Working in a Dental Office

This sheet is about exposures 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 diseases / 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 to levels that would cause a problem. There are safety measures that workers can take to limit exposures.

Pregnancy information for all workers:

Miscarriage is common and can occur in any pregnancy for many different reasons. Birth defects can also happen in any pregnancy for different reasons. Out of all babies born each year, about 3 out of 100 (3%) will have a birth defect. We look at research studies to try to understand if an exposure can cause birth defects. If something can cause birth defects, it is most likely to do so during the first 13 weeks of pregnancy (1st trimester). How much you are exposed to (dose) also matters when looking at workplace risks. 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 the use of scavenging equipment and correct technique, then it is unlikely to increase the chance of miscarriage or birth defects. Also, 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. The American Dental Association (ADA) has a web page on working with nitrous oxide when pregnant https://www.ada.org/resources/ada-library/oral-health-topics/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. Also, the amount of radiation used in modern digital x-rays is lower than with older film-based x-ray equipment. 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 diseases while working in a dental office?

Workers 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, face masks, and eye protection. The Centers for Disease Control and Prevention (CDC) has a document with guidelines for infection control in dental health care settings at https://www.cdc.gov/dental-infection-control/hcp/summary/index.html.

Make sure you are up to date on all recommended immunizations. Healthcare providers are considered at high risk for getting or spreading 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 other 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 makes a strong, stable filling. Studies have not shown that this type of mercury exposure increases the chance of birth defects or other issues in children of dentists or their assistants.

Mercury can be used safely at work if proper precautions are followed. Because mercury vapor can be absorbed through the lungs and skin, everyone in the office should always use correct safety procedures when handling and disposing of dental amalgams. It is important to check with a safety officer or industrial hygienist to make sure you are using the right protective gear, and that safety systems like suction, air filters, and mercury traps are working. Studies show that workers in offices with poor safety practices have higher mercury levels in their blood. If you are worried about mercury exposure, 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 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 work site should provide proper personal protection for all parts of your job. Be certain to use them correctly, 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.

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.

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/).

If a man works in a dental office, can it affect his fertility or increase the chance of birth defects?

This has not been well studied. Available data does not suggest a significant link with reduced fertility (ability to make healthy sperm) or increased risk of birth defects in a partner's pregnancy. In general, exposures that men 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 CDC's National Institute for Occupational Safety and Health (NIOSH) (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 for references.

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