FamilyTalk with Dr. Carlos O. Thomas
Friday, November 16, from 3 - 5 pm
Child Vaccines

What are vaccines and why do we give them?

One of the most important public health advances over the past few centuries is the development of vaccines.

The idea that vaccines prevent illnesses in the future is an old one. I am told that hundreds of years ago, Buddhist monks used to actually drink snake venom. The idea of drinking snake venom was used to try and prevent them from becoming seriously ill if they were bitten in the future. In the late 1700's, a man named Edward Jenner was the first to inject cowpox into someone to try and prevent smallpox. Within two years, we had a smallpox vaccination. One thing that is undeniable in public health history is that many, many diseases that were prevalent in the forties, fifties, are no longer seen across the world in large amounts because of the usefulness of vaccinations.

How do vaccines work? There are two ways to be protected against future exposure to disease. The way I can protect myself from getting chicken pox disease next year, is either by getting chicken pox now, or by getting the vaccination. When the doctor gives a vaccine to your baby, they are giving a medicine made from a small part of the germ into your baby's body, usually the arm. In response to this, the body makes some proteins called antibodies. These antibodies are used to protect yourself from future exposure.

I like to use chicken pox as an example. The vaccine has only been around since 1994. When it first came out, it was an optional vaccine in America, so I would say to my patients, "There's a new vaccine out, against chicken pox, do you want it?" Some would say, "yes," and others would decline.

In 1999 it became a routine part of the US vaccine series. SInce then, we've seen a decline in chicken pox. Those of you who are older have had friends who had chicken pox, and it was no big deal.

But in many European countries, they don't do that. They'd rather have the disease. Say your daughter has chicken pox. You'd call your friends, or go on Facebook, and say, "Guess what, my child has chicken pox, come on over!" And they'll bring their kids over for the weekend to try to pick it up. The idea is that once you get chicken pox, you are now immune to future exposure.

There's another way to protect yourself from that, and that's to get an injection. The downside of getting chicken pox is that you are unwell, you have an itchy rash, you're unhappy, and you have a fever. And then there are possible complications like pneumonia, some have meningitis, and a few people actually die. Worst of all, is that if you've had chicken pox, years later, you may develop shingles, huge, painful blisters that develop around where the nerves lead to your back area. They are extremely painful.

How are vaccines given? Most are administered in the muscle, or just underneath the skin. We have a few that are given orally, like the polio vaccine. Today we have both oral and injectable polio immunizations.

The old polio vaccine was developed in the 1950's and is responsible, in large part, for the almost worldwide eradication of endemic polio. Today, thanks to The Rotary Club, which has been very big on polio vaccines, we have seen a significant decline in polio. There are two countries where polio is endemic, in Afghanistan and Pakistan.

Do we still need vaccines?
One of our contemporary challenges is that most of us don't see these diseases anymore. So because we don't see the diseases, we wonder whether we even need vaccines. Are they still important?

There's a very interesting observation that whenever vaccine rates decline in any community, disease rates start to go up. For example, in 1998 in the UK, there was a report in the media that the MMR (Measles, Mumps, and Rubella) vaccine was a bad idea, that it was causing autism. As a result, in the UK, the vaccine rates declined from the mid-90% to maybe a seventy-something percentage. And within a few months, measles was on the rise. So sometimes people ask me, "Why are we still giving vaccines? There are no more diseases around." Well, when you stop giving them, you start to see the emergence of more diseases.

One of the biggest concerns about vaccines today is the link between immunizations and autism, which has been disproven. Many continue to be concerned about the issue. As doctors and nurses, we spend a lot of time encouraging parents to have vaccines done on time. In The Bahamas, vaccines are available free of cost at all our community clinics. We start vaccinating as early as two months.
Let me say something else. From the time you get pregnant, you can start to improve your baby's health by having a healthy maternal lifestyle, by eating healthily. And because you have been vaccinated in the past, you confer some of antibodies to your baby. Some of these proteins to which you've been exposed previously pass through the placenta into the baby. Another thing you can do to strongly enhance your baby's protection is to breastfeed, which also passes on passive immunities.

Safety of Immunizations
Many clients ask me, "Are vaccines safe, Dr. Thomas?" It depends on what you mean by safe. Is driving a car safe? You're probably going to get home. Is taking a plane safe? Yes. Do planes crash sometimes? Occasionally, they do. But fortunately, these are rare occurrences. Everything we do in life is really a balance of risk versus benefits. It's been clearly shown that vaccines continue to be effective in minimizing disease.

You've probably heard that there's been an increase in measles worldwide, particularly in Europe, Ukraine, Philippines, in Israel, even in some parts of the USA, like New York. In large part this is happening because people are refusing vaccines. In the US, seventeen of the states allow parents to opt out. You sign a piece of paper declining immunizations, and your child goes to school. We now have a growing group of people who aren't vaccinated.

In The Bahamas, we used to boast that between 95 and 98% of our children were vaccinated, about ten years ago. That's pretty good. Sadly, we're finding now that those numbers are going down. The last time I checked, the rate was in the high eighties.

There's this concept called "community immunity", the idea that the more people are vaccinated, the less circulated these viruses are. If you live in a country where 95% of the population are vaccinated, there are less germs going around. If you move to another area of the world where very few are vaccinated, you have more disease.

As a physician, I am very concerned that there's a growing group of parents who are choosing not to vaccinate their children. Some of the concerns are legitimate, like a mother who asks, "Are vaccines safe?" Some choices are just made by people jumping on the bandwagon, where declining vaccines has become a fad. They believe vaccines are bad, despite the benefits that are shown. Vaccines are safe and effective.

The Child Vaccine Series

Now I'm going to speak about the vaccines that are given to kids. Many of you remember the polio vaccine, usually given as drops. There's also an immunization given to prevent Hepatitis B, a liver infection. Another vaccine, "DTP," prevents Diptheria, Tetanus, and Pertussis, or Whooping Cough.

Whooping Cough is a very bad illness. If an adult gets it, they just have a cough, no big deal. If a young child gets whooping cough, they get very, very sick. The name refers to the "whoop" noise experienced right after the cough. Babies who contract the disease cough for days and weeks. Either they get better in the hospital, or die from exhaustion. We don't see that much these days, but now we're seeing more cases with *adults* who have whooping cough. Again, if I have it, it's not a problem, but if I come around an unvaccinated baby, it can be very severe. So now we're encouraging pregnant mothers to be immunized.

Newer child vaccines

There are a few newer protocols that have been introduced since we were children. The first is against a germ called pneumoccocus. It causes pneumonia, meningitis, and death in young children under five years of age. That vaccine became available in 2000. When these things are introduced, they are first offered in the private sector. It takes a while before the public health system makes it a part of their routine series. In 2012, this vaccine became available in the clinics.

Thankfully, meningitis is a disease that we don't see that much anymore. When I was starting out as a young doctor in 1991, I saw lots of cases.

Another newer vaccine against a germ called Haemophilus Influenzae Type B, or "HIB", was released in 1988. By 1990 it was available privately in The Bahamas, and by 1997 it was in use in public clinics.

Measles is a condition I should only have heard about in the books, but never have seen. In February of this year, however, I had the distinction of being the doctor who saw the first case of measles in The Bahamas since 1979. Fortunately for us, it was an imported case. A lady came over from France on holiday with her two boys, five and nine, neither of whom were vaccinated. In France, the measles vaccine is optional. One of her children was infected, became very sick, and by the fourth day, I saw my first case of measles.

But it's very dangerous. You could be one plane ride away from getting a disease. This family had flown in from the UK, so you can imagine the implications. With measles, you are most infectious up to four days before the rash. Imagine you flew on a plane for eight hours with 100 to 200 other people. We had to do contact tracing in conjunction with The Ministry of Health. They informed the airline, who in turn were obligated to inform the passengers of the measles threat. On our side, the child who presented in my office was immediately whisked into a back room, then successfully quarantined at Doctors Hospital so that the disease did not spread. We had to list file the names of all patients who visited our office with

the Health Department, and we followed them for two weeks to ensure that the disease was contained. So...vaccinate, vaccinate, vaccinate.

The other vaccine you wouldn't have had as a child is against Rotavirus, a virus responsible for diarrhea and vomiting. Some parents say, "I don't need that," but vaccines have two roles. One is to protect the individual, but the heart of the vaccine process is to try and make the community safer. The more that persons are vaccinated in a community, the safer it is.

Another way of looking at the concept is this: if you build a home in a community where 99% of the people have burglar bars, you're probably going to be safe. Not many people will come to rob that area because the neighbourhood is so well guarded.

I have spoken about how long vaccines have been used in public health, that they are effective, that when there is an increase in vaccines, there is a decrease in disease.

I spoke about my concern regarding the decrease in vaccinations. Although the public schools insist on them, some of the private schools are not as vigilant. In my practice, there is a growing group of mothers who choose not to vaccinate at all, and some do so on different schedules. I am very concerned about the impact on our community.

I spoke about the fact that vaccines are safe. This doesn't mean there are no adverse effects. Some babies have pain. Maybe one in ten babies has fever, fussiness, irritability. But vaccines are awesome.

I want to talk about two additional new immunizations. The first tackles "HPV," the Human Papilloma Virus associated with cervical cancer, which attacks the lower part of the uterus. After breast cancer, it's the most common cancer in women. For every ten women diagnosed with cervical cancer, seven or eight have had previous HPV infection. There seems to be a correlation between HPV infection and cervical cancer. So by getting the HPV vaccine, in theory, you are decreasing your lifetime risk for cervical cancer by 70 to 80%.

The vaccine is now available for young ladies as early as age nine. Initially, it was administered up to 25 years of age, and is now given into the forties. HPV can cause cervical cancer, warts, penile cancer; it's a big problem. We're seeing it now in schools. We strongly encourage you to read up on the HPV vaccine. Initially, we only administered it to young ladies, but that was significant public health error. When it comes to sexually transmitted diseases, you have to treat both partners.

Another vaccine that's topical is the flu vaccine. Of all the noise around vaccines, people seem to object to this one most. They can't give you a medical reason. "I don't like it," they protest, but they can't tell you why. "Plus, they put the flu in your body."
The number one thing you can do to increase your chance of survival and minimize injury in a car accident is to use your seatbelt. The number one thing you can do to decrease your chance of flu is a flu vaccine. It's more important than rest, eating healthily, more important than vitamins.

Vaccination Schedule
In the USA, vaccinations begin at birth. They administer the Hepatitis B shot on the day a baby is born. In The Bahamas and most of the Caribbean, we start our vaccination series at two months. The first three sets of vaccines are at two, four, and six months.

Twenty plus years ago, there were only four vaccines. While I was training in America, my children were born. At that time, they didn't have group vaccines, so my children got four needles per visit. There were two nurses, each with two needles in hand. Fortunately now we have combination vaccinations. So Hepatitis B, Polio, Haemophilus Influenzae B, and Tetanus, and Whooping Cough are in one injection. The second injection, Prevnar, protects against the germ that causes pneumococcus. Our kids today get two needles, and then they drink the Rotavirus vaccine. The slight difference in the public clinic is that they have a three-in-one (rather than four in one) combination, so there, kids get three needles. They get two needles in the private sector, at 2, 4, & 6 months.

At twelve months, we give the chicken pox vaccine for the first time, as well as the MMR vaccine. From 15 to 18 months we give booster shots. Boosters are given because antibodies developed from initial shots are beginning to decline, so we repeat the shots given from months 2 to 6. In private offices, we give a Hepatitis A vaccine, which is not a new vaccine, but one that has started to become routine.

After 18 months, the next vaccines are usually between 4 and 6. You need to know that because of the increase in measles in the world, and that scare we had earlier this year, the Bahamas has joined European countries in giving their second measles vaccine earlier.

Why would we choose to do that? After one MMR vaccine, an average of 93% of children respond, which means that 7% do not. On top of that, for a community to benefit from "herd immunity", you have to have more than 95% of your people vaccinated. As of April 1st this year, we began giving the second MMR vaccine earlier.

The good news about the measles vaccine, is that the benefits last a lifetime. With other vaccines, like Tetanus, the benefits are diminished over time.

All of us should have a tetanus booster every ten years. Few adults do this. If you go to hospital with a laceration, they bring out the tetanus booster. If you get tetanus, or lockjaw, it can be devastating. Tetanus is a bacteria that becomes a protein or a toxin when it enters the body. That toxin moves along the bloodstream and affects the muscles, causing spasms. Although it can affect any muscle in your body, it most commonly affects the muscle connecting your upper jaw to your lower jaw. When that goes into spasm, you can't open your jaw. So you get hospitalized, you get antibiotics, you're drinking through a straw, and after a few days or weeks your muscles start to relax. But tetanus can be worse, you can have respiratory muscle risk, so that you can't breathe. In that case, you're hospitalized, have antibiotics, and eventually recover.

Tetanus is a bad problem for individuals. You can't pass on tetanus, so from a public health point of view, it's not as worrysome. In earlier times, people often died after stepping on a rusty nail, by which they contracted tetanus.

The next vaccines are given at ages 10 through 12, when children receive the tetanus vaccine, HPV vaccine, and a vaccine against a bad germ, Meningalcoccus. The vaccine protects against bacterial meningitis, which can be devastating for a child in college. They can be fine one day, call you about feeling tired, and say that they going to bed early. The next morning, you can't reach them, and they may be in a coma. They can be dead in twelve hours. For some reason, this disease targets children in boarding schools, so before they go off, they must get that vaccine.

DIALOGUE WITH PARENTS

Why do people get chicken pox more than once?

Great question! When you get an illness for which you've received a vaccine, you produce these antibodies. Some conditions you can get more than once because the antibody doesn't give you 100% guarantee. More than 90% of vaccinated persons only get chicken pox once. 5-10% have it a second time. You seldom have it three times, and those who have it a second time, tend to have a mild case.

About Shingles When you have chicken pox and get better, the virus remains in your body in the dorsal nerve roots. There's a nerve that goes from your spine outwards, between the ribs. The virus lives there, dormant. Sometimes, ten to fifty years later, the nerves wake up and can produce severe, debilitating pain. There are mild cases, but this disease gives credence to the saying, "you're getting on my last nerve!" If I pinch the skin, there's discomfort; if I pinch the nerve, you can imagine the pain. Of course, as with most illnesses, you can have a mild, moderate, to severe form.

There is a shingles vaccine available. If you've never had chicken pox, or if you can't recall having had it, it's a good idea to be vaccinated as an adult. Most people who have already had shingles can be vaccinated to prevent recurrence.

What vaccines should you have as an adult?

With some vaccines, when you pass a certain stage, you are no longer required to have it, because chances are you've been exposed to it already, and your body has natural immunity. This is the case with Rotavirus vaccine.

The pneumococcal vaccine is recommended, especially when you're getting on in age. If you've never had chicken pox, get the vaccine. I got the flu shot three weeks ago in my office. I've never had severe flu, or been seriously ill. For years I did not do the flu vaccine, not because I was opposed to it, I just thought I was a young, strong male. I can handle myself. When my last baby came home, I said to myself, as a pediatrician, I'm seeing sick kids all day, I may not get sick, but I don't want to take this home to my infant.

The beautiful thing is that we live in a country where vaccines are available free of cost. It's fantastic.

The people at most risk are the ones on either end of the age spectrum. We've always known intuitively that great grandma in the nursing home needs a flu shot. She's old and does not have the ability to fight it. Younger children are the group at highest risk. For years we didn't concentrate on children. About 15-20 years ago, a number of kids died of flu and we realized how serious this was. The AAP (American Academy of Pediatrics) and the CDC (Center for Disease Control) now recommend that children as young as six months get the flu shot. There's one caveat, if the child is having the shot for the first time--it's a yearly vaccine--if under eight years old, the child needs two doses one month apart, just for the first year. All other years, they only need one flu shot.

If you ask ten of your friends who don't like the flu vaccine why, they just tell you they don't like it. Or they tell you it gives you the flu. And it's true in part. All vaccines work by giving you a portion of the disease.

What companies produce vaccines?

Most of the vaccines used in our office are from GlaxoSmithKline, a British company. Some parents are concerned about how vaccines are prepared and stored. What are ingredients put in vaccines to increase shelf life?

There's a mercury containing compound called Thimerosal that used to be one of the most important preservatives used in vaccines. You can imagine making millions of vaccines. Without a preservative, they couldn't last longer than a month. We know that in large amounts, mercury affects brain development. People were saying, "See how much mercury you're giving these kids?" It turns out that the amount of mercury from all vaccines given in a two year period is far less than what you get from the community.

Nevertheless, the mercury was removed from vaccines in 2001. The only vaccines that contain that small amount of mercury now are the multi-dose flu vaccines. But now we have individual dose flu vaccines, as opposed to a big bulk doses, and mercury is no longer an issue.

Autism rates *have* increased. We are definitely seeing more autistic children than we did 20-30 years ago. A part of this may be because we now recognize the condition. But I think it's actually on the rise. Many people are blaming vaccines as the cause of the increase in autism. We don't believe that to be the case.

At this time, there are no tests for autism in infants.

Autism is a developmental condition that affects language and social expression. Autism is diagnosed along a spectrum with varying degrees of the condition, visually represented by a rainbow. It's likely that some of the folks you work with are autistic. The condition can be mild and hard to detect. The kids with severe impairment are more easily identified. In a playroom, this child might be standing in the corner by himself, not playing with the other kids. He might be banging his head on a wall, or making strange sounds. He may have a peculiar, inconsolable cry.

Autism doesn't typically manifest until after 15-18 months. An autistic child will resemble any other child at two years old. In terms of diagnosis, what stands out is that at 1 to 1 ½ years, the child won't answer when called, doesn't appear to listen, won't look at me during conversation, won't engage or use eye contact. Ordinarily, kids engage. At two months old, a child can touch your face, they want to be held. This child is a bit different. Other kids say, "Ma-ma," "Da-da," but the autistic child says nothing. When he's old enough to walk, he doesn't say, "I want milk." Instead, he tugs your hand to communicating, pulling you by the arm to the fridge.

The years have made me more aware of my role as a pediatrician. If I suspect something, I check it out. And sometimes it's just a child who's going to be fine.

I heard this story a preacher told of a six year old boy who had never spoken in his life. His parents lived in a rural area of the United States. They'd taken him to every doctor, travelled hundreds of miles, and they finally came to the conclusion that he'd never speak. One day he came home from church and said, "Hey Mom, the toast is burning!" His parents went crazy, "Hey, you're talking, wow!" He replied, "Everything was perfect before now."

Sometimes children aren't speaking because they have other ways of communicating. Sometimes, a 15 month old who isn't speaking becomes a chatterbox at four. But as a doctor, I've changed my posture. If a child is getting older, but isn't speaking, isn't engaging, doesn't make eye contact, I become concerned and I send them to a specialist.

It is difficult to find a population of children with autism who were never vaccinated, because most children have been vaccinated. Interestingly, children typically present with autism around the same age that the MMR vaccine is administered, between 15 and 18 months. In the UK, they give the MMR vaccine between 12 and 15 months. So it's easy to correlate vaccines with the condition, but there could be dozens of other explanations. That on its own is not a proof. It could be diet, or lack of breastfeeding, or environmental, or any number of other things occurring at the same time.

Hand Foot Mouth Virus

It's prevalent. In the last six weeks, we've seen a lot of it. Typically, we see it in children under five. They get a fever for a day or two, and they get blisters and bumps around the bottom of their hands/feet and around the mouth for 3-5 days which crust over and look awful, then they get better. It's hard to prevent. There are no vaccines. It's passed around by kids in nurseries.

Flu - If your child is very active in sports and you see the onset of a cold, should they be playing sports during that time?

Great question. Many athletes have collapsed playing tennis or soccer. In the old days, if you had a cold or flu, they'd tell you to go sweat it out, man. Bad idea. It can affect your heart muscle, myocarditis. Your heart swells and becomes ineffective as a pump.
When you have the flu, rest, rest, rest. Lots of fluids, take it easy.

One reason why children get behind on vaccines is that they have a cold or flu, and there's a misconception that they can't be immunized. No, it's perfectly fine. If you have fever, lethargic, you're lying around in bed--no vaccine. If you have an ear infection, you have a cold, there's no reason why you can't be vaccinated.

Is there an allergy test for children who have eczema or allergies?

Dr. Paul Hunt is a pulmonologist and immunologist. He lives in Freeport but comes every two weeks to Dr. Jerome Lightbourne's pediatric office.

Wellness tips to prevent Rhinisitis?

Eating healthy, resting, fruit, vegetables, vitamins are good but don't always prevent you from being overcome by infections.

CONCLUSION

FamilyTalks at Sandbox resume in January 2020, and guests may register in the store, or the brand's Facebook page. Registration is required for planning and hospitality.

RESOURCES

Important Information for All Parents

www.healthychildren.org

If you have children in your household, keep this phone number on speed dial, and on your fridge.

Poison Control Center in Tampa, Florida every household with young children needs. They have a list of medications, household cleaning product imaginable, open 24/7
From The Bahamas, dial 1-880-222-1222.

They will give instructions about whether to worry, whether to take your child to the hospital, whether to induce vomiting.

Bahamas Ministry of Health has an Immunization Schedule on their website. Follow the links:
www.bahamas.gov.bs / Ministry of Health / Government / Infants' and Children Health / Immunization for Children

Schedules and Infographics from (US) Centers for Disease Control

Child Vaccine Schedule
https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html

Adult Vaccine Schedule
https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html