



In This Issue...

Toilet-Training Norms.....	1
Predicting Physical Activity	1
In Defense of Vaccines	2
Peanut Allergy	5
Respecting the Spleen.....	6
Time of Conception and Birth Defects	7
Stress-Reduction Strategies.....	8
Teen Driving.....	10
Cord-Blood Banking.....	11
Swim Diapers	12
Fever: Fear Not	14
Recurrent Abdominal Pain.....	17
Vascular Birthmarks.....	19
Understanding Medical Research	21
Liquid Medication Dental Dangers.....	24
Whole Grains	25
Car Seat Safety.....	27
Type 2 Diabetes.....	29
Kids Learn More When Mom Listens.....	31

Toilet-Training Norms

What's the best age to start toilet training a child? A recent study didn't try to answer that question, but it did look at the bowel habits and toilet training of developmentally normal children.

Questionnaires concerning toilet training were sent to the parents of 1,142 children five through eight years old. In these children, the average age the parents starting toilet training was 27.2 months. The average age of completion was 32.5 months. Both ages were approximately three months earlier for girls. African American children started and completed the process at least six months earlier than Caucasian children.

The study also found that 95% of the children had bowel moments daily or every other day. More girls than boys reported straining when having a bowel movement while more boys than girls had staining of underclothes and the passage of large bowel movements. Around 10% of the children met the criteria for constipation.

Journal of Pediatric Gastroenterology and Nutrition, 3/09

Predicting Physical Activity

Good motor skills are important for success in physical activities. A recent study has shown that good motor skills as a child are a good predictor of adolescent participation in physical activities.

In the study, Australian researchers evaluated the motor skills of 481 children in 2000 when they were in elementary school. In 2006-7 the researchers surveyed 276 of the original study children and determined their participation in moderate-to-vigorous activities and organized sports activities. The researchers found that subjects who had better object control as children in 2000 had 10%-20% higher chance of vigorous activity participation as adolescents.

The researchers concluded that for children who score poorly in motor skill evaluations that "Motor skill development should be a key strategy in childhood interventions aiming to promote long-term physical activity."

Journal for Adolescent Health, 3/09

Who would have thought I would have to defend vaccines? It is like defending fresh water, flush toilets, and the Constitution. All are manifestly good things. But there are people who do not want to have vaccines, or their children to have vaccines, and their reasons vary. The primary fear is that of toxins in vaccines.

Much Ado about Mercury

There are two types of toxins: mercury and the rest. The big worry is that mercury, in the form of thimerosal (a vaccine preservative), is a neurotoxin and can cause, or trigger, autism.

Parents become aware of their kid's autism around the time of the vaccines, so it is not an unreasonable hypothesis to ask if vaccines or the use of thimerosal is associated with the development of autism. Is there data to support mercury as a cause of autism?

There is some biologic plausibility since mercury is a neurotoxin. (Hatters were made mad by mercury used in hat production.) But how much mercury do kids receive?

At the peak of mercury-containing vaccines, they received about a total of 225 micrograms over a decade. One six-ounce can of tuna has about 53 micrograms of mercury.

The peak serum from vaccines is three to five nanograms of mercury per milliliter. That's nano. Nano is very small. A nanogram is a billionth of a gram while a microgram is a millionth of a gram. The half-life of mercury is about four days. That means it takes four days for half of the mercury to be

excreted from the body. All detectable extra mercury is gone by day 30 after the vaccine is given.

The FDA allows 0.5 micrograms per kilogram per day. So a 70-kilogram (154-pound) person can ingest 35 micrograms of mercury a day safely, or half a can of tuna.

Thimerosal, the vaccine preservative, contains ethyl mercury, and most of the toxicological data is on methyl mercury. Ethyl mercury is metabolized and excreted faster than methyl mercury. Toxic effects of mercury are due to prolonged exposure rather than brief exposure. That's why the occasional piece of sushi or tuna sandwich is mostly harmless.

So mercury toxicity is mostly due to methyl, not ethyl, mercury and the body rids itself of ethyl far faster than methyl. But maybe, just maybe, it is the ethyl mercury. Perhaps there are toxicities. Kids' brains are still developing and are more sensitive to increasingly small amounts of mercury.

Is there data to support or deny ethyl mercury as a cause of autism? That is a difficult question to answer. You have to compare two groups: one vaccinated with thimerosal and one vaccinated without thimerosal. That would not be an ethical study.

The FDA, in 1999, removed thimerosal from vaccines as a public relations ploy. They had no data to support thimerosal toxicity, but preferred not to have people refuse vaccines because of unsupported fears; it was a "precautionary" measure.

The most smoking of guns is the fact that the FDA removed mer-

cury from all vaccines except the flu vaccine in 1999 yet there has been no decrease in the autism rates. None. In fact, autism rates continue to rise, probably due to a broader case definition combined with increased awareness.

All clinical trials that have tried to tease out a correlation between mercury in vaccines and autism have found no association. There have been huge studies, including some that involved more than 100,000 children, looking for a link. As far as mercury and autism are concerned, the data is about as sound as it can be. There were also 13 large trials that looked to see if the MMR vaccine causes autism. No causation was found.

British researcher Andrew Wakefield, the gastroenterologist who first linked the MMR vaccine to autism, turns out at best to be incompetent and at worst unethical if he lied or fabricated his data. As far as causing autism is concerned, vaccines are not the culprit.

"Green Our Vaccines:" Another Anti-Vaccine Campaign

These advocates say they aren't anti-vaccine but claim there are other toxins in vaccines, such as aluminum, formaldehyde, ether, antifreeze and hydrochloric acid, that are unnecessary and potentially harmful that should be removed. Let's deconstruct some of these toxins.

Aluminum is an adjuvant that makes vaccines more potent so kids need less vaccine. Over a decade, children receive about 1,200 micrograms of aluminum. The safe amount is five micrograms/kilogram/day.

Another way to think about it is that the amount of aluminum kids are exposed to through vaccines over a decade is the amount of aluminum I could safely eat in about three days. Like mercury, it is not the peak level of aluminum that causes toxicity, but chronic exposure to high levels of aluminum. The amount of aluminum in vaccines, compared to the amount in the world (aluminum, in various forms, is in everything from deodorant to baking powder) is trivial.

Formaldehyde is a normal part of metabolism. If you want to stop exposure to formaldehyde, start with your own metabolism.

"Antifreeze" is ethylene glycol. Polyethylene glycol (a polymer of ethylene glycol, a chemically different compound) is found in some vaccines. It's also found in a number of skin creams, toothpastes, and medications (including laxatives).

Ethyl ether was one of the first anesthetics and is not used in vaccines. But some vaccines contain polyethylene glycol bis(2-ethylhexyl) ether (Triton X-100,) a kind of soap/detergent.

Take hydrochloric acid in vaccines. Remember basic high school chemistry? If you have a high pH of a solution and you want to lower the pH to human level, you add acid. Evidently the anti-vaccine folks cannot be trusted with the care of a hot tub, where you have to add acid or base to make sure the water is just right before you get in it.

I am surprised that the anti-vaccinationists don't say vaccines contain dihydrogen oxide, which kills 10 people a day in the U.S., the same number of people who drown every day. (Dihydrogen oxide is also called water.)

The Vaccine Schedule

Now that the toxin/mercury gambit is not working so well, some anti-vaccinationists have gone to the "too many too soon" defense. They argue that if it is not mercury in vaccines that causes autism, then the vaccine schedule is a problem: Too many shots, too many antigens, too close together. They believe children need to be exposed to fewer antigens, less often, so they don't get complications from the vaccine like autism and autoimmune diseases. It is all part of "greening our vaccines."

What is the vaccine schedule? How much exposure do children receive from organisms and antigens as part of the vaccination schedule? In summary, there are five live-attenuated or altered organisms and 21 different antigens (the part of the germ to which the body makes antibody) given to children by age six. A couple of vaccines are added from age 7 to 18. Does the vaccine schedule expose children to a lot of viruses and antigens? Is this an enormous load on the immune system, sending it spiraling out of control to damage the child?

There are four ways to put the vaccine schedule into perspective.

1. The vaccine compared to the disease it prevents.
2. The capacity of the immune system to respond to disease.
3. The vaccine compared to normal exposure to microorganisms as part of life.
4. The vaccine compared to all diseases to which we may be exposed.

The Vaccine Compared to the Disease It Prevents

Vaccines either deliver small amounts of antigen or genetically altered germs that multiply slower and for a shorter period of time.

As a result, the body, rather than being exposed to huge amounts of infection over a 7-to-14-day illness, sees just enough antigen to develop protective antibodies. For example, hepatitis B vaccine series provides a total 30 micrograms of antigen where active disease results in 1,162 micrograms an hour for weeks.

Diseases lead to far more exposure to both antigens and organisms than vaccines. If the alleged ill effects of a vaccine are due to too many, too much, or too frequent antigens, then the diseases should be far worse than the vaccine in causing autism and autoimmune diseases. Unless, of course, the effects of the vaccines follow the principles of homeopathy: the less the exposure, the greater the effects.

The Capacity of the Immune System to Respond to Disease

It has been estimated that humans can generate about 10 billion different antibodies and that, due to exposures to germs and other foreign material, we make between one million and 100 million different antibodies during our lives. At a minimum, you produce on average about 150 new antibodies a day. The vaccine schedule results in the production of total of about 30 antibodies.

From another perspective, it is estimated that if the immune system were exposed to 10,000 vaccines at one time, not only does it have the capacity to process these vaccines, but also doing so would use about 0.1% of the immune system.

Compared to the antibody response to the antigens of life, the vaccine exposure and schedule is minimal, a wee dribble of a smid-

Continued on page 4

gen of an immunologic challenge. The ability of the immune system to respond to antigens is vast, with a capacity that exceeds the mind's ability to comprehend.

The Vaccine Compared to Normal Exposure to Micro-Organisms as a Part of Life

We have, on and in us, 10 to 100 times more bacteria than there are cells that make us (about 100 billion (100,000,000,000) bacteria). You may think you are hot stuff, but you are nothing more than a sentient transport and delivery system for bacteria. That is just our normal flora. These represent maybe 1,000 separate species of bacteria.

We are born bacteria free and acquire a complex and enormous normal bacterial flora in months. In the first year of life a baby is exposed, for the first time, to all the bacteria of his parents and siblings and some from the family pet and the environment. This are an enormous number of organisms and antigens, thousands of times greater than the exposure from the vaccine schedule.

The number of bacteria that is your own ecosystem, of course, pales in comparison to the bacteria in the soil, at about a million species per gram of soil, plus those in the water, on your pets, in the air, etc. There are an estimated billion different bacterial species in the world. And then there are viruses, yeasts, molds, parasites and mites. Perhaps millions more. There are at least 2,000 different bacteria that you can suck into your lungs with every breath, floating in the air around you.

These micro-organisms are kept at bay by your immune system. Each bacterium has multiple sites that can elicit an antibody response.

It is not one organism, one antibody. The number of antibodies that the body develops against a micro-organism depends on the complexity of the organism. It is not unusual to make dozens of antibodies against one bacterial strain.

Let's be conservative. Let's say that we respond with three antibodies to each bacterial species in our normal flora and we make three antibodies to 100,000 environmental organisms, about 100,000-fold less than what is out there. That would be 303,000 antibodies. To make that many antibodies by age 18 we would have to produce 46 antibodies a day. That is about five times in a day what the entire vaccine schedule requires over six years. In about one month you would be exposed to all the antigens (and more) and make all the antibodies that are needed in the vaccine schedule over six years.

The Vaccine Compared to All Diseases to Which We May be Exposed

How many infections are out there that average people may encounter in a lifetime? Roughly 1,374 potential pathogens, counted from the standard infectious disease textbook that represents more than 13,740 potential antigens.

Remember the comparison: the vaccine schedule exposes children to five, live-attenuated or altered organisms and 21 antigens by age six. What vaccinations offer is small, controlled, harmless amounts of antigens and neutered pathogens, rather than the prodigious free-for-all of morbidity and mortality from natural disease.

No matter how you slice it, the vaccine schedule represents a miniscule exposure to antigens and organisms compared to what people encounter as part of life.

Worrying about the exposure from the vaccine schedule is like worrying about a thimble of water getting you wet when you are swimming in an ocean.

One Final Anti-Vaccine Argument

Another complaint against vaccines is that people make money from them. Like drug companies. Are the drug companies filled with greedy bastards that corrupt medical practice? Big pharma are odd institutions. On the one hand they employ brilliant scientists who create drugs and vaccines that have helped to make sure our average life expectancy is 75 years, not 40. Then they take these amazing products and turn them over to salesmen and bean counters whose jobs are to make money. So when looking at the data, yes, you have to look at it with a grain of salt, but vaccines work and save lives. We live longer than any time in history. Our long lives are due in large part to good nutrition, sanitation, and yes, vaccines.

(Part II of this article will appear in the next issue of Pediatrics for Parents.)

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Almost 12 million Americans suffer from food allergies, including 2.2 million children. Out of these people, 3.3 million are allergic to peanuts. While certain drugs can be used to treat an allergic reaction, like skin or respiratory, there is actually no approved treatment for any food allergies.

When an allergic reaction occurs, symptoms range from mild stomach or skin flare-ups to airway constriction to anaphylactic shock, which is potentially deadly. Some children must have injectable epinephrine ("Epi-Pen") within reach at all times in case such a reaction occurs. It's important for parents to be aware of the risks and treatment options on the horizon.

Recently, two research studies from Duke University Medical Center revealed that a medically supervised daily dose of peanuts may help children with peanut allergies greatly increase their tolerance to the food. What do these findings mean for this issue that severely affects children's health and safety, as well as a possible cure?

First, the key to this study is what we medical professionals always knew: allergies develop with small exposures to the trigger. In this case, peanuts and anything containing peanuts or peanut oil is a trigger food that can cause severe reactions.

Next, we must understand the baseline process of allergic reactions, in this case, to peanuts. The mechanism of allergy involves:

a) The production of IgE by immune cells (responsible for allergic responses) that mistake allergens for parasites and

b) The triggering of an allergic response by the "clumping together" of the allergen molecule and the molecule of IgE directed against it.

The Duke researchers gave escalating doses of the allergen, peanuts in this case, which changed the way the children's immune system recognized it. IgE, the immunoglobulin responsible for most disease defense in the immune system, was produced, allowing non-allergic antibodies to stick to allergen molecules and insulate them from IgE. As a result, decreases in IgE occurred in many of the subjects.

Previously, immunotherapy was conducted with injectable formulations of triggers. This has not been entirely successful for prevention of anaphylactic reactions.

The treatment in this particular study, conducted on 33 children, used escalating doses of peanuts that started as small as one-thousandth of a peanut and eventually increased to about 15 peanuts a day. This produced increases in another immunoglobulin, IgG, that also appears to mask the allergen from the allergic part of the immune system.

The doses also produced reductions in IgE, which is responsible for allergy. In most of the children, this led to total peanut tolerance without a reaction, and some children incorporated peanuts into their diets without an issue.

One should not be put off by lack of complete response in some of the subjects: even in those who were not able to introduce peanuts into their daily diet, enough

tolerance developed to prevent anaphylactic shock from small accidental exposures.

While this study's results are a promising advancement in a possible cure or, at the very least, an effective treatment option, this type of immunotherapy to such severe allergens, like peanuts, should only be available in a hospital setting where a severe reaction will be quicker to treat.

The physician researchers agreed that the study gives us hope that there will be a treatment available in the next two or three years but is extremely dangerous for parents to try to conduct a similar tolerance study with their child on their own.

This immunotherapy may also be extendable to other allergens (peanuts happen to be simple to prepare in variable quantities, unlike pollen, house dust, or seafood). In fact, the Consortium of Food Allergy Research, which includes five major research centers in the United States, is conducting similar treatment studies for eggs.

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***Pediatrics for Parents
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Children in Hospitals

By John E. Monaco, MD

Respecting the Spleen

It is not often in pediatrics that we pay much attention to the spleen. It is one of those mysterious organs that we know is important, but most folks would have a difficult time describing what it actually does, or even where it is! I had two cases recently that illustrated the importance of this often neglected organ. Even more, these cases point up the problems that can arise when this organ becomes injured or infected.

Amber is a 14-year-old competitive cheerleader who had been sick for a week when her doctor checked a "monospot" (the quick test for infectious mononucleosis) and found it to be positive. Amber had many of the classic symptoms... fever, malaise, terribly sore throat and swollen glands. But what worried her parents, and the doctor, was when she developed jaundice (yellowing of her skin and eyes) and began to complain of abdominal pain, mainly on the left side.

When she examined Amber, her doctor noticed her spleen to be quite enlarged. Ordinarily, it is difficult to feel the spleen when you examine someone's abdomen. It sits up under the rib cage on the left, protected by the same bony structures that protect the lungs. When it becomes inflamed, as it does sometimes in mono, the spleen will descend below its protective pocket behind the ribs and be palpable.

Why does the spleen become en-

larged in mono? To explain this, let me explain a little about the disease itself. Mono is caused by a virus known as EBV, or the Epstein-Barr Virus. This virus initially infects the tissue of the upper respiratory tract, which is the reason for the intense sore throat and swollen lymph nodes. Occasionally tonsils become so swollen that they cause obstruction of the upper airway.

As the virus infects these cells, it also begins to replicate, rapidly infecting lymphocytes (a type of white blood cell) as well as the liver and spleen. Infection of the liver is what led to Amber's jaundice, and infection of the spleen can cause massive enlargement of this usually hidden organ. Most of the time, kids with mono are only modestly ill and can be treated quite effectively at home.

Amber needed to be in the hospital for two reasons: One, her very large tonsils not only risked obstructing her airway, but also they also made it difficult for her to take fluids, setting her up for dehydration. Secondly, her spleen was dangerously large. A CT scan revealed that her spleen was so large that it was sitting just above her pelvis. She was at high risk for rupture. It turns out that the mortality rate for mono is quite low, but when individuals die from the disease it is most often from ruptured spleen.

Epstein-Barr virus causes mono, so there is no specific treatment. All we can do is support the patient

by treating the effects of the virus. Corticosteroids have long been thought to be of benefit, particularly when the tonsils and/or the spleen are dangerously enlarged. As with steroid in many illnesses, there continues to be great debate in the literature about their benefit. Based on my experience in this clinical scenario and after reviewing the latest literature once again, I decided to give steroids a try in Amber's case. I discussed this approach with her parents who, like many parents today, had already done their own research on the Internet. They agreed that steroids seemed like a reasonable option. Sometimes it can be a great pleasure dealing with families who educate themselves and take part in the decisions for care of their loved ones—especially when they agree with me!

So Amber was started on IV Solu-Medrol and the results were nothing short of miraculous. Within 24 hours her tonsils had shrunk to the point that she could eat and drink, her spleen shrunk down to a third of its size on admission, and her abdominal pain resolved. Amber, her parents and I were exceedingly happy with this result. After a couple more days she was discharged home, and she was expected to return to school in about a week.

The second case was also a teenager, but his spleen was injured as a result of trauma. Years ago, when someone's spleen was torn or ruptured as a result of some sort of abdominal trauma—car

accidents usually—it needed to be removed surgically. In the last twenty years or so, we have learned a couple of key facts about the spleen. First, the spleen has definite immunologic function and acts as a filter for damaged red blood cells. Without the spleen we are much more prone to infections with organisms such as *Streptococcus pneumoniae*. We have also learned that unless the spleen is actively hemorrhaging or completely pulverized, it will usually heal on its own after a period of bed rest and inactivity.

Chuck is a well-regarded pitcher for the local high school. At a lean, 6'3", he has a fast ball that tops out at nearly 90 miles per hour. One day during batting practice, he was walking across the outfield, not paying attention to balls being hit in his general direction. One hit him on the left side, pegging one of his lower ribs. He had twinge of pain that seemed to quickly resolve. He really didn't think much of it. But the next day, the pain seemed to worsen and take on a different characteristic. It had migrated more to his abdomen and he felt nauseous. By the second day he was feeling dizzy and his mother noted he was pale. She took him to the ER where a CT revealed an actively bleeding spleen. Chuck was nearly in shock when they took him to the operating room to remove his spleen.

This was the only case that I could remember in many years that a splenectomy was required as a result of trauma. But for Chuck it was a life-saving measure. He would not have survived through the night had surgeons not removed his ruptured, bleeding spleen.

The mechanism of injury was fascinating. The surgeon postulated that the baseball must have hit one of the lower two ribs on the

left side of Chuck's chest. None of his ribs were fractured, but the last two ribs are more "free" because they are not attached to the sternum. They are mobile enough to be pushed in, poke the spleen causing it to rupture, and then return to their position. This is probably what occurred in Chuck's case.

I recount these two cases to remind parents of the importance of this often forgotten organ. Like many such structures in the body, we only become aware of the spleen when it becomes dam-

aged or sick. When this happens, however, prompt action may be necessary. At the very least close observation by those who understand the subtleties of caring for this unique organ is an absolute necessity.

John E. Monaco, MD, is board certified in both pediatrics and pediatric critical care. His latest book, Moondance to Eternity, is now available. He lives and works in Tampa, Florida. He welcomes your comments, suggestions, and thoughts on his observations.

Time of Conception and Birth Defects

Season of conception may be related to the birth defect rate. When looking at 30.1 million U.S. births between 1996 and 2002, researchers from Indiana University School of Medicine and University of Cincinnati found a strong relationship between birth defects and time of conception (last menstrual period) between April and July. Also highest during those four months are the water levels of nitrates, atrazine, and other pesticides. Many of these chemicals, which are suspected to be harmful to the developing embryo, are banned in Europe but permitted in this country. The relationship between month of conception and risk of birth defect was true for 11 of the 22 birth defect categories studied.

According to Paul Winchester, MD, Indiana University School of Medicine professor of clinical pediatrics, the lead author of the study, "Elevated concentrations of pesticides and other agrichemicals in surface water during April through July coincided with significantly higher risk of birth defects in live births conceived by women whose last menstrual period began in the same months. While

our study didn't prove a cause and effect link, the fact that birth defects and pesticides in surface water peak during the same four months makes us suspect that the two are related."

Acta Paediatrica, 4/09

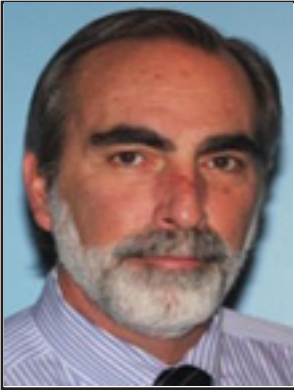
Flu Deaths

According to the Centers for Disease Control and Prevention (CDC), there have been 35 pediatric deaths from influenza this flu season, which continues through May. The number is less than the same time in the flu season last year. There have been another 35 deaths from H1N1 (Swine) flu.

Health experts recommend vaccinating children against the flu because they are a large reservoir of the flu virus. The more unvaccinated children, the greater the size of the reservoir, and the greater the chances of adults becoming ill with the flu.

The best step to help keep your kids safe from the flu is to vaccinate them. Remember to have your child vaccinated this fall.

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Perspectives on Parenting

By Michael K. Meyerhoff, EdD

Stress-Reduction Strategies

Making good judgments is definitely something parents should work on doing for themselves. They also should keep in mind that their children will learn how to make such decisions by watching them.

As they grow, kids will stress over all sorts of things, from broken toys to broken hearts. To the extent that they have been taught to pick their battles wisely—letting the little things go and dealing with the bigger things in a sane fashion—their lives will contain a lot more enjoyment and a lot less misery. Here are some stress-reduction strategies to help children and parents lead more enjoyable lives.

Let's say you are driving along the highway and another driver suddenly cuts you off. Is this something you have to react to, or can you just let it slide? If you just let it slide, no stress. But maybe you decide that you have to do something about it. You've got options. You can honk your horn and make an obscene gesture. You can speed up and cut him off. Or you can take an even more drastic, violent measure that I won't describe here. Which option you choose obviously will determine how much stress you will experience.

Appraisal

In assessing a potentially stressful situation such as the one described above, there is primary appraisal and secondary appraisal. Primary appraisal is deciding whether or

not something constitutes a threat or a challenge that must be dealt with in some way (the driver cuts you off). If you decide that it really doesn't constitute a threat or a challenge and you can just let it go, then there will be no stress. If you decide that it does, then you move to secondary appraisal, which is deciding what you are going to do about it. There usually are several options available, and the amount of stress you subsequently experience is going to depend on which of those options you select.

Escape

Escape can be achieved either physically or mentally. If there is something or someone that is generating substantial stress for you, get away from whatever or whoever it is. Preferably, that means just walking away. But if you can't walk away, at least you can take your mind someplace else more pleasant and let it hang out there for a while.

Let's say your boss is berating you in front of your co-workers for something that was not your fault. You feel the pressure building up inside yourself to the point where you are getting ready to explode. What can you do? You can quit. Tell him to take the job and shove it. No more stress. Of course, you may not be able to do that if you have no other prospects for immediate employment and have bills to pay. In that case, you may have to stand there and take it. But in your mind you can go off to your "happy place." Imagine yourself soaking up

the sun on a beautiful white sand beach with the clear blue surf gently rolling to the shore and the palm trees swaying softly in the breeze. All of a sudden, a lot of the stress fades away.

Parents can help their children learn to just "walk away" when appropriate through modeling as well as through suggestion. And parents might have a lot of fun assisting their little ones in choosing or creating a "happy place." This process usually provides some wonderful insight regarding what a child feels is exciting or comforting, or both. And it is often fascinating to see how the "happy place" typically tends to change as the child grows.

Coping

Finally, as a corollary to physical and mental escape, there is problem-focused coping and emotion-focused coping. If there is a situation that generates significant stress in your life, it clearly makes sense to change the situation so that it will no longer generate so much stress. That is problem-focused coping. Unfortunately, changing the situation is not always practical and may even be impossible. Under those circumstances, you have to do something to yourself or for yourself so that even though the situation regrettably remains unchanged, you are no longer getting so stressed by it. That is emotion-focused coping.

Let's say a young single mother is stuck home all day long with her

obnoxious three-year-old child. He is driving her crazy and she is getting ready to strangle him. What can she do that would be an example of problem-focused coping? Well, she could be kid-free for a few hours a day by leaving him at Grandma's house or enrolling him in preschool. That would eliminate a lot of the stress. But let's say Grandma is not available or the mother can't afford to send her child to preschool. What can she do that would be an example of emotion-focused coping? Well, she could start practicing meditation, she could join a support group of other single mothers, she could engage in a regular course of rigorous exercise, she could educate herself about developmental "phases," etc. These practices might not completely eliminate the stress, but they certainly would help minimize it.

Rather than simply putting up with and complaining about sources of stress in their lives, parents can focus on finding solutions. Again, not only will this alleviate their own suffering, but also they will serve as suitable models for their children. And they can supplement this by supplying advice and guidance as appropriate.

Although their kids may insist that no one else has ever gone through what they're going through and no one can possibly understand how they feel, parents usually have been there and possess a wealth of experience that can be quite useful. It may take the persistent use of subtle suggestions rather than one set of insistent instructions, but hopefully some good stuff will eventually get through.

Ironically, I think if you ask parents what the biggest source of stress

in their lives is, they probably will say their children. And if you ask the kids what the biggest source of stress in their lives is, they probably will say their parents. However, while this may be true, if they all work together on practicing, perfecting, and implementing stress-reduction strategies such as these, they may be pleasantly surprised to find themselves getting on each other's nerves a lot less, dealing with the rest of the world more effectively and enjoyably, and becoming a lot happier and healthier in the long run.

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Can Peanut-Allergic Children Develop Peanut Tolerance?

At the March 2009 American Academy of Allergy and Immunology conference, Dr. Wesley Burks of Duke University presented ongoing results from a joint Duke University and Arkansas Children's Hospital study that has found that certain peanut-allergic children are able to develop an immunologic tolerance to peanut protein, rendering them non allergic.

Five years ago, Burks and his research colleagues started to enroll children who had an IgE protein level of greater than 25 kU/L but were not so peanut sensitive that they had had anaphylaxis reactions, and slowly exposed them to increasing amounts of peanut flour, starting with 1 mg (equal to 1/1000 of a peanut). After 8-10 months of gradually increased exposure, the children were able

to tolerate 15 peanuts per day. The children in the ongoing study continue to receive that amount and are periodically tested to confirm that they are still able to tolerate peanuts.

Nine of the 33 children have been on the immunotherapy for at least 2.5 years, and five of those passed oral challenge tests. Their IgE levels are so low (less than 2 kU/L) that they are able to eat peanuts daily without any reaction.

Burks acknowledged that ideal dosing and duration of treatment must still be researched but is hopeful that clinical oral immunotherapy for peanut-allergic children will be available within a few years.

Medpagetoday.com

Stool Color

What's a "normal stool" for a baby? To answer this question, researchers at the University of Bristol in the United Kingdom sent surveys to the parents of 12,984 children ages one to 42 months.

At four weeks of age the average number of stools per day was three, which declined to 1.3 times per day by age 42 months. Most babies had soft stools with half having watery or curdy stools, although 14% had hard stools. For these babies, yellow was the most common stool color. By six months the stool color was brown. At all ages, black stool was rare.

Archives of Disease in Childhood, 3/09

Check out the *Pediatrics for Parents* podcast on iTunes and www.pedsforparents.libsyn.com

How Teen Behavior Influences Their Driving: National Young Driver Survey

By Vikki Sloviter

Though teen vehicle fatalities have declined considerably since 1975 (when there were 8,748 teenage motor vehicle crash deaths), teens are still at risk for injury or death while driving or riding as a passenger. Teens may drive less than older drivers, but the crash rate per mile for a teen is four times greater than that for older drivers.

According to the Insurance Institute for Highway Safety, 5,156 teenagers age 13-19 died in a motor vehicle accident in the United States in 2006, which represented 12% of all motor vehicle accident fatalities. Yet, teens comprised only 10% of the population that year.

While parents and researchers alike may cite general immaturity and driving inexperience as primary factors that contribute to crashes involving teen drivers, what do teens themselves think are the greatest hazards? Do they think teen drinking and driving is a concern, or do they think texting with one hand while driving with the other is more dangerous?

Kenneth R. Ginsburg, MD, MSEd and his colleagues from the Center for Injury Research and Prevention at Children's Hospital of Philadelphia developed the National Young Driver Survey to find out.

The NYDS used the teen-centered method—a research technique that used teens' own perceptions of risk and safety, both as driver and passenger—to gain better insight into teens' viewpoints on driving and the factors that contribute to their safety.

In stages 1 and 2 of the study, 443 teens answered the question "What makes a difference in whether teens are safe in cars?" This broad question yielded more than 100 items that were ultimately whittled down to the 32 highest-ranking safety-related issues.

In the third stage of the study, 5,665 ninth, tenth and eleventh graders drawn from 120 national public secondary schools and whose responses were extrapolated to represent the general U.S. teen population, were asked to rank 25 items in order of "how much of a difference it made in driver safety" and were also asked to rank the 32 items in order of how often they witnessed them. The researchers pointed out that the rankings were a reflection of each item's relative importance to another item, not necessarily its overall importance.

What did the study find? The top-five ranked items that both male and female teens perceived to make "a lot of difference" in driving safety were:

- Driver drinking alcohol before driving (87% of teens ranked this first)
- Driver using a handheld device while driving (including text messaging or playing a video game)
- Driver racing other cars
- Driver smoking marijuana before driving
- Driver experiencing road rage.

The top-five ranked items that both genders reported that they witnessed "often or always" with other teen drivers were: other

teens in the car with the driver, driver speeding, driver talking on cell phone, driver selecting music while driving and driver in a hurry. The researchers also examined subpopulations (gender, race and grade level), to determine how teen perceptions of risk and exposure to behaviors differed between groups.

What do these results mean? Foremost, the fact that teens believed drinking and driving was the greatest risk to driving safety yet that behavior was not witnessed as often as others may be testament to the success of public education and laws enacted to help reduce substance abuse-related motor vehicle accidents.

But, the fact that teens ranked witnessing a driver talking on cell phone, talking with friends in the car and selecting music while driving more often than other behaviors—yet they ranked those same behaviors among the lowest as risks to driving safety—reveals that teens may underestimate the frequency with which their peers are distracted while driving.

Among other things, the survey underscored the importance of first trying to understand a group before trying to change its behavior. Hopefully studies like these will help save more lives.

Vikki Sloviter received her BA in History of Science and Medicine from Yale University. She lives in Bucks County, Pennsylvania with her husband and three young children. She also proofreads, copy edits, researches and writes for Pediatrics for Parents and NeedyMeds.org.



Pediatric Points

By Carolyn Roy-Bornstein, MD

Cord Blood Banking

Cord blood used to be discarded as medical waste. After delivery, placentas and their attached umbilical cords made their way to incinerators along with blood-soaked bandages and used syringes. No more. Doctors have discovered gold in that rubbish pile. It turns out umbilical cord blood is rich in stem cells, those early so-called "progenitor" cells that are so remarkably adaptable, they can evolve into different kinds of specialized cells. Now doctors use cord blood to treat a variety of ailments and experiment with dozens of future uses as well.

Stem cells have traditionally been harvested from bone marrow. Bone marrow registries enlist volunteers who give blood samples that are then categorized according to their human leukocyte antigen (HLA) type. HLA markers are an important part of our immune system. A bone marrow donor's HLA type must be a pretty exact match with a particular patient's HLA type in order for transplantation to proceed. If a patient in need of a stem cell transplant is matched to a potential bone marrow donor, then that original donor must be tracked down, retested, and then undergo minor surgery under anesthesia.

With the advent of cord blood banking, things got easier for patients in need of transplant. For one thing, HLA matching of cord blood does not need to be as strict as with bone marrow for the

transplant to be successful. Also, with computerized searches and over 150,000 units of cord blood frozen in storage and ready to go, matches can be made faster. Transplantation itself often happens faster as well since there is no living donor involved. There is also less "graft vs. host" disease where the recipient's immune system reacts to the donated cord blood as a foreign body.

The major disadvantage of cord blood stem cells concerns what is called cell dose. The number of stem cells in a typical cord blood donation is about one tenth of what is obtained from an adult bone marrow donor. Thus cord blood from single donors is generally limited to treating small children.

The first successful cord blood transplant occurred in 1988 in a six-year-old boy with bone marrow failure. Since then over 6,000 successful transplants have been performed for a variety of illnesses including cancers, blood disorders and immune deficiencies. In 1991, The New York Blood Center started the first public, unrelated cord blood banking program in America. It operates much like the Red Cross does. Trained professionals obtain informed consent from mothers. A thorough medical and family history is obtained. Maternal and cord blood testing is performed to identify any infectious or genetic abnormality which would preclude its use in transplantation. At delivery, cord blood is collected, processed and frozen, then stored in units accessible to all transplant

hospitals in need of stem cells for treatment of ill children.

But as with so many other medical discoveries, big business has also discovered the miracles of this scientific breakthrough and ethical concerns are being raised. Private cord blood registries have popped up all over the world and encourage new mothers to bank their own baby's cord blood at birth. But this strategy ignores certain limitations to autologous transplantation (that is, transplantation of one's own stem cells). The most common indication for cord blood transplantation is acute lymphocytic leukemia (ALL). However, transplant doctors are reluctant to consider using a baby's own banked cord blood to treat this condition because the genetic markers of leukemia may be present at birth in a child who later goes on to develop the disease. Genetic disorders also cannot be treated with one's own banked blood as it obviously shares the same DNA with the affected child.

Private cord blood registries advertise "peace of mind" to new mothers by giving their baby "every advantage for a healthy future." But what are the chances that your child will develop a disorder that is amenable to stem cell transplant? Those numbers are hard to come by, but the American Academy of Pediatrics (AAP) puts the figure somewhere between one in 1,000 to one in 200,000. Private cord blood registries quote parents ratios of one in three.

Continued on page 12

That's because they use illnesses like head trauma for which a stem cell transplant has never been done in their statistics. The AAP also accuses private bankers of exploiting new parents and making promises they cannot keep. Private registries deny the charge. But when I was researching this subject from a computer with no firewall while on vacation, I started getting pop-ups from Cord Blood Registry with flashing stars inviting me to enter a sweepstakes to win free cord blood banking and promising peace of mind (on a payment plan no less). Sounds like exploitation to me.

There are other ethical issues involved. Private cord blood banking is expensive, costing \$1,500 to \$2,000 to collect and process the umbilical cord blood, then an additional \$100 to \$200 a year to store it, making it out of reach for most families. In fact certain minority children such as blacks and Asians have a harder time finding matched donor stem cells in part

because there aren't enough minority donors, but also because their HLA types are generally more diverse. And if we're saving cord blood privately for a child who may never need it, that's cord blood that's unavailable for a sick child who may need it today.

The American College of Obstetricians and Gynecologists cautions against promoting private cord blood banks to parents "without a realistic assessment of their likelihood of return on their investment." The AAP states that "private storage of cord blood as 'biological insurance' should be discouraged."

Scientific research is making incredible things possible nowadays including cures for diseases once thought of as death sentences. Public cord blood banking can make these cures available to many more children than private banks can.

Carolyn Roy-Bornstein is a board-certified pediatrician in private practice in Haverhill, MA.

Diarrhea is an insidious risk since the *Cryptosporidium* parasites are so small. Crypto is invisible to the naked eye and resistant to chlorine disinfectants used in pools. Aubrey and his colleagues wanted to determine how effective three popular types of toddler swimwear are in preventing the spread of Crypto. They measured the amount of microspheres (in this case, plastic particles that were the same size as Crypto) that escaped from swim trunks, disposable diapers and reusable diapers (with and without plastic covers). Not surprisingly, regular swim trunks were the least effective in containing the microspheres—almost 90% of the microspheres were released within one minute. With the swim diapers, about 50% of the microspheres were released within a minute, and vinyl diaper covers over a swim diaper were only slightly more effective.

Given that it takes only about 10 Crypto spores to become infected, and "hundreds of millions of [spores] get into the water within minutes," diarrhea accidents in a pool pose a real health risk. If your sick toddler begs to go swimming, hold off and wait until he fully recovers. Don't put other swimmers at risk. Other parental pool advice from the national Swimming Pool Foundation includes:

- Thoroughly wash your child's body (especially his rear-end area) before going into a pool since there is always invisible fecal matter present.
- Check diapers often and ask your child frequently if he has to go to the bathroom (waiting until "I have to go!" may be too late).
- Change diapers in the bathroom or designated diaper-changing area, not poolside.

National Swimming Pool Foundation, 5/09

Swim Diapers Not Sufficient

With swimming season here, it's time to think about water safety, especially at public pools. Even though drowning is the leading cause of injury death for children ages 1-4, it is not the only risk toddlers face when they go swimming. Recreational water illness (RWI), diseases spread by water-borne germs, can also pose a real threat to children and adults alike.

Common sense dictates that children who are sick with diarrhea should not be allowed to go swimming lest they have an accident and contaminate the pool. But swim diapers and other diaper protectors seem to give parents a false sense of protection if they think such swim accessories will contain a diarrhea accident within

the swim diaper. Anyone who has a toddler that has had a fecal accident in a pool knows, however, that the swim diaper did not necessarily contain the poop. Even when fecal accidents involve solid bowel movements, all swimmers must exit the pool and the pool must be scrubbed down. With solid fecal matter accidents, the poop is relatively easy to see and remove, though there is always the likelihood that smaller germs escaped. A recent study conducted by James Aubrey, PhD of University of North Carolina-Charlotte, and his colleagues, found that swim diapers, plastic pants, and swim trunks do not protect against the spread of RWIs, especially and including diarrhea.

Alternative Therapies

According to a recent study from the National Center for Complementary and Alternative Medicine, in 2007 12% of children and 33% of adults reportedly used complementary or alternative therapies. The survey gathered information on 23,393 adults who reported on 9,417 children.

Complementary and alternative medicine (CAM) use is greater among:

- Children whose parents used CAM (23.9%)
- Adolescents aged 12-17 (16.4%), compared to younger children
- White children (12.8%), compared to Hispanic children (7.9%) and black children (5.9%)
- Children whose parents had higher education levels (more than high school: 14.7%)
- Children with six or more health conditions (23.8%)
- Children whose families delayed conventional care because of cost (16.9%)

The ten most-common therapies were:

- Natural products (3.9% of all children)
- Chiropractic and osteopathic manipulation (2.8%)
- Deep breathing (2.2%)
- Yoga (2.1%)
- Homeopathic treatment (1.3%)
- Traditional healers (1.1%)
- Massage (1.0%)
- Meditation (1.0%)
- Diet-based therapies (0.8%)
- Progressive relaxation (0.5%)

Echinacea was the most used natural product (37%) followed by fish oil/omega 3 (31%), combination herbal pills (18%), and flaxseed oil/pills (17%).

Conditions most commonly treated were back/neck pain (6.7%), head or chest cold (6.6%), anxiety/stress (4.8%), other musculoskeletal (4.3%), ADHD (2.5%), and insomnia (1.8%).

<http://nccam.nih.gov/news/cam-stats.htm>

Frosted Mini-Wheats' False Claim

In a recent blow to Kellogg Company, the Federal Trade Commission (FTC) charged the popular breakfast cereal brand with misleading advertising.

Kellogg had advertised that children who ate a bowl of Frosted Mini-Wheats increased their attentiveness by nearly 20%. But the clinical study on which Kellogg had based its advertisement revealed that only half the children who ate a bowl of the cereal showed any improvement in attentiveness after three hours, one in seven children showed increased improvement of about 17% and only one in nine children showed 20% or greater improvement.

The FTC also charged Kellogg with false advertising because Kellogg had claimed that compared with children who did not eat breakfast at all, children who ate Frosted Mini-Wheats increased their attentiveness by 20% when in fact less than 10% of the study children increased their attentiveness. The FTC believes this was false advertising that violated the FTC Act.

Even if your family doesn't eat Frosted Mini-Wheats, rulings like this serve as a reminder that parents shouldn't always believe what they see or hear, especially when claims are made by national advertisers.

<http://www.ftc.gov/opa/2009/04/kellogg.shtm>

Bacterial Protection Against Asthma

Helicobacter pylori (*H. pylori*) is best known as the bacterium that causes gastric ulcers. But research indicates it may be protective against asthma.

This bacterium has a commensal relationship with humans, where one organism (*H. pylori*) benefits from another (humans) without helping or hurting it. For at least 58,000 years humans have had this organism living inside them. Most humans become positive for *H. pylori* during the first year of life and remain positive unless treated with antibiotics for a condition worsened by it.

Since the beginning of the last century, the rate of *H. pylori* positivity has declined. For American children, the positivity rate is now less than 10%. How can this be bad?

In a 2007 study published in *The Archives of Internal Medicine*, Drs. Yu Chen, PhD, MPH and Martin Blaser, MD of New York University School of Medicine found a significant inverse relationship between *H. pylori* positivity and a history of ever having had asthma, allergic rhinitis, allergy symptoms or skin sensitizations.

Specifically, Chen and Blaser found that *H. pylori* positivity was inversely associated with onset of asthma and allergic rhinitis at age 15 or earlier, but not at later ages.

This finding supports the idea that increased incidence of childhood asthma and allergy is a result of less exposure to bacteria (the "hygiene hypothesis").

Family Practice News, 10/15/08



Pediatric Insider

By Roy Benaroch, MD

Fever: Fear Not

Parents don't need to fear fevers. Under most circumstances, even a high fever doesn't mean anything is seriously wrong. Fever itself doesn't do any harm unless accompanied by heat stroke and dehydration. Nonetheless, fever remains a great source of worry for many of the parents in my practice. It's time to put that fear to rest.

The normal human body temperature is thought to average about 98.6°F. That number is based on about a million measurements averaged by Carl Wunderlich in the 1800s—and it turns out that his thermometers weren't calibrated very well, and were probably off by one or two degrees.

More recent research pegs the average temperature at 98.2°F, but even this measurement varies at least one degree between individuals, and varies at least one degree based on the time of day (normal temperatures are lowest first thing in the morning, unless you're ovulating.) There is also evidence that carefully measured temperature averages vary between human races. Though it's not technically correct, 98.6°F (37°C) still remains widely accepted as the "normal" human body temperature.

If 98.6°F is the traditional (though inexact) definition of "normal," then what's a fever? There isn't a universal definition. Most doc-

tors consider a rectal temperature above 100.4°F to be a fever; in adults, the number 100 is more often used, usually referring to an oral temperature (though in the elderly, normal "resting" temperatures may be considerably lower than 98.2°F). Measuring rectal temperature becomes more difficult past a few months of life, so often an armpit, oral, or forehead temperature is measured. To be clear in communicating with your

Send your questions to QandA@pedsforsparents.com or *Pediatrics for Parents*, PO Box 219, Gloucester, MA 01931. Please keep them general in nature as we can't give specific advice nor suggest treatment for your child. All such questions should be asked of your child's doctor.

child's doctor, say the number that the device recorded, followed by the method you took it: "Junior was 100.8°F degrees measured orally." Don't add or subtract degrees to "correct" the temperature, just tell us what the number is. In most cases outside of the newborn period, the exact number is not actually very important, but we do like to have a general idea of how high the fever was.

Fever occurs in children most commonly from infections, but can be a result of many other, rarer problems (such as adverse reactions to medicines, inflammatory arthritis, cancer, and thyroid disease). Fever can also occur as

part of "heat stroke," when dehydration combined with exposure to heat overwhelms the body's capacity to control its temperature. Victims of heat stroke feel warm and dry—not sweaty—and are often delirious or sleepy. This is a true medical emergency that can lead to kidney failure, brain damage, and death. It's the only health condition where fever itself is contributing to harm.

Worry about fever is one of the most common reasons for an urgent call or visit to a pediatrician. Parents may worry about fevers both because it makes their child look and feel ill, but also because they're concerned that the fever means there is a very serious medical problem going on, or that the fever is going to harm their child.

Historically, fever probably did once mean that something terrible was going on. One of the most common causes of fever worldwide—malaria—is no longer seen in the developed world thanks to improved mosquito control. Likewise, many other serious fever illnesses (e.g. typhoid fever, plague) have become rarities thanks to improved sanitation. Vaccinations now protect against most of the more serious bacterial infections (including meningitis and blood poisoning), as well as many viral infections that had been so devastating in the past (e.g. polio, measles). Other potentially serious infections have now become

easy to identify and treat (e.g. scarlet fever, pneumonia, kidney infections.) Compared to a century ago, we are far more able to access reliable health care that can accurately diagnose and treat almost any illness. So while it made sense for parents 100 years ago to worry that a fever could mean the death of their child, this fear is not justified today.

In the past, a general rule was that the height of the fever predicted how serious the underlying problem was. A fever of 105°F was far more of a worry than 101°F. But in a fully vaccinated, otherwise healthy child, this correspondence has become less reliable. In today's developed world, even a 105°F fever in a healthy child is quite unlikely to be from any serious condition. The best way to determine how likely it is for a child to have a serious medical issue causing a fever is to see how the child acts when the fever goes back towards normal.

Here's a fever "action plan" to help parents keep their child safe and comfortable during a fever, while avoiding unnecessary emergency room trips:

What To Do If Your Child Feels Like He Has a Fever

1. If your child looks very ill—he's unresponsive, having trouble breathing, or has a blue or gray color—call 911 or bring him to the nearest emergency room.
2. If the child is three months old or less, measure the fever with a thermometer, rectally. If the number is 100.4°F or higher, call your child's pediatrician for instructions. Fevers in very young babies are far more likely to be caused by a serious problem, and usually need to be evaluated right away. Even if the measured temperature doesn't

show that your baby has a fever, call your pediatrician if your child seems unwell. None of us want to take chances with little babies.

3. If your child has a poor or abnormal immune system, or has a disease that you've been told predisposes to serious infections, call your physician. You should also contact your physician if your child has a fever and has not been immunized—these kids are at much higher risk for serious bacterial infections that may need urgent evaluation and therapy.

The remainder of this action plan is only for normal, otherwise healthy and immunized children.

4. (Optional) Measure the temperature in an appropriate way with a thermometer. There is no reason to check a rectal temperature on an older child. An axillary (armpit) temperature is a good enough estimate. If you don't have a thermometer handy, it is not essential to measure the temperature; but it can be handy for monitoring to keep track of the temperature trend, especially if the fever lasts more than a day.

5. If your child feels ill (achy, or just "blah"), give a dose of fever-reducing medicine such as acetaminophen or ibuprofen. You're giving the medicine to help your child feel better—not necessarily to reduce the fever—but it will probably help the fever drop, too.

6. After the fever decreases, see how your child feels. If he's still feeling ill, contact your physician for instructions or bring him to the doctor. If he's looking and feeling better, see how he's doing in the morning and call your pediatrician for a non-emergency appointment within a few days for evaluation if the fever or other symptoms persist.

Fever itself can be an unpleasant symptom, often accompanied by chills and aches. Parents should treat fever with medicine not because the fever itself is harmful, but to help the child feel better. Even if the fever medicine doesn't reduce the temperature back to normal, it will help how your child feels. It's also easier and more accurate to judge just how sick a child is after the fever has been brought down.

During a fever, you'll also want to offer your child extra fluids. It doesn't matter what Junior drinks, as long as it's wet. Milk and other dairy products are fine during a fever (even an extremely high fever isn't nearly warm enough to "curdle" milk.) Jello, applesauce, pudding, ice cream, and Popsicles are all also good choices. For little babies, encourage frequent nursing or offer an extra bottle. If your child doesn't feel like eating, that's OK—as long as he's drinking, he won't get dehydrated.

"Fever phobia" is an unwarranted fear that fever is really going to harm your child. In the past, fevers could often have been a harbinger of a truly devastating illness. Nowadays, almost all of the serious fever illness are easily prevented with vaccines and simple hygiene. The few serious fever illnesses that still occur are far more easily recognized and managed. Though fever ought to be treated if it makes your child feel bad, it's nothing to be afraid of. It's time to say goodbye to fever phobia.

Roy Benaroch, MD, FAAP is an associate clinical professor of Pediatrics with Emory University, and is in private practice with Pediatric Physicians, PC in Atlanta. His first book, A Guide to Getting the Best Health Care for Your Children, is now available.

Smiley Children and Successful Marriages

Do happy children make happy, married adults? DePauw University psychologist Matthew Hertenstein, PhD led a team of researchers that found that the intensity of smiles in childhood was a strong predictor of divorce years later. Based on previous research that had examined if and how emotional dispositions directly or indirectly affect life's consequences, such as divorce, the researchers found that smile intensity in childhood photos and college yearbook photos was directly correlated with subjects' likelihood to divorce later in life.

Hertenstein, who runs the Touch and Emotion Lab at DePauw, and his colleagues conducted two studies. In the first, they looked at the relationship between smile intensity in college yearbook photos and likelihood of divorce later in life. They found that the less intense a subject smiled in her yearbook photo, the more likely she was to be divorced later.

The second study expanded upon the first and included photographs of subjects over age 55 that were taken when they were between ages five and 22 from a variety of life events, not just yearbook photos. The results from the second study were similar to those in the first: the less someone smiled in a photograph, the greater chance she divorced. Interestingly, this correlation was only evident among female subjects; there were too few male subjects to be able to find a statistical correlation.

This study supports the prevailing theory that people's emotional tendencies influence their social, cognitive, biological and behavioral processes, and that even a glimpse of people's emotional

state as evident in something as fleeting as a snapshot, may in fact be a peephole into the future of their ability to maintain interpersonal relationships.

Motivation and Emotion (DOI 10.1007/s11031-009-9124-6)

Tobacco Exposure in Three-Year-Olds

There's no question that exposing young children to tobacco smoke is bad for their health. The same is true of intrauterine exposure to tobacco smoke. Additional support comes from a recent Swedish study of 8,850 three-year-olds.

The children were divided into four groups based upon their tobacco smoke exposure history: 7,019 had no prenatal exposure or during their first three years of life, 149 had prenatal exposure only, 895 had postnatal exposure only, and 595 had both pre- and postnatal exposure.

The children with both pre- and postnatal exposure had 15% more wheezing, 16% more rhinitis, 7% more use of cough medicine, 8% more use of bronchodilators, and suffered from 30% more crying and 27% more irritability than children with no tobacco exposure.

Children with only postnatal exposure had 24% more rhinitis, 14% more use of cough medicine, and suffered from 26% more poor sleep than children with no exposure. The children with only prenatal exposure had 45% more bronchodilator use and sleep problems.

This study supports what we already know: tobacco smoke exposure at any age is bad for kids.

Acta Paediatrica, 3/08

ADHD and Head Injury—Which Comes First?

Some studies have suggested that a moderate-to-severe head injury in a school-age child can result in Attention-Deficit/Hyperactivity Disorder (ADHD). To check this out, Heather T. Keenan, an associate professor at University of Utah, and her colleagues looked at 62,088 children from 308 primary care practices in the United Kingdom from 1988 to 2003. The children were divided into three groups: children with early head injury (4.5% of the children), children with an early burn or scald injury (1.8%), and children with neither injury. All the injuries occurred before the child was two years old.

They found that children with an early head injury were 90% more likely to be diagnosed with ADHD by age ten than children who didn't have a head injury. The children who suffered a scald injury were 70% more likely to have the diagnosis when compared to the no-injury group.

According to Keenan, "The head injury did not appear to cause the ADHD." Rather, she believes early injury is an indication that the child may already exhibit behavioral traits of ADHD.

This study demonstrates that early head injury does not necessarily cause ADHD, but rather early ADHD behaviors may increase the risk the child will sustain a significant injury. It's more plausible that young children yet to be diagnosed with ADHD display increased risk-taking behaviors by age two and thus are more likely to be seriously injured.

British Medical Journal, 11/22/08



“Baby Doc” Eden Explains

By Alvin N. Eden, MD

Recurrent Abdominal Pain in Children

“Dr. Eden, my 8-year-old always complains about a stomach ache. Her doctor cannot find anything wrong with her. What should I do?”

This type of question comes up frequently in my office—the problem of recurrent abdominal pain. Let me begin by stating that recurrent abdominal pain in children is a common complaint and is often troublesome and upsetting, both for the child and his parents. In most cases, it turns out not to be serious.

When should you contact your child’s doctor in such a situation? It depends. It depends on the severity of the pain and any associated signs or symptoms. For example, if, besides the abdominal pain, your child is vomiting, has diarrhea, blood in the stool or fever, he may well have an emergent medical condition and your doctor must be called.

If, along with the abdominal pain and vomiting your child’s abdomen is distended, this may be a true emergency and require a trip to the emergency room as soon as possible. Thankfully, the majority of cases of abdominal pain (not a single, sudden episode) turn out to be false alarms and are seldom an urgent problem.

Common Causes

By far the most common cause of recurrent abdominal pain in young

children is constipation. Usually, there is no problem making this diagnosis. In my experience, laxatives are not effective until the child is properly cleaned out, either by suppository or enema or sometimes only after your child’s doctor has done a rectal examination. Your child’s doctor should be consulted as to treatment and prevention. A simple change in diet—adding more fiber, raisins and prunes and eliminating rice and bananas—can be effective.

Recurrent abdominal pain can be caused by other different conditions, such as inflammatory bowel disease, ulcerative colitis, Crohn’s disease, peptic ulcer or acute pancreatitis. But besides the abdominal pain, these conditions have associated alarming features such as gastrointestinal bleeding, unexplained fever, weight loss, persistent vomiting or diarrhea. If this is the case with your child, his doctor must examine him. However, the majority of cases of recurrent abdominal pain do not fit this category.

FGIDs

Rather, they belong to a group of four disorders called “functional gastrointestinal disorders” (FGIDs), which, until recently, have been poorly understood or diagnosed. All of these FGIDs have recurrent abdominal pain in common. (Recurrent is defined as pain being present at least once per week and lasting at least two months.)

Just a few years ago, any child that presented with recurrent abdominal pain without any other associated signs or symptoms and with normal laboratory tests and x-rays was usually diagnosed with idiopathic abdominal pain, or the child was thought to be faking the pain to gain attention. Some cases were diagnosed as psychogenic.

Nowadays, we have a much better understanding of this entity—FGIDs. We are now able to differentiate and diagnose these four specific conditions and can now develop more effective treatments for each.

FGIDs have no inflammatory, metabolic or neoplastic process to explain the recurrent abdominal pain; nothing specific can be found on physical examination or laboratory and X-ray work-up. We are left with the concept of abnormal function of the gastrointestinal tract that causes the pain. The pain in FGIDs is just as real and hurts just as much as the organic abdominal pain of acute appendicitis, for example.

There are many causes for the dysfunction, including stress, psychological state and allergy, but often no cause can be found.

The four FGIDs have recurrent abdominal pain as the presenting symptom, but each has different associated signs or symptoms:

Continued on page 18, bottom.

Adolescent Acne

By Aimee Alderman-Oler, MA

Adolescence can be an awkward time. Acne can magnify this and compromise social confidence. NIH (National Institutes Health) estimates that 80% of people between the ages of 11 and 30 experience an acne outbreak at some point. So what is acne, and how can it be treated? And more importantly, when is your child's acne bad enough to see a doctor?

Popular belief notwithstanding, acne is not caused by eating too much chocolate. According to the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), hormonal changes and genetics may play a role. Greasy makeup and some types of medicine can also cause acne.

While stress does not cause acne, it can make it worse. Here's how it works: pores connect to oil glands under the skin by a canal called a follicle. These glands make an oily substance called sebum. Inside the follicles, oil carries dead skin cells to the surface of the skin. Pimples form when hair follicles under the skin clog up.

A good skin care regimen is a great start to preventing and treating acne. According to the American Association of Dermatology (AAD), these seven recommendations can help:

1. Do not pop, squeeze, or pick at acne.
2. Gently wash the face twice daily with a mild cleanser and pat dry.
3. Look for the label "noncomedogenic" on cosmetics and toiletries.
4. Avoid clothing, equipment, and products whose close contact

can aggravate acne.

5. Allow 6-8 weeks for an acne treatment product to have an effect.
6. Always use medications according to directions.
7. Avoid excess exposure to the sun or to sun lamps.

When looking for an over-the-counter product to treat acne, some active ingredients to try, according to the Mayo Clinic, include:

- benzyl peroxide
- salicylic acid
- sulfur and resorcinol
- alcohol and acetone

When choosing among these products, it may help to understand how they work. Benzyl peroxide attacks the bacteria and removes excess oil and dead skin cells. Side effects may include drying and reddening of the skin. Salicylic acid slows the shedding of skin cells and can sting. Sulfur and resorcinol are usually used together to remove dead cells and excess oils. They may cause redness and peeling. Alcohol or acetone can be used to remove oil and dirt, and they may cause a burning or stinging sensation. To minimize these side effects, start with the lowest-strength product available. If you are unsure if your child is too young for one of these products, ask your pediatrician or pharmacist.

When skin does not respond to any of these treatments, it may be time to contact your doctor or talk to a dermatologist. With your health care professional you can discuss other options that might be right for you. According to the American Association of Family Physicians (AAFP), your doctor

may discuss prescription antibiotic creams, retinoid products, or isotretinoin.

Encourage your child to continue to gently cleanse her face; rough scrubbing may further irritate breakouts. Remember that treatments might take several weeks to have an effect. Be candid with the doctor. Together with your health professional, an effective acne treatment plan can be made.

Ms. Alderman-Oler is a certified parenting educator and director of the Parents As Teachers program, where she has been employed for 12 years by the Center School District in Kansas City, MO. She also delivers home-based services and school-based presentations.

Abdominal Pain

Continued from page 17

1. Functional abdominal pain
2. Functional Dyspepsia
3. Irritable Bowel Syndrome
4. Abdominal Epilepsy

If your child suffers with a FGID, his doctor will establish the specific diagnosis based on an accurate history and physical examination. Sometimes, the help of a pediatric gastroenterologist may be needed. Treatment is based on the particular FGID diagnosed.

Dr. Eden is the chairman of the Department of Pediatrics, Wyckoff Heights Medical Center, Brooklyn, New York and a clinical professor of pediatrics, Weill Cornell Medical Center, New York, NY. His practices in Forest Hills, NY. He is the past chairman of the Section on Pediatrics, New York Academy of Medicine.

Vascular Birthmarks: What Every Parent Should Know

By Linda Rozell-Shannon, PhD

Of the recorded births each year, approximately four hundred thousand (one in 10) newborns will be diagnosed with a vascular birthmark. Experts agree that 90% of these birthmarks will disappear by the time the child is two years of age. However, the remaining 10% will have a vascular birthmark so significant that it will require the opinion of a medical specialist.

These lesions can deform facial features, block the airway, compromise vision, or ulcerate and cause pain for the affected baby, as well as stress for the entire family. Therefore it is crucial that parents understand the diagnosis and treatment options so that they can make educated decisions.

Vascular Birthmarks

First, parents and physicians need to know how to recognize vascular birthmarks, which can be flat or raised. Nearly 85% occur in the head and neck area, primarily the face. They can appear anywhere on the infant and some can even be internal. Excess blood in vessels and the depth determine if the lesion will appear blue, pink, or red. Deeper-involved vessels appear blue and more superficial vessels appear red, purple, or pink.

The diagnosis and treatment of vascular birthmarks continue to be a source of anxiety and confusion for both the families of the affected children and their healthcare providers. Currently, there is no one, single medical specialty dedicated to the diagnosis and treatment of vascular birthmarks.

In addition, this topic is barely covered in medical schools, and

there are no uniform standards of care. This makes the search for the right doctor to evaluate and treat this condition extremely challenging.

Parents wander from doctor to doctor only to find that they will have vastly different diagnoses and treatment plans. These conflicting protocols heighten parents' anxiety as they discover they will need to learn an entirely new language to try to understand what is happening to their infant. Understanding the language—the differences between the types of lesions, as well as treatment options—will enable parents to make more informed decisions.

In the past, the term "hemangioma" was used to describe all vascular lesions. However, it is important to understand that hemangiomas are vascular, but all vascular lesions are not hemangiomas. Most experts recognize two groups of vascular lesions: hemangiomas and vascular malformations. These two subtypes behave differently from each other. It is critical to understand that a hemangioma is different from a vascular malformation. They may look alike, and both are vascular, but they are quite different.

Hemangiomas

The first, and most common, is the hemangioma. These can appear at or shortly after birth. The typical "infantile hemangioma" will appear flat and will grow rapidly for the first four or five months and then will continue to grow slowly for up to one year. There are exceptions, since some will stop growing before nine months

and some will continue to grow beyond one year.

Hemangiomas grow for up to one year and then will regress over a period of 10 years. This regression is not to be confused with "disappearing" or "going away." Over 70% will leave an aesthetic deformity, similar to a person who weighs 300 pounds and loses 150 pounds and leaves sagging, redundant tissue. Many medical experts consider these lesions to have "gone away" when, in fact, the hemangioma has regressed but a deformity remains.

Hemangiomas can be singular or multiple. More than three lesions, especially three large lesions, should alert the physician to do an ultrasound to determine if there are any internal lesions. Some internal lesions require treatment and some do not. Lesions that cover a large area, especially a large area of the face, are often referred to as segmental and can indicate other problems.

Large hemangiomas need special evaluation for underlying or combination problems. An eye specialist, heart specialist, hematologist, and other pediatric specialists may need to be involved in evaluation for possible syndromes such as PHACE (a syndrome with posterior fossa (brain) abnormalities, hemangiomas, arterial abnormalities, cardiac problems, and eye abnormalities) or Kassabach Merritt. These syndromes can be dangerous and even fatal. Infants who fail to thrive or do not reach milestones should be evaluated for these syndromes if they have multiple, large, or combination lesions.

Continued on page 20

There is also a subtype of hemangiomas that is fully formed at birth. These lesions are either a NICH (non-involuting congenital hemangioma) or a RICH (rapidly involuting congenital hemangioma). Imaging studies will confirm if the lesion is a NICH or RICH.

If it is a NICH, it will have to be removed, typically by surgery, because it will never regress. On the other hand, a RICH will regress rapidly, usually by age two, and can be left alone. Imaging studies and a biopsy evaluation can determine the difference.

Most focal, singular, hemangiomas can be removed by surgery. Drug therapy such as beta blockers, steroids, or chemotherapy drugs can be used to shrink large and complicated lesions. Lasers can also be used on early lesions that are still somewhat flat.

Once the hemangioma has bulk, surgery or drug therapy is usually the only course of treatment. Most hemangiomas start out as small, flat lesions and no one knows which ones will become large or problematic.

Vascular Malformations

Malformations are completely different from infantile hemangiomas. They can appear at birth fully formed, or they can appear at any time in life and grow rapidly or slowly throughout life. Most are hormone sensitive and therefore have growth spurts around puberty, pregnancy, and menopause. Malformations never “go away” though some may “flatten” or lay dormant for years and then recur.

Malformations are defined by the vessels involved. They are lymphatic (often called cystic hygroma

or lymphangiomas), venular (venous malformations), arteriovenous (AVMs), or capillary (port wine stain). All can be singular or multiple. The most complicated of these lesions that is seen at birth is the lymphatic malformation, often still referred to as a cystic hygroma.

Cystic hygromas appear on sonogram during pregnancy. At one time, these lesions were very difficult to treat and the prognosis was not good. However, there are multidisciplinary treatment centers and experts who are having great success with combinations of drug and/or surgical treatment. These lesions need immediate intervention because they are hypervascular and can cause bone overgrowth if left alone.

Venular malformations usually appear as a bluish mass and favor the mouth area but can appear anywhere, and arteriovenous are dark bluish/purple lesions that can be flat or raised. These typically appear later in life in the skin but can appear internally, especially in the brain area, in infants.

Lastly, capillary malformations are also known as port wine stains. These lesions are flat and pink or red at birth. Many physicians tell parents to “wait and see” but this approach can cause the lesion to thicken and become problematic. Current philosophy is to treat infants with port wine stains early because the vessels are thinner and respond better to laser treatments. Port wine stains never truly “go away” though they can be lasered to a point where they are not easily seen.

Treatment

Treatment for most malformations includes some drug therapies, embolization (plugging feeder vessels so that blood no longer can

pool in the area), sclerotherapy (alcohol is injected to dry up the blood) and combinations of drugs, surgery, and even some lasers such as the NdYag. And treatment can be singular or multiple. The key is that the outcome should be the best restorative approach so that the skin that has been deformed by the lesion is restored to its originally intended state. This brings up the point of insurance coverage.

Most insurance companies deny treatment of hemangiomas and some malformations. They consider treatment to be “cosmetic,” “elective,” and “not a medical necessity.” Nothing could be farther from the truth. Cosmetic procedures enhance an existing function but reconstructive surgery restores a feature to its intended appearance. Treatment of vascular birthmarks is restorative and reconstructive, not cosmetic.

Medical associations need to adopt uniform standards for vascular malformation and hemangioma diagnosis and treatment. The Vascular Birthmarks Foundation (VBF) has proposed such guidelines referred to as “Babies with Birthmarks,” which suggest that pediatricians should refer an infant to a vascular birthmark specialist if at the four-week well-baby check up there is a problematic or a potentially problematic birthmark so that treatment can begin early.

Hemangiomas can be kept from growing if the infant is started on drug therapy or laser therapy during the first few weeks of growth and malformations that are removed early leave a small chance of recurrence. Additionally, port wine stains can be “cleared” if laser therapy starts in infancy.

Parents can find supportive information at the VBF website (www.birthmark.org) if their insurance

company denies treatment. In addition, the website contains a worldwide list of physicians who understand how to diagnose and treat these lesions. Parent resources are also available for education and support. Parents have the right to accurate information regarding the diagnosis and

treatment of their infant's vascular birthmark.

Linda Rozell-Shannon is the President and Founder of the Vascular Birthmarks Foundation, the leading not-for-profit in the world for families afflicted with vascular birthmarks, tumors or syndromes.

She has been a freelance writer and analyst for over 25 years and is the co-author of Birthmarks: A Guide to Hemangiomas and Vascular Malformations (Women's Health Publishing, 1997). Rozell-Shannon holds a PhD in Education.

How to Understand Medical Research

By Elizabeth A Pector, MD

In casual reading about health issues, you can usually rely on the skills of health writers in parenting magazines or newspapers. However, when it comes down to important choices about your child's health, there are times that you'll want to understand some of the detailed facts behind the headlines.

This article will first help you better understand how tests are interpreted if a screening test, such as for thyroid, anemia, lead, development or autism, comes out "abnormal" on your child. You can ask your doctor how "normal" is defined for the test. You can also ask about the test's accuracy—how "sensitive" is it at detecting real cases and how "specific" is it at ruling out the condition in a normal person? Your doctor probably won't have test accuracy data readily available, but he or she can give you a rough idea of whether "Abnormal" means "Panic," "We need more tests to know for sure," or "It's probably a false alarm."

Even more importantly, if your child develops a serious illness like cancer, cystic fibrosis, or diabetes, you may want to read and understand information from original research sources. This article goes on to explain some basic statistics and quality issues that doctors consider when they read research in medical journals.

Screening and Health Tests

An ideal screening test is safe, finds trouble in a person who has no symptoms, and finds trouble in time to treat and prevent suffering or death.

No test is 100% accurate. Potential downfalls of medical tests include:

- False positives (diagnosis of a disease that you don't have)
- False negatives (failure to detect a disease that you really have)
- Complications of the test (e.g. colon perforation in colonoscopy)
- Diagnosis too late to make a difference

Normal ranges for most blood tests are the central 95% of a bell-shaped curve of a set of people who took the test. An "abnormal" value may just lie outside this arbitrary range (top 2.5% or bottom 2.5%), but doesn't necessarily mean you have a disease.

Other "normal" ranges are set as desirable values for good health, such as blood sugar (under 100 is "normal") or cholesterol.

Doctors interpret a test based on the probability that the patient has a condition, plus the reliability of the test. For example, a positive Lyme antibody test is likely to be a true positive in a Boy Scout who

had a tick bite at camp in New England and now has a rash. It may be falsely positive in a long-term nursing home resident in a state with low incidence of Lyme disease.

Also keep in mind that tests to find rare conditions in young children, such as newborn hearing and blood tests, are often very sensitive, but not very specific. (They have a high false positive rate).

The detection "bar" (threshold) is purposely set very low to minimize a "missed" diagnosis. Case in point: an abnormal hearing screen or thyroid test in a newborn is more likely to be a false positive than a true positive. Abnormal followup tests, or an abnormal test in a child with known risk for a disorder, increases concern for a true positive.

Developmental screening tests are usually standardized to identify children who are reaching milestones more slowly than normal and may need closer followup or expert evaluation. An abnormal screen doesn't necessarily mean anything is wrong, but a referral to early intervention, a therapist or specialist may be indicated if your child has abnormal results, especially if they are at higher risk of a problem due to perinatal complications or family history of

Continued on page 22

a suspected disorder.

Evaluating Research Reports

All people are NOT equal biologically. The most meaningful research studies have participants similar to the patient in age, sex, race, and disease severity.

“Statistically significant results” in a medical study just means the findings likely didn’t happen by chance. The practical significance—whether the results are worth acting on—is quite different. A statistically significant herbal treatment for influenza might reduce symptom duration by only half a day.

Remember the difference between “absolute risk” vs. “relative risk.” Change in absolute risk of a problem is the most helpful criteria for making decisions. You need to know your baseline risk to judge the importance of a relative change in risk.

For example, a drug might lower relative risk of cancer by 50%. It may not be worth lowering two-in-a-million risk to one in a million, but the drug might save your life if it reduced your risk from 20% to 10%. Another example: A vaccine increases risk of fever from 1% to 2%. You still have a 98% chance of not getting a fever. The absolute risk of fever rises 1%, but the relative risk goes up 100%!

Quality ranking of doctors or hospitals needs to be taken with a grain of salt. Great doctors at university hospitals may see the sickest patients. Rates of complication for their patients may be worse than the chance of problems in patients at your community hospital. Health plan ratings of a doctor’s care that are based on billing records or

patient feedback don’t include all the information from the medical record. Moreover, some authorities are concerned that “quality” in a health plan’s eyes may mean “This doctor doesn’t spend much money on patient care, so she’s good for business.”

Doctors and patients need to make decisions together by balancing the “pros” against the “cons” of a given treatment. No treatment is 100% effective with no side effects... but if you believe the benefit is worth the risk, then the side effects may seem more tolerable.

Statistics 101

An example illustrates statistics that are often discussed in medical studies.

Statistical significance The chance that the study’s results are just coincidence. If a study has $P < 0.05$, for example, this means there’s less than 5% chance that the study’s results are coincidence, and more than 95% chance that results are truly related to the experimental intervention.

Absolute risk reduction or rise (ARR) The actual rate of improvement or worsening caused by an experimental intervention. Formula: Percent of patients who respond to control minus percent of patients who respond to experiment.

Number needed to treat (NNT) or harm (NNH) The number of patients that must be treated for one patient to benefit or suffer. Formula: 1 divided by ARR (written as a decimal).

Relative risk reduction (RRR) The percent change between the treated group and the control group. Formula: Absolute risk reduction (ARR) divided by control response rate, as a percent.

A hypothetical study Does an apple a day keep the doctor away?

Dr. John Appleseed randomly divides 2000, disease-free school children from Your Town, USA into two groups. One thousand eat a Red Delicious apple daily while the 1000, control participants avoid apples. Over three months, two apple eaters and ten apple-free controls see a doctor. However, ten apple eaters and five controls develop mild diarrhea, which they manage at home.

Statistics:

$P = 0.01$ for apple eaters making fewer trips to the doctor. There is only a 1% chance that this is coincidence.

$P < 0.10$ that eating apples is associated with diarrhea. There is a 10% chance that this is coincidence. This is not “statistically significant” (not less than 5% chance of coincidence), but there is some reason to suspect apples as a culprit for diarrhea, and a larger study might show this better.

Absolute risk reduction (ARR) for doctor visits in apple eaters: $10/1000$ (controls who saw a doctor/all controls) minus $2/1000$ (apple eaters who saw a doctor/total number apple eaters) = $8/1000$, which is the same as 0.008 or 0.8%. There was less than 1% drop in risk of seeing a doctor.

NNT (Number needed to treat) is $1/ARR = 1/0.008 = 125$, meaning 125 people have to eat apples for one person to avoid a doctor visit.

ARR (absolute risk rise) for diarrhea in apple eaters: $10/1000$ (apple-eaters who had diarrhea) minus $5/1000$ (controls who had diarrhea) = $5/1000 = 0.005 = 0.5\%$. Thus, compared to con-

trols, five more apple eaters per thousand children developed diarrhea.

Number needed to harm (NNH) is $1/0.005 = 200$: 200 people have to eat apples for one to get apple-related diarrhea.

Conclusion: A small benefit outweighs the smaller risk.

Note that the relative risk of seeing a doctor is reduced by 90%. $RRR = ARR/control\ event\ rate = (0.009/0.01) = 0.9 = 90\%$. Relative risk reduction is often quoted by reporters since it makes small results seem more dramatic.

Also note that there are limits to the conclusions you can draw from this hypothetical study. It wouldn't apply to a child with severe asthma who takes three inhalers and sees her doctor every month, and may not apply to children who live in other towns or who eat Jonathan or Gala apples.

The study also could be biased if the apple eaters tended to get more fresh air and exercise and were less likely to be overweight than the control group. And in the real world, you'd end up with some kids skipping their daily apple in the apple-eater group, and some in the apple-avoider group sneaking their favorite fruit.

Questions to ask about health research:

1. Why was the study done? What did researchers already know?
2. Who were the subjects, researchers, and sponsors? (Are subjects similar to you? Do researchers have credible credentials? Who funded the study? Could conflicts of interest cause biased reporting?)
3. How was the study done? (See Levels of Evidence to judge study's quality.)

4. How many people were in the study? There's strength in numbers.
5. Where were they studied? Primary care offices, or university clinics? Patients at teaching hospitals often have more severe cases than local hospitals.
6. What was studied? POEMs (Patient-Oriented Evidence that Matters) focus on health outcomes: rates of chicken pox disease in children who received the chicken pox vaccine, or neurologic condition of children after treatment for lead poisoning. Other research looks at test results: antibody levels against chicken pox, or percent reduction in lead levels. Test results can be important, but they are weaker evidence than changes in health status.
7. When was the study done? And for how long? Was the study long enough to find a difference? Cholesterol levels can change in three months, but you may need three years to detect a change in heart attack rate.

Levels of Evidence (Best to Worst)

1. "Meta-analysis" or "systematic review" of many similar research studies: These reviews combine information from smaller studies to create a pool of hundreds or thousands of patients' data. Conclusions from a multi-study review are usually much stronger than conclusions from one small study.
2. A single randomized controlled trial: (RCT) Researchers randomly divide patients into two similar groups. The experimental group receives a new treatment. The control (comparison) group receives traditional care, or an inactive

treatment that mimics the experiment. Both groups are followed over time. The larger the difference, the stronger the evidence.

3. A cohort study: A large group of people are followed for years to see how often a condition develops, and to discover the factors that affect the condition's behavior. Examples of cohorts: all children in Ohio with a birth weight under 1,500 grams; all children hospitalized with asthma in three cities in 2001.
4. Case-control studies: These retrospective (look-back) studies compare cases (people with disease) to controls (people without disease), seeking differences between the groups.
5. Cross-sectional studies (surveys): look at a population at one point in time.
6. Small case studies: describe several patients with a disease.
7. Expert opinion: This is only as good as the evidence it is based on. Often, expert advice is from a "BOGSAT"—"a Bunch Of Guys/Gals Sitting Around Talking."
8. Single cases or testimonials: Don't trust the claim "It worked for me, it'll work for you, too!"

On the Web—Good Sites for Good Health

I often refer parents to Medlineplus.gov, familydoctor.org, mayoclinic.com, intelihealth.com, kidshealth.org, kidsgrowth.org, specialty societies and non-profit organization websites. For specific needs, check the sites in the grey box, or ask your doctor or a librarian to help you find understandable, reliable information about your condition.

Continued on page 24

Research—Continued from page 23

Finding quality information online

www.nlm.nih.gov/medlineplus/healthywebsurfing.html

General

Medlineplus.gov

Medical specialty societies

www.ama-assn.org/ama/pub/category/7634.html

National Organization of Rare Disorders

www.rarediseases.org

Genetic disorders

www.genome.gov/19016930

Labs, radiology tests, drug information

Lab tests www.labtestsonline.org

Radiology (x-ray) tests

www.radiologyinfo.org/

Drug info & interactions

www.drugdigest.org

Research

National Library of Medicine Public Portal

www.nlm.nih.gov/portals/public.html

www.cochrane.org

www.medem.com

Complementary and alternative medicine

National Center for Complementary and Alternative Medicine

nccam.nih.gov

Intelihealth.com

Experimental clinical trials

www.clinicaltrials.gov

Pregnancy and reproductive

American College of OB/GYN

www.acog.org/publications/patient_education/patientPage.cfm

www.Obgyn.net

www.Otispregnancy.org

www.Perinatology.com

Pediatric, prematurity

American Academy of Pediatrics

www.aap.org

www.MarchofDimes.com

www.neonatology.org/

www.Preemie-I.org

www.Prematurity.org

Mental health:

American Psychiatric Association

www.psych.org

American Psychological Association

www.apa.org

www.Psychcentral.com

Dr. Pector is a family physician, freelance medical writer and founder of Spectrum Family Medicine in Naperville, IL. She is married and the mother of two living sons. Following the premature birth of her second son, a surviving twin, she became involved in advocacy and support for parents coping with prematurity, bereavement, or multiple births. She is on the Board of Directors for National Perinatal Association and serves on the medical advisory board of Mothers of SuperTwins.

Liquid Medication Dental Dangers

By Lee Weinstein, DDS

Children with seizures, congenital heart disease or recurrent infections may be given large quantities of liquid medicines that are usually sweetened with 30% to 50% sugar. Physicians may have no choice but to prescribe such medicines to very small children. Sugar-free versions of medicines such as penicillin, digoxin, and phenobarbital are not available. Furthermore, these children may be unable to swallow pills.

A Canadian study found that children having medical problems during the early years were more likely to have severe decay of the primary teeth.

Researchers found that parents often give the liquid medicine to their children just before nap time. Teeth were not brushed frequently

because the children were often sickly or cranky, or the parents were too busy dealing with the management of the children's medical problems. Dentists and physicians should make parents aware of this problem.

Here are a few suggestions:

- If your child has a medical problem that requires periodic use of liquid medications, then consult a pediatric dentist immediately so a preventive program can be initiated. This should begin as soon as the first tooth erupts.
- If your child is on a liquid medication now, check the upper incisor teeth for any discoloration. If you see any then your child needs an urgent evaluation by a pediatric dentist.

- Try to arrange drug doses for a time when the child is awake. Try to eliminate the practice of squeezing liquid medication into the mouth of a sleeping child. The sugar-laden medicine will not be diluted since normal saliva flow is decreased during sleep.
- Write the pharmaceutical companies that supply your child's medications and ask them to supply you with a sugar-free version.

Dr. Lee Weinstein, a pediatric dentist, runs Dental Associates for Kids Only, Scottsdale, AZ. He served seven years as Director of Pediatric Dentistry at Nassau County Hospital and 15 years as attending dentist at the Schneider Children's Hospital (Long Island Jewish Medical Center).

Whole Grains: Beyond Brown Bread

By Carol Ann Brannon, MS, RD, LD

My children often try to convince me to buy white bread, but I just cannot do it. Why? Two simple reasons, no really three reasons.

First, I am a "dietitian mom" and my conscience prevents me from buying white bread. My youngest daughter, with much drama, recently told me that it was unfair that she had a "dietitian mom" because she was the only kid at her lunch table with brown bread!"

The second reason I refuse to buy refined, white bread, is that whole grains simply taste better. If you still equate whole grains with fiber or what your grandmother called "roughage," then read on as there is more to whole grains than just fiber. If you believe that whole grains cannot possibly taste good, then you have not visited a Great Harvest Bread store. The aroma alone will cause you to rethink the notion that whole grains are unpalatable. And one bite of a sample will convince you to abandon your refined, white bread!

The third reason to choose whole-grain foods is for their amazing health benefits. It's difficult to eat healthy in a fast-food world, but choosing whole grains in place of refined grains is easy.

There is overwhelming evidence that a diet rich in whole grains reduces the risk of obesity, heart disease, certain cancers, and diabetes, which are no longer the chronic diseases of adulthood! Unfortunately, children today are being screened and diagnosed with these diseases at an alarming rate. The 2005 My Pyramid advocated eating at least three serv-

ings of whole grains daily (www.mypyramid.gov). Yet, despite the delicious, wholesome, and nutty taste and health benefits of whole grains, 80% of Americans eat less than one serving per day. Even more disconcerting is the fact that many parents and children are confused about what constitutes a whole grain.

Whole Grains Defined

Whole grains, often referred to as cereals, are the seeds or kernels of different grasses. A whole grain kernel consists of three layers: the germ, endosperm, and bran. The germ, or embryo, is the smallest innermost part that is rich in vitamins E and K, essential oils, and other minerals and protein.

The endosperm, which is the largest part, is the center or starchy part. The outer layer is the bran, which consists of fiber, some protein, B-complex vitamins, minerals, and phytochemicals. The health benefits of whole grains are due to their nutritional profile and phytochemical content. Phytochemicals are substances in plant foods that "go beyond nutrition" and promote wellness and prevent diseases, including heart disease and cancer.

The typical American diet consists mostly of the major grains, which are wheat, corn and rice. Unfortunately, we consume more refined grains than whole grains. The minor, or ancient, grains, which include amaranth, barley, buckwheat, faro, kamut, millet, quinoa, sorghum, spelt and triticale, are making a comeback and can be found in most supermarkets. Boxed mixes, complete with

cooking instructions and seasoning packets, are available and an easy way to introduce your family to more unique whole grains.

Refined grains have had the bran and germ removed, resulting in a loss of nutrients, phytochemicals, and fiber. However, after processing, refined grains are enriched with B vitamins (thiamin, riboflavin, niacin, folic acid, and iron), but the fiber is not added back.

Whole-grain, whole-wheat, stone-ground, cracked, crushed, bulgur, and graham flour are terms that can be used interchangeably to describe whole grains. Wheat or white flour has had the bran and germ removed. Bleached or white flour has undergone a chemical process that speeds up the natural lightening and maturing of flour. Unbleached flour is naturally bleached by the oxygen in the air and is golden in color and usually more expensive, but is preferred for yeast bread because bleaching weakens gluten, a protein found in wheat, oats, rye, and barley that is responsible for providing structure in breads.

Gluten-Free Grains

There are an increasing number of children and adults that are gluten intolerant and must avoid gluten-containing grains and foods. However, there are many gluten-free whole grains, including:

- Amaranth
- Buckwheat
- Corn
- Millet
- Quinoa
- Rice
- Sorghum
- Wild Rice

Continued on page 26

Making the Switch to Whole Grains

Encourage and teach your children to be whole-grain detectives. Let them search for the word “whole” in the list of ingredients on food labels. Get them to search out a cereal that has at least three to five grams of fiber per serving. I generally recommend that parents begin with bread. Make the change to whole-grain bread. Next transition to whole-grain breakfast cereals, waffles, and pancakes. The next step is to switch from refined rice and pastas to brown rice and whole-grain pasta. After making these changes, you should be feeling adventurous, so try a new grain, like quinoa.

Helpful Tips

1. Read food labels and look for “whole grain” and “whole wheat” in the list of ingredients. Do not be misled; the color brown alone does not ensure a food is primarily whole grain. See the chart below.
2. Be adventurous and try a recipe that includes the “new” ancient whole grains such as bulgur, kasha, barley, buckwheat, whole wheat couscous.
3. Choose whole grain cereals that have at least five grams of fiber per serving and breads that have at least two grams of fiber per slice.
4. Shop at a farmer’s market or non-traditional grocery store for more variety and choices.
5. Plan vegetarian entrees that incorporate whole grains at least two or three times a week.
6. Substitute whole-wheat flour for a portion of the white flour in recipes.
7. Add oatmeal, unprocessed bran, wheat germ, ground flaxseed, and/or whole grain cereals to cookies, pancakes, quick breads, even meatballs or meatloaf.

Improving the health of you and your family could be as easy as eating three servings of whole grains daily. For more information and delicious whole grain recipes and menu ideas visit www.wholegrainscouncil.org.

Carol Ann Brannon, MS, RD/LD is a registered dietitian and nutrition expert with over 20 years experience in healthcare, education, individual counseling, and corporate wellness. She has private nutrition therapy practice in the metro Atlanta area.

In addition to her private practice, Carol is an instructor in the Culinary Arts Program at the Art Institute of Atlanta and author of numerous home-study courses (www.nutritiondimension.com) for health care professionals, a frequent contributor to Today’s Dietitian (www.todaysdietitian.com), as well as other magazines and newspapers. Webpage: www.kidscreektherapy.com/brannon/index.html; email: atcabnutrition@bellsouth.net.

Guide for Selecting Whole Grains and Grain-Like Foods

Grain or Grain-Like Food	Whole-Grain Version	Refined or Processed Version
Wheat	Crushed, Cracked, Graham, or Whole Grain or Whole Wheat	White Flour, Wheat Flour, Bleached
Rice	Brown, Wild Rice	White
Oats	Whole oats, oat bran, oatmeal	Instant oatmeal
Barley	Whole, Hulled barley,	
Scotch barley	Pearled barley	
Pasta	Whole-wheat pasta	Semolina flour-based
Couscous	Whole-wheat	Semolina flour-based
Corn	Whole cornmeal	Refined cornmeal

In July 2005, the economist Steven Levitt and writer Stephen Dubner—co-authors of the best-seller *Freakonomics*—published an article in *The New York Times Magazine* that ruffled some parental and pediatric feathers when they stated that crash test data indicates that the death rate for children over age two is not much greater for children who were restrained (in a properly or improperly installed car seat or by the vehicle seat belt) than for those who were not restrained at all.

Shortly after the article was published, Levitt and Dubner received scathing criticism from two Children's Hospital of Philadelphia (CHOP) pediatricians who said their data was misleading because it was based on only one set of data. That data, which was culled from FARS, the Fatality Analysis Reporting System, is an online database of fatal crash test statistics, sponsored by the National Highway Transportation Safety Administration (NHTSA).

The CHOP pediatricians wrote that they are involved in the "world's largest study of children in crashes" (the Partners for Passenger Safety, a joint collaboration between CHOP, University of Pennsylvania and State Farm Insurance that collects crash information from State Farm policy holders who consent to have their claim information used for the study), which has shown that child safety seats are, in fact, lifesavers, and that Levitt and Dubner's misinformation might compel parents not to use car seats for their children.

If economists tell us that our children are just as safe in a properly used vehicle seat belt as in a \$200 car seat, but pediatricians and others tell us that car seats save lives,

whom are we to believe? And what should parents do?

What the Data Says

Economists are not pediatricians; they are statisticians that make cost-benefit analyses. They evaluate data and tell policy makers and sometimes the public what the data says to help determine if the benefit of something is worth the cost. They do not—at least they should not—have any one interest group at heart. They are merely messengers. The 2005 FARS data, for example, tells us that 72% of children age five through nine who were wearing some type of restraint survived a fatal crash compared to 22% of same-age children who wore no restraint.

And when Levitt's number crunching revealed that data, taken from actual crash sites, indicates that children between the ages five and nine who used child safety seats or vehicle safety restraints die at almost the same rate as those who didn't (49% to 43%, respectively), he is not telling us this to piss off car seat manufacturers or pediatricians. He is telling us this because it is a cost-benefit analysis. So, the data tells us that being restrained saves lives, not necessarily being restrained by a car seat or booster.

In fact, FARS actually categorizes all types of car restraints (car seats and seat belts alike, and whether or not they were used properly or improperly) as "restraint used" because there is no statistical significance among the types of restraints used in fatal crashes. The difference is in using a restraint or not using one at all. Since federal law has mandated that children under age eight and eighty pounds be in a child restraint device (infant car

seat, convertible seat or booster seat), the number of children being restrained has risen, which helps explain the NHTSA data that shows that car seats seem to be saving lives.

How to Attain Proper Restraint

If the key to protecting children in the car is their being safely and properly restrained, how do we ensure that it happens? The car seat debate isn't over infants under 20 pounds being restrained. Economists and pediatricians agree that they must be in a rear-facing infant car seat that is securely installed and at a 45° angle in the backseat (preferably the middle of the backseat).

There is a small movement that advocates keeping children rear-facing as long as possible, until a child outgrows the height or length restrictions of the seat, which can be until the child is three or four.

And, the debate isn't really even over children between 20 and 40 pounds, since they are still small enough to reasonably warrant their riding in a car seat and aren't as fidgety as older children.

The head scratcher is what to do with children between 40 and 80 pounds who are mandated by federal law to ride in a booster seat until they are age eight and eighty pounds but who seem too old to ride in such seats.

Booster Seat Versus 5-Point Harness Seat

In theory, a booster seat is a reasonable solution to the child restraint issue. A child sits on the booster (usually a backless booster) and uses the vehicle's

Continued on page 28

seat belt to keep him restrained. And, a booster usually doesn't cost more than \$30 (compared to a 5-point harness car seat that can cost \$100-\$400).

In practice, however, a booster seat is not used the way it is intended. As Levitt mentions in his article, and as parents can attest, four, five, and six year olds rarely sit in their booster seats properly. Too often they move the shoulder belt to behind their torso because it's uncomfortable, they lean all the way forward and down to pick up toys off the car floor, or they twist to the side to pinch their younger sibling who has harassed them.

In all of those situations, the vehicle's seat belt is no longer in the proper position to safely restrain a child should the vehicle be in an accident. So even if a child sits in a booster, as mandated by law, if the lap or shoulder belt isn't where it should be, then the child might as well not be sitting in a booster or wearing a seat belt at all.

Five-point harness car seats are a solution to the fidgety child syndrome. A child secured in such a car seat can't squirm out of the shoulder belt, and since a child cannot move forward while wearing such a harness, there is minimal impact in an accident.

So why aren't children 40-80 pounds required to ride in 5-point harness restraints or boosters? Two reasons: stigma and cost. Many parents believe their elementary school-aged kid would refuse to ride in what is considered a baby seat. One of the milestones of riding in a car is graduating from an infant, 5-point harness car seat to a youth or booster seat to no extra seat at all. But, if federal law required car seat manufacturers to produce only 5-point harness

child restraints, and children were raised knowing that they would sit in such a seat until they were 80 pounds, then there wouldn't be a stigma. (Not long ago, there was public outcry against seat belt laws).

The second reason is that 5-point harness car seats cost more than booster seats. As it is, parents lament the cost of infant seats. Once their child is no longer required to be in an infant car seat, many parents purchase cheaper child seats. High-end car seats, which usually offer more impact protection, more padding and stronger materials than booster seats, can cost \$250 or more. Many parents simply can't afford that, or they think it's not worth paying that amount of money for something their toddler will use for only a few years. By requiring only a booster seat for children 40-80 pounds, the government kills two birds with one stone. They purport to help save lives by mandating child restraint until a child is large enough to properly fit a lap-and-shoulder seat belt while making that requirement affordable for most parents.

What's a Parent to Do?

Levitt's report doesn't support the requirement that all car restraint systems be 5-point harnesses. In fact, his report suggests the opposite: that under ideal seat belt use, children over age two don't need car seats at all, just proper restraint. But, his study readily acknowledges that in the real world, children are not properly restrained, even when using car seats and booster seats. Parents may agree that installing a car seat can be an arduous and confusing task, and as a result, approximately 85% of car seats are improperly installed.

The LATCH system sought to fix that problem by requiring all pas-

senger vehicles made after 2002 to have lower anchors and tethers. Levitt suggests, only half-jokingly, that parents buy a DVD player for the car to help keep children restrained in their seats. Other solutions include built-in 5-point harness seats (some vehicles do offer this feature as an option) and adjustable lap-and-shoulder belts that accommodate a growing child.

Given the current laws and the data, what should a parent do? If parents are unconvinced that no seat belt is as safe as a child safety seat (or their state requires the use of a child safety seat), then use a 5-point harness safety seat for children up to 80 pounds. Several car seat manufacturers make seats that can be used for children 5-80 pounds, theoretically allowing parents to buy only one child restraint seat for the life of their child. That seat can be installed using a car's lower anchors and tether until the child weighs approximately 48 pounds, then using the tether and vehicle seat belt until the child outgrows the seat. For parents who cannot afford these seats for their 40-80 pound child, or who think their child will refuse to ride in such a seat, whatever car seat or booster they choose, they must ensure their child remains safely restrained, even if that means buying or borrowing a DVD player.

Now, if only there were 5-point harness seats for adults...

Visit http://www.statehighwaysafety.org/html/stateinfo/laws/childsafety_laws.html for your state's safety restraint laws.

Visit <http://cpsafety.com/> to read more on the importance of child restraint systems and to view photos of older children using 5-point harness car seats.

Managing Type 2 Diabetes in Youth

By Kevin Peterson, MD, MPH and Ellen L. Dodds, RD

More than 13,000 kids and teens in the United States will be diagnosed with diabetes this year. Many of these youths will be diagnosed with a type of diabetes that was once considered an adult disease. Type 2 diabetes, which used to be commonly referred to as “adult-onset diabetes,” has increased in youths by 33% over the past 15 years, mirroring the increasing rates of overweight in this population.

The hallmark of diabetes is a high level of blood glucose, or “blood sugar.” This may be caused by defects in insulin production, insulin action, or both. Left unmanaged, diabetes can cause serious health complications; however, the risk of complications can be greatly reduced if action is taken to manage the disease. In addition, diabetes may be prevented or delayed if at-risk youth are identified and assisted with making healthy lifestyle changes.

An update on the management of type 2 diabetes in youth was published in the September 1, 2007, issue of the *American Family Physician* journal. This update by the National Diabetes Education Program incorporates recommendations from key health organizations, including the American Diabetes Association. The following information summarizes some of the update’s key points for parents and other caregivers of youth.

Kids at Risk

A number of factors, including weight, ethnicity, and family history, can influence a young person’s risk of developing diabetes. The American Diabetes Association has created guidelines to identify youths who have diabetes or are

at risk of developing it. The ADA guidelines identify weight as one key risk factor to assess; overweight youth are at higher risk for diabetes. Healthcare providers can use growth charts or a measure called the body mass index to assess weight and determine if a child is overweight or at risk of becoming overweight.

If a youth is overweight or at risk of becoming overweight and has more than one other risk factor for diabetes, simple blood tests can be used to screen for diabetes. Parents should talk to their child’s healthcare provider about diabetes if their child is overweight and has more than one of these other diabetes risk factors:

- Family history: Type 2 diabetes in a close relative, or gestational diabetes in the child’s mother
- Ethnicity: American Indian, black, Hispanic/Latino, Asian American, Pacific Islander
- Conditions associated with insulin resistance: High blood pressure, abnormal cholesterol levels, and/or polycystic ovary syndrome.

Diabetes Management Essentials

When a child or adolescent is diagnosed with type 2 diabetes, an individualized treatment plan should be developed. Treatment will differ from that of adults due to unique considerations and situations of youth such as physical growth, hormonal changes with advancing sexual maturity, and ability to self manage diabetes care tasks (e.g., blood sugar checks and medication management). Whenever possible, a team approach should be used to address medical, educa-

tional, nutritional, and behavioral issues. In addition to the patient, family, and physician, other team members might include a diabetes educator, a dietitian, and a social worker or psychologist. Essential discussion topics include healthy eating, daily physical activity, insulin and medication administration, and self-monitoring of blood sugar levels.

Blood Glucose Control

Although diet and exercise are essential components of diabetes management, most youths with diabetes also need oral medications and/or insulin to control blood sugar levels. The diabetes management team can work to find the treatment regimen that is best for each patient. Although some patients and families may be reluctant to start insulin, in many cases insulin use can provide great flexibility; insulin pumps and/or differing types of insulin can be used, and patients can be taught to adjust insulin based on food intake and exercise.

Youths with diabetes should regularly monitor their blood sugar levels. Good blood sugar control may help prevent complications such as damage to blood vessels. The ADA recommends that blood sugar levels be maintained as close to the normal range as possible. A child’s healthcare team can provide the patient and family with specific blood sugar goals for before meals and before bedtime.

Body Weight Management

Body weight management deserves special attention. Weight loss may improve blood sugars in overweight youths with or at risk for diabetes. The increase in

Continued on page 30

overweight in youths has been associated with increased consumption of high-sugar beverages, long hours of TV watching, and reduced physical activity. Children who are overweight or at risk of becoming overweight should be encouraged to be more physically active and to eat a healthy diet to reduce weight gain.

Social Issues

Having diabetes can make kids, especially adolescents, feel different from their peers. Some kids may develop depression or an eating disorder as they struggle to cope. A social worker or psychologist can be an important part of the diabetes management team, helping patients and their families adjust to lifestyle changes. They can also provide resources for health education, financial, social, and mental health services, transportation and home visits.

Substance Use

Parents and caregivers should talk to kids about avoiding tobacco, alcohol, and drugs. Both diabetes and smoking increase the risk of heart disease, so youths who smoke and have diabetes are at greatly increased risk of heart disease and circulatory problems. Alcohol consumption can cause high blood sugars or dangerously low blood sugars. In addition, intoxication with alcohol or other drugs can delay appropriate diagnosis and treatment of abnormal blood sugars because intoxication symptoms often look similar to symptoms of low blood sugars.

Diabetes Self-Management

Youths should self-manage their diabetes as much as appropriate for their age and maturity level. By six or seven years of age, most children can recognize symptoms of low blood sugar, perform blood

sugar measurements, administer insulin injections, and participate in food and nutrition decisions. However, children should be supervised until they can accurately perform management tasks independently.

For More Information

American Association of
Diabetes Educators
<http://www.aadenet.org>
800-338-3633

American Diabetes Association
<http://www.diabetes.org>
800-342-2383

American Dietetic Association
Website: <http://www.eatright.org>
Telephone: 800-877-1600

American Heart Association
<http://www.americanheart.org>
800-242-8721

CDC Division of Diabetes
Translation
<http://www.cdc.gov/diabetes/>
800-232-4636

Juvenile Diabetes Research
Foundation International
<http://www.jdrf.org>
800-533-2873

National Diabetes Education
Program
<http://www.ndep.nih.gov/diabetes/youth/youth.htm>
800-483-5383

Adolescents usually have the motor and cognitive skills to perform diabetes management tasks; however, peer acceptance is important in adolescence, and risk taking and rebellion are common. For these reasons, diabetes management should still be supervised, and gradual independence should be allowed based on blood sugar control and adherence to the manage-

ment regimen. Once adolescents start driving, it is critical to stress the importance of checking blood sugars before getting behind the wheel to avoid low blood sugars while driving.

Special planning and accommodations may be necessary to manage diabetes at school and during extracurricular activities. A written outline of the student's diabetes management plan can be helpful for the student and the school staff. A guide for effective diabetes management at school is available at <http://www.ndep.nih.gov/diabetes/youth/youth.htm>.

Ongoing Research

More research is needed to improve prevention and treatment of type 2 diabetes in youth. Several important studies of youths with diabetes are currently being conducted. The HEALTHY study is working to determine effective ways to lower diabetes risk factors in middle school students; the SEARCH for Diabetes in Youth project will help clarify trends in childhood diabetes and the TODAY study hopes to identify the best treatment for children and adolescents with type 2 diabetes

Dr. Peterson is a associate professor in the Department of Family Medicine and Community Health at the University of Minnesota Medical School and recent chair of the Health Care Providers Group of the National Diabetes Educational Program (NIH, CDC). After 10 years in clinical practice, Dr. Peterson now primarily focuses on diabetes and primary care practice-based research.

Ellen Dodds is a registered dietitian. She received her MS in Scientific and Technical Communication from the University of Minnesota. She works for the University of Minnesota Medical School in the Department of Family Medicine.

Kids Learn More When Mom Listens

By Bethany Rittle-Johnson, PhD

"Mom, I need help with my homework." As parents, we often want to help our children learn. Our first instinct might be to tell our child the answer or exactly what to do. However, "teaching by telling" is not always the best way to go.

For example, seven-year-old Daniel Stephens of Nashville, TN was stumped by the homework question, "What two numbers add up to 51, where one of the numbers is five more than the other?" and asked his mom Heather for help.

Heather's first impulse was to tell him how to solve it. But, instead, she asked Daniel how he thought he should approach the question. With a few attempts, he talked his way to the answer: 23 and 28.

Years of research indicate that children and adults benefit from generating their own explanations. When studying, more effective learners try to explain the material to themselves, linking ideas together and trying to make sense of the material as a whole. People vary in how much they generate explanations spontaneously, but simply prompting children to generate explanations while they study leads to better learning.

In our own research, we have also found that children learn the solution to a problem best when they explain it to their mom. We just had the children's mothers listen, without providing any assistance. We found that by simply listening, a mother helps her child learn.

In our study, four- and five-year-old children were shown a series of plastic bugs, and then had to say which bug should come next based on color and type of bug,

a problem that is challenging for young children. The children were told to explain the solution to their moms, to themselves or to simply repeat the answer out loud.

We found that explaining the answer to themselves and to their moms improved the children's ability to solve similar problems later, and that explaining the answer to their moms helped them solve more difficult problems. Having mom there gets children to think more and talk more about the task at hand. In general, when we're asked to articulate ideas to other people, we learn better.

Unfortunately, children are not asked to explain their thinking very often, at least in school. Children spend much of their day at school listening to the teacher or completing worksheets on their own. They are rarely asked to explain their thinking, either to the teacher or to a peer.

It can also be challenging for parents to resist telling their children the answer. "On a problem when it seems so obvious, and you're getting a little impatient, it can be hard to say nothing," Daniel's mother noted. "From experiencing the success of it, it lets me be more patient because I know he's going to be able to figure it out. It's fun to be able to celebrate with them when they see they did it."

This is not to say that adults should leave children on their own to figure things out. In most research studies on the importance of explanation, people are told the correct answer and are asked to explain why it is correct or how it fits together with other material. Numerous studies also

indicate that people learn best when they are given guidance—hints and suggestions to guide them towards a good explanation or solution. People learn less well at either extreme—when they are provided no guidance and must figure it out on their own or when they are told how to do it. People learn best when they integrate new knowledge with their existing knowledge, and prompting people to explain helps accomplish this.

Overall, an important message for parents is that you don't have to know the answers to help your children. If you just say, "How do you think you could solve it?" or "Why do you think it works?" and the listen attentively, then you may help your child figure it out on her own.

Bethany Rittle-Johnson is an assistant professor of psychology at Vanderbilt University, Nashville, TN. She studies how children learn and how to facilitate their learning, especially in mathematics.

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Dr. Alvin Eden
Dr. John Monaco
Andi Silverman

From the Editor...

If you are just about to start reading this issue, I hope you will like the new layout and larger size. And if you are just finishing the issue, I hope you found the new look and size resulted in a more enjoyable experience.

I heard from a number of readers who like the changes—more articles, clearer type, and easier to read headlines. But many readers also bemoaned the frequency change—every other month rather than monthly.

Even though it may seem as if you are getting less information in this new format, the number of articles you will receive over the year will be the same as when the newsletter was published monthly.

The publication change was made to save money. Doubling the size didn't double the cost. Since *Pediatrics for Parents* is not a money maker I was forced to look for way to cut expenses. Printing and postage are the two biggest expenses, so that's where the cuts took place.

My long-term goal is to return to a monthly publication schedule while keeping the size of each issue the same. The key to achieving this goal is to increase the circulation. And I need your help to do this.

If your subscription is about to expire (there's an "*" after your name if this is your last issue) please renew. If you need a gift, think of giving a subscription to *Pediatrics for Parents*. Share your issue with

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