Before the Zika virus: A look back at Rubella and microcephaly

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The Zika virus in the news these days reminds us of another microcephaly-causing virus which scourged our world in the not-so-distant past. In the years right before the Two Peds doctors were born (late 1960s), the virus Rubella routinely swept through the United States and the rest of the world. The

airborne germ Rubella, just like the mosquito-spread Zika virus, caused most people just a mild illness that they usually never even knew that they had. After they were sick, they became immune to the virus. But when pregnant women contracted Rubella early in pregnancy, their unborn children sometimes ended up with microcephaly.

Microcephaly is a condition where a small, underdeveloped, or abnormal brain leads to a small head at birth. Many children with microcephaly have significant mental disabilities.

So what happened to Rubella? It's the R in the MMR vaccine. We give this vaccine to all children, first at 12-15 months, and again at 4-6 years of age. We vaccinate girls to protect their unborn fetuses when they are pregnant, and we also vaccinate boys. Although boys will not become pregnant, they can contract the disease and spread it to others who are pregnant. It is standard practice for obstetricians to test all of their pregnant patients for immunity to Rubella. If a woman is not immune, she is given the MMR vaccine after delivery to prevent coming down with Rubella during future pregnancies.

Because of the success of this safe vaccine, it is extremely rare to have child born with Congenital Rubella Syndrome and its accompanying problems. The syndrome not only included the mental impairments associated with microcephaly but also was associated with blood disorders, heart defects, deafness, visual impairment, developmental delay, and seizures. In the United States where the vaccine rates are high enough, no cases have been reported since 2004. In the rest of the world, cases still occur in countries with limited access to vaccines against Rubella. Approximately 100,000 cases of Rubella worldwide per year still occur according to the Centers for Disease Control.

Scientists are working on a vaccine against the Zika virus because, as is often the case, preventing a disease is often easier, less costly, and more successful than attempting to

cure it. For a basic explanation of how vaccines work, please see our prior post on this topic. Trials for a vaccine for Zika may begin as early as summer 2017.

But if we look at history, Rubella was once a dreaded virus too. Now, with the widespread use of a vaccine, although still dreaded, the rates of Rubella have dropped dramatically. Zika hopefully will not be far behind.

Naline Lai, MD and Julie Kardos, MD

Cry baby: why is my baby crying?

Why do babies cry? In short, newborns cry to communicate. Remember, newborns cannot talk. They can't even smile back at you until around six weeks of age.

Ah, but what are they trying to tell us? Babies cry when they…

- Are tired.
- Are hungry.
- Feel too cold.
- Feel too hot.
- Need to be changed –I never really believed this reason before I had my twins. My firstborn couldn't have cared less if he was wet and could nap right through a really poopy diaper. Then I had my twins. I was amazed that their crying stopped if I changed the tiniest bit of poop or a wet diaper. Go figure.
- Are bored. Perhaps she is tired of the Mozart you play and prefers some good hard rock music instead. Maybe she wants a car ride or a change of scenery. Try moving her to another room in the house.
- Feel pain. Search for a piece of hair wrapped around a finger or toe and make sure she isn't out-growing the elastic wrist or ankle band on her clothing.
- Need to be swaddled. Remember a fetus spends the last

trimester squished inside of her mom. Discovering her own randomly flailing arms and legs can be disconcerting to a newborn.

- Need to be UN-swaddled. Hey, some like the freedom to flail.
- Need to be rocked/moved. Dr. Lai's firstborn spent hours tightly wrapped and held by her dad in a nearly upside down position nicknamed "upside-down-hotdog" while he paced all around the living room.
- Need to burp. Lay her down for a minute and bring her up again to see if you can elicit a burp.
- Are gassy. Bicycle his legs while he is on his back. Position him over your shoulder so that his belly presses against you. You'd be gassy too if you couldn't move very well. The gassy baby is a topic for this entire post– talk to your doctor for other ideas.
- Are sick. Watch for fever, inability to feed normally, labored breathing, diarrhea or vomiting. Check and see if anything is swollen or not moving. Listen to his cry. Is it thin, whimper-like (sick) or is it loud and strong (not so sick)? Do not hesitate to check with your pediatrician. Fever in a baby younger than eight weeks old is considered 100.4 degrees F or higher measured rectally. A feverish newborn needs immediate medical attention.

What if you're certain that the temperature in the room is moderate, you recently changed his diaper, and he ate less than an hour ago?

- **Walk outside with your baby**– this can be a magic "crying be gone" trick. Fresh air seems to improve a newborn's mood.
- **Offer a pacifier**. Try many different shapes of pacifiers. Marinade a pacifier in breast milk or formula to increase the chance your baby will accept it.

Pick him up, dance with him, or walk around the house with him. You can't spoil a newborn.

- **Vacuum your house**. Weird, but it can work like a charm. Place him in a baby frontal backpack or in a sling while cleaning.
- **Try another feeding**, maybe he's having a growth spurt.
- When all else fails, **try putting him down** in his crib in a darkened room. Crying can result from overstimulation. Wait a minute or two. He may self-settle and go to sleep. If not, go get him. The act of rescuing him may stop the wailing.
- If mommy or daddy is crying at this point, **call your own mom or dad or call a close friend**. Your baby knows your voice and maybe hearing you speak calmly to another adult will lull him into contentment.
- **Call your child's health care provider** and review signs of illness.

If you feel anger and resentment toward your crying baby, just put him down, walk outside and count to ten. It is impossible to think rationally when you are angry and you may hurt your child in order to stop your frustration. Seek counseling if these feelings continue.

Now for the light at the end of the newborn parenting tunnel: the peak age when babies cry is six weeks old. At that point, infants can cry for up to THREE HOURS per day. Babies with colic cry MORE than three hours per day. (Can you believe people actually studied this? I am amused that Dr. Lai won a prize in medical school for a paper on the history of colic). By three months of age crying time drops dramatically.

While most crying babies are healthy babies and just need to find the perfect upside-down-hot-dog position, an inability to soothe your baby can be a sign that she is sick. Never hesitate to call your baby's doctor if your baby is

inconsolable, and don’t listen to the people who say, “Why do babies cry?…They just do.”

Julie Kardos, MD and Naline Lai, MD

Thankful for Foster Parents

A foster mom brought a new child into the office the other day and I smiled picturing her with her last foster child. This thanksgiving, Two Peds in a Pod is grateful for the foster parents who open their homes for dinner today and everyday. Dr. Heather Forkey, Clinical Director of Foster Children

Evaluation Service at UMass Children's Medical Center, provides a post on becoming a foster parent. –Dr. Lai with Dr. Kardos

There are approximately 400,000 children in the US foster care system, with 225,000 entering each year. Most of these children spend time with foster families who open their homes and lives to kids that need a safe nurturing environment while their own parents take the time to address issues which put the child at risk. All types of people make great foster parents, but it is not for everyone. Foster parents must be able to meet the physical, emotional and developmental needs of a child or teen in partnership with community agencies, social workers, schools, and counselors.

If you are considering foster parenting, consider whether you can:

- Provide 24-hour care and supervision on a daily basis
- Be able to care for yourself financially without the child's stipend
- Be flexible, patient and understanding
- Have a sense of humor
- Recognize the impact of trauma
- Have a home free of fire and safety hazards
- Complete a criminal/protective services background check
- Have the ability to work as a member of a team

If interested, you need to become licensed or approved by your state or county, and that process is different in each locality. One should start by doing an internet search for "becoming a foster parent in (your state or county)". The child welfare agency for your state (Department of Children and Family Services or Department of Social Services) will also have information about how to start the process.

Children come to foster care often after adverse experiences which we know have health, emotional and developmental

consequences. Foster parents who can look at the child's health and behavior from a perspective of "what happened to the child" rather than "what is wrong with the child", and observe a child's behavior through the trauma lens (and help foster and child welfare personnel to do the same) allow the child in their care to view their health and emotions as normal adaptations to unhealthy situations, rather than evidence of illness. This allows the child to go forward with a better understanding of their experience, their own responses and, ultimately, foster health.

Heather C. Forkey, M.D.

Dr. Heather Forkey serves as the Clinical Director, Foster Children Evaluation Service (FaCES) and the Chief of the Child Protection Program at Mass Children's Medical Center

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Holiday gift ideas for children of all ages and stages

For those of you who plan ahead: It's gift-giving season! We love pop culture, but if you are tired of GameStop gift cards or feeling a bit overwhelmed by *Frozen*, *Star Wars* and *Minecraft* marketing, here's another list of ideas arranged by ages and developmental stages.

0-3 months: Babies this age have perfect hearing and enjoy looking at faces and objects with contrasting colors. Music, mobiles, and bright posters are some age appropriate gift ideas. Infants self-soothe themselves through sucking- if you can figure out what your nephew's favorite type of binkie is, wrap up a bunch-they are expensive and often mysteriously disappear.

3-6 months: Babies start to reach and grab at objects. They enjoy things big enough to hold onto and safe enough to put in their mouths- try bright colored teething rings and large plastic "keys." New cloth and vinyl books will likewise be appreciated; gnawed books don't make great hand-me-downs.

6-12 months: Around six months, babies begin to sit alone or sit propped. Intellectually, they begin to understand "cause and effect." Good choices of gifts include toys with large buttons that make things happen with light pressure. Toys which make sounds, play music, or cause Elmo to pop up will be a hit. For a nine-month-old old just starting to pull herself up to a standing position, a water or sand table will provide hours of entertainment in the upcoming year. Right now you can

bring winter inside if you fill the water table with a mound of snow. Buy some inexpensive measuring cups and later in the summer your toddler will enjoy standing outside splashing in the water.

12-18 months: This is the age kids learn to stand and walk. They enjoy things they can push while walking such as shopping carts or plastic lawn mowers. Include gifts which promote joint attention. Joint attention is the kind of attention a child shares with you during moments of mutual discovery. Joint attention starts at two months of age when you smile at your baby and your baby smiles back. Later, around 18 months, if you point at a dog in a book, she will look at the dog then look back at you and smile. Your child not only shows interest in the same object, but she acknowledges that you are both interested. Joint attention is thought to be important for social and emotional growth.

At 12 months your baby no longer needs to suck from a bottle or the breast for hydration. Although we don't believe mastery of a sippy cups is a necessary developmental milestone, Dr. Lai does admire the WOW cup because your child can drink from it like she does from a regular cup. Alternatively, you can give fun, colored actual traditional plastic cups, which difficult to break and encourage drinking from a real cup.

18-24 months: Although kids this age cannot pedal yet, they enjoy riding on toys such as "big wheels" "Fred Flintstone" style. Dexterous enough to drink out of a cup and use a spoon and fork, toddlers can always use another place setting. Toddlers are also able to manipulate shape sorters and toys where they put a plastic ball into the top and the ball goes down a short maze/slide. They also love containers to collect things, dump out, then collect again.

Yes, older toddlers are also dexterous enough to swipe an ipad, but be aware, electronics can be a double edged sword– the same device which plays karaoke music for your daddy-toddler sing-along can be transformed into a substitute parent. The other day, a toddler was frighted of my stethoscope in the office. Instead of smiling and demonstrating to her toddler how a stethoscope does not hurt, the

mother repeatedly tried to give her toddler her phone and told the child to watch a video. Fast forward a few years, and the mother will wonder why her kid fixates on her phone and does not look up at the family at the dinner table. Don’t train an addiction.

2-3 years: To encourage motor skills, offer tricycles, balls, bubbles, and boxes to crawl into and out of. Choose crayons over markers because crayons require a child to exert pressure and therefore develop hand strength. Dolls, cars, and sand boxes all foster imagination. Don’t forget those indestructible board books so kids can “read” to themselves. By now, the plastic squirting fish bath toys you bought your nephew when he was one are probably squirting out black specks of mold instead of water- get him a new set. Looking ahead, in the spring a three- year-old may start participating in team sports (although they often go the wrong way down the field) or in other classes such as dance or swimming lessons. Give your relatives the gift of a shin guards and soccer ball with a shirt. Offer to pay for swim lessons and package a gift certificate with a pair of goggles.

3-4 years: Now kids engage in elaborate imaginary play. They enjoy “dress up” clothes to create characters- super heroes, dancers, wizards, princesses, kings, queens, animals. Kids also enjoy props for their pretend play, such as plastic kitchen gadgets, magic wands, and building blocks. They become adept at pedaling tricycles or even riding small training-wheeled bikes. Other gift ideas include crayons, paint, markers, Play-doh®, or side-walk chalk. Children this age understand rules and turn-taking and can be taught simple card games such as “go fish,” “war,” and “matching.” Three-year-olds recognize colors but can’t read- so they can finally play the classic board game *Candyland*, and they can rote count in order to play the sequential numbers game *Chutes and Ladders*. Preschool kids now understand and execute the process of washing their hands independently… one problem… they can’t reach the faucets on the sink. A personalized, sturdy step stool will be appreciated for years.

5-year-olds: Since 5-year-olds can hop on one foot, games like Twister® will be fun. Kids this age start to understand time. In our

world of digital clocks, get your nephew an analog clock with numbers and a minute hand… they are hard to come by. Five-year-olds also begin to understand charts– a calendar will also cause delight. They can also work jigsaw puzzles with somewhat large pieces.

8-year-olds: Kids at this point should be able to perform self help skills such as teeth brushing. Help them out with stocking stuffers such as toothbrushes with timers. They also start to understand the value of money (here is one way to teach kids about money). The kids will appreciate gifts such as a real wallet or piggy bank. Eight-year-olds engage in rough and tumble play and can play outdoor games with rules. Think balls, balls, balls- soccer balls, kickballs, baseballs, tennis balls, footballs. Basic sports equipment of any sort will be a hit. Label makers will also appeal to this age group since they start to have a greater sense of ownership.

10-year-olds: Fine motor skills are quite developed and intricate arts and crafts such as weaving kits can be manipulated. Give a "cake making set" (no, not the plastic oven with a light bulb) with tubes of frosting and cake mix to bake over the winter break. Kids at this age love doodling on the long rolls of paper on our exam table. Get your kid a few rolls of banner paper to duplicate the fun. Buy two plastic recorders, one for you and one for your child, to play duets. The instrument is simple enough for ten-year-olds or forty-year-olds to learn on their own. Ten-year-olds value organization in their world and want to be more independent. Therefore, a watch makes a good gift at this age. And don't forget about books: reading skills are more advanced at this age. They can read chapter books or books about subjects of interest to them. In particular, kids at this age love a good joke or riddle book.

Tweens: Your child now has a longer attention span (30-40 minutes) so building projects such as K'nex models will be of interest to her. She can now also understand directions for performing magic tricks or making animal balloons. This is a time when group identity becomes more important. Sleepovers and scouting trips are common at this age so sleeping bags and camping tents make great gifts. Tweens value their privacy – consider a present of a journal with a lock or a

doorbell for her room.

Teens: If you look at factors which build a teen into a resilient adult, you will see that adult involvement in a child's life is important.
http://www.search-institute.org/research/developmental-assets

We know parents who jokingly say they renamed their teens "Door 1" and "Door 2," since they spend more time talking to their kids' bedroom doors than their kids. Create opportunities for one-on-one interaction by giving gifts such as a day of shopping with her aunt, tickets to a show with her uncle, or two hours at the rock climbing gym with dad.

Encourage physical activity. Sports equipment is always pricey for a teen to purchase- give the fancy sports bag he's been eying or give a gym membership. Cool techy trackers like Fitbit will always appreciated or treat your teen to moisture wicking work-out clothes.

Sleep! Who doesn't need it, and teens often short change themselves on sleep and fall into poor sleep habits. Help a teen enjoy a comfortable night of rest and buy luxurious high thread count pillow cases, foam memory pillows, or even a new mattress. After all, it been nearly 20 years since you bought your teen a mattress and he probably wasn't old enough at the time to tell you if he was comfortable. Since a teen often goes to bed later than you do, a remote light control will be appreciated by all.

Adolescence is the age of abstract thinking and self awareness– Google "wall decals" and find a plethora of inexpensive ways to jazz up his or her room with inspiring quotes.

Enjoy your holiday shopping.

Naline Lai, MD and Julie Kardos, MD

Getting back to basics: How do vaccines work?

Recent comments by politicians have brought vaccines back into the public eye. In this post, we get down to basics.

Did you ever wonder how a vaccine works?

To understand how vaccines work, I will give you a brief lesson on the immune system. Trust me, it is interesting. Let me give you an example of me. When I was eight, I had chicken pox. It was a miserable week. I started out with fever and headache, then suffered days of intense body itching from blister-like spots, and ultimately, because I scratched off some scabs, ended up with scars. During this time, my immune system cells worked to battle off the chicken pox virus.

Immune cells called memory cells also formed. These cells have the unique job of remembering (hence the name “memory cells”) what the chicken pox virus looks like. Then, if ever in my life I was to contact chicken pox again, my memory cells could multiply and fight off the virus WITHOUT MY HAVING TO GET SICK AGAIN WITH CHICKEN POX. So after I recovered, I was able to play with my neighbor even while he suffered with chicken pox. I returned to school where other children in my class had chicken pox, but I did not catch chicken pox again. Even now, as a pediatrician, I don’t fear for my own safety when I diagnose a child with chicken pox, because I know I am immune to the disease.

This is an amazing feat, when you think about it.

So enter vaccines. A vaccine contains some material that really closely resembles the actual disease you will protect yourself against. Today’s chicken pox vaccine contains an altered form of chicken pox that is close to but not actually the real thing. However, it is so similar to the real thing that your body’s immune system believes it is, in fact, real chicken pox. Just as in the real disease, your body mounts an immune response, and makes memory cells that will remember what the disease looks like. So, if you are exposed to another person with chicken pox, your body will kill off the virus but YOU DON’T GET SICK WITH THE CHICKEN POX. What a beautiful system! Rather than thinking about a vaccine as a foreign substance, think of it as a substance that is able to strengthen your body’s natural immune system.

Before chicken pox vaccine, about 100 children per year in the US died from complications of chicken pox disease. Many thousands were hospitalized with pneumonia, skin infections, and even brain damage (encephalitis) from chicken pox disease. Now a small injection into the arm can prevent a disease by creating the same kind of immunity that you would have generated from having the disease, only now you have one second of pain from the injection instead of a week of misery

and possible permanent disability or death. I call that a Great Deal!

I used the example of chicken pox because the vaccine was invented during my own lifetime. However, I could have used the example of polio, which, prior to its vaccine development in 1955, paralyzed 10,000 children per year in the United States, or measles, which infected 4 million children per year and killed 3000 per year in the United States before doctors began to give children a vaccine against measles in 1963.

All vaccines operate by this principle: create a safe environment for your immune system to make memory cells against a potentially deadly disease. Then when you are exposed to someone who actually has the disease, you will not "catch" it. Your body will fight the germs, but you do not become sick. If everyone in the world were vaccinated, then the disease itself would eventually be completely eradicated. Even if MOST people were vaccinated, this disease eradication can occur, because the majority of immunized people protect the few who are too young or too ill to receive vaccines themselves. This happened with small pox, a disease that killed 50 percent of infected people. There is no longer small pox because nearly everyone on earth received the small pox vaccine. Now we do not need to give small pox vaccine because the disease no longer exists. This is a huge vaccine success story.

Friedrich Nietzsche said "What doesn't kill us makes us stronger." We pediatricians feel this is unacceptable risk for children. We would rather see your child vaccinated against a disease in order to become immune rather than risking the actual disease in order to become immune. The vaccines that we give children protect against diseases that can cause serious, lifelong disability or death.

Hopefully this blog post answers your questions about how vaccines work. For more details or more in-depth explanations, I refer you to the AAP (American Academy of

Pediatrics) website www.aap.org, the Immunization Action Coalition, Children's Hospital of Philadelphia's Vaccine Education Center, and the book *Vaccines: What You Should Know*, by pediatricians Dr. Paul Offit and Dr. Louis Bell.

Julie Kardos, MD and Naline Lai, MD

For more information about vaccines, please see our prior posts: Should I vaccinate my child?, Closure: there is no link between the MMR vaccine and autism, Fact or Fiction: a flu vaccine quiz for all teachers, babysitters, parents, and anyone else who breathes on children, Do vaccines cause autism?, Measles outbreak: would you recognize measles in your child?, A vaccine parable , and Are my teen's vaccines up to date?

Does my baby have GERD or spit-up?

Baby spew doesn't always require reflux medications

In our office, two-month-old Max smiles ear to ear, naked except for a diaper and a bib. His worried mom asks me about the large amounts of spit up Max spews forth daily. "He spits up after every feeding. It seems like everything he eats just comes back up. It even comes out of his nose!" she says. Max gained the expected amount of weight, an average of one ounce per day, since his one-month check-up. He breastfeeds well and accepts an occasional bottle from his dad. Even after spitting up and drenching everything around him, he remains comfortable and cheerful. He is well hydrated, urinates often, and poops normally.

In short, Max is a "happy spitter" Other than creating piles of laundry, he acts like any healthy baby.

Contrast this to two-month-old "Mona." She also spits up frequently. Sometimes it's right after a feed and sometimes an hour later. She seems hungry, yet she'll cry, arch her back, and pull off the nipple while feeding. She cries before and after spitting up. Her weight gain is not so good– she averaged one-half ounce of gain per day since her one-month visit. She seems more comfortable when upright and more cranky

lying down.
Mona is **not** a “happy spitter.”
Last story and then the lesson:
“Chloe” is a two-month-old baby who cries. Often. Loudly. Although most of the wailing occurs in the late afternoon and early evening, she also cries other times. She eats great and in fact, seems very happy while she feeds. She smiles at her parents mainly in the morning. She also smiles at her ceiling fan and the desk lamp. Movement calms her and her parents worry that she spends excessive time rocking in their arms or in her swing. Her cries pierce through walls and make her parents feel helpless. She often spits up during crying jags, and erupts with gas. She gained weight well since her last visit.
Here’s the lesson:
All babies cry. All babies pee and poop. All babies sleep (at times). AND: all babies spit up. The muscle in the lower esophagus that keeps our food and drink down in our stomachs and prevents it from sloshing upwards, called the “lower esophageal sphincter,” is loose in all babies. The muscle naturally tightens up and becomes more effective over the first year of life, which is why younger babies tend to spit up more than older babies.
Max has **GER (**gastroesophageal reflux) , Chloe has **GER/ colic** and Mona has **GERD (**gastroesophageal reflux disease)**.** Max and Chloe have physiologic, or normal, reflux. Mona has reflux that interferes with her mood, her feedings, and her growth.

GER, GERD **and** colic (excessive crying in an otherwise healthy baby) improve by three to four months of age. If your baby cries often (enough to make you cry as well) then you should see your baby’s pediatrician to help determine the cause. It helps, before your visit, to think about when the crying occurs (with feedings? At certain times of the day?), what soothes the crying (feeding? walking/rocking?) and other symptoms that accompany the crying such as spitting up, fever, or coughing. Keeping a three day diary for trends can help pinpoint a diagnosis. We worry a lot when the babies are not “spitting up” but are actually “vomiting.” Spit blobs onto the

ground. Vomit shoots to the ground. Vomit which is yellow, is accompanied by a hard stomach, is painful, is forceful (think Exorcist), or enough to cause dehydration, all may be signs of blockage in the belly such as pyloric stenosis or vovulus. Seek medical attention immediately.

The treatment for Max, the happy spitter with GER? Lots of bibs for baby and extra shirts for his parents.

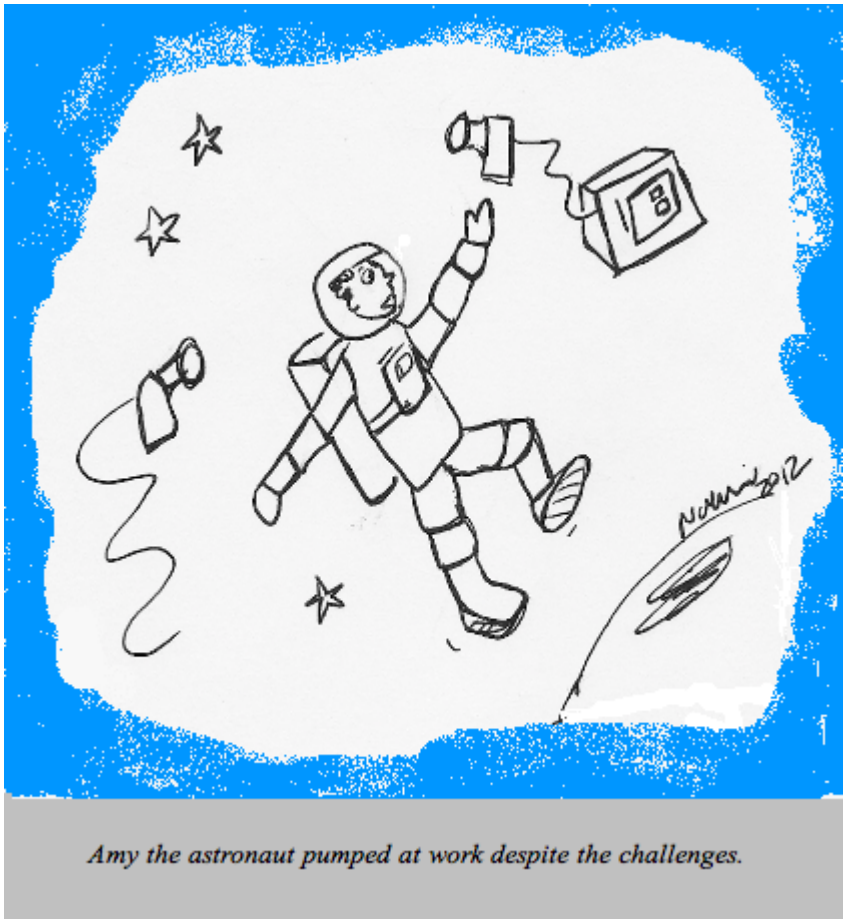
Treatment for Chloe, the crier? Patience and tincture of time. You can't spoil a young baby, so hold, rock and sway with her to keep her calm. Enlist a baby sitter or grandparents to help.

The treatment for Mona, the baby with GERD? **Small, frequent feedings** to prevent overload of her stomach, **adding cereal any bottle feeds** to help thicken the milk and weigh down the liquid, thus preventing some of the spit up (ask your doctor if this is appropriate for your baby), and **holding her upright** after feeds for 15-20 minutes. Physicians **no longer advocate** inclining the crib. To prevent Sudden Infant death Syndrome, she should still be placed on her back to sleep on a flat, firm surface. Sometimes, pediatricians prescribe medication that decreases the acid content of the stomach to help relieve the pain of stomach contents refluxing into the esophagus.

Treatment for parents? Knowing that someday your baby will grow up, no longer need a bib, and probably have a baby who spits up too.

Julie Kardos, MD with Naline Lai, MD

Breast feeding and returning to work



Amy the astronaut pumped at work despite the challenges.

Picture this: you are going back to work after a too-short maternity leave. Briefcase? Check. Lunch? Check. Breast pump? Check. Photo of your baby to put on your pump for inspiration? Check.

Many moms ask how to continue breastfeeding when they return to work. Because babies should receive breast milk or formula for at least their first year, here is how you can incorporate breastfeeding into your work routine:

Offer bottles by four weeks of age. Bottles can contain breast milk or formula, but you need to give your baby practice taking milk from a bottle by four weeks old. If you wait much longer, your baby will likely refuse the bottle. Have someone other than yourself give at least one bottle per day or every other day. In this way, your baby learns to accept nutrition from someone else.

Store breast milk using the simple and conservative "rule of twos." Leave breast milk in a bottle at room temperature for

no more than two hours, store breast milk in the refrigerator for no more than two days, and store in the freezer for no more than two months. If your baby has already sucked out of a breast milk bottle, that milk is only good for up to two hours. Remember to write the date on your milk storage bags and use the oldest ones first.

Now select from the following breast feeding menu, understanding that you might start with an earlier option and then change to a later one. **The best option is the one that works best for you and your baby.**

Option 1: Continue to breast feed at work. This option works for moms who work from home, moms who have child care in their work setting, and moms close enough to dash home to breast feed during the day or who have caregivers willing to drive babies over to work for feedings.

Advantage: no pumping, no buying formula, no bottle washing. **Disadvantage**: may require some creative scheduling.

Option 2: **Breast feed when home and pump and store breast milk at work**. The baby gets breast milk in bottles during the work day. This method allows moms to provide exclusively breast milk to their babies. Start pumping after the first morning feeding (or any other feeding that you feel you produce a bit more than your baby needs for that particular feeding) beginning when your baby is around four weeks old. Also pump if your baby happens to sleep through a feeding. Store this milk in two or three ounce amounts in your freezer. You can obtain breast milk freezer bags from lactation consultants and baby stores, or you can store milk in zip lock bags. As you continue to pump after the same feeding each day, your body will produce more milk at that feeding.

Pumping should not take longer than 15 minutes if you’re pumping both breasts at the same time and can take as short as 7-10 minutes. Remember to wash your hands before pumping.

What kind of breast pump should you buy/rent? If you are in it for the long haul, we recommend the higher-end electric double pumps with adjustable suction. Ask the hospital nurses, your midwife, or your obstetrician for names of people who rent or sell pumps in your area.

Once you have some breast milk stored and you are a few days out from returning to work, try pumping during the feedings you will miss while at work. Have someone else feed your baby breast milk bottles for these feedings. Finally, when you return to work, continue to pump at the same schedule and leave the stored breast milk for your child's caregivers. Consider leaving some formula in case caregivers run out of breast milk. Remind them never to microwave the milk (this kills the antibodies in breast milk as well as creates a potential burn hazard) but rather to thaw the milk by placing in a hot water bath.

This method becomes easier as babies get older. Once babies start solid foods, they breast feed fewer times per day. Somewhere between six to nine months, your baby eats three solid food meals per day and breastfeeds four or five times per 24 hours. Thus, the number of times you need to pump decreases dramatically.

Advantage to this option: breast milk with its germ-fighting antibodies given through the first year and no expense of formula. **Disadvantage**: having to pump at work.

Option 3: Breast feed before and after work and give your baby formula while you are at work. If you do not pump while at work, your body will not produce milk at these times. If you work full time, then on weekends you might find it easiest on your body to continue your "work time" feeding schedule. If you choose this method, wean your baby from daytime breast feeding over that last week or so before returning to work. Suddenly going a long time without draining your breasts can lead to engorgement, subsequent plugged ducts, and mastitis.

Advantage: baby continues to receive breast milk. No need to pump at work. **Disadvantage**: you still have to wash bottles and have the added cost of formula.

Option 4: Breast feed until you return to work, then formula feed. Wean over the last week you are home with your baby to avoid engorgement and leaking while at work. Your baby still benefits from even a few weeks of breast milk.

Advantage: No need to incorporate pumping into your work schedule. Baby still gets adequate nutrition. **Disadvantage**: babies who are in childcare and exposed to many germs miss out on receiving extra antibodies in breast milk. However, weaning your baby off breast milk will not cause illness. Do what works for your family. Another disadvantage: more expensive to buy formula and time-consuming to wash bottles.

Finally, remember that the calorie count and nutritional content of breast milk and formula are the same. So do NOT feel guilty if pumping does not pan out and you and end up giving some formula. Your baby is almost always going to be more efficient than a breast pump and some breasts just don't produce milk well during pumping sessions. In contrast, some of my patients never got the hang of breast feeding and their moms pumped breast milk and bottle fed them for the entire first year. Dr. Lai and I have each had patients who refused to take a bottle at childcare but just waited patiently for their moms to arrive. These babies got the nutrition they needed by nursing throughout the night. The babies didn't mind what time of day they ate. Just like many aspects of parenting, sometimes with breast feeding and returning to work, you just have to "go with the flow."

Julie Kardos, MD with Naline Lai, MD

Umbilical hernias

Time for a Two Peds photo quiz.

What is up with this baby's belly-button?

It's called an umbilical hernia, which is an out-pouching at the belly button, caused by loose belly muscles.

In the womb, babies' belly muscles migrate across the abdomen and meet in the middle. Sometimes they don't meet up before birth, causing a small bit of the gut to out-pouch. Usually more noticeable during crying, umbilical hernias do not hurt, nor do they get "stuck" out like a groin hernia (located at the scrotum or labia) and thus they are not a medical

emergency. In fact, they do not even need treatment.

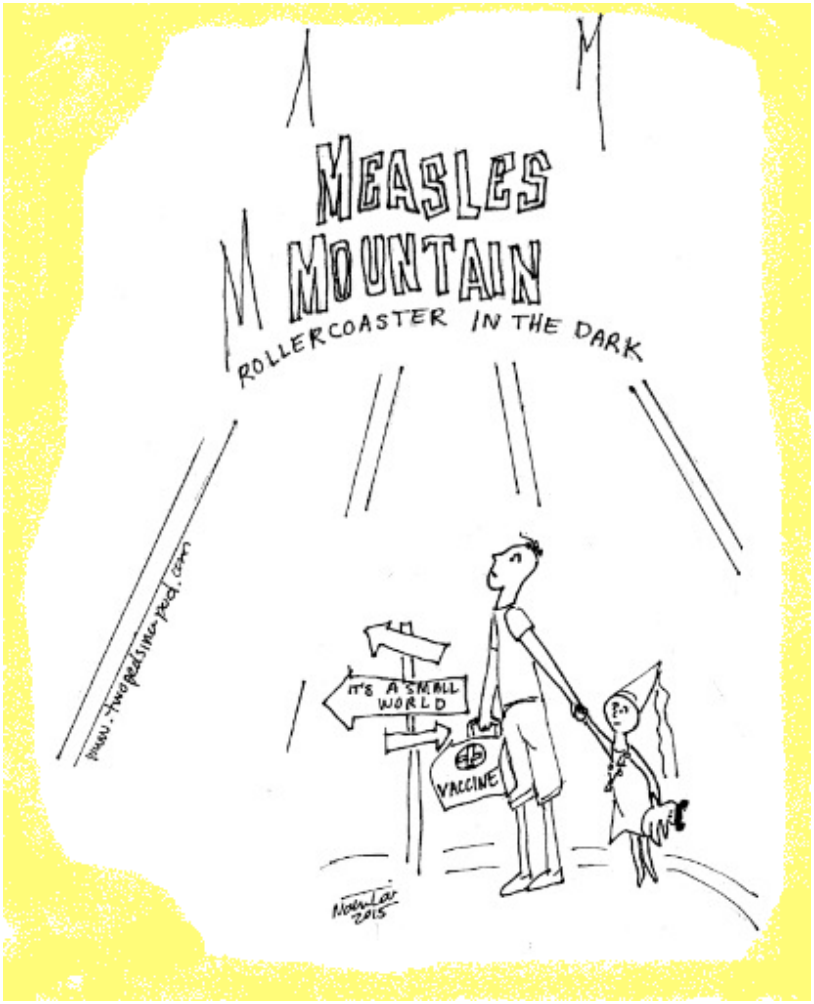
Fortunately, umbilical hernias tend to close up on their own by age five years, often much sooner. Don’t do what my grandmother suggested, which was to place a quarter on top of my son’s umbilical hernia and then tie it into place with a belt-like contraption. This does NOT hasten the hernia’s resolution.

Sometimes if an umbilical hernia is particularly large, it fails to regress after a few years, and at that point, for cosmetic reasons, a surgeon can repair it.

We see many babies with umbilical hernias in our office, and we are happy to reassure parents about them. If you were wondering, my son who had the umbilical hernia as a baby, now has a belly button that looks exactly the same as his twin who did not an umbilical hernia. Both are “in-ies.”

Julie Kardos, MD and Naline Lai, MD

Should I vaccinate my child?



“Let’s skip this ride.”

Should I vaccinate my child? Yes, yes, yes!

The recent measles outbreak originating in Disneyland among mostly-unvaccinated children and adults highlights how important it is to continue to immunize children against preventable infectious diseases, even if we think they are rare.

There are many deadly diseases we can’t prevent, but we do have the power to prevent a few. We now have the ability to prevent your children from getting some types of bacterial meningitis, pneumonia, and overwhelming blood infections. With vaccines we can prevent cases of mental retardation, paralysis, blindness, deafness, and brain infections. Immunizations are a safe way of boosting children’s natural immune systems. Yet some of our parents continue to doubt the

benefits of vaccines and to fear harm from them.

Let’s look at another kind of prevention. You would never drive your car without putting a seatbelt on your child. Even if you don’t know anyone who was in a fatal car accident, you still buckle you and your child up. You may know a kid who emerged from a car accident with only a scrape, yet you still buckle you and your child up.

You may never know a child who is paralyzed by polio or who died of whooping cough, but it does happen and can be prevented. Just like with car accidents, it’s better to prevent the injury than to play catch-up later. Dr. Kardos’s grandfather routinely rode in the front seat of his car without his seatbelt because he “had a feeling” the seatbelt might trap him in the car during an accident. Never mind that epidemiologists and emergency room doctors have shown people are much more likely to die in a car accident if they are not wearing a seat belts, he just “had a feeling.”

We know no one likes a needle jab, but for most vaccines, no one has invented any better way of administration.

When it comes to your children, parental instinct is a powerful force. We routinely invite our patients’ parents to call us about their children if their instincts tell them something might be wrong, and we always welcome and at times rely on parents’ impressions of their children’s illnesses to help us make a diagnosis and formulate a treatment plan.

However, in the face of overwhelming evidence of safety and benefits of vaccines, we pediatricians despair when we see parents playing Russian roulette with their babies by not vaccinating or by delaying vaccinations. We hope fervently that these unprotected children do not contract a preventable debilitating or fatal disease that we all could have prevented through immunizations.

There is no conspiracy here. We both vaccinate our own

children. We would never recommend any intervention where the potential for harm outweighs the potential for good. We have valid scientific data that every year vaccines save thousands of lives. One of them could be your child's life.

Should you vaccinate your child?

YES!

Julie Kardos, MD and Naline Lai, MD

Updated from our earlier 2011 post

Visit these posts for more infomation about vaccines: How Vaccines Work, Evaluating Vaccine Sites on the Internet, Do Vaccines cause autism? and Closure: there is no link between the MMR vaccine and autism

Also, please visit the recent Institute of Medicine's analysis of vaccine side effects.

How sick is sick? When to call your child's doctor about illness

“You just can’t understand **worry** until you have a child of your own.”

Welcome to cold and flu season. Now that flu and many other illnesses are circulating, we want to help you answer these questions: How will I know if my child is too sick? When do I need to worry? When should I call the pediatrician?”

Here is how to approach your own ill child.

First and foremost, **trust your parental instincts** that something is wrong.

Think about these THREE MAIN SYSTEMS: **breathing, thinking, and drinking/peeing**.

Breathing:

> Normally, breathing is easy to do. It is so easy, in fact, that if you take off your child’s shirt and watch her breathe, it can be hard to see that she is breathing. You should try this while your child is healthy. Normal breathing does not involve effort. It does not involve the chest muscles.

If your child has pneumonia, bad asthma, bronchitis, or any other condition that causes respiratory distress, breathing becomes hard. It becomes faster. It involves chest muscles moving so it looks like ribs are sticking out with every breath: click on the photo in this article to see this. The chest itself moves a lot. Kids' bellies may also move in and out. Nostrils flare in attempt to get more oxygen. Sometimes kids make a grunting sound at the end of each breath because they are having difficulty pushing the air out of their lungs before taking another breath in. Also, instead of a normal pink color, your child's lips can have a blue or pale color. Pink is good, blue or pale is bad. Children old enough to talk may actually have difficulty talking because they are short of breath. Any of the above signs tell you that your child needs medical attention.

Thinking:

This refers to mental or emotional state. Normally, children recognize their parents and are comforted by their presence. They are easy to console by being held, rocked, massaged, etc. They know where they are, and they make sense when they talk.

Change in mental state, whether it comes from lack of oxygen/shortness of breath, pain, or severe infection, results in a child who is inconsolable. She may not recognize her parents or know where she is. Instead of calming, she may scream louder when rocked. She may seem disoriented or just too lethargic/difficult to arouse. Being very combative can also be a sign of not getting enough oxygen. In a baby, extreme pain can cause all these signs as well.

Drinking/peeing:

While this varies somewhat depending on the age of the

child, most kids urinate every 3-6 hours or so. Young babies may urinate more frequently than this and some older kids urinate perhaps 3 times daily. You should know your child's baseline. Normal urine reflects a normal state of hydration. If you don't drink enough, you will urinate less.

If your child has fever, coughing, vomiting, or diarrhea, she will use up fluid in her body faster than her baseline. In order to compensate, she needs to drink more than her baseline amount of liquid to urinate normally. A child will refuse to drink because of severe pain, shortness of breath, or change in mental state, and may go for hours without urinating. This is a problem that needs medical attention. Occasionally a child will urinate much more than usual and this can also be a problem (this can be a sign of new diabetes as well as other problems). Basically any change from baseline urine output is a problem.

A note about fever:

Any infant 8 weeks of age or younger with fever of 100.4 F or higher, measured rectally, requires immediate medical attention, even if all other systems are good. Babies this young can have fever before any other signs of serious illness such as meningitis, pneumonia, blood infections, etc. and they can fool us by initially appearing well.

In older babies and children, we take note of fevers of 101F or higher. Some kids can look quite well even at 104F and others can look quite ill at 101F. Fever is a sign that your body's immune system is working to fight off illness. In addition to fever, it is important to look at breathing, thinking, and hydration because this will help you determine how quickly your child needs medical attention. A child with a mild runny nose and fever of 103 who can play still play a game with you while drinking her apple juice is less ill than

a child with a 101 fever who doesn’t recognize her parents. Read more about fever here.

To summarize, **any deviation from normal breathing, thinking, or drinking/urinating (peeing) is a problem** that needs medical attention, even if no fever is present. In addition, any illness that **gets worse instead of getting better** is a problem that needs medical attention. Also, remember to let your child’s doctor know if your child is missing any vaccines.

Finally, all parents have PARENTAL INSTINCT. Trust yourself. Ultimately, if you are wondering if you should seek medical advice, just do it. If parents could worry every problem away, no one would ever be sick.

Julie Kardos, MD and Naline Lai, MD

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