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PUBLIC HEALTH FOCUS ON WATCH
AGRICULTURE

Cryptosporidiosis

caused by the protozoan parasite *Cryptosporidium parvum*

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Cryptosporidiosis is a parasitic infection of human and animal importance. The organism can affect the epithelial cells of the human gastrointestinal, bile duct and respiratory tracts. Over 45 different species of animals including poultry, fish, reptiles, small mammals (rodents, dogs, and cats) and large mammals (including cattle and sheep) can become infected with Crytposporidium parvum.

The reservoir for this organism includes people, cattle, deer and many other species of animal.

Transmission is fecal-oral, which includes contaminated food and water, animal-to-person and person-to-person. The parasite infects intestinal epithelial cells and multiplies. Oocysts are shed in the feces and can survive under very adverse environmental conditions. The oocysts are very resistant to disinfectants. People can re-infect themselves one or more times.

Cryptosporidiosis can be prevented by using good personal hygiene. Hands should be washed with soap after using bathroom facilities. Only clean or filtered water should be consumed, and food must be prepared properly. Individuals who work with animals should wear protective clothing, and washing hands after handling animals is essential.

The disease in humans

- Infection of gastrointestinal and respiratory tracts
- Infections without symptoms are common — these are a source of infection to others
- Diarrhea, anorexia, vomiting
  - Usually resolves in one to two weeks in healthy individuals
- Serious prolonged disease in individuals with compromised immune systems
- Worldwide occurrence, reported in a wide variety of animals
- Can infect all ages
- Outbreaks often associated with contaminated water or beverages
- Infection is through contact with / ingestion of contaminated fecal material
- Prevention
  - Sanitary disposal of human feces
  - Sanitary disposal of animal feces
  - Care in handling animal feces, particularly feces from calves with diarrhea
  - Boil water if necessary
  - Remove infected individual from exposure situations
- Control
  - Report to local health authority
  - Isolate infected individuals
  - Disinfect
  - Investigate source of outbreaks
  - No vaccine available, treatment is variably successful

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The disease in calves/lambs/kids

- One to four weeks old
- Diarrhea, anorexia, and weight loss
- Often occurs with other diarrhea-causing bacteria and / or viruses, or in animals that have a compromised immune system
- Re-infection can cause relapses, chronic infection and death
- Infected calves / lambs / kids pass the organism in their fecal material

EXPOSURE POINT!

Humans can become infected with *Cryptosporidium parvum* through exposure to young ruminants with diarrhea. Take proper precautions when treating calves / lambs / kids with diarrhea.

- Wear protective gloves
- Wash hands
- Clean the environment

The disease in birds

- Can cause gastrointestinal and respiratory infections in birds
- Worldwide
- Disease-causing stage of the organism is shed in feces or respiratory secretions of infected birds
- Diarrhea (gastrointestinal form) or pneumonia (respiratory form) possible
- Can be fatal
- No vaccination, no effective treatment
- Caused by a different species, *Cryptosporidium baileyi*
  - **Not known to be infective to humans**
- Oocysts (infective stage) are resistant to many chemicals and environmental conditions

The disease in reptiles

- Can cause gastrointestinal and respiratory disease in reptiles
- Has been associated with stomach infections in snakes

Number of human *Cryptosporidium parvum* infections in North Dakota since 1997. (North Dakota Department of Health)

1997	15
1998	34
1999	20

5 year median – 18

For more information on this and other topics, see: www.ag.ndsu.nodak.edu

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