

Oral Health Care for the Pregnant Pediatric Dental Patient

Latest Revision

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Abstract

This best practice provides recommendations regarding preventive, diagnostic, and therapeutic oral health care for pregnant youth. Recommendations emphasize the benefits of a non-cariogenic diet and nutritious foods essential to proper fetal development. The safety of prescription and over-the-counter medications is reviewed, and oral health care providers are advised to maintain awareness of benefits, risks, and side effects of pharmacotherapeutic agents for pregnant patients. Likewise, providers should understand the effects of smoke, tobacco, and illicit substances during pregnancy and counsel patients regarding the negative consequences of exposure. Common oral conditions associated with pregnancy, such as dental erosion, dental caries, xerostomia, gingivitis, and pyogenic granulomas, are reviewed. Components of dental care that require special considerations for the pregnant patient include history intake, assessment of risk for caries as well as periodontal diseases, screening for hypertension, and timing of preventive, restorative, and emergency care. Radiation safety, with emphasis on the as low as reasonably achievable (ALARA) principle, is addressed. The document highlights educating the pregnant patient and providing anticipatory guidance to improve oral health during and after pregnancy. Lastly, oral health care providers are encouraged to review state laws and regulations pertaining to consent of pregnant minors and minor confidentiality. Dental visits are encouraged as part of safe and effective prenatal care.

This document was developed through a collaborative effort of the American Academy of Pediatric Dentistry Councils on Clinical Affairs and Scientific Affairs to offer updated information and recommendations regarding oral health care for the pregnant pediatric dental patient.

KEYWORDS: INFORMED CONSENT; ORAL HYGIENE INSTRUCTION; PREGNANCY; PRENATAL CARE; TOBACCO COUNSELING

Purpose

The American Academy of Pediatric Dentistry (AAPD), as the oral health advocate for infants, children, adolescents, and individuals with special health care needs, recognizes that adolescent pregnancy remains a significant social and health issue in the United States (U.S.) These recommendations are intended to address management of oral health care particular to the pregnant adolescent rather than provide specific treatment recommendations for oral conditions.

Methods

Recommendations on oral health care for the pregnant adolescent were developed by the Council on Clinical Affairs Committee on the Adolescent and adopted in 2007.¹ This document by the Council on Clinical Affairs is a revision of the previous version, last revised in 2016.² The revision included a search of the PubMed®/MEDLINE database using the terms: (“pregnancy”[MeSH] OR “pregnancy in adolescence”[MeSH] OR “teen pregnancy”[Text word] OR “pregnant teen”[Text word] OR “pregnant adolescent”[Text word] OR “adolescent pregnancy”[Text word]) AND (“Oral Health”[MeSH] OR “oral health”[Text word] OR “dental health”[Text word] OR “dental care”[MeSH]); filters: 10 years, Humans, English. This search yielded 434 articles that met the defined criteria to update this document. The search then was narrowed to include articles that were limited to clinical

trials, systematic reviews, or meta-analysis yielding 56 articles. Additional strategies such as Google Scholar and hand searches were employed. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background

General considerations

Teen birth rate is defined by the Centers for Disease Control and Prevention (CDC) as the number of births per 1000 females aged 15-19 years.³ In 2018, the overall teen birth rate was 17.4 births per 1,000 females, which was a seven percent decline from 2017.³ However, racial disparities exist, with the teen birth rates being higher for non-Hispanic Black teenagers (26.3 births per 1000 females) and Hispanic Black teenagers (26.7 births per 1000 females) compared to non-Hispanic White teenagers (12.1 births per 1000 females).³ Although the U.S. has seen the lowest rates of teen pregnancy in seven

ABBREVIATIONS

AAPD: American Academy of Pediatric Dentistry. **CDC:** Centers for Disease Control and Prevention. **FASDs:** Fetal alcohol spectrum disorders. **FDA:** U.S. Food and Drug Administration. **MS:** Mutans streptococci. **NAS:** Neonatal abstinence syndrome. **U.S.:** United States.

decades, the U.S. is still ranked highest among developed countries.⁴ The declines in teen birth rates reflect a number of behavioral changes, including decreased sexual activity and increased use of contraception.⁵ Why adolescents have become more effective contraceptive users is unclear; involvement in school activities, educational and career aspirations, mentoring programs, economic fluctuations, childbearing norms, contraceptive coverage under the Affordable Care Act, and the availability of health information via internet or television all may have contributed.⁵ The American College of Obstetricians and Gynecologists supports access for adolescents to all U.S. Food and Drug Administration (FDA) approved contraceptive methods.⁵ The prevalence of unplanned pregnancies in adolescents worldwide ranges from 33 to 82 percent.⁶ In the United States, 75 percent of adolescent pregnancies (age 15-19 years) are not planned.⁷ Women living below the federal poverty level had unintended pregnancy rates two to three times the national average.⁸

Adolescent pregnancy (or childbearing) is a complex issue and more likely among socioeconomically disadvantaged adolescents.⁵ Adolescent childbearing may present unfavorable consequences (e.g., not completing high school) for mothers and imposes high public sector costs. Nearly two-thirds of teenage mothers receive public assistance and have increased risk for living in poverty as they enter adulthood.⁹ Furthermore, the challenges of teen pregnancy may last generations with children of teen mothers more like to perform poorly in school or drop out, and daughters of teen mothers to become teen mothers themselves.⁹

Recommendations

General considerations

Proper prenatal care is essential. Oral health care providers are in a position to encourage pregnant pediatric dental patients to seek routine care with their obstetrician and other primary care providers throughout their pregnancy. Likewise, obstetric care providers are able to counsel patients regarding good oral health habits, including the importance of professional oral health care during pregnancy. Dental visits during pregnancy are safe, effective, and encouraged.^{10,11}

Recommendations: Health care providers should counsel patients on the safety and benefits of prenatal medical and dental care. Recommendations for adolescent oral health care can be found in AAPD's *Adolescent Oral Health Care*.¹²

Diet considerations during pregnancy

The diet of the pregnant adolescent can affect the health of the child. A healthy diet is necessary to provide adequate amounts of nutrients to the mother-to-be and the unborn child. Nutrients of particular importance include folic acid, iron, calcium, vitamin D, choline, omega-3 fatty acids, B vitamins, and vitamin C.¹³ Vitamin D works with calcium to help the bones and teeth of the fetus develop.¹³ Folic acid, a B vitamin, plays an important role in the production of cells and helps in the development of the neural tube, the brain, and spinal

cord.¹⁴ Folic acid supplementation has been shown to decrease the risk of isolated cleft lip with or without cleft palate.^{15,16}

A healthy diet during pregnancy is encouraged. Studies have shown that improving the nutritional status of women prior to and during pregnancy can substantially reduce the risk of low-birth-weight babies.¹⁷ In addition, diabetes during pregnancy has been associated with cleft lip and palate in fetuses.¹⁸ An expectant female may modify food choices due to morning sickness and/or taste aversions, but appropriate nutrition for the health of the mother and fetus is crucial. Nausea and vomiting, which are common symptoms during the first trimester, may cause a woman to avoid routine oral health practices such as toothbrushing and flossing. In addition, avoidance of certain foods may lead to an increased cariogenic diet, putting the individual at risk for dental caries.

Recommendation: Oral health care providers should encourage pregnant patients to consume noncariogenic, nutrient-dense foods to promote the general and oral health of the mother and developing fetus.

Pharmacotherapy during pregnancy

Availability of current information on the potential effects of medications during pregnancy is important for improving health care providers' prescribing practices and patient safety.¹⁹ In 2014, the FDA updated its requirements for labeling of human prescription drugs and biological products via the Pregnancy and Lactation Labeling Rule (PLLR).²⁰ Labeling must include usage information (e.g., risks of the medication, clinical considerations, fertility effects) for specific populations including pregnancy, lactation, and females and males of reproductive potential.²⁰ Searchable information on prescription medication labeling can be found at *DailyMed*, the official provider of FDA label information.²¹ Some prescription medications such as doxycycline and tetracycline (both antibiotics), as well as alprazolam and diazepam (both anxiolytics), should be avoided.²² Certain anticonvulsants (e.g., topiramate, valproic acid) during pregnancy have been associated with cleft lip and palate in fetuses.¹⁸ Federal regulations require labeling for over-the-counter (OTC) medications to include specific warnings such as contraindications, when to consult a doctor or pharmacist, and considerations with pregnancy/breast-feeding.²³ Some OTC medications to be avoided by pregnant patients include medications for gastrointestinal upset/diarrhea that contain bismuth subsalicylate, decongestants (e.g., phenylephrine, pseudoephedrine), cough and cold medicines that contain guaifenesin, and pain medications such as ibuprofen, naproxen, and aspirin.²² When in doubt, consultation with the patient's obstetrician is warranted.

Recommendations: Oral health care providers should be aware of different medications and their effects on pregnant patients. Oral health care providers should be aware of and recommend that pregnant patients avoid medications that cross the placenta and pose a risk to the developing fetus.

Effects of smoke, tobacco, alcohol, and illicit substance exposure during pregnancy

Education on the serious health consequences of tobacco use and fetal exposure to tobacco and other environmental smoke is an important component of prenatal counseling. Women who have higher exposure levels to polycyclic aromatic hydrocarbons (PAHs) produced by the burning of coal, oil, gas, or garbage, smoke from gas/garbage/cigarette/cigar/pipe, or charbroiling meat also were more likely to have babies with cleft lip with or without cleft palate.²⁴ Prenatal exposure to secondhand smoke has been associated with cognitive deficits.²⁵ Dental health care providers can discourage the use of tobacco and educate individuals on the serious health consequences of tobacco use and exposure to environmental tobacco smoke (ETS).²⁶

No amount of alcohol, nor time to drink alcohol, during pregnancy is safe.^{27,28} Alcohol use during pregnancy is known to cause miscarriage, stillbirth, and lifelong birth defects and developmental disabilities.²⁹ Children with fetal alcohol spectrum disorders (FASDs) may present with abnormal facial features (e.g., smooth philtrum), small head size, shorter than average height, low body weight, poor coordination, hyperactive behavior, difficulty with attention, poor memory, difficulty in school, learning disabilities, speech and language delays, intellectual disabilities, poor reasoning and judgement skills, sleeping and sucking problems as baby, vision or hearing problems, and problems with heart, kidney, or bones.²⁷ Determining the number of individuals with FASDs is difficult, but the CDC estimates 0.2 to 1.5 infants with fetal alcohol syndrome are born for every 1,000 live births in certain areas of the U.S.³⁰ In addition, a 2019 report from the CDC found that one in nine pregnant women reported drinking alcohol in the past 30 days.³⁰ Screening for alcohol use and providing counseling may help decrease the risk of FASDs and harm to the infant.^{30,31} Early recognition, diagnosis, and prevention can reduce negative outcomes and lifelong consequences for the child.²⁸

Individuals with substance (e.g., opioids) misuse issues may misuse these substances regularly or only occasionally.³² Sexually active adolescents who misuse substances have high rates of sexual risk behaviors, unintended pregnancy, and repeated unplanned pregnancy.³³⁻³⁶ Therefore, substance misuse among pregnant adolescents represents a major public health problem.

Substance misuse during pregnancy is associated with an increased risk for stillbirths and neonatal abstinence syndrome (NAS).^{37,38} NAS occurs with a sudden discontinuation of fetal exposure to licit or illicit substances that were used or misused by the mother during or after pregnancy.^{39,40} The American Academy of Pediatrics recommends important prevention measures such as a focus on preventing unintended pregnancies, universal screening for drugs in women of childbearing age, knowledge and informed consent of maternal drug testing and reporting practices, and improved access to comprehensive obstetric care.^{41,42}

Recommendations: Oral health care providers should be aware of and recommend that pregnant patients avoid substances that cross the placenta and pose a risk to the developing fetus. Pregnant pediatric dental patients should be encouraged to avoid smoking, exposure to smoke, and use of alcohol and drugs. Dentists should counsel pregnant patients on the increased risk of negative consequences to the developing fetus if exposed to these substances.

Common oral conditions associated with pregnancy

Physiologic changes in the oral cavity during pregnancy are well documented.⁴³ These include alterations in both the hard and soft tissues. Nausea and vomiting are common during the first trimester and occur in up to 70 percent of women.⁴⁴ Acid from vomitus can cause demineralization and erosion of enamel, known as perimyolysis. A sodium bicarbonate rinse can neutralize the acidic challenge.⁴⁵ Immediate toothbrushing, however, can cause erosion/loss of the weakened enamel.⁴⁶ When erosion is established, fluoride may be used to minimize hard tissue loss and control sensitivity; a daily neutral sodium fluoride mouth rinse or gel to may be prescribed.⁴⁷ Some physicians advocate frequent snacking or eating multiple small meals throughout the day to help relieve morning sickness.⁴⁸ Sipping ginger ale or sucking ginger lollipops also has been recommended.⁴⁸ However, frequent exposure to cariogenic substances may increase the risk of developing caries.

Pregnancy-associated hormonal changes may cause dryness of the mouth. Approximately 44 percent of pregnant participants in one study reported persistent xerostomia.⁴⁹ A palliative approach to alleviate dry mouth may include increased water consumption or chewing sugarless gum to increase salivation.⁴⁹

Signs of gingivitis (e.g., bleeding, redness, swelling, tenderness) are evident in the second trimester and peak in the eighth month of pregnancy, with anterior teeth affected more than posterior teeth.⁵⁰ These findings may be exacerbated by poor plaque control and mouth breathing.⁵¹ From a periodontal perspective, the effects of hormonal levels on the gingival status of pregnant women may be accompanied by increased levels of progesterone and estrogen which contribute to increased vascularity, permeability, and possible tissue edema.^{52,53}

Periodontal disease has been associated with adverse pregnancy outcomes such as pre-term birth⁵⁴⁻⁵⁶, fetal growth restriction⁵⁴, low birthweight^{54,55}, pre-eclampsia⁵⁴, and gestational diabetes⁵⁴. True cause-and-effect relationships between periodontal disease and poor fetal outcomes cannot be determined. The development of more interventional trials would be beneficial⁵⁶ as some recent studies have shown that the treatment of periodontal disease does not eliminate adverse pregnancy outcomes⁵⁷⁻⁵⁹ and may actually put some women at a higher risk for pre-term delivery⁵⁹.

Poor plaque control coupled with hormonal changes may lead to the development of a pyogenic granuloma (i.e., pregnancy tumor or granuloma gravidarum). This benign vascular lesion appears as a deep red to purple gingival nodule in the second or third trimester of pregnancy.^{51,60} Although the lesion may regress postpartum, surgical excision may be necessary.⁶⁰

Recommendations: Oral health care providers should counsel pregnant patients experiencing morning sickness or gastroesophageal reflux to rinse with a cup of water containing a teaspoon of sodium bicarbonate, and toothbrushing should be avoided for about one hour after vomiting to minimize dental erosion. Pregnant patients who alter their diet to combat morning sickness should be counseled on the negative effects of frequent exposures to sugary substances and the increased risk for developing caries with these practices. Pregnant patients should be encouraged to have routine dental examinations to be evaluated for commonly associated oral lesions. Oral health care providers should encourage pregnant patients to practice good oral hygiene, including brushing twice daily with fluoridated toothpaste and flossing, to minimize periodontal insult.

Oral health care during pregnancy

The most significant predictor of not receiving routine dental care during pregnancy was a woman's lack of routine dental care when not pregnant.⁴⁶ Improving the oral health of pregnant women reduces complications of dental diseases to both the mother and the developing fetus.⁶¹ Despite this, the prevalence of dental services usage during pregnancy ranges from 16-83 percent.⁶² A recent systematic review indicated facilitators and barriers to dental care during pregnancy include physiological conditions, low importance of oral health, negative stigma regarding dentistry, fear or anxiety towards dental treatment, mobility and safety, financial barriers, employment, time constraints, lack of information, health professionals' barriers, family and friends' advice, and beliefs and myths regarding the safety of dental treatment.⁶³

Routine dental care is encouraged in order to achieve optimal oral health for pregnant adolescents. A pregnant adolescent who does not already have a dental home and receive regular preventive and therapeutic care is encouraged to seek professional oral health care during the first trimester. The initial visit would entail thorough review of medical, dental, and social histories and a comprehensive evaluation. The dental history addresses diet and fluoride use, preexisting oral conditions, current oral hygiene practices and preventive home care, previous radiographic exposures, and tobacco and other substance use.⁶⁴⁻⁶⁸ Historical and clinical findings can be used to determine the patient's risks for caries and periodontal disease and to develop an individualized treatment plan. Blood pressure readings taken at each visit can help identify hypertension which increases the risk of bleeding during procedures. Of note, adolescents are at a higher risk than average mothers for pregnancy-related high blood pressure (preeclampsia) and its complications.⁶⁹ If an abnormal elevation in blood pressure

is noted during a dental visit, consultation with the patient's physician is warranted. Blood pressure greater than or equal to 140/90 mmHg is considered mild hypertension, whereas values greater than or equal to 160/110 mmHg are considered severe.⁷⁰ Acute-onset, severe hypertension that persists for 15 minutes or more is considered an emergency. Untreated severe hypertension can have significant morbidity (e.g., hemorrhagic stroke) or mortality.⁷¹

Preventive services are critical components of oral health care for the adolescent pregnant patient. Ideally, a dental prophylaxis would be performed during the first trimester and again during the third trimester if oral home care is inadequate or periodontal conditions warrant professional care. During pregnancy, elevation in sex steroid hormones occurs which may modify the gingival inflammatory response and result in an exaggerated gingival inflammation in the presence of even relatively small amounts of plaque.⁷² Referral to a periodontist may be necessary in the presence of progressive periodontal disease.^{50,73} While fluoridated dentifrice and professionally-applied topical fluoride treatments can be effective caries preventive measures for the expectant adolescent, evidence not support the use of fluoride supplements (tablets, drops, lozenges, chewing gum) to benefit the fetus.⁷⁴

Because the pregnant uterus is below the umbilicus, a pregnant woman generally is more comfortable for treatment during the second trimester. Pregnant women are considered to have a full stomach due to delayed gastric emptying and, therefore, are at increased risk for aspiration, particularly during the last trimester.⁷⁵ In general, non-emergency dental treatment needed during the third trimester would be postponed until after birth due to the risk of premature labor and discomfort from lying on one's back for an extended period of time.⁷⁶

Common invasive dental procedures may require certain precautions during pregnancy, particularly during the first trimester. Performing elective restorative and periodontal therapies during the second trimester may prevent any dental infections or other complications from occurring in the third trimester.⁷⁷ A pregnant patient experiencing dental pain or infection requires immediate treatment. When contemplating therapeutic agents for local anesthesia, infection, postoperative pain, or sedation, consideration is given to the potential benefits of the dental therapy versus the risks to the pregnant patient and the fetus. Selecting the safest medication, limiting the duration of the drug regimen, and minimizing dosage⁷⁸ promote patient safety.

Nitrous oxide/oxygen analgesia/anoxiolysis may facilitate the delivery of dental care for a pregnant adolescent when topical and local anesthetics alone are inadequate. Consultation with the prenatal medical provider is indicated prior to its use, and precautions are needed during treatment to prevent hypoxia, hypotension, and aspiration.⁷⁸ Due to the increased risk of pregnancy loss, use of nitrous oxide may be contraindicated in the first trimester of pregnancy.⁷⁸ If more advanced behavior guidance regimens such as moderate sedation or general

anesthesia are needed, post-menarchal patients who have not disclosed a pregnancy may be subjected to a pregnancy test prior to treatment. Pregnancy testing has been recommended for female patients of childbearing age when the results would alter the patient's medical management.⁷⁹

The FDA, in 2020, encouraged practitioners to avoid using dental amalgam in pregnant women, women planning to become pregnant, women who are nursing, and children under the age of six.⁸⁰ However, the American Dental Association (ADA) has reaffirmed amalgam is a durable, safe, effective restoration and that the FDA warning did not present any new information.⁸¹ The ADA recommends dentists discuss all restorative options with their patients, including the risks and benefits to amalgam use.⁸¹

Dental bleaching is known to have side effects (e.g., tooth sensitivity, tissue irritation) in the general population⁸² and has not been studied in pregnant patients. The lack of evidence regarding safety has led other organizations to recommend that bleaching be avoided during pregnancy.⁸³ For more information regarding bleaching, refer to AAPD's *Policy on the Use of Dental Bleaching for Child and Adolescent Patients*.⁸² In general, deferring elective dental treatment that is not medically necessary should be postponed until after delivery to help minimize risk to patient and fetus.⁷⁶

The American College of Obstetricians and Gynecologists affirms that, with shielding of the abdomen and thyroid, dental x-rays are safe during pregnancy.¹¹ Radiographs are an integral component of a comprehensive dental examination and can help the oral health care provider in assessment of dental disease and pathology and development of a treatment plan. However, because the effects of ionizing radiation accumulate over time, the oral health care provider must weigh the risks and benefits of taking radiographs in a pregnant patient.⁸⁴ The decision to obtain radiographic imaging is based on the patient's history and clinical examination.⁸⁴ During dental radiographic examination of all patients, including pregnant patients, optimizing techniques, shielding the thyroid and abdomen, choosing the fastest available image receptor (e.g., high-speed film, digital radiography), collimation of beam to size of receptor, and avoiding retakes help minimize radiation exposure.^{11,84,85} When a radiographic examination is conducted properly, the amount of radiation striking a patient's abdomen is negligible.⁸⁴ For diagnostic radiology outside of the abdomen and pelvis, including the head and neck, the amount of radiation to which a fetus is exposed to is a very low dose and, when standard precautions are taken, it does not pose a significant risk to the fetus.⁸⁶ Following the as low as reasonably achievable (ALARA) principle helps dentists minimize the patient's exposure.⁸⁴ The use of cone-beam computed tomography (CBCT) is not addressed in this document, and consultation with a patient's obstetrician/gynecologist is indicated prior to its use.

The vertical transmission of bacteria associated with dental caries from caregiver to child is well documented.^{87,88} Suppression of the mother's reservoirs of Mutans streptococci (MS) by dental rehabilitation and antimicrobial treatments may prevent

or at least delay infant acquisition of these cariogenic microorganisms.⁸⁹ Transmission of cariogenic bacteria from mother to infant is increased when the mother has poor oral health with untreated dental caries.⁹⁰

Education is an important component of prenatal oral health care and may have a significant effect on the oral health of both the mother and the child. Counseling for the pregnant adolescent includes topics directed toward all adolescent patients (e.g., dietary habits, injury prevention, third molars), as well as oral changes that may occur during pregnancy and infant oral health care. Since the pregnant adolescent may be receptive to information that will improve the infant's health, anticipatory guidance can be introduced to focus on the needs of the child at each stage of life. Studies have documented that early oral health promotion starting during pregnancy can lead to a sustained and long-term improvement of the oral health of children.^{91,92} Programs that promote oral health must continue to inform pregnant women and care providers about the importance of dental care before, during, and after pregnancy. Oral health counseling during pregnancy and dental cleanings are recommended.⁹³ Counseling may include:

- relationship of maternal oral health with fetal health⁸⁸ (e.g., possible association of periodontal disease with preterm birth and pre-eclampsia, developmental defects in the primary dentition⁹⁴);
- an individualized preventive plan including oral hygiene instructions, rinses, and/or xylitol products to decrease the likelihood of MS transmission postpartum;⁹⁵⁻⁹⁷
- dietary considerations (e.g., maintaining a healthy diet, avoiding frequent exposures to cariogenic foods and beverages, overall nutrient and energy needs^{88,98}) and vitamin supplements^{14,15,94};
- anticipatory guidance for the infant's oral health including the benefits of early establishment of a dental home;^{91,92}
- anticipatory guidance for the adolescent's oral health to include injury prevention, oral piercings, tobacco and substance abuse, sealants, and third molar assessment;¹²
- oral changes (e.g., xerostomia, shifts in oral flora) that may occur secondary to pregnancy;^{50,73} and
- individualized treatment recommendations based upon the specific oral findings for each patient.

Recommendations: Oral health care providers should recommend that pregnant pediatric dental patients continue with routine dental care during pregnancy, including preventive services such as in-office dental examinations, prophylaxis, and fluoride treatments. Pregnant pediatric dental patients should be encouraged to maintain good home care, including brushing two times daily with fluoridated toothpaste and daily flossing. If dental treatment must be deferred until after delivery, radiographic assessment also should be deferred. All radiographic procedures should be conducted in accordance with radiation

safety practices. Restorative and periodontal therapies may be completed during the second trimester to prevent any dental infections or other complications from occurring in the third trimester. However, elective dental procedures should be postponed until after delivery. Consultation with the patient's obstetrician or primary care provider may be warranted before the use of local anesthesia, nitrous oxide analgesia, over-the-counter pain medications, or prescriptions are utilized. Oral health care providers should evaluate a pregnant pediatric dental patient's blood pressure at every dental visit. A referral to obstetrician or primary care provider is warranted if blood pressure is elevated.

Legal considerations

Dental practitioners should be familiar with federal and state statutes that govern consent for care for a pregnant patient less than the age of majority. Statutes and case law concerning consent involving pregnant patients less than 18 years of age vary from state to state. In some states, dentists are required to obtain parental consent for non-emergency dental services provided to a child 17 years of age or younger who remains under parental care.⁹⁹ This would involve obtaining consent from the parent who must be aware of the pregnancy in order to understand the risks and benefits of the proposed dental treatment.⁷⁷ However, if the parent is unaware of the pregnancy, the pregnant adolescent may be entitled to confidentiality regarding health issues such as the pregnancy.¹⁰⁰ In other states, there are mature minor laws that allow minors to consent for their own health care when a dentist deems the minor competent to provide informed consent. In addition, some states emancipate minors who are pregnant or by court order. Practitioners are obligated to be familiar with and abide by the laws specific to where they practice and where the patient resides. If a pregnant adolescent's parents are unaware of the pregnancy, and state laws require parental consent for dental treatment, the adolescent is encouraged to inform them so appropriate informed consent for dental treatment can occur. The Health Insurance Portability and Accountability Act (HIPAA) specifically addresses minor confidentiality.¹⁰¹

Recommendation: Oral health care providers should be aware of their state's regulations on consent and caring for a pregnant pediatric dental patient.

References

1. American Academy of Pediatric Dentistry. Guideline on oral health care for the pregnant adolescent. *Pediatr Dent* 2007;29(suppl):93-7.
2. American Academy of Pediatric Dentistry. Guideline on oral health care for the pregnant adolescent. *Pediatr Dent* 2016;38(special issue):163-70.
3. Martin JA, Hamilton BE, Osterman MJK. Births in the United States, 2018. NCHS Data Brief, no 346. Hyattsville, Md.: National Center for Health Statistics. 2019. Available at: "https://www.cdc.gov/nchs/data/databriefs/db346-h.pdf". Accessed August 15, 2021.
4. Centers for Disease Control and Prevention. Health Care Providers and Teen Pregnancy Prevention. Available at: "https://www.cdc.gov/teenpregnancy/health-care-providers/index.htm". Accessed August 15, 2021.
5. Committee on Adolescent Health Care of the American College of Obstetricians and Gynecologists. Adolescent pregnancy, contraception, and sexual activity. Committee Opinion No. 699. May, 2017. Available at: "https://www.acog.org/-/media/project/acog/acogorg/clinical/files/committee-opinion/articles/2017/05/adolescent-pregnancy-contraception-and-sexual-activity.pdf". Accessed August 15, 2021.
6. Vázquez-Nava F, Vázquez-Rodríguez CF, Saldívar-González AH, et al. Unplanned pregnancy in adolescents: Association with family structure, employed mother, and female friends with health-risk habits and behaviors. *J Urban Health* 2014;91(1):176-85.
7. Centers for Disease Control and Prevention. Reproductive Health: Unintended Pregnancy. September 12, 2019. Available at: "https://www.cdc.gov/reproductivehealth/contraception/unintendedpregnancy/index.htm". Accessed July 13, 2021.
8. Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008–2011. *N Engl J Med* 2016; 374(9):843-52.
9. American Academy of Pediatrics, Committee on Adolescence. Help pregnant teens know their options: AAP policy explained. healthchildren.org. August, 2017. Available at: "https://www.healthchildren.org/English/ages-stages/teen/dating-sex/pages/Teenage-Pregnancy.aspx". Accessed August 15, 2021.
10. Oral Health Care During Pregnancy Expert Workgroup. Oral Health Care During Pregnancy: A National Consensus Statement. Washington, D.C.: National Maternal and Child Oral Health Resource Center; 2012:1-9. Available at: "https://www.unitedconcordia.com/docs/OralHealthPregnancyConsensus.pdf". Accessed August 15, 2021.
11. American College of Obstetricians and Gynecologists. Committee Opinion No. 569. Oral Health Care During Pregnancy and Through the Lifespan. Original 2013, Reaffirmed 2017. Available at: "https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2013/08/oral-health-care-during-pregnancy-and-through-the-lifespan". Accessed July 10, 2021.
12. American Academy of Pediatric Dentistry. Adolescent oral health care. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:267-76.
13. American College of Obstetricians and Gynecologists. Nutrition During Pregnancy. March, 2021. Available at: "https://www.acog.org/womens-health/faqs/nutrition-during-pregnancy". Accessed October 21, 2021.

14. Centers for Disease Control and Prevention. Folic acid: Women need 400 micrograms of folic acid every day. April 22, 2021. Available at: "<https://www.cdc.gov/ncbddd/folicacid/features/folic-acid.html>". Accessed July 13, 2021.
15. Wilcox AJ, Lie RT, Solvoll K, et al. Folic acid supplements and risk of facial clefts: National population-based case-control study. *BMJ* 2007;334(7591):1-6.
16. Kelly D, O'Dowd T, Reulbach U. Use of folic acid supplements and risk of cleft lip and palate in infants: A population base cohort study. *Br J Gen Pract* 2012;62(600):e466-72.
17. Yang Z, Huffman SL. Nutrition in pregnancy and early childhood and associations with obesity in developing countries. *Matern Child Nutr* 2013;9(Suppl 1):105-19.
18. Centers for Disease Control and Prevention. Birth Defects: Facts about Cleft Lip and Palate. December 28, 2020. Available at: "<https://www.cdc.gov/ncbddd/birthdefects/cleftlip.html>". Accessed July 13, 2021.
19. Morgan MA, Cragan JD, Golderberg RL, Rasmussen SA, Schulkin J. Management of prescription and nonprescription drug use during pregnancy. *J Matern Fetal Neonatal Med* 2010;23(8):813-9.
20. National Archives and Records Administration. Code of Federal Regulations. Title 21—Food and Drugs. Chapter I Subchapter C Part 201 Subpart B § 201.57 Specific requirements on content and format of labeling for human prescription drug and biological products described in § 201.56(b)(1). Available at: "[https://ecfr.federalregister.gov/current/title-21/chapter-I/subchapter-C/part-201/subpart-B/section-201.57#p-201.57\(c\)\(6\)](https://ecfr.federalregister.gov/current/title-21/chapter-I/subchapter-C/part-201/subpart-B/section-201.57#p-201.57(c)(6))". Accessed July 14, 2021.
21. U.S. National Library of Medicine. DailyMed. Available at: "<https://dailymed.nlm.nih.gov/dailymed/index.cfm>". Accessed July 14, 2021.
22. University of Michigan. Medicines during pregnancy. Available at: "<https://www.uofmhealth.org/health-library/uf9707>". Accessed August 15, 2021.
23. U.S. Department of Health and Human Service, Food and Drug Administration. Code of Federal Regulations. Title 21—Food and Drugs. Chapter I Subchapter C Part 201 Subpart C § 201.66. Format and content requirements for over-the-counter (OTC) drug product labeling. Available at: "<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=201.66>". Accessed July 14, 2021.
24. Centers for Disease Control and Prevention. National Birth Defects Prevention Study (NBDPS). Available at: "<https://www.cdc.gov/ncbddd/birthdefects/nbdps.html>". Accessed August 15, 2021.
25. Campaign for Tobacco-Free Kids. Tobacco Harm to Kids. December 6, 2019. Available at: "<https://www.tobaccofreekids.org/assets/factsheets/0077.pdf>". Accessed August 15, 2021.
26. American Academy of Pediatric Dentistry. Policy on tobacco use. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:92-6.
27. Centers for Disease Control and Prevention. Alcohol Use in Pregnancy. Available at: "<https://www.cdc.gov/ncbddd/fasd/alcohol-use.html>". Accessed August 15, 2021.
28. Williams JF, Smith VC, Committee on Substance Abuse. American Academy of Pediatrics. Fetal alcohol spectrum disorders. *Pediatrics* 2015;136(5):e1395-e1406. Available at: "<https://pediatrics.aappublications.org/content/early/2015/10/13/peds.2015-3113>". Accessed August 15, 2021.
29. Centers for Disease Control and Prevention. Polysubstance Use in Pregnancy. Available at: "<https://www.cdc.gov/pregnancy/polysubstance-use-in-pregnancy.html>". Accessed August 15, 2021.
30. Centers for Disease Control and Prevention. Data and Statistics: Prevalence of FASDs. Available at: "<https://www.cdc.gov/ncbddd/fasd/data.html>". Accessed August 15, 2021.
31. Centers for Disease Control and Prevention. FASDs: Information for Healthcare Providers. Available at: "<https://www.cdc.gov/ncbddd/fasd/hcp.html>". Accessed August 15, 2021.
32. Jones HE, Kraft WK. Analgesia, opioids, and other drug during pregnancy and neonatal abstinence syndrome. *Clin Perinatol* 2019;46(2):349-66.
33. Cavazos-Rehg PA, Krauss MJ, Spitznagel EL, Schootman M, Cottler LB, Bierut LJ. Brief report: Pregnant by age 15 years and substance use initiation among US adolescent girls. *J Adolesc* 2012;35(5):1393-7.
34. Salas-Wright CP, Vaughn MG, Ugalde J, Todic J. Substance use and teen pregnancy in the United States: Evidence from the NSDUH 2002-2012. *Addict Behav* 2015;45:218-25.
35. Clayton HB, Lowry R, August E, Everett Jones S. Nonmedical use of prescription drugs and sexual risk behaviors. *Pediatrics* 2016;137(1):10.
36. Connery HS, Albright BB, Rodolico JM. Adolescent substance use and unplanned pregnancy: Strategies for risk reduction. *Obstet Gynecol Clin North Am* 2014;41(2):191-203.
37. Varner MW, Silver RM, Rowland Hogue CJ, et al. Association between stillbirth and illicit drug use and smoking during pregnancy. *Obstet Gynecol* 2014;123(1):113-25.
38. Stover MW, Davis JM. Opioids in pregnancy and neonatal abstinence syndrome. *Semin Perinatol* 2015;39(7):561-5.
39. Kocherlakota P. Neonatal abstinence syndrome. *Pediatrics* 2014;134(2):e547-e561.
40. Coyle MG, Brogly SB, Ahmed MS, Patrick SW, Jones HE. Neonatal abstinence syndrome. *Nat Rev Dis Primers* 2018;4(1):47.

References continued on the next page.

41. Klein JD; American Academy of Pediatrics Committee on Adolescence. Adolescent pregnancy: Current trends and issues. *Pediatrics* 2005;116(1):281-6.
42. Patrick SW, Schiff DM; Committee on Substance Use and Prevention. A public health response to opioid use in pregnancy. *Pediatrics* 2017;139(3):e20164070.
43. Hughes D. Oral health during pregnancy and early childhood: Barriers to care and how to address them. *J Calif Dent Assoc* 2010;38(9):655-60.
44. American Pregnancy Association. Nausea During Pregnancy. Available at: "<https://americanpregnancy.org/pregnancy-symptoms/nausea-during-pregnancy-5583/>". Accessed September 23, 2021.
45. American College of Obstetricians and Gynecologists. Morning sickness: Nausea and vomiting of pregnancy. Available at: "<https://www.acog.org/womens-health/faqs/morning-sickness-nausea-and-vomiting-of-pregnancy>". Accessed October 21, 2021.
46. Boggess KA, Urlaub DM, Massey KE, Moos MK, Matheson MB, Lorenz C. Oral hygiene practices and dental services utilization among pregnant women. *J Am Dent Assoc* 2010;141(5):553-61.
47. Linnett V, Seow WK. Dental erosion in children: A literature review. *Pediatr Dent* 2001;23(1):37-43.
48. Mayo Clinic. Morning Sickness. Available at: "<https://www.mayoclinic.org/diseases-conditions/morning-sickness/diagnosis-treatment/drc-20375260>". Accessed August 15, 2021.
49. Steinberg BJ. Women's oral health issues. *J Dent Educ* 1999;63(3):271-5.
50. McGaw T. Periodontal disease and preterm delivery of low-birth-weight infants. *J Can Dent Assoc* 2002;68(3):165-9.
51. Demir Y, Demir S, Aktepe F. Cutaneous lobular capillary hemangioma induced by pregnancy. *J Cutan Path* 2004;31(1):77-80.
52. Straka M. Pregnancy and periodontal tissues. *Neuro Endocrinol Lett* 2011;32(1):34-8.
53. Xiong X, Elkind-Hirsch KE, Vastardis S, Delarosa RL, Pridjian G, Buekens P. Periodontal disease is associated with gestational diabetes mellitus: A case control study. *J Periodontol* 2009;80(11):1742-9.
54. Komine-Aizawa S, Aizawa S, Hayakawa. Periodontal disease and adverse pregnancy outcomes. *J Obstet Gynaecol Res* 2019;45(1):5-12.
55. Clotheir B, Stringer M, Jeffcoat MK. Periodontal disease and pregnancy outcomes: Exposure, risk and intervention. *Best Pract Res Clin Obstet Gynaecol* 2007;21(3):451-66.
56. Bobetsis YA, Barros SP, Offenbacher S. Exploring the relationship between periodontal disease and pregnancy complications. *J Am Dent Assoc* 2006;137(Suppl. 2):7S-13S.
57. Newnham JP, Newnham IA, Ball CM, et al. Treatment of periodontal disease during pregnancy: A randomized controlled trial. *Obstet Gynecol* 2009;114(6):1239-48.
58. Polyzos NP, Polyzos IP, Zavos A. Obstetric outcomes after treatment of periodontal disease during pregnancy: Systematic review and meta-analysis. *BMJ* 2010;341:c7017.
59. Macones GA, Parry S, Nelson DB, et al. Treatment of localized periodontal disease in pregnancy does not reduce the occurrence of preterm birth: Results from the Periodontal Infections and Prematurity Study (PIPS). *Am J Obstet Gynecol* 2010;202(2):147.e1-8.
60. Jafarzadeh H, Sanatkhan M, Mohtasham N. Oral pyogenic granuloma: A review. *J Oral Sci* 2006;48(4):167-75.
61. Caufield PW, Li Y, Bromage TG. Hypoplasia-associated severe early childhood caries—A proposed definition. *J Dent Res* 2012;91(6):544-50.
62. Rocha JS, Arima LY, Werneck RI, Moyses SJ, Baldani MH. Determinants of dental care attendance during pregnancy: A systematic review. *Caries Res* 2018;52(1-2):139-52.
63. Rocha JS, Arima L, Chibinski AC, Werneck RI, Moyses SJ, Baldani MH. Barriers and facilitators to dental care during pregnancy: A systematic review and meta-synthesis of qualitative studies. *Cad Saude Publica* 2018;34(8):e00130817.
64. U.S. Department of Health and Human Services. Healthy People 2020 Topics and objectives: Tobacco use. Washington, D.C. Available at: "<https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use>". Accessed July 10, 2021.
65. Centers for Disease Control and Prevention. Smoking and Pregnancy. Available at: "https://www.cdc.gov/tobacco/basic_information/health_effects/pregnancy/index.htm". Accessed July 10, 2021.
66. Mathews TJ. Smoking during pregnancy in the 1990s. *Natl Vital Stat Rep* 2001;49(7):1-14. Available at: "https://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_07.pdf". Accessed October 21, 2021.
67. Aligne CA, Moss ME, Auinger P, Weitzman M. Association of pediatric dental caries with passive smoking. *J Am Med Assoc* 2003;289(10):1258-64.
68. International Consultation on Environmental Tobacco Smoke and Child Health (1999: Geneva, Switzerland) & WHO Tobacco Free Initiative. (1999). International Consultation on Environmental Tobacco Smoke (ETS) and Child Health, 11-14 January 1999, Geneva, Switzerland. World Health Organization. Available at: "<https://apps.who.int/iris/handle/10665/65930>". Accessed August 15, 2021.
69. Carey E. Teenage Pregnancy. Healthline, July 2012. Available at: "<http://www.healthline.com/health/adolescent-pregnancy>". Accessed March 6, 2021.
70. Gaffield ML, Colley Gilbert BJ, Malvitz DM, Romaguera R. Oral health during pregnancy. *J Am Dent Assoc* 2001;132(7):1009-16.

71. American College of Obstetricians and Gynecologists Committee on Obstetric Practice. Committee Opinion No. 623: Emergent therapy for acute-onset, severe hypertension during pregnancy and the postpartum period. *Obstet Gynecol* 2015;125(2):521-5.
72. American Academy of Pediatric Dentistry. Classification of periodontal diseases in infants, children, adolescents, and individuals with special health care needs. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2019:387-401.
73. Raber-Durlacher JE, van Steenberghe TJM, van der Velden U, de Graaff J, Abraham-Inpijn L. Experimental gingivitis during pregnancy and postpartum: Clinical, endocrinological, and microbiological aspects. *J Clin Periodontol* 1994;21(8):549-58.
74. Takahashi R, Hoshi EOK, Naito T, et al. Fluoride supplementation (with tablets, drops, lozenges, or chewing gum) in pregnant women for preventing dental caries in the primary teeth of their children. *Cochrane Database Syst Rev* 2017;10(10):CD011850.
75. Howle R, Sultan P, Shah R, Scales P, Van de Putte P, Bampoe S. Gastric point-of-care ultrasound (PoCUS) during pregnancy and the postpartum period: A systematic review. *Int J Obstet Anesth* 2020;44:24-32.
76. American Pregnancy Association. Pregnancy and Dental Work. Available at: "<https://americanpregnancy.org/healthy-pregnancy/is-it-safe/dental-work-and-pregnancy/>". Accessed October 21, 2021.
77. Hilgers KK, Douglass J, Mathieu G. Adolescent pregnancy: A review of dental treatment guidelines. *Pediatr Dent* 2003;25(5):459-67.
78. California Dental Association Foundation. Oral Health During Pregnancy and Early Childhood: Evidence Based Guidelines for Health Professionals. February 2010. Sacramento, Calif.: California Dental Association Foundation; 2010:1-75. Available at: "<https://www.cdhp.org/resources/253-oral-health-during-pregnancy-and-early-childhood-evidence-based-guidelines-for-health-professionals>". Accessed October 21, 2021.
79. American Society of Anesthesiologists. Pregnancy Testing Prior to Anesthesia and surgery. October, 2016. Available at: "<https://www.asahq.org/standards-and-guidelines/pregnancy-testing-prior-to-anesthesia-and-surgery>". Accessed October 21, 2021.
80. U.S. Food and Drug Administration. Recommendations About the Use of Dental Amalgam in Certain High-Risk Populations: FDA Safety Communication. September 24, 2020. Available at: "<https://www.fda.gov/medical-devices/safety-communications/recommendations-about-use-dental-amalgam-certain-high-risk-populations-fda-safety-communication>". Accessed October 21, 2021.
81. American Dental Association. ADA reaffirms that dental amalgam is 'durable, safe, effective' restorative material. September 24, 2020. Available at: "<https://www.ada.org/en/publications/ada-news/2020-archive/september/ada-reaffirms-that-dental-amalgam-is-durable-safe-effective-restorative-material>". Accessed August 11, 2021.
82. American Academy of Pediatric Dentistry. Policy on the use of dental bleaching for child and adolescent patients. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021: 116-9.
83. American Dental Association. Pregnant? 9 Questions You May Have About Your Dental Health: Is It Safe to Have a Dental Procedure? Available at: "<https://www.mouthhealthy.org/en/pregnancy-slideshow>". Accessed August 11, 2021.
84. American Dental Association Council on Scientific Affairs, U.S. Department Health and Human Services Food and Drug Administration. Dental radiographic examinations: Recommendation for patient selection and limiting radiation exposure. Revised 2012. Available at: "http://www.ada.org/en/-/media/ADA/Member%20Center/Files/Dental_Radiographic_Examinations_2012". Accessed July 10, 2021.
85. American Academy of Pediatric Dentistry. Prescribing dental radiographs for infants, children, adolescents, and individuals with special health care needs. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:258-61.
86. American College of Radiology and Society for Pediatric Radiology. Practice parameter for imaging pregnant or potentially pregnant adolescents and women with ionizing radiation. Revised 2018. Available at: "<https://www.acr.org/-/media/ACR/Files/Practice-Parameters/Pregnant-Pts.pdf>". Accessed March 24, 2021.
87. Li Y, Caufield PW. The fidelity of initial acquisition of mutans streptococci by infants from their mothers. *J Dent Res* 1995;74(2):681-5.
88. Berkowitz RJ. Mutans streptococci: Acquisition and transmission. *Pediatr Dent* 2006;28(2):106-9; discussion 192-8.
89. Brambilla E, Felloni A, Gagliani M, Malerba A, García-Godoy F, Strohmer L. Caries prevention during pregnancy: Results of a 30-month study. *J Am Dent Assoc* 1998;129(7):871-7.
90. Li Y, Caufield PW, Dasanayake AP, Wiener HW, Vermund SH. Mode of delivery and other maternal factors influence the acquisition of Streptococcus mutans in infants. *J Dent Res* 2005;84(9):806-11.
91. Murphey C, Rew L. Three intervention models for exploring oral health in pregnant minority adolescents. *J Spec Pediatr Nurs* 2009;14(2):132-41.
92. Meyer K, Geurtsen W, Günay H. An early oral health care program starting during pregnancy: Results of a prospective clinical long-term study. *Clin Oral Investig* 2010;14(3):257-64.

References continued on the next page.

93. Thompson TA, Cheng D, Strobino D. Dental cleaning before and during pregnancy among Maryland mothers. *Matern Child Health J* 2013;17(1):110-8.
94. Schroth RJ, Lavelle C, Tate R, Bruce S, Billings RJ, Moffatt ME. Prenatal vitamin D and dental caries in infants. *Pediatrics* 2014;133(5):1277-84.
95. Isokangas P, Söderling E, Pienihäkkinen K, Alanen P. Occurrence of dental decay in children after maternal consumption of xylitol chewing gum: A follow-up from 0 to 5 years of age. *J Dent Res* 2000;79(11):1885-9.
96. Söderling E, Isokangas P, Pienihäkkinen K, Tenovou J. Influence of maternal xylitol consumption on acquisition of mutans streptococci by infants. *J Dent Res* 2000;79(3):882-7.
97. Thorild I, Lindau B, Twetman S. Caries in 4-year-old children after maternal chewing of gums containing combinations of xylitol, sorbitol, chlorhexidine, and fluoride. *Eur Arch Paediatr Dent* 2006;7(4):241-5.
98. New York State Department of Health. Oral health care during pregnancy and early childhood practice guidelines. New York, 2006. Available at: "<http://www.health.ny.gov/publications/0824.pdf>". Accessed July 14, 2021.
99. Weber TJ, Fernsler HL. Treating the minor patient. *Penn Dent J* 2002;69(3):11-4.
100. Hasegawa TK, Matthews M, Jr. Confidentiality for a pregnant adolescent? *Texas Dent J* 1994;111(2):23-5.
101. English A, Ford CA. The HIPAA privacy rule and adolescents: Legal questions and clinical challenges. *Perspect Sex Reprod Health* 2004;36(2):80-6.