Policy on Patient Safety

Latest Revision

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Purpose

The American Academy of Pediatric Dentistry (**AAPD**) recognizes patient safety as an essential component of quality oral health care for infants, children, adolescents, and those with special health care needs. The AAPD encourages oral health care professionals to consider thoughtfully the environment in which they deliver health care services and to implement practices to improve patient safety. This policy is not intended to duplicate safety recommendations for medical facilities by national accreditation commissions such as The Joint Commission or those related to workplace safety by the Occupational Safety and Health Administration.

Methods

This document is a revision of the policy developed by the Council on Clinical Affairs, adopted in 2008,[1] and last revised in 2021.[2] This policy is based on a review of current dental and medical literature, including search of the PubMed/MEDLINE database using the terms: (*patient safety* AND *dentistry*), (*evidence based dentistry* OR *dentistry*) AND (*patient safety* OR *dental safety* OR *medical error reduction* OR *nitrous oxide safety* OR *psychological safety* OR *antibiotic safety* OR *patient safety culture* OR *dental emergencies* OR ***SBAR*** OR *TeamSTEPPS* OR ***AIDET*** OR *safety protocols*); fields: all; limits: within the last 10 years, humans, English. Two hundred eighty-six articles met these criteria. Papers for review were chosen from this list and from references within selected articles.

Background

All health care systems should be designed to provide a practice environment that promotes patient safety.[3] The World Health Organization (WHO) defines patient safety as "a framework of organized activities that creates cultures, processes, procedures, behaviours, technologies and environments in health care that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make error less likely and reduce impact of harm when it does occur."[4(p24)] The most important challenge in the field of patient safety is prevention of harm, particularly avoidable harm, to patients during treatment and care.[4(pxii)] Dental practices must be in compliance with federal laws that help protect patients from preventable injuries and potential dangers such as the transmission of disease.[4(p61)-6] In the US, federal laws pertaining to workplace health and safety and working standards are set and enforced by the Occupational Safety and Health Administration (OSHA) under the Department of Labor. This administration oversees programs which regulate hazards related to chemical and environmental factors (eg, spills, radiation) and facilities (eg, fire prevention systems, emergency exits).[7] Professional schools, advanced education programs, national and state regulatory boards, and health service organizations serve as resources to support health care professionals in providing safe patient care.[8,9] The AAPD's *Pediatric Dentistry Safety Toolkit*[10] and *The Reference Manual of Pediatric Dentistry*,[11] containing clinical recommendations and oral health policies, provide additional information regarding the delivery of safe pediatric dental care.

Patient-centered health care systems that focus on preventing errors are critical to assuring patient safety.[12,13] Possible sources of error[3,13-17] in the dental office are miscommunication, interruptions, stress, fatigue, clinician burnout, failure to review the patient's medical history (eg, current medications, allergies), and lack of standardized records, abbreviations, and processes. Treatment of the wrong patient or tooth/surgical site, delay of treatment, disease progression after misdiagnosis, inaccurate referral, incorrect medication dosage ordered/administered, breach in sterilization, waterline contamination, and unintentional swallowing, aspiration, or retention of a foreign object are examples of patient safety events[18-22] that occur in dentistry. Adverse events may be classified in terms of severity of harm[23] (eg, none, mild, moderate, severe, death).

Standardized processes and workflows help ensure that clerical and clinical personnel execute their responsibilities in a safe and effective manner.[17] Policy and procedure manuals that describe a facility's established protocols serve as a valuable training tool for new employees and reinforce a consistent approach to promote safe and quality patient care.[17] Simulation training for providers and technicians has been found to increase patient safety.[24] Identifying deviations from established protocols and studying patterns of occurrence can help reduce the likelihood of adverse events.[25] Emphasis on procedural protocols that protect the patient's airway (eg, rubber dam isolation), guard against unintended retained foreign objects (eg, surgical counts; observation of placement/removal of throat packs, retraction cords, cotton pellets, and orthodontic

ABBREVIATIONS

AAPD: American Academy of Pediatric Dentistry. **AIDET:** Acknowledge, introduce, duration, explanation, and thank you. **SBAR:** Situation, background, assessment, and recommendation.

separators), and minimize opportunity for iatrogenic injury during delivery of care (eg, protective eyewear) will reduce aspirations and damage to orofacial structures.

Safety checklists are used by many industries and health care organizations to reduce preventable errors.[4(pp20,152),26] Data supports the use of procedural checklists (eg, presedation) to minimize the occurrence of adverse events in dentistry.[27-30] In addition, order sets, reminders, and clinical guidelines built into an electronic charting system may improve adherence to best practices.[21] Zero harm, the concept that a patient will not experience preventable harm or injury, is a goal in health care.[31] The medical profession generally has embraced the systematic approach to safety change, but the dental profession has been slower to adopt this approach.[32-34] The journey to achieve zero harm does not occur without effort. For change to occur in dental practices and organizations, it is important that oral health care professionals publicly commit to the establishment of a safety culture, encourage effective teamwork, and promote effective communication and training.[34-36] Reducing clinical errors requires a careful examination of adverse[17,21,27] and near-miss[12,37] events. In a near-miss event, an error was committed, but the patient did not experience clinical harm.[12,37] Detection of errors and problems within a practice or organization may be used as teaching points to motivate changes and avoid recurrence.[38] A root cause analysis can be conducted to determine causal factors and corrective actions so these types of events may be avoided in the future.[26,35,37,39] Embracing a patient safety culture demands a nonpunitive or no-blame environment that encourages all personnel to report errors and intervene in matters of patient safety.[12,14] Alternatively, a fair and just culture is one that learns and improves by openly identifying and examining its own weaknesses; individuals know they are accountable for their actions but will not be blamed for system faults in their work environment that are beyond their control.[35,37] Evidence-based systems have been designed for health care professionals to improve team awareness, clarify roles and responsibilities, resolve conflicts, improve information sharing, and eliminate barriers to patient safety.[40,41]

The environment in which dental care is delivered impacts patient safety. In addition to structural issues regulated by state and local laws, other design features should be planned and periodically evaluated for patient safety, especially as they apply to young children. Play structures, games, and toys are possible sources for accidents and infection.[42,43] Toys or other articles for children that, without compression, measure less than 1.25 inches in diameter and 2.25 inches in length are hazardous for children under age 3 due to risk of choking, aspiration, or ingestion.[44] The Centers for Disease Control and Prevention (CDC) has issued guidelines for dental unit waterlines, biofilm, and water quality that serve as a standard of care for nonsurgical dental procedures and minimize chances of infection associated with the dental environment.[9] The use of sterile water or sterile saline for surgical procedures will reduce risk of infection from water contaminants.[9,10] Adherence to radiology safety protocols is crucial to prevent undue radiation exposure in a dental setting. Whether using a wall-mounted or handheld x-ray unit, radiation exposure of nearby patients, family members, and staff can be minimized by maintaining a distance of at least 2 meters (6.5 feet) from the radiation source.[45]

Patients and parents benefit from discussions regarding safe use of oral products at home. Supervised twice daily toothbrushing with an age-appropriate amount of fluoridated toothpaste will help prevent ingestion of excessive amounts of fluoride.[46] Risks associated with teething gels and jewelry are an important component of anticipatory guidance for infants.[47] Mouthguards offer protection against dental trauma from sports activities in older children and adolescents.[48]

Postoperative instructions are essential to minimizing the risk of treatment-related complications following discharge. This would include guidance on the distribution and duration of effects of local anesthetics and strategies to avoid trauma to anesthetized soft tissues,[49] dietary precautions and hemorrhage control following surgical procedures,[50] and a review of indications for and dosage of prescribed medications to encourage compliance with the recommended regimen. For pediatric dental procedures requiring sedation or general anesthesia, once the patient has met recognized criteria for safe discharge,[51] instructions for travel safety, airway observation, possible nausea and vomiting, activity levels, and accessing emergency care are indicated.[52]

Dental patients benefit from a practitioner who follows current literature and participates in professional continuing education courses to increase awareness and knowledge of current best practices and public health concerns. Scientific knowledge and technology continually advance, and patterns of care evolve due, in part, to recommendations by organizations with recognized professional expertise and stature, including The Joint Commission, the World Health Organization, the American Dental Association, the Institute for Health Improvement, the Association for Dental Safety, and the Agency for Healthcare Research and Quality. Data-driven solutions are possible through documenting, recording, reporting, and analyzing patient safety events.[22,33,53-55] Continuous quality improvement efforts including outcome measure analysis to improve patient safety should be implemented into practices.[30,56] Patient safety incident disclosure is lower in dentistry compared to medicine since a dental-specific reporting system does not exist in the US.[32,33] Identifiable patient information that is collected for analysis is considered protected under the Health Insurance Portability and Accountability Act (HIPAA).[57]

Safe oral health care includes practitioner awareness of and efforts to minimize the potential for patient fire during procedures when an ignition source, fuel, and oxidizer are present simultaneously (Figure).[58-60] Patient fire is rare but can result in injury and death.[58,60] Sparks from burs, lasers, and electrosurgical units can be a source of ignition.[58] Combustible agents (eg, dry gauze, throat pack, paper and cotton products, hair, petroleum-based lubricants, alcohol-based products, rubber dam, nitrous mask) can act as a fuel.[58] Maintaining a moist working field and avoiding cutting dry can decrease fire

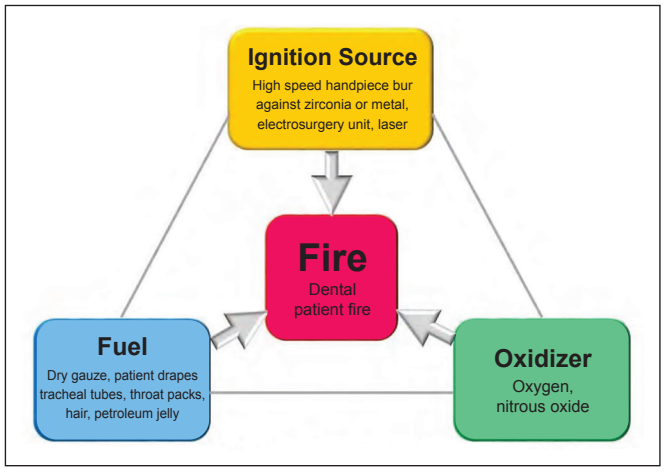


Figure. Dental fire triangle: dental fire may result when all 3 factors are present simultaneously.

risk.[59,61] Delivery of nitrous oxide and/or oxygen, both of which are oxidizers, can produce an oxidizer enriched atmosphere (OEA). Oxygen pooling is the atmospheric condition in which any fraction of inspired oxygen (FiO2) is greater than room air level of 21%.[62] Fire safety experts and researchers recommend maintaining the oxygen concentration below 30%.[63,64] Incorporating high-volume suction into the safety protocol for oxygen-enriched surgical procedures may decrease the risk of surgical fires.[61] In a simulated dental operative environment, the high-volume evacuator was deemed more effective than the Yankauer or saliva ejector at reducing local oxygen concentrations.[65] One minute of high-velocity suctioning was found to reduce oxygen pooling around the oropharynx of dental patients undergoing office-based general anesthesia.[66] If supplemental oxygen is needed during operative procedures in which cautery is used, a concentration of 30% or less at 4 liters per minute has been suggested as a safe limit for administration.[67] Higher levels of oxygen may be acceptable in routine dental procedures without cautery use. Higher oxygen levels also are acceptable if the risk of patient desaturation is greater than the risk of fire.[67]

Policy statement

The AAPD encourages oral health care professionals to prioritize patient safety in the delivery of care and to consider the elements of their practice that may be improved to minimize the occurrence of critical errors and complications. The AAPD urges oral health care professionals to adhere to federal and state laws, guidance, and programs that protect patients and their families. Active engagement with current best practices, technology, and public health concerns is crucial to providing safe, patient-centered care.

To promote patient safety, the AAPD also supports

- patient safety instruction in dental curricula and continuing education.
- compliance with infection control policies, procedures, and practices in dental health care settings to prevent disease transmission from patient to care provider, from care provider to patient, and from patient to patient.
- routine inspection of physical facility with regards to patient safety. This includes development and periodic review of office emergency and fire safety protocols and routine inspection and maintenance of clinical equipment.
- recognition that effective communication practices, including informed consent by the parent and assent from the child when applicable, can help avoid problems and adverse events.
- accuracy of patient identification by using 2 or more patient identifiers (eg, name, date of birth) when providing health care treatment or services.
- an accurate and complete patient chart, including consistent use of standardized abbreviations, acronyms, and symbols that can be interpreted by a knowledgeable third party.
- an accurate, comprehensive, and up-to-date medical/dental history including medications and allergy list to ensure patient safety during each visit. Ongoing communication with health care providers, both medical and dental, who manage the child's health helps ensure comprehensive, coordinated care of each patient.
- a pause or time out before an invasive procedure with dental team members present to confirm the patient, planned procedure, and tooth/surgical site are correct.
- inclusion of fire prevention and management protocols in procedure and emergency plans, including a time out that assesses fire risk.
- appropriate staffing and supervision of patients treated in the dental office.
- adherence to the AAPD's recommendations on behavior guidance, especially as they pertain to use of advanced behavior guidance techniques (ie, protective stabilization, sedation, general anesthesia).
- standardization and consistency of processes within the practice. A policies and procedures manual, with ongoing review and revision, may increase employee awareness and decrease the likelihood of untoward events.
- minimizing exposure to nitrous oxide by maintaining the lowest practical levels in the dental environment. This includes routine inspection and maintenance of nitrous oxide delivery equipment as well as adherence to clinical recommendations for patient selection and delivery of inhalation agents.
- minimizing radiation exposure through adherence to the ALARA (as low as reasonably achievable) principle, equipment inspection and maintenance, and patient selection criteria.
- all facilities performing sedation for diagnostic and therapeutic procedures to maintain records that track adverse events. Such events then can be examined for assessment of risk reduction and improvement in patient safety.

- dentists who utilize in-office anesthesia providers to take all necessary measures to minimize risk to patients. Prior to delivery of sedation/general anesthesia, documentation shall address rationale for sedation/general anesthesia, informed consent, instructions to parent, dietary precautions, preoperative health evaluation, and any prescriptions along with the instructions given for their use. Rescue equipment should have regular safety and function testing, and medications should not be expired. The dentist and anesthesia providers must communicate during treatment to share concerns about the airway or other details of patient safety.
- clear, procedure-specific posttreatment instructions to patients/parents to minimize risk of injury or complications when being discharged from the oral health care professional's supervision.
- ongoing quality improvement strategies and routine assessment of risk, adverse events, and near misses. A plan for improvement in patient safety and satisfaction is imperative for such strategies.
- comprehensive review and documentation of indication for medication order/administration. This includes a review of current medications, allergies, drug interactions, and correct calculation of dosage.
- vigilance in monitoring public health concerns (eg, surges in respiratory infection cases). This includes taking steps to ensure patient and staff safety as recommended by local and national sources with recognized expertise.
- promoting a culture where staff members are empowered and encouraged to speak up or intervene in matters of patient safety.
- staff and provider training on burnout recognition and prevention, self-care, and access to confidential mental health counseling and substance abuse programs.

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