Topics and anticipated Questions for Non-medical exemption hearing—quotations indicate talking points of those who oppose

1. General talking points
	1. CHOP <https://www.chop.edu/centers-programs/vaccine-education-center/vaccine-details>

Vaccines have dramatically transformed the landscape of medicine over the course of the 20th century. Before vaccines, **parents** **in the United States could expect that every year**:

* Polio would paralyze 10,000 children.
* Rubella (German measles) would cause birth defects and mental retardation in as many as 20,000 newborns.
* Measles would infect about 4 million children, killing about 500.
* Diphtheria would be one of the most common causes of death in school-aged children.
* A bacterium called *Haemophilus influenzae* type b (Hib) would cause meningitis in 15,000 children, leaving many with permanent brain damage.
* Pertussis (whooping cough) would kill 8,000 infants.
* Vaccines have reduced and, in some cases, eliminated many diseases that killed or severely disabled people just a few generations before. For most Americans today, vaccines are a routine part of healthcare.

Yes, we live in a different world from the pre-vaccine era. Vaccines have transformed life expectancy and quality of life for all of us. The fact is, these diseases still exist, and vaccines only work if we use them. These diseases will make a comeback if vaccine refusals rise.

* 1. Vaccination protects the people you care about.

Vaccination is not just a personal choice. The vaccinated community helps to protect those who are not vaccinated, a concept known as “herd immunity” or “community immunity.” Simply put, when a person is vaccinated, they prevent disease from being spread to others in the community, including:

* Babies too young to receive vaccines
* Unvaccinated children and adults
* Pregnant women
* The elderly
* Individuals with weakened immune systems, such as those with asthma, chronic illness, or undergoing treatment for cancer
* Individuals who are allergic to vaccine components

However, no one is asking for altruism from parents on behalf of their children’s safety to protect other children. Vaccine best protects the person who is vaccinated, community immunity is an important added benefit.

1. **Vaccine Safety / Risk vs Benefit** <https://www.vaccinateyourfamily.org/vaccine-safety/>

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* And pertussis (whooping cough) would kill 8,000 infants.

Vaccines have reduced and, in some cases, eliminated many diseases that killed or severely disabled people just a few generations before. For most Americans today, vaccines are a routine part of healthcare. We live in a different world from the pre-vaccine era. Vaccines have transformed life expectancy and quality of life for all of us.

Since vaccines are administered to otherwise healthy people, they are among the most rigorously tested and safest medical products on the market. In fact, it can take 15 to 20 years – or more – and approximately $1 billion dollars to thoroughly test a new vaccine before it is licensed and made available to the public.

Vaccines are safe and effective. However, it is important to acknowledge that vaccines are neither 100% safe nor 100% effective.]

**\*\*Even one serious adverse event in one million doses of vaccine could not be justified if there were no benefit from vaccination. But this is not the case, there IS enormous benefit. If there were no vaccines, there would be MANY MORE cases of disease, and along with more disease, serious long term effects and deaths. Looking at risk alone is not enough—you must look at both the risks and benefits.** The great benefits of vaccines, which include that they have saved millions of lives, far outweigh any small risks.<https://www.skepticalraptor.com/blog/wp-content/uploads/2013/04/risks-disease-vs-vaccine.jpg>

For example, on one side, the risk from measles diseases: Even today with modern medical treatments, measles infection results in serious complications such as pneumonia in 6 out of 100 cases (6%); encephalitis in 1 out of 1,000 cases, which can result in permanent deafness and intellectual disability; death in 2 out of 1,000 cases, and a rare, fatal long term complication known as subsclerosing panencephalitis in as many as 1:1700 cases.

The counterpoint to the risk from measles disease is the risk from measles vaccine: A serious allergic reaction to MMR vaccine occurs in about 1 out of 1 million doses administered. These types of serious allergic reactions can be scary but are almost always treatable, and healthcare personnel administering vaccines are trained to treat them. [A child is 100 times more likely to get struck by lightning than have a severe allergic reaction to a vaccine.] While most children don’t have any reactions at all after their vaccines, those that do typically have mild reactions such as redness, pain or swelling where the shot was given, or a low-grade fever, and resolve within a few days.

**It is important to recognize that the decision to forgo vaccination is not a risk-free decision; it is a fallacy to believe that avoiding vaccinations eliminates risk.** The risks of natural infection outweigh the risks of immunization for every recommended vaccine. The chances of death from these vaccine-preventable diseases are over [1000X higher than the possibility of known adverse event](https://www.skepticalraptor.com/skepticalraptorblog.php/vaccine-injury-payouts-trope-nvicp-statistics/)s that are caused by vaccines. **Parents who choose not to vaccinate often do so to avoid risk, but choosing not to vaccinate is the far riskier choice.**

Even though some of the vaccine-preventable diseases that we protect against are rare in the U.S., they still occur around the world, and unvaccinated travelers can easily bring these diseases with them to the U.S., putting those who are not immune and those who are immune compromised at risk of serious illness. This has occurred in past years leading to measles outbreaks in 11 states including California, Washington, Oregon, New York and the largest in New York City. The United States very nearly lost its measles elimination status as a result of these ongoing outbreaks.

[The disease prevention benefits of getting vaccines are much greater than the possible side effects for almost everyone. The only exceptions to this are people who have specific health conditions, such as a very weak immune system, or if they had a severe allergic reaction to a previous vaccine dose. For those individuals, specific vaccines would be contraindicated and should it be a child, the child would be medically exempt.]

Quoting one study published in the medical journal *Pediatrics* states that, “Modeling of vaccine impact demonstrates that routine childhood immunizations in the 2009 US birth cohort would prevent ~42,000 deaths and 20 million cases of disease and save $13.5 billion in direct health care costs and $68.8 billion in societal costs. The adverse events identified by the authors were rare and in most cases would be expected to resolve completely after the adverse event. This contrasts starkly with the natural infections that vaccines are designed to prevent, which may reduce the quality of life through permanent morbidities, such as blindness, deafness, developmental delay, epilepsy, or paralysis and may also result in death.

1. **Vaccine Safety Monitoring / How Vaccines are Licensed**

How do we know vaccines are safe? <https://www.vaccinateyourfamily.org/vaccine-safety/>

**Vaccines are one of the most thoroughly tested medical products available in the U.S. Before a vaccine can be considered for approval by the FDA, a vaccine manufacturer must show it is safe and effective through clinical trials.**

Developing a new vaccine begins with exploratory stage and pre-clinical stage before advancing to three stages of clinical trials. Together, this scientific process can take over a decade and cost millions of dollars. The FDA then examines these studies and determines whether a vaccine is safe, effective, and ready to be licensed for use. The FDA only licenses vaccines that have data that shows that the vaccines’ benefits outweigh the potential risks. If there is any question about the data, or any holes in the data, the FDA will request further studies before approving the vaccine.

**After a vaccine is licensed and recommended for use in the U.S., there are four systems in place that work together to help scientists monitor the safety of vaccines and identify any rare side effects that may not have been found in clinical trials.**

Even large clinical trials may not be big enough to find very rare side effects. For example, some side effects may only happen in 1 in 100,000 or 1 in 500,000 people. Second, vaccine trials may not include certain populations like pregnant women or people with specific medical conditions who might have different types of side effects or who might have a higher risk of side effects than the volunteers who got the vaccine during clinical trials.

[Vaccine Adverse Events Reporting System (VAERS)](https://vaers.hhs.gov/index.html)

**VAERS is a passive reporting system**. That means it relies on individuals to report vaccine reactions. Anyone can report a reaction or injury, including healthcare providers, patients and patients’ representatives, such as caregivers or attorneys. The system is co-managed by the FDA and the CDC. The intent of VAERS is to cast a wide net to include any potential adverse event so that a problem may signal the need for further evaluation. Is it okay that VAERS is a passive system? While ideally all events would always be reported, there are other surveillance systems which do not rely on passive reporting to overcome this limitation.

**It is important to note that VAERS data alone can’t be used to answer the question, “Does a certain vaccine cause a certain side effect?” This is because adverse events reported to VAERS *may or may not* be caused by vaccines.**  There are many reports in VAERS of common conditions that occur just by chance after vaccination. Further investigation may find no medical link between vaccination and these conditions. Instead, the purpose of VAERS is to see if unexpected or unusual patterns emerge, which may indicate a vaccine safety issue that needs to be researched further.

[The Vaccine Safety Datalink (VSD)](https://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vsd/index.html)

Established in 1990, VSD is a collaboration between the CDC’s Immunization Safety Office and eight large health care organizations across the country. It conducts studies based on questions or concerns raised from the medical literature and reports to VAERS. In addition, when new vaccines are recommended or if changes are made in how a vaccine is recommended, VSD will monitor the safety of these vaccines.

[The Clinical Immunization Safety Assessment Project (CISA)](https://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/cisa/index.html)

CISA, which was created in 2001, is a national network of vaccine safety experts from the CDC’s Immunization Safety Office, seven medical research centers and other partners. CISA addresses vaccine safety issues, conducts high quality clinical research and assesses complex clinical adverse events following vaccination. CISA also helps to connect clinicians with experts who can help consult on vaccine safety questions related to individual patients.

[The Post-Licensure Rapid Immunization Safety Monitoring System (PRISM)](https://blogs.fda.gov/fdavoice/index.php/tag/post-licensure-rapid-immunization-safety-monitoring-system-prism/)

PRISM is a partnership between the FDA’s Center for Biologics Evaluation and Research and leading health insurance companies. It actively monitors and analyzes data from a representative subset of the general population. PRISM links data from health plans with data from state and city immunization information systems (IIS). PRISM has access to information for over 190 million people allowing it to identify and analyze rare health outcomes that would otherwise be difficult to assess.

In January 2013, the Institute of Medicine (IOM) published the most comprehensive examination of the immunization schedule to date, and the report uncovered no evidence of major safety concerns associated with adherence to the CDC-recommended childhood immunization schedule.

What does the Institute of Medicine (IOM) Say about Vaccine Safety?

• “The current recommended U.S. childhood immunization schedule is timed to protect children from 14 pathogens by inoculating them at the time in their lives when they are most vulnerable to disease.”

• “Before the ACIP recommends adding a new vaccine to the immunization schedule, it reviews comprehensive data about that vaccine’s safety and efficacy in clinical trials, injuries and deaths caused by the disease the vaccine is designed to combat, and the feasibility of adding the new vaccine into the existing schedule, among other factors.”

• “Delaying or declining vaccination has led to outbreaks of such vaccine-preventable diseases as measles and whooping cough that may jeopardize public health, particularly for people who are under-immunized or who were never immunized.”

• “States with policies that make it easy to exempt children from immunization were associated with a 90 percent higher incidence of whooping cough in 2011.”

• “…the IOM committee finds no evidence that the schedule is unsafe. The committee’s review did not reveal an evidence base suggesting that the U.S. childhood immunization schedule is linked to autoimmune diseases, asthma, hypersensitivity, seizures, child developmental disorders, learning or developmental disorders, or attention deficit or disruptive disorders.”

1. **“Toxic ingredients”**

CHOP: <https://www.chop.edu/centers-programs/vaccine-education-center/vaccine-ingredients>

There are no hidden ingredients in vaccines, and none of the listed ingredients are toxic, especially not in the amounts that are contained in vaccines.

An example that is cited by skeptics as to the toxicity of vaccines is formaldehyde. Formaldehyde is used in some vaccines to inactive toxins or kill viruses. Skeptics say, isn’t formaldehyde listed as a carcinogen? Only residual amounts are actually left in the final vaccine.

“Formaldehyde also occurs naturally in the environment. It is produced in small amounts by most living organisms as part of normal metabolic processes.”…National Cancer Institute

 In fact, the [quantity of formaldehyde found in the blood is 10 times greater than that found in any vaccine](http://www.chop.edu/export/download/pdfs/articles/vaccine-education-center/vaccine-ingredients.pdf).

“When the body breaks down formaldehyde, it does not distinguish between formaldehyde from vaccines and that which is naturally produced or environmental.”…FDA Common Ingredients in U.S. Licensed Vaccines

This small amount of residual formaldehyde is not going to cause cancer. It is the long-term exposure to high amounts of formaldehyde, usually inhaled formaldehyde, that is what we are concerned about. So while formaldehyde can be a toxin, the formaldehyde in vaccines is not toxic because the amounts are negligible even if you add up every vaccine ever received in a person’s lifetime.

1. **Vaccine Ingredients**

Vaccine Ingredients are the components that make up a vaccine; each of the ingredients included in a vaccine are necessary to achieve immunity.

Components include:

**Adjuvants** are substances added to vaccines that allow them to work better by enhancing the immune response to the vaccine, decreasing the quantity of vaccine needed to gain protective immunity, or lowering the number of doses required. Vaccines containing adjuvants are tested extensively in clinical trials before being licensed. An example of an adjuvant is aluminum salts — salts that contain aluminum have been used in vaccines since the 1930s. The quantities of aluminum present in vaccines are low and are regulated by the [Center for Biologics Evaluation and Research (CBER)](http://www.fda.gov/AboutFDA/CentersOffices/OfficeofMedicalProductsandTobacco/CBER/). **Given the quantities of aluminum we are exposed to on a daily basis, the quantity of aluminum in vaccines is miniscule.** There’s so much more aluminum in the environment, either in the food we eat or the water we drink, than we would ever get as a shot in vaccines. [That even though there is that difference between injection and ingestion,] there’s logarithmically so much more aluminum that you ingest that you actually have far more aluminum in your circulation because of what you eat and drink than you would ever get from vaccines. <https://www.chop.edu/centers-programs/vaccine-education-center/video/there-difference-between-aluminum-injected-vs-ingested>

Infants receive about 4.4 milligrams\* of aluminum in the first six months of life from vaccines, they receive more than that in their diet. Breast-fed infants ingest about 7 milligrams, formula-fed infants ingest about 38 milligrams, and infants who are fed soy formula ingest almost 117 milligrams of aluminum during the first six months of life. <https://www.chop.edu/centers-programs/vaccine-education-center/vaccine-ingredients/aluminum>

**Stabilizers** are used in vaccines to protect the integrity of the active ingredients during manufacture, storage and transport. An example of a stabilizer is gelatin.

**Preservatives** used in some vaccines to prevent bacterial or fungal contamination. The requirement for preservatives in vaccines arose from many incidents in the early 20th century of children who developed severe and occasionally fatal bacterial infections after administration of vaccines contained in multi-dose vials. Few vaccines remain in the US that are distributed in multi-dose vials, most have gone to single dose vials and syringes, for which no preservative is needed.

**Manufacturing by-products…**Because vaccines are made from viruses and bacteria, some chemicals and cell by-products used during vaccine production may remain in the final preparation in minute quantities. Some examples include antibiotics, DNA, egg proteins, human proteins, and yeast.

1. **“no double-blind, placebo-controlled randomized clinical trials for vaccines”**

The idea that there are no double-blind, placebo-controlled randomized clinical trials for vaccines simply is not true. There are many double-blind, placebo-controlled randomized clinical trials that involved: flu, pneumonia, HPV, rotavirus vaccines, and others.

Double-blind, placebo-controlled randomized clinical trials are considered the “gold standard” when you do medical research.

A “Placebo Control” is a comparator in a vaccine trial that does not include the antigen under study. In studies of monovalent vaccines this may be an inert placebo (e.g. saline solution or the vaccine minus the antigen), or an antigenically different vaccine. In combined vaccines, this may be a control arm in which the component of the vaccine being studied is lacking.”

Do all vaccine clinical trials use a saline placebo? No, not always. Why isn’t every vaccine on the immunization schedule or every combination of vaccines tested using a double-blind, placebo controlled study?

According to the Recommendations of a WHO expert panel on Placebo use in vaccine trials:

“Placebo use in vaccine trials is clearly acceptable when (a) no efficacious and safe vaccine exists and (b) the vaccine under consideration is intended to benefit the population in which the vaccine is to be tested.”

The answer is that in order to do this type of study, you would have to have a very good justification for leaving many of the kids unprotected and at risk for a vaccine-preventable disease when putting them into the placebo group.

Instead, as is discussed in the article “Current topics in research ethics in vaccine studies,” if a vaccine is “already in use in some other country or community which is more or less comparable to site where the trial is planned, that vaccine should be used as the comparator.”

So instead of a placebo, it is more common “to give another vaccine that provides comparable benefit against another disease, or more willingly, against similar disease caused by different agents.”

When can you use a placebo control?

The article states that “placebo controls are ethically acceptable when there is no proven vaccine for the indication for which the candidate vaccine is to be tested.”

1. **Are There Any Long-Term Studies On Vaccine Safety?**

Vaccines are evaluated for safety in studies when they get approved, and continue to be evaluated for safety after they approved, using passive and active vaccine safety systems and long-term post-marketing safety studies.

According to the Parents’ Guide to Childhood Immunizations, a well referenced CDC publication

 “We learn about a vaccine’s safety during clinical trials before it is licensed, and monitor it continually as millions of doses are administered after it is licensed. We also know there is not a plausible biologic reason to believe vaccines would cause any serious long-term effects. Based on more than 50 years of experience with vaccines, we can say that the likelihood that a vaccine will cause unanticipated long-term problems is extremely low.”

I would like to provide a link to a web page with a bibliography of vaccine safety studies for the committee.

<http://eziz.org/resources/parented/studies/> and <https://www.vaccinateyourfamily.org/questions-about-vaccines/vaccine-research/>

The following is an abbreviated list. These long term studies on vaccine safety have looked at and determined no long term safety concerns from vaccination in the following publications:

Primary Ovarian Insufficiency and Adolescent Vaccination – no increased risk of primary ovarian insufficiency after HPV, Tdap, or meningococcal vaccines in this eight year study

On-time vaccine receipt in the first year does not adversely affect neuropsychological outcomes. – Timely vaccination during infancy has no adverse effect on neuropsychological outcomes 7 to 10 years later.

Human papillomavirus vaccination and risk of autoimmune diseases: A large cohort study of over 2million young girls in France. – no increased risk of autoimmune diseases during 33 month followup

Lack of association between hepatitis B birth immunization and neonatal death: a population-based study from the vaccine safety datalink project.

[Timely versus delayed early childhood vaccination and seizures](http://pediatrics.aappublications.org/content/133/6/e1492.long)
Hambidge et al.*Pediatrics*, 2014 (full article)

[Delaying vaccination is not a safer choice](http://archpedi.jamanetwork.com/article.aspx?articleid=1750202)
Feemster & Offit. *Journal of the American Medical Assn*, 2013 (abstract)

Association Between Estimated Cumulative Vaccine Antigen Exposure Through the First 23 Months of Life and Non-Vaccine-Targeted Infections From 24 Through 47 Months of Age – Participants were children ages 24 through 47 months, born between January 1, 2003, and September 31, 2013, followed up until December 31, 2015 and found no increased risk for infections not targeted by vaccines

Patterns of childhood immunization and all-cause mortality – found no difference in risk of all-cause mortality among fully vaccinated versus undervaccinated children in these kids followed until they were 48 months old

Sustained efficacy, immunogenicity, and safety of the HPV-16/18 AS04-adjuvanted vaccine: final analysis of a long-term follow-up study up to 9.4 years post-vaccination – found no safety concerns

Vaccination Status and Health in Children and Adolescents. Findings of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) – unvaccinated kids just got more vaccine preventable diseases

Long-term health effects of repeated exposure to multiple vaccines. – multiply immunized (MIP) subjects, observed for a median of 17 years, had no clinically significant differences with matched controls

Long-term follow-up of persons inadvertently inoculated with SV40 as neonates. – no excess risk of cancer 17 to 19 years after getting vaccines contaminated with the SV40 virus

Live Attenuated Influenza Vaccination Before 3 Years of Age and Subsequent Development of Asthma: A 14-year Follow-up Study. – no increased risk for asthma

Lack of association between receipt of conjugate haemophilus influenzae type B vaccine (HbOC) in infancy and risk of type 1 (juvenile onset) diabetes: long term follow-up of the HbOC efficacy trial cohort. – no extra risk of diabetes found 10 years after vaccination

Number of antigens in early childhood vaccines and neuropsychological outcomes at age 7-10 years. – the number of antigens received in the first two years was not associated with any later adverse neuropsychological outcomes.

Early-life determinants of asthma from birth to age 20 years: a German birth cohort study – asthma incidence was lower in vaccinated children – they were were evaluated from birth to age 20 years at 19 time points.

Rotavirus Vaccination and the Risk of Celiac Disease or Type 1 Diabetes in Finnish Children at Early Life – did unvaccinated kids get more Celiac disease or diabetes? No, no they didn’t in the 4-6 year follow up period.

1. **How Many People Die in the USA Every Year from Being Vaccinated?**

It is extremely rare for a vaccine reaction to be deadly.

“As for vaccines causing death, again so few deaths can plausibly be attributed to vaccines that it is hard to assess the risk statistically.”…WHO on *Six common misconceptions about immunization*

“Differentiation between coincidence and causality is of utmost importance in this respect. This is not always easy, especially when an event is rare and background rates are not available.”…Heininger on *A risk-benefit analysis of vaccination*

Believing that anything and everything that happens after someone is vaccinated, must have been caused by the vaccine is a very human reaction, but that does not make it correct. To believe this discounts the fact that most people have a basic risk, often called the background rate, for developing conditions that can easily coincide with getting vaccinated. [Segue to risk vs benefit information]

1. **Correlation versus Causation**

Correlation does not imply causation. Just because two things happen at the same time, or one happened before another, it doesn’t mean that one caused the other. When two things are correlated, it simply means that there is a relationship between them. You may have heard the example, ice cream sales and forest fires are correlated because both occur more often in the summer heat. But it is obvious there is no causation in this example. Other times this is less obvious.

How do you tell the difference? Fortunately, well designed epidemiological studies can decipher correlation and causation. The key difference between an epidemiological study and the previous example of ice cream and forest fires is that in this case, we can control for the possibilities that may be contributing to the relationship. In other words, we eliminated the possibilities other than causation by controlling for the confounding factors.

1. **Moderate vaccine side effects**

An example of a side effect that would be considered “moderate” are febrile seizures.

Less than 5% of febrile seizures in the first few years of life are related to a fever caused by a vaccine. The other 95% are caused by fever associated with a common childhood illness. If fewer kids are vaccinated, more will get vaccine-preventable diseases that actually cause febrile seizures! Kids are more likely to get a febrile seizure after a natural infection, including many that are vaccine-preventable, such as the flu, measles, mumps, chicken pox, and pneumococcal disease, etc.

In fact, a protective effect against febrile seizures caused by rotavirus infections has been documented since the introduction of the rotavirus vaccine in 2006.

<https://vaxopedia.org/2019/08/03/vaccine-misinformation-from-bob-sears-is-not-harmless/>

[“…for the average pediatrician, who may care for 1,000 children younger than 5 years, including 300 to 500 between 6 and 24 months of age annually, one could expect to see at most 1 child who experiences a febrile seizure every 5 to 10 years due to administration of all the recommended vaccines together in the first 2 years of life. **This would be in addition to the 30 to 75 patients in each birth year cohort in a practice that would experience a febrile seizure from other causes given the background rate of 2% to 5%**.” --Sawyer et al on Vaccines and Febrile Seizures: Quantifying the Risk]

1. **“Vaccines cause autism”**

The idea that autism is caused by vaccination is still influencing the public policy today, even though rigorous studies do not support this assertion. The hypothesis is based on the observation that the number of autism cases increased in the 1980s, coinciding with a push for greater childhood vaccinations, which increased above recommended levels children's exposure to mercury in the vaccine preservative thimerosal. However, autism diagnosis continued to rise even after thimerosal was removed from US childhood vaccines in 2001.

A review by the IOM of over 200 studies concluded that that there was no causal link between thimerosal-containing vaccines and autism. Other studies, including work published last month in the Annals of Internal Medicine that included a massive number of children (657,461 children born in **Denmark** with follow-up from 1 year of age and through age 13) have found no association between being vaccinated against measles, mumps, and rubella and developing autism.

…”The study strongly supports that MMR vaccination does not increase the risk for autism, does not trigger autism in susceptible children, and is not associated with clustering of autism cases after vaccination. It adds to previous studies through significant additional statistical power and by addressing hypotheses of susceptible subgroups and clustering of cases.”

1. **The human immune system / “too many vaccines, too soon”**

The diseases that vaccines prevent can be dangerous, or even deadly. According to the CDC, vaccines reduce the risk of infection by working with the body's natural defenses to help it safely develop immunity to disease. When bacteria or viruses invade the body, they attack and multiply, creating an infection. The immune system then has to fight the illness. Once it fights off the infection, the body is left with a supply of cells that help recognize and fight that disease in the future. Vaccines contain the same antigens or parts of antigens that cause diseases, but the antigens in vaccines are either killed or greatly weakened. This exposure to the antigens teaches the immune system to develop the same response as it does to the real infection so the body can recognize and fight the disease in the future.

Public health experts agree that vaccines represent one of the greatest achievements of science and medicine in the battle against disease. Vaccines are responsible for the control of many infectious diseases that were once common around the world, including polio, measles, diphtheria, pertussis, rubella, mumps, tetanus, and Hib meningitis. Vaccine helped to eradicate smallpox, one of the most devastating diseases in history. Over the years, vaccines have prevented countless cases of infectious diseases and saved literally millions of lives.

1. **Package inserts**

Many of you have probably seen a package insert–it’s a multiple page document that is included with all real medications, whether prescription or over-the-counter (OTC). Package inserts are part of what is called the “labeling” of the drug. Labeling is strictly regulated because it establishes the claims made about the drug or device, how it is to be used, and other pertinent information. In the USA, the Food and Drug Administration has established very strict rules in the Code of Federal Regulations (CFR) on what can be and cannot be stated in the package insert. The PI is supposed to give a physician or other prescribing healthcare worker the framework to use the medication properly on a patient. The package insert contains 13 “sections” and is necessarily long. The most often misunderstood or misrepresented of the PI pertain to the following:

* Nonclinical toxicology – this section describes the potential of carcinogenesis (causing cancer), mutagenesis (causing mutation) or impairment of fertility from the drug. This section has little applicability to vaccines, since they have no carcinogenic, mutagenic, or fertility effect, given that the level of the vaccine’s ingredients’ dosage falls far below the lower threshold of any dose-response test of these issues. The PI may state some innocuous verbiage such as “no known information” meaning that in the 10-15 years of research and study, no evidence that the vaccine is carcinogenic or mutagenic. This section is frequently misused by anti-vaccine pseudoscientists using the argument from ignorance – they think that because it hasn’t been tested for cancer, it could cause cancer. However, there is no biologically plausible mechanism whereby vaccines could convincingly be linked to any cancer.
* Adverse reactions – this sections lists all side effects observed in all studies of the drug (including post-marketing studies), whether or not it has been scientifically established there is a causative link between the drug and the side effect. Almost all of these side effects are coincidental observations and are rarely of much concern. This section is the favorite of the anti-vaccine religion because they do not appreciate the utter lack of statistical evidence of correlation, let alone causation, between these reactions and the vaccine. These are simply observations.
1. **How is the Immunization Schedule Developed?**

The current immunization schedule is developed by the CDC based on recommendations of the Advisory Committee on Immunization Practices (ACIP). The ACIP is comprised of medical and public health experts who develop recommendations on the use of vaccines in the civilian population of the United States. ACIP members belong to workgroups which focus on specific vaccines and they gather, analyze, and prepare information and research about those vaccines throughout the year. It is at the ACIP quarterly meetings where the workgroup findings are presented.

“Development of vaccine schedules is based on a large body of basic sciences and epidemiologic research. There is constant review of evidence, adverse events, and epidemiology by a panel of experts.” Shetty et al on *Rationale for the Immunization Schedule: Why Is It the Way It Is?*

Among that body of research are studies of vaccines tested together, vaccines tested with placebos, vaccines tested vs unvaccinated kids, vaccines tested for long periods of time, and studies looking at risk factors to make sure vaccines don’t cause long-term health problems.

Studies have shown that delaying or skipping vaccines offers no benefits and actually puts kids at extra risk from the time that they are unprotected from preventable disease.

There is no evidence that following an alternative vaccine schedule is safer for children.

This a quote from the expert committee that produces the American Academy of Pediatric’s Red Book: No alternative vaccine schedules have been evaluated and found to provide better safety or efficacy than the recommended schedule, supported by the Advisory Committee on Immunization Practices of the CDC and the Committee on Infectious Diseases of the AAP. ..Pediatricians who routinely recommend limiting the numbers of vaccines administered at a single visit such that vaccines are administered late are providing care that deviates from the standard evidence-based schedule recommended by these bodies.”

1. **The National Vaccine Injury Compensation Program / “you can’t sue vaccine manufacturers for injury”**

<http://www.leginfo.ca.gov/pub/15-16/bill/sen/sb_0251-0300/sb_277_cfa_20150617_130902_asm_comm.html>

**National Childhood Vaccine Injury Act.** During the mid-1970s, there was an increased focus on personal health and more people became concerned about vaccine safety. Several lawsuits were filed against vaccine manufacturers and healthcare providers by people who believed they had been injured by the DTP vaccine. Damages were awarded despite the lack of scientific evidence to support vaccine injury claims.

In 1976, a preemptive attempt to conduct a nationwide influenza vaccination campaign for the swine flu stoked peoples' fears. The predicted epidemic did not occur and there were some who argued this particular influenza vaccine resulted in serious side effects.

As a result, potential liability costs and vaccine prices soared, and several vaccine manufacturers halted production. A vaccine shortage resulted and public health officials became concerned about the return of epidemic disease.

To reduce liability and respond to public health concerns, Congress passed the National Childhood Vaccine Injury Act (NCVIA) in 1986. The NCVIA established the National Vaccine Program Office (NVPO) to coordinate immunization related activities among various federal agencies and requires health care providers who give vaccines to provide an information statement to the patient or guardian that contains a brief description of the disease as well as the risks and benefits of the vaccine. Additionally, the NCVIA requires health care providers to report certain adverse health events following vaccination to the Vaccine Adverse Event Reporting System (VAERS). The VAERS system remains an important source of information for the CDC and others to monitor the vaccine program, but the system allows self-reporting by any citizen or healthcare provider what they believe to be an adverse vaccine-related event, but the event numbers publicly available have not necessarily been medically verified or scientifically studied. The National Vaccine Injury Compensation Program (NVICP) was created to compensate those injured by vaccines on a "no fault" basis. The NVICP has been loudly criticized by some for inefficient operations, and for providing legal immunity to the pharmaceutical industry.

The NCVIA established a committee from the Institute of Medicine (IOM) to review the literature on vaccine reactions. This group concluded that there are limitations in our knowledge of the risks associated with vaccines. The group looked at 76 health problems to see if they were caused by vaccines. Of those, 50 (66%) had no or inadequate research to form a conclusion. The IOM identified several specific problems, such as a limited understanding of biological processes that underlie adverse events, incomplete and inconsistent information from individual reports, poorly constructed research studies (not enough people enrolled for the period of time), inadequate systems to track vaccine side effects, and few experimental studies were published in the medical literature. The CDC states that in the time since the publication of the IOM reports in the 1990s, significant progress has been made to monitor side effects and conduct research relevant to vaccine safety. In 2011 the IOM published Adverse Effects of Vaccines: Evidence and Causality, representing an extensive study of peer-reviewed vaccine related research to date. The IOM Committee reviewed eight vaccines given to children or adults (MMR, varicella, influenza, hepatitis A, hepatitis B, human papillomavirus, meningococcal, and DTP) and again found that vaccines are generally very safe and that serious adverse events are quite rare.

<https://www.skepticalraptor.com/skepticalraptorblog.php/national-vaccine-injury-compensation-program-facts/>

1. **Did the Supreme Court say that vaccines are unavoidable unsafe?** <https://vaxopedia.org/2016/08/31/unavoidably-unsafe-vaccines/> and links

What does the term “Unavoidably Unsafe” mean?

We first need to understand that it is a term used by lawyers, not medical professionals.

“Basically, it means that there is nothing that can be done to make the product safer without compromising the function of the product. The term comes from the legal document, “Restatement (Second) of Torts, Section 402A,” and it is about protecting manufacturers from frivolous law suits, not about providing consumers with health information. The basic idea is simply that companies cannot be held accountable for an injury that arises from unavoidably unsafe products because there was nothing that the company could have done to prevent that injury (inherent in this term is the requirement that the product was manufactured correctly, labelled correctly with adequate instructions for how to administer it, etc.).”

Vaccines are “unavoidably unsafe,” but that doesn’t mean they are dangerous. The unavoidably unsafe term relates to liability and doesn’t mean that vaccines are dangerous or risky.

Vaccines are beneficial enough that society wants to encourage their manufacturing. Therefore, while strict liability would be applied to most products, a manufacturer that prepared a drug or vaccine carefully and warned consumers of its risks should not have to pay for the side effects of a drug or vaccine whose benefits outweigh the risks unless that manufacturer can be shown to have been negligent. A recent Supreme Court case reaffirmed that vaccines are safe. These vaccines are FDA approved and have been found to be safe.

1. **Can Parents Still Sue Vaccine Manufacturers?**

Vaccines are [safe](http://vaxopedia.org/2017/10/22/vaccines-are-safe/), but they are not without some [risks](http://vaxopedia.org/2017/10/02/what-are-the-risks-of-vaccines/), so what happens if a child does suffer a [vaccine injury](http://vaxopedia.org/2017/11/22/is-it-a-vaccine-reaction/)? Hopefully, even if it is a rare life-threatening condition, they can get treated and improve, [avoiding that particular vaccine](http://vaxopedia.org/2016/09/13/contraindications-to-vaccination/) in the future.

They can also file a petition with the Vaccine Court and if the reaction is determined to be caused by a vaccine, they can be compensated.

So parents don’t usually sue vaccine manufacturers directly – they go through [Vaccine Court](http://vaxopedia.org/2016/09/17/vaccine-court/) part of the NVICP.

But that isn’t there only option…

Parents can still sue [vaccine manufacturers](http://vaxopedia.org/2016/10/26/history-of-vaccine-manufacturers/):

Some of the advantages for the petitioner filing a claim in Vaccine Court are:

* causation is presumed (you automatically win) if you are claiming a [table injury](http://vaxopedia.org/2016/11/18/table-injuries-and-vaccine-court/)
* *the rules for evidence are relaxed and expert testimony does not necessarily hav*e to meet the strict requirements of the [Daubert standard](https://www.law.cornell.edu/wex/daubert_standard) (This is the standard used by a [trial](https://www.law.cornell.edu/wex/trial_court)[judge](https://www.law.cornell.edu/wex/judge) to assess whether an [expert witness’s](https://www.law.cornell.edu/wex/expert_witness) scientific [testimony](https://www.law.cornell.edu/wex/expert_testimony) is based on scientifically valid reasoning that which can properly be applied to the facts at issue.)
* petitioners must meet a fairly lenient standard to win, the regular standard of proof for a civil trial (more likely than not), but only have to provide a plausible theory for vaccine injury. Instead of providing scientific evidence or proving causation, they simply have to provide a theory that “is ‘logical’ and legally probable, not medically or scientifically certain.”
* you don’t have to show that the vaccine was defective to make your case

Another benefit of Vaccine Court? All lawyer fees are paid, whether you win or lose, and lawyers do not get part of the award if you win. In traditional court, lawyers might get up to thirty-three percent of your award.

1. **Vaccine efficacy / Community Immunity / “Herd Immunity is flawed” / “Herd immunity is high, this bill is not necessary”; “My Risk, My choice”**

Before the creation of a vaccine in 1963, measles infected 3 to 4 million people a year in the United States. Nearly 50,000 measles patients each year required hospitalization, and the disease infected the brains of 1,000 and killed 400 to 500 people. Effective vaccination and prevention strategies have led to the elimination of measles in United States since 2000. Measles elimination from the United States is one example that herd or community immunity works.

Herd immunity or COMMUNITY IMMUNITY occurs when a significant proportion of the population has been vaccinated, and this provides protection for individuals who are not immune. The larger the number of people who are vaccinated in a population, the lower the likelihood that a susceptible (unvaccinated) person will physically come into contact with the infection, and the chain of infection is broken. It depends on the nature of the virus or bacteria as to how many need to be immunized. Given the highly contagious nature of diseases such as measles, vaccination rates of up to 95% are necessary to protect the public health of the school community and prevent future outbreaks. The reduction of herd immunity places unvaccinated persons at risk, including those who cannot receive vaccinations for medical reasons. **Those who may not be able to receive vaccines include those with compromised immune systems, older adults, small children and babies, all depending on the type of vaccine.**

The protective effect of herd immunity wanes as large numbers of students do not receive some or all of the required vaccinations, resulting in the reemergence of these diseases. According to the CDC, measles is one of the first diseases to reappear when vaccination coverage rates fall.

When measles is imported into a community with a highly vaccinated population, outbreaks either don’t happen or are usually small; this is because a critical number (about 95%) of people in the community are vaccinated. But this wasn’t the case in NYC and New York in 2019, when measles was introduced through international travel importations 18 separate times, leading to outbreaks that lasted nearly one year. In fact, on average every year in the United States, about 60 to 65 people introduce measles into the U.S. through international travel, primarily from Western Europe (last year Israel and Ukraine). Without measles vaccine, we expect each measles case to infect between 9 and 18 people. A person with measles is infectious before they are sick. This means that in schools where MMR vaccination rates are low, measles can spread to children fast, before public health officials could hope to intervene with measures such as exclusions and a vaccine response to mitigate disease effects. Falling immunization rates have become a school safety issue for our children in many schools.

Between 2009 and 2020, the number of religious exemptions from vaccinations required for school entry nearly tripled, rising from 0.8 to 2.3%. While this number is still relatively low overall, in 120 out of 542 schools with 30 or more kindergarten students reporting so far this year, or 22% of schools, MMR rates for kindergarten are below 95%, placing our students at risk for the rapid spread of entirely preventable diseases.

Studies find that when non-medical exemptions to vaccinations are permitted, vaccination rates decrease. Numerous studies also indicate that geographic areas with higher rates of immunization exemptions are at greater risk of vaccine-preventable disease outbreaks. The vaccination rate in schools varies widely across the state. Those areas become more susceptible to an outbreak than the state's overall vaccination levels may suggest. It is difficult to control the spread of disease in areas with low vaccination rates, and this make them vulnerable.

Outbreaks of measles are far more likely to occur when there is measles activity in other countries, since measles cases are introduced from abroad. Provisional data from the World Health Organization (WHO) indicates that during the first six months of 2019 there were more measles cases reported worldwide than in any year since 2006. The risk from measles in the U.S. increases with increasing circulation of measles in other countries, so we can expect these introductions to the United States to continue to occur.

The overwhelming majority of parents choose to vaccinate. Only a very small percentage of children in the U.S. are completely unvaccinated—about 3% [local stat NIS for CT is 0.3-2.4%]—however, research shows that people with lower vaccine acceptance tend to group together in communities.

 [Statewide statistics indicate that in 2018-19 school year, 94.9% of kindergarteners received all required immunizations. **The widespread reporting of statewide numbers, however, potentially mask a better understanding of more relevant data, such as town, city, or county vaccination rates. Because students are not interacting with every individual in the entire state, the local vaccination rate is more relevant to the discussion of community immunity.**

 From January 1 to December 31, 2019, 1,282 cases of measles were confirmed in 31 states; of these 128 of the people who got measles were hospitalized, and 61 reported having complications, including pneumonia and encephalitis. 2019 saw the greatest number of cases reported in the U.S. since 1992. Outbreaks occurred in 10 states and New York City. More than 73% of the cases were linked to outbreaks in New York State and City. **All measles cases were caused by measles wild-type D8 or B3.** Of the 1,249 measles cases that occurred prior to October of 2019, 1,163 (93%) were associated with the 22 outbreaks, and 1,107 (89%) were in patients who were unvaccinated or had an unknown vaccination status.]

1. **“Natural Immunity is superior to vaccines” / What Are the Benefits of Natural Immunity?**

Natural immunity comes at a price.

In addition to being sick for a few days or weeks with the symptoms of the disease, many vaccine-preventable diseases can have serious complications, many of which are life-threatening. So instead of getting vaccinated, to earn natural immunity a child or adult must survive the disease and hope that there are no serious complications from these illnesses, such as:

* Chicken pox can be associated with meningitis, encephalitis, secondary pneumonia, skin infections, and sometimes death, and folks who have had chicken pox are thought to be at higher risk for shingles than those who have had a chicken pox vaccine
* Measles can cause pneumonia, seizures, and encephalitis, and [death](http://vaxopedia.org/2017/07/23/the-myth-that-measles-isnt-deadly/) in about 1 in 1000 cases and Subacute Sclerosing Panencephalitis (SSPE) is a fatal, late complication of natural measles infections and which might occur in as many as 1:1700 people who have had measles. In fact, we now know that people who survive a measles infection can have some immunosuppression for up to two to three years!

This measles-induced immune damage puts them at risk of dying from other diseases and helps explain why kids who are vaccinated against measles are also less likely to die from other childhood infections.

* About 50 percent of children (and 90 percent of infants) with hepatitis B develop chronic hepatitis B infections and can later develop scarring of the liver (cirrhosis), liver failure, and liver cancer
* Hib can cause hearing impairment, neurologic sequelae, and death in 2 to 5 percent of cases
* Mumps can cause orchitis (testicular inflammation), oophoritis (ovarian inflammation), pancreatitis, meningitis, encephalitis, deafness, and sometimes death
* Pertussis can cause pneumonia, seizures, and encephalopathy, and death in 0.2 percent of cases.
* Rotavirus can cause severe diarrhea and dehydration and used to cause 20 to 60 deaths a year.
* Diphtheria can cause myocarditis, neuritis, and diaphragmatic paralysis, and death in 5 to 20 percent of people
* [Polio can cause meningitis, flaccid paralysis, and death in 2 to 5 percent of children and 25 to 40 percent [survivors](http://vaxopedia.org/2017/10/22/polio-survivor-stories/) are at risk for Post-Polio Syndrome, with new symptoms of pain, fatigue, and weakness developing later
* Rubella can cause arthritis, thrombocytopenic purpura, and encephalitis, but the bigger concern is pregnant women who get rubella, which can lead to spontaneous abortions, neonatal deaths, and congenital rubella syndrome.
* Tetanus can cause generalized muscle spasms and death in 11 percent of cases. Neonatal tetanus is also a concern.]

That’s why for most of us, there is no question. The risks from vaccines are so small, there is no benefit of seeking natural immunity over getting vaccinated.

1. **Is the Department going to require HPV vaccine? Flu vaccine?**

Section 19a-7f of the general statutes allows the Commissioner of Public Health to “determine the standard of care for immunization for the children of this state, based on the recommended schedules for active immunization for normal infants and children published by the National Centers for Disease Control, and Prevention Advisory Committee on Immunization Practices, the American Academy of Pediatrics and the American Academy of Family Physicians”. DPH regulations specify each individual immunization that is required by grade level.

1. **Why are there school immunization requirements?**

All 50 states have immunization requirements for school children. The vaccines that are required vary by state. Mandates have played a key role in keeping disease rates low in schools. Protecting individuals and communities from communicable diseases such as measles is a fundamental purpose of the Connecticut Department of Public Health’s disease prevention mission.

All of the diseases for which CT requires school vaccinations are very serious conditions that pose very real health risks to children. Most of the diseases can be spread by contact with other infected children. Data comparing childhood immunization rates and rates of vaccine-preventable childhood diseases before and after the introduction of school vaccination requirements suggest that school vaccination requirements have succeeded in increasing vaccination rates and reducing the incidence of childhood disease.

Current state law mandates immunization of school-aged children against 14 specific diseases. Each of the 14 diseases was added to CT requirements after careful consideration of the public health risks of these diseases, cost to the state and health system, communicability, and rates of transmission. The Legislature and the CT Department of Public Health have a long history of thoughtful consideration for which diseases pose the most serious health risks to children in schools.

1. **“The school survey is wrong/flawed”**

The school immunization survey has been completed by school nurses and reported to the CT Department of Public Health for decades. The survey is conducted per federal grant requirements from the Centers For Disease Control and Prevention and state level data is reported annually. The survey serves both grant requirements and to monitor immunization trends among school aged children in CT and in the United States. The survey questions may change slightly from year to year as we add or remove questions, but most data points are consistent so that information is useful for trend analysis. The trend show that the religious exemption rate has tripled since 2009. Survey limitations are listed on the Department’s school survey web site and include that all data are self-reported by schools, and is a snapshot in time, reported in the fall; data are not updated if students receive additional vaccines later in the school year.

**22. “Non-compliant children are already in school, focus on compliance instead”**

Enforcement of existing immunization requirements is important to keep children protected from vaccine preventable diseases in school. CT General Statute 10-204a states that “Each local or regional board of education” is tasked with ensuring students receive required vaccines before enrollment.

CT regulations Sec. 10-204a-3a defines “Immunization in progress” and allows children on a catch up schedule or with a doctor’s note stating that an appointment is scheduled for vaccines to attend school, and requires exclusion of children not meeting those conditions.

The school immunization survey measures the number of students who have received the required vaccines and the number that have exemptions—as defined in the survey, non-compliance does not distinguish among the students who are “in progress” as defined in CSR 10-204a-3a. Compliance on the survey as explained on the DPH school survey data web page is the percentage of students UTD for required vaccines divided by the subtotal of students. The subtotal of students is the number of students enrolled minus the exempt students. The percentage of students who are not in compliance (per the survey definition) has not been increasing, but has remained steady over the past 8-9 years, while the religious exemption percentage has been steadily increasing.

The Immunization Program works collaboratively with schools that report children out of compliance on the school immunization survey to advise and work through issues such as lack of access to vaccines.

1. **“Immunocompromised children are not in school”**

The Department has heard directly from parents of immunocompromised children over the years, and statistically, these children live in CT as the national numbers support their existence. You may hear from some of these parents today, if they are able to take the time out from caring for the children to submit or read testimony.

1. **What children would qualify for a medical exemption?**

Per CT regulations 10-204a, any individual whose parents or guardian presents a statement from a physician licensed to practice medicine in the United States that such immunization is medically contraindicated in accordance with the current recommendation of the National Centers for Disease Control and Prevention Advisory Committee on Immunization Practices shall be exempted from immunization requirements.

1. **How many children are going to be turned away from attending school if these bills pass?**

Based upon the 2018-19 school immunization survey data:

From grades PK through 12, there were 7,782 students who had a religious exemption, which is 1.4% of students. The highest exemption rates are in the youngest grades, with PK being the highest and grade 12 being the lowest. PK religious exemption rate was 2.8% last year. CT’s non-medical exemption rate for kindergarten at 2.5% was higher last year than the national average of 2.2%

1. **Where does CT fall in the range of exemptions (rank compared to other states)?**

21 states have non-medical exemption rates above 2.5%

1. **“Bullying is occurring in schools based on school survey data release”**

The CT Department of Public Health is also concerned about any children being bullied in school, for any reason. Vaccine information on individual students is not shared on the school immunization survey, only the number of medical and religious exemptions by grade level are reported, and the number of children who are up to date or not up to date for a required vaccines for pre-kindergarten, kindergartener and 7th grader are included on the survey. If any parent feels that their child is facing bullying because of the release of school level immunization survey data, we would encourage parents to report this to the school using the structure that exists for reporting this type of incident to the school.

1. **What about religious exemptions in child care programs and colleges in CT, why are we not talking about that?**
2. **Why no mandatory vaccinations for adults/healthcare workers/child care program workers?**
3. **Is it true that unvaccinated children do not spread more disease than vaccinated children?**

Of course the unvaccinated spread disease more than the vaccinated! Of the 1,249 measles cases that occurred prior to October of 2019, 1,107 (nearly 90%) were in patients who were unvaccinated or had an unknown vaccination status. People who have measles spread the disease. You cannot spread measles if you don’t have measles.

The unvaccinated are the people who are getting infected. And the science confirms that idea:

[*Association between vaccine refusal and vaccine-preventable diseases in the United States: a review of measles and pertussis*](https://www.ncbi.nlm.nih.gov/pubmed/26978210) – found that “a substantial proportion of the US measles cases in the era after elimination were intentionally unvaccinated” and that “vaccine refusal was still associated with an increased risk for pertussis in some populations”

[*Religious exemptions for immunization and risk of pertussis in New York state, 2000–2011*](https://www.ncbi.nlm.nih.gov/pubmed/23733795) – found that “counties with higher exemption rates had higher rates of reported pertussis among exempted and vaccinated children when compared with the low-exemption counties.”

[*Nonmedical vaccine exemptions and pertussis in California, 2010*](https://pediatrics.aappublications.org/content/132/4/624) – found that clusters of non-medical vaccine exemptions were a factor in pertussis outbreaks

[*Parental refusal of pertussis vaccination is associated with an increased risk of pertussis infection in children*](https://www.ncbi.nlm.nih.gov/pubmed/19482753) – found that intentionally unvaccinated children are “at high risk for pertussis infection relative to vaccinated children.”

[*Geographic clustering of nonmedical exemptions to school immunization requirements and associations with geographic clustering of pertussis*](https://www.ncbi.nlm.nih.gov/pubmed/18922998) – found that “geographic pockets of vaccine exemptors pose a risk to the whole community.”

[*Nonmedical exemptions to school immunization requirements: secular trends and association of state policies with pertussis incidence*](https://www.ncbi.nlm.nih.gov/pubmed/17032989) – found that “state policies granting personal belief exemptions and states that easily grant exemptions are associated with increased pertussis incidence”

[*Individual and community risk of measles and pertussis associated with personal exemptions to immunizations*](https://www.ncbi.nlm.nih.gov/pubmed/11135778) – found an elevated risk for measles and pertussis in those who are intentionally unvaccinated

[*Health consequences of religious and philosophical exemptions from immunization laws: individual and societal risk of measles*](https://www.ncbi.nlm.nih.gov/pubmed/10404911) – found that those with vaccine exemptions “were 35 times more likely to contract measles than were vaccinated persons”

[*Parental refusal of varicella vaccination and the associated risk of varicella infection in children*](https://www.ncbi.nlm.nih.gov/pubmed/20048244) – found that intentionally unvaccinated children are “at high risk for varicella infection relative to vaccinated children.”

[*Measles outbreak in a highly vaccinated population, San Diego, 2008: role of the intentionally undervaccinated*](https://www.cdc.gov/mmwr/preview/mmwrhtml/mm57e222a1.htm) – an unvaccinated child spread measles to 11 other kids, including an infant who was too young to be vaccinated and who ended up hospitalized.

It is clearly the [unvaccinated](https://vaxopedia.org/2019/01/22/why-are-we-worried-about-60000-unvaccinated-kids/) who are at greater risk to get vaccine-preventable diseases. And it is clearly the [unvaccinated](https://vaxopedia.org/2017/12/12/the-unvaccinated-child/) who start and keep most outbreaks going. And when they spread disease, it is often to those who are [most at risk](https://vaxopedia.org/2017/04/05/who-is-at-risk-if-you-dont-vaccinate-your-kids/), including those who are too young to be vaccinated or fully vaccinated, and those with [true medical exemptions](https://vaxopedia.org/2016/09/11/medical-exemptions-for-vaccines/), including cancer and immune system problems.

1. **When was the last time a CT resident contracted measles?**

Before the creation of a vaccine in 1963, measles infected 3 to 4 million people a year in the United States. Nearly 50,000 measles patients each year required hospitalization, and the disease infected the brains of 1,000 and killed 400 to 500 people.

Effective vaccination and prevention strategies have led to the elimination of measles in United States since 2000; however, measles still exists in many other countries and can be brought into the United States by unvaccinated travelers visiting these countries or traveler visiting from these countries. During 2019, a very large outbreak of measles occurred in our neighboring state, NY, and there were also measles cases in our northern bordering state of MA.

During 2014–2019, 13 measles cases were reported in Connecticut; 4 of these were in 2019. Of the 13 cases, 4 (31%) were in children under the age of 18 years; 4 (31%) patients were hospitalized. Of these 13 cases, 12 (93%) were unvaccinated or had unknown vaccination status, and 1 had documentation of two doses of measles containing vaccine.

1. Cost of measles outbreaks

<https://jamanetwork.com/journals/jama/fullarticle/2728101>

**The True Cost of Measles Outbreaks During the Postelimination Era--JAMA**

The effect of measles outbreaks is generally estimated through case counts and geographic spread. Given the high infectivity and potential for severe post-infection complications associated with measles, simple case counts are not capable of reflecting the true cost of measles outbreaks. When evaluating the true cost of measles epidemics during the postelimination era, policy makers must account for the long-term immunologic sequelae that result from infection, the monetary effects of a response to the outbreak, and the resulting strain on the health care infrastructure.

* Cost to the individual

We know that measles infection has important implications to an individual that extend to 2 to 3 years post-infection. This increases an individual’s risk of future infections not related to measles and associated morbidity and mortality as well as potentially affecting the immunologic response to non–measles-containing vaccines received early in life.

* Financial Cost

Responding to measles outbreaks is costly. The cost of responding to a single case of measles can be as high as $142,000 depending on the number and location of contacts that must be traced, the amount of postexposure prophylaxis that must be administered, and the number of people quarantined. In 2011, the estimated total cost of measles outbreaks in the United States ranged from $2.7 million to $5.3 million. [These costs include post-exposure prophylaxis (including post-exposure vaccination and immunoglobulin), laboratory testing for suspected cases, compensating health care providers and other staff members for their increased work time and overtime, public outreach regarding measles risk and prevention, and establishing quarantine for exposed susceptible individuals.

These assessments are likely to produce an underestimate of the total costs because not all estimates include the direct medical costs for measles treatment, quarantine-related costs, or the costs of testing and vaccinating health care providers. Measles-associated costs represent a profound financial burden on communities working to control outbreaks.]

* Cost to Health Systems

Measles outbreaks require an immediate and robust public health response. When outbreaks occur, human resources must be diverted from other programs and functions to respond quickly and appropriately, thereby disrupting existing health care systems. In addition to conventional responses to measles outbreaks such as quarantine, public outreach, and providing post-exposure prophylaxis, responses in the past have also necessitated establishing a toll-free measles information hotline, subpoenaing flight records, and daily screening of all hospital staff for rash and fever. Each of these activities requires extra personnel hours in addition to the many hours required for identifying contacts.

In total, these personnel hours may be taken from other vaccination resources, messaging for other infectious disease prevention, laboratory testing for other pathogens, and maintenance of usual care. This sudden reallocation of resources could weaken the structures of health systems and create vulnerabilities elsewhere in the community’s public health infrastructure. This can result in substantial disturbances in the progress of other programs.

1. **How effective are vaccines?**

The effectiveness of a vaccine varies by the vaccine. To get at this question, we need to examine epidemiologic studies comparing vaccinated vs unvaccinated people. As an example, one study evaluated the duration and severity of illness from pertussis in vaccinated versus unvaccinated individuals. Key findings of this study were:

• Patients who had ever received a pertussis vaccine, including those who were no longer up to date, were significantly less likely (5 times less likely) than unvaccinated patients to be hospitalized and less likely (2.5 times less likely) to get pneumonia and overall develop severe illness.

• Patients who had ever received a pertussis vaccine, including those who were no longer up to date, had a significantly shorter duration of illness and were more likely to stop coughing within 20 days of their illness onset (as opposed to the more typical 90 days of cough).

Barlow et al., Vaccinated Children and Adolescents With Pertussis Infections Experience reduced Illness Severity and Duration, Oregon, 2010-2012. Clinical Infectious Diseases. June 2014.58(11):1523-9.

There are many examples of studies such as this, comparing vaccinated vs unvaccinated people. I can provide a reference list of many of these studies following the hearing, should the committee be interested in seeing this.

1. **“Shedding of live vaccines causes outbreaks”**

The idea that the MMR vaccine sheds and can lead to measles outbreaks is one of those vaccine myths that we encounter time and again, circulating with each new measles outbreak. And it is completely untrue. If there was shedding from the MMR vaccine, then why aren’t there even more cases of measles?

When we talk about “vaccine shedding”, it is important to note that the only kind of “shedding” that would be a health concern is if the shedding can lead to transmission of disease/infection in another person.

Vaccine shedding research and basic biology tells us that only live vaccines could possibly be a concern for shedding; most vaccines are not live and cannot shed. The vaccines that are NOT live include: DTaP, Tdap, influenza shot, Hib, hepatitis A, hepatitis B, PCV, IPV, HPV, and the meningococcal vaccine. These vaccines are made of “killed” antigen or “subunits”, which are pieces of immunogenic parts of the virus or bacteria.

So what about the live vaccines?

MMR is a live vaccine and based on research, the measles and mumps attenuated viruses simply do not cause shedding. The rubella virus has been found to rarely shed into breast milk.

Varicella vaccine virus doesn’t shed unless the person develops the chicken pox (vesicular) rash after getting vaccinated. There are only about 5 cases out of about 55 million doses of the vaccine given, of people getting sick due to vaccine shedding.(5)

Rotavirus vaccine virus has been found to shed in the stool. Therefore, if someone taking care of a child who recently got the rotavirus vaccine has a severely weakened immune system, they should avoid diaper changing for a week or so after the child has been vaccinated.

Live (nasal mist) influenza vaccine shedding is possible, but very rare. However, shedding occurs in much lower amounts than if someone were to be just sick with the actual influenza virus. And only **severely immunocompromised** people need to worry about being around someone who has recently gotten a flu vaccine.

True vaccine shedding really only occurs with the oral polio and the smallpox vaccine, two vaccines that aren’t used anymore in the U.S. (currently children get the inactivated polio vaccine shot). These viruses can be shed, however those exposed to the shed virus don’t typically get sick because the virus is in an attenuated (weakened) form. People potentially at higher risk for getting sick with these viruses would be those who have already weakened immune systems.

So, only those with very severely weakened immune systems need to be worried about vaccine shedding. This would mean someone, for example, who is getting a stem cell transplant. Those who live with someone with an immunologic deficiency can and should get all of their vaccinations. According to the Medical Advisory Committee of the Immune Deficiency Foundation, these vaccines pose little risk to the immunocompromised. In reality, it is important to protect those with weakened immune systems from natural viral infection by vaccinating their close contacts with these vaccines rather than foregoing them, another example where the benefit of vaccinating outweighs the risk.

And a reminder, people DO shed the actual viruses if they are not vaccinated and get sick naturally. Vaccines hold slim to no role in spreading infection by viral shedding.

1. **The immunization schedule / “One size does not fit all” (ACIP on page 14)**

“The schedule is not “one size fits all.” This is reaffirmed by the American Academy of Pediatrics:

“The CDC immunization schedule is considered the ideal schedule for healthy children, but it has flexibility built in. There are established medical reasons why some children should not receive certain vaccines; for example, allergies to one or more ingredients in the vaccine, or a weakened immune system due to illness, a chronic condition, or another medical treatment. Sometimes a shot needs to be delayed for a short time, and sometimes it may need to be skipped altogether.

Your pediatrician is educated and updated about such exceptions to the immunization schedule. This is one reason your child’s complete medical history is taken at the pediatrician’s office, and why it is important for your child’s health care providers to be familiar with your child’s medical history.”

Delaying or skipping one or more vaccines to create a customized alternative vaccine schedule for your child, a non-standard, parent-selected, delayed protection vaccine schedule, isn’t safer than the CDC immunization schedule. It simply puts your child at greater risk for vaccine-preventable diseases.

1. **Do breastfed babies need vaccines?**

Babies immune systems are not fully developed at birth, which puts newborns at greater risk for infections. Even though infants may get some short-term immunity from their mothers during pregnancy, this protection is short term and sub-optimal compared with vaccines, and only occurs for diseases to which the mothers are immune from or vaccinated against.

Breastfed babies need to be protected with vaccines at the recommended ages. While breast milk provides important, temporary protection from some minor infections like colds, ear infections and diarrhea, as a baby’s immune system is developing, breast milk will not protect a baby against all diseases. Infants need long-term protection from vaccinating on time, according to the recommended immunization schedule, before exposure to these diseases.

The CDC’s recommended childhood immunization schedule (from birth to 18 years old) – which is also recommended by the American Academy of Pediatrics and the American Academy of Family Physicians – is the ONLY vaccination schedule for children and teens that is rigorously tested for safety and effectiveness. Therefore, it is very important that parents follow that schedule. No “non-standard” childhood vaccination schedules have ever been tested for their safety and effectiveness, and therefore, it can risky for children to follow them.

1. **Conspiracy theorists on safety and “BIG PHARMA”**

<https://vaxopedia.org/2016/09/04/big-pharma/>

There are some people who assert that large pharmaceutical companies just want money, and therefore their products, like vaccines, are fraudulent and dangerous.

Is ‘Big Pharma’ influencing the vaccine decisions of doctors, health departments, and the CDC, etc.?

The pharmaceutical industry is in business to make money, but there is no evidence of a conspiracy across multiple companies and countries that they are bribing doctors and health officials to influence how they think and talk about vaccines.

When opponents of vaccines claim that vaccines are dangerous because pharmaceutical companies are making a profit from selling them, they are performing the fallacy known as appeal to motive. The fallacy occurs when a person is calling into question the alleged motives of an individual to discount the validity of the statements that this individual is putting forward.

<https://debunkingdenialism.com/2010/10/31/the-pharma-profit-gambit/>

Even if large pharmaceutical companies only cared about making profits, it does not logically follow that vaccines are dangerous.

**Income from Vaccine Sales are Relatively Low**

At the most a person will get an initial shot, then maybe a booster or two. Compare this with anti-depressants or cholesterol medication, which one needs to take more or less every day for the rest of one’s life. In comparison, the profit from vaccine sales are relatively low.

**Pharmaceutical Companies would have Profited more from an Uncontrolled Pandemic**

In an uncontrolled pandemic, pharmaceutical companies could have sold many different types of antiviral drugs, sedatives, pain killers and increased hospitalization would have increased the profit earned by hospitals, doctors and insurance companies compared to mostly the profits from a single vaccine. So even if pharmaceutical companies only cared about making a profit, the conspiracy theorists are still mistaken, since it is clear that this is a much better way to make money.

**Making Profits in the Long Run May Preclude Deceit**

If you are making a product as central as vaccines, the FDA, Hospitals and other interest groups are going to want some guarantees that it is an effective and safe product, otherwise they will probably not purchase it. So the pharmaceutical companies will have to provide some independent means of checking this, which includes animal testing, large-scale scientific studies on effectiveness and concomitant use studies which makes sure that the new vaccine does not conflict with other vaccines on the schedule. Vaccines are, in fact, one of the most regulated products in the United States.

If the products you make are substandard and fails the scientific tests, then they are not going to be bought and the company producing them will not have made any money, but thrown millions and millions of dollars on research and development down the drain. The pharmaceutical companies wants to make money. To make money means having their products approved and having them approved means they will have to be safe and effective. This is a general and oversimplified outline. To be sure, there have been drugs that have been pulled off the market due to side effects.

**Everyone Makes Money**

If making a profit is enough to reject the claims made my someone, then we should logically reject the alternative medicine (CAM) business, which is an industry that makes around 40 billion dollar per year. Many of the leading figures in the CAM and anti-vaccination movement also makes quite large profits from book sales, advertisements on their websites, donations and so on.

To sum up, the “Pharma Profit” gambit is merely an elaborate way to derail the discussion and avoid having to defend their irrational views against rational and scientific criticisms. It is a logical fallacy, and even if it was not, it would still be an erroneous argument.

1. **First amendment rights / freedom to exercise religion**
	1. **AG’s opinion**

Attorney General William Tong issued an opinion in May 2019 saying “There is no serious or reasonable dispute as to the State’s broad authority to require and regulate immunizations for children: the law is clear that the State of Connecticut may create, eliminate or suspend the religious exemption in Section 10-204a(a) in accordance with its well-settled power to protect public health and safety.”

AG Tong went on to say….“Despite a diligent search, we have been unable to find a Connecticut case that has held that a religious exemption from school vaccinations was constitutionally required. On the contrary, over 100 years ago, the Connecticut Supreme Court upheld mandatory school immunizations in Bissell v. Davison, 65 Conn. 183 (1894). More recently, a superior court case has upheld the constitutional dimensions of immunization in the context of a child custody case.”

In the custody case, Tong said the court noted that “religious freedom in this country is not an absolute right” and that “the right of parents to raise their children in accord with their personal and religious beliefs must yield when the health of the child is at risk or when there is a recognized threat to public safety.”

AG Tong also added in a footnote that “Connecticut’s constitutional guarantee of free public education does not limit the State’s power to require vaccinations.”

All children have a right to an education, and as part of that education, we need to ensure that children are safe and healthy to maximize their ability to learn. This bill aims to protect the health and well being of all children in school, where we have reached the point where some schools have unacceptably low immunization rates [go to herd immunity p.18].

* 1. **“Fetal tissue in vaccines”**

Vaccines do not contain aborted fetal tissue.

Some live virus vaccines are made with fetal embryo fibroblast cells from cell lines that were derived from two electively terminated pregnancies in the 1960s. These same embryonic cells obtained from the early 1960s have continued to grow in the laboratory and are used to grow some vaccines today. This is because viruses need cells to grow and tend to grow better in cells from humans than animals (because they infect humans). The best cells to use were the fetal cells because it is a cell line that can continue to multiply for much longer than other cell lines. No further sources of fetal cells are needed to make these vaccines. The by-products are removed before the final vaccine is produced; trace amounts remain and thus are listed on the package insert.