May 21, 2021

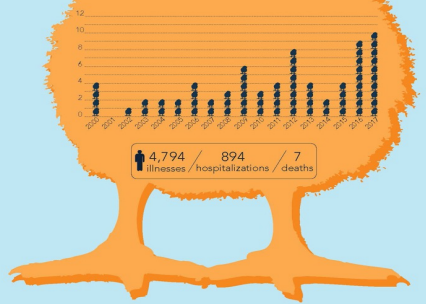


Now as far as zoonotic diseases, the CDC, of course, came out. Every year, they almost come out and talk about not kissing or snuggling with your poultry. There's a wonderful video or I guess webcast now that's out. And this little girl has all these chickens. And she picks them up, and she talks to them. And it's just beautiful, and it's just adorable. And I think, oh my gosh. I'm surprised she hasn't caught some salmonella by now.

**Don't play
chicken
with your
health**

Since 2000,
70 *Salmonella*
outbreaks have been
linked to backyard poultry.

Number of *Salmonella* outbreaks per year



4,794 / 894 / 7
illnesses / hospitalizations / deaths

WASH YOUR HANDS

after handling backyard poultry
www.cdc.gov/features/salmonellapoultry



But there's a lot of outbreaks that occur because of or that are linked to backyard poultry. So something to have your owners aware of. Wash your hands. It's basic sanitation. Don't snuggle and kiss them.

Wild birds, especially waterfowl, are primary carriers for avian influenza.



**Can carry the virus to small flocks with reduced biosecurity.
Owners may encourage contact with wild birds.**



**Small flocks and wild birds are primary source for commercial poultry
The virus is highly contagious.
Spread by debris/wind, equipment, visitors, etc**

As far as spreading disease and some of these very bad pathogens into the commercial poultry industry, wild birds, especially waterfowl, carry avian influenza.

They can carry that virus to small flocks, because there's a reduced biosecurity. They usually are open air. They're wandering around in a range. The owners may even encourage wild birds to come in there by feeding a broadcasting feed, or even having their ducks in with wild ducks, and having the Canadian geese visit.

Small flocks and wild birds are the primary source for diseases to get into commercial poultry. And avian influenza is extremely contagious. It can be spread not just by bird to bird contact, but by debris, by the wind, by equipment, by visitors going back and forth. So it's important to know what to look for and when do you need to call your state veterinarian's office.

Low Pathogenic Avian Influenza (HPAI)

- Low pathogenicity avian influenza (LPAI) virus strains occur naturally in wild migratory waterfowl and shorebirds without causing illness. LPAI can infect domestic poultry, creating little or no signs of illness.

----- AVMA FAQ's for Veterinarians, AVMA.org



UNTIL

With low pathogenic AI, you may just see a little bird like this, maybe a little bit of respiratory signs, might even be asymptomatic and be positive for low pathogenic avian influenza. However, the low pathogenic form of it can change very quickly. It can reorganize genetically and become a high path strain.



5 MAY 2022

A deadly avian flu outbreak is accelerating its spread across the US, so far killing 37 million chickens and turkeys in 32 states.

The last major outbreak in 2014-15, which cost an estimated \$1 billion in damages.

And what you can see is this is an older example that's often seen. And here's a perfectly healthy commercial poultry flock. And the next day, they're all dead. And that is high path AI.

In May of this year, we had avian flu outbreak that accelerated throughout the United States. I think at this point in time, there's like 37 million birds, chickens and turkeys in 32 states that were euthanized because of this. The last major outbreak that we had was in 2014 and 15, and the estimated cost on that was over a \$1 billion. So it's quite a huge impact when we have avian influenza outbreaks.

Outline of a Poultry Disease Outbreak

California 2018-2020 Virulent Newcastle Disease

In May 2018, an owner brought several ill exhibition chickens to a veterinary clinic in southern California. The birds were displaying signs of virulent Newcastle disease (vND). Biological samples were collected from the chickens and sent the California Animal Health and Food Safety (CAHFS) Laboratory where vND virus was detected. The U.S. Department of Agriculture's (USDA) National Veterinary Services Laboratories (NVSL) confirmed vND in these birds on 17 May 2018.

Impact

2 years (5/2018-5/2020)

476 premises infected (backyard, exhibition, and commercial)

1.2 million birds euthanized

Economic cost \$\$

Or another disease that is like avian influenza but slightly different, it's also a reportable diseases, is virulent Newcastle disease. And this one example gives us a really good idea of how you as a practitioner in a small animal practice or mixed animal practice would see something like this. And the California outbreak of 2018, 2020 virulent Newcastle, the first thing that happened is that an owner brought in birds to the veterinarian.

The veterinarian realized, oh, this is some respiratory stuff going on, maybe a little bit of GI stuff. We've got some mortality. We better get some samples over to the state diagnostic lab. So this is in California, so they went to California Animal Health and Food Safety Laboratory.

From there, it was detected. It went on over to NVSL where it was confirmed. And the impact of this is in two years. There was 476 premises that were infected. It went across backyard exhibition and commercial flocks. There's a 1.2 million birds that were euthanized. And the economic cost, they haven't even put together yet. But it was huge.

If that veterinary clinic had not seen those birds, had not recognized it, this may have gotten a lot hotter a lot faster. And if we can stop something before it has a chance to spread, the better off we are. And that's a really important reason for us to see poultry in our practices.

Virulent Newcastle Disease

- **Sudden death / higher mortality**
- **Swelling around eyes and neck**
- **Respiratory -- Sneezing, gasping, nasal discharge**
- **Digestive -- Greenish watery diarrhea**
- **Nervous – Tremor, wings drooping, twisting of neck, circling, stiff**

With virulent Newcastle disease, not just respiratory symptoms as in avian influenza, but you'll see sudden death and high mortality. And that's kind of similar to avian influenza. So that swelling around the eyes, in the neck.


And avian influenza and another bunch of other respiratory diseases can look very similar. They'll have sneezing, gasping, a little bit of nasal discharge. All of that looks like any respiratory disease in birds. But this one also has digestive and nervous symptoms.

So when you start seeing those three together, or it may just be one of those. You may not see all three of them together. You really need to be thinking about testing for this. And it's a very simple process to get that sample. The same sample that's used for virulent Newcastle disease is the same sample that's used for avian influenza, for infectious bronchitis, for Lorenzo tracheitis, for a number of our viral diseases can be tested off that same little swab that we'll collect. And we'll talk about that in just a minute.

OPPORTUNITY – Lower threat to poultry industry



Let's Keep Our Poultry Healthy Together



DEFEND THE FLOCK
BIOSECURITY

Report Sick Birds: 1-866-536-7593

#DefendTheFlock
www.aphis.usda.gov/animalhealth/defendtheflock

- If any type of poultry is suspected to be infected with reportable disease...
- **IMMEDIATELY notify the State Department of Agriculture or the USDA (1-866-536-7593)**
- --- per the Code of Federal Regulations (9CFR161.3).

If you suspect a reportable disease
Contact the office of your state veterinarian
and/or local USDA veterinarian

Keep your state laboratory number handy

So we want to be sure that we try and keep all the poultry healthy. And if you see anything that looks like suspicious, and it should be reportable disease, or if you even just got some questions about what's the next step that I should take? I'm seeing this, what should I do? Make sure and call your state veterinary office. Keep your state lab number handy. If you're not used to using your state lab, I mean, state laboratories often are utilized more in food animals.

So if you're a small animal practitioner, you may not be used to using your state laboratory resources. So find that out. Lots of times, the state laboratory resources for food animal in particular are extremely inexpensive. Here in Alabama, it's \$10. That's all. And that gets you all of the PCRs, all of the virology. I think in Florida it's \$30. In Kentucky, it's more than that. So different states handle it in different ways. So be sure that you know how your state handles that.

Let me turn my light back on. I've got an automatic light that just turns off on its own, and I can't fix that. So occasionally, I'll have to get up and turn the light back on.



So we're going to jump over to talking about regulations for regulations that affect veterinarians. They're not going to be your local. There's city, county, state, federal regulations.

Everybody wants to have a regulation on poultry. The local ones are mainly about property values and nuisance issues. And it is illegal in most places to let your chickens run at large, for example. Specifically, in Quitman, Georgia, it's specifically illegal to let your chickens cross the road. So I had to live for that for quite some time. I thought there was got to be a place for the chickens that are not allowed to cross the road. And there it is, Quitman, Georgia.

But for us as veterinarians, it's not these local or city, state, county laws that affect us.

Regulations

State and Federal

- Protection of public health and agriculture industry
- If the chicks are purchased legally, products are consumed on premise, and the birds are not transported, AND no illnesses – no problems
- Transportation of birds across state lines requires a health certificate, testing

Licensed Veterinarians -- health certificates and treatments
To diagnose and treat poultry – good resources (FARAD website)

USDA Category II Accreditation (all animals)
to sign health certificates
treatments requiring a VFD (medicated feeds)

It will be the state and federal ones, the ones that protect public health and our protection of the agriculture industries. So if a chick is purchased legally, the products are consumed on the premises of meat or eggs. The birds aren't transported, especially across state lines, and there's no illness, no problems.

You don't have to worry about it. However, if you are transporting birds across state lines, it does require a health certificate and some testing, typically testing in the blood for avian influenza, and mycoplasma, but also for salmonella pullorum. One of your best resource sites is going to be the FARAD site. We'll talk about that in a minute because as licensed veterinarians, the biggest things we do with poultry are health certificates, diagnosing, and treating diseases.

So to do the health certificates, you do need to have a USDA Cat II accreditation. And that's also if you plan to do any feed treatments through a VFD.


c

FARAD Food Animal Residue Avoidance Databank

VetGRAM Veterinarian's Guide to Residue Avoidance Management

SELECT SPECIES
Chicken are considered major species in the United States. Chicken are bred for their meat and eggs. Certain drugs are not for use in birds laying eggs intended for human consumption and are labeled as such.


SELECT SUB GROUP
 all FDA approvals for chicken•
Laying hen classes:
 replacement (layers)
 egg layers
 all laying hens
Not for hens laying eggs for human consumption:
 broilers/fryers•
 chicks
 replacement (breeders)
 excluding all layers•



On the FARAD site, this is the food animal residue avoidance databanks. This is a website you can go to. There's something on there called the VetGram. It's their guide to residue avoidance management.

On there, you can click your species. So you can click chicken, for example. You can collect click on a subgroup, so laying hens. Typically birds that are in small flocks are used for egg production. So the owners might be consuming those eggs. So that's a very important question to ask. Are they strictly pets or are we eating some of those eggs?

There's also sections on there for broilers, or fryers, for chicks, for replacement breeders. And that's a little less restrictive than layers. But like I said, most of our birds, people are going to be eating their eggs.



VetGRAM HOME
FARAD Home
Egg Layers
Search
Pre-defined Searches
21 Approved FDA Drug Formulations

Bacitracin
Amprolium
Chlortetracycline
Erythromycin
Hygromycin
Meldane 2 - coumaphos
Proparacaine hydrochloride
Nystatin
Fenbendazole

©2019 Food Animal Residue Avoidance Databank

Layers -- 2022
 Bacitracin
 Amprolium
 Coumaphos
 Nystatin
 Fenbendazole

So as an example, we don't have a lot of medications that are specifically used for poultry, and that are licensed in poultry. And that list is shrinking as we speak, I think.

In 2019, this was all we had. If we went to the FARAD site, and we put in egg layers, and we wanted approved FDA drug formulations, we got 21 formulations of 1, 2, 3, 4, 5, 6, 7, 8, 9 drugs. And that's all we had available. Now in 2022, we have 1, 2, 3, 4, 5 medications that are approved by FDA for use in layers.

So that leads us to another question.

REGULATIONS REGARDING TREATMENT --

All Poultry are Food Animals --- there is no exception for pets

GROUP I. Drugs with No Allowable Extra-Label Uses in Any Food-Producing Animal Species

CHLORAMPHENICOL

CLENBUTEROL

DIETHYLSTILBESTEROL (DES)

FLUOROQUINOLONE-CLASS ANTIBIOTICS

GLYCOPEPTIDES – all agents, including VANCOMYCIN

MEDICATED FEEDS

NITROIMIDAZOLES – all agents,

including DIMETRIDAZOLE, IPRONIDAZOLE, **METRONIDAZOLE** and others

NITROFURANS – all agents, including FURAZOLIDINE, NITROFURAZONE and others

GROUP II. Drugs with Restricted Extra-Label Uses in Any Food-Producing Animal Species

Cephalosporin – no ELDU involving unapproved dose, treatment duration, frequency, or administration route

What do we do, and how do we treat, and how do we stay out of trouble while we're treating? All poultry are considered food animals. There are no exceptions for pets. So first in line, we're going to use a lot of extra label drugs. But there are drugs that cannot be used in food animals as extra label use. And that there's a group one and a group two.

So your group one, and you can find all this information on VetGram or the FARAD site. Fluoroquinolones, you cannot use any fluoroquinolones whatsoever in food animals. Another one that is commonly used by veterinarians, accidentally, unknowingly, is metronidazole. So those cannot be used along with this other list I give you. The whole list there of them, not be used. And then cephalosporins.

There's another one that we just avoid, because it's a little too cumbersome to use.

Treatment with Extra Label Medications

- **Consider using a treatment and withdrawal time consent form.**

We're going to treat a lot with extra label medications. The FARAD site is really helpful because you can go on there. And there are experts that you can say I'm seeing this. I need to use this medication. What withdrawal should I give on this medication?

And I have used that on a number of occasions for myself and also for clinicians that have called in and asked me questions. I'm like, let me go and ask. It pretty much comes back as about six weeks. It's that general rule of thumb. But if you really want to know when you want something in writing from them, it will come within 24 hours. And it's kind of handy to use that website for that. It gives you documentation and back up.

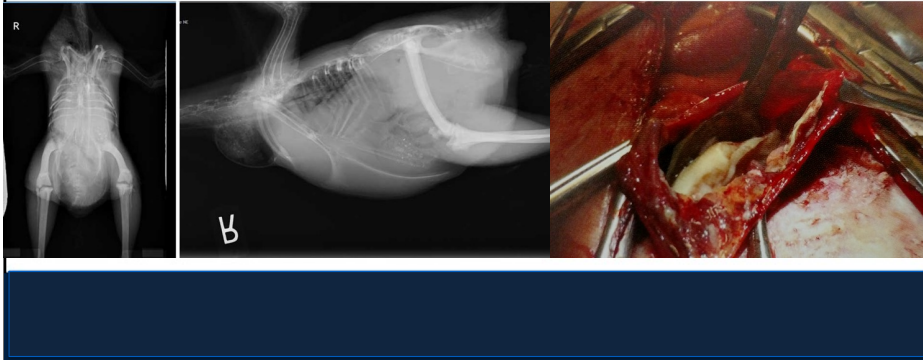
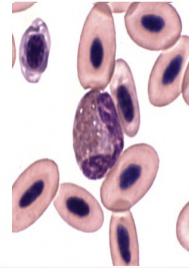
Another thing about documentation with extra label medication usage, really wise to use a form. You can design one. There's ones available out there. You can contact me, and I can get you a mini form. But considering using a treatment and withdrawal time consent form on all your poultry cases. Let your owner signs in that. You have all the recommendations on it.

So if they have something that they are taking home in writing, and you have something that goes in their file. Because in the event that they were to give penicillin to their chicken, and then turn around, and eat their eggs, and have an allergic reaction, there's something to document that you tried to teach them about this. And there was some--

you gave good guidance for it.

Common Veterinary Services Provided to Poultry Patients

Physical exam / Flock Evaluations
Health Inspections
Recognition/Diagnosis/Treatment
Prescriptions
Radiographs
Ultrasound
Surgery (Salpingohysterectomy, trauma repair, bumblefoot, fractures)
CBC / blood chemistry



Four common veterinary services that you can provide. What can you do for these birds when they walk into your office? It's not that different from any other really small animal case. First you want to do a physical exam. You might consider doing flock evaluations, where you actually go to the farm. Or some of that can be just done in your history gathering.

Health inspection forms, you can do recognition of disease diagnosis, and then treatment, doing prescriptions for them, radiographs, ultrasound. There are surgery. Some of them that are really common or [INAUDIBLE] hysterectomy. I know that's a big word. It's hard for me to say. Trauma repair is really common. Bumble foot is something we can have any-- yeah, I do have some pictures of that coming up. Or fractures on their legs.

CBCs and blood chemistry, we don't use maybe as much as a small animal would. But all these things are things that you can do in your practice for these birds.

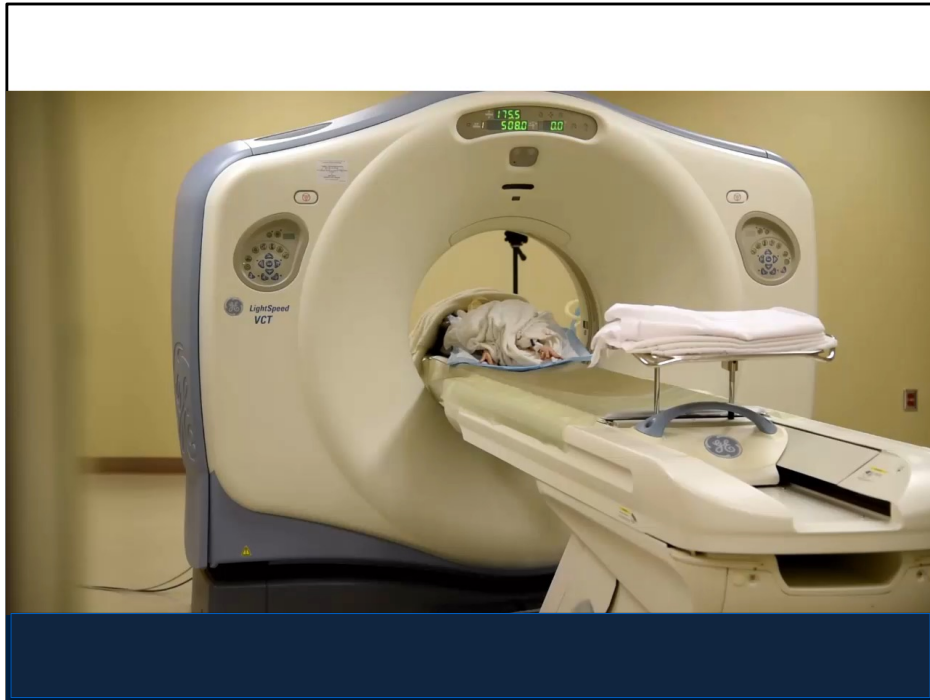


A couple of really just kind of simple things. This is an impacted crop. So the crop is kind of a storage pocket of food that sits right at the thoracic inlet. Sometimes birds will eat a bunch of stuff like rope. It could be a green forage, straw, hair.

It's amazing sometimes what they will get into, and it will impact that crop. And they'll lose weight. And you'll be able to see that on a radiograph. Sometimes, they will have eaten some odd things, and you'll need to get it out of the crop. It's very superficial. I mean, it's sits right under the skin. Their skin is extremely thin. It's very easy to make that little opening in there, go in, and take the things out. Minimal anesthesia is required for that.

So it's pretty easy, plus that picture looks really cool. Here's another really good-- this is a very ugly example of egg yolk peritonitis. And in this surgery, they're removing that peritonitis with a spoon. Because in birds, that prevalent material inside the cavity turns into like a cheesy substance. And you're not going to be able to treat that.

There's nothing that will go in there. And antibiotics will not be able to penetrate into that. So removing that. And this would also be the similar way that you would enter their thalamic cavity to remove the reproductive tract.



And then here's a chicken getting an MRI. This is one of my favorites.

And owners will do things. They will do ultrasounds. They will want to do radiographs. They may want to do some advance things. Sometimes they're not. Sometimes they just want to know what's going on.

And it may be a situation where you simply give them advice to take the bird to the state laboratory so the diagnostics can be done. But either way, you're helping that bird, and that owner, and the poultry industry as well. You're helping get that bird diagnosed.

It usually starts with a phone call –

“ Hello, yeah, I have some chickens. I just bought them from _____ (source), and I quarantined them from my other chickens for _____ (length of time). Today, they have _____ (symptoms of your choice). Will you see them?



Don't just say "NO" to poultry

Ask a few questions --

- “What type of symptoms were those again?” Reason – are these compatible with a reportable disease
“Have any died? How many?” Reason – high mortality may indicate a reportable disease
“Where are the chickens located?” Reason – If they are across state lines, there are regulations
“How many chickens (or other birds) do you have all together?” Reason – give an idea of the total picture

Consider – Reportable disease symptoms? High mortality? Respiratory signs?
Can the birds be brought or mailed (deceased) to the lab ?
Can the owner bring the birds into the clinic (ask yourself, “Is this a reportable disease?”
Can you make a farm call ?

So with your clinic, you usually starts off with a phone call as many things do.

Hello, yeah, I've got some chickens. I just bought them from name, place of your choice flea market. Animal supply plays where you might have picked up your chickens. Somebody else had them and gave them to them. And I quarantined them from my other chickens for some length of time, which almost never happens. To combine new chickens, and they're going to put them right in with their old chickens. And today, they've got some symptoms.

Either the new birds, the old birds, or all the birds have some sort of symptoms. And will you see them? And hopefully, you will stop for a minute and not just say no. You'll go ahead and ask a few questions. If nothing else, even if you don't see poultry, ask a few questions. What type of symptoms are those again? Because if those are compatible with reportable disease, we need to be making some phone calls and helping the situation out.

How many have died? [INAUDIBLE] deaths? How are your other chickens doing? Because if there's high morbidity or high mortality in particular, that's another indicator of a reportable disease. Where are the chickens located? If they're across state lines, keep in mind, they need to see someone within their state, because there are regulations, especially when it comes to transporting sick birds across state lines. And how many

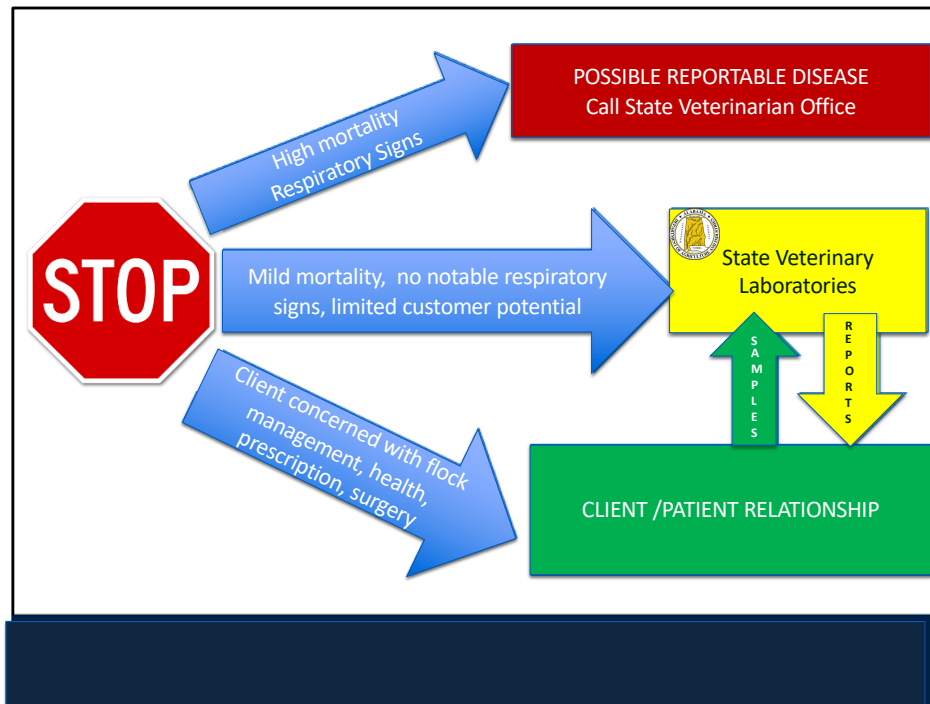
chickens or birds do you have altogether?

That might give you an idea of just the scope of the problem that you're looking at. Is this one pet bird? Five pet birds? Or is this a flock? And in some states, a small flock can be up to 25,000 birds in a small flock. So they'll still consider that a backyard flock. It gives you an idea of the scope.

So consider, when you have these calls come in. And whoever is accepting these calls, have them asking those questions. And consider do you need to report the situation to the state veterinary office? Because there will be people from the state veterinary office that can assist with taking the samples and things like that, especially if it does look like it's a reportable disease.

Another thing to think, can the birds be brought in or mailed if they're deceased to your state lab? Because that's another alternative. If you're not wanting to see those birds or not able to help them right there, can you go ahead and take them over to your state lab and help them with that process.

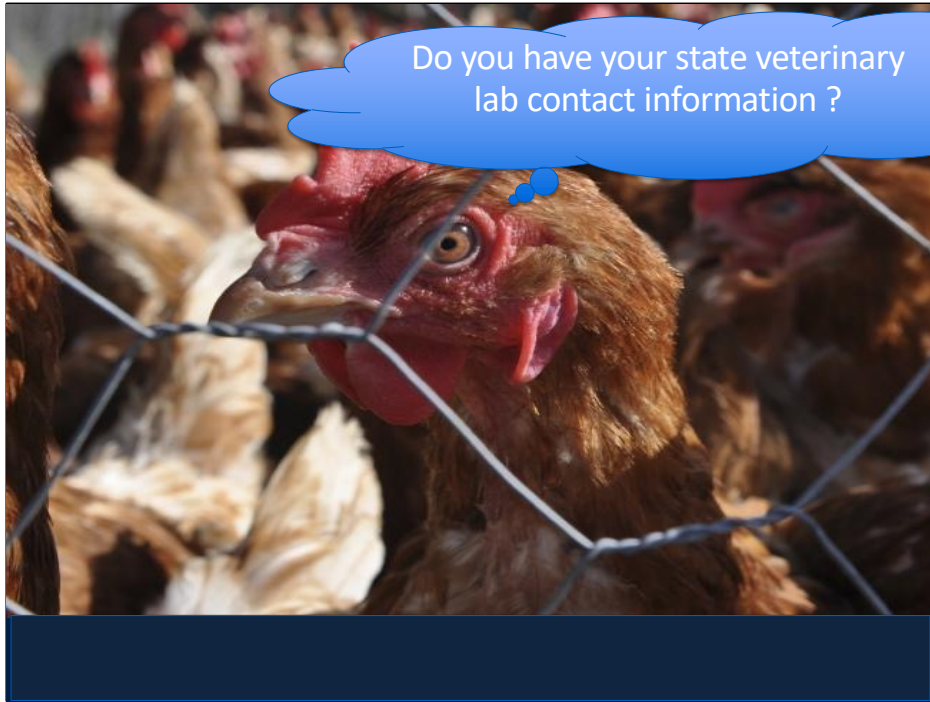
And also, I've seen veterinarians utilize that, too. They may take the bird and mail it to our state diagnostic lab. We send the report back to the veterinarian so that they can then educate the owner about what all that report says. And then the other thing is, can you make a phone call, a farm call? Because that is one thing that you get a better picture of things when you see the entire situation rather than one bird out of a flock.



So first stop, is there high mortality or respiratory signs? Because that's a possible reportable disease, and you may need some help there. If there's mild mortality, and there's no notable respiratory signs, and maybe there's limited customer potential.

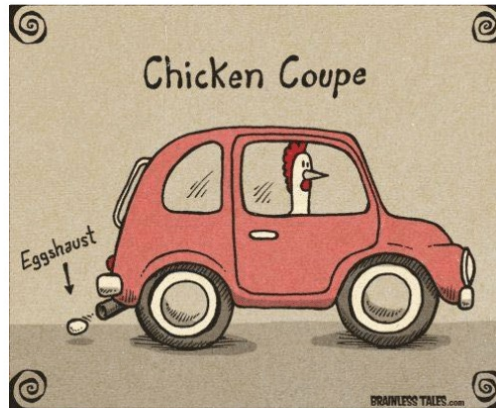
This person is wanting help for their chickens, but they're wanting to do the basics, just the smallest amount. Or they're just wanting to figure out what it is, and that's it. They're not really wanting to help with treatment or anything like that. Consider using your state veterinary lab, because they can do necropsies on deceased birds. Lots of times we do accept live birds, and then we euthanize them here on premise.

And then you've got a client that's really concerned more about flock management, about prescriptions, about surgeries, about the health and wants to do more. Develop that client-patient relationship. You can still send those samples. You can take the samples, send them in to the state veterinary diagnostic lab. Like I said, minimal cost in many situations. You get a lot of information. And then you can help that owner interpret those reports. And that's extremely important.



So make sure if you don't have your state veterinary lab contact information handy, go ahead and get that and know how to utilize, know what they offer. Take a look at their test fees and their test schedules.

A quick note on transporting poultry



Her car is a free Range Rover.

Quick note on transporting poultry. Had an owner, who was-- actually, a veterinarian called me, and they had an owner there. They're in the physical exam room. They're saying respiratory symptoms. They've got like six birds. They brought two of them in. And then they kind of gasped a little bit. And she's like, one of them just slung blood all over the exam table.

That could be a potentially reportable disease in some states called lingo tracheitis. As soon as she said that's first thing. I'm like, mild respiratory symptoms and were slinging blood. That might be what we call LT. The owner had transported those birds across state lines. It was a reportable disease in both states. It was positive.

And also when they transported them, they just put them in the back of a truck in an open cage. So feathers, debris, whatnot, could be flying out of there. And there's poultry down the sides of the highway. And it's very easily transmitted that way. So it's something to keep in mind, you could make a really big problem worse.

All states (except Hawaii) will require that poultry being shipped across a state border come from flocks that either participate in NPIP (National Poultry Improvement Plan) OR follow the guidelines set forth for participation in the NPIP program. Some states require this for in state transport.

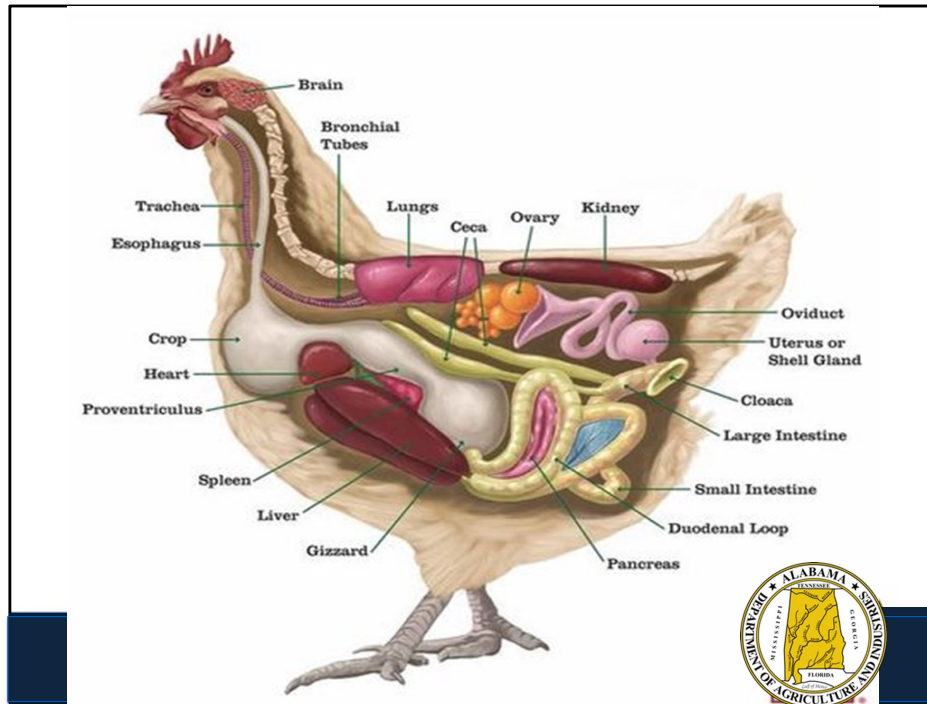


So keep in mind that before you go transporting them across state lines, that you have them tested for avian influenza, or Newcastle first. Or find someone within your state that can treat them, or is willing to see them. And be sure any time you're transporting them, that they are in a container, a carrier, a pet carrier's fine. Or somehow, they are kept in the back of a vehicle, where you don't have feathers flying everywhere.

And you may ask, because I put this picture of this truck in here when commercial poultry moves from one house to another, when they're moving them into the slaughter plant. There's feathers flying everywhere. What about that? Those birds are tested. They're tested for avian influenza before they ever leave the house. That has to be a requirement. And that's why that can happen.

Very Basic Anatomy

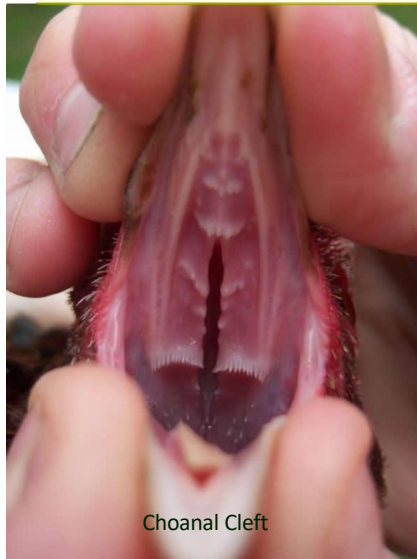
So some topics on very basic anatomy. We could be a lot more time here. But we're just going to touch on a few things that you need to know if you're going to see poultry to see, have a little bit of an idea. Remember back, you get school days. If you don't see birds on a regular basis, some of those oddball things about birds.



First of all, their kidneys are up in their back. The urinary tract right there. Lungs are also attached to the back. They do not have a diaphragm. So everything is in a [INAUDIBLE] cavity. There's no diaphragm. So that's why you always need them breathing. You have to have that abdomen or what we would call the abdomen, if it had a diaphragm. It's actually a [INAUDIBLE] cavity. But that abdominal area, you want that to be free moving. Because that's how they control their breathing.

They have paired seta, that are really large in the intestinal tract. The females have one oviduct, uterus, and one ovary. The other one is a little vestigial thing that can sometimes be found in there. But there's only one.

Unique Features of Normal Anatomy – Respiratory System



Choanal Cleft

Respiratory Tract –

- Choanal Cleft in roof of mouth
- Lungs are located dorsal against the ribs and backbone
- Airsacs are located throughout coelomic cavity and extend into pneumatic wing bones
- Testing –
PCR – Non cotton, non wooden stick swab
Place in BHI broth tube OR RTT with a few drops of saline for VI & PCR
Send overnight

This area is swabbed for respiratory disease PCR in most gallinaceous birds
Waterfowl – collect cloacal swab as well

Neat things about the respiratory tract. First of all, I want to make sure you know what the choanal cleft is. The reason why the choanal cleft is really important, and this is right up in the roof of the mouth. This is the bird's mouth is open, and you're seeing the choanal cleft in the very roof of the mouth. And that's where we take our swabs from.

So you can take oropharyngeal swabs and go around the whole mouth, or you can go up in that choanal cleft and just twist the swab right in that little cleft. And that is the best place to get samples for respiratory diseases for PCR testing. The lungs are located up against the backbone and the ribs. There are air sacs located throughout that whole coelomic cavity. And they also communicate with the pneumatic wing bones. So really big respiratory tract.

PCR is often used for taking those swabs. Or excuse me, the swabs are often used for testing respiratory viral diseases by PCR. Make sure you use a non-cotton, non-wooden stick swab. It needs to not be anything organic, natural in there.

It goes into BHI broth tube, which can be kept. You can get it from your state lab. You can hold that frozen practically indefinitely in your freezer. If you ever needed that swab, once you take it from the bird, goes into the BHI. And you run it around and pop it up and down and get it kind of agitated really well. Withdraw it out of there. Cap it off, and it's ready to

send.

If you don't have BHI, you can use a few drops of saline. Put it in a red top tube. But it needs to be sent, both of these do need to be sent as soon as possible. But especially, if there's just a few drops of saline, you don't want it swimming in saline. You just want just enough to keep it moist so it stays alive until you get it to the lab.

Unique Features of Normal Anatomy – Respiratory System



It's a choanal cleft. So let's go on to tracheal intubation. That has to do with the respiratory tract as well. That's looking inside the mouth. You can see where the trachea is. And there's an opening on there, right here. And over here, you can see it. Your endotracheal tube goes right in there. It's so easy to do and shouldn't be a problem.

You do have to do a non-rebreathing system on birds. So keep that in mind. There's some kind of particulars about anesthesia that you need to know before you go into doing bird anesthesia. It's a little complicated, but it's not bad.

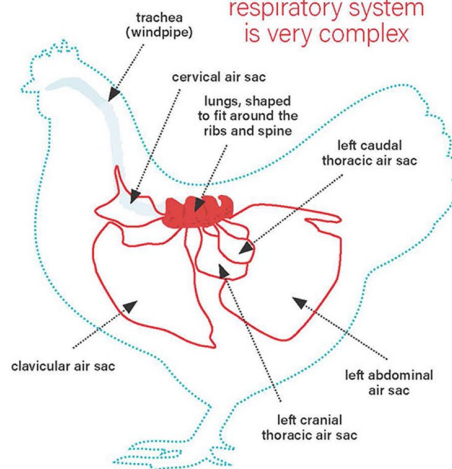
Proper Administration of Oral Medications



With administration of oral medications, you see here that the trachea is here. And you can see where the syringe is going. All of that's going to go straight down into the esophagus. So it's very easy to gavage. It's very easy to give oral medications to birds because of this.

Unique Features of Normal Anatomy – Respiratory Tract

A chicken's respiratory system is very complex



Respiratory Tract –

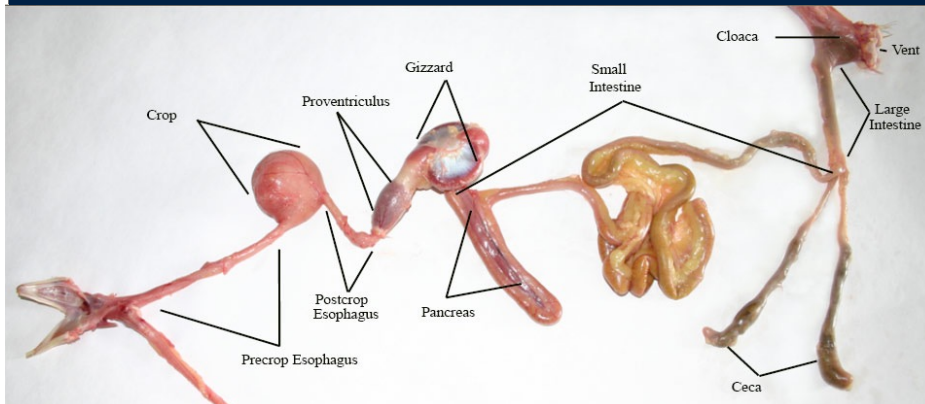
- Choanal Cleft in roof of mouth
- Lungs are located dorsal against the ribs and backbone
- Airsacs are located throughout coelomic cavity and extend into pneumatic wing bones

We talked about the air sacs, and here's a quick picture lateral diagram of all of the different air sacs in a bird. So it's all throughout the coelomic cavity.

Unique Features of Normal Anatomy – Gastrointestinal Tract

Gastrointestinal Tract

- Crop – storage of ingested food; allows food and water to mix
- Proventriculus – true stomach
- Ventriculus (Gizzard) – grinding – contains small stones (other items that do not pass through into the intestine)
- Duodenum – loop – pancreas is located in between
- Ceca – long and paired – breakdown of feed, absorption of water
- Cloaca – feces and urate excretion – exit via vent



On the gastrointestinal tract, there's a prop, which we talked about a little bit right at the thoracic inlet, is going to be a storage place for food when it eats.

There's a proventriculus, so we have your crop, the esophagus, the proventriculus, which is the true stomach. And then the gizzard, the ventriculus, which is the grinding place. There's going to be some small stones in there. The duodenum is a loop. And the pancreas is located right in the middle of that loop.

The other cool features that they have these really long paired ceca. And that breaks down feed and absorbs water. And then the cloaca, at the very end, it also handles all of the waste from not only the digestive tract, but also the urinary tract. So all that's going to exit via the vent. So it's kind of a little bit of a diagram from literally top to bottom over here.

Proper ways to Hold or Restrain Poultry

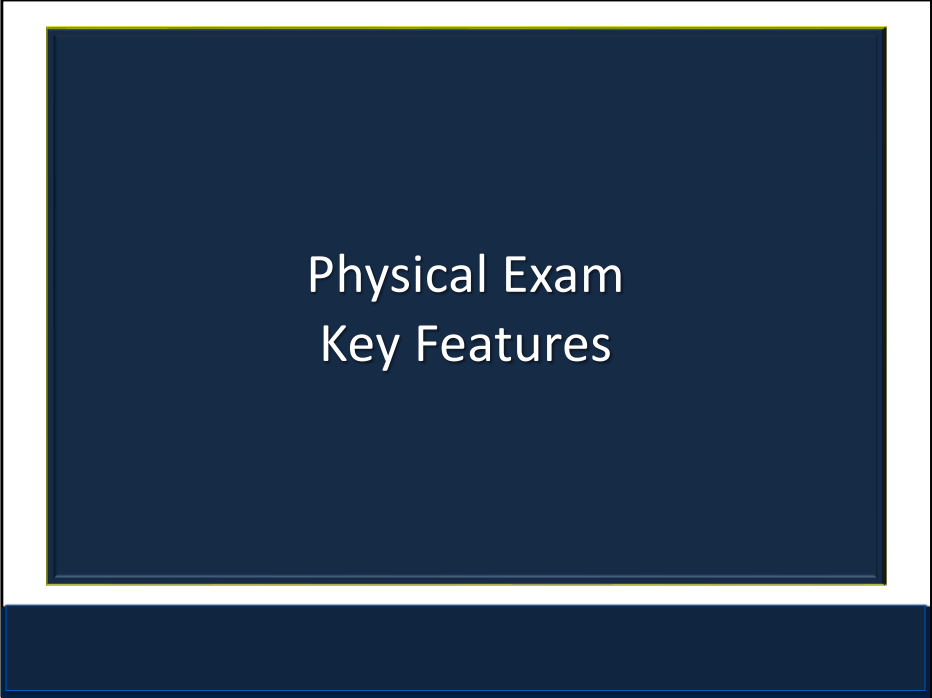
Hand across back to restrain wings
Second hand to support weight just under crop
Do NOT compromise the abdominal movement



We'll talk a little bit that's kind of a really fast anatomical study. So there's a lot more to learn in that. But I'll give you a couple of ideas of things about poultry that you need to know. And because of that lack of diaphragm, we talked about leaving that abdominal area open.

That really comes into play when you're restraining birds, because you can hold them so tight that they cannot breathe. And that's not compatible with life. So we don't want to do that. A good way to do it is hands across the back and restrain. That kind of restrains the wing, and then kind of scoop them up with the other hand. You want to make sure not to compromise the abdominal movement.

Another way you can handle them, birds when they're flip-- poultry, I should say. Your exotic birds are not going to like this very much at all. But your poultry species, when you hold them upside down, especially if you support that crop, thoracic area, hold their feet. And they will calm down extremely fast and be very easy to work with in that position.



Physical Exam Key Features

Some key features that you want to look at on physical exam.

Physical Exam

Before you lay your hands on the bird – assess its general appearance and behavior from a distance.

Stable

Color of wattles and comb

Appearance of vent

General energy level

Position of eyelids (half closed when not feeling well)

Temperature – 104- 107 F

Respiratory Rates – 15-30 rpm

Listen for gurgles, rales, wheezing

Heart rate up to 300 bpm

PLR

Menace reflex is reduced in chickens = corneal reflex



Before you ever even open the cage, you want to make sure that you look at the general appearance and behavior from a distance. First of all, is that bird stable? Because if not, you want to get oxygen on it. The respiratory systems can collapse very quickly. And if they are already in a fragile state, they will die very quickly.

So once again, check and make sure they're stable. Are they alert, awake, and can you handle them? Look at the color of the wattles and the comb, because they should be a nice pink color. Some species actually have dark skin. So they wouldn't have a red or rosy wattles and comb, but most species will.

Look at the vent when you're doing a physical exam. Note the general energy level. If there's any droppings that are in that cage, make sure and look at those. Do those look normal? And we'll talk a little bit about that here in a minute.

The position of eyelids, if they're at half mast, that's not feeling well. Body temperature, between 104 and 107. Respiratory rate between 15 and 30. Listen for gurgles, for [INAUDIBLE], for any wheezing. The heart rate up to 300 beats per minute. And then the pupillary light reflex, you can utilize your menace reflex is very reduced in chicken, so use a corneal reflex instead.

Poultry Physical Examination Form

Owner Last Name	Type of Bird/Bird Information	Signalment
Body System	Common Observations/Signs	Notes
General Health	Bright, alert, responsive Lethargic, Drooping wings, Ruffled feathers Body Score Condition Obvious health problems noted Swollen Head Traumatic Wounds Unable to walk/spread legs Other Vision	
Integumentary	Ulcerations/Crusts/Modules/Scabs Special areas of consideration: Head/Mouth Bottom of foot Traumatic Wounds/Excoriations Breeding Injury (back/sides, head/neck/comb) Loss of feathering/Molting/Poor feathering External Parasites – visible/microscopic	
Respiratory	Swollen head/sinuses Sneezing (sneezing)/Coughing Mucus/blood present Respiratory Difficulty Extended neck/open mouth Respiratory sounds (gurgling/rales) Vocalization (raspy/loss of sound)	
Gastrointestinal	Mouth lesions – location, description Abnormal Droppings (see Dropping Condition Chart) Increased fluid, blood, foam, color Acidosis	
Peripheral	Abnormal gait or stance Paralysis versus painful ambulation Legs Splayed (different directions) Sitting on Rear Joint evaluation – swelling of joint/tendons Swelling of foot	
Central Nervous System	Tremors Twisting of neck Head position Curling of toes Paralysis	

PO Box 2000 101 MSU Drive Hopkinsville, KY 42241-2000 | Office: 270-886-3959 | Fax: 270-886-4295
<http://www.breathitt.murraystate.edu/poultrytoolbox>



<https://breathitt.murraystate.edu/department/PoultryToolbox/>

Need to have a physical exam form. There's some available. You can contact me about where to find some of these things.



Here's some examples of a good healthy looking bird. Then you have some of these that, like I said, they have the dark skin. So they're going to look a little bit different.



If they're ruffled, kind of sunken in, looking kind of sleepy or inactive, that's a sick chicken.

Body Condition Score –

Different between species
Different between breeds in a species

What is normal?

Evaluation of the amount of muscle on the keel bone for the type of bird

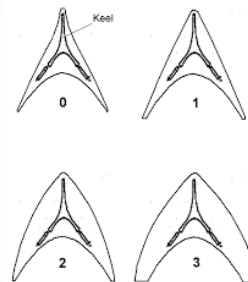

Meat breed chickens (broiler, broiler breeders), ducks, geese, turkeys

Layers breed chickens

Body condition score
In birds, avian body condition score is a must useful indication of prognosis. Simple avian body condition score is assessed by palpation of the pectoral musculature on either side of the keel (1 concave, Poor prognosis; 2 flat, 3 convex, elliptical, 4 semicircular, 5 beyond keel(M shape, cleavage; obese).

FIGURE 1. AVIAN BODY CONDITION SCORES

x2 x3 x4 x5



Body condition scores we can use. For meat breeds, you're going to see a lot more breast muscle on them with layers. You're going to see a lot more triangular shaped where that breast muscle is. The keel is going to be a lot sharper. But with most of our birds, if you can feel the keel bone very readily, and not have a lot of meat on either side, then you've got a bird that's been losing weight over time.

How to identify a hen in lay --

***Head: eye, comb, general appearance**

***Vent: large, moist, bleached, pliable**

***Spread between pubic bones**

***Pubic bones thin, pliable**



To identify hen in lay, you can turn them upside down. You put your fingers, and it should be three fingers between the pin bones of the hip there. And you should be able to slide three fingers in there if the hen is in lay. And this is just external. You're just pressing down on them. Birds that are not in lay, it'll be much more narrow than that.

You also look and see, is their eyes, the comb, the general appearance of the bird, does it look mature and healthy? The vent should be moist and a little bit bleached, a little bit pliable. And then that spread between the pubic bones.

Appearance of a clean vent



There's an example of what a clean vent should look like. A good health vent should look like this.

MOST COMMON HEALTH PROBLEMS IN SMALL FLOCKS

- 1) Trauma
- 2) Mismanagement that has stressed birds and caused a primary problem
- 3) Infectious Diseases
- 4) Nutrition -- including obesity in hens
- 5) Female reproductive issues
- 6) Toxic exposure

Some of the most common health problems you'll see in small flocks include trauma, include mismanagement that has stressed birds and caused a primary problem, and then something else has come in, infectious diseases, nutrition. There are lots of female reproductive issues within birds. And then finally, toxic exposures. Because they can eat some very unusual things.



With trauma, a couple of things to keep in mind.

Trauma – Most common presentation
Predation – Most common cause
Followed by entrapment

Skin is VERY thin – easy to suture

Sedation can be given or no sedation may be needed for wound treatment

Treatment of mammalian bite wounds can result in a carrier state –

Pasturella multocida (fowl cholera)

Their skin is very thin, and it tears very easily. So predation is not uncommon. And also entrapment, where they've gotten trapped in something. It's easy to suture their skin. Sedation may or may not be totally necessary. If you have a mammalian bite wound, it can result in a carrier state of *pasteurella multocida*, which is fowl cholera in the birds.

So sometimes, it's necessary to have that discussion, especially in a flock situation. Do we want to save this bird when it can possibly carry fowl cholera long term to the rest of your flock? This is a conversation that needs to occur before you fix that bird.

Housing, Nutrition, and Management

On these things, there's just simply not enough time to cover them. Housing and nutrition and management are so important.



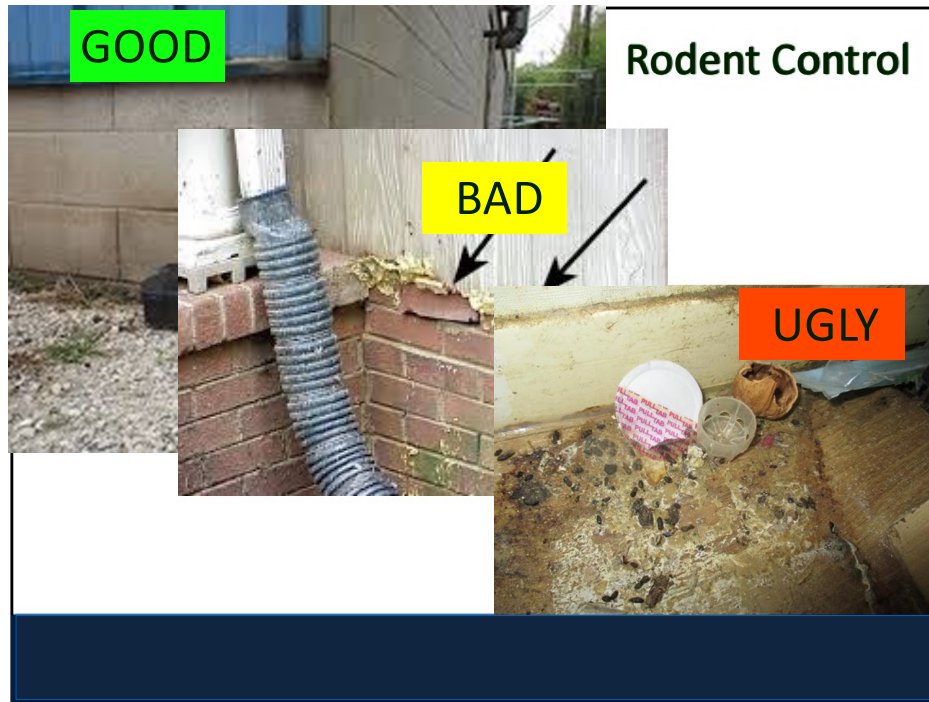
And we think all the birds that come into our office may come from a place that looks like this.



In reality, it might be more like this.



And sometimes, it can even look like this. So they may not-- and this is not even the worst. It's just not the best. There's food, and there's probably water somewhere in there, and there's housing. But sometimes the hygiene could be improved.



Same thing with rodent control. Diseases like fowl cholera can come and be carried by rodents as well as a number of other diseases. So good control with having rodent boxes out. And then there's sort of not good, and then there's the really bad ones. And all of these occur, and you don't know when you see your birds coming into your office what environment they came out of.

Evaluate feathering and footpad condition --

Feathering should be clean, no fecal material or litter, feathering over whole body
Wet flooring due to fecal material buildup can cause cutaneous burns.

Foot pads should be soft – without reddening , scabs or ulceration



When you're doing physical exam, make sure to evaluate the feathering and in the footpad condition. Everything should be nice and clean. This footpad should be really soft and not have any reddening.

The score here of 0 is a good healthy foot. And then you can see that these other ones, while they've been cleaned off, and there's no fecal material or litter on them, they're burned. That's a litter burn right there, where they have been in contact with fecal material over time, and this leads to pododermatitis or Bumble foot.

Nutrition ---

General guideline –
If the problem does not appear infectious,
Collect a feed and water sample
Is it a commercially formulated food?
How long has it been at the farm?
Is it moldy? What does it smell like?

With nutrition, if you think something's non-infectious, it's always a good idea to go ahead and collect the feed and water sample. If it's a commercially formulated food, typically, you should be OK nutrition wise. It's not always the case, because mistakes can happen at the feed mills.

However, keep in mind how long has this feed been at the farm. And what does it actually look like? Evaluate the food. Look at it. Is it moldy? Does it smell bad? Does it smell rancid? Or does it smell like good feed? That might give you some hints as to how to address the problem you're seeing.

Respiratory Diseases
Can look alike --

With respiratory disease,

Chicken respiratory disease – clinical signs and lesions



- Nasal and ocular discharges
- Wheezing, rales
- Sneezing, Coughing
- Gasping
- Head-shaking/scratching
- Mortality and morbidity, variable
- Conjunctivitis
- Sinusitis
- Rhinitis
- Laryngitis
- Tracheitis

it all kind of looks alike. It's kind of sad. Ocular discharge, swelling of the sinuses, maybe even swelling of the head, nasal discharge, head shaking. Your mortality, morbidity can be very variable. But a lot of the respiratory diseases look alike.

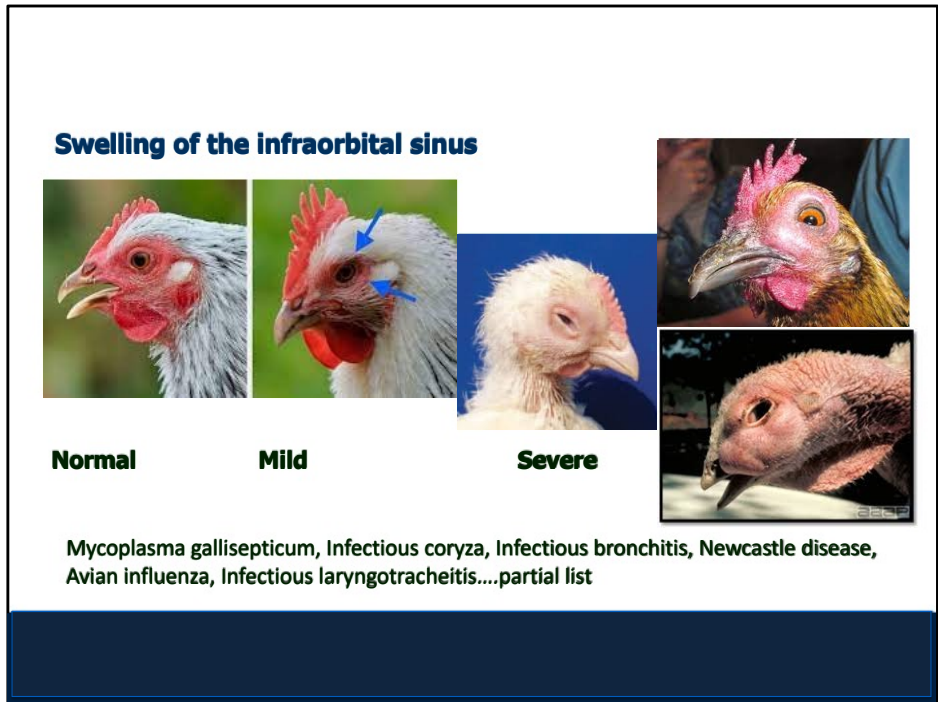


- 1. Is this a reportable disease?**
 - Duration
 - Mortality
 - Flock or Individual bird
- 2. Stabilize your patient**
 - Oxygen rich environment
 - LOW STRESS



So when you see those, first of all, think of it's reportable. How long has it been there? Is there any mortality? And is this a flock problem or an individual bird problem? The individual bird problem is probably not a reportable, but we're going to test for it anyways. But this is just do you want to involve the state veterinarian office right off the bat before you even see these birds. Or can we see them in the clinic safely, and then see if they're reportable or not.

You need to stabilize your patient. If it is under stress and is having difficulty breathing, don't handle it. Go ahead and get an oxygen-rich environment going, which can be something as simple as a pet carrier with a plastic bag around it. So that oxygen can be pumped into it, and get you an oxygen-rich environment, and just put it in a safe quiet warm place, so that this low stress on the bird.



Swelling of the infraorbital sinuses is quite common. See the picture there on the left. There's no swelling. In the right, there's more swelling. And then you have the more severe cases, and the ultra severe cases.

There are a number of the diseases that can cause this. MG, mycoplasma gallisepticum is one of the most common that we think about. But there are others, and certainly what I've listed up there is only a partial list. You can see this sinusitis going on.

Respiratory Disease - General Differentials

Avian Influenza *

Newcastle Disease (endemic and exotic forms) *

Mycoplasma (MG, MS, MM (turkey)

Infectious Bronchitis (IBV)*

Laryngotracheitis (LT)* (lifetime carrier)

Infectious coryza (*Avibacterium paragallinarum*)* (lifetime carrier)

Avian Pox (lifetime carrier)

Escherichia coli

Pasteurella multocida (lifetime carrier)

Aspergillosis

Gapeworm (*Syngamus trachea*)

Ammonia from poor hygiene

* - swab for PCR diagnostics at state lab

On the respiratory diseases, here's the dirty dozen basically. A couple of things to keep in mind, there are portables, for sure, in avian influenza and Newcastle disease. However, infectious bronchitis, laryngotracheitis, infectious coryza can all be reportable depending on your state, so it's good to know what's reportable. Or just send swab in for testing and let the state lab people figure it out. We do a good job of that.

So you don't have to think about that if you don't want to. But that swab, you can test all of those, which is really cool. Limited sample size, and we get to do all this testing on it. Lifetime carriers can be seen with laryngotracheitis. So once a bird is positive, they're always positive. Infectious coryza, the same thing. Avian pox, same thing. Once they've had it, they always have it. And if they're stressed, they can shed it.

Same thing with fowl cholera, *Pasteurella multocida* another lifetime carrier. And keep in mind, some of those oddball things, aspergillosis is more in young birds. There is a gapeworm in poultry that can cause respiratory problems. And then, of course, if you have a lot of birds in a small space, lots of poultry, feces in there, ammonia levels can actually cause respiratory diseases.

Avian Pox

Two Clinical Forms

- DRY – CUTANEOUS

- Cutaneous lesions (black scabs)
- On unfeathered parts of bird

- Wet – TRACHEA/CHOANA

- Oral diphtheritic lesions -- can look like ILT
- Associated with mortality



For avian pox, there's two forms. There's a dry cutaneous one that we see here in this picture. And there's a wet one that looks more like what we call ILT or LT.

Samples to collect :

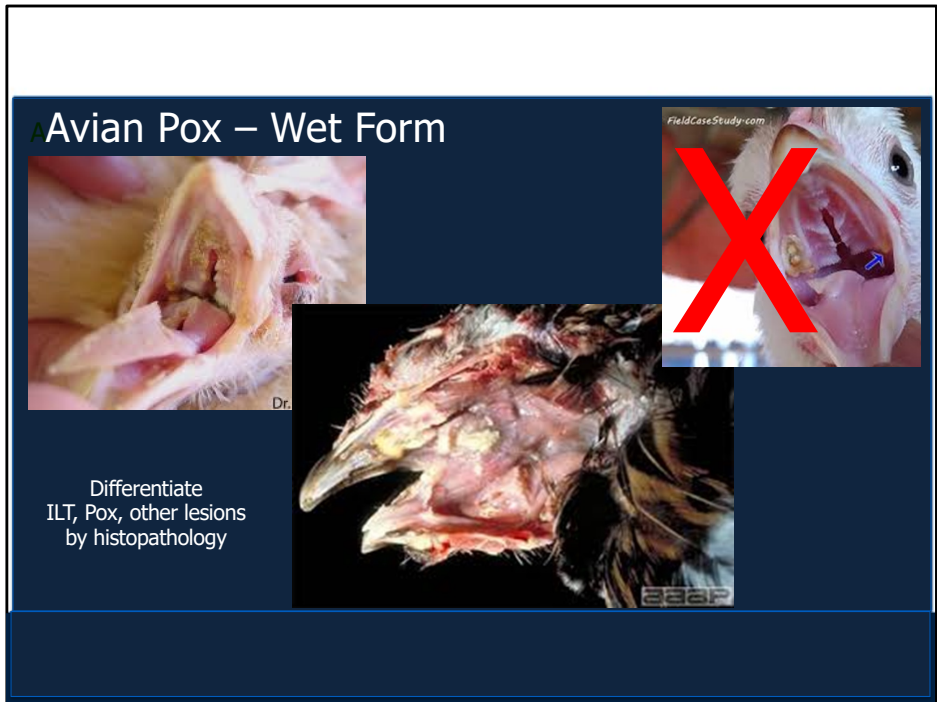
- A) Birds or samples to lab
- B) Choanal Swabs in BHI or drops of saline in RRT
 - Five to Six swabs per tube
 - If there are multiple species/do not mix (Waterfowl – cloacal swab)
- C) Serum
- D) Send head with sinus intact (BEST) or Sinus swabs for bacterial culture
 - Take immediately to the lab or send overnight on ice



You want to be sure that you collect the samples and bring the birds or the samples to the lab.

If you collect the samples or choanal swabs, and BHI, or a few drops of saline, if you don't have BHI and red top tube, you can put up to five to six swabs per single tube, and they'll run the test on all of it pooled. If there are multiple species, don't mix the species. Keep them separated on the swabs.

Waterfowl, you need to add in a cloacal swab. So you go through the vent and get cloacal swab through waterfowl as well as the choanal swab. You can also test serum. And then also some of the things, if we have a dead bird, you can take the head off, and we can use that with the sinus intact to do some bacterial cultures. And that needs to come to the lab immediately or be brought in on ice.



These are examples of the wet form of pox, and why it looks like a respiratory disease versus that dry cutaneous form. The one up there with a red X on it, that is a different type of lesion. Notice it's bilaterally symmetrical to be caused by a type of mycotoxin. Looks a little bit different, but could be confused with avian pox.

And also, ILT looks just like this.

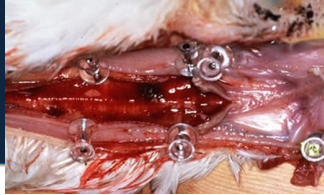
Infectious Laryngotracheitis - ILT

Physical Exam OR Necropsy Findings ---

- Clinical Signs
 - Hemorrhagic Tracheitis
Frank blood in the trachea, bloody mucus or plugs,
COUGHING UP BLOOD
 - Cheesy plugs in trachea or larynx
 - Differentiate from "Wet" or Diphtheritic Pox



+



With ILT, sometimes, you can see a very fulminant type disease with blood in the trachea. But sometimes, not. Sometimes, it'll look just like the wet form or diphtheritic form of pox.

Aspergillosis


Brooder Pneumonia

Aspergillus fumigatus

Moldy, wet feed or bedding
Mold on hatching eggs or incubator

Diagnose
Necropsy / culture of lungs or airsacs

Treatment – expensive/ineffective
Remove mold source; clean and disinfect coop



Aspergillosis in baby chicks, if you get them in by five days of age, they're gasping for air, there's a good chance that's brood or pneumonia. And that can be seen on necropsy or on histopath of those lungs. And there really isn't a way to treat it unfortunately. Just remove the mold source and clean and disinfect the poop. But sometimes, in these young birds, this is coming from a hatchery source.

Supportive treatment

- **Keep warm (70F) and quiet**
- **Easy access to water and food**
- **Electrolytes with vitamin supplementation**
- **If not eating – consider tube feeding**
- **Treat secondary bacterial infection**
- **Pox – Separate birds with scabs /consider vaccination**

Vaccinate any new birds that come to property

- **ILT – Leave birds together consider vaccination**

Vaccinate any new birds/birds should never leave property

For a supportive treatment, this is extremely important. Keeping them warm and quiet, giving them easy access to food and water, giving electrolytes with vitamin supplementation. If they're not eating, consider tube feeding or gavage feeding, which is very easy, because of that crop. Treat the secondary bacterial infections for pox.

For example, separate the birds with the scabs, because they're carrying it right now. They're actively shedding it. And consider vaccination of other birds. You can do that. You can vaccinate any new birds coming in, for example.

With laryngotracheitis ILT, you want to leave those birds actually together. And you might consider vaccination in a large flock or any new birds that would come in there. But you do not want to be moving either pox-infected birds or ILT birds. If they've ever had it in their life, they may not look like it now, but they can carry it to a new flock. And then that new flock will break with it.

Gastrointestinal Disease

Gastrointestinal diseases,



you've got to get good at looking at droppings. If those are good droppings, these are meh droppings. And then you've got your really bad ones at the bottom.

Coccidiosis –

Younger birds (2-15 weeks) or immunocompromised (stressed)
Loose droppings / bloody droppings / weak birds / death
Fecal floatation or intestinal scraping (necropsy)
Treatment – Amprolium

Clostridial Disease -

Various ages, may occur in conjunction with coccidiosis
Loose droppings / bloody droppings / weak birds/ death
Lesions seen in intestine – necropsy
Treatment – Bacitracin

The biggest disease here is coccidiosis. Secondly, clostridial diseases can cause a problem.

Coccidiosis is going to be seen in your younger birds, typically between 2 to 15 weeks of age. Or if they're immunocompromised, be loose droppings, bloody droppings, wheat birds, birds losing weight, events that are really dirty. You can diagnose this on fecal floatation or in a necropsy. We do it by intestinal scraping. And the treatment typically is amprolium, although there are some amprolium-resistant strains of coccidiosis.

If you see coccidiosis on a fecal and floatation in older bird, not a problem. There's going to be coccidiosis in chickens or other species of birds. There are some non-pathogenic species of coccidiosis. Keep that in mind. But also, there's an immunity that builds up with age, and it typically just doesn't cause a problem in them once they're past that 15 weeks of age. Unless they're immunosuppressed and something else.

Clostridial diseases in the intestine can occur often secondary to coccidiosis, that can easily be treated with bacitracin. If you're seeing really bloody droppings, coming in with bacitracin might be an idea, or doing a necropsy, looking at those intestines and seeing if they're very hemorrhagic. And you could treat with bacitracin along with amprolium.



Different types of parasites, we could spend a huge amount of time on this, so I just made a little list. So there's internal and external ones, and you need to be able to differentiate between those.



Reproductive issues in females. This is a big thing because females can be internal layers, and the eggs are not getting into the oviduct and passing throughout to the vent.

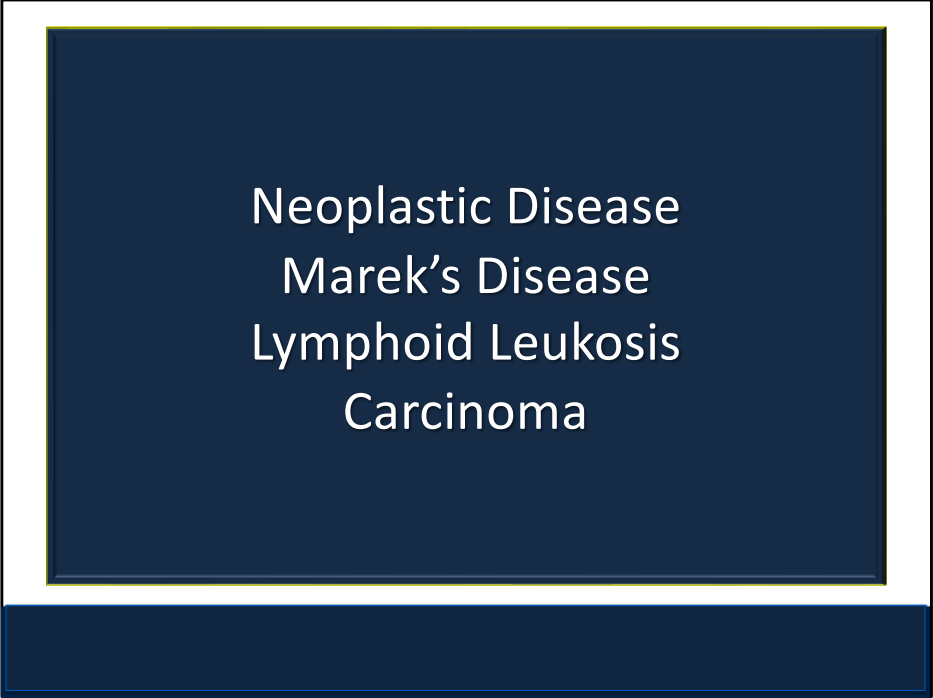
They're being laid inside the bird, and it just makes a bit of a mess, and eventually, turns into an egg yolk peritonitis. And sometimes, those aren't even infectious. When we say peritonitis, we think of maybe there's nasty bacteria that have come from the gastrointestinal tract or something like that. These can be totally sterile in birds, because it's just the yolks that aren't getting to where they need to go.

Salpingitis is actually that infection of the oviduct, and these can be huge. The oviduct itself should be very, very thin, like a string, a thicker string, and it connects. It enlarges. It has a great capacity to enlarge and let that egg go through there. However, when it gets infected, it'll almost be like onion layers in there.

And when you do a necropsy, and you cut across that, you can see those layers. But it'll be huge. It'll go from being a little tiny string of an oviduct to bigger than your hand and long, because oviduct is very long in the birds. So that can fill up. The only way of getting rid of that really is to remove the reproductive tract on the female, which can be done.

The other thing is being egg bound. This doesn't happen as much in poultry, where they

have an egg that cannot pass through the system. We see that more in pet birds.



Neoplastic Disease
Marek's Disease
Lymphoid Leukosis
Carcinoma

And then last but not least, we're going to talk a little bit about some neoplastic diseases. Marek's is really, really common and happens in younger birds. Typically, the cancers that happen in older birds, you're looking at lymphoid leukosis or carcinoma.

Marek's Disease

- **Highly contagious viral neoplastic disease**
- **Ubiquitous in United States – birds often get exposed when first introduced to environment (dander/soil/etc)**
- **Vaccination Day One – by subcutaneous injection – prior to placement at farm**

- **Non-vaccinated birds can develop several forms -**
 - Neurolymphomatosis – asymmetric paralysis – most common**
 - Lose weight
 - Leg paralysis
 - Eventually waste away
 - Tumors in other organs (liver/ovary...etc)**
- **Diagnosis by necropsy / histopathology of nerves**
- **Difficult to differentiate from leukosis**

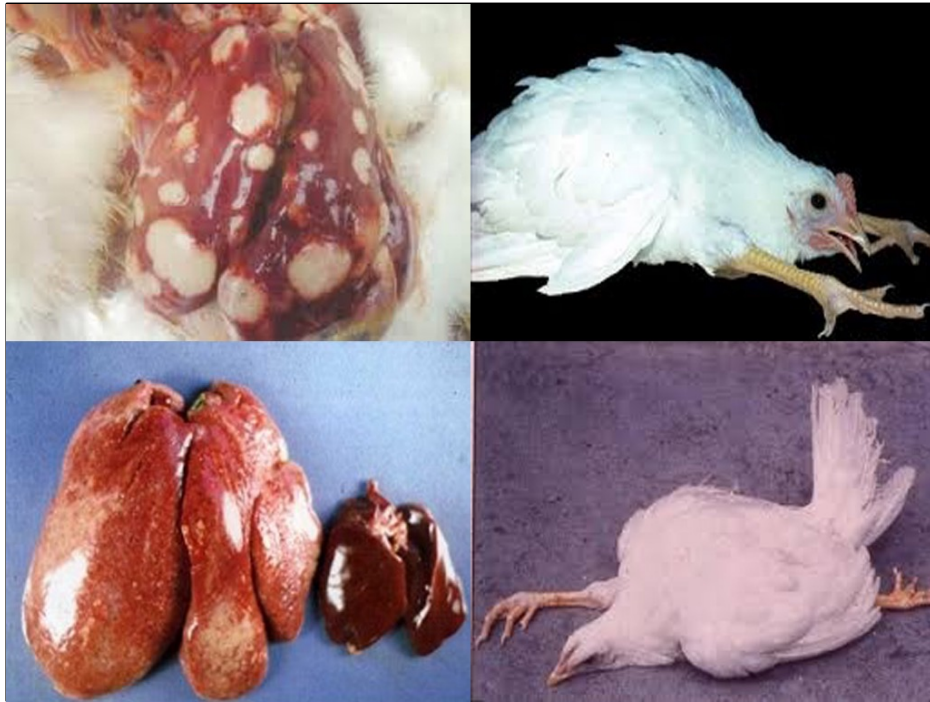
Marek's is really contagious. It's everywhere. One of the most common things unfortunately on the internet right now is should you vaccinate your birds for Marek's disease?

They have to be vaccinated at day of age. That's when they leave the hatchery. They don't vaccinate them on premise. And it's by subcutaneous injections. It's a tiny little injection in a tiny little bird at day one.

Yes, they should vaccinate for Marek's. Hands down, it's everywhere. And if they don't, then they will lose a certain percentage of their flock occasionally to Marek's disease. It's not going to be a huge outbreak. You'll lose a bird here and lose a bird there and lose another one two weeks later and maybe another months down the road.

There's several different forms. It can affect the nerves. Lots of times, you have a bird that is lost weight chronically over time. You've got one leg going north, one leg going south. And they eventually waste away, and there'll be other tumors on other organs. And you diagnose this really by necropsy. So it's really handy to utilize your state lab for doing the histopathology of the nerves to diagnose Marek's disease.

And it's extremely difficult to differentiate from leukosis.



So these diseases, these are actually both Marek's diseases cases that are on here. But leukosis, lots of times look more like the spotted liver, the enlarged liver, that's kind of modeled looking.

Let's have that example on the bottom left of a normal liver versus one with leukosis. But Marek's can look that same way. They're very difficult to differentiate.



That is where I'm going to end here. And there's my contact information again. So please feel free to utilize that.

If you don't have someone in your state diagnostic lab, you don't know them yet, get to know your poultry person. They're all very nice. I know most of them, and they're great people. And that's what they're there for is to help you guys and help owners and get diseases diagnosed and help give you some ideas on what to do. So feel free to call me or any of your diagnostic lab folks.

Thank you so much. That was wonderful. And I can vouch those poultry people are super helpful. We did have one request from Amber. Amber asked if you could go back to the dirty dozen slide real quick. She wanted to take another peek at that.

You bet.

Yeah, I actually did poultry medicine for about a year, right around the time the pandemic got started and had to get a lot of help. Because I hadn't paid attention in that school, when I was learning about poultry. And everybody was super helpful. And I definitely didn't realize you don't think about it if you're not in poultry that the commercial poultry veterinarians can't see backyard flock.

So that's the first thing I noticed when I started seeing commercial poultry was everybody was calling me. Can you check on these birds? Can you help me? And unfortunately, I couldn't because biosecurity. So you might have a ton of commercial poultry in your area, but no veterinarians you will see backyard poultry. So it's really heavily requested, at least in my area, that anybody who knows somebody who will see a bird is always getting referred something.

So definitely consider it. And looks like that's it for tonight. Don't have any other questions. Thank you so much for joining us again. I love this topic, and I hope we can do some more deep dives into some of the things that are too complicated to really address fully in one short hour, so.

There's a lot of deep dives there.

Yes, a lot of deep dives. So we'll definitely have to have you back for some extra topics. Thanks, everyone. Have a good night.

Thank you.

Bye.