Moderator- Hello, and welcome to public health Live. I'm your host. Joining you from the School of Public Health University at Albany. Please fill out your online evaluation. Continuing education credits are available. We encourage you to let us know what topics are of the interest you and how we can best serve your needs. Today's program is vaccine acceptance. We will hear from the Dr. Paul, chief of infectious diseases and professor of the Children's Hospital in Philadelphia. We will also revisit past broadcasts as we explore facts about the safety and importance of vaccination.

Dr. Paul- I am the chief of infectious diseases here in Philadelphia. I came here in 1980 as a fellow. The chairman of infectious diseases at the time was Stanley Platkin. I remember walking into his office and it struck me that he is just looking basically at his report card, the number of cases that had occurred over the past year following a vaccine he had recently made. It seemed like a very powerful technology and he was a very persuasive man. I started working on a vaccine back in 1980. To me, it seems like a balance between individual rights and freedoms and societal rights. Here, is a question, should it be your right to contract a potentially fatal infection? I think the answer to that question is no. I am drawn to children because I see them as underdogs and I want to stand up for them. I had children because I love children. I went into pediatric infectious diseases because I love children. I went into pediatric infectious diseases because I was involved in trying to make a rotavirus vaccine because 2000 children die of rotavirus every day. We see children of men with chicken pox because parents have chosen not to vaccinate them and pretences because parents decided not to vaccinate them. We have vaccines that can safely and effectively prevent these infections. When you watch a child coming to the hospital and died of an infection that has a vaccine, you never forget it. Although, you never take offense of a strong stance on behalf of scientific safety, I get many parents who really appreciate the work I do.

Moderator- Dr. Sharon Hummouston joined us in 2003. She is a pediatrician.

Dr. Hummouston- One of the jobs of the primary-care physician is to get across that it is not a matter of the vaccine as risk and the diseases not have risk. This comes down to a balancing act because there are still diseases are around. We see in England where the number of children who are vaccinated against measles, mumps, and Rubella are dropping. They are seeing an increase in measles again and an increase in mumps. Parents are not seeing the disease. Before, the fear of the disease overshadowed the fear of the vaccine. Now we have been so successful that the fear of the disease is practically gone. Who has seen measles? Even my own residence do not remember chickenpox anymore. If the young physicians do not remember what these diseases look like -- I never saw a case of polio. If we do not have that to work from, we have to ask parents to recall it from the time they were not alive.
Moderator- Polio is almost gone from the world now. It is because of the vaccine?

Dr. H - I never saw polio or the consequences of polio, but the rows and rows of children on the respirators because of polio -- I see this side and it makes me think about how brave those nurses were to be in the room where they note those children were excluding poliovirus in their school. This whole environment of fear made parents so willing to get the vaccine back then. I remember lining up for the sugar cube. Parents were delighted to have that opportunity. Now things have changed. In my own lifetime HIB was the big one. We saw it pretty frequently in the emergency department. Here, you see on an epidemiological level, children less than five. When I started as a resident, it was fairly common, about 40 per 100,000. After the vaccine, the incidence has dropped off. There is a case that I feel so strongly about the HIB vaccine because I saw it happen.

Moderator- How would you describe the shift in perceptions?

Dr. H – When parents are first exposed to the disease, polio is a great one. Where polio first came into the consciousness of the American public with the outbreaks over the summer, families were frantic. The vaccine was seen as a breakthrough, vaccines were good. Over time, as the incidences of the vaccine fall and things are stable, parents start to see the vaccine as more dangerous than the disease. I think that is where we are with a lot of diseases now.

Moderator- There is a short video of a recent flu immunization clinic held by the employees of the State Department of health. In this video, employees talk about why they decided to receive this year's influenza vaccination.

Employee- I'm getting a flu shot today because I want to alleviate the possibility of getting the flu.

Employee- I've never had one and I'm in a high-risk group.

Employee- My daughter has asthma and I thought it would be good to get a shot and protect her from getting the flu.

Employee- Having older parents and younger children, I feel like keeping myself healthy to protect them.

Employee -I do not want to give it to anyone outside come into contact with either.

Employee -I have asthma.
Employee - I am getting it to protect myself and my family. I'm also a health-care worker. It is a great way to protect yourself. I get one every year.

Employee - I'm scared of the shot itself. It has been a while since I've gotten a shot.

Employee - I get the flu shot every year.

Employee - I do not have any reservations about getting vaccinated. I have remained healthy.

Employee - I probably have more reservations about this interview than getting vaccinated. But, yeah, probably, I think everyone is apprehensive about getting the shot.

Employee - I definitely encourage anyone I talk to to get the flu shot. I think it is safe and you should get it.

Employee - I would definitely promote getting the flu vaccine. We are protecting the community, protecting myself, my family.

Employee - I think the vaccination is the best way to prevent the illness. I do not have time to be down and stick with any other illness. This is a proven way to keep myself healthy. Why wouldn't I?

Moderator - Let's take a look at health care workers. As this new virus continues, the health of the medical work force is of growing concern. The efforts are being made to encourage health-care workers to get immunized.

Dr. Paul - New York State has recently taken a stance to mandate a vaccination for health-care workers. I think that is sensible. There's certain facts that are not in debate. Health-care workers can acquire influenza in the hospital and transmit that virus to someone in the hospital, putting them at very high risk of getting pneumonia or being killed by influenza. The question then becomes an issue of patients' safety and rights. I think the patient should have rights to be taking care of people who are immunized against inflation because it is of such high risk. It is not just the influenza vaccine that we ask our health care workers of. We also asked them to get a hepatitis B vaccine. We ask them to keep their fingernails only a certain length. This one you could argue is the most important one. In fact, it is grandfathered in as a "My right to choose" issue. It is not a question about whether or not it works. Hospitals have high immunization rates among the health care workers, have a much lower rate of influenza. Almost all health-care professionals are perfectly willing to not only protect themselves, but they see it as protecting their patients. Most of them are perfectly willing to get it. There are a few that choose not to get
it, who fear vaccines mostly because of being myths about vaccine safety. But most do feel it is their responsibility. And it is their responsibility.

Moderator- Doctor Shaw began a program that encouraged immunization of newborn contact, such as parents and nurses. This has received widespread attention and was the subject of our April, 20009 "Public Health life." Let's see what this doctor has to say about immunization of health-care workers.

Dr. Shaw- I am an assistant professor here at the Medical center. I stayed at the University School of Medicine in the New York state system. I did my fellowship in York City and it was around the time that the advisory committee decided to a price immunization for close contact with children. I really felt that the ICU, because we have liberal visiting hours, because there 24/7 coverage of people who are highly trained, particularly our nursing staff and our residents and fellows and attending staff, that it was really a unique arena to be able to deliver these immunizations because the parents are available and we are available and its convenience and available -- it is convenient and available 24 hours a day. It is a very unique nexus for a targeted population, and that would be parents of premature infants, who is the children get flu, windup getting sicker and will likely be hospitalized and an older child who gets influence. I do not think any program in that the United States or the world will be successful unless the nurses believed in it. It would be impossible to do anything without them. It is also important because the nurses, for the most part -- especially after the patient has been in ICU for a while -- their first contact is a parent or the nurse. Parents will ask the nurse, what do you think about the vaccine? Their opinion goes a long way in influencing the parents. We're not planning on doing this. About midway through the first year we were doing the program, I started noticing where we were putting the vaccine Lot # and we started having a lot of nurses that are in our NICU. We started looking at this in a more systematic way. We pulled all of our nursing staff and found that just by keeping the vaccine available in the unit 24 hours a day, seven days a week, and making the whole unit more influenza aware because the nurses were talking to parents about the vaccine and other reminders signs were up throughout the units, the staffing immunization rate went up from about 30%, which for health care workers is about where we were at the time we get the project, to about 90% as well. Part of it is more people had the opportunity to get immunized, particularly during the night shifts when employee health and access to getting immunizations from the medical center might not be as convenient. We thought this was an interesting phenomena and we started looking at our nursing staff and realize that a lot of our nurses for getting the flu shot for the first time. The interesting thing about that is that a lot of our nurses have reasons to get the flu shots that were completely not related to their status as a health-care worker, whether it be their own age, whether it be the presence of a child at home, whether it be a condition like asthma. And a lot of them had seen their physicians for general checkups, but the flu vaccine was not available at the time and they never made a follow-up appointment, word was not something they've specifically requested, Ward was not as
have -- heavily emphasized as it buys -- or it was not as heavily emphasized as it was in our unit. We had a greater role vaccination rate, which was something that was not expected, and we laid the groundwork for immunization against pertussis. I do have to say that here, our nursing staff was really welcoming of us introducing the project. But not every nursing staff will be that way. Getting better information to the bedside is one of the obstacles. It is kind of like a chemical reaction. You always have a certain amount of activation energy that you have to overcome. Once you get over the initial energy expenditure, you have a much lower amount of energy to keep the program going. The total cost of buying the flu vaccine costs less than the admission costs for one critically ill person for one day. If you consider you of 1000 patients over 365 days, it is a minimal financial commitment on the part of the institution. As pediatricians and doctors, we need to begin to accept the fact that immunization of close contacts of our patients is the next frontier of immunization. I think that will be the burden of public health workers. I think there will be with greater time, greater acceptance in the adult community to providing immunization, but I think the pediatrician who spend their time in the realm of preventive care and in the realm of vaccines can really be an important part of the Public Health structure. The more we seize opportunities to vaccinate children and adults, where those opportunities may be - - whether it is in the emergency room, the neonatal intensive care unit, the pediatric intensive care unit -- the more we seize those opportunities, the more successful we will be at preventing communicable diseases to children.

Moderator- The topic of vaccine exemption also came up in our interview with the doctor. Dr. Paul- It is certainly not your constitutional right to not get a vaccine. I mean, this has gone to the Supreme Court twice, once in 1905, the second time in 1922. In both cases, the Supreme Court said that the state health departments can compel vaccination because it is a good public health initiative. But what happened in the 1970's and 1980's was the religious exemptions, which is to say that my religion states that I should not get the vaccine to and then falling back, a philosophical exemption, which is to say I hold a moral or religious belief -- I will immoral believe with the same strength of a religious belief. On its face, it is not an awful thing. I think that people who are choosing to exempt themselves from a vaccine should have put in the way of them an educational program that gives them the facts about vaccines and vaccine safety. I think they should be write something about why they are choosing not to get it and it should be notarized. It should not just be some signing of a form. If we mandated all vaccines for all children who are not medically exempt, I think that would create a backlash that would do more harm than good. On the other hand, we're getting to a point in this country will we are starting to -- we are seeing people not vaccinating and it can spread from one child to the next. We saw nine cycles of transmission among American children recently and we have not seen that a long time. That means critical number of people are not getting vaccinated. Hundreds of thousands of people cannot be vaccinated because they're getting chemotherapy for cancer is or they're getting treatment for their transplants or receiving steroids for their asthma. They depend on
people around them being vaccinated. Ultimately, the question is, is it your societal obligation to be vaccinated assuming that you do not have a medical exemption? I think the answer to that question is yes and we will see this more and more of these outbreaks continue to occur.

Dr. Sharon Humiston- I think that this is one of the things, again, a sign of our times where people feel like individual rights overshadow community responsibility. There is plenty of data that says that children in schools, that children are allowed to enter school despite some exemptions. There is a higher risk of measles not only for the children with exemptions, but also for their peers. That is because these vaccines are just medication. They're not magic. Not 100% of people who get the vaccine are covered by them. It is because the vaccines are not perfect, that herd immunity is affected. 100 years ago or 300 years ago, people decided to protect children in school. They wanted to take advantage of herd immunity if you're not willing to give your child vaccinated, then they do not want your child in the school. In most communities, parents prefer to have safe schools rather than an emphasis on individual rights.

Moderator- Should states modify their policies, or are it best to keep it as it is and encourage all parents to vaccinate?

Dr. Sharon- This is something that will never be decided at a federal level. Every state has a different flavor on this. Every state is going to make their own decisions. At this stage, some states are still requiring the basic vaccine that cover diseases that are airborne, so that if they are easily spread in schools -- some states have chosen to add things like hepatitis B. It varies from state to state. I think it is better to have the states decide.

Dr. Paul- The current H1N1 virus, which is a virus that is going to be circulating this season and no doubt will cause hospitalization, suffering and death, is made using the technology that has been used to make influenza vaccines for the past 60 years. They're the same vaccine. They just contain different strains. People will see the novel H1N1 vaccine as novel and they are worried that it has not been tested well enough. The fact of the matter is, this is a pandemic strain and it is sweeping across the world over the last six to eight months or so and you know it is going to get worse in the winter months because it always does and you need to get it now. Unfortunately, you're not one to have many years of testing. That would never be true of a pandemic. The notion that it is being rushed to market is an interesting way of putting it. It would have to be rushed to market if it is to make any difference. The only time we have had the vaccine to a pandemic was in 1957 the strain was identified in May and we started distributing the vaccine and September. There were thousands of people that died of influenza in 1957 and there would have been tens of thousands more would have died without the vaccine. It is a good thing. I think this has happened over the last 10 years or so, the notion that although people agree that vaccines prevent infectious disease, perhaps we have substituted chronic diseases for infectious diseases. That vaccines caused diabetes or allergies or more recently, autism. And I think the
public health and academic community has responded to those concerns by doing the kinds of studies that answer that question. Are you at greater risk, for example, of having autism if you have gotten vaccines or if you have not? We have examples of contamination of a number of vaccines and the answers are challenging. Once we address those questions, communicating the science to the public and that has become a challenge. Many groups have step forward, American Academy of Prevention, CDC and our group here in Philadelphia as well as others have tried to create materials to make the science compelling. Also, to try to make this side of vaccine safety compelling, to show that people have responded to these questions and concerns because they take them very seriously. Sometimes parents will say they do not listen to us, but I think that medical professionals have listened to them. The hard part is trying to get that information across. For example, if you are choosing not to get a MMR vaccine because you're afraid it causes autism, here is what that choice really means, and so there have been outbreaks of measles in 2008. We have lost herd immunity at some level. I wrote a book called “Autisms False Prophets,” about the false assumption that MMR causes autism. AT the time, I was receiving a fair amount of hate mail and threats, but when my book was published, it really galvanized those that thought it would only increase that. I got letters and phone calls from parents with children with autism who said, thank you, I never thought it was vaccines. I think this whole autism story has been taken hostage by the vaccine folks. I did not really know they were out there, I underestimated those parents. I would have made a bigger point to include their point of view in the book. There is a silent majority.

Moderator- Does MMR causes autism?

Dr. Sharon- This one is so big and has hit the media in such a big way. Even "Newsweek" had a cover story on autism. It has been a difficult one to study because no one even knows about whether the incidents of autism has actually increased because the diagnostic criteria for autism changed. It may be an apparent increase in autism because the definition, and because pediatricians are much more involved in early intervention, and looking who needs the--- intervention early on. The big push on this one came when an English gastroenterologist named Andrew Wakefield did a case series in the Lancet and he reported in that case series that children might have -- that children with autism might have some intestinal abnormality and inflammation that made it so that they became autistic. That led to a lot of other studies. Here you are seeing a study that was done subsequent to Andrew Wakefield's report. It was a population-based study in the Northeast region to investigate trends in the incidence of autism related to MMR. They looked at almost 500 cases. In the next slide, you're seeing a graph that shows the apparent rise in autism. You see that the rise in autism came well before MMR was introduced. You can see the arrow where MMR was introduced in England in about 1988. It seemed like the rise in autism had already occurred. There was no particular step up or change in the trend after the introduction of MMR. There is no change in diagnoses whether the child is vaccinated or not. Children with autism were not more likely to be vaccinated than children with
out autism. It did not increase in the months after autism. They ended up concluding that if there is an association between MMR and autism, it is so rare that it could not be identified. To have a scientist say that it is so rare that the connection could not be found, that is not a good media sound bites. Parents are not reassured by scientists and that is one of the problems.

Moderator- What about the broad studies? It appears that all of these studies are from abroad. I may be wrong. Have there been American cities?

Dr. Sharon- Yes, in California they did a similar study to what they did in England. They looked at a broad spectrum of children from 1980 to 1984. They also found that in looking at the trend, there was no apparent correlation between an increase in MMR coverage and children becoming autistic. They said that the evidence favors rejection of the causal relationship in the population level. There's a consistent body of epidemiological evidence that shows no association and that there is no proven biological mechanism that would even explain such a relationship. If you hear the story of hypothesis around this, it is pretty far out. Somehow, the inflammatory process in the bowels of an autistic child lets some protein across that affects the blood-brain barrier and affects the brain of an autistic child. But children with inflammatory bowel disease are not at higher risk than other children. That does not make sense. We do not know of any protein that knocks out certain parts the brain and not others. And we do not know of any protein that crosses the blood-brain barrier. There is a leap of faith in that theory. Not only is there no epidemiological evidence, but there's no biological evidence on this one.

Dr. Paul- Over the past year, you have seen a shift in the way that the media commmuicates the story. There is an imbalance. What has changed is that you see the mainstream media covering this as a balanced story. Generally they have been really good. It has been driven to the anti-vaccine blogs. I think the court case helped. To some extent, the book. I think the story has really turned around. It is gratifying. The lesson is, if you really get out there, you can really make a difference. And I think a different has been made.

Dr. Paul- Thimerosal was removed from all routinely administered childhood vaccines in 2001. There are still some preparations of multi dose influenza vaccines. Thimerosal is still contained in some vaccines. There have been many studies done looking at thimerosal, which contains mercury, and any harm, even if it can cause subtle harm. There have been six studies looking at whether or not it causes autism and the answer has been clear in all of them, no. And there have been studies done at other levels of mercury poisoning and the answer was no. We all ingest subtle levels of mercury every day from the environment. Mercury has a half life that is roughly 43 days in this thimerosal. Environmental Mercury is much more likely to accumulate than ethyl mercury. The ethyl mercury in the vaccine is excreted from your body much more quickly. We all have things like mercury and arsenic in our bodies. The point is not to be exposed to large quantities of them. At low levels, you're not in trouble. The dose makes the poison. That is
always true. Once we started taking out thimerosal in vaccines, the incidents in autism has only increased. If thimerosal was in any way contributing to autism, the opposite would have happened.

Dr. Sharon-Typically thimerosal is a mercury based preservative. There are two different kinds of mercury. The guidelines from the FDA and the Environmental Protection Agency are based on the other kind of mercury. Not the kind that is in Thimerosal. That is step number one. Step number two is that someone from the FDA sat down and calculated what the maximum exposure that a child could get if all the brands of vaccines contain Thimerosal. Why do we have it in vaccines at all? It is because of a vaccine safety issue. The vaccines were contaminated with germs and children vaccinated were getting ill and some even died because of it. It was a vaccine safety issue. With that is the background, the FDA takes a look at the total content and says for a newborn infant who is on the low birthrate side receiving a hepatitis B vaccine containing thimerosal, that they might get more than one of the three agency guidelines. That is another confusing point. That the three agencies have different guidelines is even more confusing. Given that information, and because everyone feels like the less mercury the better, the agencies agree that manufacturers should get the mercury out of vaccines. That was immediately taken up by the manufacturers and now, for pediatric vaccines, we cannot get a large vile because you need a single viles that do not contain thimerosal. There was never ever any evidence that it contained anything that hurts children. It was not removed because people were finding that it was hurting children. Again, it was preventive. There is now in the whole childhood immunization routine, none of the vaccines that we use contain the thimersol as a preservative. There are some trace amounts, but it is so low that they cannot be detected. There is more in a tuna sandwich. If a mother eats a tuna sandwich, there's more in her breast milk then there is in the vaccine.

Moderator- Does thimerosal cause autism or ADHD?

Dr. Sharon- This is the multimillion-dollar question because there are huge lawsuits around it now. It is getting a lot of attention not only in the media, but also in the courts. What the institutions have said is that the exposure through childhood vaccines causing developmental disorders does not receive support from a clinical or experimental evidence. So far, no evidence. But in this case, unlike MMR and Autism, the hypothesis is plausible. For that reason, there have been two more major cities. One was done by the group here in the United States and they found no association with thimerosal contained in the vaccines and any of these disorders, autism and so forth. We talked about a study done in Denmark with autism and thimerosal. In that case, the children who had received thimerosal in their vaccines actually had a lower incidence of autism.
Dr. Paul- As the parent of two teenage children, I think my job is to put them in the safest position as possible. The vaccines provide that safety. I could not wait to get my daughter the HPV vaccine because I know at some point she is going to have sex. I can protect her from that safely. When they became adolescents, my wife and I did everything to keep them as safe as possible. My message to health-care workers is, hang in there. It feels quite burdensome to constantly be answering questions about vaccine safety when science has already addressed that. But I think we have made a difference and if we continue to hang in there and hammer that message home, we will continue to make a difference. Ultimately, we are responsible for that child's health.

*Question and Answers*

Question 1- How should a pediatrician respond to parents who are hesitant to vaccinate their children?

Dr. Paul- I think pediatricians are in a tough spot. On the one hand they have some parents who come to them -- a small percentage of parents who choose to get no vaccines. Most want an individualized schedule. What parents are actually asking them to do is practice substandard care. We know the vaccines work. It is not a matter of debate. You have these groups that recommend a standard of care. When a parent comes and says, no, I do not want those vaccines, to a pediatrician is a lose-lose situation. On the one hand, they can go along with it and watch those children not get vaccinated. In Philadelphia, we had three children in the last few months who died of bacterial meningitis, from a bacteria that was preventable by vaccines. It is hard for a doctor to say, I'm not going to give the vaccine and send you into a community where I know your child is at risk. On the other hand, some pediatricians will say, I cannot see you if you are going to refuse this because it is a bad choice for your child. If you do that, you lose any chance to get that child vaccinated. It puts the pediatrician in an untenable situation.

Question 2- Should parents make up their own vaccination schedules?

Dr. Paul- When you choose to delay or separate or withhold vaccines, all you do is increase the time in which children are susceptible to diseases that could cause them to be hospitalized or die with no benefit. There is no reason to space out or separate or withhold vaccines. It may make the parents feel better, but it is no benefit to the child. It just puts them at greater risk. When you start to make up your own schedule, it can be very difficult for the pediatrician to know exactly what you have gotten when. It is more likely you're going to miss doses. The current schedule recommended by the CDC has been fairly tested. There's something that people do not know about. When a new vaccine comes on to the market, the FDA requires that a vaccine not be given with other vaccines. When you make up your own schedule, you go away from published studies that are for your benefit.
Moderator- Thank you for joining us today. Please remember to fill out your evaluations on line. Your feedback is always helpful to the development of our program and continuing education credits are available. Here now are cutting our programs on iTunes as Podcast. They will be available early next week. Our wide stream will be available in a week or two. Please join us for our next webcast on November 19. It will focus on posttraumatic stress disorder in veterans. See you next time on public health live. [CAPTIONED BY THE NATIONAL CAPTIONING INSTITUTE--www.ncicap.org--]