Q fever in the School Environment

Q fever is a bacterial infection (*Coxiella burnetii)* acquired most commonly from cattle, sheep and goats. Other animals such as camelids (alpacas, llamas and camels), native wildlife (e.g. bandicoots, wallabies and kangaroos which may inhabit livestock paddocks), dogs and cats may also be infected.

Q fever and animals

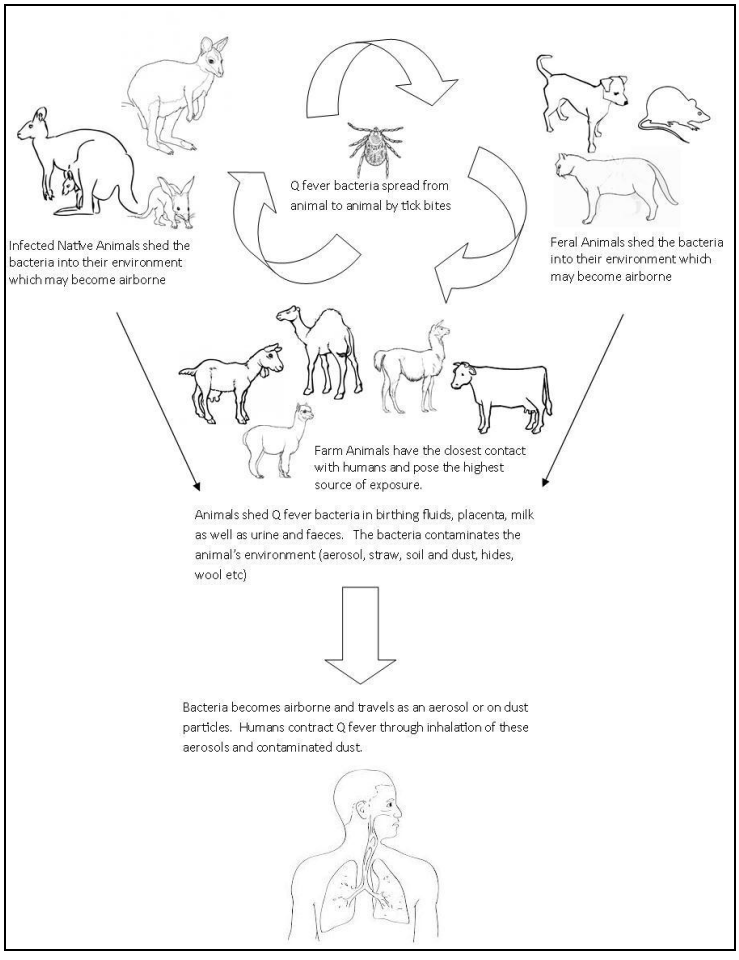
Infected animals show no signs of illness but shed the bacteria into their environment through urine, faeces, milk and birth tissues and fluids. Pregnant and birthing animals present a high risk as birth tissues and fluids can have particularly high concentrations of Q fever bacteria.
Animals cannot be vaccinated against Q fever.

Transmission to humans

Q fever is mainly spread by inhalation of small bacteria particles from infected animal body fluids, either directly or attached to dust particles. Contaminated dust becomes airborne through dusty stockyards and prevailing winds, animal movement, dry sweeping, handling wool, hides, straw/hay and manure etc. Q fever bacteria can also become airborne directly during animal birthing, handling birth products, high pressure hosing, slaughtering animals and dressing carcasses.

Less commonly, Q fever can be spread through drinking unpasteurised milk. Direct contact with infected animals, the body fluids of infected animals or other contaminated materials can result in transmission, particularly whilst assisting with the delivery of newborn animals.

Q fever has a low infective dose, so it doesn't require a large number of bacteria to cause an infection.



Fast Facts

- Ticks can carry Q fever between animals e.g. from native wildlife to a stock animals. Q fever can also transmit between livestock in the absence of ticks.
- The infected animal sheds the bacteria into the environment through urine, faeces, milk and birthing tissues and fluids.
- The Q fever bacteria are very hardy and can remain in the environment for long periods of time.
- Q fever is highly infectious. Humans most commonly become infected through inhalation of airborne contaminated dust and aerosols.
- Q fever infection can be very serious with resulting complications.
- A Q fever vaccine is available for those aged 15 and older.
- The risk of Q fever infection is to be managed through vaccination and infection control strategies specific to the modes of transmission.
- Occupational Q fever infection is a prescribed serious illness and must be notified to Workplace Health and Safety Queensland.

How do I know if an animal is infected with Q fever?
Infected animals rarely show any clinical signs of Q fever, although infection can cause abortions.

Should animals be tested for Q fever?
No, animals should not be tested as animals that test negative for Q fever may subsequently become infected. Also, Q fever bacteria may persist in the environment. From a risk management perspective, it is more appropriate to assume that all animals known to carry Q fever may be infected and to manage the risk to people working with these animals.

What is a "Q fever risk environment"?
"Q fever risk environments" are the working and learning environments where humans interact with animals known to be a source of infection for Q fever e.g. stock yards of an agriculture program.

Non-immune people can contract Q fever by inhaling *Coxiella burnetii* bacteria. Schools and TAFEs are to manage "Q fever risk environments" and minimise the potential for exposure through infection control strategies. **Q fever can be a very serious disease and prevention is a priority**.

Higher risk activities that should be avoided by non-immune staff and students include those that expose staff and students to dust and aerosols, e.g.

- observing or assisting with animal birthing
- handling birth products
- slaughtering animals and dressing the carcass
- generating dust and aerosols when cleaning up birth products and animal excreta (e.g. dry sweeping, using a high pressure hose)
- visiting at-risk workplaces (e.g. abattoirs, tanneries) may also expose staff and students to risk.

Is Q fever infection dangerous?
In humans, Q fever can present as:

- **subclinical** (unapparent) infection with no or few symptoms
- **acute** infection which can present as a severe influenza-like illness. Complications may include pneumonia, neurological illness and fatigue. Most people make a full recovery but this can be slow in some people. Infection during pregnancy may cause pregnancy complications such as miscarriage, premature delivery or low infant birth weight
- **chronic** illness which can present as post Q fever fatigue syndrome, endocarditis (affecting the heart valves) or l**esions** of organs, soft tissues and bone. Pregnant women and people who have underlying heart valve disorders or immunosuppressing illness are at increased risk of developing chronic Q fever infection

Immunity to Q fever is acquired from previous infection or immunisation.

Treatment:
As Q fever is a bacterial infection it can be treated with specific antibiotics. It is therefore important that people who work and learn in "Q fever risk environments" know to tell their doctor about their animal contact if they get sick – particularly if they are not immune to Q fever and have "flu-like" symptoms.

Management:

- Identify Q fever risks – environments and activities
- Implement Q fever risk controls
- Ensure staff, relevant students and their parents are appropriately informed
- Complete – Checklist: Q fever Infection Control in the Working and Learning Environment
- Review controls on a regular basis
- Maintain relevant documentation e.g. control measures in place, training, correspondence with staff, students and parents, vaccination information, immunity status, etc.

Q fever risk controls

- **Vaccination**
  - Vaccination is licenced for those aged 15 years or older. Immunity develops 15 days after vaccination.
  - No booster is required.
  - Before vaccination, pre-vaccination screening (blood and skin test) is required.
  - Vaccinated individuals can record their details in the **Australian Q fever register** http://www.qfever.org/. This site includes information on Q fever as well as vaccination.

- **Immunisation for staff / immune status of students undertaking higher risk activities**
  - Ascertain the Q fever immune status of staff.
  - Offer vaccination for relevant non-immune staff.
  - Maintain immunisation records.
  - Identify staff who can't/won't be vaccinated (enhanced risk controls may be required).
  - Identify immune status of students, especially those involved in higher risk tasks e.g. animal birthing (enhanced risk controls may be required).

- **Engineering and Design Controls**
  - Locate livestock areas away from general school areas.
  - Dust suppression (sprinkler systems).
  - Redesign tasks to reduce dust and aerosols.
  - Hand hygiene facilities.

- **Administrative Controls**
  - Restrict access to stockyards and high risk activities.
  - Q fever signage.
  - Maintain yards in clean and hygienic condition.
  - Safe handling and prompt disposal of birth products (deep burial/incineration).
  - Restrict non-immune persons from higher risk activities, especially birthing.
  - Staff information, instruction, training and supervision.
  - Inform relevant parents/caregivers about Q fever, the schools' protocols and the vaccine.

- **Respiratory Protection:**
  Respiratory protection program for non-immune staff who can't/won't be vaccinated and work restrictions are not reasonably practicable.
  - P2 respirator is the minimum level of protection.
  - Staff require proper instruction on donning and doffing the respirator and how to perform a fit check.
  - Correct fit of the respirators is required.
  - A fit test is to be conducted when respirator is worn.
  - Facial hair must not interfere with the respirator seal with the skin (staff that need to wear the respirator should be clean shaven).

Further Information

Queensland Health
- Q fever
- Infection Control Guidelines for Animal Contact

DETE
- Infection Control
- Health Risks Associated with Animals

DETE Curriculum Activity Risk Assessments
- Biological Activities
- Handling live animals in a school setting

National
- Australian Q fever register

Checklist - Q fever Infection Control in the Working and Learning Environment

Staff Q fever immunisation		
1	Is a record kept of the Q fever immune status of all relevant staff? (at risk staff)	**Y / N**
2	Have relevant staff been identified and advised of vaccination availability?	**Y / N**
3	Does the school fund the vaccination process?	**Y / N**
4	Are non-immune staff restricted from higher risk activities where practicable? (e.g. assisting with animal birthing, handling birth products)	**Y / N**
5	If restriction is not reasonably practicable for non-immune staff, is appropriate respiratory protection and relevant training provided?	**Y / N**
Information, training, instruction and supervision		
6	Have staff and students been provided with information, instruction and training on Q fever and risk controls?	**Y / N**
7	Is a record kept of the above information provided to staff, students and parents and other relevant correspondence?	**Y / N**
Students' Q fever risks		
8	Are parents/caregivers of relevant students provided with information about Q fever and the availability of Q fever vaccination for people aged 15 years and over?	**Y / N**
9	Are student Q fever vaccination records kept?	**Y / N**
10	Are non-immune students restricted from higher risk activities? (e.g. animal birthing, handling birth products)	**Y / N**
11	Are students instructed in safe work practices to minimise generating dust and aerosols?	**Y / N**
12	Are students instructed not to drink unpasteurised milk from livestock?	**Y / N**
Environmental controls and student activities		
13	Are dust suppression methods used in stockyards and other livestock holding areas (e.g. sprinkler systems) to minimise dust?	**Y / N**
14	Are livestock areas located away from the main school areas?	**Y / N**
15	Have dust and aerosol generating activities been identified, and have steps been taken to minimise the creation of dust and aerosols?	**Y / N**
16	Is there Q fever signage? (e.g. 'Restricted entry. Q fever risk area. Please report to: .....')	**Y / N**
17	Are livestock activities conducted in well-ventilated areas?	**Y / N**
Hygiene practices		
18	Are livestock areas maintained in a clean and hygienic condition?	**Y / N**
19	Is animal manure disposed of in a hygienic manner?	**Y / N**
20	Are animal birth products disposed of promptly (buried/incinerated)?	**Y / N**
21	Are staff and students provided with ready access to adequate hand washing facilities?	**Y / N**
22	Is there hand hygiene signage?	**Y / N**
23	Have staff and students been instructed in hand hygiene?	**Y / N**
24	Is student hand hygiene properly supervised?	**Y / N**
Respiratory protection program		
25	Are non-immune staff required to wear a minimum P2 respirator for high risk activities?	**Y / N**
26	For high risk activities, is there a range of respirator models and sizes available?	**Y / N**
27	Are staff who are provided with a P2 respirator instructed in the proper use of PPE, including how to fit the respirator and perform a fit check?	**Y / N**
28	Are these staff provided with a respirator fit test?	**Y / N**
29	Are staff who are required to wear respiratory protection clean-shaven?	**Y / N**
30	*Notes addressing negative responses to above:*	

Name:	*Signature:*
Date: / /	*Position (Principal/HOD/Teacher/Other……..)*