**Dental Emergencies in the School Setting**

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**Disclosure Statement**

- I do not have any conflicts of interest to declare related to this presentation.

- I do not intend to discuss an unapproved or investigative use of a commercial product or device.

**Disclaimer**

- The information presented in the following presentation has not been prepared to specifically address policies and procedures of individual schools, school districts, or state education organizations.

- The material presented therein discusses concepts for consideration by the school nurse when faced with dental emergencies in the school setting.

- This presentation does not and cannot provide medical advice to the school nurse that is applicable and correct for every situation faced in the school setting.

- The school nurse is encouraged to discuss specific management of individual students with his or her dentist and/or physician.

**Objectives**

- Review common dental emergencies seen in school aged kids.

- Discuss management of dental emergencies by school nurses.

**Dental Problems in the School Setting**

- Dental caries

- Exfoliating teeth

- Orthodontic appliances

- Dental and oral trauma

- Oral piercings

**Presenting Signs and Symptoms**

- Pain

- Bleeding

- Infection

- Inability to eat or drink

- Impaired function
“dental caries (tooth decay) is the single most common chronic disease of childhood – 5 times more common than asthma and 7 times more common than hay fever”


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**Press Release**
**Minnesota Department of Health**
**February 19, 2013**

- Minnesota Basic Screening Survey (2010)
- 55% of Minnesota third graders have dental caries
- Increasing prevalence of dental caries by increasing percent of free and reduced lunch students
- 18% have untreated dental caries

http://www.health.state.mn.us/news/pressrel/2013/oralhealth021913.html

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**Toothache in US Children**

- 10% of United States children with a toothache
- 2007 National Survey of Children’s Health
- Survey question of parent or guardian: To the best of your knowledge, has he/she had a toothache within the past 6 months?
- 89,730 subjects representing 69 million US children


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**Pain**

- How often does your child?:
  - Have problems with brushing upper or lower teeth?
  - Push away something nice to eat?
  - Bite with molar instead of front teeth?
  - Have problems chewing?
  - Reach for his/her cheek while eating?
  - Cry during meals?
  - Chew on one side?
- Often x 1 or Sometimes x 2 = Dentist


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“…more than 51 million school hours are lost each year to dental-related illness”


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**School Performance**

- School absence (1, 2, or 3 days missed) due to routine dental care was not associated with poor school performance
- School absence due to dental pain was associated with poorer school performance [aOR 1.94 (1.04, 3.63)]
- Children with poorer reported oral health status were more likely to be reported by parents to have Cs, Ds, and Fs in school [aOR 1.70 (1.16-2.49)]
- Children with poor oral health may limit a child’s ability to do well in school or while studying at home

School Performance

- 1,495 elementary and high school students from high percentage free and reduced lunch public schools in Los Angeles County, California
- Students with a toothache within the previous 6 months were nearly 4 times more likely to have a G.P.A. below the School District median score.
- Students without an accessible dentist were 3 times more likely to miss school days because of dental problems than students with a dentist


Emergency Department Visits

- Nationwide Emergency Department Sample (2006)
- 330,757 visits with a dental caries related diagnosis
- 24,982 hospital emergency visits among children ≤18 yrs.
- 69.5% of ED visits by children during weekdays
- 37 children (0.15%) require hospitalization
- $14.33 million (53% MA, 24% Private, 20% Uninsured)


Considerations

- Inform family upon recognition of dental caries
- Connect or reconnect child with dentist
- Palliative treatment for acute dental pain
  - Avoid aspirin
  - Avoid topical anesthetic gels
  - Avoid temperature extremes with foods and beverages
  - Judicious use of ibuprofen or acetaminophen (unless contraindicated due to medical conditions)
- Rule out infection - fever, swelling, pus
- Be aware of dental neglect

Exfoliating Teeth

- Normal vs. pathology
- Bleeding
- Aspiration or ingestion?
- When exfoliated
  - Local pressure
  - Plan for exfoliated tooth

Orthodontic Appliances

- Removable appliances – “retainers”
- Fixed appliances – “braces” and “expander”
- Wires, brackets, bands, and elastics
- Emergencies can include: breakage of components, loose components, punctures or poking, ulcerations, swallowed components

Orthodontic Emergency Kit

- Emergency distal end cutter
- Push stick
- Wax
- Mouth mirror
Epidemiology of Dental Injuries Worldwide

- Majority of dental injuries occur in childhood
- Males > females
- Maxillary central incisors > maxillary lateral incisors > mandibular incisors
- Prevalence: 1/3 of preschoolers, 1/4 of school-aged kids, and 1/3 of adults


Dental Injuries in United States EDs

- A stratified national probability sample: ~100 hospitals
- 22,000 injuries annually in patients <18 years of age
- Almost 2/3 of injuries in boys
- 60% <7 years of age; peak age 1-2 yrs (24.5%)
- 45% home/furniture; 29% outdoor recreation; 13% sports


Prevention of Dental Injuries

- Mouthguards during sports and outdoor recreation
  - Bicycling, baseball, riding toys, football, soccer
  - Advocate for mouthguard use
- Recognition and education of at-risk individuals
  - Seizures, sensory concerns, ADHD, tongue piercings
  - Alignment and position of teeth

Patient Assessment after Dental Trauma

- Medical triage
- How, why, where, how long ago did the injury occur?
- Permanent vs. primary tooth
- Pain and thermal sensitivity
- Oral and perioral soft tissue injuries
- Bleeding
- Missing or avulsed teeth or tooth fragments
- Tooth or tooth fragment mobility
- Tooth displacement
- Bite interferences
- Bone fracture

Enamel Fractures

- ALL
- MOST
- SOME
- NEVER
  - Pain
  - Thermal Sensitivity
  - Mobility
  - Bleeding
  - Displacement
  - Bite Interferences
  - Bone Fracture

Enamel + Dentin Fractures

- ALL
- MOST
- SOME
- NEVER
  - Pain
  - Thermal Sensitivity
  - Mobility
  - Bleeding
  - Displacement
  - Bite Interferences
  - Bone Fracture
Avulsion Injuries

- Pain
- Thermal Sensitivity
- Mobility
- Bleeding
- Displacement
- Bite Interferences
- Bone Fracture

Seeking Consultation from a Dentist

- Immediate
- On the day of injury
- Next business day

Primary vs. Permanent Tooth

- Child’s age
  - < 5 years old: primary
  - > 8 years old: permanent
- Mandibular permanent incisors are seen
- Amount of root structure
- “Does the child’s tooth resemble your tooth in size, shape, and color?”

Immediate Consultation with Dentist

- Avulsed teeth: permanent = treatment, primary = education
- Dental diagnosis regarding non-accidental injuries
- Dental injuries in unconscious trauma patients
- Teeth that could be aspirated or ingested
- Steps within dental arch and/or hematoma in floor of mouth
- Uncontrolled bleeding in patients with a coagulopathy

Avulsed Permanent Incisors

- The only time sensitive dental emergency
- Preservation of vitality of periodontal ligament cells on the root surface of the avulsed incisor dictates “healing by regeneration versus healing by repair”
- Extra-socket time is most critical factor determining success
- Dead or destroyed periodontal ligament cells lead to healing by repair of replanted tooth especially in growing children

Immediate Replantation of Avulsed Incisors

- Personal protective equipment
- Pick up tooth by white crown
- Plug sink then brief, gentle rinse with water or saline
- Replant tooth under digital pressure
- Have child hold tooth in place with towel or gauze pad
**Immediate Replantation of Avulsed Incisors**

- Best clinical outcome if extra-socket time < 5 minutes
- May be difficult if bony socket is fractured
- Difficult to replant and stabilize if several teeth injured
- Patient should be conscious and responsive
- Seek dentist for splinting of replanted tooth
- Determine need for tetanus booster

**Physiologic Storage Media**

- Avoid use of water due to cell lysis
- Avoid dry conditions
- Hank’s balanced salt solution
  - Save a Tooth solution
- Cold milk (up to 6 hours)
  - Do not dilute milk with melting ice
- Saline and patient’s own saliva

**Consultation with Dentist on Day of Injury**

- Missing teeth/tooth fragments with soft tissue injuries present
- Subluxated or displaced teeth causing bite interferences
- Unstable, repositioned teeth and/or tooth fragments
- Intruded teeth
- Fractured teeth with function altering thermal sensitivity
- Exposed bone due to gingival deglove

**Consultation Next Business Day with Dentist**

- Crown fractures without tooth mobility or thermal sensitivity
- Concussion injuries
- Mild subluxation injuries without bite interference or need for stabilization within tooth socket

**Point of Care Internet Resource**

Dental Trauma Guide

- An interactive website for diagnosis, emergency treatment, prognosis, follow-up, and research outcomes
- Created by the University Hospital of Copenhagen, Denmark and the International Association of Dental Traumatology

**Clinical Guidelines**

American Academy of Pediatric Dentistry
Management of Acute Dental Trauma

American Academy of Pediatric Dentistry
Decision Tree for the Avulsed Tooth

International Association of Dental Traumatology
Guidelines for Management of Permanent Tooth Injuries
[http://www.iadt-dentaltrauma.org/for-professionals.html](http://www.iadt-dentaltrauma.org/for-professionals.html)
**Oral Piercings**

- Injuries during piercing act
  - Bleeding
  - Infection
  - Airway compromise with tongue piercings
- Trauma to the teeth and surrounding tissues
  - Crown fractures
  - Gingival recession
  - Overgrowth of tissues
- Infection due to inadequate hygiene
  - Endocarditis in those with congenital heart disease
  - Altered taste sensation, hypersalivation, reactions to metal

**Oral Piercings**

- Estimated 24,459 ED visits in US between 2002-2008
- National Electronic Injury Surveillance System
- 73% of visits in 14 – 22 year olds
- 2.5x as many injuries in females
- Infection and overgrowth of tissues around jewelry common
- Broken teeth with tongue jewelry only
- Less than 1% of visits required hospitalization


**Considerations**

- Encourage students to abstain from getting oral piercings
- If present, optimal oral hygiene
- Routine dental care

Additional information is present at the Association of Professional Piercers website: [www.safe piercing.org](http://www.safe piercing.org)