

**RISK ASSESSMENT GUIDE**

Compiled list of possible hazards and existing control measures for pregnant workers and breastfeeding parents

Last updated: March 2022

It is the line manager duty to **review the existing risk assessment(s)** for an employee’s work and consider any risks to their health and safety, or that of their unborn child.

Further information about Risk Assessments is available here:

[https://www.ucl.ac.uk/estates/safetynet/guidance/pregnant\\_workers/index.htm](https://www.ucl.ac.uk/estates/safetynet/guidance/pregnant_workers/index.htm)

Please note that **this is not an exhaustive list**. If you are aware of any other hazardous elements that should be included in this list, please contact the IoN Labs Operations Manager (Stephanie Czieso: [s.czieso@ucl.ac.uk](mailto:s.czieso@ucl.ac.uk)) or the IoN HR Manager ([l.allum@ucl.ac.uk](mailto:l.allum@ucl.ac.uk)).

**1) EXAMPLES OF HAZARDS TO PREGNANT WORKERS / NEW MOTHERS - FOR OFFICE BASED WORK**

<b>Hazard: Trip / Slip Hazards</b>	
Potential injury to expectant staff/student and unborn child as a result of tripping over objects or slipping on spillages.	<p><b>Existing control measures:</b></p> <ul style="list-style-type: none"> <li>- Annual Office inspections are carried out to ensure good office organization and layout and to identify and remove potential trip hazards, all actions are recorded on RiskNet.</li> <li>- Office areas are on a regular cleaning schedule organised by UCL.</li> <li>- All office workers are encouraged to perform a daily visual check of the workplace to ensure there are no trip or slip hazards.</li> <li>- Any trip hazards (such as boxes blocking a corridor, damaged or uneven flooring) should be reported to the Office manager / facilities to have them removed.</li> <li>- Any slip hazards (such as a spillage) should be reported to facilities. Cleaning staff will then be sent to remove the spillage.</li> <li>- Workers should report any lighting issues (e.g bulbs needing to be replaced) to facilities so that they can be replaced.</li> </ul>
<b>Hazard: Movement and postures, mental and physical fatigue</b>	
Fatigue from standing or physical work may contribute to miscarriage, premature birth or low birth weight.	<p><b>Existing control measures:</b></p>

	<p>Managers ensure hours and volume of work are not excessive and that employees have some control over organisation of work.</p> <p>Pregnant workers should avoid long periods of time standing.</p> <p>Pregnant workers are advised to take regular breaks and do exercises to relief back, leg and foot pressure. Vary the type of work where possible (office/lab).</p> <p>There are rest rooms available throughout UCL campus  <a href="https://www.ucl.ac.uk/humanresources/sites/human-resources/files/breastfeeding_on_return_to_work-information_1.0.pdf">https://www.ucl.ac.uk/humanresources/sites/human-resources/files/breastfeeding_on_return_to_work-information_1.0.pdf</a>          There are Maternity Rooms available at IoN Queen Square House, Floor 7, rooms 709 and 710.</p>
<p><b>Hazard: Excessive noise</b></p>	
<p>No specific risk but prolonged exposure to loud noise may cause increased blood pressure/tiredness and stress.</p>	<p><b>Existing control measures:</b>          Compliance with the current requirements of the Noise at Work Regulations 2005 is considered sufficient to meet the needs of new or expectant mothers.</p>
<p><b>Hazard: Display Screen Equipment (DSE) and Workstations</b></p>	
<p>Increased susceptibility to musculoskeletal disorders and deep vein thrombosis (DVT).</p> <p>Potential injury or harm to pregnant workers (e.g postural, repetitive strain injuries) through awkwardly designed workspaces, the need for alternative office equipment (e.g chairs, foot rests / wrist support) or issues with the general workplace (e.g extremes of workplace temperature).</p>	<p><b>Existing control measures:</b>          All pregnant workers are required to complete a DSE assessment which is overseen by the Departmental / Group administrators. Any actions arising from the assessment are completed by the DA / PI / Lab Manager.</p> <p>Review DSE assessment as pregnancy progresses.</p> <p>Workstation should provide adequate adjustment to allow for increase in abdominal size.</p> <p>Pregnant workers are advised to use footrest and lumbar support to prevent back pain. Advice is given on posture to prevent musculoskeletal problems.</p> <p>Pregnant workers are advised to adjust working practices to avoid continuous sitting at workstation (risk of DVT).</p> <p>Pregnant workers are made aware of free eye tests available at UCL.</p> <p>Regular work schedule reviews are conducted throughout the pregnancy with line managers so that any changes in need (e.g. extra breaks, different equipment such as a more supportive chair) can be addressed.</p>

	<p>Pregnant workers should take regular breaks and do exercises to relief back, leg and foot pressure.</p> <p>Facilities issues such as poorly controlled room temperature, poor lighting or workspace lay-out, are addressed via estates via the work request system.</p>
<b>Hazard: Temperature and humidity</b>	
<p>Lower tolerance to heat and humidity resulting in discomfort/faint.</p>	<p><b>Existing control measures:</b>  Temperature of the working environment to be suitably controlled.</p> <p>Individual may require access to fresh air for periods during the working day.</p> <p>Individual to have ready access to fresh drinking water.</p> <p>Provision of equipment to provide local heating/cooling as necessary.</p>
<b>Hazard: Lone and Out of Hours working</b>	
<p>Pregnant workers lone working may face additional difficulties raising an alarm in the event that they require assistance. This may potentially lead to further injury or harm. This includes accidents, spills, fire or other incidents which require support.</p>	<p><b>Existing control measures:</b>  All efforts should be made to avoid lone working and where possible a buddy system should be used.</p> <p>All lone or out of hours work activities must be Risk Assessed and Management approval agreed prior to work commencing (please see Lone worker CoP guidance). Lone workers should follow the lone working activities guidance available from UCL Safety Services website. For lower risk activity office work, the worker can have a remote buddy contactable by phone (e.g WhatsApp, MS Teams).</p> <p>Lone working contact is recommended as follows:</p> <ol style="list-style-type: none"> <li>1. Contact your PI / manager (or other buddy) when you arrive in your department.</li> <li>2. Make follow up contact every 30 - 60 minutes to say you are OK.</li> <li>3. Contact your PI / manager (or other buddy) when you leave work.</li> <li>4. 4) Contact your PI / manager (or other buddy) when you arrive home.</li> </ol>
<b>Hazard. Stress</b>	
<p>Individual vulnerable to stress due to hormonal, psychological and physiological changes during pregnancy.</p>	<p><b>Existing control measures:</b>  Monitoring and reduction of risks in relation to work demands, relationships with colleagues/manager and requirements of the role.</p> <p>Pregnant workers are encouraged to ask for assistance - contact UCL Workplace Wellbeing.</p>

<b>Hazard: Manual lifting, handling or carrying</b>	
Musculo-skeletal injury or strain from pushing, pulling or lifting.	<p><b>Existing control measures:</b> All manual lifting, handling or carrying should be carried out using the appropriate equipment by either co-workers (providing the activity has been risk assessed and it is safe to do so) or UCL porters/facilities. This assistance can be arranged through the UCL Work Request System.</p> <p>Pregnant workers should regularly review their workstation to ensure that items are easily accessible and stored at appropriate heights. Any issues should be reported to the office manager.</p>
<b>Hazard: Working at height</b>	
<p>Loss of agility and/or balance leading to bruising or fractures resulting from falls whilst activities are being undertaken at height.</p> <p>(Note: this hazard should be eliminated wherever possible)</p>	<p><b>Existing control measures:</b> Avoid any tasks that would require to be working at height. Modify task to avoid aspects of working at height.</p> <p>Move frequently used items to lower shelves for easier access.</p> <p>Ask for assistance for items stored on high shelves. Assistance from other personnel should be sought first but step stools are provided if required and storage of materials/equipment at height is minimized.</p>
<b>Hazard: Fire</b>	
If trapped, pregnant workers could suffer fatal injury from smoke inhalation or burns. Pregnant workers may face additional difficulties exiting the building during an emergency.	<p><b>Existing control measures:</b> Regular work reviews will include a mobility assessment. If the pregnant worker is having difficulties exiting the building using the emergency routes (doorways and stairs) then a Personal Emergency Evacuation Plan (PEEP) will be carried out with support from Safety Services and Facilities.</p> <p>Additional evacuation equipment may be required - as identified by the PEEP which the Department will need to supply along with appropriate training and support prior to the pregnant worker being permitted to re-commence work.</p> <p>Lone working / out of hours working should be avoided if at all possible.</p>
<b>Hazard: SARS-CoV-2 Transmission in the Workplace</b>	
When there is more than one person working within a department / area at the same time (including contractors and staff from other organisations) there is an increased possibility of SARS-CoV-2 transmission. This risk is	<p><b>Existing control measures:</b> Staff/students are to observe the most up to date UCL policy during the COVID19 pandemic.</p> <p>Staff/students are encouraged to get tested twice weekly for coronavirus, continue to wear face</p>

<p>exacerbated by the fact that up to 50% of SARS-CoV-2 infections are asymptomatic.</p>	<p>masks inside UCL buildings (unless alone or exempt) and follow good hand and respiratory hygiene. This includes at break times and when using toilets/washing facilities.</p> <p>Staff are advised to:</p> <ul style="list-style-type: none"> <li>• Avoid contact with anyone who is displaying symptoms of coronavirus (COVID-19). These symptoms include high temperature and/or new and continuous cough.</li> <li>• Wash your hands more often, with soap and water for at least 20 seconds or use a hand sanitiser. This applies when you arrive in work, get home, when you blow your nose, sneeze or cough, eat or handle food.</li> <li>• Avoid touching your eyes, nose, and mouth with unwashed hands.</li> <li>• Cover your cough or sneeze with a tissue, then throw the tissue in a bin and wash your hands.</li> <li>• Do not share food or drink, stagger your break times and clean down surfaces after using shared areas.</li> </ul>
<p><b>Hazard: Individual requirements</b></p>	
<p>Different job roles have dissimilar risks, a Risk Assessment must meet suitable and sufficient. Let your manager know as soon as possible that you may be pregnant so that a review of the risk assessment for your work can be carried out.</p>	<p><b>Existing control measures:</b> Carry out individual risk assessments as required.</p>

**2) EXAMPLES OF HAZARDS TO PREGNANT WORKERS / NEW MOTHERS - FOR LAB BASED WORK** (list of additional risks – your RA should also include the risks described in point 1 of this document)

<p><b>Hazard: Biological Hazards</b></p>	
<p>- Any biological agent belonging to the hazard groups 2,3 and 4: Many biological agents can affect the unborn child if the mother is affected during pregnancy. This includes agents such as Rubella, Toxoplasma, Hepatitis B, H.I.V., Herpes, T.B., Syphilis, Chickenpox and Typhoid.</p> <p>The risk assessment should take account of the nature of the substance, how infection is spread, how likely contact is and what control measures there are. If there is a known risk of exposure it is appropriate for the pregnant worker to avoid exposure.</p>	<p><b>Existing control measures:</b></p> <ul style="list-style-type: none"> <li>- Specific COSHH Risk Assessments are required to be reviewed by the worker and followed by strict adherence to control measures. These control measures may include physical containment, hygiene measures, and using vaccines if exposure justifies this.</li> <li>- If there is a known high risk of exposure to a highly infectious agent, then it will be appropriate for the pregnant worker to avoid exposure altogether.</li> <li>- No work to be undertaken in any Class Level 2 room.</li> </ul>

## Hazard: Chemical Hazards

Maternal exposure to certain chemicals and drugs during pregnancy and lactation can have detrimental effects on the health of the fetus/baby.

Many chemicals may be transferred from mother to the child across the placenta and via breast milk.

Work with chemical substances that are classed as hazardous to health is covered by the Control of Substances Hazardous to Health Regulations 2002. General advice on control measures can be found in the COSHH Approved Code of Practice.

Users should note that correctly managed work with a chemical should entail very little exposure to hazardous chemical substances and that use is not necessarily the same as exposure. This distinction should be kept in mind when carrying out the assessment.

During pregnancy particular care should be taken to guard against exposure to chemicals by using engineering control measures, where possible (e.g. fume cupboards, enclosed processes etc.), by using personal protection (e.g. gloves, lab coats, face shields, etc.) or by avoiding contact with the most hazardous chemicals altogether.

### Existing control measures:

COSHH Risk Assessments are required to be reviewed by the worker and follow by strict adherence to control measures. Prevention of exposure is the top priority.

Managers and pregnant worker should ensure the safety sheets are read for every chemical that is to be used.

Risk assessments are in place for chemicals and stipulate what precautions must be taken.

The worker may have to be assigned other duties away from the source of potential exposure for the duration of the pregnancy and nursing period.

Pregnant workers should not aid in the clean-up of spills of any of the chemicals listed above – inform the lab manager in the event of a spill and leave the area until clean-up is complete.

Consider substitution of harmful agents if possible.

If not possible then control exposure by:

- technical measures (working in fumehood);
- good laboratory practice;
- use of Personal Protective Equipment (gloves, laboratory coat, safety glasses) at all times to avoid contact with skin and eyes.

### CHEMICALS TO AVOID:

All chemicals with the following Risk Phrases / Hazardous Phrases must be avoided while pregnant:

- R40: limited evidence of a carcinogenic effect.
- R45: may cause cancer.
- R46: may cause heritable genetic damage
- R49: may cause cancer by inhalation
- R60: may impair fertility
- R61: may cause harm to the unborn child
- R62: possible risk of impaired fertility
- R63: possible risk of harm to the unborn child
- R64: may cause harm to breastfed babies
- R68: possible risk to irreversible effects
- H360: May damage fertility or the unborn child
- H361: Suspected of damaging fertility or the unborn child
- H361d: Suspected of damaging the unborn child
- H362: May cause harm to breast-fed children

Also avoid exposure to the following chemical agents:

- Anaesthetics
- Toxic chemicals
- Mercury
- Antimitotic (cytotoxic) drugs

	<ul style="list-style-type: none"> <li>• Pesticides</li> <li>• Carbon monoxide</li> <li>• Lead</li> </ul> <p>- For other hazardous chemicals that do not have the risk/hazard phrases mentioned (e.g. <math>\beta</math>-mercaptoethanol, Methanol, TEMED) follow existing risk assessments and precautions strictly to avoid exposure.</p> <p>- When working in laboratories exposure to solvent fumes (e.g. ethanol) should be avoided by leaving the room.</p> <p><b>SUBSTITUTIONS TO BE CONSIDER:</b></p> <ul style="list-style-type: none"> <li>- Consider using a safer alternative reducing agent: e.g. DTT instead of <math>\beta</math>-mercaptoethanol.</li> <li>- Consider using alternative transfer buffer without methanol or substituting methanol for ethanol.</li> <li>- Be aware of possible increased sensitivity to odours of <math>\beta</math>-mercaptoethanol and TEMED that may result in nausea. Avoid areas where others are using these reagents.</li> </ul>
<p><b>Hazard: Exposure to anesthetic gases</b></p>	
<p>Potentially harmful to reproductive activity.</p> <p>Exposure to waste anesthetic gases have an increased risk of miscarriage. We don't know what levels of anesthetic gases are safe during pregnancy.</p> <p>Try to reduce or eliminate exposure as much as possible.</p>	<p><b>Existing control measures:</b></p> <p>The pregnant worker must avoid exposure. Lab manager must ensure adequate ventilation of surgery areas. Check equipment regularly.</p> <p>Scavenger systems, devices used to gather and remove waste anesthetic gases from treatment rooms, must be maintained and monitored to make sure they are working properly.</p> <p>If exposure cannot be avoided during pregnancy, respirators can be worn to reduce the amount of certain chemicals that workers breathe in.</p> <p>Properly maintain anesthesia machines, breathing circuits, and waste-gas scavenging systems to minimize leaks of anesthetic gases into the operating rooms.</p>
<p><b>Hazard: Cryogenic substances</b></p>	
<p>The use of cryogenic substances (e.g liquid nitrogen) poses a serious hazard to all workers including those who are pregnant. Liquid nitrogen can cause physical burns and also poses a serious risk of displacing oxygen quickly in an enclosed area.</p>	<p><b>Existing control measures:</b></p> <p>Pregnant workers should try to avoid working with liquid nitrogen.</p> <p>If this is not possible, they should never work with liquid nitrogen alone. When visiting the liquid nitrogen stores or opening up the liquid nitrogen dewars, always take a second person with you, and ensures oxygen monitor alarm is on, to avoid asphyxiation. The</p>

	<p>liquid nitrogen dewars should always be brought into the main lab area before opening.</p> <p>Whenever using liquid nitrogen full PPE must always be worn including a lab coat, long sleeved cryogloves with nitrile gloves underneath and a face shield.</p>
<b>Hazard: Non-ionising and ionising radiation (alpha, beta, gamma and x-rays)</b>	
<p>Radiation is harmful to pregnant workers and the unborn child.</p> <p>Ionising radiation is strictly controlled to present minimal risk to all workers. Pregnant workers should be especially careful of keeping exposure to ionizing radiation to "As low as reasonably practicable".</p> <p>Non-ionising radiation includes optical radiation (including ultraviolet and infra-red sources and lasers) and electromagnetic fields and waves (e.g. radio-frequency (RF) radiation). Pregnant or breastfeeding women are at no greater risk from exposure to optical radiation than other workers.</p>	<p><b>Existing control measures:</b> No work with radiation and radiation producing equipment to be carried out during pregnancy.</p>
<b>Hazard: Cell line, primary and transformed cultures</b>	
<p>Uncontaminated cell cultures do not appear to present a significant hazard as even direct dermal inoculation may result in only local inflammation, however, the long-term consequences of direct inoculation are uncertain.</p> <p>The main risk presented by cell cultures is because of their ability to sustain the survival and/or replication of a number of adventitious agents.</p> <p>The major agents of concern are viruses, but other agents, e.g. mycoplasmas such as <i>Mycoplasma pneumoniae</i>, should also be considered.</p> <p>In addition to these infection risks, other hazards that should also be assessed include:</p> <ol style="list-style-type: none"> <li>1) components of the cell culture media – products of animal origin can act as a source of microbial contamination.</li> <li>2) cell products that could be biologically active.</li> </ol>	<p><b>Existing control measures:</b> Normal laboratory practice and wear appropriate PPE: lab coat, hand washing, gloves and proper disposal of any biological waste.</p>
<b>Hazard. Genetic Modified Organisms (GMOs)</b>	
N/A.	<p><b>Existing control measures:</b> N/A.</p>



<b>Hazard: Physical shocks and vibration</b>	
Regular exposure to physical shocks or low frequency vibration, or excessive movement may increase the risk of miscarriage	<p><b>Existing control measures:</b> Pregnant women or those who have recently given birth should avoid work likely to involve uncomfortable whole-body vibration, especially at low frequencies, or where the abdomen is exposed to shocks or jolts. (E.g. riding in or driving off-road vehicles). Breastfeeding women are at no greater risk than other workers from this hazard.</p>
<b>Hazard: Static magnetic field</b>	
<p>The MHRA recommends a risk assessment for pregnant staff but do not recommend any general limitations or specific actions (Page15, MHRA 2021).</p> <p>Based on the literature and local scanning procedures we identify these main risks for pregnant staff (in addition to risks applying to all staff): the high acoustic noise level and potential RF heating effects in the vicinity of the RF coil during scanning, and risks due to the fast switching gradients (De Wilde et al., 2005; MHRA, 2021). Therefore, as a measure of risk control pregnant staff must not enter the magnet room during scanning at our Centre, avoiding all of the aforementioned risks. This is also in accordance with the current MHRA recommendation for pregnant staff (p. 15, (MHRA 2021).</p> <p>However, even when no scans are performed, the high static magnetic field may theoretically pose a risk, since it is always present in superconducting magnets. An epidemiological study on MR staff did not find a substantial increase in adverse reproductive outcomes (Kanal et al., 1993), suggesting that the static magnetic field does not adversely affect the foetus or mother.</p> <p>Although there is no conclusive evidence of negative side effects, based on the precautionary principle, pregnant staff should not enter the 5 Gauss fringe field of the magnet in the first trimester, since it is a critical period and the foetal development. In the later trimesters pregnant staff have the option to work or not work inside the inner controlled area (when no scan is performed), following a risk assessment. This is more conservative than current recommendations from the MHRA (p. 16, MHRA 2021) and IMRSER (Los Angeles, CA; p. 106, (Shellock, 2007)) which allows staff to enter the controlled area at any</p>	<p><b>Existing control measures:</b> Pregnant member of staff <u>does not enter</u> magnet room during 1st trimester, after this period is dependent on individual choice.</p> <p>Pregnant member of staff <u>do not enter</u> magnet room at any time during scanner operation (RF and switching gradient fields) at any stage during pregnancy.</p>

stage during pregnancy, but not during scanning at any stage.	
<b>Hazard: Handling of MRI Phantoms</b>	
Risk of contamination when handling MRI phantoms	<p><b>Existing control measures:</b>  As a precaution, we also advise that pregnant staff should not handle the MRI phantoms (or if absolutely necessary with extra care), since the majority contain dopants that have adverse health effects when spilled. Please refer to the manufacturer's manuals (Siemens Medical Systems, Erlangen, Germany) for more details.</p>
<b>Hazard: MEG scanner</b>	
Exposure to cryogenic liquids and gases, asphyxiation and burns	<p><b>Existing control measures:</b>  There are no special risks for pregnant staff operating the MEG scanner.</p>