

Wellcome Trust Centre for Human Genetics

Guidance notes for New & Expectant Mothers

Introduction

It is accepted that many hazards exist, that can cause problems to some women during pre-conception, pregnancy and after delivery. It is therefore imperative that such hazards are identified within the work place and that all relevant information is communicated to employees.

It is impossible however; to produce a definitive list of dangerous substances & circumstances and that often the causes of such problems are linked to non-occupational factors. Therefore the legal approach is for an employer to identify potential hazards by means of risk assessment and to inform all those employees who may be at risk. In addition to this, University Guidance is to encourage female workers to inform their employer as soon as possible after they become pregnant. Once the employer has been informed, they are then obliged to carry out a more specific risk assessment of that person's work, to determine if any additional controls need to be implemented.

This guidance note gives some indication on the types of hazards that may be encountered within the Centre and also outlines the steps to be taken by both a member of staff & their Group Leaders.

Risk Assessments

All Risk Assessments carried out within the Centre must identify, so far as is reasonably practical any significant risks to women of childbearing age or to new & expectant mothers.

New & Expectant mothers are encouraged to inform their Group Head, in writing, as soon as possible after they become pregnant. This information must be handled with the strictest confidence if requested, but will be used to ensure any adverse exposure is limited at the earliest opportunity.

Once informed, Group Heads must arrange for a specific Risk Assessment of that persons work to be carried out. This assessment must take account of the effect of pregnancy on the new mother's work, the effect of their work on the actual pregnancy & must also extend to any breast-feeding employee.

These specific Risk assessments must be in writing, and it is suggested that the Medical Sciences Division [*New & Expectant Mothers Risk Assessment Proforma*](#) is used. It is advisable to contact the H&S Officer at this stage, as advice can be given on completion of the form.

It is important to remember that pregnancy should not be equated with ill health. It is part of everyday life and normal health and safety management can adequately address many related issues. Therefore this specific risk assessment must identify those control measures that are needed in addition to any that are already in place.

If the risks identified cannot be controlled by appropriate control measures, then where it is reasonable to do so, the worker's working conditions and/or hours of work should be temporarily adjusted. If altering the conditions & hours of work is not reasonable or would not avoid the risk, then alternative suitable work must be offered. If suitable alternative work is not available the worker must be suspended from work on full pay/benefits for as long as is necessary to avoid the risk. The employer is not obliged to take the actions just noted unless a written notification has been provided that the new or expectant mother is pregnant, given birth in the previous six months or is breast-feeding.

Finally during the pregnancy or period of breast-feeding, the risk assessment must be routinely reviewed to ensure that all risks continue to be controlled.

At this stage it must be noted that throughout the department, the general level of risk from chemical or biological agents, or from ionising radiation, is low and it is not expected to require any changes in normal work activities or practices. However where there is any level of concern and particularly in the unlikely event of over-exposure to any physical, biological or chemical agent involving a pregnant worker, the University Safety Office must be informed as soon as possible.

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Types of Hazards that may be encountered within the Centre

Biological Agents

Any microbe capable of causing infection can pose some risk, as a consequence of transmission through the placenta, close maternal contact or breastfeeding. The handling of Microorganisms is controlled by the Control of Substances Hazardous to Health Regulations 2000 (COSHH) and as such all microbes must be categorised into one of four groups. Only microorganisms that are classified into Hazard groups 1 or 2 can be handled within the Centre. Group 1 organisms are unlikely to cause any human disease and therefore are not recognised as being of any consequence. Group 2 organisms may cause human disease but because of the normal laboratory restrictions in place, they very rarely produce any laboratory-acquired infection. Therefore so long as these restrictions are enforced and are appropriate to the specific organism, they too should not pose any greater risk to the New or Expectant mother.

Another hazard that can present a biological risk is the handling of blood or human tissues. It is acknowledged that this type of material may harbour hazard group 3 organisms such as Hepatitis B or HIV. However the handling of this type of material must once again be assessed before work can commence. Only sources of blood or human tissue, which is not expected to carry such organisms, can be handled. Therefore again if the normal safety precautions for this type of work are followed then there is no additional risk to the New or Expectant mother.

Finally certain workers may in the course of their work, handle known oncogenic DNA sequences & related sequences. Although there is no direct evidence as yet that contact with such DNA can lead to tumours in humans, its possibility cannot be discounted, as evidence does exist for animals. Therefore this type of work must be identified by relevant COSHH assessments and new or expectant mothers are requested to inform the Biological Safety Officer if they feel they may be at risk. If this is the case then appropriate health advice will be sort from the University Occupational Health Physician and on occasion withdrawal from oncogene work may be advised.

Ionising & Non-ionising Radiation

Non-ionising radiation from visual display units (VDU's) has long been the subject for debate as to whether it can cause problems to an expectant mother. Significant studies have now been undertaken and the Health & Safety Executive has stated that VDU's do not pose a significant risk to health. However, assessments of high usage of VDU equipment are still subject to an overall assessment under the Display Screen Equipment (DSE) Regulations. This point is covered below regarding ergonomic considerations.

Ionising radiation however is a concern as it can be both harmful to the foetus and also to a nursing infant. There are many individuals within the Centre currently working with ionising radiation. They are required to register with the University as Radiation Workers and therefore will have been informed of this risk. Radiation workers therefore who become pregnant or are breast-feeding, are encouraged to inform the Senior Radiation Protection Supervisor in writing, at the earliest opportunity. Once this has been declared, then the work undertaken should be such, that the equivalent dose to the foetus is unlikely to exceed 1mSv. If there is reason to believe that this could be the case, or even if a reasonably foreseeable incident might result in such a high dose, then the SRPS will contact the University Radiation Protection Officer for advice.

Overall then, radiation exposure from work carried out within the Centre is not expected to be significant. For instance the majority of work carried out within the Centre is with Beta emitters such as Phosphorous-32. Beta radiation from an external source is not sufficiently penetrating to irradiate the embryo or foetus of a pregnant worker. Also in relation to possible internal radiation, intakes are again generally not expected or significant. Therefore although by law this information has to be communicated, the exposure to ionising radiation in the course of any normal work should give rise to negligible risk.

Chemical Hazards

There is documented evidence that many chemicals encountered within the centre could cause problems such as delayed pregnancy, harm to the foetus and development problems after birth. However this is often related to the amount a person is exposed to a substance & it is not envisaged that the normal exposure encountered during a persons work, will be anywhere near a significant level. Information relating to the types of

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chemicals that may cause concern is provided below, along with examples of such chemicals encountered within the Centre.

Chemical hazards can be categorised into those that may impair fertility, may cause damage to the foetus (Embryotoxins or Teratogens) particularly during the early stages of pregnancy and those that may cause harm to development of the child. Manufacturers of substances are required by law to identify, as far as is reasonably practicable, those chemicals that may cause such damage. Where identified, they must provide warning information relating to these specific risks in the form of safety labels and data sheets. Therefore when handling any chemical or substance always look out for the following risk phrases:

- R40 Possible risk of irreversible effects
- R45 May cause cancer
- R46 May cause heritable genetic damage
- R60 May impair fertility
- R61 May cause harm to the unborn child
- R62 Risk of impaired fertility
- R63 Possible risk of harm to the unborn child
- R64 May cause harm to breastfed babies.

Within the Centre the following substances are used and are identified as fitting some or all of these criteria. This list is by no means exhaustive and the worker MUST always refer to the relevant COSHH assessment before starting any new process.

- Acrylamide solutions
- 7-Actinoactinomycin D
- Ampicillin
- Aspartic acid
- Bafilomycin
- Bisbenzimidazole
- Boric Acid
- Chloramphenicol
- Chloroform
- Cycloheximide
- Demecolcine
- 5-bromo-2'-deoxyuridine
- Dimethyl Sulphoxide
- Dimethylformamide
- Doxycycline hydrochloride
- Estradiol
- Ethidium bromide
- Folin & Ciocalteu's reagent
- Formaldehyde
- Formamide
- Hydrocortisone
- Iodoacetamide
- Kanamycin
- Lead compounds
- Manganese chloride tetrahydrate
- Neomycin
- Nitrotriacetic acid
- DIG nucleic acid detection kit
- Paraformaldehyde
- Penicillin-Streptomycin solutions
- Phenol
- Polyvinylpyrrolidone
- Progesterone

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- Pro®sieve Gel solution
- Sodium azide
- Sodium selenite
- Tetracycline
- Trypan Blue solution cell culture
- Uranyl acetate
- Urea
- Xylene

The process of control of such chemicals must be identified by a *COSHH assessment*, which takes into account not only the risk, but also amounts handled, likelihood of exposure & time exposed.

FOR EXAMPLE - FORMAMIDE

Formamide is a well-known and established Teratogen, which is used in small amounts (<100mls) throughout the laboratory. The exposure route of this substance is predominantly via the skin, as it is easily absorbed. So the major risk can be avoided by wearing a laboratory coat & disposable chemically resistant gloves. The low vapour pressure of Formamide means that small volumes can be handled with reasonable control on the open bench in the well-ventilated laboratories. However like any substance, if certain processes increase this level of risk, i.e. warming the solution or handling larger volumes, then these practises should be carried out within a Fume Cupboard.

This level of detailed control should be identified & documented for all hazardous chemicals in the COSHH assessment. It is expected that in most cases these controls will also be appropriate to new & expectant mothers. Once a person has declared the pregnancy, then the assessment should be reviewed and the following steps must be considered.

- Is the level of risk any greater to a Pregnant Worker, with the current appropriate control measures in place?
- If yes it is greater, can an alternative chemical be used?
- If no, is increased containment a viable option, such as thicker gloves, face shields or handling everything within a Fume Cupboard?
- If no, then other considerations to adjusting working conditions &/or hours of work must be considered.
- If still not suitable then alternative work must be considered.
- If still not suitable then suspension from work must be enforced.

Overall then, workers should make themselves aware of all relevant COSHH assessments. As a very basic rule, women of childbearing age should take care to avoid contact with all chemicals. If they do become pregnant or are breastfeeding then the H&S Officer should be contacted as soon as possible so that relevant information as to their exposure can be discussed.

Ergonomics & Manual Handling

Prolonged standing can lead to dizzy spells or even fainting, and prolonged sitting may lead to swelling of the ankles. Therefore it is important that a persons work conditions give support where needed, but flexibility in both time and movement to cope with the changes throughout pregnancy. Within the Centre, the workload is such that flexibility should always be available to limit the associated risk. What is more, a room will be identified as suitable rest facilities if needed during the pregnancy.

It is worth contacting the H&S officer however, if it is envisaged that long periods of standing or sitting may occur. Specifically if a person is predominantly office based, and is requested to work on a computer as a significant part of their work. The H&S officer, can arrange for an ergonomic assessment of a persons workstation to identify any potential problems.

The most significant risk facing pregnant women is from manual handling. The majority of the tasks carried out within this Centre, do not involve heavy lifting or awkward repetitive movements. Therefore it is not envisaged that they are exposed to any greater risk than if they were not pregnant. However, the worker

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should be extra vigilant throughout their pregnancy, and avoid tasks that could be hazardous and if there is uncertainty to contact the Group Leader or H&S Officer immediately.

Psychosocial/organisational risks.

Stress – Stress has been linked to high blood pressure, which is known to be dangerous to pregnant women. Combined with long and unsocial hours these could have an affect on a pregnancy and should be avoided. Workers are always encouraged to speak either to their Group Leader, colleagues, H&S Officer or Administration or indeed directly to the University Occupational Health Service if they feel they are affected by Stress.

Out of Hours – Normal working day within the Centre falls between 8am to 6pm, Monday to Friday. Pregnant workers are strongly discouraged from working outside of these hours. If there is an absolute requirement, then the H&S Officer must be informed.

Overall Assessment

As stated although hazards do exist within the Centre, the relevant exposure to them is controlled in the majority of cases and as such do not pose any greater risk to a New or Expectant mother than anyone else. However, as also stated any concern or uncertainty should be communicated to the Group Leader and/or H&S Officer at the earliest opportunity. For your information therefore, the following contacts are provided:

H&S Officer	(2) 87874
Biological Safety Officer	
Senior Radiation Protection Supervisor	(2) 87658
Personnel & Administration Officer	(2) 87508
University Occupational Health Enquiries	(2) 82676