



# PediaNews

The Official Newsletter of the Student Society of Pediatric Advocates

## Head Lice

Written by: Ally Orr, PharmD Candidate 2016

As children across the United States are heading back to school parents should be on the look out for itchy scalps and trouble sleeping, a couple of the common symptoms associated with head lice. Most common among children ages 3-11, head lice can be a parent's worst nightmare when it comes to getting rid of them and preventing further spread. While head lice do not spread disease and are not a threat to public health, they still prevent children from going to

school (those with a no nit policy) and parents should know the best and fastest ways to safely eliminate them.

**"Most common among children ages 3-11, head lice can be a parent's worst nightmare when it comes to getting rid of them and preventing further spread."**

The head louse is a parasite the size of a sesame seed that feeds off human blood multiple times a day. They are most active at night, and an adult can live up to 30 days on a human scalp, laying up to six eggs each day. Eggs or nits are usually found on hair just 1/4 inch from the scalp and appear yellow or white. It takes an egg 8-9 days to hatch into a nymph, a baby louse, which must find hu-

man blood within 1-2 days or it will die. Lice have claws that are designed to grip human hair and they stay close to the scalp to maintain their body temperature. Lice are spread most often by head-to-head contact but can in rare cases attach to items such as hats, scarves or pillowcases. Finding a live head louse on the scalp is the main way to confirm an infestation; however, finding a nit 1/4 inch from the base of the hair is also strong evidence to confirm a diagnosis.

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### Back to School Special

- Regular hand washing is one of the single best ways to fight infection
- Ensure your children get plenty of sleep and eat a nutritious breakfast
- Watch out for back pain caused by backpacks
- Children should wear a seat belt and/or an age- and size-appropriate car safety seat or booster seat.

## "Talking EpiPen" May Be Life Changing for Students

Written by: Charlotte Dunderdale, PharmD Candidate 2017

The incidence of food allergies among children under the age of eighteen has increased fifty percent between 1997 and 2011, according to the Centers for Disease Control. Today, approximately

one in every thirteen children suffer from food allergies, which equates to about two students in every classroom. Food allergy reactions in this population result in over 300,000 ambulatory-care visits per

year. Since there is no cure for this condition, affected children must learn how to manage their diets.

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# Head Lice (Continued from page 1)

Once a diagnosis has been made, the question becomes how to treat the lice and what is most effective. The most common over-the-counter treatments include the natural ingredient Pyrethrin, or its synthetic form Permethrin. These treatments are not ovicidal, thus only kill live lice and must be followed up with a second treatment approximately 9 days later to kill all the newly hatched eggs. Pyrethrin is safe in children 2 years and older while Perme-

thrin is safe in ages 2 months and older. There is evidence however of head lice developing resistance to Permethrin, meaning it might be a better choice to go with one of the prescription products listed below in *Table 1*.

One study from *JAMA Dermatology* compared the efficacy of Malathion 0.5%, brand name Ovide, against Permethrin, brand name Nix, in proven Permethrin resistant lice. The study showed that the lice that carried the

Permethrin resistant gene were still killed by Nix but at a rate 10 times slower than Ovide. While these Permethrin resistant lice are not common, some have been reported in areas of the U.S., and could be cause for concern in the future.

“The study showed that the lice that carried the Permethrin resistant gene were still killed by Nix but at a rate 10 times slower than Ovide.”

*Table 1*

	Malathion 0.5%	Benzyl Alcohol 5%	Ivomection 0.5%
Ovicidal?	Partially	No	No
Retreatment required?	No	Yes	No
Use in ages...	6 years or older	6 months or older	6 months or older

that can be easily

It is honestly the patient and healthcare provider’s discretion when it comes to which product to use. A patient may want to start out with the OTC product Nix because it’s cheaper and kills the lice slower than, but just as effectively, as prescription products such as Ovide. The patient should report to a healthcare provider if live lice are spotted after the course of treatment because this may be indicative of resistant lice that need prescription therapies.

Parents should also be aware of the many myths surrounding head lice treatment, so that they can avoid excessive cost or hassle at no benefit. One old method of treating head lice is to apply mayonnaise or olive oil to the head in order to suffocate the lice. There are also OTC products containing Dimethicone that are thought to act in the same way as mayonnaise; however, the CDC has no clear scientific evidence as to whether these treatments work. A proven way to help remove live lice and

nit is using a nit-comb that you soak in 130°F water for 5-10 minutes after use. Another example of excessive treatment is fumigant sprays or fogs, which should never be used in the home because they can be toxic if inhaled or absorbed through the skin. If you would like to remove head lice from clothes or bedding simply wash them on hot laundry and dryer cycles reaching 130°F, which will kill lice within 5 minutes. Expensive cleanings are not necessary, just make sure to wash everything from two days prior to the start of treatment. Some experts also recommend that you place items that cannot be laundered into a bag for a 2-week period, although this might not be necessary considering lice can only live 1-2 days after detached from the human scalp. Lastly, head lice cannot hop or fly and also cannot attach to pets, so as long as family members avoid head-to-head contact with the infected person the lice shouldn’t spread.

As previously mentioned, lice are nothing but an annoying parasite

treated with either OTC or prescription medication. It is good to remember that lice do not spread infection, but secondary infections can result from the scratching of the scalp. If this does happen, an antihistamine such as Benadryl can be useful to reduce the itchiness, and also as a sleep aid if there is restlessness due to crawling lice. So as you send your kids back to school just educate them on how to avoid head lice and hopefully the thought of parasites crawling in their hair at night will make them extra cautious!

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# “Talking EpiPen” May Be Life Changing for Students (Continued from page 1)

There are eight foods that account for ninety percent of all food allergy reactions: milk, eggs, peanuts, tree nuts, soy, wheat, fish, and shellfish. Although many different types of reactions can occur, such as swollen lips, coughing, and vomiting, the most severe is anaphylaxis. Anaphylaxis can occur within seconds to minutes of being exposed to even trace amounts of allergens. It causes a person’s throat to close and blood pressure to decrease, which can lead to unconsciousness and death if not treated.

The first line of defense against anaphylaxis is an epinephrine auto-injector, usually referred to as an “EpiPen.” When epinephrine is administered, it quickly constricts blood vessels to reverse the drop in blood pressure and relax the airway.

“Today, approximately one in every thirteen children suffer from food allergies, which equates to about two students in every classroom.”

Many students with food allergies keep an EpiPen at school in order to prepare for an anaphylactic episode. However, most children are too young to administer the injection themselves, leaving teachers and school staff

responsible. EpiPens have very specific and complex directions, and the instructions on the pen are crammed together in tiny font. In the midst of panic and racing against the clock, stopping to read these instructions is extremely difficult and time consuming. For these reasons, a newer and “talking” epinephrine auto-injector, called the Auvi-Q, may be a better choice for students. This pocket-sized device verbally gives step-by-



A newer and “talking” epinephrine auto-injector, called the Auvi-Q, may be a better choice for students.

step directions on how to properly administer the injection. It even comes with a training device so children can practice using it without actually administering epinephrine. Many physicians are recommending the Auvi-Q to their patients, so that they can receive the epinephrine they need to breathe in a shorter amount of

time. The Auvi-Q is a foolproof device that can give anyone the power to save a life in seconds.

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## The Use of Insect Repellent in Pediatrics

Written by: Natalie Chong, PharmD Candidate 2017

Summer may be over for children going back to school, but mosquitoes will still linger around not only at night but also during the day. Mosquitoes are insect vectors for transmitting infectious diseases, such as the West Nile virus infection.<sup>3</sup> Prevention is essential to reduce the risk of such diseases, and the best way to reduce the risk is to avoid mosquito bites. Many parents would immediately gravitate toward insect repellent and spray down their children as an easy solution. But what exactly is the active ingredient

in insect repellent, and is it really safe to use on children?

*N,N*-dimethyl-*m*-toluamide (DEET) is the most common and effective active ingredient in insect repellent.<sup>3</sup> DEET is a colorless chemical with a faint and distinctive odor.<sup>2</sup> The mechanism of action is unidentified; however, it is believed that DEET blocks the function of the insect olfactory receptors that are greatly attracted to the substances found in human sweat

and breath.<sup>3</sup> There also seems to be a direct correlation that the higher concentration of DEET applied provides a longer protection time from mosquito bites.<sup>4</sup>

“But what exactly is the active ingredient in insect repellent, and is it really safe to use on children? ”

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## The Use of Insect Repellent in Pediatrics (Continued from page 3)

Currently, there are no drug interactions with the use of insect repellent containing DEET, and the risk of serious adverse events associated with the use is low.<sup>3</sup> Some common side effects reported are contact dermatitis and a burning sensation in the eyes with exposure to DEET.<sup>2</sup> In extremely severe and rare cases, children may experience neurological toxicities after excessive oral or dermal exposure.<sup>2</sup> In one case study, a 5-year-old child with no medical conditions experienced seizures associated with dermal application of DEET.<sup>2</sup> Although the use of DEET seems to be safe, parents should take caution in the amount of the active chemical in the insect repellent. According to the American Academy of Pediatrics, products containing DEET should not be used on children younger than 2 months old.<sup>4</sup> Also, the recommended amount of DEET should range from 10% to

30% for children older than 2 months of age.<sup>4</sup> A product with ten percent concentration of DEET will provide protection for up to two hours, while one with a thirty percent concentration will provide protection for up to five hours.<sup>4</sup> Parents should be aware of the various concentrations in different insect repellent labels and apply the product with their discretion.

Here are some helpful tips to safely apply insect repellent. Always remember to read the entire label before use!

- ◆ Wear protective clothing, such as long pants or long sleeves.<sup>3</sup>
- ◆ Apply repellent to clothing, and avoid as much contact with the skin as possible.<sup>1</sup>
- ◆ Avoid using around sensitive areas, such as the eyes, mouth, and ears.<sup>1</sup>

- ◆ Avoid repellents containing sunscreen. Sunscreen should be reapplied more than insect repellent. Buy them separately.<sup>1</sup>
- ◆ Do not allow young children to apply their own repellent.<sup>1</sup>
- ◆ Avoid using on children's hands in case they put their hands in their mouths.<sup>1</sup>
- ◆ If the child experiences any local reaction(s), wash the area(s) with plenty of soap and water.<sup>4</sup>
- ◆ If the reaction becomes severe, immediately call the Poison Control Center at 1-800-222-1222.<sup>4</sup>
- ◆ Wash areas applied with repellent with soap and water when indoors.<sup>1</sup>

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## Haleigh's Hope: Medical Marijuana and Pediatric Seizures

Written by: Paige Hughes, PharmD Candidate 2017

When Haleigh Cox was born, her mother, Janae Cox, was congratulated on the birth of her happy, healthy baby girl. However, when Haleigh was about 8 months, her parents noticed she wasn't developing, as normal babies should. After a CT scan, MRI, and EEG were performed, severe brain damage was discovered in the frontal lobe that would prevent her from walking or talking, and cause her to suffer from seizures. As she got older, the seizures worsened from infantile spasms to Lennox Gastaut Syndrome. She was experiencing up to 200 refractory seizures daily despite trying several different anti-epileptic drugs. In March 2014, after being told her daughter might not live another three months, Janae made the difficult decision to leave behind her home and husband to move to Colorado Springs, Colorado in order to seek alternative treatment, medical

marijuana. Haleigh currently takes cannabis oil high in cannabidiol four times daily and once at night under her tongue or with food. Janae claims there have been no side effects with the cannabis oil like Haleigh's traditional medications had been causing, such as damage to her organs and labored breathing. After three months, she was weaned off of valproic acid (Depakote®) which had been damaging her liver. Now, five year old Haleigh, only suffers about three seizures a day, has said "mama", plays with puzzles, smiles more, sleeps through the night, and has even begun learning how to walk.

Inspired by Haleigh Cox's story, Georgia State Representative Allen Peake attempted to pass the Haleigh's Hope Act in March during the 2014 session of the Georgia State Assembly. Although this bill

was not passed, it would have decriminalized the possession of cannabis oil used to treat pediatric seizures. Representative Peake still plans to move forward with his efforts in legalizing cannabis in Georgia as soon as next year to benefit children with seizures, such as Haleigh. In Colorado, there are presently more than 180 children being treated with a strain of medical marijuana known as Charlotte's Web, named after Charlotte Figi who suffered from Dravet's Syndrome. Charlotte takes two doses daily that are three to four milligrams of the oil per pound of her body weight. On Monday, July 28, 2014, the Charlotte's Web Medical Hemp Act of 2014 was introduced on Capitol Hill by Representative Scott Perry along with several co-sponsors including Georgia Congressman Paul Broun.

This bill would amend the Controlled Substances Act to permit marijuana plants nationwide with less than 0.3% tetrahydrocannabinol (THC).

There are two primary phytocannabinoids in marijuana, tetrahydrocannabinol (THC) and cannabidiol (CBD). THC is the psychoactive cannabinoid with effects such as analgesia, muscle relaxant, appetite stimulant, antiemetic, tachycardia, alterations in mood, cognition, memory, alertness, and perception. It is currently present in dronabinol (Marinol®) as a pure THC isomer. Cannabidiol is non-psychoactive and acts as an analgesic, muscle relaxant, anticonvulsant, anxiolytic, and neuroprotectant. By prescribing cannabis high in CBD and low in THC, the desired effects occur without the "high". When producing medical marijuana, there is a concept known as the entourage effect that must be considered. It states that all of the phytocannabinoids work together to diminish some effects and reinforce others; therefore, you cannot simply dissect parts of the plant to use in treatment. Cannabis is currently used clinically to treat anorexia due to AIDS, nausea, incontinence, pain, seizure disorders, glaucoma, pruritus, sleep apnea, and Tourette's syndrome.

Like any medication, there are important regulations and adverse effects regarding cannabis use. It will be important to regulate the conditions in which each plant is grown and the composition of the cannabis dispensed. Medicinal marijuana should be stored in a safe

place with a label indicating the warnings, precautions, directions, and safe storage to avoid improper usage or unintended ingestion. It must also be determined where the medication will be dispensed from, a pharmacy or marijuana dispensary. If pharmacies do begin supplying cannabis, it must be decided whether dispensaries should continue selling it as well. Ideally, all of these questions will be answered as medical marijuana is addressed as a federal issue. Due to limited clinical research, there is little known on the long-term effects of marijuana use. According to the American Pediatric Association, they do not support the legalization of marijuana but do support scientific research in order to treat conditions having no effective drug therapies." place with a label indicating the warnings, precautions, directions, and safe storage to avoid improper usage or unintended ingestion. It must also be determined where the medication will be dispensed from, a pharmacy or marijuana dispensary. If pharmacies do begin supplying cannabis, it must be decided whether dispensaries should continue selling it as well. Ideally, all of these questions will be answered as medical marijuana is addressed as a federal issue. Due to limited clinical research, there is little known on the long-term effects of marijuana use. According to the American Pediatric Association, they do not support the legalization of marijuana but do support scientific research in order to treat conditions having no effective drug therapies. Epidiolex® is an investigational drug developed by United Kingdom pharmaceutical manufacturer GW pharmaceuticals. The trials for Epidiolex®, a drug with high levels of CBD, are the first FDA approved study on the effects of cannabis on epilepsy in young patients. By legalizing strains of marijuana nationwide, it will become much easier to research these effects, beneficial and otherwise.

In a randomized sample of over 1,000 registered American voters, 85% felt that medical marijuana prescribed by a physician should be allowed, and thus far, 23 states and

the District of Columbia have legalized marijuana for medicinal purposes. With this amount of support and activity in legislature, it is only a matter of time before medical marijuana is in the market nationwide. Therefore, it is our responsibility as pharmacists and Pharm.D. candidates to be well educated on the matter and informed on the concurrent research in order to advise our patients, like Haleigh Cox and her parents, with safe and accurate data.

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## The Importance of Vaccinations

Written by: Kacee Barnett, PharmD Candidate 2016

Vaccinations provide artificially acquired immunity for diseases that once terrified the community. Before vaccinations, the only way to acquire immunity was to get the disease, and hopefully survive. With the widespread use of vaccinations, these infectious diseases have been eliminated or almost eliminated. In addition to not developing the disease and the symptoms and compli-

cations that come along with it, it is much cheaper to prevent the disease than treat the disease. Developing a vaccine-preventable disease comes with costs such as doctor's visits, hospitalization, and possibly death, in addition to losing time from school and work.

Despite the facts that vaccinations have helped eradicate ma-

for diseases such as smallpox, and nearly eliminated diseases such as the measles, there are still parents who do not get their children vaccinated. State and local schools implement vaccine requirements for students to help minimize the risk of infection and spread of vaccine-preventable diseases.

(Continued on page 6)

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## Vaccinations *(Continued from page 5)*

However, parents claim religious, medical, and philosophical exemptions so that their children do not have to meet the requirements. There are only two states in the United States that will not accept any exemptions: Mississippi and West Virginia. In May 2014, measles was at a 20 year high due to low vaccination rates, even though the disease was thought to be eliminated in 2000. Mississippi and West Virginia however, have not had an outbreak since 1992 and 1994, respectively.

Vaccinating your children does not only protect them, but it also protects the community. This is referred to as herd immunization. If you are vaccinated, then your vaccine-primed immune system will stop the disease before it starts, decreasing or eliminating the time you are contagious. This is important for children who are too young to be vaccinated, for those who have a medical condition preventing them from being vaccinated, and for those who do respond to a particular vaccine. This is why vaccinations are a vital part of public health. Opposing this idea, in communities where there are lower vaccination rates, diseases are at higher risk for returning. These types of communities put unvaccinated children at risk because their bodies may not be strong enough to fight the disease. These same diseases that once killed babies and children still exist, but due to vaccine protected immune systems, they are not seen nearly as often. If we take away the protection that we have developed through immunizations, these diseases are sure to return.

The reason we recommend starting the vaccination schedule with babies is due to the fact that their immune systems are extremely vulnerable. Many vaccine-preventable diseases start spreading at very young ages, especially at the start of attendance at day cares, nurseries, and kindergarten. With this being said, there are many vaccines that infants must receive, and

more will be introduced as more research is developed on other diseases. This has created more concerns from parents about their children receiving multiple vaccines during the same doctor's visit. Common concerns include pain experienced by the child, worry about potential side effects, and uncertainty about effectiveness. Another concern that many have is if the child's immune system would be able to handle the amount of antigens from multiple vaccines in a short period of time. However, children are exposed to many foreign antigens on a daily basis from food to bacteria. In the case of strep throat, a child is exposed to 25-50 different antigens. Scientific data shows that vaccines do not add additional burden to the immune system and simultaneous vaccination with multiple vaccines is safe. Studies have also shown that they are just as effective when given in combination as they are individually, and there is no increase in risk for adverse effects. There are two main reasons for giving several vaccines during the same visit. First is because we want to vaccinate infants as early as possible to protect them during their first vulnerable months of their lives. Second, giving multiple vaccinations will decrease the amount of office visits which will save the parents time and money. Both the Advisory Committee on Immunization Practices and the American Academy of Pediatrics recommend simultaneous administration of all routine childhood vaccinations when appropriate.

Another major anxiety that many have about vaccinations, is their association with autism. This association dates back to 1998 when the Lancet article by Wakefield et al. was published. This article has since been retracted; however, many other articles have been published that claim a link between autism spectrum disorder (ASD) and the MMR vaccine. They claim that thimerosal, which is a preservative in many vaccines, puts children at risk for ASD onset. A study by Uno et al. was per-

formed on Japanese subjects, in follow up to other studies that have been performed, to determine if there is indeed a link between ASD and immunizations with various vaccines, including MMR, as well as the association between ASD and the number of vaccine injections. The results of this study supported the results of previous studies that show no causal association between the MMR vaccine and ASD. This study also showed no correlation between other types of vaccines or a combined effect of multiple vaccines and ASD onset.

As pharmacists, we are in a position to be able to listen to and understand parents' concerns about vaccinations and build a trusting relationship with them. Our role is to properly educate these parents, and the community, about the importance of immunizations and the factual information so they can make informed decisions. Therefore, it is imperative that we research and learn all that we can about vaccinations so that we can give them accurate, up to date information.

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**Date:** August 2, 2013

NIH.gov

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## Upcoming Meetings:

September 4: 12:30-1:20  
 October 2: 5:30- 6:30  
 November 20: 6:00- 7:00

For membership information, contact Natalie Chong (nychong@uga.edu)

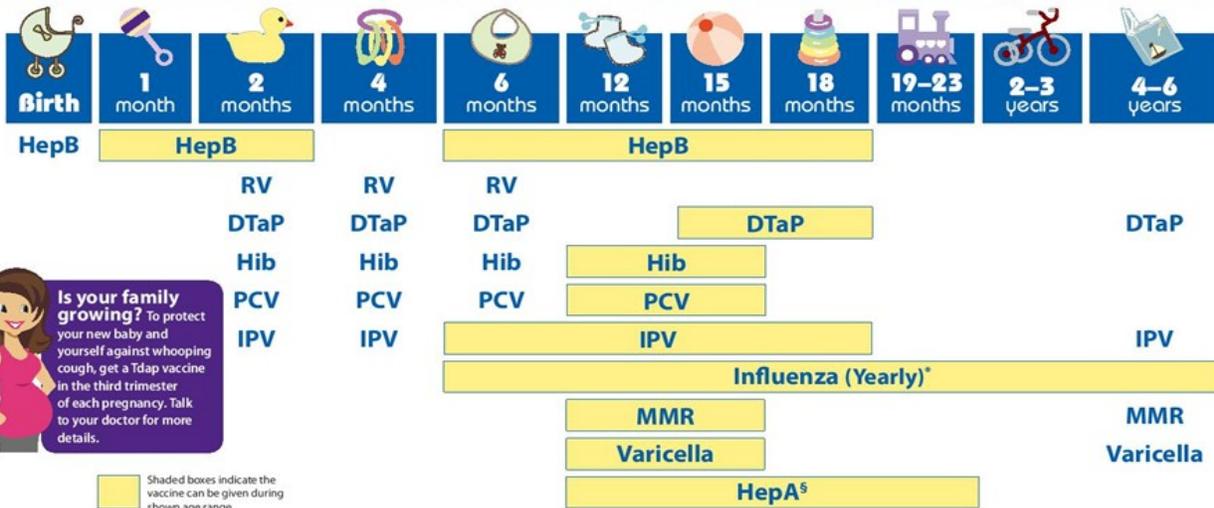
If you would like to contribute to *PediaNews*, please contact Kacee Barnett (akbarn89@uga.edu)



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.



## 2014 Recommended Immunizations for Children from Birth Through 6 Years Old



Shaded boxes indicate the vaccine can be given during shown age range.

**NOTE:** If your child misses a shot, you don't need to start over, just go back to your child's doctor for the next shot. Talk with your child's doctor if you have questions about vaccines.

**FOOTNOTES:**

- \* Two doses given at least four weeks apart are recommended for children aged 6 months through 8 years of age who are getting a flu vaccine for the first time and for some other children in this age group.
- § Two doses of HepA vaccine are needed for lasting protection. The first dose of HepA vaccine should be given between 12 months and 23 months of age. The second dose should be given 6 to 18 months later. HepA vaccination may be given to any child 12 months and older to protect against HepA. Children and adolescents who did not receive the HepA vaccine and are at high-risk, should be vaccinated against HepA.

If your child has any medical conditions that put him at risk for infection or is traveling outside the United States, talk to your child's doctor about additional vaccines that he may need.



For more information, call toll free **1-800-CDC-INFO** (1-800-232-4636) or visit <http://www.cdc.gov/vaccines>

An easy to read vaccination schedule from birth to 6 years old for parents ([www.cdc.gov](http://www.cdc.gov))