Pregnancy in the Lab

UNIVERSITY OF SOUTH FLORIDA

Environmental Health & Safety

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Contacts and Objectives

http://www.usf.edu/ehs/	OPM 100	813-974-4036
Waste Management	Occupational Safety	
Industrial Hygiene	Property Insurance/Risk Management	
Asbestos/Indoor Air Quality	Lab Safety	
Fire Safety	Respiratory Protection	

Training Objectives

- To provide safety information for USF workers and researchers that are pregnant, nursing, or planning to conceive.
- To provide contact information and resources to aid in safety concerns

Individual Responsibility

- The key to having a safe laboratory environment lies with an individual's commitment to safety while conducting research.
- Discuss workplace hazards with their healthcare provider.
- Evaluate and decide whether to accept the risks associated with working in the laboratory while pregnant or planning to conceive.

Chemical Hygiene Plan

- The USF Chemical Hygiene Plan (CHP) applies to all laboratory personnel and chemical laboratories at USF. The CHP specifies what procedures, lab equipment, PPE, and work practices should be used to minimize risk for lab occupants. It also identifies the responsibilities of faculty, staff, and students working in the laboratories at USF.
- All lab personnel must have access to the Chemical Hygiene Plan. You can review the Chemical Hygiene Plan at https://www.usf.edu/administrative-services/environmental-health-safety/documents/chemical-hygiene-plan.pdf

Contents

Contacts and Objectives 1

Contents 2

Introduction 3

Laboratory Safety 3

Confidentiality 3

Reproductive Hazards 3

Chemical Hazards 4

Biological Hazards 4

Radiological Hazards 5

Ergonomic Hazards 5

Personal Protective Equipment 5

Nursing Mothers 6

Resources 6

Introduction

Laboratory workers are often in contact with various hazards that can adversely affect reproduction. Since most chemicals have yet to be evaluated for their reproductive effects, laboratory workers who are pregnant, nursing, or planning to conceive (both men and women) should consider consulting with USF Environmental Health and Safety (EH&S) for guidance. Reporting your condition to EH&S is voluntary. EH&S can assist you with the evaluation of workplace reproductive hazards and make recommendations about control measures to avoid exposure.

Lab personnel who inform EH&S are also encouraged to discuss all workplace hazards with their healthcare provider. In some cases, it may be advised to consult with an Occupational Medicine doctor as well. Ultimately, it is the responsibility of the lab worker to evaluate and decide whether to accept the risks associated with working in the laboratory while pregnant or planning to conceive.

Laboratory Safety

Common laboratory chemical hygiene practices like wearing appropriate personal protective equipment (PPE) and frequent hand washing are always important when working in a laboratory. These practices are even more critical for a pregnant woman or a person that is planning to conceive. While EH&S conducts yearly lab safety inspections to help ensure that all USF lab personnel are working in a safe environment, it is the lab worker's and the PI's responsibilities to adhere to the University's safety procedures. Most lab workers who are pregnant or planning to conceive can continue to work safely in the laboratory by following the guidance in USF's Chemical Hygiene Plan (CHP).

Confidentiality

Pregnancy related inquiries are kept confidential. Therefore, you can speak to an EH&S representative without informing your department or PI. If requested, an impromptu assessment of the laboratory can be performed without informing other lab members. However, if accommodations are necessary for the safety of the unborn child, your supervisor may need to be informed.

Reproductive Hazards

Reproductive hazards include substances or agents that can affect the reproductive health of women or men, or their ability to have healthy children. These hazards may be chemical, biological, radiological, or physical in nature. Exposure can occur through ingestion, injection, inhalation, or absorption. Potential health effects include infertility, miscarriage, birth defects, and developmental issues in children. The degree to which a person may be affected depends on different factors, including the type of hazard, method of exposure, length of exposure, dose received, and individual variation (i.e. age and the stage of the pregnancy when exposure occurred).

Chemical Hazards

If a chemical is a known reproductive hazard, its Safety Data Sheet (SDS) will state the reproductive effects under Section 11 - Toxicological Information. However, many chemicals have not been tested specifically for reproductive toxicity. Treat substances of unknown toxicity and all new compounds as toxic substances. When working with highly hazardous chemicals such as teratogens and embryotoxins women of childbearing age should take the utmost caution. The greatest period of susceptibility to these chemicals is in the first 8-12 weeks of pregnancy, which is a period when a woman may not know she is pregnant. Therefore, women of childbearing age should always work with these chemicals in a properly functioning fume hood while using appropriate PPE to avoid exposure. It is recommended that you contact EH&S if you are pregnant or planning to become pregnant while working with these chemicals.

The following are examples of potential reproductive chemical hazards common in labs. This is not a complete list and Safety Data Sheets (SDS) should be consulted before any chemical use.

- Anesthetic gas (e.g., nitrous oxide, halothane, isoflurane)
- Antineoplastic (chemotherapy) drugs
- Formaldehyde (including formalin and glutaraldehyde)
- Solvents (e.g., benzene, toluene, hexane, xylene)
- Pesticides
- Chemical Disinfectants and sterilants (i.e., high–level disinfectants: Glutaraldehyde, Ortho-phthalaldehyde)
- Heavy metals (e.g., lead, cadmium, cobalt, mercury)

Biological Hazards

Working with certain biological agents can increase the chances of having a miscarriage or a child with birth defects. Some pathogens can also be amplified in pregnant women and these pathogens should be handled with increased precaution. At a minimum, standard precautions must be taken to protect against bacteriological hazards. These include wearing appropriate PPE, washing hands, performing routine cleanup of the lab, and handling biomedical waste appropriately. When working in a lab with biological hazards, continue to follow the laboratory safety procedures outlined in the CHP and the Biosafety Manual. These resources will help to prevent laboratory acquired infections when followed correctly.

If the mother is infected during pregnancy, these and other biological agents can increase the severity of illness to a woman and/or adversely affect an unborn baby:

- Chicken pox (varicella zoster virus)
- Coccidiodomycosis
- Cytomegalovirus (CMV)
- Ebola virus
- Hepatitis B virus (HBV)
- Hepatitis C virus (HCV)
- Hepatitis E virus (HEV)
- Human Immunodeficiency Virus (HIV)

- Herpes
- Influenza
- Listeria
- Malaria
- Measles
- Parvovirus B19 (Fifth disease)
- Rubella (German measles)
- Toxoplasmosis
- Zika

Radiological Hazards

Whenever a female isotope worker becomes pregnant, she should formally notify (letter or E-mail) the Radiation Safety Officer. The mother assumes all risk until she specifically declares her pregnancy to the Radiation Safety Officer. Upon receipt of this notification, the Radiation Safety Office, the University and the Principal Investigator will ensure that the female worker's exposure will not exceed 500 millirem to the fetus. After a female occupational worker voluntarily notifies the Radiation Safety Officer and Principal Investigator in writing that she is pregnant she is considered a declared pregnant worker. Section 64E-5.311, F.A.C., places different radiation dose limits on declared pregnant workers than on adult workers. Specifically, a declared pregnant worker who chooses to continue working as an occupational worker, has a dose limit for the embryo/fetus from conception to birth (entire gestation period) of 500 mrem. Declared pregnant workers at all times when they are at work will wear an additional monitoring device. It is the responsibility of the pregnant worker to decide when or whether to formally declare her condition. If a woman chooses not to declare her pregnancy, she will continue to be governed by the guidelines for adult occupational exposure.

Ergonomic Hazards

Ergonomic hazards can also be a concern for pregnant women. Pregnancy can affect a woman’s balance and range of motion. Some research suggests a link between certain ergonomic stressors and adverse pregnancy outcomes. Several studies have also found an increased risk of pre-term delivery among women whose jobs involve a combination of stressful factors, such as standing for long durations, repetitive lifting and working long hours. Therefore, it is important to inform your healthcare provider of any ergonomic concerns that may arise from working in the lab. EH&S can assist by providing ergonomic evaluations to University employees upon request.

Personal Protective Equipment

The laboratory environment contains many potential hazards. Most hazards can be reduced or eliminated by substitution and/or engineering controls. Substitution is the reduction or elimination of a hazard by replacing a high hazard material or procedure with a less hazardous one. Engineering controls include the use of a fume hood or biosafety cabinet. When hazards cannot be adequately controlled with substitution and/or the implementation of engineering controls, personal protective equipment (PPE) may be required.

PPE issued to laboratory personnel must be appropriate for the task and will depend upon the proper hazard identification and assessment made by the PI. Laboratory personnel must understand the use and limitations of PPE. PPE includes, but is not limited to, laboratory coats and aprons, eye protection (safety glasses, face shields, etc.), and gloves. Laboratory personnel must wear proper PPE when it is required. PPE should not be worn outside of the lab or taken home. If respiratory protection is contemplated, EH&S must be contacted to request an evaluation of the workplace to ensure other controls are not feasible. If respirator use is authorized, individuals must be properly trained, medically cleared by a Licensed Healthcare Professional, and pass a fit-test for the specific make, model, and size of respirator to be worn.

Consult the Laboratory PPE Selection Guide or contact EH&S for additional information on the assessment of hazards, the selection, and use of personal protective equipment.

Nursing Mothers

Nursing mothers should continue to take the same precautions as a pregnant lab worker since some reproductive hazards can be transferred through breastmilk. Do not store expressed milk in the laboratory.

Resources

CDC/National Institute for Occupational Safety and Health (NIOSH):

- Reproductive Health and the Workplace: https://www.cdc.gov/niosh/topics/repro/default.html
- The Effects of Workplace Hazards on Female Reproductive Health: https://www.cdc.gov/niosh/docs/99-104/

National Research Council, Chemical Sciences and Technology, & Committee on Prudent Practices. (2011, March 25). Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards, Updated Version. Retrieved from https://www.nap.edu/catalog/12654/prudent-practices-in-the-laboratory-handling-and-management-of-chemical.

U.S. Congress, Office of Technology Assessment, Reproductive Health Hazards in the Workplace: http://govinfo.library.unt.edu/ota/Ota_4/DATA/1985/8521.PDF

USF Chemical Hygiene Plan: https://www.usf.edu/administrative-services/environmental-health-safety/documents/chemical-hygiene-plan.pdf

USF General Radiation Safety Information About USF Research: https://www.usf.edu/research-innovation/research-integrity-compliance/documents/radiation-safety/usf-gert.pdf

USF Institutional Biosafety Program: https://www.usf.edu/research-innovation/research-integrity-compliance/ric-programs/biosafety-program/policies-procedures.aspx

USF Laboratory Personal Protective Equipment (PPE) Assessment Tool: https://www.usf.edu/arts-sciences/departments/chemistry/documents/hazard-control-ppe-guide-EH&S.pdf

NOTES

NOTES

- Laboratory Safety Training
- Hazardous Waste Refresher
- Biomedical Waste Refresher
- Hazardous Communication
- Personal Protective Equipment
- Slips, Trips, and Falls
- Hearing Conservation
- Golf Cart Training
- Asbestos Awareness Training
- Fire Prevention Safety Training

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