California Animal Health and Food Safety Lab (CAHFS)
Common Backyard Poultry Diseases

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California Animal Health and Food Safety Laboratory
Turlock Branch

March 30, 2016
Objectives

• CAHFS mission, organization, branches, disciplines
• Most common diseases in backyard poultry flocks
• Submission samples to CAHFS
CAHFS Mission:

To provide the citizens of California with the highest quality diagnostic laboratory support for

- Surveillance & Disease Control
- Health Management
- Food Safety
- Public Health
- Dissemination of new knowledge
- Equine Health
Each of our four laboratories offer services to match the needs of the animal populations located within the immediate vicinity of that laboratory

<table>
<thead>
<tr>
<th>Service</th>
<th>Davis</th>
<th>Turlock</th>
<th>Tulare</th>
<th>San Bernardino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Path/Histol.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>E. Microscop.</td>
<td>X</td>
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<tr>
<td>Toxicology</td>
<td>X</td>
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<tr>
<td>Avian/Mamml. Virology</td>
<td>X</td>
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</tbody>
</table>
National Animal Health Laboratory Network (NAHLN)

- Early detection
- Rapid response
- Rapid recovery
Specimens Necessary for Diagnosis

- Animal(s); live, sick, dead
- Tissues (fresh, frozen, fixed)
- Swabs, blood, feces
- Feed, Water, Egg, Soil, etc.

DIAGNOSIS IS AS GOOD ONLY AS THE SPECIMENS SUBMITTED!
Test for Disease Diagnosis

- Clinical history
- Necropsy
- Serology
- Bacteriology
- Virology
- Histopathology
- Parasitology
- Toxicology
Test for Disease Diagnosis (cont.)

- Electron microscopy
- Hematology, blood chemistry, cytology
- Biotechnology
- Pathogenicity tests
Bacteriology
Bacteriology

Bacilli Gram Negative

Cocci Gram positive
Mycology

Aspergillus fumigatus
Serology

Plate agglutination test for *S. pullorum*
Serology

ELISA test
Serology – AGID Test
HISTOPATHOLOGY
CYTOLOGY
Immunofluorescence
Viral Isolation

Allantoic route of Inoculation

Method B (after Hawkes [2])
Virus isolation & characterization
6-12 days

Standard PCR
1-3 days

Realtime PCR
4 – 6 hours
Automated
Time/cost efficient
Electron Microscopy

Avian Influenza virus

100 nm
Frequencies and Percentages of Diagnoses by Etiological Types

- Viral, (27%)
- Bacterial, (21%)
- Parasitic, (15%)
- Management & Noninfect., (11%)
- Neoplastic, (10%)
- Metabolic, (7%)
- Mycotic, (4%)
- Nutritional, (2.3%)
- Toxic, (2%)

Total = 3893 Diagnoses
The most common viral diseases

1) Marek’s disease
2) Avian leukosis
3) Fowl pox
4) Infectious laryngotracheitis
5) Infectious bronchitis
Marek’s Disease
Lymphoid Leukosis - Osteopetrosis -
Fowl Pox
Fowl Pox
Infectious Laryngotraceitis
The most common bacterial diseases

1) *Escherichia coli* infection
2) *Mycoplasma gallisepticum* infection
3) *Mycoplasma synoviae* infection
4) *Pasteurella multocida* infection
5) *Staphylococcus aureus* infection
Panophtalmitis
Mycoplasmosis
Chronic fowl cholera

Wattles enlarged (cellulitis)

Otitis media
The most common parasitic diseases

1) Coccidiosis
2) Ascaridiasis (round worms)
3) Cestodiasis (tape worms)
4) Histomoniasis
5) Trichomoniasis
Scaly leg mite – chicken, *Knemidocoptes mutans*
The most common management and non-infectious diseases

1) Yolk peritonitis
2) Trauma
3) Visceral gout
4) Foreign body
5) Heart failure
Visceral urate deposits – kidney
Tophus, nephritis/nephrosis
The most common neoplastic diseases

1) Reproductive neoplasia
2) Adenocarcinoma
3) Metastasic neoplasia
4) Carcinoma
5) Gastrointestinal neoplasia
6) Peritoneal neoplasia
The most common metabolic diseases

1) Fatty hemorrhagic liver syndrome
2) Ascites
3) Amyloidosis
The most common mycotic diseases

1) Aspergillosis
2) Candidiasis
3) Dermatophytosis
Aspergillosis
Favus – *Microsporum gallinae*
The most common nutritional deficiency diseases

1) Rickets
2) Vitamin E
3) Vitamin A
4) Riboflavin
Rickets – pliable beak, chicks
Riboflavin deficiency – curled toes
The most common toxic diseases

1) Lead
2) Zinc
3) Silica
4) Anticoagulant
5) Sodium
Lead toxicity

Gizzard contents
Lead toxicity

Myocardia degeneration - duck
Amonia toxicity

Corneal erosion/ulceration
Submission Process

Available on the web:

http://cahfs.ucdavis.edu

or

Google - CAHFS
CAHFS Website

- Submission forms
- Submission form guidelines
- Packing guidelines
- Shipping and courier services
  - FedEx, UPS, Golden State, USPS, etc.
    - Overnight on ice
California Animal Health & Food Safety Laboratory System

CAHFS

The California Animal Health and Food Safety (CAHFS) Laboratory System is the backbone of California's warning system that helps to protect the health of California's livestock and poultry. CAHFS serves the people of California by safeguarding the public health with rapid
Submission Forms

Submission Forms

A completed specimen submission form must accompany samples submitted to CAHFS for testing. It is important to complete the form as thoroughly as possible. This form is comprehensive and asks for information that may not seem important but it is. Our goal at CAHFS has always been to provide the highest quality diagnostic laboratory support service to our clients. We appreciate your efforts to provide us with the information we need to accomplish this goal. The information below should help you properly complete the submission form. Materials submitted or isolates derived from those samples become the property of the California Animal Health & Food Safety Laboratory System (CAHFS), UC Davis.

Click on one of these form images for the printable Submission Form needed.
Standard flock submission form (used for BY flocks)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct #</td>
<td>Account number</td>
</tr>
<tr>
<td>By</td>
<td>Submission type</td>
</tr>
<tr>
<td>Case Coordinator</td>
<td>Case coordinator name</td>
</tr>
<tr>
<td>Case Type</td>
<td>Case type</td>
</tr>
<tr>
<td>Date Req'd</td>
<td>Date required</td>
</tr>
<tr>
<td>Section</td>
<td>Section</td>
</tr>
<tr>
<td>Bill to</td>
<td>Bill to party</td>
</tr>
<tr>
<td>Owner</td>
<td>Owner</td>
</tr>
<tr>
<td>Other</td>
<td>Other party</td>
</tr>
<tr>
<td>Carrier</td>
<td>Carrier</td>
</tr>
<tr>
<td>Reference #</td>
<td>Reference number</td>
</tr>
<tr>
<td>Date sampled(s) taken</td>
<td>Date sampled(s) taken</td>
</tr>
<tr>
<td>Date shipped</td>
<td>Date shipped</td>
</tr>
<tr>
<td>Cattle</td>
<td>Animal species</td>
</tr>
<tr>
<td>Turkey</td>
<td>Animal species</td>
</tr>
<tr>
<td>Movement Sample</td>
<td>Sample type</td>
</tr>
<tr>
<td>Respiration</td>
<td>Sample type</td>
</tr>
<tr>
<td>Date of movement</td>
<td>Date of movement</td>
</tr>
<tr>
<td>Location of Animals</td>
<td>Location of animals</td>
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<tr>
<td>Every</td>
<td>Location of every</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>Egg</td>
<td>Sample type</td>
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<tr>
<td>Hens</td>
<td>Sample type</td>
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<tr>
<td>Egg Office</td>
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<tr>
<td>flock</td>
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<tr>
<td>Related</td>
<td>Sample type</td>
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<td>History</td>
<td>Sample type</td>
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<tr>
<td>Clinical signs</td>
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<tr>
<td>Nutrition</td>
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<tr>
<td>Housing</td>
<td>Housing</td>
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<tr>
<td>Vaccination</td>
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<tr>
<td>Treatment</td>
<td>Treatment</td>
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<tr>
<td>Production level</td>
<td>Production level</td>
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<tr>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

**Observed or conditions suspected:**

**Animal SPECIES information (describe on next sheet):**

<table>
<thead>
<tr>
<th>Animal ID/Name</th>
<th>Breed</th>
<th>Sex</th>
<th>Age</th>
<th>City</th>
<th>Species Type</th>
<th>Test(s) Requested</th>
</tr>
</thead>
</table>

I understand that questions submitted are the property of UCDVM. Client information provided to UCDVM, and the results from services provided by UCDVM, will be treated as confidential information consistent with applicable legal standards, including, but not limited to, California Business and Professional Code section 5527 and Evidence Code section 804. Such non-public information will not be shared with third parties without written consent of the client, except when required by law, which includes requirements that may result in the release of regulatory agencies. University, its officers, employees, and agents shall not be responsible for any loss, expense (including attorney’s fees), damage, or liability of any kind resulting from or arising out of services provided hereunder unless caused by negligent or willful act or omission by University. Its officers, employees, agents.

**Signature of Submitter:**

**Date:**

[Signature]

**UCLDVM VETERINARY MEDICINE**

California Animal Health and Food Safety Laboratory System
Commercial poultry submission form

Owner's Name ____________________________
Address _______________________________________
City State Zip ____________________________
Phone __________________ Fax _________________
Email ___________________________________________

Submitter/Vet _________________________________
Address _______________________________________
City State Zip _______________________________
Phone __________________ Fax _________________
Email ___________________________________________

Ranch/Collection Site ___________________________
Reference/Shipping Order _______________________
Case Sample(s) Taken __________________________
Date Shipped _________________________________
Sample Carrier & Contact # _______________________

Bill To: □ Owner □ Submitter/Vet □ Other (list below)
Report To: □ Owner □ Submitter/Vet □ Other (list below)

Sample Number & Type of specimens being submitted:
Specific Test(s) requested:
- Specific Production Class
  - Turkey: Breed, Age (days/weeks), Sex, Flock ID
  - Chicken: House #, Animal location (county), # of birds in house, % mortality
- Other

Clinical signs, nutrition, housing, production level, etc. Use next page if more space is needed.

Disease(s) or condition(s) suspected.

Treatments/Medications (type & when given):

I understand that specimens submitted are the property of CAFS. These information provided to CAFS and the test results from samples submitted to CAFS, will be used as confidential information consistent with applicable legal standards, including, but not limited to, California Business and Professional Code sections 4137 and 4138, and federal regulations. A client's confidential information will be disclosed to third parties without written consent of the client, except when required by law, which includes requirements that test results be provided to regulatory agencies.

Signature of Submitter: __________________________
Date: __________________________

UC Davis Veterinary Medicine
California Animal Health and Food Safety Laboratory System
Shipping and Courier Services

Packaging Samples

Shipment of diagnostic materials is subject to government regulations. If you want to contact one of our labs with questions about proper packaging of samples, visit our Contact Us page for our laboratory phone numbers and email addresses and see our Packing Guidelines page for CAHFS recommendations for proper, safe packaging of specimens for submission.

Delivery Services
Packaging Samples

NO Freezing!

• **Styro-foam container / Box with ice packs** to keep the samples from spoiling

• **Submission Form.** It is best if you insert the Submission Form in a Zip-loc plastic bag to prevent it from getting wet
Thank you