
Risk assessment for pregnant and breastfeeding anaesthetists

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Pregnancy is a wonderful but potentially challenging and uncertain time. Elements of the working life of an anaesthetist may impact pregnancy and vice versa, some more than others. Pregnancy is a protected characteristic and, as such, the legislation in all four nations offers a framework for support to expectant parents and their employers.

A [recent survey](#) of anaesthetists as parents (section 117) revealed that many felt that work had adversely impacted on either their own or their baby's health. It also identified the poor conduct of risk assessment as a related factor.

This guide aims to support effective risk assessment for pregnant anaesthetists. It does not replace the guidance available to NHS employers, but provides a framework to assist anaesthetists and their managers in the identification and evaluation of risk.

A pregnant anaesthetist **must** notify their human resources department of their pregnancy and their intention to take maternity leave by their 25th week of pregnancy. However, we would recommend that other key personnel are informed before this. For example, anaesthetists in training (AiTs) should notify their training programme director (TPD), so that rotation adjustments can be made if required. All pregnant anaesthetists are advised to notify their department as early as they feel comfortable. This triggers a risk assessment.

Risk assessment

Risk assessment is the careful examination of the harm that could be caused by any work activity.

Soon after they have been notified of pregnancy, the employer of a pregnant anaesthetist must ensure that a risk assessment is completed. In anaesthetic departments, this is performed by a line manager – for residents this may be their educational supervisor or College tutor or, for others, it may be completed with the head of service. Most trusts provide templates to follow. There are several general elements to this, but some are particularly relevant to anaesthetic staff and are not always immediately apparent.

The following topics should be considered, and the recommended actions discussed.

Work exposures

■ Anaesthetic gases

- Historical evidence suggests that exposure to anaesthetic gases is linked to early pregnancy loss and congenital abnormalities, as outlined in this [Occupational and Environmental Medicine article from 1997](#).
- Provision of effective scavenging is thought to have reduced this.
- The suggested workplace adjustments include avoidance of high-turnover, facemask anaesthetic lists, such as paediatric and ear, nose and throat (ENT), and greater use of total intravenous anaesthesia (TIVA).
- Unscavenged nitrous oxide in obstetrics has low quality evidence associated with its use and early pregnancy loss and teratogenicity. Studies with the highest level of evidence did not find an association between inhalational anaesthetics and miscarriage or congenital abnormalities as outlined in this [systematic review on occupational exposure to inhalational anaesthetics and teratogenic effects](#).

■ Radiation

- Fetal exposure to ionising radiation has been linked to teratogenicity and cancer. The risk is greatest in the first trimester – especially weeks 1–8.
- Adherence to Ionising Radiation (Medical Exposure) Regulations (IRMER) precautions reduces exposure to safe levels:
 - › standing well back from the radiation source
 - › wearing a properly fitting, wrap-around lead apron (including thyroid shield)
 - › use of extension lines to allow anaesthetist positioning behind the screen with the radiology team, for example, in a cath lab.
- List allocation should be reviewed to allow the pregnant anaesthetist to avoid particularly high radiation lists, for example, interventional pain, should they wish to.

■ Magnetic resonance imaging (MRI)

- Although there is no evidence of fetal harm linked to MRI exposure, the *Pregnant and work in diagnostic imaging departments* (second edition) publication by the [Royal College of Radiologists](#) recommends that pregnant staff should not remain in the scanning room during operations due to the potential risks of acoustic injury.

■ Infection

- The immune system is less effective during pregnancy, placing the pregnant anaesthetist at greater risk of acquiring infection, as well as becoming very ill as a result of, for example, Covid-19.
- In addition, some infections, such as cytomegalovirus (CMV), varicella and toxoplasmosis, are known to pose a risk to the fetus and its healthy development.
- Adherence to infection prevention protocols will reduce risk. Rarely, it may be necessary to alter clinical attachments.

■ Iodine scrub

- Iodine-based scrub is not recommended during pregnancy because there is enough evidence to suggest that absorption through the mother's skin may affect the fetal thyroid status in the second and third trimesters.
- It is also not recommended for regular or excessive use in breastfeeding mothers.
- Key information on the use of [Povidone-iodine](#), including doses, safety uses, medicinal forms and other considerations, can be found in the link above.

■ Bone cement

- Poly(methyl methacrylate) (PMMA) bone cement may be fetotoxic at >1,000 parts per million (ppm).
- PMMA concentrations of 50–100 ppm have been reported in the breathing zone of the surgeon, so the risk to pregnant anaesthetists should be lower. The use of vacuum mixing and surgical field ventilation reduces exposure significantly, to almost undetectable levels.
- Pregnant anaesthetists and their managers should be aware of the risks linked to bone cement and that modern practice reduces exposure to safe levels.

Work duties

■ Manual handling

- Hormonally mediated changes to the musculoskeletal system expose pregnant women to a greater risk of manual handling injury.
- Increasing size can also affect balance and proprioception, which, in turn, increase the risk of injury linked to manual handling.
- Manual handling (beyond that required for safe airway management) should be avoided completely after 24 weeks of pregnancy and minimised before this.
- The risk of violence must be assessed and minimised for pregnant staff.

■ Prolonged standing

- The [PubMed publication](#) on *Standing at work and preterm delivery* reports that prolonged standing (>3 hours) is linked to a small but measurable risk of preterm birth and low birth weight.
- Adjustments to work patterns and content to minimise this should be offered and seating provided in the workplace.

■ Long working hours

- Long working hours have been weakly linked to adverse fetal outcomes such as low birth weight and preterm delivery (see the following pdfs and/or papers):
 - › [Shift work effects and pregnancy outcome: a historical cohort study](#)
 - › [Shift work and pregnancy outcomes: a systematic review with meta-analysis of currently available epidemiological studies](#)
 - › [The impact of occupational shift work and working hours during pregnancy and health outcomes: a systematic review and meta-analysis.](#)
- A reduction in working hours or intensity may be facilitated by moving to a less onerous rota.
- Most pregnant anaesthetists come off the on-call rota at some point, before commencing maternity leave. This is common from 28 weeks – the third trimester – but could be earlier or later. Pay should not be affected.
- For AiTs, if working hours are maintained, there should be no change in the Certificate of Completion of Training (CCT) date linked to coming off the on-call rota.
- Some anaesthetists may find that replacing night shifts with day or long day shifts can result in increased levels of fatigue. We encourage discussion with the College tutor to help identify the pattern of work that best suits the individual.

■ Lone working

- Pregnant anaesthetists may be working in hospitals where lone working out of hours is common. In some Trusts this may include working alone on site or remotely from the rest of the department.
- Whilst lone working poses risks to all anaesthetists, pregnant or otherwise, it may be appropriate to review the impact of the Trust's existing working arrangements as part of an individualised maternity risk assessment.

Implementing risk assessment

- Where risks are identified, adjustments must be offered. Where agreement over adjustments cannot be reached, or suitable adjustments are not possible, then occupational health input may be required. This may result in suspension from duties on full pay to protect the health of the pregnant anaesthetist or her unborn child.
- Written recommendations for adjustment from responsible health professionals (occupational health, general practitioner, obstetrician, midwife, etc) must be implemented. Adjustments to maintained working hours should not result in loss of pay.
- Risk assessment can be repeated as the pregnancy progresses. This is strongly recommended if circumstances change. One rule cannot be used for all. Every pregnancy is different and adjustments must be individualised.
- In Wales, three-monthly risk assessment is recommended during pregnancy and breastfeeding.

Antenatal appointments

Pregnant anaesthetists have the right to paid time off for antenatal care. This includes antenatal classes. Their partner is also entitled to unpaid time off to attend two antenatal appointments. The UK Government website publishes [pregnant employees' rights](#). Rights for pregnant anaesthetists [employed in Wales](#) differ slightly.

Breastfeeding

- Breastfeeding colleagues must inform their employer of their intention to return to work while breastfeeding.
- They must have a risk assessment completed on their return to work, by a well-informed line manager, as for pregnancy risk assessment. Trust templates can be used to guide the assessment.
- If normal duties pose a risk to either the parent or the child (this includes the ability to successfully breastfeed), then suitable alternative work at the same rate of pay should be provided. This may include limitations to night work, for example: [NHS Terms and Conditions of Service Handbook](#), paragraphs 15.34–15.35.
- Employers must also provide suitable, clean, private rest facilities for breastfeeding mothers, as well as a suitable location for the expression and storage of breast milk. A toilet is not considered to be a suitable offer. The time required for expressing breast milk must also be considered. This time does not constitute rest; see:
 - [NHS Terms and Conditions of Service Handbook](#), paragraph 15.77
 - Health and Safety Executive: [New and expectant mothers at work: your health and safety](#).

Escalation of concerns

There is an expectation that risks for pregnant or breastfeeding anaesthetists will be discussed meaningfully and sensitively and the resultant recommendations implemented.

- Occupational health input is required where interventions to reduce risk cannot be agreed.
- Recommendations from health professionals must be implemented, without loss of pay.
- Input from unions such as the British Medical Association may, on occasion, be required, but it is hoped that this will not be necessary if the process described is followed.

Devolved nations

- Northern Ireland, Wales and Scotland offer policies that follow the same principles outlined here. Any differences have been highlighted.
- Staff working in these regions are advised to refer to their local documents:
 - [Wales: Maternity, Paternity, Adoption and Parental Leave Policy](#)
 - [Northern Ireland: Doctors and Dentists in Training \(DDiT\) Family Pack](#)
 - Scotland: [Maternity Policy Guide for Managers](#).

Additional references

- Scotland: [Occupational Health, Risk Assessment and Workplace Modifications](#).
- Information on [radiation risk exposure](#) according to the British Orthopaedic Association.
- NHS: [Maternity and paternity benefits and leave](#).
- Health and Safety Executive: [Protecting pregnant workers and new mothers](#).

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