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Best Practices ~~Guideline on~~ Protective Stabilization for Pediatric Dental Patients

Originating Council

Council on Clinical Affairs

Review Council

Council on Clinical Affairs

Adopted

2013

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2017

Purpose

The American Academy of Pediatric Dentistry (**AAPD**) believes that all infants, children, adolescents, and individuals with special health care needs are entitled to receive oral health care that meets the treatment and ethical principles of our specialty. The need for the patient to receive timely diagnosis and treatment, as well as to ensure the safety of the patient, practitioner, and staff, should be considered before using protective stabilization. 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[1-9]. This separate guideline 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

This guideline is an update of the previous document adopted in 2013. ~~This guideline~~ It is based on a review of the current dental and medical literature related to the use of protective stabilization devices and restraints in the treatment of infants, children, adolescents, and patients with special health care needs in the dental office. ~~An electronic search was conducted using PubMed® with the following: Terms:~~ This document included database searches using key 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"~~;~~ . ~~Fields: all; Limits: within the last 10 years, humans, English, birth through 18.~~ ~~Thirty-four~~ Fifty 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

Broadly, physical restraint is defined by the Centers for Medicare and Medicaid Services as "(A) Any manual method, physical or mechanical device, material, or equipment that 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 restart the patient's freedom of movement and is not a standard treatment or dosage for the patient's condition."[10] 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[10-14] in order to safely provide examination, diagnosis and / or treatment. Other terms such as medical immobilization, MIPS (medical immobilization / protective stabilization) have been used as descriptors for procedures categorized as protective stabilization[13-15]. Active immobilization involves restraint by another person, such as the parent, dentist, or dental auxiliary; passive immobilization utilizes a restraining device[15].

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[9]. 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 special health care needs[9]. 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[9]. The

AAPD *Guideline on behavior guidance for the pediatric dental patient*[9] should be consulted for additional information regarding the spectrum of behavior guidance techniques.

~~Protective stabilization is defined as "any manual method, physical or mechanical device, material, or equipment that immobilizes or reduces the ability of a patient to move his or her arms, legs, body, or head freely (CFR 42, 2010)." Active immobilization involves restraint by another person, such as the parent, dentist, or dental auxiliary; passive immobilization utilizes a restraining device (ADA Principles of Ethics 2012).~~ 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[9] (~~ADA Principles of Ethics 2012~~). Furthermore, alternative approaches (e.g., treatment deferral, sedation, general anesthesia) and their potential impact on quality of care and the patient's well-being should be included in the deliberation[9,15] (~~ADA Principles of Ethics 2012~~).

Recommendations

Education

Didactic and clinical experiences vary for pre-doctoral students between and within dental schools. 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[15]. 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[15]. A predoctoral dental survey demonstrated 73 percent of students were instructed on use of an immobilization device (Papoose® board), however only 11 percent observed use in clinical settings with two percent actually using it on a patient[16,17]. 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[18,19].

Protective stabilization is considered an advanced behavior guidance technique in dentistry[9]. 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[20]. 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[9]. Advanced training can be attained through an accredited

post-doctoral program (e.g., advanced education in general dentistry, general practice residency, or pediatric dentistry residency program) or an extensive and focused continuing education course that includes both didactic and mentored hands-on experiences. Formal training will allow the practitioner to acquire the necessary knowledge and skills in patient selection and in the successful use of restraining techniques to prevent or minimize psychological stress and/or decrease risk of physical injury to the patient, the parent, and the staff. Currently, at least one state, Colorado, requires training beyond basic dental education in order for the practitioner to utilize protective stabilization devices[21].

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[9].[*] 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 behavior guidance techniques (e.g., treatment deferral, sedation, general anesthesia), and assist the parent in determining the most appropriate approach to treat his/her child[22]. Informed consent discussion, when possible, should occur on a day separate from the treatment. 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[12,21,23,~~24~~]. If a patient's behavior during treatment necessitates a change in stabilization procedure or technique, further consent must be obtained and documented[23].

When appropriate, an explanation to the patient regarding the need for restraint, with an opportunity for the patient to respond, should occur[11,22] (~~McGrath et al 2002~~). 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[23,~~25~~]. When providing dental care for adolescents or adults with mild intellectual disabilities, patient assent for protective stabilization should also be considered[13]. A conditional comprehensive explanation of the technique to be used and the reasons for application should be provided[13].

Laws governing informed consent vary by state. It is incumbent on the practitioner to be familiar with applicable statutes. Currently most states have adopted the "patient-oriented" standard. 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[23,~~26,27~~].

Written consent before treatment of a patient is mandated by some states[28]. Even if not required by state law; detailed written consent for medical immobilization should be obtained separately from consent for other procedures as it increases the parent's / patient's awareness of the procedure[23].

Parental presence

Parental presence in the operatory may help both the parent and child during a difficult experience[29]. 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[29]. In addition, 90 percent recognized that immobilization protected the children from harm[29]. ~~Practitioners~~ 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[8]. Further, if parents are denied access, they must be informed of the reason with documentation of the explanation in the patient's chart[21]. 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.

Active immobilization involves ~~restraint~~ limitation of movement by another person, such as the parent, dentist, or dental auxiliary; ~~examples of active immobilization include head holding, hand guarding, and therapeutic holding~~ whereas passive (protective) immobilization requires use of restraints. 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[30]. When mechanical immobilization is indicated, ~~it should be~~ the least restrictive alternative or technique should be used[31,32].

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.

Following explanation of the procedures and consent by the parent, protective stabilization of the patient should begin in conjunction with distraction techniques[33] 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. Full-body protective stabilization, when indicated, should be accomplished in a sequential manner[34]. 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[9].

Equipment

Numerous devices are available to limit movements by a patient unable to cooperate during dental treatment. The ideal characteristics of a mechanical 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)[34]; and
- able to be disinfected.

Stabilization of a patient's extremities can be accomplished using devices (e.g., Posey straps®, Velcro® 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[30,35]. 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®[30,35]. Stabilization for the head may be accomplished using forearm-body support, a head positioner, or an extra assistant[35]. 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

~~Tightness of the stabilization device must be monitored and reassessed at regular intervals (AAPD Behavior guideline 2015).~~ Ongoing awareness/assessment of the patient's physical and psychological well-being during the dental procedure must be performed. Tightness of the stabilization device must be continuously monitored throughout the procedure[9]. For a patient who is experiencing severe emotional stress or hysterics, protective stabilization must be terminated as soon as possible to prevent possible physical or psychological trauma[31]. The assessment of patient pain should be continuous throughout the procedure, as the clinician may misinterpret negative or combative behavior as discomfort from the restraint when in reality the behavior may be associated with other painful stimuli[36]. At the completion of dental procedures, removal of restraints should be accomplished sequentially with short pauses between stages to assess the patient's level of cooperation[30]. 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 the understanding of parent/patient[11] and to discuss management implications for future appointments.

~~Special Needs Patients~~ Patients with Special Health Care Needs

The provider should consider utilizing alternative behavioral approaches to reduce movement and resistance as well as increasing cooperation when providing medically necessary dental care for patients with special health care needs prior to implementing protective stabilization[37]. Various behavioral modification approaches such as distraction, shaping, modeling, sensory integration, desensitization, and reinforcement are regarded as alternatives[37-39]. D-Termined Program© is a non-pharmacological behavior guidance approach that has been effective in patients with autism spectrum disorders (ASD)[14,40-42]. This program uses "familiarization through repetitive tasking" by skill training in acceptable behaviors in the dental operatory[14,40-42]. Distraction via counting, positional modeling, and repetitive tasks and visits are modalities implemented to facilitate coping strategies for ASD patients[14,40-42].

Children and adolescents with special health care needs will at times require protective stabilization to facilitate completion of necessary dental treatment. Aggressive, uncontrolled, and impulsive behaviors along with involuntary movements may cause harm to both the patient and dental personnel[43]. Use of protective stabilization reduces potential risks and provides safer management of patients with special health care needs[43,44]. Studies have demonstrated that sensory adapted environments and techniques such as deep pressure from an immobilization device (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[43,44]. One study reported parents of children with special health care needs had greater acceptance of protective stabilization in comparison to parents of children with no disabilities[45]. When considering protective stabilization during dental treatment for special health care needs patients, the dentist in collaboration with the parent must consider the importance of treatment and the safety consideration of the restraint[13]. The dentist should be cautious when utilizing protective stabilization on 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[46].

Indications

Protective stabilization is indicated when:

- a patient requires immediate diagnosis and/or urgent limited treatment and cannot cooperate due to emotional and cognitive developmental levels, ~~or~~ lack of maturity, or medical and physical conditions;
- ~~emergent~~ urgent care is needed and uncontrolled movements risk the safety of the patient, staff, dentist, or parent without the use of protective stabilization;
- a previously cooperative patient quickly becomes uncooperative during the appointment in order to protect the patient's safety and help to expedite completion of treatment;
- a sedated patient ~~may become uncooperative during treatment;~~ requires limited stabilization to help reduce untoward movements during treatment.
- a patient with special health care needs ~~may experience~~ exhibits uncontrolled movements that would be harmful or significantly interfere with the quality of care.

~~**Benefits**~~

~~When used correctly and in accordance with this guideline, protective stabilization has the following benefits (AAPD Behavior guideline 2015):~~

- ~~reduction or elimination of untoward movements;~~
- ~~protection of the patient, staff, dentist, or parent from injury;~~
- ~~facilitation of quality dental treatment.~~

Contraindications:

Protective stabilization is contraindicated for:

- cooperative non-sedated patients;

- patients who cannot be immobilized safely due to associated medical, psychological, or physical conditions;
- patients with a history of physical or psychological trauma due to ~~restraint~~ immobilization (unless no other alternatives are available);
- ~~patients with non-emergent~~ treatment ~~needs~~ in order to accomplish ~~full-mouth~~ multiple quadrant or ~~multiple quadrant~~ full mouth dental rehabilitation~~.~~; at the practitioners' convenience[36].

Risks

~~The use of protective stabilization may lead to potential serious consequences, such as physical or psychological harm, loss of dignity, and violation of patient's rights (AAPD Behavior guideline 2015).~~ 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[9]. ~~Research has demonstrated that psychological trauma can have lasting detrimental effects on brain function, and when this trauma is of sufficient intensity, frequency, or duration, subsequent neurodevelopment may be altered and become maladaptive (Weber and Reynolds 2004). Parents may also experience distress when their children are restrained (McGrath et al 2002).~~

The majority of restraint-related injuries consist of minor bruises and scratches, although other more serious injuries have been reported[46,47]. 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[47]. Patients placed on a rigid stabilization board may overheat during the dental procedure; therefore, their temperature should be monitored[31]. ~~and~~ The patient must never be unattended ~~as the patient and~~ while placed in the board as they may roll out of the chair[31]. 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[48]. Proper training and use of a neck roll may minimize this risk. Significant release of adrenal catecholamines may exist in patients who are experiencing increased agitation when restrained by staff members or protective stabilizing equipment[46]. Excessive catecholamine release may sensitize the heart and cause rhythm disturbances[46].

Lastly, 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[49]. The physical and psychological health of the patient should override other factors (e.g. practitioner convenience, financial compensation)[49].

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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* In all AAPD oral health care policies and clinical practice guidelines, 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. Pediatr Dent 2014;36(6):2-3.