

# Q Fever and Coxiellosis in Colorado 2018

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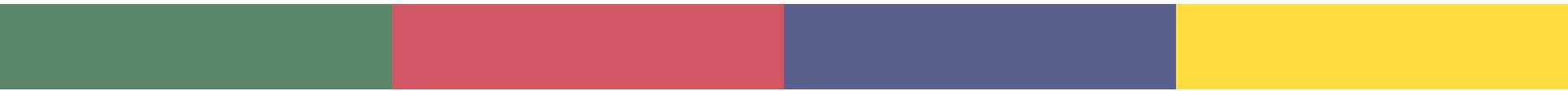


# *Coxiella burnetii*

- Obligate intracellular bacterium that causes Coxiellosis (in animals) and Q Fever (in people)
- Q Fever was first described in 1935 in slaughterhouse workers in Brisbane, Queensland. Called “Query Fever”
- Pathogen was isolated from 1935 patient in 1937 (Frank Burnet) and isolated from ticks in Montana in 1938 (HR Cox)
- Very stable in the environment; resistant to disinfectants, UV light, heat, cold, and desiccation



# Coxiellosis



# *Coxiellosis*

- Reservoir Hosts
  - Domestic species: sheep, cattle, goats, dogs, cats
  - Ticks, birds, reptiles, wildlife
- Sheep, cattle, goats
  - May be asymptomatic
  - Adverse Pregnancy Events
    - Abortion storms, stillbirths
    - Retained placenta, weak newborns
- Shed in birth products, milk, urine, and feces
  - $10^9$  bacteria per gram of placenta



# *Coxiellosis*

- Diagnosis
  - PCR - tissue, placenta, amnion, vaginal swab, and milk
  - Serology - of limited value
- Reportable disease
  - CDA and CDPHE
  - OIE reportable diseases list
- Treatment
  - Controversial
  - No vaccination

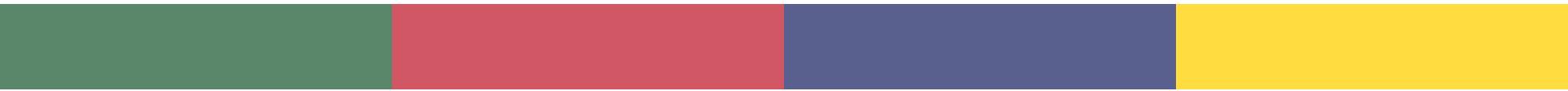


# *Coxiellosis*

- Shedding:
  - Vary with season
  - Peri-parturient period
- Management of birthing areas:
  - Limit aerosolization
  - PPE to prevent human disease
  - Birth product handling and disposal



# Q Fever



# Q Fever

- Consider risk factors when working with goats, sheep and cattle.
  - Immunocompromised? Naive?
  - Time of year of the contact vs. shedding in the animals
- Wind can disseminate spore form for miles downwind when it is dry
- Human cases exist where only exposure was “walking by a pasture”
- Occupational risks, more cases reported in:
  - Veterinarians, Farmers/Ranchers, Slaughterhouse workers

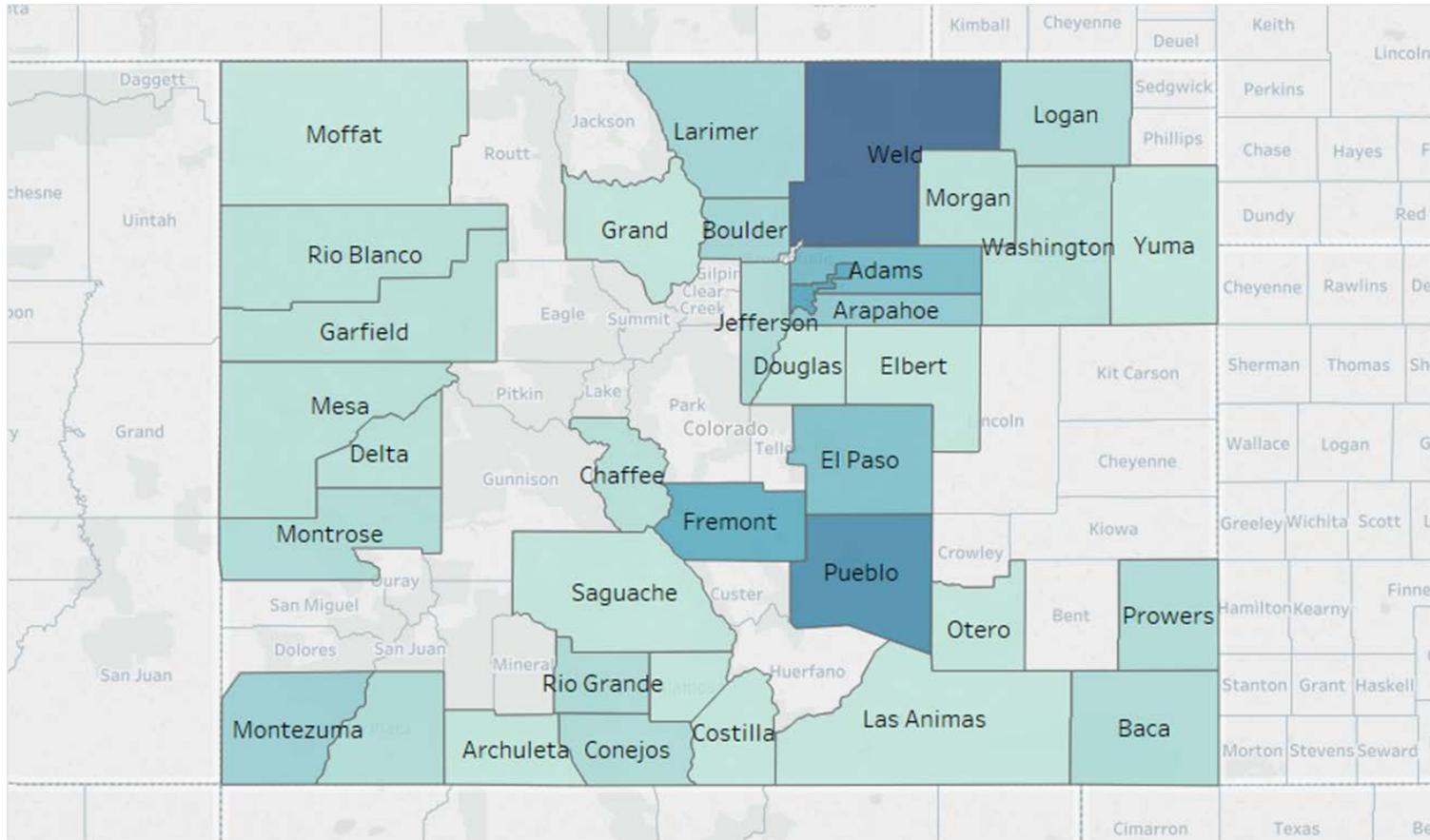


# *Q Fever Cases in Colorado*

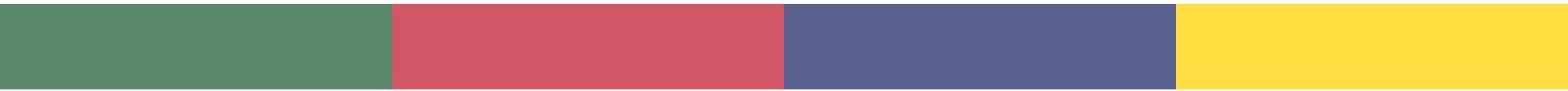
- 5 year average (2012-2016)
  - 5 acute, 1 chronic
- 2017
  - 6 acute, 0 chronic
  - 4 had contact w/ birthing sheep/goats
  - 1 slaughterhouse worker
  - 1 contact with raw cow milk
- 2018
  - 8 acute, 0 chronic
  - 2 veterinarians



# 1996 - Present



# 2018 Cases



# Case 1 - Goat Dairy

- Abortion storm in goat herd
- Mixed species farm:
  - Goats, cattle, sheep and yak
- Milking animals are all milked by hand in the same parlor
- *Raw milk shares - 4 counties*
- Cheese production





# Case 1 - Diagnostics

- Goat abortions
  - First two - not tested for *C. burnetii* (not on panel)
  - Third - tested positive for *C. burnetii*
- Yak abortion
  - Confirmed *C. burnetii*
- Bulk milk tank and individual milk samples
  - PCR positive
- Environmental samples
  - PCR positive



# *Herd Management Plan*

- Coordinated with state and local public health
- Best Management Practices
- Biosecurity
- Animal Inventory, Records
- Animal Movements
- Reporting Requirements
- Surveillance and Testing
- Education



# Case 2 - Hobby Farm

- Human case reported from CDPHE
- USDA VMO site-visit
- Purchased animals from livestock auction
- Two “orphan lambs” die, and shortly after had a nanny abort twins
- Also consumed raw milk





# *Case 3 - Meat Goat Herd*

- 80% rate of abortions in older goats
  - After new open does were bred and kidded
- Producer waited until does had cleaned before meat sales
- Limited risk of exposure to general public





# Case 4 - Show Goat Herd

- Embryo transfer recipient herd
  - Four abortions
- Routinely administers oxytet during gestation
- Show animals
  - 4H kids work and assist in barn
- Herd Management Plan



# Case 5 - Backyard Goats

- Small ranchette
- Bought goats on FB
- First doe kidded
  - weak, poor doer kid
- Family reported undx illness shortly after
- Second doe - C-section
  - stillborn triplets (dx here)
- Milked goats for soap production





# *Case 6 - Exhibition*

- Human case reported from CDPHE
- Exhibition (4H) family
  - buys show animals
  - does not raise/breed them
- Ewe was supposed to lamb; never did
  - no observed abortion
- Visit to breeder
  - adjacent commercial flock had “been experiencing a lot of abortions”



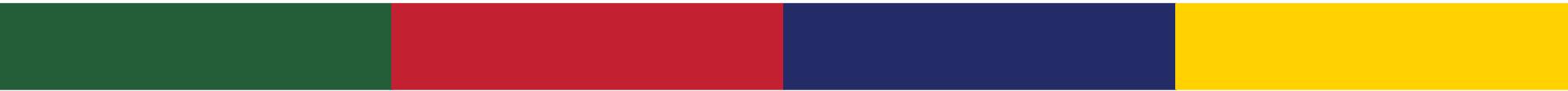


# *Case 7 - Commercial Dairy*

- Human case reported from CDPHE
- Two workers ill in previous months
- Animals that had positive serology were part of trace back from Case 2
  - Dairy had sold culls through the livestock market
- Site investigation was done for best practices and potential animal testing plan



# Questions?



# Thank you.

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