Working with Pigs

Animal Use Medical Screening (AUMS):

All personnel working with animals, their tissues, or working in areas where animals are housed must submit an Animal Use Medical Screening (AUMS) form every 3 years to screen for exposure to possible health hazards in the work environment. Complete the form online at: https://www.ehs.washington.edu/research-lab/animal-use-medical-screening-aums

Potential zoonotic diseases from pigs:

See *Appendix A: Zoonotic Disease Potentials from Pigs* for a list of possible zoonotic diseases.

Preventative measures:

- Tetanus booster should be obtained every 10 years.
- Only trained personnel should handle the pigs.
- Wear appropriate clothing and personal protective equipment (PPE). Wear protective gloves when handling the animals. Wash hands thoroughly upon completion of the tasks with the animal and upon removal of the glove/PPE. Use antiseptic hand sanitizer between glove use if needed, until you can get to handwashing facilities.

Injuries:

- See the EH&S Exposure Response Poster.
- Immediately wash area thoroughly with soap and water for at least 15 minutes.
- Control any bleeding and cover with protective dressing (bandage, etc.)
- For any injuries, needlestick/sharps injury or for signs/symptoms of wound infection such as redness, swelling or pain, contact the Employee Health Center at 206-685-1026. After hours or if the clinic is unavailable, go to the UWMC Emergency Department. For incidents at Harborview, call the Harborview Employee Health Services at 206-744-3081. After hours, go to the Emergency Department at Harborview.
- Report injuries on the UW Online Accident Reporting System (OARS) at: http://www.ehs.washington.edu/workplace/accident-and-injury-reporting

Illness:

- If you develop signs or symptoms that you think may be related to your work with animals and/or research work, contact the Employee Health Center.
- If you see your own provider, inform him/her that you work with these animals and any other pertinent information regarding your research work. Inform Employee Health after seeing your healthcare provider.
- Report work-related illness on the UW Online Accident Reporting System (OARS) at: http://www.ehs.washington.edu/workplace/accident-and-injury-reporting

Allergies:

If you suspect you may be experiencing allergy symptoms, such as runny nose and sneezing (allergic rhinitis), irritation and tearing of eyes (allergic conjunctivitis), asthma, or skin rash (atopic dermatitis), contact the Employee Health Center. Those who already have asthma and/or other allergies are at an increased risk.

- There has been one documented case of asthma symptoms from a urinary protein in pigs.
- Precautions and methods of control to prevent exposure to animal allergenic substances can be found in the NIOSH alert online, Preventing Asthma in Animal Handlers

References:

- CDC The National Institute for Occupational Health, Preventing Asthma in Animal Handlers: https://www.cdc.gov/niosh/docs/97-116/
- UW Research and Occupational Health webpage: https://www.ehs.washington.edu/research-lab/research-occupational-health
- University of California Davis Zoonosis Information by Species webpage: http://safetyservices.ucdavis.edu/ps/occh/acuohp/pem/zis
- Washington State University Zoonotic Diseases webpage: https://iacuc.wsu.edu/zoonotic-diseases/
- U.S. Air Force Zoonotic Diseases webpage: http://www.phsource.us/PH/ZD/index.htm
- Zoonotic Disease Fact Sheet, American Biological Safety Association: https://absa.org/wp-content/uploads/2017/01/ZoonoticFactSheet.pdf
- Fox, Anderson, Otto, Pritchett-Corning and Whary Laboratory Animal Medicine. 3rd edition, 2015.

Contacts:

- UW Employee Health Center: 206-685-1026
- Harborview Employee Health Services: 206-744-3081
- For questions on AUMS: 206-221-7770
- For questions on UW Online Accident Reporting: 206-543-7388

Appendix A: Zoonotic Disease Potentials from Pigs

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Zoonotic Disease Potentials from Pigs

Some of the pathogens below can be commonly found in farm pigs not bred for research. About 50% of the pigs used in research at UW are screened and vaccinated for many of the pathogens below; these pigs are considered to be SPF (Specific Pathogen Free). The pathogens commonly vaccinated for include Bordetella, Erysipelothrix, Pasteurella, and Leptospira.

Disease/ Infective Agent	Reservoir/source of infection	Transmission	Disease in people
Ascariasis (Roundworm)	This nematode, *Ascaris suum*, can live in the gastrointestinal tract and liver of pigs without showing clinical sign. The eggs are excreted in the feces.	Ingestion of eggs through water or feces.	Infection in the lungs, liver damage, and abdominal pain.
Balantidiasis	*Balantidium coli is a* protozoan normally found in the cecum and large intestine of the pig. If the normal gut bacterial flora becomes unbalanced, this organism may reproduce in greater numbers and then cause anemia, enteritis and poor growth in pigs. The cyst of this organism can survive for long periods in the environment.	By fecal contamination.	Severe colitis, with ulcers and sloughing of intestinal mucosa. Remember, even normal pigs will have this protozoan in their feces and observing good hygiene is a must! Always wash your hands after handling pigs, their wastes or body tissues.
Bordetella	*Bordetella bronchiseptica*, a gram negative rod, is commonly found in the respiratory tracts of pigs, and is the causal agent of atrophic rhinitis.	By aerosols or close contact.	Symptoms of respiratory disease. Causes sporadic infections in humans.
Brucellosis	*B. suis* is the main species found in pigs. The majority of infected swine herds show no symptoms, but the classic signs are abortions, infertility, weak piglets at birth, infection of the testes and arthritis due to joint infection. All US states are currently Brucellosis free so exposure to this organism is highly unlikely. Some wildlife may harbor this organism and, therefore,	By direct contact with mucous membranes, tissues, blood, urine, vaginal discharges, or aborted fetuses and placentas from infected animals.	Symptoms may take weeks to months to develop and is manifested by severe fever and infection in multiple organs. Prevention is by observing good hygiene, particularly wearing masks and gloves, as well as hand washing.

Disease/ Infective Agent	Reservoir/source of infection	Transmission	Disease in people
	an outbreak in the US is still possible in the future.		
Campylobacteriosis *C. jejuni* is considered to be one of the principal bacterial agents causing enteritis and diarrhea in man and is highly pathogenic and widespread in the environment.	Commonly found in pigs, as is another species, C. coli.	By fecal-oral route.	Diarrhea, cramping, abdominal pain, and fever within one to five days after exposure to the organism. The diarrhea may be bloody and can be accompanied by nausea and vomiting. The illness typically lasts one week. Some have no signs of infection. In persons with compromised immune systems, *Campylobacter* occasionally spreads to the bloodstream and causes a serious life-threatening infection.
Colibacillosis	Certain strains of *E. coli* are responsible for a syndrome called Edema disease, wherein pigs show neurologic symptoms and edema of the eyelids and sometimes, edema of the entire neck and belly area. The disease maybe discovered when large numbers of weanling pigs suddenly die, without any previous signs of ill health.	By fecal-oral route.	Profuse and watery diarrhea, abdominal colic and vomiting.
Cryptosporidiosis	*Cryptosporidium parvum* is a protozoal organism commonly found in many livestock animals and is shed in the feces, particularly in younger pigs where it can cause diarrhea. The oocyst that are shed into the environment are resistant to many common disinfectants so the organism can be present and spread from the environment.	Through water contaminated with feces.	Severe debilitating diarrhea.
Erysipelas	A disease caused by the bacteria *Erysipelothrix rhusiopathiae*. Infected pigs may show high fevers, painful movement due to infected joints and often, there is a skin rash of	Through direct contact with the lesion, nasal secretions, saliva or feces.	Produces similar lesions and can lead to arthritic changes.

Disease/ Infective Agent	Reservoir/source of infection	Transmission	Disease in people
	raised, pink to purple, square-ish lesions which range in size from pinpricks to about four inches across.		
Leptospirosis	Infected pigs usually show no symptoms from this bacterium*, L. interrogans*, although within a herd there may be an increase in abortions and small, weak piglets.	Through urine of infected pigs.	Flu-like symptoms that can progress to swelling, stiffness and pain in the neck and brain.
Pasteurellosis	This bacteria, *Pasteurella multocida*, is a normal inhabitant of the swine upper respiratory tract but can cause clinical signs with co-infection of other bacteria and/or viral disease. These multifactorial infections often lead to pneumonia. The bacteria is also normal flora in many domestic animals (especially cats and dogs). None reported from lab animals since 1976.	Through open wound or mucous membrane.	In humans, localized infection such as cellulitis and abscess can occur less than 24 hours after animal bite or scratch. These infections can progress to systemic infections in persons with weakened immune systems.
Salmonellosis	*S. typhimurium or other serovars* is a common bacteria found in the intestinal tract of many animals, including pigs and man.	Contamination of the environment by fecal material is the most common source for infection but contamination can also occur through oral or nasal secretions.	A watery, profuse diarrhea that can be accompanied by a fever. Persons with suppressed immune system can become very ill.
Scabies	*B.* Scabies is an infestation of the skin with the microscopic mite *Sarcoptes scabei.* Infestation is common, found worldwide, and affects people of all races and social classes. Scabies spreads rapidly under crowded conditions where there is frequent skin-to-skin contact between people, such as in hospitals, institutions, child-care facilities, and nursing homes.	This mite infects by direct, **prolonged,** skin-to-skin contact with a person or animal already infested with scabies.	Skin rashes, lesion and itching are the most common clinical sign of infections.
Streptococcosis	*Streptococcus suis is e*ndemic in most pig-rearing countries of the world. The organism is carried in the tonsils of pigs, and pig-to-pig spread is mainly	Occurs mainly via cuts or abrasions when handling infected carcasses.	Two serotypes have been implicated in human infections; *S. suis* type 2, an established zoonotic human

Disease/ Infective Agent	Reservoir/source of infection	Transmission	Disease in people
	by nose-to-nose contact or by aerosol over short distances. Human infection with *Streptococcus suis* is rarely reported and only about 150 cases have been reported from the world literature**.**		pathogen and more recently *S. suis* type 14. Human infection may be severe, with meningitis, septicemia, endocarditis, and deafness. People in direct contact with pigs or pig products are considered at risk. Asplenic patients are known to be at greater risk from the disease.
Swine Influenza	Pigs infected with certain strains of influenza (H1N1).	Via aerosolized particles from the upper respiratory tract of infected pigs.	Clinical signs in both pigs and humans includes fever, cough, and nasal discharge.
Turberculosis (TB) or Mycobacteriosis	Pigs are susceptible to three agents, *M. bovis, M. avium* and *M. tuberculosis*.	By inhalation and ingestion (typically of uncooked meat) or bites.	Includes fever, chronic or acute respiratory signs. Occasionally the disease can cause systemic illness.