

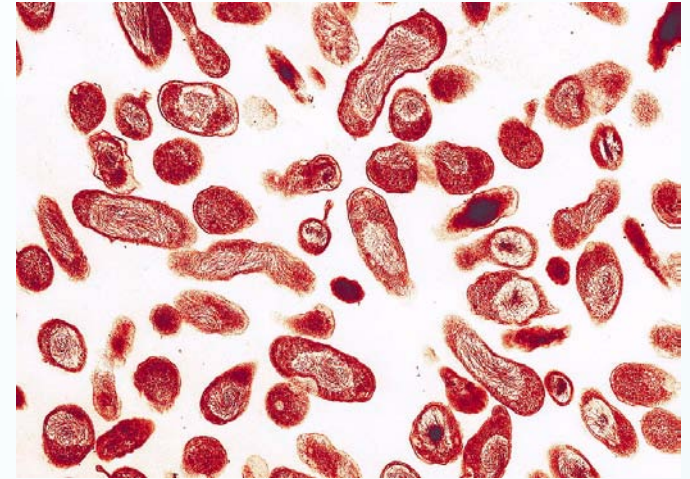
Q Fever



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Coxiella burnetii

- Bacterium related to Legionella, Francisella
- Small cell vs. large cell variants
- Phase I vs. Phase II (LPS)



Host Range

- Humans
- Domestic ruminants
- Cats and dogs
- Other
 - Rodents
 - Birds
 - Pinnipeds
 - Ticks

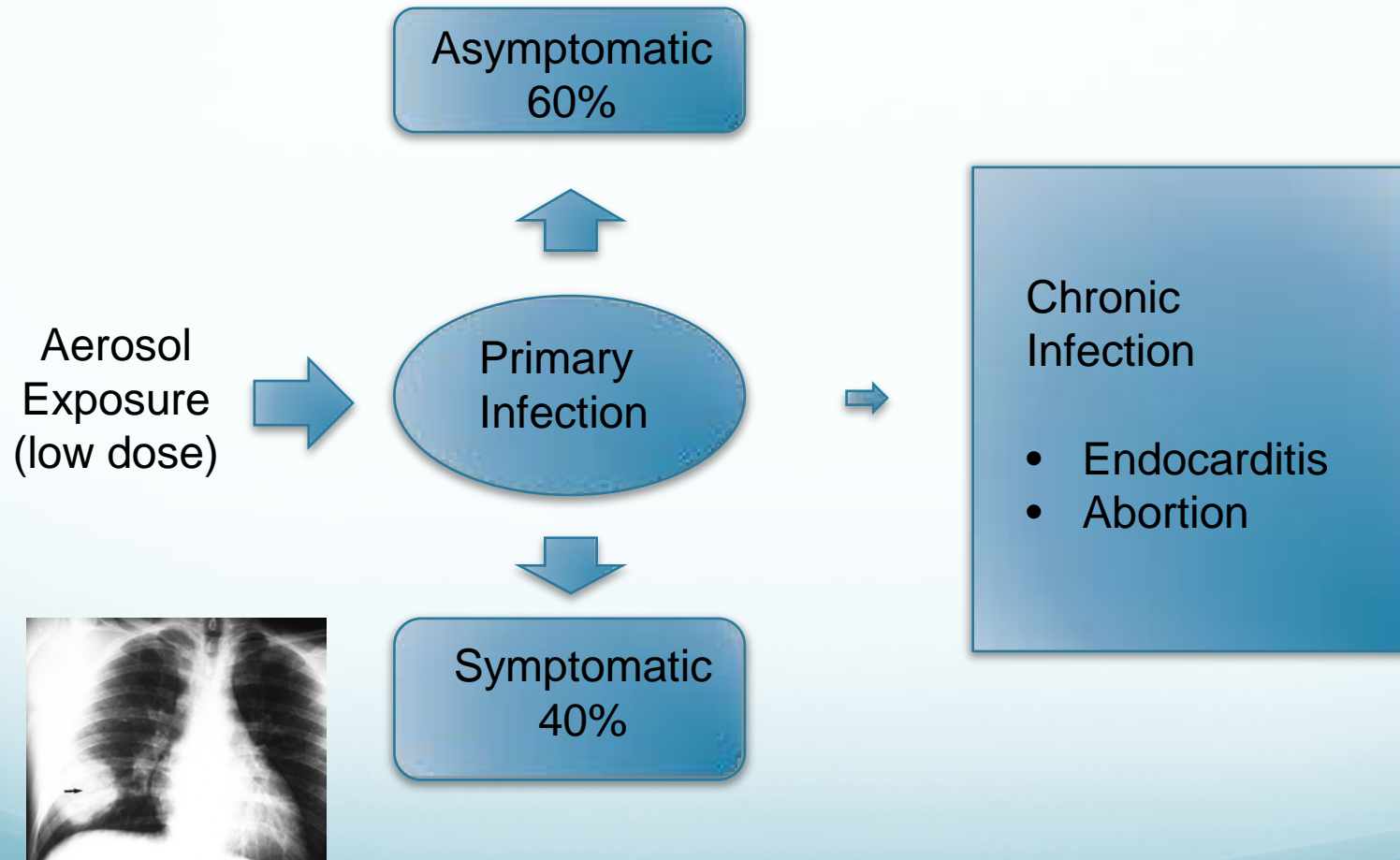


Animal Infections

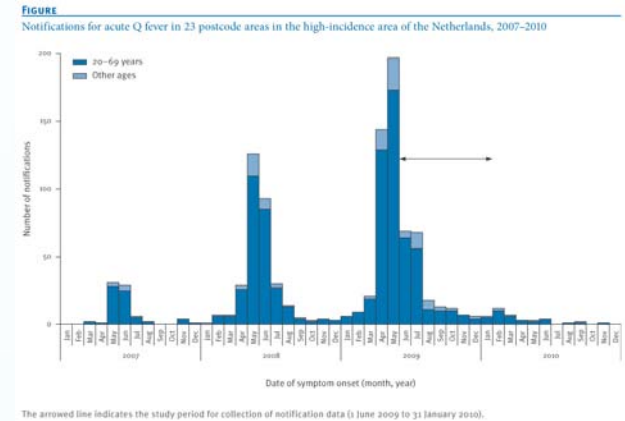
- Largely/entirely asymptomatic
- Large quantities of organism in placenta and fetal fluids
- Shed in feces, repro secretions and milk
- Chronic persistent infections occur, but frequency and importance?



Human Disease



Just How Serious of a Threat is Q fever?



Coxiella serology

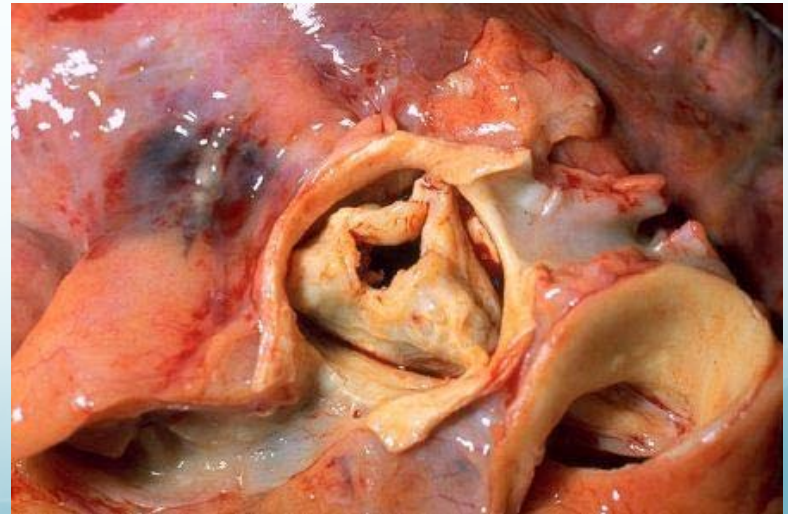
- IFA, ELISA, CF
- Perception: Huge problem with repeatability among labs
- Another problem: Interpretation of serologic testing relative to current state of infection in animals

Safety Precautions for Laboratory and Animal Studies with *C. burnetii*

- Personnel Discrimination
- PPE
- Vaccines
- Disinfectants

Personnel Discrimination

- Risk factors for serious disease
 - Valvular heart disease
 - Pregnancy
 - Immunosuppression



PPE

- Vast majority of infections due to inhalational exposures and low infectious dose – PAPR clearly indicated
- Other standard BSL-3 precautions

Vaccines

- Live attenuated (long term persistence?)
- Extracts (chloroform/methanol, TCA)
- Formalin-inactivated (Q-Vax)
- Challenge: Efficacy vs reactogenicity

Should laboratory personnel be vaccinated?

Alternatives to vaccination based on risk

Disinfectants

- 70% ethanol
- 5% hydrogen peroxide
- 10% bleach
- 5% Microchem Plus
- 5% formaldehyde
- 5% chloroform

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Research Needs

- Better understanding of natural disease
- Need to characterize dynamics of serologic responses in natural hosts re interpretation of diagnostics
- Efficacious by non-reactogenic vaccines for both animals and humans

Thanks – Questions?

