

Q Fever in OIF-Deployed Soldiers: An Emerging Disease of Military Importance

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Background

- *Coxiella burnetti*
- Zoonosis; primary reservoirs are cattle, sheep, and goats
- Resistant to heat, drying, most disinfectants
- High infectivity (1-5 organisms)



Background

- Human transmission via dust or aerosols from infected animals
 - High organism numbers in amniotic fluid and placenta
- ~ 50% of infected humans are symptomatic
 - Flu-like syndrome, pneumonia and hepatitis
- Chronic Q fever manifests as endocarditis



Background

- Serologic diagnosis based on antigenic difference
- Doxycycline treatment of choice for acute Q fever
- Prevention efforts typically directed at high risk groups (vets, farmers)
- Vaccine in use in Australia



Military Importance

- Category B classification by CDC
- Incapacitating agent
- Multiple natural outbreaks reported among military personnel





.....in many other regions in Africa and the Middle East, Q fever is so highly endemic in domestic animals that practically all rural residents become infected during childhood. A sequel is that local adults are immune and overt infection is only in newcomers.

--E.H.Derrick(1973) Med. J. Aust.



Military Importance



Severe Pneumonitis EPICON

- 19 US military personnel from 1 March – 20 August in SW Asia developed pneumonitis with 2 deaths

CNN.com/HEALTH

Army hunts cause of pneumonia in troops

ARNEWS
ARMY NEWS SERVICE

Army Continues to Review Pneumonia Cases



BBC NEWS WORLD EDITION

BBC NEWS / MIDDLE EAST

Saturday, 2 August, 2003, 07:01 GMT 08:01 UK

Iraq pneumonia deaths investigated

The US army has sent a team of experts to Iraq to investigate a pneumonia outbreak among its troops, which has so far left two dead.



Severe Pneumonitis EPICON

- Laboratory results of 19 cases tested for Q fever:

3 Soldiers seropositive by IFA

CASE	P2 IgM	P1 IgM	P2 IgG	P1 IgG
1	Neg	1:64	1:1024	1:512
2	Neg	1:512	1:128	Neg
3	1:512	1:512	>1:1024	>1:1024



Followup Q Fever Serosurvey

- Serosurvey of 22 Soldiers diagnosed with non-severe pneumonia while deployed
- Pre-deployment and post-deployment stored sera used to determine seroconversion
- 5/22 Soldiers seroconverted to Q fever while deployed



Serosurvey Results

CASE	P2 IgM	P1 IgM	P2 IgG	P1 IgG
4	1:256	>1:1024	1:256	Neg
5	>1:1024	>1:1024	1:512	Neg
6	1:512	1:256	1:512	Neg
7	1:64	1:32	1:64	Neg
8	>1:1024	1:512	>1:1024	1:128

Pre-deployment antibody titers negative

■ **8/41 (19%) Soldiers with pneumonia tested for Q fever were seropositive**



- Cases 1, 2, and 3 became ill while in northern Iraq

 - Qayyarah, Taji, Mosul

- All 3 cases reported contact with animals (dogs, cats, sheep, goats, camels)

- 2 cases reported tick bites

- 1 case reported drinking raw milk



- 5 remaining cases also sought medical care while in northern Iraq

- 2 in Baghdad

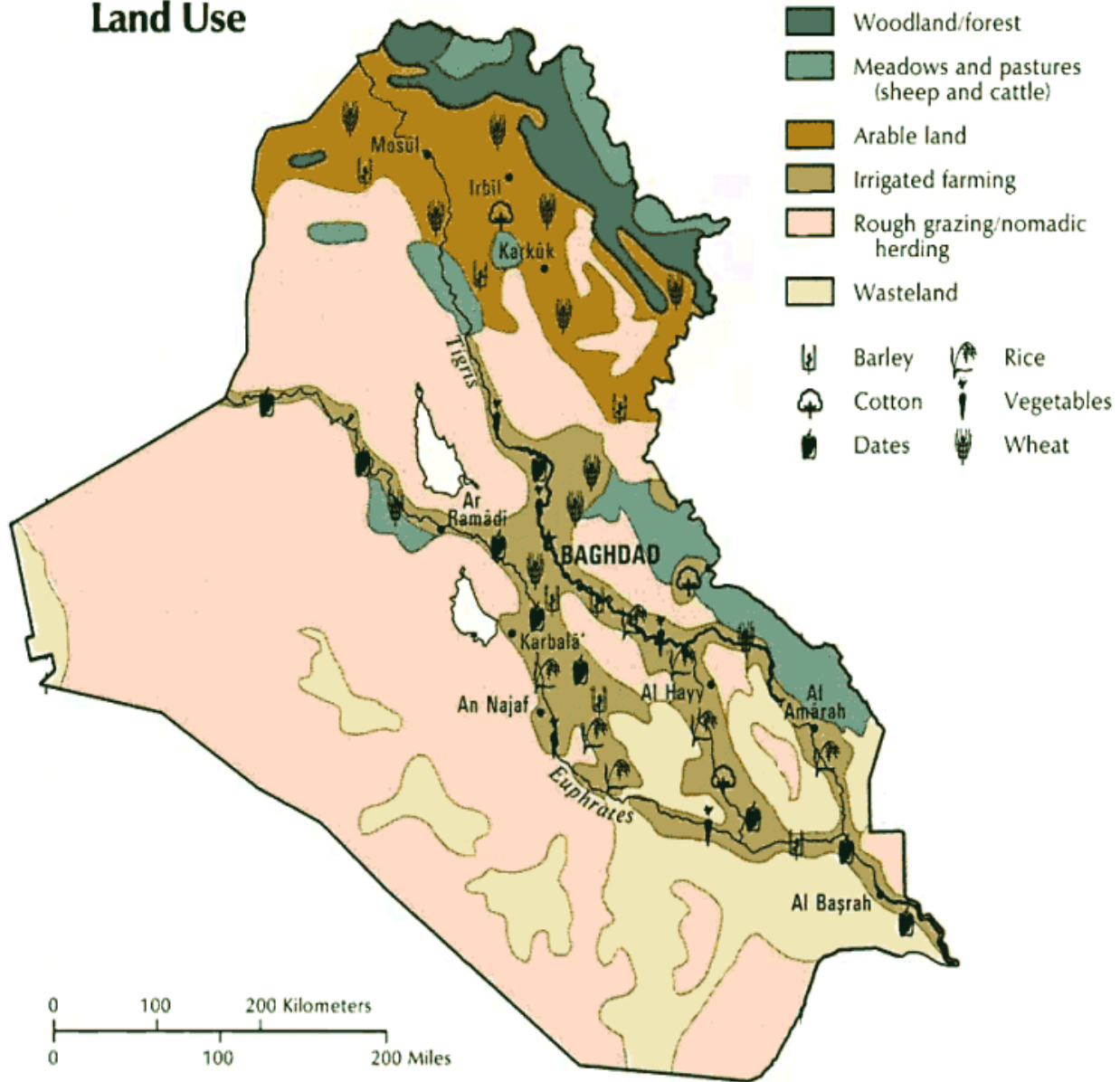
- 2 in Mosul

- 1 in Balad

- Exposures?



Land Use



Future Studies

- Case ascertainment based on clinical symptoms of infection
 - FUO, fever w/ cough and/or headache, pneumonia, hepatitis, neurological disease
- Serosurvey of units with cases using stored pre- and post-deployment sera



- Case- control study

- Assess risk factors for illness

- Develop guidelines for control measures to prevent infection in deployed U.S. troops

- Clinical assessment of cases to evaluate occurrence of chronic fatigue syndrome and long term health effects



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 - MAJ Andy Shorr
 - MAJ Warner Carr
 - COL Dennis Shanks
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 - Dr Stephanie Scoville
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