Use of Protective Stabilization for Pediatric Dental Patients

Latest Revision
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Abstract

This best practice is presented to assist dentists and other health professionals regarding the need for and appropriate use of protective stabilization/medical immobilization when treating pediatric patients and individuals with special health care needs. Immobilization of a person for delivery of safe, quality dental/medical care can be passive (using equipment or mechanical devices) or active (being held by other persons). Details to consider before using protective stabilization include the patient's particular needs, dental and medical histories, and cognitive and emotional development as well as the desires of the parent. Recommendations for using protective stabilization focus on the following areas: education of the health care providers, discussion of consent/assent with parent and patient, parental presence in the operatory or treatment area, specific immobilization techniques and equipment, method of monitoring the patient, and individualized considerations for patients with special health care needs. Indications, contraindications, risks, and required documentation are addressed. In the spirit of patient safety, the decision to utilize protective stabilization and chosen techniques should be customized for each patient, depending on his medications and physical and psychological health. Protective stabilization is considered within an overall behavior guidance plan that promotes a positive dental attitude and quality of 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 assessment of caries risk and risk-based management protocols.

KEYWORDS: BEHAVIOR THERAPY, CHILD, DELIVERY OF HEALTH CARE, INFORMED CONSENT; RESTRAINT, PHYSICAL

Purpose

The American Academy of Pediatric Dentistry (**AAPD**) believes that all infants, children, adolescents, and individuals with special health care needs (**SHCN**) are entitled to receive oral health care that meets the treatment and ethical principles of our specialty. The AAPD has included use of protective stabilization (formerly referred to as physical restraint and medical immobilization) in its guidelines on behavior guidance since 1990.[1,2] This separate document, specific to protective stabilization, provides additional information to assist the dental professional and other stakeholders in understanding the indications for and developing appropriate practices in the use of protective stabilization as an advanced behavior guidance technique in contemporary pediatric dentistry. This advanced technique must be integrated into an overall behavior guidance approach that is individualized for each patient in the context of promoting a positive dental attitude for the patient, while ensuring the highest standards of safety and quality of care.

Methods

Recommendations on protective stabilization were developed by the Council on Clinical Affairs, adopted in 2013[3] and revised in 2017[4]. This document is a revision of the previous version and is based on a review of the current dental and medical literature related to the use of protective stabilization devices and restraint in the treatment of infants, children, adolescents, and patients with SHCN in the dental office. This revision included electronic database searches using the terms: protective stabilization and dentistry, protective stabilization and medical procedures, medical immobilization, restraint and dentistry, restraint and medical procedures, papoose board and dentistry, papoose board and medical procedures, and patient restraint for treatment. Fifty-five articles matched these criteria and were evaluated by title and/or abstract. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Definitions

Physical restraint is broadly defined by the Centers for Medicare and Medicaid Services as "(A) Any manual method, physical or mechanical device, material, or equipment that

ABBREVIATIONS
AAPD: American Academy Pediatric Dentistry. **SHCN:** Special health care needs.

immobilizes or reduces the ability of a patient to move his or her arms, legs, body, or head freely; or (B) A drug or medication when it is used as a restriction to manage the patient's behavior or restrict the patient's freedom of movement and is not a standard treatment or dosage for the patient's condition."[5] This definition has limitations when applied to dentistry as it does not accurately or comprehensively reflect the indications or utilization of restraint in dentistry.

Protective stabilization is the term utilized in dentistry for the physical limitation of a patient's movement by a person or restrictive equipment, materials or devices for a finite period of time[6] in order to safely provide examination, diagnosis, and/or treatment. The definition of protective stabilization is similar to that used for restraint in other healthcare disciplines.[5,8] Other terms such as medical immobilization and medical immobilization/protective stabilization have been used as descriptors for procedures categorized as protective stabilization.[6,9] Active immobilization involves restraint by another person, such as the parent, dentist, or dental auxiliary.[9] Passive immobilization utilizes a restraining device.[9]

Background

Pediatric dentists receive formal education and training to gain the knowledge and skills required to manage the various physical challenges, cognitive capacities, and age-defining traits of their patients. A dentist who treats children should be able to assess each child's developmental level, dental attitude, and temperament and also be able to recognize potential barriers to delivery of care (e.g., previous unpleasant and/or painful medical or dental experiences) to help predict the child's reaction to treatment.[2] A continuum of non-pharmacological and pharmacological behavior guidance techniques, including protective stabilization, may be employed in providing oral health care for infants, children, adolescents, and individuals with SHCN.[2] Behavior guidance approaches for each patient who is unable to cooperate should be customized to the individual needs of the child and the desires of the parent* and may include sedation, general anesthesia, protective stabilization, or referral to another dentist.[2] AAPD's *Behavior Guidance for the Pediatric Dental Patient*[2] should be consulted for additional information regarding the spectrum of behavior guidance techniques.

When determining whether to recommend use of stabilization or immobilization techniques, the dentist should consider the patient's oral health needs, emotional and cognitive development levels, medical and physical conditions, and parental preferences.[10,11] Alternative approaches (e.g., treatment options or deferral, sedation, general anesthesia) and their potential impact on quality of care and the patient's well-being should be included in the deliberation.[10,11] Socioeconomic status, geographic location, and ethnic/cultural differences of patients and their parents may influence parental preference for behavior management techniques.[12,13]

Indications for protective stabilization along with practitioner and parent acceptance have been evaluated in the literature. A recent survey demonstrated over 50 percent use and acceptance of protective stabilization devices among practicing board-certified pediatric dentists.[14] Practitioner gender, practice setting, region, and perception of parental acceptance were important factors relating to protective stabilization use and acceptance.[14,15]

Recommendations

Education. Didactic and clinical experiences vary for pre-doctoral students between and within dental schools.[16] While some schools provide didactic and hands-on training in advanced behavior guidance, others offer limited exposure. A survey of pre-doctoral program directors found a majority of dental schools spend fewer than five classroom hours on behavior guidance techniques.[9] Furthermore, 42 percent of institutions reported fewer than 25 percent of students had one hands-on experience with passive immobilization for non-sedated patients, while 27 percent of programs provided no clinical experiences.[9] A predoctoral dental survey demonstrated 73 percent of students were instructed on use of an immobilization device (Papoose Board®, Olympic Medical Corp, Seattle, Wash., USA); however, only 11 percent observed use in clinical settings, with two percent actually using it on a patient.[17] Therefore, graduates from dental school may lack knowledge and competency in the use of protective stabilization. Limited training in protective stabilization is not unique to dentistry as other health care disciplines have suggested a need for advanced training and guidelines.[8,18-20]

Protective stabilization is considered an advanced behavior guidance technique in dentistry.[2] Attempts to restrain or stabilize patients without adequate training can leave not only the patient, but also the practitioner and staff, at risk for physical harm.[21,22] Both didactic and hands-on mentored education beyond dental school is essential to ensure appropriate, safe, and effective implementation of protective stabilization of a patient unable to cooperate. Advanced training can be attained through an accredited postdoctoral program (e.g., advanced education in general dentistry, general practice residency, pediatric dentistry residency) or an extensive and focused continuing education course that includes both didactic and mentored hands-on experiences. Formal training will allow the dentist and staff members to acquire the necessary knowledge and skills in patient selection and in the successful use of restraining

* *In all AAPD oral health care policies and clinical recommendations the term "parent" has a broad meaning encompassing a natural/biological father or mother of a child with full parental legal rights, a custodial parent who in the case of divorce has been awarded legal custody of a child, a person appointed by a court to be the legal guardian of a minor child, or a foster parent (a noncustodial parent caring for a child without parental support or protection who was placed by local welfare services or a court order). American Academy of Pediatric Dentistry. Overview. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2019:7-9.*

techniques to prevent or minimize psychological stress and/or decrease risk of physical injury to the patient, the parent, and the staff. Providing the opportunity for the staff members to debrief following the use of protective stabilization should be considered.[23] Currently, at least one state (Colorado) requires training beyond basic dental education in order for the practitioner to utilize protective stabilization devices.[24]

Consent. Protective stabilization, with or without a restrictive device, led by the dentist and performed by the dental team requires informed consent from a parent.[25,26] A parent's signature on a consent form should not preclude a thorough discussion of the procedure. The practitioner must explain the benefits and risks of protective stabilization, as well as alternative treatment options (e.g., interim therapeutic restoration [ITR], silver diamine fluoride [SDF], treatment deferral) and alternative behavior guidance techniques (e.g., sedation, general anesthesia), and assist the parent in determining the most appropriate approach to treat his/her child.[27] Informed consent discussion, when possible, should occur on a day separate from the treatment.[28,29] Supplements such as informational booklets or videos may be helpful to the parent and/or patient in understanding the proposed procedure. Informed consent must be obtained and documented in the patient's record prior to performing protective stabilization.[6,22,30,31] If a patient's behavior during treatment necessitates a change in stabilization procedure or technique, further consent must be obtained and documented.[30]

When appropriate, an explanation to the patient regarding the need for restraint, with an opportunity for the patient to respond, should occur.[26] Although a minor does not have the statutory right to give or refuse consent for treatment, the child's wishes and feelings (assent) should be considered when addressing the issue of consent.[30,32] Also, when providing dental care for adolescents or adults with mild intellectual disabilities, patient assent for protective stabilization should be considered.[33] A conditional comprehensive explanation of the technique to be used and the reasons for application should be provided.[33]

Laws governing informed consent vary by state. It is incumbent on the practitioner to be familiar with applicable statutes. Currently, approximately 50 percent of states have adopted the patient-oriented standard.[34] Thus, a practitioner may be held liable if a parent has not received all of the information that is essential to his/her decision to accept or reject proposed treatment.[33]

Written consent before treatment of a patient is mandated by some states.[35] Even if not required by state law, detailed written consent for protective stabilization should be obtained separately from consent for other procedures as it increases the parent's/patient's awareness of the procedure.[25,30]

Parental presence. Parental presence in the operatory may help both the parent and child during a difficult experience.[36] Ninety-two percent of mothers in one study believed they should have been with their child when he/she was placed on a rigid stabilization board to increase the child's security and/or comfort.[36] In addition, 90 percent recognized that immobilization protected the children from harm.[36] The dentist should consider allowing parental presence in the operatory or direct visual observation of the patient during use of protective stabilization unless the health and safety of the patient, parent, or the dental staff would be at risk.[28] Further, if parents are denied access, they must be informed of the reason with documentation of the explanation in the patient's chart.[24] If parents choose not to be present, they should be encouraged to provide positive nurturing support for the child both before and after the procedure. Ultimately, a parent has the right to terminate use of restraint at any time if he or she believes the child may be experiencing physical or psychological trauma due to immobilization. If termination is requested, the practitioner immediately should complete the necessary steps to bring the procedure to a safe conclusion before ending the appointment.

Techniques. Alternative approaches to restricting patient movement during medically-necessary dental care should be explored before immobilizing a patient. Protective stabilization should be used only when less restrictive interventions are not effective. It should not be used as a means of discipline, convenience, or retaliation. Furthermore, the use of protective stabilization should not induce pain for the patient.

Treatment should first be attempted with communicative behavior guidance without protective stabilization unless there is a history of maladaptive or combative behavior that could be injurious to the patient and/or staff.[37] Active stabilization involves limitation of movement by another person, such as the parent, dentist, or dental auxiliary, whereas passive (mechanical) stabilization requires use of restraints.[9] When immobilization is indicated, the least restrictive alternative or technique should be used.[23,38]

An accurate, comprehensive, and up-to-date medical history is necessary for effective treatment. This would include careful review of the patient's medical history to ascertain if there are any conditions (e.g., asthma) which may compromise respiratory function or neuromuscular or bone/skeletal disorders which may require additional positioning aids due to rigid extremities.[28]

Following explanation of the procedures and consent by the parent, protective stabilization of the patient should begin in conjunction with distraction techniques[39] by placing the child, in a manner as comfortable as possible, in a supine position. If restriction of extremity movement is needed, the dentist may ask a dental auxiliary or parent to employ hand guarding or hold the patient's hands. Gradually increasing or decreasing levels of restriction in response to the patient's behavior is one method of providing protective stabilization.[23] Full-body protective stabilization, when indicated, should be accomplished in a sequential manner.[40] If the stabilization device includes a head hold, that is activated last. At no time should the device be active to the point of restricting blood flow or respiration.[41]

Equipment. Numerous devices are available to limit movements by a patient unable to cooperate during dental treatment. The ideal characteristics of a passive restraining device to use as an adjunct to dental procedures include the following:

- easily used;
- appropriately sized for the patient;
- soft and contoured to minimize potential injury to the patient;
- specifically designed for patient stabilization (i.e., not improvised equipment)[40]; and
- able to be disinfected.

Stabilization of a patient's extremities can be accomplished using devices (e.g., Posey® straps [Tidi Products, Neehah, Wis, USA], hook and loop straps, seat belts) or an extra assistant. If hand guarding or hand holding does not deter disruptive movement of a patient's hands, wrist restraints may be utilized.[37,42] If a patient is unable (due to medical diagnosis) or unwilling (due to maladaptive behaviors) to control bodily movement, a full body wrap may need to be used. Full-body stabilization devices include, but are not limited to, Papoose Board® and Pedi-Wrap® (The Medi-Kid Co., Hemet, Calif., USA).[37,42] Devices with a flat board design may not adapt to the dental chair. Pillows or beanbags under the board may be used to promote stability.[28] Stabilization for the head may be accomplished using forearm-body support, a head positioner, or an extra assistant.[42] Positioning devices or stabilizers such as wheelchair head supports or dental chair cushions are adjunct devices that are not necessarily considered protective stabilization devices.[28] Although a mouth prop may be used as an immobilization device, the use of a mouth prop in a compliant child is not considered protective stabilization.

Monitoring. Ongoing awareness/assessment of the patient's physical and psychological well-being during the dental procedure must be performed.[28] Tightness of the stabilization device must be monitored continuously throughout the procedure.[41] For a patient who is experiencing severe emotional stress, protective stabilization must be terminated as soon as possible to prevent possible physical or psychological trauma.[28] At the completion of dental procedures, removal of restraints may be accomplished sequentially with short pauses between stages to assess the patient's level of cooperation.[37] Struggling during removal of restraints may increase the potential for injury to the child as well as others. When immobilization has been introduced intra-operatively (i.e., unplanned intervention), debriefing is beneficial for parent/patient understanding[22] and to discuss management implications for future appointments.

Patients with SHCN. The provider should consider utilizing alternative behavioral approaches to reduce movement and resistance as well as increase cooperation when providing medically-necessary dental care for patients with SHCN prior to implementing protective stabilization.[28,43] Various behavioral modification approaches such as distraction, shaping, modeling, sensory integration, desensitization, and reinforcement are regarded as alternatives.[43-45] Non-pharmacological behavior guidance approach have been effective in patients with autism spectrum disorders.[46-49] Children and adolescents with SHCN will, at times, require protective stabilization to facilitate completion of necessary dental treatment.[28] Aggressive, uncontrolled, and impulsive behaviors along with involuntary movements may cause harm to both the patient and dental personnel.[50] Use of protective stabilization reduces potential risks and provides safer management of patients with SHCN.[50,51] Studies have demonstrated that sensory adapted environments and techniques such as deep pressure from an immobilization device (e.g., Papoose Board®) provided comfort, reduced effects of stressful stimuli, and were observed to be non-harmful to special needs patients receiving medical and dental care.[50,51] One study reported parents of children with SHCN had greater acceptance of protective stabilization in comparison to parents of children with no disabilities.[52] When considering protective stabilization during dental treatment for patients with SHCN, the dentist in collaboration with the parent must consider the importance of treatment and the safety consideration of the restraint.[33] The dentist should be cautious when utilizing protective stabilization for children and adolescents receiving multiple medications. The propensity of adverse central nervous system or cardiac events occurring may increase when protective stabilization is instituted on patients receiving psychotropic or other medications.[41]

Indications. Protective stabilization is indicated for:

- a patient who requires immediate diagnosis and/or urgent limited treatment and cannot cooperate due to developmental levels (emotional or cognitive), lack of maturity, or medical/physical conditions;
- a patient who requires urgent care and uncontrolled movements risk the safety of the patient, staff, dentist, or parent without the use of protective stabilization.
- a previously cooperative patient who quickly becomes uncooperative and cooperation cannot be regained by basic behavior guidance techniques in order to protect the patient's safety and help complete a procedure and/or stabilize the patient;
- an uncooperative patient who requires limited (e.g., quadrant) treatment and sedation or general anesthesia may not be an option because the patient does not meet sedation criteria or because of a long operating room wait time, financial considerations, and/or parental preferences after other options have been discussed;
- a sedated patient who requires limited stabilization to help reduce untoward movements during treatment; and
- a patient with SHCN who exhibits uncontrolled movements that would be harmful or significantly interfere with the quality of care.

Contraindications: Protective stabilization is contraindicated for:

- a cooperative non-sedated patient;
- an uncooperative patient when there is not a clear need to provide treatment at that particular visit;
- a patient who cannot be immobilized safely due to associated medical, psychological, or physical conditions;
- a patient with a history of physical or psychological trauma, including physical or sexual abuse or other trauma that would place the individual at greater psychological risk during restraint;
- a patient with non-emergent treatment needs in order to accomplish full mouth or multiple quadrant dental rehabilitation;
- the practitioner's convenience; and
- a dental team without requisite knowledge and skills in patient selection and restraining techniques to prevent or minimize psychological stress and/or decrease risk of physical injury to the patient, the parent, and the staff.

Risks. The provider should consider the patient's emotional and cognitive developmental levels and should be aware of potential physical and psychological effects of protective stabilization. The majority of restraint-related injuries consist of minor bruises and scratches, although other more serious injuries have been reported.[41,53] Fewer injuries were incurred due to passive stabilization compared to active stabilization, and fewer injuries occurred with the use of planned passive stabilization compared to its use in emergent situations.[53] Patients placed on a rigid stabilization board may overheat during the dental procedure.[28] They must never be unattended while placed on the board as they may roll out of the chair.[38] A rigid stabilization board may not allow for complete extension of the neck and, therefore, may compromise airway patency, especially in young children or sedated patients.[54] Proper training and use of a neck roll may minimize this risk.[28,37] Significant release of adrenal catecholamines may occur in patients who experience increased agitation when restrained by staff members or protective stabilizing equipment.[41] Excessive catecholamine release may sensitize the heart and cause rhythm disturbances.[41]

The dental provider should acknowledge and abide by the principle to "do no harm" when considering completion of excessive amounts of treatment while the patient is immobilized with protective stabilization.[55] The physical and psychological health of the patient should override other factors (e.g., practitioner convenience, financial compensation).[55]

Documentation. The patient's record must include:

- indication for stabilization.
- type of stabilization.
- informed consent for protective stabilization.
- reason for parental exclusion during protective stabilization (when applicable).
- the duration of application of stabilization.
- behavior evaluation/rating during stabilization.
- any untoward outcomes, such as skin markings.
- management implications for future appointments.

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