Virginia Cooperative Extension

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Zoonotic Diseases of Cattle

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Zoonotic diseases are diseases that can be transmitted from animals to humans and from humans to animals. Zoonotic diseases may be acquired or spread in a variety of ways: through the air (aerosol), by direct contact, by contact with an inanimate object that harbors the disease (fomite transmission), by oral ingestion, and by insect transmission. There are fifteen cattle diseases with zoonotic potential in the United States, some of which are more common than others. They include anthrax, brucellosis, cryptosporidiosis, dermatophilosis, Escherichia coli, giardiasis, leptospirosis, listeriosis, pseudocowpox, Q fever, rabies, ringworm, salmonellosis, tuberculosis, and vesicular stomatitis.

Potential Human Exposure to Zoonotic Organisms in the U.S. Key

Very Common	****
Common	***
Occasional	**
Rare	*

Note: Not all exposure results in clinical disease. Additionally, symptoms may be mild and may go unnoticed.

Anthrax *

Anthrax is a bacterial disease caused by *Bacillus anthracis,* which forms spores that survive for years in the environment. Cattle, sheep, and goats are at the highest risk of developing anthrax, but other farm animals, as well as wildlife and humans, can contract the disease. Most animals are infected by oral ingestion of soil contaminated with anthrax spores. People develop anthrax when the organism enters a wound in the skin, is inhaled in contaminated dust, or is eaten in undercooked meat from infected animals. Biting flies can transmit the bacterium, which results in redness and swelling at the bite site. The most common clinical sign in animals is sudden death. Blood may be seen oozing from the mouth, nose, and anus of animals that died of anthrax. A vaccine for livestock is available in areas where anthrax is a common livestock disease. Animals suspected of dying from anthrax should be examined by a veterinarian immediately. Animals that have died of anthrax should be burned or buried deeply and covered with lime. The area should be thoroughly decontaminated with lime, as anthrax spores can survive in the soil for decades. Anthrax is prevented by avoiding contact with animals that are suspected to have anthrax and areas that may contain bodies of animals that died from anthrax.

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Brucellosis *

Brucellosis is caused by the bacterium *Brucella,* which can affect a wide variety of animals including cattle, pigs, sheep, goats, horses, and dogs. *Brucella* organisms can be present in birthing tissues or fluids (aborted fetuses, fetal fluids, placentas, and vaginal discharges), and also in milk, urine, blood, and semen. Transmission among cattle is through ingestion of birthing fluids and milk and in utero. The most common clinical sign in cattle is late-term abortion, but many infected cattle do not show any clinical signs. Most infections in humans are associated with drinking or eating unpasteurized milk products. Handling infected aborted fetuses or afterbirth is another common means of human infection, as the organism can enter through cuts in the skin and the mucous membranes of the eye and mouth. Common symptoms in humans are undulating fever, weakness, headache, joint pain, and night sweats. There is a Cooperative State Federal Brucellosis program in the United States to eradicate the disease from this country. States are designated "Brucellosis Class Free" when there are no cattle or bison infected with brucellosis for 12 consecutive months. Virginia is Brucellosis Class Free, as are all states except Texas and Idaho. There is a pocket of brucellosis in the bison and elk herds of Yellowstone National Park, and sporadic outbreaks of animal brucellosis have occurred in western states. Human brucellosis is prevented by not drinking unpasteurized dairy products, and wearing gloves when handling reproductive tissues. Hands should be washed after touching or handling animals.

Cryptosporidiosis ****

Cyrptosporidium is a protozoal parasite that causes diarrhea. Most animals can be infected with *Cryptosporidium*, but clinical signs are most commonly observed in calves less than 1 month old. Infected animals shed the organism in their feces, contaminating the environment. *Cryptosporidium* can then be ingested from infected food or water. Humans are infected by consuming food or water contaminated with the organism or by failing to wash their hands after exposure to infective feces or animals. Most people who are infected do not become sick. For those individuals that show clinical signs, explosive diarrhea and abdominal pain are common. Vomiting, fever, and muscle cramps may also occur. Young children, pregnant women, and immune compromised adults are most severely affected. Calves with diarrhea should be separated from healthy ones, and the infected area disinfected with bleach. Prevention efforts in humans focus on hand washing, especially after handling or being around animals and before eating or handling food.

Dermatophilosis *

Dermatophilosis is a bacterial skin disease caused by *Dermatophilus congolensis,* and is also known as rain rot, lumpy wool, and strawberry foot rot. It most commonly affects cattle, sheep, goats, and horses. The disease is spread by direct contact with infected skin or through biting insects. Wet conditions allow the bacteria to spread. It causes thick scabs, and when the hair is pulled, the tuft of skin looks like a paintbrush. Infections in humans are rare, but people can develop sores that form ulcers, often resulting in scarring. Infected animals should be isolated and treated with antibiotics. Human infections can be prevented by wearing gloves and washing hands thoroughly after working with infected animals.

Escherichia coli ***

Escherichia coli (*E. coli)* are bacteria normally found in the intestines of people and animals. However, some strains cause a severe, often bloody, diarrhea in humans. Animals are the carriers of the bacteria, and humans become infected by ingesting contaminated food or water, especially undercooked ground beef, unpasteurized juice and milk, and vegetables. Humans may also become infected after handling or being exposed to feces of a carrier animal. Person-to-person transmission can occur by lack of good hand washing following diaper changes. *E.coli* can also be transmitted through swimming pools. *E. coli* O157:H7 is a particularly virulent strain of *E. coli* that in humans can cause abdominal cramping, bloody diarrhea, and occasionally, especially in young children and the elderly, life threatening kidney disease and a hemolytic uremic syndrome. *E. coli* O157:H7 may cause diarrhea in young calves, but most infected cattle show no clinical signs. Prevention focuses on hand washing and proper food

hygiene. Hands and all cooking equipment should be washed with soap and hot water after touching or handling raw meat. Meats should be thawed in the refrigerator, and ground beef should be cooked until it reaches an internal temperature of 165°F and the juices run clear. At restaurants, undercooked meats should be returned to the kitchen. Do not drink unpasteurized milk or milk products, juice, or cider. Make sure drinking water, especially well water, is adequately disinfected. Wash hands after handling animals or being in animal facilities and do not eat or drink around animals. Day-care facilities should wash toys frequently, and individuals with diarrhea should avoid swimming in public areas.

Giardiasis **

Giardia lamblia is an intestinal protozoal parasite that may or may not cause disease in cattle. *Giardia* is present in soil, food, and water that have been contaminated by infected feces. Humans become infected by ingestion of contaminated food or water. Infants and small children may place their hands that have been contaminated with fecal material directly into their mouth. Because a large number of wild animals harbor *Giardia*, water from lakes, streams, or ponds may be unsafe to drink. *Giardia* causes diarrhea and abdominal cramping in humans. It can be prevented by avoiding untreated drinking water and thoroughly washing all fruits and vegetables. Frequent hand washing is also recommended.

Leptospirosis **

Leptospirosis is a bacterial disease caused by *Leptospira interrogans* that can occur in a large number of animals, including cattle, sheep, goats, pigs, horses, and dogs. Leptospirosis is spread through the urine of infected animals and can survive in water and soil for months. The most common clinical signs in cattle are abortion and weak newborn calves. Cattle, and especially rodents, may show no signs of illness but carry and pass the organism in their urine. Humans acquire leptospirosis through direct contact, ingestion, or inhalation of the bacteria. Infection usually results in mild flu-like symptoms but may progress to severe liver and kidney disease. Prevention involves rodent control and elimination of standing water. Avoid water, such as ponds, where animals congregate and urinate, and wear gloves when handling reproductive fluids or when being exposed to urine.

Listeriosis *

Listeriosis is caused by the bacterium *Listeria monocytogenes*. Cattle, sheep, and goats are commonly affected. Common signs of infection in livestock are circling, incoordination, and the inability to chew and swallow. Pregnant animals may abort. The organism lives in decaying vegetation and low-lying wet areas. Consumption of spoiled or improperly ensiled feed is often associated with outbreaks in animals. Feeding good-quality corn silage will decrease the risk of listeriosis in animals. Moldy silage that has been exposed to air and leftover silage from feed bunks should be discarded. Most humans are resistant to infection, but individuals who are immunosuppressed, pregnant, or taking antacids are at increased risk of acquiring infection. Infection in humans usually occurs after eating contaminated processed meats or unpasteurized milk products. Infections in humans can result in abortions and septicemia (blood poisoning). Prevention consists of washing produce, cooking meats properly, and avoiding unpasteurized milk and milk products. Pregnant women should avoid deli meats and soft cheeses. Gloves should be worn while assisting calvings and hands washed afterward.

Pseudocowpox *

Pseudocowpox is a virus that causes small raised sores and scabs on the teats and udders of cattle. The virus is spread from cow to cow by milkers and milking equipment, and causes small raised sores that later scab. Humans acquire pseudocowpox by direct contact with infected cows, and can develop painful scabby sores on the hands and arms. Good milking hygiene and teat dipping will decrease the spread of this virus. People should wear gloves when handling infected cows, and thoroughly wash hands and arms after milking.

Q Fever **

Q fever is caused by the bacterium *Coxiella burneti* and causes abortions in cattle, sheep, and goats. Animals acquire Q fever through contact with reproductive fluids and milk from infected animals. Humans are usually infected when they are assisting the birthing process and are exposed to reproductive fluids. They may also be infected by drinking infected unpasteurized milk. Humans develop a fever, night sweats, and pneumonia and hepatitis in severe cases. Miscarriages, premature delivery, and infections of the placenta are possible in pregnant women. To prevent the spread of Q fever, aborted fetuses and reproductive tissues should be buried or burned. Wearing gloves and protective eyewear when assisting in birthings and washing hands thoroughly afterward are recommended. Pregnant women should not assist in birthings. Unpasteurized milk products should be avoided.

Rabies *

Rabies is a deadly viral infection affecting all mammals, including humans. Rabies is spread in the saliva of a rabid animal, typically through bite wounds. Cattle may show changes in behavior, excessive vocalization, have difficulty swallowing, drool, and/or become paralyzed. People contract rabies through exposure to infected saliva in open wounds or mucous membranes (eyes, nose, and mouth). This could occur during examination or treatment of infected cattle. Rabies is almost always fatal once clinical signs are evident. People should not handle or feed wildlife. Contact your veterinarian immediately if cattle behave abnormally or have symptoms of rabies. Always wear gloves and take safety precautions when treating sick animals. A veterinarian should be consulted if an animal dies of unknown causes. If there is human exposure to an animal with rabies, a physician should be contacted immediately so post-exposure prophylactic injections can be initiated.

Ringworm ***

Ringworm is a skin infection caused by fungi of the *Trichophyton* or *Microspora* species. Animals get ringworm by direct contact with an infected animal or by being in an infected environment, such as a barn. Ringworm is characterized by hairless, crusty circular areas on the skin. People are infected with ringworm through direct contact with infected animals. In humans, ringworm forms itchy areas on the skin that are round and irritated. Good hygiene and thorough hand and forearm washing after handling infected cattle will help decrease the risk of ringworm.

Salmonellosis ***

Salmonella are bacteria that are shed in the feces of infected animals. Many animals are susceptible to *Salmonella*, including cattle. Infection occurs as a result of the ingestion of contaminated feed, water, or grass. The bacterium can live for months to years in the environment, especially in wet and warm conditions. Young, stressed or pregnant animals are the most susceptible to *Salmonella* infection. Infection may result in fever, foul smelling diarrhea, and severe dehydration. People acquire *Salmonella* from undercooked contaminated meat, infected eggs, or unpasteurized milk products. If hands are not washed after direct contact with infected feces, then accidental ingestion of bacteria can occur. Humans may develop diarrhea, abdominal cramping, and fever, which can be very severe. Animals with diarrhea should be isolated and the area disinfected. Meat and eggs should be adequately cooked and proper food handling hygiene should be used. Always wash hands after touching or working with animals.

Tuberculosis *

Bovine tuberculosis is caused by the bacterium *Mycobacterium bovis* which is shed in respiratory secretions, feces, and milk of infected animals. Cattle are infected by inhaling or ingesting the bacterium. Weight loss, weakness, low-grade fever, and coughing are common clinical signs of infection in cattle. Humans may acquire tuberculosis from unpasteurized dairy products and can develop symptoms involving the lungs, kidneys, spine, or brain. Infected individuals have a persistent cough and often cough up blood. Currently there is little tuberculosis in cattle as a result of a federal eradication program. All states, including Virginia, are currently accredited Tuberculosis Free except Michigan, Minnesota, and New Mexico. Prevention is by avoiding unpasteurized dairy products.

Vesicular Stomatitis *

Vesicular stomatitis is a viral disease, producing blister-like sores on the mouth and feet of infected animals. The disease is transmitted by flies or direct contact. People acquire the virus by direct contact with infected animals. People develop flu-like symptoms and occasionally develop blisters in their mouth and on their hands. Prevention is by wearing gloves while handling animals suspected of having vesicular stomatitis. Hands should be thoroughly washed after handling any animals.

Summary

There are numerous zoonotic diseases that can be transferred from cattle to humans. These diseases cause mild to severe symptoms and are a definite concern for farmers and their families. While some of the diseases are rare, their potential for devastating outcomes makes it necessary to take precautions for these diseases seriously. Luckily, many of the precautions taken to prevent these diseases are the same.

- Washing hands with soap after handling animals is the most important precaution. Soap should be readily available in the barn/lavatory areas.
- Unpasteurized milk and milk products should be avoided. This is especially true for children, the elderly, and pregnant women.
- All meat should be cooked to appropriate internal temperatures. Ground beef should be cooked until reaching an internal temperature of 165°F and the juices run clear.
- Raw meat and eggs should be handled as if they contain infectious organisms.
- All surfaces and utensils used to prepare raw foods should be thoroughly washed with hot water and soap. Utensils used on raw foods should not be used later in the cooking or serving process.

If you suspect any of these diseases on your farm, or you have questions about them, contact your veterinarian. If you suspect that you, one of your farm employees, or anyone in your family has any of these diseases, contact your physician immediately.

Reviewed by Dee Whittier, professor, Virginia-Maryland Regional College of Veterinary Sciences

Saddle Up SAFELY
RIDER SAFETY PROGRAM

Horse Transmitted Diseases

saddleupSAFELY.org

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COMMONWEALTH OF KENTUCKY
OFFICE OF THE FIRST LADY

Jane Beshear

Dear Fellow Equine Enthusiasts,

As a lifelong horseperson and First Lady of the Commonwealth, I understand how important horses are to the state of Kentucky. This is why I am proud to support Saddle Up SAFELY, a rider safety campaign sponsored by UK HealthCare, UK College of Agriculture and many other organizations. In addition to reducing the number and severity of riding injuries, it is also very important to understand how diseases of the horse can affect humans and how to prevent and respond to them. There are a number of safety steps outlined in this booklet that will help you keep yourself and your horse healthy. We have long been known as the "Horse Capital of the World" and to ensure we retain this title, we must focus on the health and welfare of the horse and rider. By working together, we can make a great sport safer!

Sincerely,

Jane Beshear

While it is rare for humans to contract a disease from a horse, it is possible. You should note that the symptoms of the diseases described in this booklet can mimic symptoms of other diseases common in people. Usually the only way to know whether you have a specific condition is through a laboratory test ordered by your doctor.

A note from Dr. Roberta Dwyer

Do horses get rabies?

Can you get the flu from your horse?

What horse diseases can you catch?

Do you know the answers to these questions? With certainty?

Many people do not know that horses can contract rabies from a rabid animal bite and therefore be a threat to human health. Rabies is likely the most commonly known zoonotic disease, which is one that can be transmitted between animals and people. Other diseases common to horses and people may have the same name but are not transmissible (or zoonotic), such as influenza. The virus strain that infects horses does not infect people and vice versa!

Every horse person needs to know about zoonotic diseases for their own safety as well as that of their families and employees. These diseases, their clinical signs and common sense advice are discussed in this brochure. Your veterinarian is an important source of information about zoonotic diseases and is best equipped to advise you on routine equine vaccinations and preventive medicine.

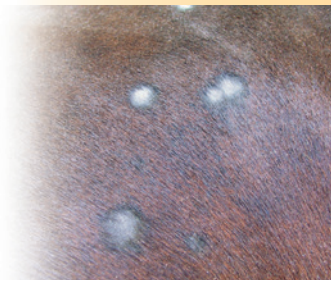
UK Ag EQUINE

Roberta M. Dwyer, DVM, MS, DACVPM
Professor, Department of Veterinary Science
UK College of Agriculture

Salmonellosis

Salmonellosis is a disease caused by the bacteria *Salmonella*. Most often horses with salmonellosis have acute or chronic diarrhea, but they can also have localized infections in abscesses, joints, eyes and other areas. Wearing disposable gloves and washing hands after handling salmonellosis cases (or any animal with diarrhea) is especially important. Manure from horses with diarrhea should be composted or disposed of where humans and other horses cannot come in contact with it. Symptoms in humans include diarrhea, fever and abdominal cramping.

Ringworm



Courtesy Dr. Mariann Sloet

Dermatophytosis (ringworm) is a common fungal skin infection of many animal species. In horses the problem is primarily caused by *Trichophyton equinum*. Horses show circular patches of hair loss with crusting and scaling of the skin. People become exposed by direct skin contact with infected horses or potentially through contact with contaminated equipment. The most common symptom is itchiness.

Rabies

Rabies is a viral disease of mammals, including horses. This disease is transmitted to humans via the bite of a rabid animal or contact between the animal's saliva and open wounds or mucous membranes. Only 40-50 horses per year are confirmed as rabies-positive in the United States, but the disease is 100 percent fatal. While infected horses may show behavioral and neurologic changes, rabies is known as "the great imitator" because sometimes animals present with colic or lameness. However, any horse with rabies will usually die within 10 days of the onset of clinical signs. Horses become infected by getting bitten by another rabid animal such as a skunk, raccoon, bat, fox, etc. Rabies vaccination for all horses is recommended by the American Association of Equine Practitioners. In humans, symptoms develop one to three months after being bitten. Because of the seriousness of bacterial infections by animal bites, any human bitten by an animal should wash the wound and seek medical treatment. People who have been exposed to a rabid animal and receive immediate anti-rabies medical treatment have excellent outcomes.

Anthrax

Anthrax is a bacterial disease that has caused sporadic animal disease outbreaks in the United States for many years. The bacterial spore can live in the soil for decades, and animals can become infected through ingestion, inhalation and other routes. Infected horses often become acutely ill and die. People can be exposed to anthrax through contact with an infected animal's hide, tissues or blood. Complete protective equipment – including skin, respiratory and eye protection – should be worn by veterinarians when examining a suspected anthrax case. Symptoms in people can range from blisters on the skin to vomiting blood, bloody diarrhea, stomach ache, flu-like symptoms or chest pain.

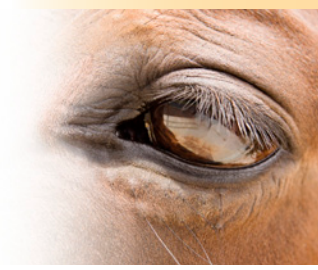
Rain Rot

Dermatophilosis (rain rot) is a common bacterial skin disease in horses characterized by matted hair and skin lesions that ooze and form clumps. Although a rare zoonosis in healthy people, this disease can be transmitted to humans through direct contact with lesions. Symptoms are sores, usually on the hands and arms.

Brucellosis

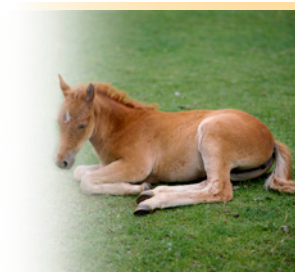
Brucellosis is a bacterial disease that causes abscesses and draining tracts on the withers (fistulous withers) and poll (poll evil) in horses and causes disease in many other animal species. People become infected by coming in contact with infected animals, especially cattle, although with aggressive control measures for brucellosis in the United States very few cases are reported in people. Transmission of brucellosis from horses to humans is rare because the disease is very uncommon in horses. Symptoms include fever, headache, back pain and weakness.

Leptospirosis



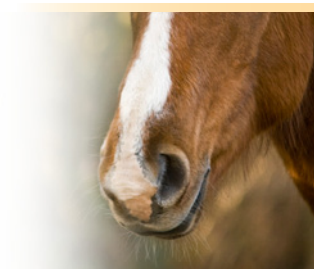
Leptospirosis is a bacterial disease that causes abortion, eye problems and kidney disease in horses. Transmission from horses to people is very rare in the United States but can occur through direct or indirect contact with infected urine, as well as ingestion of contaminated water. Symptoms include headache, fever, nausea, muscle aches and jaundice (yellow skin and eyes).

Cryptosporidiosis



Cryptosporidiosis is a protozoal parasitic disease that sometimes causes diarrhea in foals, and can cause significant disease in other species. *Cryptosporidium* can infect many different animals and people through the fecal-oral route. Symptoms in humans include watery diarrhea, stomach cramps, nausea and a poor appetite.

Vesicular Stomatitis



Vesicular stomatitis is a viral disease that causes blisters and ulceration on the tongue and gums and inflammation of the coronary band in horses. Humans with open wounds can potentially become infected by direct contact with the blisters, which are filled with virus. However, even during outbreaks of the disease, infection of veterinarians and laboratory workers is low. The most prominent symptom in humans is a rash.

Preventing Disease

A veterinarian can develop a comprehensive program designed to help protect horses and people from infectious diseases and provide early diagnosis that can save horse owners a significant amount of money in the long run! Caretakers should use disposable gloves to handle and treat any sick horse and thoroughly wash their hands after treatments.

What About WNV, EEE and WEE?

West Nile virus (WNV), eastern equine encephalitis (EEE) and western equine encephalitis (WEE) are all zoonotic diseases that can affect both humans and horses. Mosquitoes transmit these viruses from an infected bird to a person or a horse. Infected humans and horses do not develop high enough viral levels in the blood to enable transmission of the disease to others. Therefore, these mosquito-borne diseases are zoonotic from birds to people and horses, not from horses to people! Vaccination against EEE, WEE and WNV is very effective in reducing outbreaks of these diseases in horses.

A disease is transmissible if the causative agent (bacteria, virus, fungus, parasite, etc.) can be spread from one animal to another. The most common means of zoonotic disease transmission are:

Direct Transmission

- ingestion
- inhalation
- skin contact
- contact with mucous membranes or open wounds
- bites

Indirect Transmission

Indirect transmission is accomplished by an insect vector (insect bite) or by contact with inanimate objects (e.g., touching towels or other items with fecal contamination, then eating lunch).

Common Sense Precautions

- Consult your veterinarian to develop a comprehensive preventive medicine program, including vaccinations and biosecurity.
- Have a veterinarian evaluate sick horses, especially those with behavioral changes, including aggression.
- Isolate sick horses and take precautions by wearing protective clothing such as separate coveralls and disposable gloves and booties.
- Always avoid hand to mouth or nose contact when handling infectious horses.

- Wash hands thoroughly with soap and water after handling ill horses, especially those with diarrhea.
- Alcohol-based hand sanitizer gels (≥62% ethyl alcohol) are very effective in killing many bacteria and viruses when used on hands that are not visibly soiled.
- If treating a horse with a potentially zoonotic disease, wear disposable gloves and thoroughly wash hands afterward. Consult a veterinarian for a diagnosis and recommendations.

- Always consult your physician if you have suspected exposure to a zoonotic disease or have any questions regarding its symptoms, diagnosis or treatment. Tell your physician about any animals you may have been around.
- Become educated on horse diseases, especially those common in your area.

For more information, visit saddleupSAFELY.org.

Immunocompromised Individuals and Family Members

People with challenged immune systems, whether by disease, medication or age, can be more susceptible to infectious disease agents in a horse's environment.

Immunocompromised people include:

- Cancer patients
- Organ transplant patients
- People taking immunosuppressive drugs
- Patients with HIV/AIDS or other infectious diseases that suppress the immune system
- Patients with chronic illnesses or conditions such as cystic fibrosis, diabetes mellitus, etc., that may render them more susceptible to infectious agents
- Children under the age of 5
- The elderly
- Pregnant women (fetal risk)

These individuals should speak with their physician about added precautions needed when anticipating direct contact with animals or their environments (i.e., barn, water source, etc.). In general, immunocompromised people should not work around sick animals, especially those with diarrhea. Avoid contact with feces or urine, and thoroughly wash hands after contact with animals and prior to eating, drinking, using tobacco products or applying cosmetics. Because of bacteria present in dusty horse environments, some people may be advised to wear an N95 mask to avoid exposure to bacteria and other disease-causing agents.

If a family member not exposed to horses is immunocompromised, the clothing and footwear of people working with horses should be left in a designated area, such as the entryway to the home. Disease-causing organisms on clothing can be a hazard to immunocompromised family members, therefore this clothing should be laundered separately and not handled by the patient. Horse equipment and other materials should be left outside of the home, and the horse handler should wash his or her hands before coming home.

Resources

Equine Infectious Diseases

Sellon, DC, Long, MT, eds. *Equine Infectious Diseases*. 2007. Elsevier, St. Louis, MO. This is the most comprehensive reference book on all equine infectious diseases, including public health impacts.

The Center for Food Safety and Public Health

Contains information and photographs on zoonotic diseases and foreign animal diseases of many animal species.
www.cfsph.iastate.edu

World Health Organization

Offers a Web site with fact sheets and additional information about zoonosis and current outbreak updates.
www.who.int/en

American Association of Equine Practitioners

Dedicated to improving the health and welfare of the horse, the AAEP provides research, training and education for veterinarians and horse owners. Vaccination guidelines are available.
www.aaep.org

saddle up SAFELY

For more tips, information, and donor opportunities, visit our Web site at **saddleupSAFELY.org**.

Official equine higher education program for the 2010 Alltech FEI World Equestrian Games

More than 50 faculty and staff across nine College of Agriculture departments currently conduct equine work at UK.

HORSE RIDER SAFETY CAMPAIGN

Together, through increased awareness and education,

PARTNERS

Alltech

Alltech, a leading global animal health and nutrition company based in Kentucky, is the first-ever title sponsor of the FEI World Equestrian Games.

Alltech FEI World Equestrian Games

The world championships of eight equestrian disciplines held every four years.

Buffalo Trace Mounted Patrol

Volunteer Patrol members have provided equine education and assistance to the local community, emergency management personnel and government agencies since 2008.

Certified Horsemanship Association

CHA certifies instructors and trail guides, accredits equestrian facilities, publishes educational manuals, and hosts regional and international conferences.

Jockeys' Guild

The Jockeys' Guild protects the welfare of all riders across the United States.

Keeneland

Keeneland has been investing in the future of the Thoroughbred industry since 1936.

Kentucky Department for Public Health

Helping people be well through prevention, promotion and preparation.

Kentucky Horse Council

The Kentucky Horse Council is a nonprofit organization dedicated, through education, to the protection, growth and development of the equine industry in Kentucky.

Kentucky Horse Park

An educational theme park dedicated to the horse. Home to the 2010 Alltech FEI World Equestrian Games.

Lexington Herald-Leader

The Herald-Leader and Kentucky.com are the No. 1 source for news, sports, advertising, and entertainment information in Central and Eastern Kentucky.

SPONSORING ORGANIZATIONS

we can make a great sport safer and more enjoyable.

TheHorse.com

TheHorse.com is a multimedia education provider to hands-on participants in the equine industry.

Kentucky Injury Prevention and Research Center

KIPRC works to reduce injury through education, policy initiatives, public health programming, surveillance, risk factor analysis, direct interventions and evaluation.

The Lane Report

For 25 years, The Lane Report *has compiled valuable business news, economic data, and opinion for use by Kentucky's business, professional and political leaders.*

UK College of Agriculture Equine Initiative

The equine initiative's mission is to discover, share and apply new knowledge that will enhance the health, performance and management of horses commensurate with the signature status of Kentucky's equine industry.

UK College of Public Health

Providing comprehensive public health approaches to better understand and to help reduce the burdens of public health problems on individuals, families and communities.

UK HealthCare

Providing the most advanced medical care to the people of Kentucky and the region. UK HealthCare is the official medical provider for the 2010 Alltech FEI World Equestrian Games.

UK Spinal Cord and Brain Injury Research Center (SCoBIRC)

Discovering pharmacological, gene or cellular therapies to minimize damage and promote repair mechanisms in the nervous system following spinal cord or brain injury.

SUPPORTERS

Special thanks to Ariat, Brain Injury Alliance of Kentucky, Kentucky Horseshoeing School, Northern Kentucky Horse Network, North American Racing Academy, Rood & Riddle Equine Hospital, PHI, United States Dressage Federation, and Welch Printing Company.

Ways to get more involved with Saddle Up SAFELY

The Saddle Up SAFELY program can arrange for speakers to address your organization about horseback riding safety issues. Call **859-323-5508** to schedule one of our speakers for your event.

Read Dr. Fernanda C. Camargo's horseback riding safety blog by following the link at **saddleupSAFELY.org**.

Suggestions or comments may be directed to **859-323-5508**.

To make a donation to the Saddle Up SAFELY program, please call **859-323-8587** or write to:

Saddle Up SAFELY
UK HealthCare
2347 Sterlington Road, Suite 110
Lexington KY 40517

If you have caught a disease from your horse, tell us what advice you can share with others to prevent or recover more quickly from it by going to **saddleupSAFELY.org** and using the advice/tip registry.

Those who provide advice that is used will be eligible to win four tickets to the 2010 Alltech FEI World Equestrian Games, one of a number of gifts including $150 gift certificates for Ariat merchandise, four reserved seats to a Keeneland race, tickets to the Kentucky Horse Park, and more.

Request our booklet *Horseback Riding Safety* by phone or through our Web site.

Information in this booklet developed by

University of Kentucky

UK HealthCare

UK College of Agriculture
Equine Initiative

UK College of Public Health

saddleupSAFELY.org

NYSSGHAP
Zoonotic Diseases from Sheep/Goats

Zoonotic diseases are contagious diseases that spread between animals and humans. It is estimated that approximately 75% of recently emerging infectious diseases affecting humans are diseases of animal origin; approximately 60% of all human pathogens are zoonotic. Humans can contract zoonotic diseases through direct contact with infected animals, and also by consumption of contaminated food or water, inhalation, arthropod vectors (such as flies, ticks, and mosquitoes) and pests.

Below is a condensed list of sheep and goat diseases that can be transmitted to humans. The diseases are grouped in alphabetical order within groups of common routes for **human** infection. Many of these diseases, whether in animals or humans, are reportable to State and Federal Authorities. Contact your **State Veterinarian** or your **State/Local Health Department** for information about State disease reporting requirements in animals and humans, respectively.

RABIES

Rabies is a severe, viral disease that can affect all mammals, including sheep and goats. People most often get rabies from the bite (**direct contact**) of an infected animal, but can also be exposed to the virus by entry of saliva, brain or spinal cord fluid of an infected animal into cuts or breaks in the skin or mucous membranes. Early human symptoms include fever, headache, confusion and abnormal behavior (neurological signs). Once signs begin, recovery is very rare. If you are bitten by an animal, immediately contact local animal control so the animal may be tested or quarantined, and contact your physician immediately to determine whether post-exposure treatment is indicated.

CONTAGIOUS ECTHYMA (SOREMOUTH)

Caused by the Orf virus, contagious ecthyma in people is called Orf. People become infected by **direct contact** with skin lesions or scabs usually on the face and mouth of infected animals. In people, usually only one single lesion (local sore/wound) develops.

RINGWORM (DERMATOPHYTOSIS)

Ringworm is a common fungal disease caused by dermatophytes. People can become infected by **direct contact** with the spores on an infected animal. The spores may be on the animal's hair/wool or skin, and can even be on **fomites** such as brushes or clippers. Dermatophytosis tends to be more common in show lambs than production flocks. Itchiness is the most common

symptom, and the spots are generally inflamed at the edge with redness, scaling, and occasionally blistering.

CHLAMYDIOSIS

Chlamydiosis is a bacterial disease in sheep and goats is caused by *Chlamydophila abortus*. Pregnant animals can shed large numbers of *C. abortus* in the placenta and uterine discharges when they abort or give birth. Although rare, people can be infected by **direct contact** with birthing tissues, but there are additional ways to be infected. In people, animal-associated chlamydiosis causes flu-like signs (fever, body aches, headache), reddened eyes, and pneumonia. Pregnant women should avoid contact with pregnant or aborting animals.

CAMPYLOBACTERIOSIS

A major cause of enteritis in humans, *Campylobacter spp*. (e.g., *C. jejuni* and *C. coli*) often infects people by the consumption of contaminated or undercooked meat and unpasteurized milk or dairy products (**oral**). People can also be infected by untreated water or contact with infected animals or feces. People infected with campylobacteriosis can have diarrhea, fever, nausea, vomiting, abdominal pain, headache and muscle pain. People with compromised immune systems are at higher risk for severe or recurrent infections.

CRYPTOSPORIDIOSIS

Cryptosporidiosis results from infection by *Cryptosporidium parvum*, a coccidian parasite common in the environment and carried by many animals without symptoms. People often become infected by **ingestion** following contact with objects contaminated with feces or unwashed hands after contact with ill animals. Infections in people can cause stomach cramps, watery diarrhea, nausea and a poor appetite. Vomiting, fever, and muscle aches may also occur.

LISTERIOSIS

Listeria monocytogenes causes listeriosis, a bacterial disease in ruminants and humans. Most infections in people occur by eating raw meat or unpasteurized dairy products (**oral**), but there are additional ways to be infected. Animals can shed L. monocytogenes in the feces, milk and uterine discharges. Pregnant women or immunocompromised people should take special care to avoid unpasteurized dairy products. Unlike other bacteria, L. monocytogenes can grow in cold temperature, including in the refrigerator. A skin infection form of the disease can occur in people who handle sick animals.

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SALMONELLA

People most commonly get salmonellosis from eating (**oral**) improperly cooked food, such as meat, eggs or unpasteurized milk/dairy products. People can also get salmonellosis by **direct contact** with feces/diarrhea from infected animals. People with salmonellosis may have diarrhea, fever and abdominal cramping.

Q FEVER (QUERY FEVER, COXIELLOSIS)

Q fever results from infection by the bacterium, *Coxiella burnetii*, which can infect people who inhale aerosolized organisms, or by additional routes. Most human infections are associated with cattle, sheep and goats, and often occur when the animal gives birth. Symptoms of Q fever include fever, chills, night sweats, headache, fatigue and chest pains. Q fever can cause abortion or premature delivery in pregnant women, so pregnant women should avoid contact with pregnant or aborting animals.

Cornell University
Cornell Center for Animal Resources and Education

Potential Zoonoses Associated with Swine

The intent of this Information Sheet is to describe the most common zoonotic agents seen in swine and the safe work practices suggested to mitigate the exposure to these pathogens.

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1. **Introduction:** This document provides information about potential zoonotic exposure while working with swine or their products (e.g. fecal sample). The infectious agents listed here are not all inclusive, but are the most common zoonotic agents likely to be present in domestic swine. The safe work practices are provided as suggestions for staff and researchers who work with animals, in animal facilities, or with animal products.

2. **Zoonotic Pathogens**
    a. Gastrointestinal Infection
        i. Organisms: *Salmonella* spp., *Escherichia coli*, *Campylobacter spp.*, *Yersinia enterocolitica, Cryptosporidium parvum, Giardia intestinalis, Balantidium coli*.
        ii. Clinical Signs
            1. Animals – Diarrhea.
            2. Humans – Diarrhea, nausea, vomiting, abdominal pain.
        iii. Transmission: Fecal-oral.

    b. Dermatophytosis (Ringworm)
        i. Organisms: *Microsporum nanum, Microsporum canis, Trichophyton mentagrophytes and T. verrucosum*
        ii. Clinical Signs
            1. Animals - Crusty, dark, hairless patches; common on the skin around the head and neck; thorax, flank, behind the ears, on the legs.
            2. Humans - Local itching, reddish skin, and hairlessness at the point of contact.
        iii. Transmission: Direct contact with skin lesions of infected animal. Can also be contracted via contaminated equipments and environmental objects (e.g. pen boards).

    c. Leptospirosis
        i. Organisms: *Leptospira* spp.
        ii. Clinical Signs

1. Animals - Asymptomatic to decreased weight gain, anorexia, abortion, fever, diarrhea, and generalized neurological signs.
2. Humans - Flu-like symptoms (fever, chills, headache, muscle ache, vomiting); liver and kidney failure.

iii. Transmission: Ingestion, direct abraded skin, or mucous membrane contact with contaminated water, urine, aborted fetus, or vaginal discharge from infected animals; aerosolization can occur.

d. Swine influenza
   i. Organism: Influenza virus
   ii. Clinical Signs
      1. Animals – Sudden onset of fever, depression, coughing (barking), discharge from the nose or eyes, sneezing, difficulty breathing, anorexia
      2. Humans – Similar to seasonal influenza (fever, lethargy, lack of appetite, coughing, nausea, vomiting, diarrhea)
   iii. Transmission: Aerosolization or direct exposure to respiratory secretions from infected animals

NOTE: Other zoonotic pathogens (e.g., Rabies*, Hepatitis-E, Streptococcus suis*, *Erysipelas rhusiopathiae, Brucella suis, & Trichuris suis)* may occur in outdoor herds or those acquired from non-commercial sources. Most research swine at Cornell are produced within a closed colony and are housed indoors; therefore, these pathogens are uncommon.

3. Safe Work Practices

a. Good Personal Hygiene
   i. Wash hands after working with animals or animal products and when leaving animal facilities. For further guidelines, refer to ACUP 713 Hygiene-Hand Washing.
   ii. Do not eat, drink, or use tobacco products in animal facilities.

b. Personal Protective Equipment (PPE)
   i. Use proper PPE for work setting as appropriate (e.g. coverall, facemask, boot covers). Maintain dedicated protective clothing and footwear while working with animals or in animal facilities. Do not wear protective clothing outside of animal facility.
   ii. Wear disposable gloves during procedures that increase the likelihood of exposure to zoonotic agents (e.g. during collection of blood from tail vein, collecting fecal sample). Also wear disposable gloves for handling sick animals (i.e. animals showing clinical signs such as diarrhea or hair loss), or contaminated surfaces and/or equipment.
   iii. Use disinfecting boot dips as applicable.
   iv. For further guidelines, refer to ACUP 715 Personal Protective Equipment.

c. Animal Care
   i. Isolate sick or infected animals.
   ii. Handle and care for sick or infected animals last.

d. Cleaning and Disinfection
   i. Maintain clean, dry, and uncluttered animal areas and workspace.
   ii. Disinfect laboratory work surfaces after each use and after any spills when working with animal products. Use only disinfectants approved by

facility managers and that are suitable for the potential agents identified in this information sheet.
iii. Dispose of deceased animals, animal products, items contaminated by animal products, contaminated bedding, and laboratory waste in an approved manner.

e. Proper Sharps Handling
   i. Work only with one uncapped needle at a time and immediately dispose of after use in sharps receptacle.
   ii. Avoid recapping needles whenever possible.
   iii. For further guidelines, refer to ACUP 711 Sharps Precautions.
f. Medical Attention
   i. Contact Gannett Occupational Medicine office (255-6960) for medical evaluation if you suspect any exposure, or if you develop any symptoms associated with infection with zoonotic agents (e.g., fever, malaise, diarrhea, abdominal pain). Alternatively, see your own personal health care provider if any injury or potential exposure to a zoonotic agent occurs.
   ii. Notify the principal investigator or supervisor and complete an accident and injury report. (See references for report link).
g. Allergies
   i. Handling of bedding and animal products may aggravate allergies
      1. Proper use of PPE reduces, but does not eliminate, the risk of developing allergies. Refer to the Allergy Prevention web page (see References) for further information.

4. References

a. ACUP 711 Sharps Precautions: http://www.research.cornell.edu/care/documents/ACUPs/ACUP711.pdf
b. ACUP 713 Hygiene-Hand Washing: http://www.research.cornell.edu/care/documents/ACUPs/ACUP713.pdf
c. ACUP 715 Personal Protective Equipment: http://www.research.cornell.edu/care/documents/ACUPs/ACUP715.pdf
d. Allergen Prevention: http://www.research.cornell.edu/Care/documents/OHS/AllergyPreventionFactSheet.pdf
e. Gannett Health Services, (607) 255-5155 or www.gannett.cornell.edu/
f. Cornell Environmental Health and Safety, Accident Report: http://www.ehs.cornell.edu/forms/
g. CDC, Diseases From Farm Animals: http://www.cdc.gov/healthypets/animals/farm_animals.htm
h. CDC, Key Facts about Swine Influenza: http://www.cdc.gov/flu/swineflu/key_facts.htm