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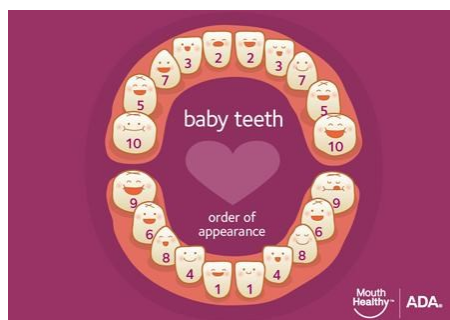
The Official Newsletter of the Student Society of
Pediatric Advocates

Teething: First Baby Teeth and What to Expect

Written By: Emma Chee-How, PharmD Candidate 2018

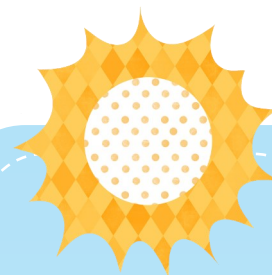
A baby getting their first teeth is an exciting but uncomfortable and frustrating childhood milestone. Parents should be aware of the signs and symptoms of teething and the appropriate remedies available to help manage this process.

Personal oral hygiene should also begin when parents bring their baby home.¹ Babies are born with all 20 baby teeth below the gum line, and parents can expect to begin to see these first pearly whites breaking through their gums between 6 to 12 months of age. Some children may not have their first tooth until 12 to 14 months. According to the American Dental Association (ADA), most children have their full set of teeth by age 3.¹



American Dental Association. Baby Teeth. *Mouth Healthy*. <http://www.mouthhealthy.org/en/az-topics/b/baby-teeth> Accessed October 26, 2016.

Teething, when the first teeth begin to break through the gums, may be an uncomfortable process for some children.² Luckily, there are multiple at home remedies to help ease discomfort and help with the urges to chew. The ADA recommends gently rubbing the gums with a clean finger, cool spoon, moist gauze pad, or washcloth. Clean teething rings without liquid inside of them can also be purchased for the baby. They can be cooled in the refrigerator for a short period of time, using caution to not freeze as this can hurt the child.² The Food and Drug Administration (FDA) has released statements warning about products parents should avoid using in their teething children. A statement was released on September 30, 2016 warning parents that homeopathic teething tablets and gels, such as Hyland's, CVS Pharmacy, and possibly others,



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Teething: First Baby Teeth and What to Expect (Cont.)

may pose a risk to infants and children.³ They recommend throwing these products out immediately and consulting a pediatrician for other remedies. The FDA began analyzing adverse events associated with these products in 2010 when they found that Hyland's Teething Tablets contained inconsistent amounts of belladonna. Belladonna may be toxic at high doses and FDA is currently continuing research.⁴ Medical attention should be sought immediately if a child experiences seizures, difficulty breathing, lethargy, excessive sleepiness, muscle weakness, skin flushing, constipation, difficulty urinating, or agitation after using any of these products.³

Common Symptoms	Uncommon Symptoms
Fussiness	Fever
Trouble sleeping	Diarrhea
Irritability	Rash
Loss of appetite	
Drooling more than usual	
Urge to chew on things	

The FDA has also released statements on the use of other common agents. Viscous lidocaine products should be avoided in infants and young children due to the risk of overdose. Symptoms of overdose include jitteriness, confusion, vision problems, falling asleep too easily, shaking, and seizures and medical attention should be sought immediately. It can also impair the child's ability to swallow, increasing the risk of choking.⁵

The use of over the counter benzocaine products, such as Anbesol®, Hurracaine®, Orajel®, Baby Orajel®, and Orabase®, should be avoid in children under 2 years old unless under the direct supervision of a doctor. Benzocaine can cause methemoglobinemia, a rare but serious condition that leads to reduced amount of oxygen carried in the blood.⁵ Overall, the FDA states that teething can be managed without over the counter remedies.

Daily oral hygiene for children should begin right after they are born.¹ First, start by wiping their gums with a clean, moist gauze pad or washcloth. This will expose the child to having items present in their mouth, easing the transition into brushing their teeth and eating solid foods. Daily flossing should begin once there are two teeth that touch. Once their teeth start to come through the gums, brush their teeth two times daily with fluoride toothpaste. Do not use more than a smear or a drop the size of a grain of rice. Once they are 3 to 6 years old, children can begin to brush their teeth themselves with a pea sized amount of fluoride toothpaste under direct supervision to make sure they to not swallow any of the toothpaste. A child's first trip to the dentist should be after the first tooth comes in and no later than their first birthday.¹

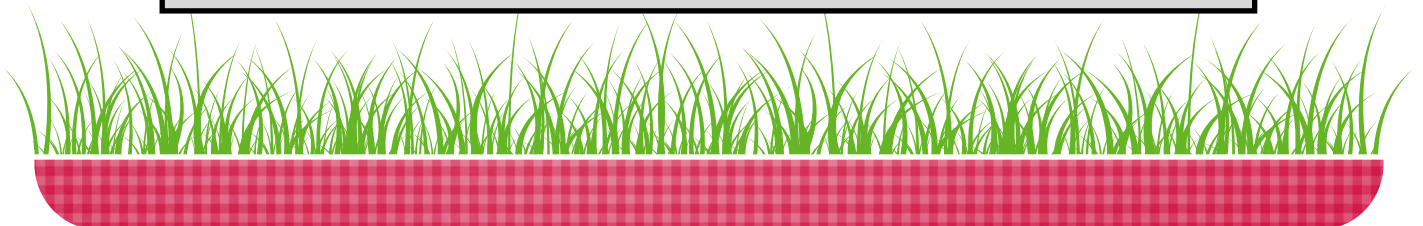
How to Report Adverse Events to the FDA:

Healthcare Professionals:

Complete and submit the form online at www.fda.gov/medwatch/report.htm.

OR

Download and complete the form by hand and fax to 1-800-FDA-0178



Dangers of the Increasing Popularity of E-Cigarettes

Written By: Leigha Davis, PharmD Candidate 2018

Electronic cigarettes have become increasingly popular, gaining the attention of the U.S. Food and Drug Administration (FDA) regarding their regulation. In August 2016, the FDA finalized a new regulation to include all tobacco products. This increases the FDA's authority over the previously unregulated E-cigarettes and their accompanying refillable cartridges.¹ This new law will help to better regulate the concentration of nicotine in available liquid E-cigarette products. The FDA expects a timeline of two to three years for manufacturers to file and receive approval for their products. Therefore, the products available on the market today are still without regulation regarding how much nicotine is actually concentrated in liquid formulations. These highly concentrated nicotine liquids pose a dangerous risk to children, as they are a serious poison hazard. This risk becomes even more difficult to assess and treat when the amount of poison a child has been exposed to is impossible to determine.

All nicotine-containing products can cause harm if a child is exposed to enough. Children aged 1- 2 are at the greatest risk of stumbling across nicotine products, but children under 6 are considered to be a high risk as well. Ingestion of traditional cigarettes, chewable tobacco, nicotine gum, or exposure to nicotine patches can poison a child. However, the reported incidence of exposure to nicotine increased by 300% from 460 cases in 2012 to 1,543 cases in 2013, and doubled again from 2013 to 3,783 cases in 2014.³ This sharp rise is thought to be largely due to the increased popularity of electronic cigarettes. The number of total reported cases of liquid nicotine exposures in 2016 through October 31st is at 1,292.³

Many electronic cigarettes contain refillable wells into which a liquid nicotine solution is placed and then vaporized to mimic the habits of smoking.

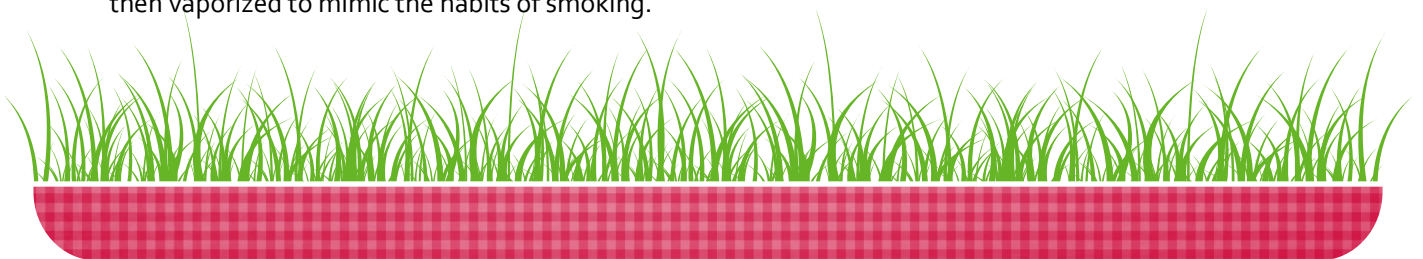
These liquid nicotine solution refills come in a variety of sizes, colors, and flavors. This is where the increased enticement to a small child arises. Familiar candy-like options such as fruit flavors, bubblegum, and chocolate are available and dyed to matching bright colors. For a small child, this could look like a bottle of deliciously bright blue liquid in a bottle with a picture of cotton candy on it. Upon opening it, it would like smell sweet like candy. It is not hard to picture what a child's likely next action would be.

Nicotine is well absorbed into the system from the skin, mucosal surfaces, respiratory tract, and intestines. Many commercial nicotine products are even buffered to better increase their absorption into the body.

The amount of a toxic substance that would be a lethal dose in 50% of humans is referred to as the LD₅₀ concentration. The estimated LD₅₀ of nicotine is about 0.5 to 1 mg/kg in adults. Severe toxicity has been reported in children with ingestion of less than 2 mg of nicotine. Refillable nicotine solutions come in varying strengths and sizes of containers.



<https://www.thenutritionalsource.com/vapes-and-cigarettes-without-nicotine-facts/>. Accessed October 1, 2016.



E-Cigarettes (Cont.)

Marketed strengths range widely from 6 -24 mg/mL and can be easily purchased online in bottles ranging from 10-250 mL. In an average 2 year old child, weighing 26 lbs (11.8 kg) a dose of only 1 mL (6 mg of a 6 mg/mL solution) would provide a toxic 0.5 mg/kg dose.

It is important to note that electronic cigarettes have grown increasingly popular with teenagers.² Therefore, it has become increasingly important to educate parents how to avoid these exposures to their children. Some refillable liquid nicotine bottle contain child resistant packaging, but nicotine containing products should still be stored safely out of reach of children. The use of child safety latches where appropriate is another option to better safeguard all hazardous substances.

Key Information About Nicotine Poisoning:

In any case where a child is unconscious, not breathing, having convulsions or seizures: immediately call 911!

In any case of suspected poisoning in a child with mild or no symptoms: immediately call The American Association of Poison Control Centers at 1-800-222-1222.

If the poison was swallowed: take the offending item or container away from the child and have them spit out any remaining poison. Do NOT induce vomiting.

If the poison is on the child's skin: remove any affected clothes and rinse the area with lukewarm water for at least 15 minutes.

If the poison is in the child's eye(s): hold the eyelid open and flush with lukewarm water for at least 15 minutes.

E-Cigarette References:

1. The Facts on the FDA's New Tobacco Rule. U.S. Food and Drug Administration (2016, June 16). Retrieved October 1, 2016, from The Facts on the FDA's New Tobacco Rule
2. Liquid Nicotine Used in E-Cigarettes Can Kill Children. Healthy Children.Org (2016, March 8). Retrieved October 1, 2016, from <https://www.healthychildren.org/English/safety-prevention/at-home/Pages/Liquid-Nicotine-Used-in-E-Cigarettes-Can-Kill-Children.aspx>
3. E-Cigarettes and Liquid Nicotine. American Association of Poison Control Centers (2016, October 31). Retrieved November 5, 2016, from <http://www.aapcc.org/alerts/e-cigarettes/>
4. Poison Prevention & Treatment Tips. Healthy Children.Org (2016, March 8). Retrieved October 1, 2016, from <https://www.healthychildren.org/English/news/Pages/Tips-for-Poison-Prevention-and-Treatment.aspx>

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1. American Dental Association. Baby Teeth. *Mouth Healthy*. <http://www.mouthhealthy.org/en/az-topics/b/baby-teeth>. Accessed October 20, 2016.
2. American Dental Association. Teething. *Mouth Healthy*. <http://www.mouthhealthy.org/en/az-topics/t/teething>. Accessed October 20, 2016
3. U.S. Food and Drug Administration. (September 30, 2016). FDA warns against the use of homeopathic teething tablets and gels. *FDA News Release*. <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm523468.htm>. Accessed October 20, 2016
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5. U.S. Food and Drug Administration. (2014). Do Teething Babies Need Medicine on Their Gums? *FDA Consumer Health Information*. <http://www.fda.gov/downloads/forconsumers/consumerupdates/ucm402598.pdf>. Accessed October 20, 2016



EpiPens®: Are They Really Worth It?

Written By: Kajal Jain, PharmD. Candidate 2019

EpiPens® are life saving auto-injector devices that deliver a pre-set amount of epinephrine into the body after a severe allergic reaction, such as anaphylaxis. An EpiPen® allows a person to inject him- or herself, or have someone else inject them, allowing for enough time to call 911 and receive the medical attention that the patient really needs.

Anaphylaxis is an allergic response that involves IgE antibodies. The response can come from a number of sources such as food, pollutants, bees, medications, latex, and many other sources. Presentation of anaphylaxis varies from person to person, but can include hives, rash, itching, and the most important symptom, closing of the airway, which can result in death if not properly treated. Adult EpiPens®, for patients over 30 kg, deliver 0.3 mg of epinephrine, while junior pens, for patients 15 kg to 30 kg, deliver 0.15 mg of epinephrine.¹ This allows the airway to open and prevent the allergic reaction from getting worse until medical personnel arrive. Delaying a dose of epinephrine can be life-threatening since the airway will continue to close, eventually depriving the body of oxygen.

In recent years, the prices of EpiPens® have skyrocketed to \$600. This price increase is due to Mylan having a “virtual monopoly over the epinephrine auto-injector market”. In the past, there was a generic available known as Auvi-Q® epinephrine, but it was recalled in 2015 due to inaccurate dosing. Mylan announced earlier this year that a generic will be released at \$300. While \$300 is much more affordable than \$600, it is still quite a markup from the estimated cost of \$4 to fill a syringe with epinephrine and package it to be dispensed.²

Many people were unaware of EpiPen® prices skyrocketing. Insurance plans were able to mask the price increase for some patients by continuing to charge a co-payment, which remained the same. On the other hand, those with low premium, high deductible plans saw a dramatic increase in the amount they were paying for EpiPens®. Currently, the EpiPen® website can provide a patient with a My EpiPen® Savings Card which can save patients up to \$300. This card is good for those that have high deductible plans, but is not available to those that are uninsured or on government-funded insur-

EpiPen® Clinical Pearls:

Do you need to get help if you feel better after using an EpiPen®?

Yes, call 911 either while injecting yourself with an EpiPen® or right after.

Where do you inject?

Into the middle of your outer thigh. Seek medical attention if there is accidental injection.

Can you redose an EpiPen®?

A patient can administer up to 2 doses of epinephrine to themselves. Any additional doses should be administered by a healthcare professional.

How should you dispose of a used EpiPen®?

The patient should take the EpiPen® to the ER or a healthcare professional's office for proper disposal.

Can diphenhydramine be given instead?

No, while diphenhydramine is used for many types of allergies in children, it should never be used instead of epinephrine to treat anaphylaxis.



EpiPens® (Cont.)

ance. In addition, the Savings Card will not save every patient \$300; the amount of money a patient will save depends on their insurance plan.

The current price of EpiPens® is a problem in the pediatric population due to the fact that children need an EpiPen® set at both school and home. Allergic reactions are unpredictable, especially in young kids. Parents, teachers, and school nurses need to be prepared at all times to administer a life saving dose of epinephrine. Some children have very severe peanut allergies and cannot even be in the same room as peanut products. If another student brings a peanut butter and jelly sandwich for lunch, this child could go into anaphylaxis and the teacher needs to have an EpiPen® ready to administer to the child. A similar situation could happen at a restaurant or at home, so the parent needs to be prepared as well.

Allergic reactions are unpredictable and depending on the patient, can be life threatening. EpiPens® can help save the lives of these patients, so they, or their caregivers, need to be prepared to administer an EpiPen®. Unfortunately, with prices being so high, it can be hard to be prepared in all situations. Knowing how to administer an EpiPen® can be beneficial, even if you or someone you are close to does not have one.

EpiPen® References:

1. "The Official Website for EpiPen® (epinephrine) and EpiPen Jr® (epinephrine) Auto-Injectors." EpiPen. Mylan, n.d. Web. 03 Nov. 2016.
2. Shapiro, Ben. "The Two REAL Reasons EpiPen® Prices Skyrocketed." The Daily Wire. N.p., 30 Aug. 2016. Web. 03 Nov. 2016.
3. Rubin, Rita. "EpiPen® Price Hike Comes under Scrutiny." The Lancet 388.10051 (2016): 1250. Science Direct. Web. 3 Nov. 2016.

If you would like to contribute to PediaNews, please contact

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Student Society of Pediatric Advocates

The Student Society of Pediatric Advocates is a student organization affiliated with the University of Georgia College of Pharmacy. We are a student group associated with the Pediatric Pharmacy Advocacy Group. The Mission of the SSPA is to bring awareness to the proper use of medication therapy in pediatric populations through various service and education-based initiatives. Service activities center around lending our medication-based knowledge to pediatric patients and their parents in our community. Educational activities are directed toward student members in an effort to safely and effectively extend pharmacy practice to pediatric populations by building relationships with mentors and professionals in the health care community, as well as supplementing didactic coursework with lectures by specialists and our peers. Overall, SSPA advocates for the safety and happiness of young patients while learning and having fun along the way. The purpose of our newsletter is to educate pharmacy students about pediatric pharmacy and advocate for pediatric patients within the University of Georgia College of Pharmacy.

