Guidelines for Reproductive Hazards and Work

The University of Queensland is committed to providing employees and students with a safe and healthy work and learning environment. This commitment extends to staff or students who are considering pregnancy, who are pregnant or who are breast-feeding.

A wide range of occupations and activities conducted by the University can potentially expose staff and students to physical, biological and chemical hazards associated with reproductive health effects. The effects of reproductive impairment for both male and females can include situations which cause infertility, impotence, miscarriage, foetal malformation, underweight babies, and premature birth. Physiological changes in pregnancy also heighten the effect of certain workplace exposures.

Employees and students at risk of exposure to significant reproductive hazards must be informed of the potential health risks to enable them to adopt suitable controls. These guidelines provide a summary of the potential areas of concern, and recommended actions to be adopted.

Your role in ensuring a safe pregnancy

Employees and students are encouraged to advise the supervisor as soon as possible when they become pregnant, since the first trimester can be a period of high susceptibility. However, supervisors should be aware that employees and students cannot be required to inform the University of their reproductive status, and should not be coerced to reveal personal information. Pregnant employees and students are encouraged to discuss their work environment and duties with their personal physicians.

Once a supervisor is aware that an employee or student is pregnant, it is recommended that the OH&S Division be contacted so that a job analysis can be conducted and any modifications made to their work environment or duties. The University Health Service can also be contacted by the pregnant person or the supervisor to assist in this area.

Developmental Toxicology

The first trimester is one of the most critical times for the foetus, because extensive development is taking place. Cells are dividing very rapidly at this time to form complex organs. Different exposures may affect the foetus in different ways and the same exposure may have different effects depending on the timing. Exposures such as chemicals or medications can interfere with cell division and formation of the organs. Some exposures may damage the organs or produce a physical defect, while others delay normal growth and development. Exposures may also interfere with growth and development throughout the second and third trimesters. Later in pregnancy, exposures are less likely to cause physical birth defects, but are more likely to produce low birth weight babies or affect brain development, because brain development continues throughout the third trimester. Achieving an adequate birth weight is very important because low birth weight is a major risk factor for poor health during the first years of life. For example, low birth weight is a risk factor for childhood asthma.

A few organ systems (for example, the brain, urinary and reproductive systems) continue to develop throughout the remainder of the pregnancy, and thus, are vulnerable to structural damage in the third trimester.

Working with chemicals

Certain chemicals are known or suspected to harm foetuses or the reproductive health of adults. Some examples of reproductive toxins are: endocrine disruptors (DDT, methoxychlor, diethylstilbestrol, lindane, heptachlor, some plant estrogens), anesthetic gases, heavy metals (arsenic, cadmium, lead, mercury), benzene, carbon disulfide, ethylene glycol monomethyl and ethyl ethers, polychlorinated biphenyls, ethylene oxide, toluene, styrene, perchloroethylene, vinyl chloride, xylene, pesticides and formamide.

The first trimester of pregnancy is a period of high susceptibility. Often a woman does not know that she is pregnant during this period. Individuals of childbearing potential are warned to be especially cautious when working with such reproductive toxins. Pregnant women and women intending to become pregnant should seek advice from knowledgeable sources before working with the substances that are suspected to be reproductive toxins. These sources include but are not limited to the Occupational Health and Safety Division, University Health Services, your supervisor, and Safety Data Sheets (SDS) for the chemicals you are working with. In addition to these contacts, information can be obtained from any of the following sources:

- Overall evaluations of carcinogenicity to human health
- Workplace Hazards to reproduction and development:
- Reproductive Health and the workplace
- NIOSH – The effects of workplace hazards on female reproductive health
- NIOSH – The effects of workplace hazards on male reproductive health
- Reproductive Hazards Literature Search
- NIOSH carcinogen list
- NIOSH veterinary safety and health

Working with animals and micro-organisms

If you are working with microorganisms and you are unsure of their possible effect on your health you should refer to the relevant Safety Data Sheets and information at the following sites to find the information you require.

Public Health Agency of Canada
The American Veterinary Association
The National Institute for Occupational Safety and Health (NIOSH)

For example *Listeria monocytogenes* is a common example of a micro organism that can cause infection with potential to do harm to the unborn foetus. There are several ways to become infected - if you are working with cultures of Listeria, if you are working with research animals that are infected with Listeria or if you eat food

contaminated with Listeria. Good microbiological work practices and correct hygiene procedures will minimise the risk of infection transmission.

Some micro organisms have been identified as known teratogens. For example Cytomegalovirus (CMV), Herpes virus hominis I and II, Parvovirus B-19 (Erthema infectiosum), Rubella virus, Syphilis, Toxoplasmosis, Venezuelan equine encephalitis virus. Refer to NIOSH publication – The effects of workplace Hazards on Female Reproductive Health for more information.

Animals can be another potential source of infection that may cause problems in pregnancy. Zoonosis is a medical term for diseases that can be transmitted directly from animals (including our pets) to us. For example Toxoplasmosis (a parasitic disease caused by *Toxoplasma gondii*) can be passed from infected cats to humans.

Information can also be found at:
National Institute of Environmental Health Sciences

Health and Safety Executive - UK

Workplace Health and Safety Queensland

Working with ionizing radiation

There is a well recognised need to limit radiation exposure of women who are pregnant so as to prevent the occurrence of any radiation related problems in foetal development.

The International Commission on Radiological Protection (ICRP) has published recommendations for dose limitation and these have been adopted in a slightly more stringent form by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and incorporated in their latest recommendations.

These recommendations, which are incorporated into the Queensland *Radiation Safety Act*, require that the embryo or foetus should be afforded an enhanced level of protection by the adoption of more stringent dose limits than are generally applied to radiation workers. The legislation requires a radiation dose limit of 1 mSv a year (pro-rata for the duration of pregnancy). The normal dose limit for occupationally exposed persons is 20 mSv per annum. ICRP also advise of the need to consider the possibility of accidental exposures and to not allow pregnant women to work in circumstances where there is a significant probability of high accidental exposures.

ARPANSA recommend that an employee who becomes pregnant should advise the employer as soon as practicable, so that appropriate measures may be taken to control her exposure and to provide the required level of protection. The University Radiation Protection Adviser (RPA) can provide individual risk assessments and recommendations for additional exposure controls should they be required. Employees or post-graduate students working with ionizing radiation who are pregnant, or are considering having a child, should contact their Radiation Safety Officer or the RPA directly. All enquiries will be treated in confidence.

Manual Handling and Workplace design issues

Staff who are pregnant should seek medical guidance in determining work activity limitations on an individual basis. If certain medical risk factors or pregnancy complications are present, it may be important to modify the job for the duration that has been medically specified.

A risk assessment approach should be taken to assess and control manual hazards associated with tasks that are to be performed by the pregnant employee. The risk assessment should incorporate medical guidelines that are specified by the staff member's doctor.

The University's Manual Tasks Risk Assessment and Control Guideline should be referred to for direction. It is found on the OHS Division website.

Reference should also be made to the Computer Workstation Design and Adjustment Guideline at the University OHS website.

Potential risk factors related to manual handling activities during pregnancy may include:

- Fatigue due to physiological changes
- Prolonged standing and sitting
- Heavy physical workload or continuous or periodic physical effort.
- Working in hot conditions particularly if sweating is excessive.
- Frequent forward bending, stooping or reaching above shoulder height even when light loads are being handled.

Examples of practicable work restrictions that may be recommended by the treating doctor include:

- Avoidance of work tasks that require high forces and exertion.
- Improving the workplace thermal environment and ventilation so that work in hot conditions can be avoided.
- Avoidance of forward, sideways and backward bending of the back and also avoid over reaching / extended reach particularly in late pregnancy. This may be achieved by redesign of the work environment.
- Ensuring task variation and daily rest breaks.
- Ensuring a flexible working system so that shift work can be adjusted to individual needs and to improve sleeping patterns and cease or minimise overtime worked.
- Reduce repetitive keying movements of the hand by varying tasks and avoiding awkward postures during computer use by ensuring correct workstation adjustment.

Effective control options to reduce the risk of injury to the pregnant employee and unborn child should use the following principles:

- Redesign of the work environment or job (eg altering the heights of work benches and improving postural support of seating)
- Reduction of the size and weight of an object and forces applied (eg buying smaller packages, and reducing the friction of a surface)
- Mechanical assistance (eg a trolley with a height adjustable surface)
- Safe body mechanics education (avoid bending in any direction and overreaching).

Immunisation and pregnancy

Staff and students may be at risk of vaccine preventable diseases in their work / study and be advised to have vaccinations to protect themselves from the risk. Generally immunisations are not recommended during pregnancy, but some are considered safe during pregnancy or breast feeding. Ideally staff and students who are planning a pregnancy should consult their doctor about immunisations they need for work or study prior to a pregnancy. Immunisations that may be needed should be given at this time. If you are pregnant and concerned about immunisations which may be needed, you should consult your own doctor or a doctor at the University Health Service as soon as possible,

The University of Queensland Vaccination and Immunisation procedure.
The Australian Immunisation Handbook.
American College of Obstetricians and Gynaecologists

For further confidential *medical* advice about pregnancy and work, contact the University Health Service on 3365-6210.

For further confidential advice about any of the issues discussed within this guideline, contact the Occupational Health and Safety Division on 3365-2365.