A collaborative effort—an investigation of suspect canine brucellosis

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Brucellosis is a zoonotic disease caused by infection with *Brucella* bacteria. The species of *Brucella* that infect humans are *B. abortus*, *B. melitensis*, *B. suis*, and, rarely, *B. canis*.

Reservoirs can include cattle, swine, goats and sheep and less commonly in dogs.

Brucellosis is spread through direct contact (of mucosal surfaces and cuts and abrasions of the skin) with secretions of living or dead infected animals, including their tissues, blood, urine, vaginal discharges, aborted fetuses, and placentas. Most commonly, it can be spread through ingestion of raw milk and dairy products (e.g., unpasteurized cheese) from infected animals.

The incubation period for brucellosis is highly variable, ranging from five days to 5 months; illness most commonly occurs two to four weeks after exposure.
An Overview of *Brucella canis*

- Etiologic agent & reservoir
- Clinical symptoms
- Modes of transmission
- Incubation period
- Clinical manifestation
Canine Brucellosis

- Transmitted through dogs by mucosal contact with infected material
- Dogs can remain bacteremia for at least 5 years

Clinical manifestations:
- Lethargy
- Swollen lymph nodes
- Stillborn puppies
- Spontaneous abortion
- Swollen or shrunken testicles
- Vaginal discharge
- Difficulty walking
Reporting Requirements

- **Immediately reportable (suspect or confirmed) zoonotic disease in humans and/or canines**

![Reporting Requirements for Communicable Diseases in Domestic Companion Animals](image-url)

New Jersey Department of Health
ZOONOTIC DISEASE INCIDENT REPORT

| Name of Local Health Department | Disease Reporting Date
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Name of Certified Person</td>
<td>Telephone Number</td>
</tr>
<tr>
<td>Street Address</td>
<td>City</td>
</tr>
<tr>
<td>Zip Code</td>
<td>Email Address</td>
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</tbody>
</table>

**PERSON REPORTING**

<table>
<thead>
<tr>
<th>Name (First, Last)</th>
<th>Title ( if any)</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address</td>
<td>City</td>
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<tr>
<td>Zip Code</td>
<td>Email Address</td>
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**ANIMAL OWNER INFORMATION**

<table>
<thead>
<tr>
<th>Name of Owner (First, Last)</th>
<th>Telephone Number</th>
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<tbody>
<tr>
<td>Street Address</td>
<td>City</td>
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<td>Zip Code</td>
<td>Email Address</td>
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**ANIMAL FACILITY INFORMATION (if applicable)**

<table>
<thead>
<tr>
<th>Name of Animal Facility</th>
<th>Telephone Number</th>
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<td>Street Address</td>
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<tr>
<td>Zip Code</td>
<td>Email Address</td>
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**DISEASE REPORT DETAILS**

- **Anthrax** (Bacillus anthracis)
- **Brucellosis** (Brucella spp.)
- **Campylobacteriosis** (Campylobacter spp.)
- **Escherichia coli**
- **Salmonellosis** (Salmonella spp.)
- **Tularemia** (Franciscella tularensis)

- **Any outbreak or suspected outbreak**

![Report Form Image](image-url)
Phone call from veterinarian 1/11/17

Received zoonotic disease incident report via fax (also sent to NJDOH)

Local family bred their two pet boxers
- 2 y/o female and 7 y/o male – pregnant (November 2016)
- Female presented with vaginal discharge and neck pain (1/11/17)
- Spontaneous abortion of litter
- Rapid test + for B. canis
  - Confirmatory testing to be performed at Cornell University Diagnostic Laboratory

Vet recommended euthanasia for the female dog – female clinical presentation was “textbook” definition for B. canis
NJDOH Recommendations for LHD

Human Surveillance
- Identify exposed individuals in household
  - Exposed individuals should be advised to follow-up with HCP if symptomatic and for further medical recommendations
- Contact HCP to discuss identified exposures and explain clinical recommendations and testing recommendations for Brucellosis.
  - Provider to report test results to LHD
- Advise household contacts of dog to use contact precautions (i.e. gloves) to prevent transmission

Canine Surveillance
- NJDOH supported veterinarian's recommendation for euthanasia of female dog based on clinical assessment and preliminary test result–owner declined
- Female and male dog were neutered to prevent transmission and were treated with antibiotics
- LHD recommended testing male dog and repeat testing on female if confirmatory test result was positive
- Dogs to be quarantined on premises indefinitely if positive.
WCHD Response

- Options for pet owner
  - Euthanasia for both dogs
  - Further testing
  - Treatment (including spay/neuter) and isolation
- Visited home
  - Evaluated exposure during time when dog was aborting
  - Confirmed that both dogs were being treated with antibiotics
  - Made control precaution; cleaning and disinfection recommendations
  - Reinforced education regarding future exposure and handling of dogs
- Spoke with PCP
  - Add Brucellosis to differential diagnosis possibilities moving forward
## Canine Lab results - Female

<table>
<thead>
<tr>
<th>Organism/Agent</th>
<th>Lab Result</th>
<th>Type of Test Performed</th>
<th>Specimen Type</th>
<th>Date Obtained</th>
<th>Result Date</th>
<th>Test Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brucella canis</td>
<td>Positive</td>
<td>RSAT</td>
<td>Serum</td>
<td>1/11/17</td>
<td>1/11/17</td>
<td>Veterinary Service location</td>
</tr>
<tr>
<td>B. canis</td>
<td>Positive</td>
<td>2ME-TAT</td>
<td>Serum</td>
<td>1/11/17</td>
<td>1/11/17</td>
<td>Veterinary Service location</td>
</tr>
<tr>
<td>B. canis</td>
<td>Negative</td>
<td>RSAT; AGID</td>
<td>Serum</td>
<td>1/11/17</td>
<td>1/26/17</td>
<td>Cornell University Diagnostic Laboratory</td>
</tr>
<tr>
<td>B. canis</td>
<td>Negative</td>
<td>Culture</td>
<td>Uterus</td>
<td>1/11/17</td>
<td>1/26/17</td>
<td>Cornell University Diagnostic Laboratory</td>
</tr>
</tbody>
</table>
Conclusion

- Bacterial culture came back negative – no further surveillance or precautions needed
- Due to no identified human cases- no input into CDRSS required
- Owner had elected treatment and isolation of dogs
  - Given OK to resume “normal” life with dogs
  - Called family PCP to inform of negative test result for dogs
Resources

- NJDOH Communicable Disease Chapter
- Zoonotic Disease Incident Report Form
- Canine Brucellosis: *Brucella Canis* (College of Veterinary Medicine, Iowa State University, 2012): [http://www.cfsph.iastate.edu/Factsheets/pdfs/brucellosis_canis.pdf](http://www.cfsph.iastate.edu/Factsheets/pdfs/brucellosis_canis.pdf)
- Canine Brucellosis: Questions and Answers for Dog Owners (Wisconsin Department of Health Services, Division of Public Health, 2014): [https://www.dhs.wisconsin.gov/publications/p0/p00614.pdf](https://www.dhs.wisconsin.gov/publications/p0/p00614.pdf)
Acknowledgments

NJDOH- Zoonotic Disease Team

➤ State Public Health Veterinarian: Colin Campbell, DVM, CPM
➤ Epidemiologist: Kristin Garafalo, MPH, CHES

Warren County Health Department

➤ Mary Guglielmo, BSN, RN- Public Health Nurse Supervisor
➤ Marilyn Gubics, RN- Public Health Nurse
Questions?