

2010 Country Living Expo & Cattlemen's Winterschool

Presented by WSU Extension, WSU Livestock Master Foundation
and the Cattlemen's Association

Presentation:

Common Health Conditions in Poultry

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Brief Biography:

Dr. Crespo joined the faculty at Washington State University in July 2009. Previously she worked at UC Davis where she was part of the California Animal Health and Food Safety Laboratory System. She received her veterinary training at the Universidad Complutense, Madrid, Spain, with honors in animal production and economy, and spent two years in large animal practice. Then she moved to Canada, where she specialized in avian and poultry and attained a MS and DVSc at the University of Guelph, Canada.

Common Clinical Conditions of Poultry

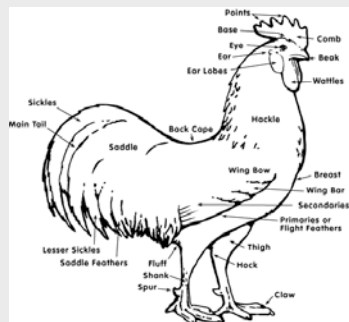
Dr. Rocio Crespo
AHFSL-WADDL



Outline

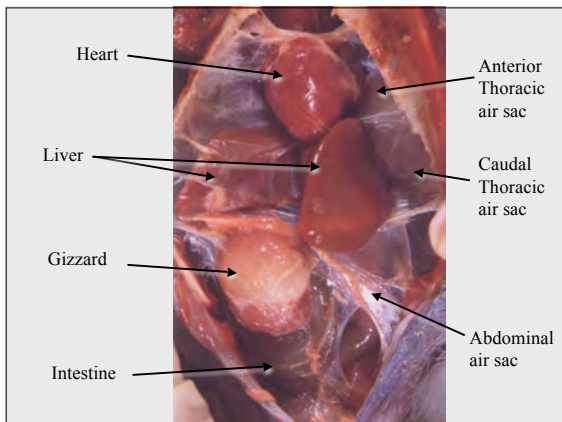
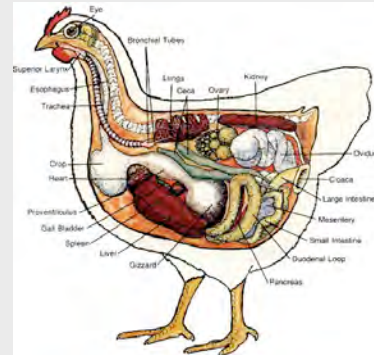
- Anatomy and physiology
- Handling and physical examination
- Common medical ailments
- Zoonotic diseases

The Outside of the Chicken



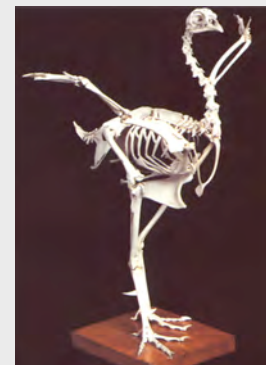
<http://4hembryology.psu.edu/c-biologyn.html>

The inside of the chicken

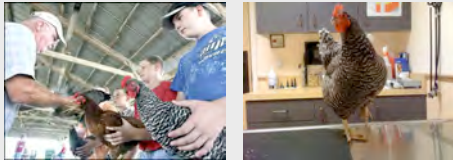


All for flight:

- Lightweight, rigid airframe
- Hollow bones
- High metabolic rate
- Feathers
- External embryonic development
- Highly efficient respiratory oxygen exchange system



Handling and physical examination



Character	Layer	Non-layer
Comb & wattles	Large, bright red, glossy	Small dull, shriveled
Head	Neat, refined	Beefy, weak
Eye	Bright, prominent	Dull, sunken
Eye ring	Bleached	Yellow tinted
Beak	Bleached	Yellow
Abdomen	Deep, soft, pliable	Shallow, tough, tight
Pubic bones	Flexible, wide apart	Stiff, close together
Vent	Large, moist, bleached	Small, dry, puckered, yellow

Early signs of illness

- Slight change eating habits
- Dull feathers and color changes in feathers
- Stained feathers around nares, vent, shoulders, or eyes
- Swelling, redness or feather loss around eyes
- Crusty material in the nostrils
- Favoring or lameness in limb

Signs of serious illness

- Fluffed and huddled posture
- Decreased appetite or thirst
- Abnormal, labored or noisy respiration
- Weight loss
- Discharge from eyes, nostrils or mouth
- Injury or swelling on body
- Bleeding
- Major change in personality or behavior



Prevention / Biosecurity

- A difficult subject for small farm
- Do not take visitors in the bird house
- Show from a distance
- Careful with SALMONELLA and other bacteria, mainly with small children
- Hand washing
- Different shoes
- Don't drag manure into HOUSE

Common medical ailments

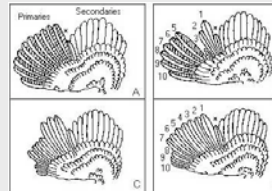


Feather loss

- Inadequate nutrition
- Feather pecking or pulling
- Molting
- Disease and stress
 - Parasites
 - Viruses
 - Bacteria
- Mating

Molting

Head > Neck > Breast >
Body > Wings > Tail

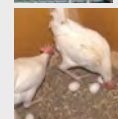


Feather pecking



Cannibalism

- Cloacal
- Other body parts
- Eggs



Controlling Feather Pecking and Cannibalism

- Encourage use of perches, nests, and outdoor range
- Provide litter/long straw indoors
- Feed mash diet vs pellets
- Beak trim when young
- Avoid cannibalistic strains
- Prevent learning of this behavior from others
 - Remove injured birds



External parasites

- Scaly leg: *Knemidokoptes* sp.





Mites and lice: treatment and prevention

- Directly on bird:
 - Dusts and wettable powders(individual birds), eg. Servin or carbaryl, pyrethrins
 - Liquid spray (multiple birds and litter, bedding and structures)
 - Oil-based products
 - Ivermectin
- Resin strips
- Prevention: Dusting box

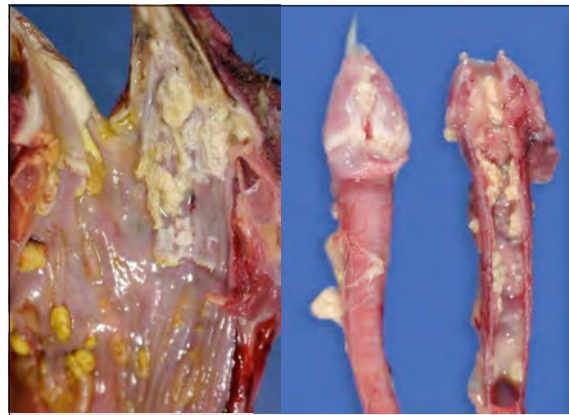


Trauma

- Predation injury
 - Varies with varmint
 - Hemorrhage
 - Missing birds
 - Feather piles
- Cannibalism



Fowl Pox

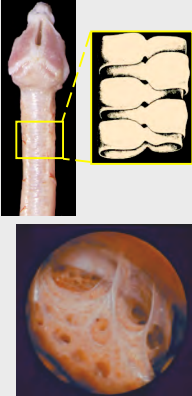


Avian Respiration

- The trachea has solid rings
- Lungs are rigid, fixed and non-expandable
- Lungs continually bathed in fresh, O₂ rich air via a 4-stroke respiratory pattern


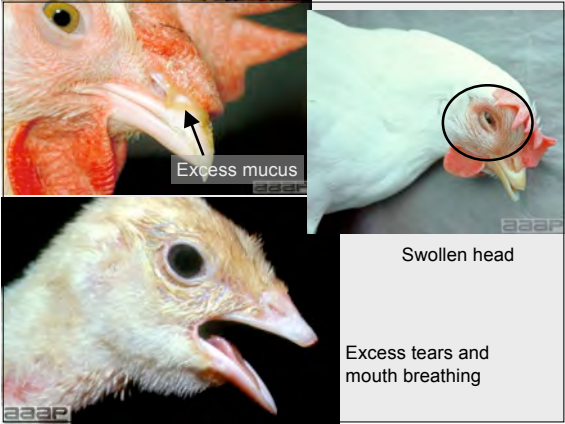
Air into the trachea → posterior air sacs
 → lungs → anterior air sacs → out

- No diaphragm



Respiratory conditions

- Management
 - Dust, ammonia, heat
 - Vaccine reaction
- Infectious
 - Virus: NDV, AI, infectious bronchitis (IB), infectious laryngotracheitis (ILT), wet pox
 - Bacteria: Mycoplasmosis (mainly MG), colisepticemia, coryza (chicken vs turkey), pasteurellosis
 - Fungal: Aspergillosis
 - Parasite: syngamus trachea, air sac mites
- Nutritional and toxic (direct or indirect)

Excess mucus

Swollen head


Excess tears and mouth breathing

Syngamus




Viral tracheitis

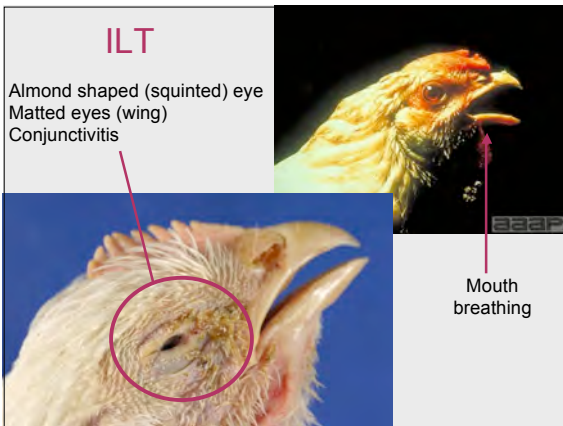
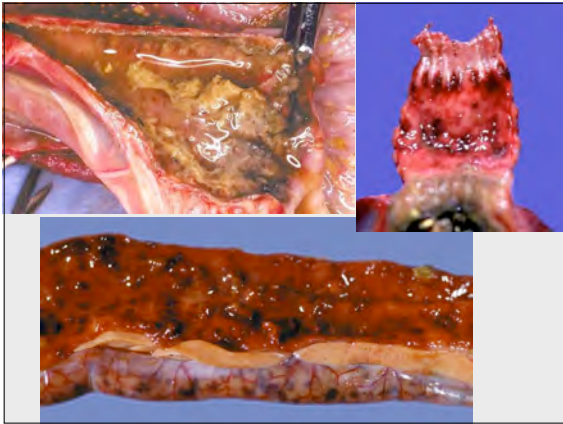
- Infectious bronchitis (IB)
- Newcastle disease
- Avian influenza



Exotic Newcastle




- High mortality
- Depression




Vaccination

- Marek's (1 day old)
- Infectious laryngotracheitis
 - TCO: eye drop
 - Vector vaccine: injectable
- Pox
- Others if needed (?)



Water vaccination

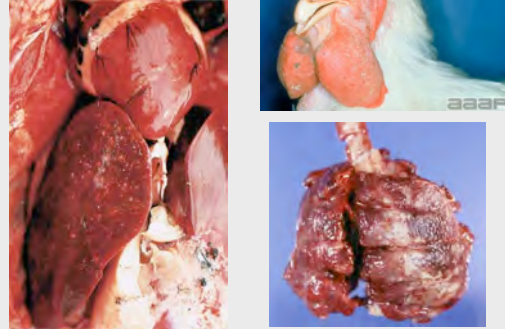


- Clean water
 - No sanitizer in water
 - Skimmed milk to neutralize chlorine
- Withhold water
 - 2-8 hours > 4 weeks of age
 - 30 min < 4 weeks of age
 - Lights turn down/off
- Vaccination coincide with feeding
- Complete vaccination 1-2 hours

Aspergillosis



Fowl Cholera (Pasteurellosis)

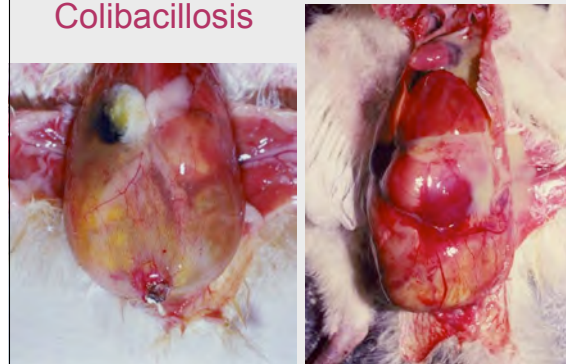


Septicemia

- Colibacillosis
- Mycoplasmosis (chronic respiratory disease)
- Other bacteria
 - Primary
 - Secondary

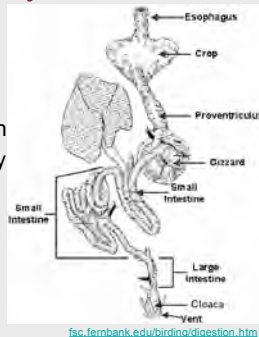


Colibacillosis



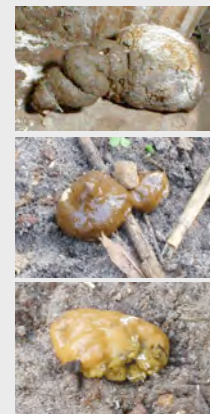
Digestive System

- Copious salivary secretions
- Crop for food storage
- Proventriculus ≈ stomach
- Great digestive efficiency
- Paired cecal pouches (helps break down cellulose)
 - cecal dropping ~ 1 in 10 voids



Enteric conditions

- Feed quality / type
- Infectious
 - Virus
 - Bacteria
 - Parasites
 - Fungi
- Toxic



Mycotoxiosis

- T2 mycotoxin (*Fusarium*)
 - Erosions in mouth
- Aflatoxin
 - Liver damage



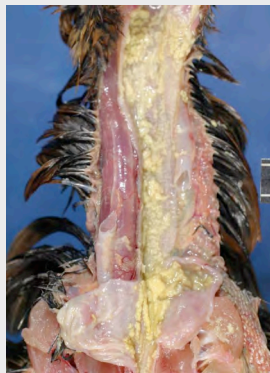
Crop mycosis

- *Candida* (yeast)
- Abuse of antibiotics
- Treatment: copper sulfate



Trichomoniasis

- Parasite
- Common in pigeons
 - Canker



Pullorum-Typhoid



- Caused by *Salmonella pullorum*
 - Disease of baby chicks
 - 7-10 days of age
- Symptoms:

– White diarrhea	– Lameness
– Pasted vent	– Difficulty breathing
– Huddle together	– Blindness
- *Nearly all chicks with P-T die*
 - *Chicks that survive, become adult "carriers"*

Pullorum-Typhoid

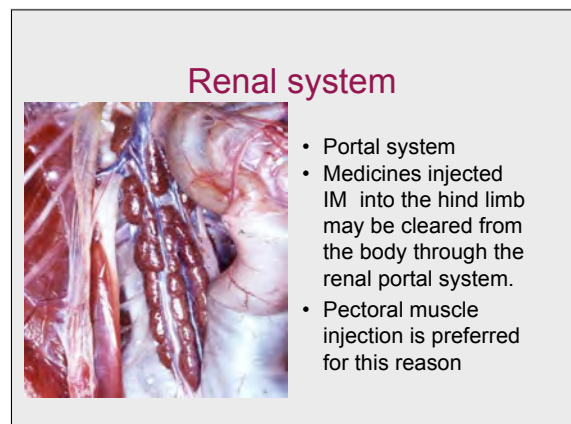
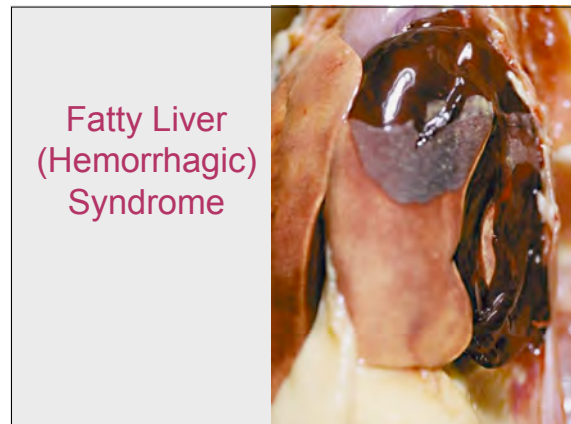
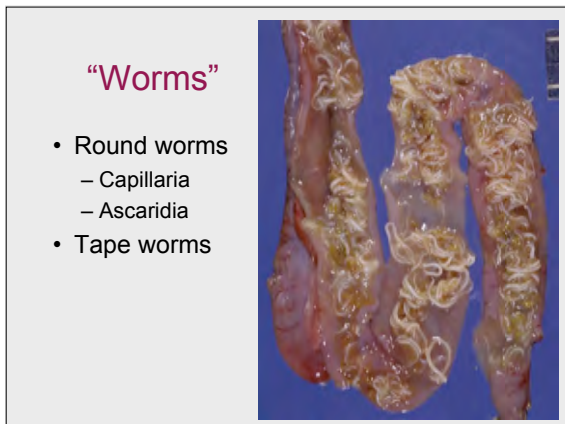
- Adult "carriers" will pass bacteria in the egg
- Sick baby chicks spread the bacteria to other chicks
- Baby chicks hatch and become sick days later



- Next thing you know, all of your chicks are infected.

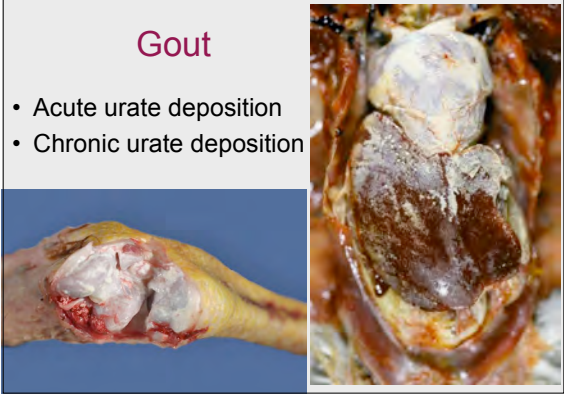
P-T History

- 1930's... ~70 years ago, Pullorum Disease killed a lot of poultry
 - Prevented farmers from raising poultry
- Poultry farmers developed a plan to eliminate Pullorum Disease in the U.S.
 - National Poultry Improvement Plan (NPIP)
- Created a test for carriers
 - ~20 years later the disease was eliminated in commercial flocks
- Today still exists but only isolated cases




Gout

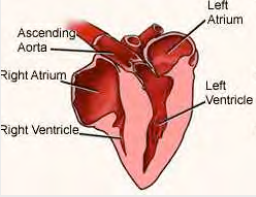
- Acute urate deposition
- Chronic urate deposition



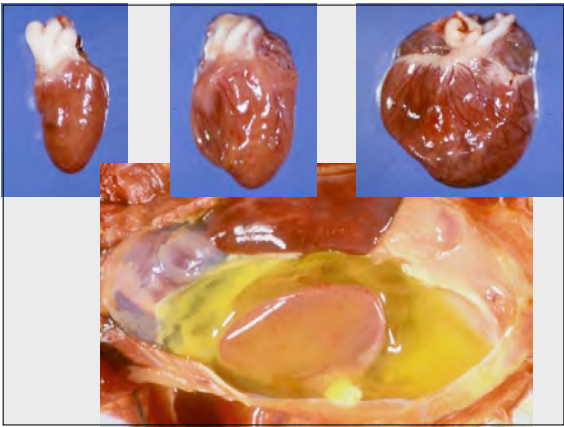
Avian Heart



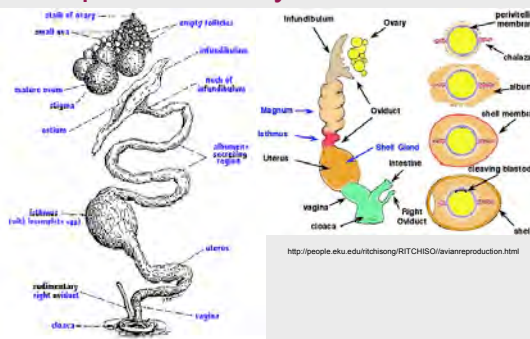
- 4 chambers
- Muscle “flap”



<http://people.eku.edu/~richisong/birdcirculatory.html>



Reproductive System: Female




<http://www.iacuc.arizona.edu/training/poultry/species.html>

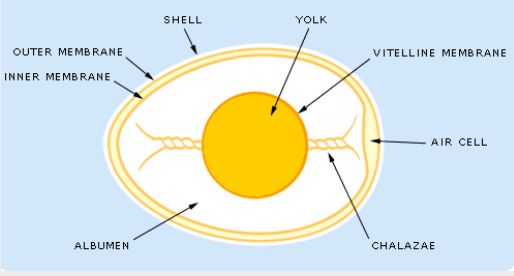
<http://people.eku.edu/~richisong/RITCHISO/avianreproduction.html>

Reproduction

- Clutch laying ensures all chicks hatch at the same time
- Sperm host glands
- Incubation starts when the hen begins “setting”
- Broodiness has been selected against in certain breeds



Anatomy of an Egg



<http://www.exploratorium.edu/cooking/eggs/eggcomposition.html>

Blood / Meat spots in eggs

- Hemorrhage during ovulation = blood spot
- Ovarian follicle tear = meat spot
- Candling of eggs

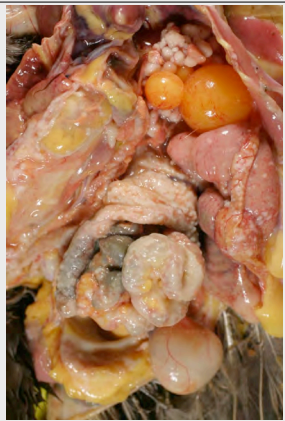


Soft & misshapen eggs

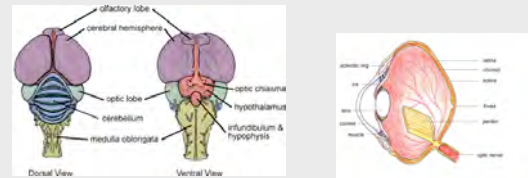
- Nutritional
- Infectious



- Neoplasia
 - Carcinomatosis
- Tuberculosis
- Septicemia
 - Salpingitis
 - *E. coli* (Hjarre's disease)



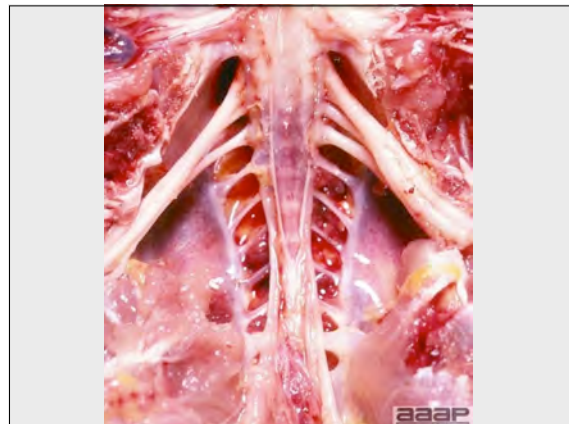
Nervous System and Special Senses

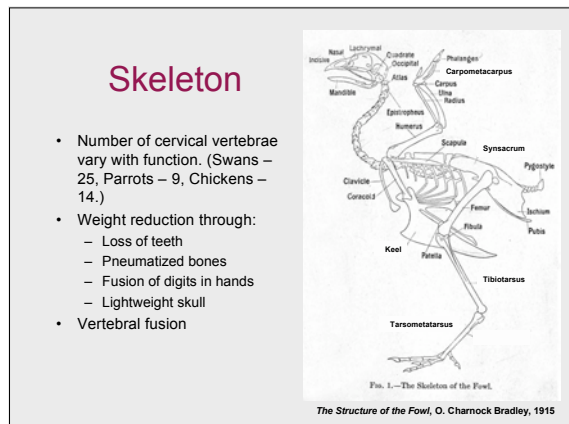
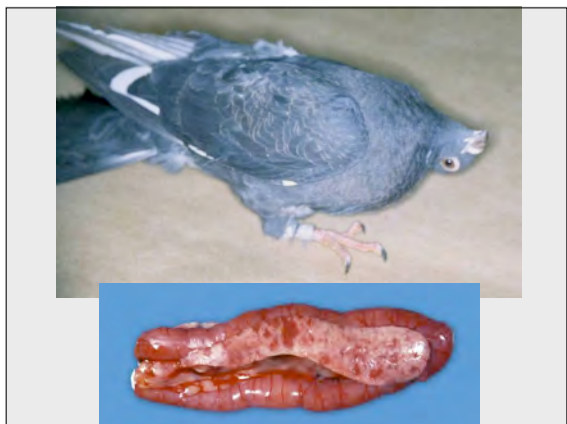
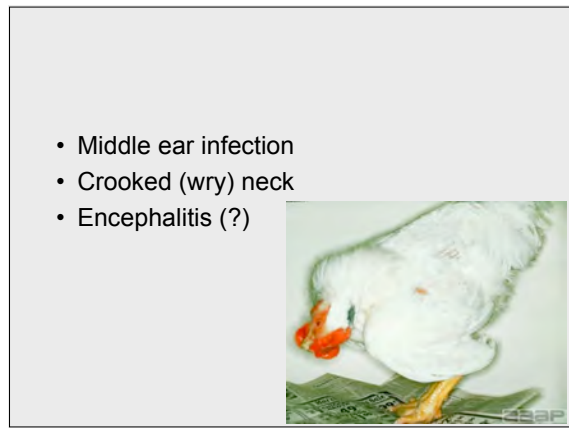


Source: <http://www.uconn.edu/ce/zooology/teyoho/210/ana/ectol3.htm>

[Jimfitak at en.wikipedia](#)

Neoplasia (LL, Marek's, etc)





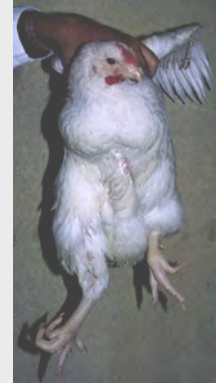
Bird Bones

- Hollow with diverticula
- Femoral medullary bone laid down as pullet
- Allows for flux of calcium for egg production
- Can become depleted

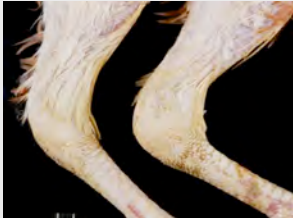


Leg deformities

- Valgus
- Varus
- Rotated tibia
- Tibial dyschondroplasia



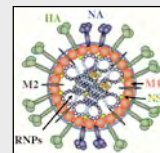
Synovitis / Osteomyelitis



Zoonotic concerns

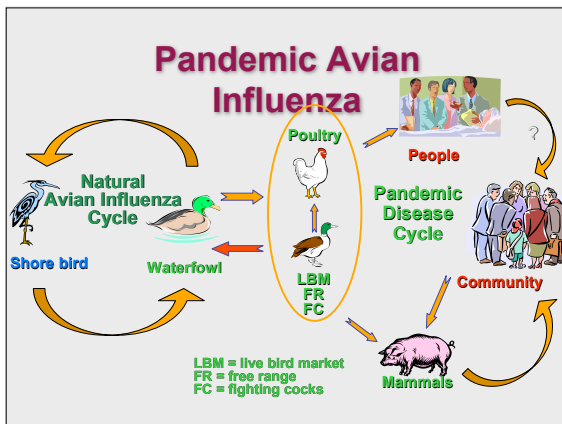
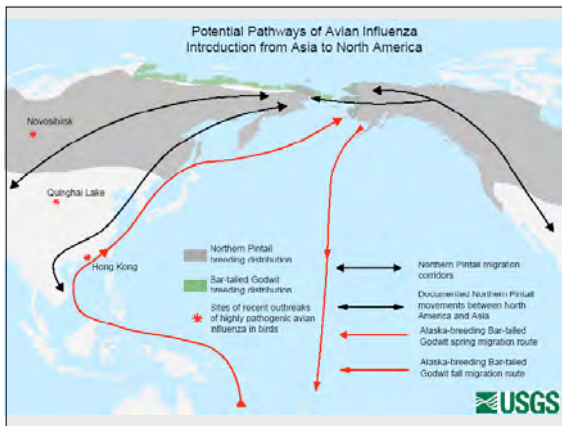
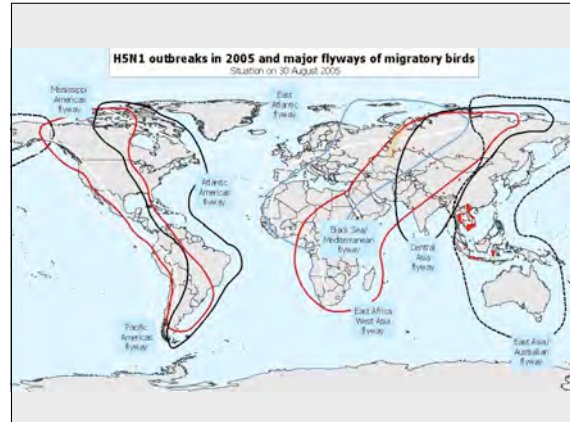
Avian Influenza

- The AI Virus
 - 16 different H's (hemagglutinin); H1 – H16
 - 9 different N's (neuraminidase); N1 – N9
 - Up to 144 combinations possible (e.g., Asian H5N1)
 - AI subtypes of concern – H5 or H7



Overview of Avian Influenza

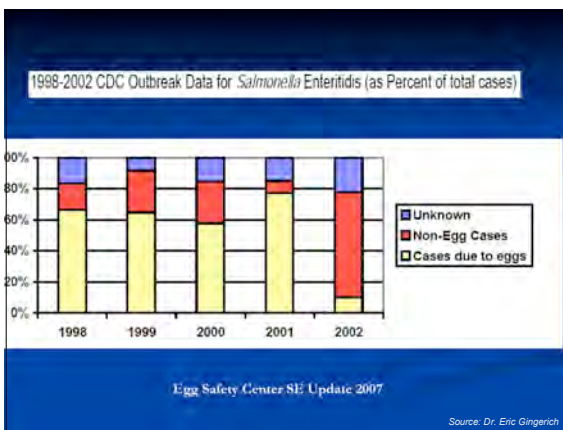
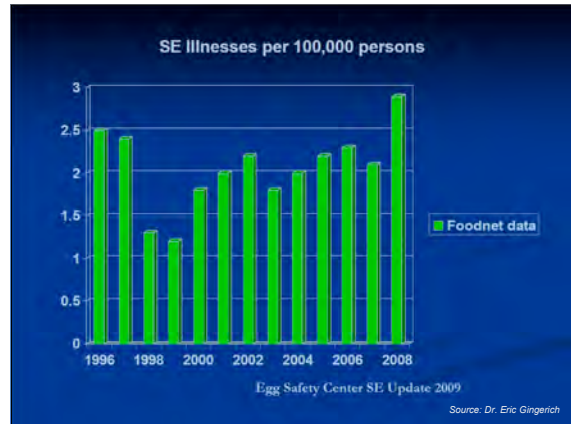
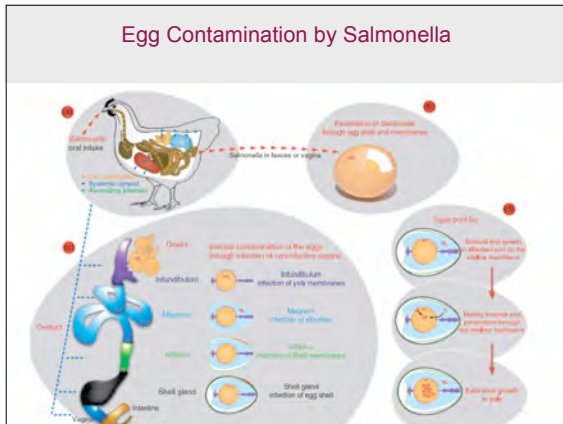
- **Low Path AI (LPAI)**
 - Common in wild waterfowl
 - Mild and low / no death rate
 - Many subtypes
 - Multiplies **only** in gut
 - H5 and H7 are a concern, can mutate to High Path in domestic birds
- **High Path AI (HPAI)**
 - Acute, systemic disease with high death rates
 - H5 or H7 subtypes
 - Multiplies throughout the body
- H5/H7 has **not** been found in domestic birds in Washington



Salmonellosis

- *Salmonella enterica* or Paratyphoid
 - SE (*S. enterica* subsp. *enterica* var. *enteritidis*)
- Rarely causes disease in older chickens
- Positive ~ 12%
 - Meat > egg





Campylobacteriosis

- Most common cause of diarrhea in humans in USA
 - Associated with eating raw or undercooked poultry meat or cross-contamination
- Chickens do not show clinical signs
 - Spreads in flock through water and feces
- 47% breast meat contaminated
 - Intestinal content contamination of meat

Chlamydiosis

- Reportable disease
- Uncommon in commercial poultry (turkeys, ducks, pigeons)
- Feral pigeons ~60%
- Clinical signs:
 - Nasal/eye discharge
 - Green or runny droppings
 - Depression/death

Erysipelas

- Birds
 - Acute septicemia
- Humans
 - Erysipeloid
 - Clinical signs
 - Cutaneous (localized or diffuse)
 - Systemic ⇒ Endocarditis



Dust allergies

- Respiratory disease in humans
- Mixed particles: feed, bedding, feathers, droppings, mites, and microorganisms
- Use protection:
 - Laying down bedding
 - During cleaning
 - Catching/moving poultry

The End

