Policy on Medically-Necessary Care

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Purpose

The American Academy of Pediatric Dentistry (**AAPD**) recognizes that dental care is medically-necessary for the purpose of preventing and eliminating orofacial disease, infection, and pain, restoring the form and function of the dentition, and correcting facial disfiguration or dysfunction.

Methods

This document was developed by the Council on Clinical Affairs and adopted in 2007. This document is an update of the last revision from 2015. It includes an electronic search with Scopus® and PubMed®/MEDLINE using the terms: medically-necessary care, systemic disease AND oral disease, dentistry as medically-necessary care, periodontal disease AND cardiovascular disease, oral health AND pregnancy, oral health AND respiratory illness, oral health AND quality of life, pediatric dentistry, general anesthesia, and nutritional deficiency cognitive development; fields: all; limits: within the last 15 years, human, English. The reviewers agreed upon the inclusion of 76 articles that met the defined criteria.

Background

The AAPD defines medically-necessary care (**MNC**) as "the reasonable and essential diagnostic, preventive, and treatment services (including supplies, appliances, and devices) and follow-up care as determined by qualified health care providers in treating any condition, disease, injury, or congenital or developmental malformation to promote optimal health, growth, and development. MNC includes all supportive health care services that, in the judgment of the attending dentist, are necessary for the provision of optimal quality therapeutic and preventive oral care. These services include, but are not limited to, sedation, general anesthesia, and utilization of surgical facilities. MNC must take into account the patient's age, developmental status, and psychosocial well-being, in addition to the clinical setting appropriate to meet the needs of the patient and family."[1]

MNC is based upon current preventive and therapeutic practice guidelines formulated by professional organizations with recognized clinical expertise. Such recommendations ideally are evidence based but, in the absence of conclusive evidence, may rely on expert opinion and clinical observations. Expected benefits of care should outweigh potential risks. MNC increases the probability of good health and well-being and decreases the likelihood of an unfavorable outcome. Value of services is an important consideration, and all stakeholders should recognize that cost-effective care is not necessarily the least expensive treatment.[2]

Dental care is medically necessary to prevent and eliminate orofacial disease, infection, and pain, to restore the form and function of the dentition, and to correct facial disfiguration or dysfunction. Following the U.S. Surgeon General's report[3] emphasizing that oral health is integral to general health, the U.S. Department of Health and Human Services recommended changing perceptions of the public, policy makers, and healthcare providers so that oral health becomes an accepted component of general health.[4,5] Oral diseases can have a direct and devastating impact on overall health, especially for those with certain systemic health problems or conditions.

Caries is the most common chronic disease of childhood.[3] Approximately 60 percent of children experience caries in their primary teeth by age five.[6] Between 1988-1994 and 1999-2004, prevalence of caries in primary teeth increased for youths aged two to 11 years, with a significant increase noted for those in the two to five year age range.[7] By 17 years of age, 78 percent of children in the U.S. have experienced caries.[5] As much as 90 percent of all caries in school-aged children occurs in pits and fissures. Caries, periodontal diseases, and other oral conditions, if left untreated, can lead to pain, infection, and loss of function. These undesirable outcomes can adversely affect learning, communication, nutrition, and other activities necessary for normal growth and development.[8] Rampant caries is associated with insufficient development in children who have no other medical problems.[9] Children with early childhood caries (**ECC**) may be severely underweight because of the associated pain and disinclination to eat. Nutritional deficiencies during childhood can impact cognitive development.[10,11]

Other oral conditions also can impact general health and well-being. Gingivitis is nearly universal in children and adolescents, and children can develop severe forms of periodontitis.[12] A relationship may exist between periodontal disease and cardiovascular disease[13-15] as well as periodontal disease and adverse pregnancy outcomes,[16,17] including pregnancy hypertension.[18] An association between oral health and respiratory diseases has been recognized.[18,19] Oral health, oral microflora, and bacterial pneumonia, especially

ABBREVIATIONS

AAPD: American Academy Pediatric Dentistry. **CC:** Chronic condition. **ECC:** Early childhood caries. **MNC:** Medically-necessary care.

in populations at high risk for respiratory disease, have been linked. The mouth can harbor respiratory pathogens that may be aspirated, resulting in airway infections.[20] Furthermore, dental plaque may serve as a reservoir for respiratory pathogens in patients who are undergoing mechanical ventilation.[21] Problems of esthetics, form, and function can affect the developing psyche of children, with life-long consequences in social, educational, and occupational environments.[22,23] Self-image, self-esteem, and self-confidence are unavoidable issues in society, and an acceptable orofacial presentation is a necessary component of these psychological concepts.[24,25]

Congenital or acquired orofacial anomalies (e.g., ectodermal dysplasia, cleft defects, cysts, tumors) and malformed or missing teeth can have significant negative functional, esthetic, and psychological effects on individuals and their families.[26,27] Patients with craniofacial anomalies often require specialized oral health care as a direct result of their craniofacial condition. These services are an integral part of the rehabilitative process.[26] Young children benefit from esthetic and functional restorative or surgical techniques and readily adapt to appliances that replace missing teeth and improve function, appearance, and self-image. During the period of facial and oral growth, appliances require frequent adjustment and must be remade as the individual grows.

Professional care is necessary to maintain oral health,[3,4] and risk assessment is an integral element of contemporary preventive care for infants, children, adolescents, and persons with special health care needs.[28] The goal of caries-risk assessment is to prevent disease by identifying and minimizing causative factors (e.g., microbial burden, dietary habits, dental morphology) and optimizing protective factors (e.g., fluoride exposure, personal oral hygiene, sealants).[29,30] Ideally, risk assessment and implementation of preventive strategies would occur before the disease process has been initiated.

Infants and young children have unique caries-risk factors such as ongoing establishment of oral flora and host defense systems, susceptibility of newly erupted teeth, and development of dietary habits and childhood food preferences. Children are most likely to develop caries if Mutans streptococci is acquired at an early age.[31-33] High-risk dietary practices are multi-factorial.[34] Food preferences appear to be established early (probably by 12 months of age) and are maintained throughout early childhood.[35-36] Adolescence can be a time of heightened caries activity and periodontal disease due to an increased intake of cariogenic substances and inattention to oral hygiene procedures.[37-39]

An analysis of caries risk includes determination of protective factors, such as fluoride exposure. More than one-third of the U.S. population does not benefit from community water fluoridation.[3] Fluoride contributes to the prevention, inhibition, and reversal of caries.[40] Therefore, early determination of a child's systemic and topical fluoride exposure is important. Children experiencing caries as infants and toddlers have a much greater probability of subsequent caries in both the primary and permanent dentitions.[10] An individualized preventive plan based on a caries-risk assessment is the key component of caries prevention. Because any risk assessment tool may fail to identify all infants at risk for developing ECC, early establishment of the dental home is the ideal approach for disease prevention.[41] Early diagnosis and timely intervention, including necessary referrals, can prevent the need for more extensive and expensive care often required when problems have gone unrecognized and/or untreated.[42-44]

When very young children have not been the beneficiaries of adequate preventive care and subsequently develop ECC, therapeutic intervention should be provided by a practitioner with the training, experience, and expertise to manage both the child and the disease process. Because of the aggressive nature of ECC, restorative treatment should be definitive yet specific for each individual patient. Conventional restorative approaches may not arrest the disease.[45] Areas of demineralization and hypoplasia can cavitate rapidly. The placement of stainless steel crowns may be necessary to decrease the number of tooth surfaces at risk for new or secondary caries. Stainless steel crowns are less likely than other restorations to require retreatment.[45,46] Low levels of compliance with follow-up care and a high recidivism rate of children requiring additional treatment also can influence a practitioner's decisions for management of ECC[47] and may decrease success of a disease management approach to ECC.[48]

Sealants are particularly effective in preventing pit and fissure caries and providing cost savings if placed on the teeth of patients during periods of greatest risk.[49] Children with multiple risk factors and tooth morphology predisposed to plaque retention (i.e., developmental defects, pits and fissures) benefit from having such teeth sealed prophylactically. A child who receives sealants is 72 percent less likely to receive restorative services over the next three years than children who do not.[50] Sealants placement on primary molars in young children is a cost-effective strategy for children at risk for caries, including those insured by state Medicaid programs.[51,52] Although sealant retention rates initially are high, sealant loss does occur.[53] It is in the patient's interest to receive periodic evaluation of sealants. With follow-up care, the success rate of sealants may be 80 to 90 percent, even after a decade.[53]

Sealants are safe and effective, yet their use continues to be low.[53-55] Initial insurance coverage for sealants often is denied, and insurance coverage for repair and/or replacement may be limited.[55,56] While all Medicaid programs reimburse dentists for placement of sealants on permanent teeth, only one in three reimburses for primary molar sealants.[57] While some third-party carriers restrict reimbursement for sealants to patients of certain ages, it is important to consider that timing of dental eruption can vary widely. Furthermore, caries risk may increase at any time during a patient's life due to changes in habits (e.g., dietary, home care), oral microflora, or physical condition, and previously unsealed teeth subsequently might benefit from sealant application.[53,58]

The extent of the disease process, as well as the patient's developmental level and comprehension skills, affect the practitioner's behavior guidance approaches. The success of restorations may be influenced by the child's response to the chosen behavior guidance technique. To perform treatment safely, effectively, and efficiently, the practitioner caring for a pediatric patient may employ advanced behavior guidance techniques such as protective stabilization and/or sedation or general anesthesia.[59,60] The patient's age, dental needs, disabilities, medical conditions, and/or acute situational anxiety may preclude the patient's being treated safely in a traditional outpatient setting.[61,62] For some infants, children, adolescents, and persons with special health care needs, treatment under sedation or general anesthesia in a hospital, outpatient facility, or dental office or clinic represents the only appropriate method to deliver necessary oral health care.[59,63] Failure by insurance companies to cover general anesthesia costs, hospital fees, and/or sedation costs can expose the patient to multiple ineffective, potentially unsafe, and/or psychologically traumatic in-office experiences. The impact of chronic conditions (**CC**) status and CC severity increases the odds of receiving dental treatment under general anesthesia.[64] Although general anesthesia may provide optimal conditions to perform restorative procedures, it can add significantly to the cost of care.[65] General anesthesia may be required in the hospital setting due to the extent of treatment, the need to deliver timely care, or the patient's medical history/CC (e.g., cardiac defects, severe bleeding disorders, limited opening due to orofacial anomalies). General anesthesia, under certain circumstances, may offer a cost-saving alternative to sedation for children with ECC.[66,67]

Reimbursement issues defined by the concept of MNC have been a complicated topic for dentistry. Pediatric dental patients may be denied access to oral health care when insurance companies refuse to provide reimbursement for sedation/general anesthesia and related facility services. Most denials cite the procedure as "not medically-necessary".[68] This determination appears to be based on arbitrary and inconsistent criteria.[69-74] For instance, medical policies often provide reimbursement for sedation/general anesthesia or facility fees related to myringotomy for a three-year-old child, but deny these benefits when related to treatment of dental disease and/or dental infection for the same patient. American Dental Association Resolution 1989-546 states that insurance companies should not deny benefits that would otherwise be payable "solely on the basis of the professional degree and licensure of the dentist or physician providing treatment, if that treatment is provided by a legally qualified dentist or physician operating within the scope of his or her training and licensure."[74]

Patients with craniofacial anomalies often are denied third-party coverage for initial appliance construction and, more frequently, replacement of appliances as the child grows. The distinction between congenital anomalies involving the orofacial complex and those involving other parts of the body is often arbitrary and unfair. Often, medical insurance companies interpret dental appliance construction to be solely esthetic, without taking into consideration the restorative function. For instance, health care policies may provide reimbursement for the prosthesis required for a congenitally missing extremity and its replacement as the individual grows but deny benefits for the initial prosthesis and necessary periodic replacement for congenitally missing teeth. Third-party payors frequently will refuse to pay for oral health care services even when they clearly are associated with the complete rehabilitation of the craniofacial condition.[75,76]

Policy statement

Dental care is medically necessary to prevent and eliminate orofacial disease, infection, and pain, to restore the form and function of the dentition, and to correct facial disfiguration or dysfunction. MNC is based upon current preventive and therapeutic practice guidelines formulated by professional organizations with recognized clinical expertise. Expected benefits of MNC outweigh potential risks of treatment or no treatment. Early detection and management of oral conditions can improve a child's oral health, general health and well-being, school readiness, and self-esteem. Early recognition, prevention, and intervention could result in savings of health care dollars for individuals, community health care programs, and third-party payors. Because a child's risk for developing dental disease can change over time, continual professional reevaluation and preventive maintenance are essential for good oral health. Value of services is an important consideration, and all stakeholders should recognize that cost-effective care is not necessarily the least expensive treatment.

The AAPD encourages:

1. Oral health care to be included in the design and provision of individual and community-based health care programs to achieve comprehensive health care.
2. Establishment of a dental home for all children by 12 months of age in order to institute an individualized preventive oral health program based upon each patient's unique caries risk assessment.
3. Healthcare providers who diagnose oral disease to either provide therapy or refer the patient to a primary care dentist or dental/medical specialist as dictated by the nature and complexity of the condition. Immediate intervention is necessary to prevent further dental destruction, as well as more widespread health problems.
4. Evaluation and care provided for an infant, child, or adolescent by a cleft lip/palate, orofacial, or craniofacial deformities team as the optimal way to coordinate and deliver such complex services.
5. The dentist providing oral health care for a patient to determine the medical indication and justification for treatment. The dental care provider must assess the patient's developmental level and comprehension skills, as well as the extent of the disease process, to determine the need for advanced behavior guidance techniques such as sedation or general anesthesia.

Furthermore, the AAPD encourages third-party payors to:

1. Recognize malformed and missing teeth are resultant anomalies of facial development seen in orofacial anomalies and may be from congenital defects. Just as the congenital absence of other body parts requires care over the lifetime of the patient, so will these.
2. Include oral health care services related to these facial and dental anomalies as benefits of health insurance without discrimination between the medical and dental nature of the congenital defect. These services, optimally provided by the craniofacial team, include, but are not limited to, initial appliance construction, periodic examinations, and replacement of appliances.
3. End arbitrary and unfair refusal of compensation for oral health care services related to orofacial and dental anomalies.
4. Recognize the oral health benefits of dental sealants and not base coverage for sealants on permanent and primary teeth on a patient's age.
5. Ensure that all children have access to the full range of oral health delivery systems. If sedation or general anesthesia and related facility fees are payable benefits of a health care plan, these same benefits shall apply for the delivery of oral health services.
6. Regularly consult the AAPD with respect to the development of benefit plans that best serve the oral health interests of infants, children, adolescents, and persons with special health care needs, especially those with craniofacial or acquired orofacial anomalies.

References

1. American Academy of Pediatric Dentistry. Definition of medically-necessary care. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2019:18.
2. American Academy of Pediatrics. Policy statement: Essential contractual language for medical necessity for children. Pediatrics 2013;132(2):398-401.
3. U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, Md.: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000. Available at: "https://www.nidcr.nih.gov/sites/default/files/2017-10/hck1ocv.%40www.surgeon.fullrpt.pdf". Accessed August 10, 2019.
4. Institute of Medicine, National Research Council. Improving Access to Oral Health Care for Vulnerable and Underserved Populations. Washington, D.C.: The National Academies Press; 2011. Available at: "https://www.nap.edu/read/13116/chapter/1". Accessed August 10, 2019.
5. U.S. Department of Health and Human Services. National Call to Action to Promote Oral Health. Rockville, Md.: U.S. Department of Health and Human Services, Public Health Service, National Institute of Health, National Institute of Dental and Craniofacial Research; NIH Publication No. 03-5303, May, 2003. Available at: "https://www.ncbi.nlm.nih.gov/books/NBK47472/". Accessed August 10, 2019.
6. Dye BA, Tan S, Smith V, et al. Trends in oral health status: United States, 1988-1994 and 1999-2004. National Center for Health Statistics. Vital Health Stat 11 2007;(248):1-92. Available at: "https://www.cdc.gov/nchs/data/series/sr_11/sr11_248.pdf". Accessed August 10, 2019.
7. Crall JJ. Development and integration of oral health services for preschool-age children. Pediatr Dent 2005; 27(4):323-30.
8. American Academy of Pediatric Dentistry. Definition of dental neglect. Pediatr Dent 2016;38(special issue):13.
9. Khanh LN, Ivey SL, Sokal-Gutierrez K, et al. Early childhood caries, mouth pain, and nutritional threats in Vietnam. Amer J Pub Health 2015;105(12):2510-7.
10. Nyaradi A, Li J, Hickling S, Foster J, Oddy WH. The role of nutrition in children's neurocognitive development, from pregnancy through childhood. Front Hum Neurosci 2013;7:97. Available at: "http://ncbi.nlm.nih.gov/pmc/articles/PMC3607807". Accessed August 10, 2019.
11. Taylor RM, Fealy SM, Bisquera A, et al. Effects of nutritional intervention during pregnancy on infant and child cognitive outcomes: A systematic review and meta-analysis. Nutrients 2017;9(11):1265-97.
12. 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.
13. Geismar K, Stoltze K, Sigurd B, Gyntelberg F, Holmstrup P. Periodontal disease and coronary heart disease. J Periodontol 2006;77(9):1547-54.
14. Demmer RT, Desvarieux M. Periodontal infections and cardiovascular disease: The heart of the matter. J Am Dent Assoc 2006;137(suppl):14-20.
15. Humphrey LL, Fu R, Buckley DI, Freeman M, Helfand M. Periodontal disease and coronary heart disease incidence: A systematic review and meta-analysis. J Gen Intern Med 2008;23(12):20179-86.
16. Bobetsis YA, Barros SP, Offenbacher S. Exploring the relationship between periodontal disease and pregnancy complications. J Am Dent Assoc 2006;137(suppl):7-13.
17. Muerman JH, Furuholm J, Kaaja R, Rintamaki H, Tikkanen U. Oral health in women with pregnancy and delivery complications. Clin Oral Investig 2006;10(2):96-101.
18. Pralhad S, Thomas B, Pralhad K. Periodontal disease and pregnancy hypertension: A clinical correlation. J Periodontol 2013;84(8):1118-25.
19. Azarpazhooh A, Leake JL. Systematic review of the association between respiratory diseases and oral health. J Periodontol 2006;77(9):1465-82.

20. Scannapieco FA. Pneumonia in non-ambulatory patients: The role of oral bacteria and oral hygiene. J Am Dent Assoc 2006;137(suppl):21-5.
21. Heo SM, Haase EM, Less AJ, Gill SR, Scannapieco FA. Genetic relationships between respiratory pathogens isolated from dental plaque and bronchoalveolar lavage fluid from patients in the intensive care unit undergoing mechanical ventilation. Clin Infect Dis 2008;47(12): 1562-70.
22. de Paula DF, Santos NC, daSilva ET, Nunes MF, Leles CR. Psychosocial impact of dental esthetics on quality of life in adolescents. Angle Orthod 2009;79(6):1188-93.
23. Deng XA, Wang YD, Feng A, Lu PB, Wu YA. Psychological well-being, dental esthetics, and psychosocial impacts in adolescent orthodontic patients: A prospective longitudinal study. Amer J Ortho Dentofac Orthoped 2018; 153(1):87-96.
24. Zhang M, McGrath C, Hägg U. Impact of malocclusion and its treatment on quality of life: A literature review. Int J Paediatr Dent 2006;16(6):381-7.
25. Raghavan S, Philip K, Batra P, Marcusson A. Aesthetic perceptions and psychosocial impact of malocclusion: Comparison between cleft and non-cleft patient and their parents. Eur J Ortho 2019;41(1):38-45.
26. American Cleft Palate-Craniofacial Association. Parameters for evaluation and treatment of patients with cleft lip/ palate or other craniofacial differences. Revised ed. Chapel Hill, N.C.: American Cleft Palate-Craniofacial Association; January 2018. Available at: "http://journals.sagepub.com/doi/pdf/10.1177/1055665617739564". Accessed August 10, 2019.
27. National Foundation for Ectodermal Dysplasias. Parameters of oral health care for individuals affected by ectodermal dysplasias. Mascoutah, Ill.: National Foundation for Ectodermal Dysplasias; 2015:11-38. Available at: "https://juyhw1n8m4a3a6yng24eww91-wpengine.netdna-ssl.com/wp-content/uploads/2016/07/NFEDParametersOfOralHealthCare.pdf." Accessed August 10, 2019.
28. American Academy of Pediatric Dentistry. Caries-risk assessment and management for infants, children, and adolescents. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2019:220-4.
29. Fontana M, Zero DT. Assessing patients' caries risk. J Am Dent Assoc 2006;37(9):1231-9.
30. Milgrom P, Chi DL. Prevention-centered caries management strategies during critical periods in early childhood. J Calif Dent Assoc 2011;39(10):735-41.
31. Harris R, Nicoll AD, Adair PM, Pine CM. Risk factors for dental caries in young children: A systematic review of the literature. Community Dent Health 2004;21(suppl 1): 71-85.
32. Douglass JM, Douglass AB, Silk HJ. A practical guide to infant oral health. Am Fam Physician 2004;70(11): 2113-22.
33. Douglass JM, Li Y, Tinanoff N. Association of mutans streptococci between caregivers and their children. Ped Dent 2008;30(5):375-87.
34. Mobley D, Marshall TA, Milgrom P, Coldwell SE. The contribution of dietary factors to dental caries and disparities in caries. Acad Pediatr 2009;9(6):410-4.
35. Douglass JM. Response to Tinanoff and Palmer: Dietary determinants of dental caries and dietary recommendations for preschool children. J Public Health Dent 2000; 60(3):207-9.
36. Nicklaus S, Boggio V, Chabanet C, Issanchou S. A prospective study of food variety seeking in childhood, adolescence and early adult life. Appetite 2005;44(3):289-97.
37. American Psychological Association. Developing adolescents: A reference for professionals. Washington, D.C.: American Psychological Association; 2002. Available at: "https://www.apa.org/pi/families/resources/develop.pdf". Accessed September 10, 2019.
38. Kawamura M, Takase N, Sasahara H, Okada M. Teenagers oral health attitudes and behavior in Japan: Comparison by sex and age group. J Oral Science 2008;50(2):167-74.
39. Källestål C, Dahlgren L, Stenlund H. Oral health behavior and self-esteem in Swedish adolescents over four years. J Adolesc Health 2006;38(5):583-90.
40. Centers for Disease Control and Prevention. Recommendations for using fluoride to prevent and control dental caries in the United States. MMWR Recomm Rep 2001; 50(RR14):1-42.
41. American Academy of Pediatric Dentistry. Perinatal and infant oral health care. Pediatr Dent 2018;40(6):216-20.
42. American Academy of Pediatric Dentistry Pediatric Oral Health Research and Policy Center. Early preventive dental visits. April, 2014. Available at: "http://www.aapd.org/assets/1/7/Early_Preventive_Dental_Visits_Tech_Brief_2014.pdf". Accessed August 10, 2019.
43. Lee LJ, Bouwens TJ, Savage MF, Vann WF Jr. Examining the cost-effectiveness of early dental visits. Pediatr Dent 2006;28(2):102-5, discussion 192-8.
44. Ladewig NM, Camargo LB, Tedesco TK, et al. Management of dental caries among children: A look at cost-effectiveness. Expert Rev Pharmacoecon Outcomes Res 2018;18(2):127-34. Available at: "https://www.researchgate.net/publication/321651003/download". Accessed August 10, 2019.
45. Foster T, Perinpanayagam H, Pfaffenbach A, Certo M. Recurrence of early childhood caries after comprehensive treatment with general anesthesia and follow-up. J Dent Child 2006;73(1):25-30.
46. Eidelman E, Faibis S, Peretz B. A comparison of restorations for children with early childhood caries treated under general anesthesia or conscious sedation. Pediatr Dent 2000;22(1):33-7.
47. Almeida AG, Roseman MM, Sheff M, Huntington N, Hughes CV. Future caries susceptibility in children with early childhood caries following treatment under general anesthesia. Pediatr Dent 2000;22(4):302-6.
48. Samnaliev M, Wijeratne R, Kown EG, Ohiomoba H, Ng MW. Cost-effectiveness of a disease management program for early childhood caries. J Pub Health Dent 2015;75(1): 24-33.

49. Weintraub JA. Pit and fissure sealants in high-caries risk individuals. J Dent Educ 2001;65(10):1084-90.
50. Anderson M. Risk assessment and epidemiology of dental caries: Review of the literature. Pediatr Dent 2002;24(5): 377-85.
51. Chi DL, van der Goes D, Ney JP. Cost-effectiveness of pit-and-fissure sealants on primary molars in Medicaid-enrolled children. Am J Public Health 2014;104(3): 555-61.
52. Griffin SO, Naavaal S, Scherrer C, Patel M, Chattopadhyay S, Community Services Task Force. Evaluation of school-based dental sealant programs: An updated community guide systematic economic review. Am J Prev Med 2017; 52(3):407-15.
53. Feigal RJ. The use of pit and fissure sealants. Pediatr Dent 2002;24(5):415-22.
54. Tellez M, Gray SL, Gray A, Lim S, Ismail AI. Sealants and dental caries: Dentists' perspectives on evidenced-based recommendations. J Am Dent Assoc 2011;142(9): 1033-40.
55. Wright JT, Crall JJ, Fontana M, et al. Evidence-based clinical practice guideline for the use of pit-and-fissure sealants. American Academy of Pediatric Dentistry, American Dental Association. Pediatr Dent 2016;38(5): E120-E36.
56. American Dental Association. Statement on preventive coverage in dental benefits plans (1992:602; 1994:656; 2013:306). In: ADA Current Policies, Adopted 1954-2017. Chicago, Ill.; 2017. Available at: "https://www.ada.org/~/media/ADA/Member%20Center/Members/current_policies.pdf?la=en". Accessed November 8, 2018. (Archived by WebCite® at: "http://www.webcitation.org/73mi3V1wF")
57. Chi DL, Singh J. Reimbursement rates and policies for primary molar pit-and-fissure sealants across state Medicaid programs. J Am Dent Assoc 2013;144(11):1272-8. Erratum in J Am Dent Assoc 2014;145(1):121.
58. Quiñonez RB, Downs SM, Shugars D, Christensen J, Vann WF Jr. Assessing cost-effectiveness of sealant placement in children. J Pub Health Dent 2005;65(2):82-9.
59. U.S. Department of Health and Human Services. Healthy people 2010. Rockville, Md.: U.S. Department of Health and Human Services, National Institutes of Health; 2000. Available at: "https://www.cdc.gov/nchs/data/hpdata2010/hp2010_final_review.pdf". Accessed July 8, 2019.
60. Adair SM, Rockman RA, Schafer TE, Waller JL. Survey of behavior management teaching in pediatric dentistry advanced education programs. Pediatr Dent 2004;26(2): 151-8.
61. American Academy of Pediatric Dentistry. Behavior guidance for the pediatric dental patient. Pediatr Dent 2015; 37(special issue):180-93.
62. Coté CJ, Wilson S, American Academy of Pediatric Dentistry, American Academy of Pediatrics. Guidelines monitoring and management of pediatric patients before, during, and after sedation for diagnostic and therapeutic procedures. Pediatr Dent 2019;41(4):E26-E52.
63. Nelson T, Nelson G. The role of sedation in contemporary pediatric dentistry. Dent Clin North Am 2013;57(1): 145-61.
64. Chi DL, Momany ET, Neff J, et al. Impact of chronic condition status and severity on dental treatment under general anesthesia for Medicaid-enrolled children in Iowa state. Paediatr Anaesth 2010;20(9):856-65.
65. Rashewsky S, Parameswaran A, Sloane C, Ferguson F, Epstein R. Time and cost analysis: Dental rehabilitation with general anesthesia in the office and hospital settings. Anesth Prog 2012;59(4):147-53.
66. Lee JY, Vann WF, Roberts MW. A cost analysis of treating pediatric dental patients using general anesthesia versus conscious sedation. Pediatr Dent 2000;22(1):27-32.
67. Prabhu NT, Nunn JH, Evans DJ. A comparison of costs in providing dental care for special needs patients under sedation or general anesthesia in the North East of England. Prim Dent Care 2006;13(4):125-8.
68. Institute of Medicine Committee on Medicare Coverage Extensions. Medically necessary dental services. In; Field MJ, Lawrence RL, Zwanziger L, eds. Extending Medicare Coverage for Preventive and Other Services. Washington (D.C.): National Academies Press (U.S.); 2000. Available at: "https://www.ncbi.nlm.nih.gov/books/NBK225261/". Accessed July 8, 2019.
69. Patton LL, White BA, Field MJ. State of the evidence base for medically-necessary oral health care. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2001;92(3):272-5.
70. Flick WG, Claybold S. Who should determine the medical necessity of dental sedation and general anesthesia? A clinical commentary supported by Illinois patient and practitioner surveys. Anesth Prog 1998;45(2):57-61.
71. Conway TE. What is currently available in terms of medically-necessary oral care? Spec Care Dentist 1995;15 (5):187-91.
72. White BA. The costs and consequences of neglected medically-necessary oral care [Review]. Spec Care Dentist 1995;15(5):180-6.
73. Cameron CA, Litch CS, Liggert M, Heimburg S. National Alliance for Oral Health consensus conference on medically necessary oral health care: Legal issues. Spec Care Dentist 1995;15(5):192-200.
74. American Dental Association. Dental Benefit Programs–Organization and Operations. Benefits for services by qualified practitioners (1989:546). In: ADA Current Policies, Adopted 1954-2017. Chicago, Ill.; 2018. Available at: "https://www.ada.org/~/media/ADA/Member%20Center/Members/current_policies.pdf?la=en". Accessed November 8, 2018. (Archived by WebCite® at: "http://www.webcitation.org/73mi3V1wF")
75. Strauss RP. The organization and delivery of craniofacial services: The state of the art. Cleft Palate Craniofac J 1999;36(3):189-95.
76. Strauss RP, Cassell CH. Critical issues in craniofacial care: Quality of life, costs of care, and implications of prenatal diagnosis. Acad Pediatr 2009;9(6):427-3.