ENVIRONMENTAL
HEALTH & SAFETY

SAFETY GUIDELINE
General Reproductive Safety for Laboratorians

All personnel should consider potential hazards and follow proper safety practices while working in laboratories and conducting research. Principal Investigators, laboratory managers, and supervisors must ensure that personnel have access to and understand potential hazards in their work environment and how to protect themselves and their families. Personnel are also responsible for understanding hazards in their work environment, seeking additional guidance when they have questions, using appropriate engineering controls (biosafety cabinet, fume hood, etc.), and properly using and disposing of personal protective equipment (PPE). Negative impacts of hazard exposure may vary and are difficult to predict when considering individual health status, genetic make-up, exposure amounts, etc.; thus, **safe work practices must be employed by all.**

Where reproductive health is concerned, exposure to some hazards is suspected or known to have a negative effect on the reproductive capability of both women and men. Individuals who are exposed to certain hazards may inadvertently expose others they are in close contact with, including sexual partners. Additionally, some hazards may pass from mother to fetus and/ or from mother to baby through breastfeeding. In most cases, following prudent safety practices allows individuals who are pregnant, or planning to become pregnant, to work safely.

Biological agents, chemical and radiation hazards, as well as additional general hazards encountered in the laboratory environment and while conducting field work are important considerations when discussing reproductive health. Environmental Health and Safety (EHS) can assist with hazard identification and risk mitigation strategies. A physician or medical professional should be consulted to perform an individual risk assessment for personnel if there are additional questions or concerns related to a person's health status. Other complicating health factors such as asthma, diabetes, autoimmune disorders, etc., could further compromise immune system function and increase vulnerability to infections.

This document complies with OSHA 29 CFR 1910.1200 "Right to know". Self-reporting of pregnant status is entirely at the discretion of the individual and is in no way required by the University of Nebraska in accordance with the US Pregnancy Discrimination Act of 1978. Nor can a change in job duties be imposed upon an individual solely because of self-reporting of pregnant status.

General Safety:

Risk to all personnel in a laboratory must be minimized using engineering controls, proper work practices, appropriate PPE, and proper hygiene practices. Beyond chemical, radiation, and biological concerns, heavy lifting, excessive noise or vibration, and temperature extremes may pose additional concerns for pregnant individuals. Ergonomic issues can be compounded by the challenges associated with the rapid physiological changes occurring during the gestational period. The best way to mitigate occupational factors that may have a negative impact on a pregnant laboratorian and a developing fetus is to ensure that safety practices are in place and followed. Communication with medical and safety professionals, supervisors, and human resources along with an evaluation of assigned duties may be necessary to identify relevant hazards and best practices to mitigate risks.

Radiation Safety:

Exposure to ionizing radiation should be always kept as low as reasonably achievable and especially during pregnancy. It is not recommended that pregnant laboratorians work with radioactive iodine (e.g., I-125, I-131) and radioactive materials in volatile forms. A fetal monitoring program is available to all pregnant personnel at UNMC and UNO, including non- radiation workers. Individuals who enroll in the program will be provided dosimetry (radiation badges) that will be used to monitor fetal exposure. Pregnant laboratory workers may contact Environmental Health and Safety for additional information and to enroll in the program.

Biosafety:

Refer to the CDC/ NIH manual for Biosafety in Microbiological and Biomedical Laboratories (BMBL), 6th edition for agent – specific information and additional safety precautions that should be considered for all personnel of reproductive age. Personnel who work with biological hazards should be included on biosafety protocols that are registered with the Institutional Biosafety Committee (IBC) and must be trained to safely conduct work with agents. A risk assessment and consult with a physician is recommended before working with agents when you or your partner are trying to conceive, pregnant, or lactating. Any severe infection may be detrimental to the health of the mother and child during pregnancy, following birth, and during the lactation period. Individuals who work with, have been exposed or potentially exposed to agents that may pose risk to sexual partners (e.g., HIV, Zika Virus, Hepatitis, etc.) are also encouraged to perform a risk assessment with a physician.

Chemical Safety:

Understanding the risks of chemicals and reagents is an important element of laboratory safety. In situations where reproductive health is the focus, chemicals identified as teratogenic, mutagenic, carcinogenic, and fetotoxic are of utmost concern. Heavy metals

such as lead and mercury, alcohols and organic solvents that readily volatilize, and DNA binding or crosslinking agents such as ethidium bromide and formaldehyde are a few examples of the numerous chemicals that can pose health risks. Principal Investigators and research managers must keep an up-to-date chemical inventory and educate lab personnel about particularly hazardous substances. Special considerations may apply to personnel of reproductive age. When possible, researchers should select safer chemical options for use in their laboratories.

Information about handling and storage of specific chemicals can be found by referencing the Safety Data Sheets (SDS) stored in the laboratory or through MSDS Online, however data sheets often lack risk information related to the amount of exposure and personal health status. Any additional concerns should be directed to your healthcare provider, supervisor and/ or the EHS office.

Safety with Research Animals and Field Work:

Well-known risks associated with research and animal use (allergen exposure, bites and scratches, zoonotic diseases) may be increased during pregnancy or while planning to become pregnant. Personnel with exposure to animals or hazards associated with animal work must enroll in the Institutional Occupational Health and Safety Program for these activities. Supervisors, Principal Investigators, and/ or EHS can help identify animal species and hazards of particular concern. Employee or Student Health clinics will provide medical risk assessments, based on personal health information provided, as part of the program. Personal healthcare providers should be consulted as needed. As always, risk is minimized through the use of engineering controls, employing proper work practices, use of proper PPE, and following proper hygiene practices. Examples of biologic agents/ animals that may pose increased risk include: Toxoplasma (cats/ wild rodents), Q-fever (sheep, goats, cattle – especially pregnant animals), LCMV and Hantavirus (wild rodents), histoplasmosis (exposure to bird and bat droppings). Chemicals, pharmaceuticals, radioisotopes, gas anesthesia (e.g., isoflurane), and biohazard use in animals should also be considered.

Additional Resources:
OSHA Reproductive Hazards
CDC/ NIOSH Reproductive Health and the Workplace
Mother to Baby Fact Sheets

UNMC Campus:
Environmental Health and Safety
P: 402-559-6356
unmcehs@unmc.edu

Nebraska Medicine Employee Health Clinic
P: 402-552-3563
employeehealth@nebraskamed.com

UNO Campus:
Environmental Health and Safety
P: 402-554-3596
uno.ehs@nebraska.edu

Nebraska Medicine - UNO Health Center
P: 402-554-2374