



distributed globally

Queensland



fever (coxiella)

origin of disease



Zoonotic
(many species of animals)

Coxiella burnetii

X rickettsiae
Coxiella
resists drying
No arthropod
No fresh
obligate intracellular
gram -ve

highly infectious
(1 organism → disease)
Hardy organism

Primary reservoirs

Sheep

Cattle

goats

Bacteria is excreted from

urine / faeces

milk

Placenta + body fluids

Survival in environment:

- Resistant to heat, drying, disinfectants

- Spores are formed in air

- Air samples live → 2 weeks / Soil samples → 150 days

Transmission:

inhalation of aerosols

Most common route → ingestion of contaminated milk / food

- Contact of products of infected animals
milk
urine / faeces
Vaginal Products

- ↓ from man → man, IP 9-40 days

People at risk:

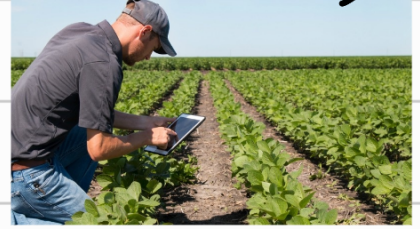
farmers / animal breeders



Veterinarians



researchers



Slaughterhouse workers
(abattoir)

+ immuno-
compromised

Host interaction

Entry via inhalation

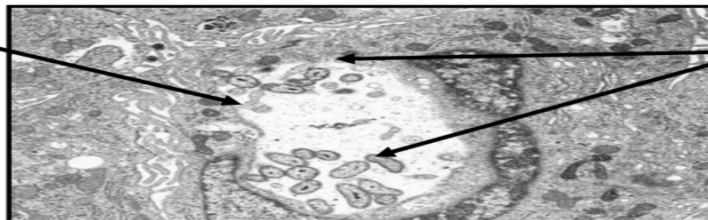
Alveolar macrophages encounter bacteria

C. burnetii phagocytosed and parasitized the spleen and liver

○ Replication within phagolysosome

○ Low pH needed for metabolism, cellular lyses occurs

Macrophage



C. burnetii

Acute Q fever

50%
1/2 of infected → No symptoms (asymptomatic)

Self limiting, flu like disease

abdominal

fever, headache, nausea, vomiting, chest pain

Interstitial pneumonitis

Granulomatous hepatitis

Chronic Q fever > 6 months

at risk → Pregnant women
→ immunocompromised
→ Pre existing valve diseases

endocarditis → (< 1% of Q fever cases)

develops after 1 to several years after infection

meningoencephalitis

asymptomatic in most cases

Hard to diagnose

looks like other diseases (flu, cold)

-ve Weil felix test

PCR, elisa, liver biopsy (fibrin ring granuloma)

* Best method → Serology Q fever is obligate intracellular → doesn't reproduce outside the cell
↓
difficult to be studied outside the host

* listed as a bioterrorism agent by CDC

* can be isolated in cell cultures
embryonated eggs

* very infectious

* Bio Safety level 3 facility BSL-3