

Working in a Dental Office

This sheet is about exposures that might be present for a dentist, dental assistant, or dental hygienist in a dental office setting. It also suggests some resources available to help create a safe work environment. This information should not take the place of medical care and advice from your healthcare providers and occupational safety officers.

What types of hazards might be at my workplace?

Some of the potential workplace hazards that dental workers might face include:

- Infectious disease / bloodborne pathogens
- Laser/electrosurgery plumes
- Heavy metals (mercury)
- Nitrous oxide (waste anesthetic gases)
- Ionizing radiation (x-rays)
- Accidents (needle sticks, bites)
- Allergic reactions
- Physical strain
- Stress
- Chemicals (cleaning / disinfecting, dental sealants & tooth filling materials)

MotherToBaby has fact sheets on some of these topics at <https://mothertobaby.org/fact-sheets/>.

Although you may work around a potential hazard it does not mean that you are exposed at levels that would cause a problem. There are safety measures that workers can take to limit exposures.

Pregnancy information for all workers:

Miscarriage can occur in any pregnancy, for many different reasons. Every pregnancy starts with a 3-5% chance of having a baby with a birth defect. This is called the background risk. If an exposure can cause birth defects, it is most likely to do so if the exposure happens in the first trimester (through week 13) of your pregnancy. Dose (how much of an exposure) is also important to consider when evaluating workplace hazards. For more information on how a fetus develops during pregnancy, please see the MotherToBaby fact sheet on critical periods of development at: <https://mothertobaby.org/fact-sheets/critical-periods-development/>.

I work around nitrous oxide. Can this harm my pregnancy or my breastfeeding child?

If nitrous oxide is used properly, including use of scavenging equipment and correct technique, then it is unlikely to cause a higher chance of miscarriage or birth defects. In addition, nitrous oxide is not expected to get into breastmilk. Air monitoring can be done to evaluate staff exposure if there is a concern about air levels in the office. The Occupational Safety & Health Administration (OSHA) has a document (<https://www.osha.gov/waste-anesthetic-gases/workplace-exposures-guidelines>) with detailed information on workplace controls and recommended exposure limits for nitrous oxide.

I am around our x-ray machine. Does this mean that I am exposed to radiation?

Properly maintained x-ray equipment that is used with proper technique does not expose dental personnel to x rays. Please see our MotherToBaby fact sheet on working around ionizing radiation for information on working with x-ray machines at: <https://mothertobaby.org/fact-sheets/ionizing-radiation-workplace-pregnancy/>.

If I am pregnant or breastfeeding, are there extra steps that I should take to prevent exposure to infectious disease while working in a dental office?

Women who are pregnant or breastfeeding should follow the same standard precautions established for all workers to

prevent exposure to pathogens that can be spread by blood, saliva, or other body fluids. These precautions include proper hand washing and the use of protective equipment like gloves and facemasks. The Centers for Disease Control and Prevention has a document with guidelines for infection control in dental health care settings at <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm>.

Make sure you are up to date on all recommended immunizations. Healthcare providers are considered at high risk for acquiring or transmitting hepatitis B, Covid-19, influenza, measles, mumps, rubella, pertussis (whooping cough), and varicella (chickenpox). Discuss your personal health history with your healthcare provider to see if there are additional vaccine recommendations. MotherToBaby has fact sheets on some of these topics at <https://mothertobaby.org/fact-sheets/>.

Are there concerns with exposure to mercury for dental workers?

Dental amalgam is a mixture of metals, consisting of elemental mercury (liquid mercury) and a powdered alloy composed of silver, tin, and/or copper. This mixture creates a hard and stable filling. Available reports have not indicated a mercury-associated increase in birth defects or adverse neurologic effects in children of dentists or their assistants.

With proper workplace practices and precautions mercury can be used. Because vaporized mercury is easily absorbed through the lungs and across the skin, it is important for all workers in the office to follow proper safety control procedures when working with and disposing of dental amalgams. It is important to talk with a work safety officer or an industrial hygienist to learn if you are using the appropriate protective gear and to see if other workplace protections are in place and are working correctly. Examples might be: high volume suction and secondary air evacuation, and chair side traps. Studies have shown that blood mercury levels in workers are increased among those who work in practices with lower standards of work safety and hygiene. If you have concerns about your exposure to mercury, talk with your healthcare providers about the possibility of having testing done to estimate your exposure levels.

What could be in the smoke that comes from drilling or using lasers?

Smoke plumes could contain fine particles of dust and gases. These are not well studied and there is a lack of standards and precise safety guidelines for this issue. Workers exposed to smoke plumes have reported irritation of the eye, nose and throat and headache.

The American National Standards Institute (ANSI) recommends that there be administrative controls for laser use, including a laser safety officer (LSO). If your workplace LSO has identified specific exposures from laser use in your dental practice, or other exposures from drilling smoke have been identified and you feel that proper workplace protection was not working, contact MotherToBaby to learn more about your specific exposure.

How can I learn more about the chemicals and metals with which I work?

Dental workers can learn about chemicals used at the worksite by looking at the product Safety Data Sheet (SDS). If you have questions or concerns about chemicals used at your worksite, contact a MotherToBaby specialist.

How do I reduce job-related exposures as a dentist, dental assistant, or dental hygienist?

Your worksite should provide the proper personal protection for all parts of your job. Be certain to use them, even when not pregnant. Check to make sure that you are using the correct type of gloves and other personal protective equipment. Make sure the ventilation / air exchange in your workspace is working properly. Your work safety officer, LSO, and/or an industrial hygienist can help make sure your worksite has the correct protections in place.

MotherToBaby has a fact sheet on working during pregnancy and breastfeeding with general tips and resources available to help reduce potential chemical exposures (<https://mothertobaby.org/fact-sheets/reproductive-hazards-workplace/>). One of the most important steps you can take is to practice proper hand washing. Wash hands before and after each patient and after contact with any bodily substance or articles contaminated by them. Wash hands before eating or drinking; after cleaning equipment and rooms; after handling chemicals; and whenever hands are visibly soiled.

For men: Can working in a dental office affect fertility or increase the chance of birth defects?

This has not been well studied. Available data does not suggest a significant association with reduced men's fertility (ability to get a woman pregnant) or risk for birth defects in a woman's pregnancy. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the

MotherToBaby fact sheet Paternal Exposures at <https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/>.

Who can I contact for more information?

If you have specific concerns regarding your work site, discuss them with your healthcare providers or contact MotherToBaby with your specific exposures. In addition, talk with your employer about the option to hire an industrial hygienist (<https://www.aiha.org/consultants-directory>) or arrange for a Health Hazard Evaluation through the National Institutes of Health (<https://www.cdc.gov/niosh/hhe/default.html>) to have your work site evaluated for ways to keep all workers there as safe as possible.

Please click here to view references.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://mothertobaby.org).

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