

This information sheet is for the care and use of Swine



Potential Injury and Zoonotic: Physically, swine handling can be very demanding. Because it is so difficult to withstand their pushing and shoving, care should be taken when entering pens that hold a large number of animals. The zoonotic diseases associated with handling swine include the following:

Anthrax: This is an acute bacterial infection of humans and animals which may be rapidly fatal. The disease occurs worldwide and is an occupational hazard of persons such as wool-sorters, farm workers and veterinarians in contact with infected animals or their by-products. All domestic, zoo and wild animals are potentially at risk of infection. Anthrax bacilli are released from infected carcasses and form resistant spores on exposure to air. These spores contaminate soil for many years. Humans are usually infected by inoculation from direct contact with infected animals, carcasses or animal products and contaminated soil. Inhalation or ingestion of spores may occur. Animals are infected from contaminated feed, forage, water or carcasses. Cutaneous anthrax causes localized ulceration (sore) and scab with fever and headache and in rare circumstances be followed by more severe conditions such as septicemia and meningitis. Inhalation anthrax causes fulminating pneumonia. Intestinal anthrax is associated with acute gastroenteritis (nausea, vomiting and diarrhea).

Brucellosis: Is a bacterial infectious disease of animals and humans. The disease in animals is caused by various species of brucella. It is generally limited to abortions and reproductive organ infections. In humans, the disease may mimic the flu with symptoms of headache, fever, fatigue, muscle and joint pain. Rare complications include crippling arthritis, endocarditis or meningitis. There is no cure for brucellosis in animals. Humans are treated with antibiotics for up to 4 to 6 weeks. Animals and humans are exposed to the brucella bacterium by contact with infected placentas, amniotic fluids, vaginal discharges, milk, semen, reproductive tissues, and exudates from infected animals usually just prior to and after an abortion.

Leptospirosis: Is a disease found in many animals but are most commonly associated with livestock and dogs. The source of infection can be from any of the following: Rats, mice, voles, hedgehogs, gerbils, squirrels, rabbits, hamsters, reptiles, dogs, sheep, goats, horses, pigs and standing water. Leptospire are in the urine of infected animals and are transmitted through direct contact with urine or tissues via skin abrasions or contact with mucous membranes. Transmission can also occur through inhalation of infectious droplet aerosols and by ingestion. The disease in people is a multi-systemic disease with chronic sequelae. An annular rash is often present with flu like symptoms, cardiac and neurological disorders may follow and arthritis is a common end result.

Other Diseases: There are many other diseases that can possibly be spread through working with swine. *Cryptosporidiosis, salmonellosis and yersinia enterocolitica* are examples of some of the disease that can be transmitted via the fecal/oral route and manifest as acute gastrointestinal illness. *Salmonellosis and Yersinia* are other diseases that may not produce observable signs of illness in the pigs; therefore, if you handle pigs or their wastes you must take appropriate precautions to prevent transmission of these infections. *Ascaris suum and influenza* are examples of diseases that can be transmitted through inhalation. These diseases are exhibited by respiratory difficulty as well as gastrointestinal illness.

Allergic Reactions: Swine are one of the least likely animals to cause human allergies. However, respiratory protection may be necessary when working around feed and bedding for those who already have allergies. If you have symptoms you are strongly advised to contact the Occupational Health Coordinator at 949-824-3757 to discuss this issue and arrange for follow-up with an occupational health physician.

Injuries from Handling Pigs: Handling pigs can be physically demanding. Injuries to people can occur as a result of pigs running into them and/or knocking them over, lacerations, bites, back strain, and knee injuries associated with trying to restrain a pig. Other hazards in swine facilities that can injure pig handlers include: gates, chutes, and other hinged caging (farrowing pens) causing pinched fingers or bruising; hog snares; overhanging objects; exposed nails or broken pen wire; electrical shock from hosing pens and walls where light and electrical sockets are not waterproof; high ammonia levels causing irritation of the eyes and nasal passages; and husbandry activities. It is essential that people who handle pigs for research or teaching be provided with training in proper handling techniques in order to avoid injury to themselves or the animals, such specific handling and restraint techniques, and protective clothing requirements.

Noise: Handlers are exposed to loud noises from swine vocalizations swine. Studies have detected noise levels up to 110-115 decibels when working with these animals. The OSHA limit in general industry for noise exposure is to 90 decibels over an eight hour work shift.

Excessive exposure to noise may cause hearing loss and this can also result in psychological and possibly physiologic damage to the body. The use of ear plugs is highly recommended but you will need to contact the Occupational Health Coordinator at 949-824-3757 to discuss this issue. A periodic audiogram can be used to determine if there is evidence of hearing loss and whether it is stable or progressive.

Wear PPE: When working with pigs you should wear appropriate coveralls (long trousers/pants), closed-toe, sturdy footwear and other equipment as appropriate for the task (e.g., gloves, shin guards). Dust masks should be worn if you are outside in dusty areas or if you are working with pigs in indoor facilities.

Seek Medical Attention Promptly: If you are injured on the job (e.g., bitten, knocked down, joint or arm/leg/foot/hand injuries) promptly report the accident to your supervisor even if it seems relatively minor. Clean all minor cuts and abrasions immediately with antibacterial soap,

and then protect it from exposure to dirt and animal wastes or bodily fluids/secretions. For more serious injuries seek medical services through Workers Compensation by calling (949) 824-9152 or visiting their website <http://www.hr.uci.edu/>

For treatment locations <http://www.ehs.uci.edu/MedEmergPoster.pdf>

Tell your physician you work with swine. Whenever you are ill, even if you're not certain that the illness is work-related, always mention to your physician that you work with swine. Many zoonotic diseases have flu-like symptoms and would not normally be suspected. Your physician needs this information to make an accurate diagnosis. Questions regarding personal human health should be answered by your physician.

SPECIES	BIOLOGICAL HAZARD/PATHOGEN	ROUTE OF TRANSMISSION	CLINICAL SYMPTOMS	PREVENTION/PROPHYLAXIS	MEDICAL SURVEILLANCE REQUIRED	RISKS FOR EXPOSURE AT UCI	Reference
Swine	Brucella suis	Contact with animal and newborn animal, ingestion of animal products, inhalation of airborne agents, contaminated food and water	Fever, chills, profuse sweating, weakness, insomnia, sexual impotence, constipation, anorexia, headache, arthralgia, general malaise, irritation, nervousness, depression	Personal hygiene, use of protective clothes, and disinfectants	None	Handling specimens of aborted fetuses in lab; trauma during animal delivery	Animal abstracts; PAHO zoonoses; APHA reference
Swine	Cryptosporidiosis	Fecal, contaminated food and water	Watery diarrhea, abdominal pain, nausea, vomiting, low-grade fever, weight loss	Personal hygiene, PPE	None	Fecal material	Animal abstracts; PAHO zoonoses; APHA reference
Swine	Entamoeba polecki	Ingestion or inhalation of eggs, contaminated food and water or hands	Asymptomatic	Personal hygiene	No surveillance required: few cases reported in humans; difficulty in distinguishing from other species	Fecal material	PAHO zoonoses
Swine	Erysipelothrix rhusiopathiae	Contact with animal and animal products through wounds and skin abrasions	Arthritis in the finger joints, burning sensation, pulsating pain, intense pruritus	Personal hygiene, proper treatment of wounds	None	Slaughter house and meat packing work; veterinary work	PAHO zoonoses
Swine	Flavobacterium group IIb-like bacteria	Bite	Celullitis	PPE, Medical care for bites	None	Bite	J Clin Microbiol. 1990 May;28(5):1079-81
Swine	Influenza	Aerosols, contact with swine	Fever, chills. Cephalalgia, myalgia, fatigue, prostration, conjunctival inflammation, intense lacrimation, nonproductive coughing, sneezing, runny nose, sore throat, painful swallowing, bronchitis, bronchopneumonia	Vaccine if appropriate antigenic strain is available	None	Experimental protocols	PAHO zoonoses

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Swine	Leptospirosis	Through skin abrasions and through nasal, oral, and conjunctival mucosa from infected animals and contaminated water and foods	Fever, headache, myalgias, conjunctivitis, nausea, vomiting, diarrhea or constipation, prostration, petechiae on the skin, hemorrhages in the gastrointestinal tract, proteinuria, hepatomegaly and jaundice, renal insufficiency with marked oliguria or anuria, azotemia, electrolyte imbalance, stiffness of neck	Personal hygiene, use of protective clothes	None	Indirect exposure to contaminated soil; risk factors associated with leptospirosis included smoking (odds ratio [OR], 14.4; 95% confidence interval [CI], 1.39 to 137.74) and drinking beverages (OR, 5.1; 95% CI, 1.04 to 24.30) while working with infected pigs. Washing hands after work was protective (OR, 0.2; 95% CI, 0.03 to 0.81). CONCLUSIONS AND CLINICAL RELEVANCE: Leptospirosis is a risk for swine producers and slaughterhouse workers, and may be prevented through appropriate hygiene, sanitation, and animal husbandry. It is essential to educate people working with animals or animal tissues about measures for reducing the risk of exposure to zoonotic pathogens.	PAHO zoonoses; J Am Vet Med Assoc. 2000 Mar 1; 216(5):676-82
Swine	Pasteurella aerogenes	Bite	Peritonitis following bite	PPE. Medical care for animal bites.	No	Bite	***Ped Inf Dis J 2004 Six

***Reference: Ped Inf Dis J 2004 Six patients developed local infection after being bitten or gored by swine. Wounding was often deep and occurred characteristically on the posterior aspect of the thigh. Severity of infection varied from simple wound infection with discharge and slough to cellulitis and abscess formation; pathogens included haemolytic streptococci, pasteurellae, Bacteroides sp., Proteus sp. and Escherichia coli and were usually isolated in mixed culture. A patient with Pasteurella aerogenes infection appears to be the first reported in England.

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Swine	<i>Erysipelothrix rhusiopathiae</i>	Contact with animal and animal products through wounds and skin abrasions	Arthritis in the finger joints, burning sensation, pulsating pain, intense pruritus	Personal hygiene, proper treatment of wounds		Slaughter house and meat packing work; veterinary work	PAHO zoonoses
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Swine	Pasteurella multocida	Infected bites or wounds	Celullitis	Medical care for bites	No	Handling animals with swine pneumonia	PAHO zoonoses
Swine	Rabies	Bite, contact with infected tissue or body fluids	Fever, headache, agitation, confusion, excessive salivation	Avoid contact with wild animal, use appropriate PPE	TBD by Risk Assessment Rabies vaccine	None in lab animals/Yes in wild animals	

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Swine	Salmonella choleraesuis	Fecal/Oral, contaminated food and water	Septicemic syndrome, splenomegaly, and high fever a few days to a few weeks after onset of gastroenteritis	Personal hygiene	None	Yes	PAHO
Swine	Salmonellosis	Fecal/Oral, contaminated food and water	Diarrhea, vomiting, low grade fever	Personal hygiene, PPE	No	Yes	
Swine	Scabies	Close contact with infected area or animal	Irritation, pruritis, itching	Wear protective clothing, gloves and high boots of a material that mites cannot penetrate	No	Working with affected animal herds; based on literature reports; appears to have wide geographic distribution - Europe, U.S., Asia, etc; outbreak report from India	PAHO zoonoses; pub med references
Swine	<i>Streptococcus suis</i> type 2 (group R)	Skin lesions	Meningitis, severe headache, high fever, confusion, stiff neck, loss of auditory acuity, arthritis, endophthalmitis	Treat cuts or abrasions properly	No	Scattered outbreaks - Netherlands 1968-1984; airborne spread; ingestion	
Swine	<i>Yersinia enterocolitica</i>	Fecal/Oral, contaminated food and water	Fever, hypotension, abdominal pain, diarrhea, vomiting, sore throat, bloody stool, cutaneous eruptions, joint pain	Personal hygiene and PPE	No	Yes	
Swine	<i>Yersinia pseudotuberculosis</i>	Fecal/Oral, contaminated food and water	Mesenteric adenitis or pseudoappendicitis, acute abdominal pain in the right iliac fossa, fever, vomiting, diarrhea, pyrexia, rashes, nausea	Personal hygiene and PPE	No	Yes	Department of Microbiology, Harrogate General Hospital, North Yorkshire

Revised 07/2014 information taken from UC Davis.