



Fact Check for Interim Legislative Committee on Health Care

Requested by Senator Hardy, MD at December 11, 2019 Meeting

Submitted December 17, 2019

Claim: Vaccine preventable diseases are not serious/Natural exposure is better

It is often said that vaccines are a victim of their own success. Since vaccines have reduced, and in some cases eliminated, so many vaccine-preventable diseases, much of the population cannot recall how debilitating these diseases were before vaccines were introduced.

Vaccine-preventable diseases (VPDs) can be serious and deadly, especially for the immunocompromised (e.g. those with cancer), infants, and the elderly. There are significant direct and indirect medical costs and productivity loss associated with VPDs. For example, chickenpox can lead to shingles later in life; measles can cause immune-amnesia and subacute sclerosing panencephalitis (SSPE); and contracting influenza has a higher risk of Guillain-Barré Syndrome than vaccination.

The following chart from the Immunization Action Coalition provides an excellent visual representation of the dramatic effect vaccines have had on morbidity rates:

immunize.org/catg.d/p4037.pdf

However, in order to keep vaccine-preventable diseases in check, herd immunity levels must remain high. With a decrease in vaccination rates comes an increase in the prevalence of such diseases. www.vaccinateyourfamily.org/why-vaccinate/vaccine-benefits/community-immunity/

Claim: Why are people who vaccinate their children and themselves worried about the unvaccinated?

Individuals who deliberately do not receive immunizations indeed present a risk to others, namely those with valid contraindications and those who are too young or too sick to be vaccinated. Newborns and young infants may not be old enough to receive certain vaccines, like the influenza or MMR vaccines. Also, some people have legitimate medical reasons for not getting one or more vaccines, such as an allergy to a vaccine component. Others may be immune-compromised due to medicines like steroids for asthma that cause them to be

susceptible to infections. Still others might not be vaccinated because they are receiving chemotherapy for cancer or immune suppressive medicines following an organ transplant.

Sources:

If vaccines work, why do unvaccinated people present a risk? www.chop.edu/news/feature-article-if-vaccines-work-why-do-unvaccinated-people-pose-risk

Vaccinated or Unvaccinated: media.chop.edu/data/files/pdfs/vaccine-education-center-vaccinated-unvaccinated.pdf

Claim: Live vaccines cause disease/Shed the virus

Live vaccines contain weakened forms of viruses that cannot cause disease; instead, they prompt the immune system to recognize the virus and develop immunity mild symptoms may occur following injection, but they are rarely harmful. Immunocompetent persons who live with an immunocompromised patient can safely receive inactivated vaccines.

Shedding occurs when a recently vaccinated person transmits the vaccine's virus to another person. While this may be a concern to parents, it is an exceedingly rare occurrence observed in a few vaccines (see table in IDSA source below). This primarily poses a problem for individuals with weakened immune systems.

Source:

IDSA Releases Recommendations on Vaccinations in Immunocompromised Patients: www.aafp.org/afp/2014/1101/p664.html

Claim: The Vaccine Injury Compensation Program (VICP) has paid out \$4 billion for vaccine injuries

In 1986, President Ronald Reagan signed the National Childhood Vaccine Injury Act (NCVIA) into law, and this law created the VICP to protect public health and avoid vaccine shortages by ensuring that manufacturers continued to develop and distribute vaccines. According to the CDC, from 2006 to 2017 over 3.4 billion doses of covered vaccines were distributed in the U.S. For petitions filed in this time period, 6,411 petitions were adjudicated by the Court, and of those 4,408 were compensated. This means for every 1 million doses of vaccine that were distributed, approximately 1 individual was compensated.

Being awarded compensation through the VICP does not mean that the vaccine caused the alleged injury. Approximately 70% of all compensations awarded were the result of a settlement that did not conclude that a vaccine caused the alleged injury. Petitioners can have their legal fees covered through the VICP regardless of the outcome.

Over 50% of new claims are from Shoulder Injury Resulting from Vaccine Administration (SIRVA), which is caused by the administration of a vaccine, not the vaccine itself, and can be addressed through proper injury tracking, notification, and training of vaccine administrators. For petitioners who reject the decision of the VICP, or for vaccines not included in the VICP, a claim can still be filed in civil court against the vaccine manufacturer and/or the provider who administered the vaccine.

Sources:

National Vaccine Injury Compensation Program: www.hrsa.gov/vaccine-compensation/index.html

VICP Data: www.hrsa.gov/sites/default/files/hrsa/vaccine-compensation/data/monthly-stats-august-2019.pdf

Vaccine Injury Court: time.com/3995062/vaccine-injury-court-truth/

Claim: Hygiene and healthy habits are enough to combat vaccine preventable disease

The World Health Organization states improved socioeconomic conditions have undoubtedly had an indirect impact on disease. Better nutrition, not to mention the development of antibiotics and other treatments, have increased survival rates among the sick; less crowded living conditions have reduced disease transmission; and lower birth rates have decreased the number of susceptible household contacts. But looking at the actual incidence of disease over the years can leave little doubt of the significant direct impact vaccines have had, even in modern times.

For example, there have been periodic peaks and valleys throughout the years, but the real, permanent drop in measles incidence coincided with the licensure and wide use of measles vaccine beginning in 1963. Other vaccine-preventable diseases show a roughly similar pattern in incidence...showing a significant drop in cases corresponding with the advent of vaccine use.

Source:

Six common misconceptions about immunization:

www.who.int/vaccine_safety/initiative/detection/immunization_misconceptions/en/index1.html

Claim: Vaccines have not been tested for safety for 30+ years

This claim is patently false; the CDC's *Ensuring the Safety of Vaccines in the United States* outlines the reasons the U.S. has the safest vaccine supply in its history. Our nation's long-standing process for ensuring vaccine safety is conducted by scientific and medical professionals under the guidance of the U.S. Food and Drug Administration (FDA), via extensive prelicensure testing performed by vaccine manufacturers and through regular postlicensure review by the medical and public health experts who sit on The Advisory Committee on Immunization Practices (ACIP). Additionally, the CDC Immunization Safety Office conducts four primary, postlicensure vaccine safety activities:

Vaccine Adverse Event Reporting System (VAERS) - An early warning system that helps CDC and FDA monitor problems following vaccination. Anyone can report suspected vaccine reactions and issues to VAERS.

Clinical Immunization Safety Assessment (CISA) Project - A partnership between CDC and several medical centers that conduct clinical research on vaccine-associated health risks in certain groups of people.

Vaccine Safety Datalink (VSD) - A collaboration between CDC and several health care organizations that allows ongoing monitoring and proactive searches of vaccine-related data.

Emergency Preparedness for Vaccine Safety - In the event of a disease outbreak in which a mass vaccination campaign is needed, CDC activates emergency preparedness activities to ensure that vaccines remain safe.

Vaccine safety and efficacy studies are also constantly being conducted and published by scientists and researchers. For example in 2016, based on the available immunogenicity evidence, a 2-dose schedule for the HPV vaccine was found to have efficacy equivalent to a 3-dose schedule if the series is initiated before the 15th birthday. This evidence-based change made vaccination easier, less expensive, and more convenient for parents.

Sources:

Ensuring the Safety of Vaccines in the United States

www.cdc.gov/vaccines/hcp/conversations/ensuring-safe-vaccines.html

Vaccine Safety: Examine the Evidence. www.healthychildren.org/English/safety-prevention/immunizations/Pages/Vaccine-Studies-Examine-the-Evidence.aspx

Vaccine Safety: The Facts www.healthychildren.org/English/safety-prevention/immunizations/Pages/Vaccine-Safety-The-Facts.aspx

HPV Studies: www.cidrap.umn.edu/news-perspective/2019/06/experts-expand-hpv-vaccine-recs-study-finds-high-impact

Use of a 2 dose schedule for HPV Vaccination:

www.cdc.gov/mmwr/volumes/65/wr/mm6549a5.htm

Claim: Details of vaccinated versus unvaccinated are misreported in measles outbreak reports

From January 1 to December 5, 2019, 1,276* individual cases of measles have been confirmed in 31 states. This is the greatest number of cases reported in the U.S. since 1992. More than 75% of the cases this year are linked to recent outbreaks in New York. Measles is more likely to spread and cause outbreaks in U.S. communities where groups of people are unvaccinated, and the majority of cases are among people who were not vaccinated against measles. All measles cases this year have been caused by measles wild-type D8 or B3. **(as of December 5, 2019)*

Measles can cause serious complications. From January 1 – December 5, 2019, 124 of the people who got measles this year were hospitalized, and 61 reported having complications, including pneumonia and encephalitis.

Sources:

Measles Cases and Outbreaks: www.cdc.gov/measles/cases-outbreaks.html

Samoa's Measles Outbreak not Caused by Vaccine: factcheck.afp.com/experts-samoas-measles-outbreak-caused-underimmunisation-not-vaccine-itself

Claim: Vaccine policy is influenced or motivated by profit and/or the pharmaceutical industry

It is far more expensive to treat diseases than it is to prevent them. For example, one tetanus case can cost over \$100,000 if hospitalized, and recently a case in Oregon cost more than \$800,000; while the vaccine purchase cost is less than \$50 for providers; and \$0 under insurance and the Vaccines for Children program for consumers. The hospitalization costs do not include the additional direct and indirect costs to both the individual, healthcare, and the community.

Routine childhood vaccination programs for children born between 1994-2013 are estimated to have prevented 322 million illnesses, 21 million hospitalizations, and 732,000 deaths over the lifetime, with a net savings of \$295 billion in direct costs and \$1.38 trillion in total societal costs.

Sources:

Notes from the Field: Tetanus in an Unvaccinated Child:
www.cdc.gov/mmwr/volumes/68/wr/mm6809a3.htm

Vaccine Benefits: www.vaccinateyourfamily.org/why-vaccinate/vaccine-benefits/

Cost of Vaccines: www.reuters.com/article/us-some-pediatricians/some-pediatricians-consider-dropping-vaccines-due-to-cost-idUSBREA1P1XL20140226

Claim: There are no double-blind placebo-controlled studies conducted for vaccines

Many vaccines have used and continue to use double-blind placebo-controlled studies when it is ethically appropriate to do so. For example, the polio vaccine used a double-blind placebo-controlled trial to test its safety and efficacy in 1954 before it became widely administered.

When investigating new vaccines, it is not ethically appropriate to deprive individuals in a control group of an existing safe and effective vaccine, meaning in some cases a placebo-controlled study is not possible

Source:

Randomized Clinical Trials for Vaccine Safety, Efficacy and Effectiveness:
www.historyofvaccines.org/content/blog/vaccine-randomized-clinical-trials

Claim: Vaccination is unnecessary because infection rates are low

Disease rates are low in the United States today. But if we let ourselves become vulnerable by not vaccinating, an outbreak of a preventable disease is just a plane, car, or train ride away. Infection rates in the US can only remain low if we maintain herd immunity and high vaccination rates to protect vulnerable people in the US (e.g., the sick, the elderly, and infants too young for vaccination).

Herd immunity occurs when a subsection of the population is adequately vaccinated to protect those who are not immune. Additionally, while infection rates are low for some diseases in the US, this is not the case in other parts of the world. The 2019 measles outbreak, which almost caused the US to lose its elimination status, was started and exacerbated by travelers bringing measles into the US, where the disease spread through unvaccinated communities.

Source:

What Would Happen If We Stopped Vaccinations? www.cdc.gov/vaccines/vac-gen/whatifstop.htm

Claim: Vaccines contain harmful toxins such as mercury, aluminum, and formaldehyde

All three of these ingredients are found in lower quantities in vaccines than what can be found in environmental sources and/or naturally in the body. They are used in vaccines to boost immunity, maintain purity, increase immune response, and inactivate viruses.

Thimerosal is found in a select few multi-dose flu vaccines, however, all vaccines routinely recommended for children under 6 are available in formulations that do not contain thimerosal. Additionally, thimerosal contains ethylmercury, rather than methylmercury—the type of mercury found in a can of tuna that is more likely to accumulate in the body and cause mercury poisoning.

Aluminum is the third most common naturally occurring element, after oxygen and silicon. A breast-fed infant will ingest more aluminum through their diet than through vaccination in the first six months of life.

The average newborn has 50-70 times more naturally produced formaldehyde in their body than a single vaccine dose.

Adjuvants, including aluminum salts, have been used safely for more than 70 years in vaccines and are continuously monitored by CDC and FDA once approved and tested for safety and effectiveness in clinical trials before they are licensed for use in the United States.

Sources:

What Goes into a Vaccine? www.publichealth.org/public-awareness/understanding-vaccines/goes-vaccine/

Additives in Vaccines Fact Sheet: www.cdc.gov/vaccines/vac-gen/additives.htm

Adjuvant Information, CDC: www.cdc.gov/vaccinesafety/concerns/adjuvants.html

Vaccine Ingredients: What You Should Know, Children's Hospital of Philadelphia: media.chop.edu/data/files/pdfs/vaccine-education-center-vaccine-ingredients.pdf

Claim: Vaccines are created with aborted fetuses

Fetal embryo fibroblast cells, obtained from the elective termination of two pregnancies in the early 1960s, were used to grow the viruses used to make the vaccines for varicella, rubella, hepatitis A, one version of shingles, one version of polio, and one preparation of rabies vaccines; as these cells are ever-replicating, no additional fetal cells have been acquired to manufacture vaccines.

According to the Children's Hospital of Philadelphia, two reasons fetal cells were originally used include:

1. "Viruses need cells to grow and tend to grow better in cells from humans than animals (because they infect humans).
2. Almost all cells die after they have divided a certain number of times; scientifically, this number is known as the Hayflick limit, and for most cell lines it is around 50 divisions; however, fetal cells can go through many more divisions before dying".

The document *Religious Views of Vaccination At-A-Glance* (see sources below) provides a succinct summary of the stance many religions have taken on immunization, including that of the Roman Catholic Church and its pro-immunization position as it relates to the presence of fetal cells in vaccines.

Sources:

Vaccine Ingredients – Fetal Tissues: www.chop.edu/centers-programs/vaccine-education-center/vaccine-ingredients/fetal-tissues

Religious Views of Vaccination At-A-Glance: immunizenevada.org/sites/default/files/Advocacy/Religious_Views_of_Vaccination_At-a-Glance.pdf

Human Fetal Tissue Research: Frequently Asked Questions: crsreports.congress.gov/product/pdf/R/R44129/9

Claim: Vaccines cause ADHD, eczema, food allergies, etc.

A population-based cohort study followed 5,500 patients from ages 7 to 44 years. Investigators looked for associations between receipt of vaccines and asthma or atopic disease. No association was found between the receipt of childhood vaccines (diphtheria, tetanus, pertussis, polio and smallpox) and asthma, eczema or food allergies. This with other studies fail to support the hypothesis that vaccines cause asthma or allergic diseases.

Three large studies provided assurance that vaccines didn't cause attention deficit disorders including one that compared thimerosal exposure and a variety of neurodevelopmental delays, including attention deficit disorders, in more than 124,000 infants from two larger HMO databases and an additional 16,700 children in a third HMO. Children who received thimerosal-containing vaccines were not at greater risk of attention deficit disorder than those who didn't receive these vaccines.

Sources:

Vaccines and Asthma and Allergies: www.chop.edu/centers-programs/vaccine-education-center/vaccines-and-other-conditions/vaccines-asthma-allergies

Vaccines and ADHD: www.chop.edu/centers-programs/vaccine-education-center/vaccines-and-other-conditions/add-adhd

Claim: Immunize Nevada is a pharma funded special interest group

Many Nevada nonprofit, public health, and healthcare organizations employ paid lobbyists during legislative sessions, and in 2019 that list included American Cancer Society, Nevada Cancer Coalition, American Heart Association, Opportunity Village, Boys and Girls Clubs, Alzheimer's Association, Nevada Homeless Alliance, Renown Health, Power2Parent, and many more.

Immunize Nevada is a 501c3 nonprofit that receives educational grants and funding from a number of sources that are committed to improving the health of our community. We do not accept funding to promote, sell, or advocate for a specific company or their products.

In 2015 – after the Disneyland Measles outbreak, Immunize Nevada was asked by members of the Nevada State Medical Association to prepare a policy brief on Nevada's Immunization Laws. This brief is a compilation of recommendations by leading national organizations and studies, and is not a legislative agenda. Since its publication, additional organizations have updated their policy statements related to non-medical exemptions, and more states have taken legislative action to remove non-medical exemptions. These updates are not reflected in this brief.

Claim: The Division of Public and Behavioral Health should direct resources elsewhere than to preventing Hepatitis A through vaccination

Since the licensing of a hepatitis A vaccine in 1995, the U.S. has typically just seen cases associated with contaminated imported food. Recent outbreaks have mainly affected adults in at-risk populations, and vaccination can help limit the size, duration, and spread of person-to-person outbreaks. Costs of vaccination may be funded through publicly-purchased vaccine, or billed by a provider to a patient's health coverage such as Medicaid as an essential health benefit.

There is substantial savings to public health in administering vaccines prior to exposure to the pathogen as opposed to fighting a full-fledged outbreak. As an example, the recent San Diego Hepatitis A Outbreak cost San Diego County \$12.5 million as of April 2018, and was

declared over in October 2018. This cost does not include direct and indirect costs to the individual, healthcare systems, and the community. Nevada is at the bottom for public health funding, and our state and counties are lacking the necessary financial and organizational resources to fight outbreaks of this magnitude.

Therefore investing in prevention is a cost-control measure that can be included as a budgetary item; while the cost of disease outbreaks are unknown until declared over.

Sources:

San Diego County After Action Report:

www.sandiegocounty.gov/content/dam/sdc/cosd/SanDiegoHepatitisAOutbreak-2017-18-AfterActionReport.pdf

Widespread Hepatitis A outbreaks: www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm

Health Care Costs of Hepatitis A:

www.modernhealthcare.com/article/20170920/NEWS/170929982/california-hep-a-outbreak-could-prove-costly-to-local-healthcare-providers

Claim: Parents should have freedom of choice or medical freedom

No one is forcing anyone to vaccinate, so it already is a matter of individual choice. But when we start talking about children utilizing community schooling or daycare, it's important to focus not only on "freedom to" (as in, freedom to skip vaccines) but "freedom from" preventable deadly diseases. Children should have the right to go to school in a safe environment. While we can't protect them from absolutely everything, we should take steps to prevent what is preventable -- which includes vaccine-preventable diseases. Freedom is not an absolute or infinite right. As is often discussed in policy settings, your right to swing your fist ends where my nose begins.

Compulsory vaccination laws in the United States have repeatedly been upheld as a reasonable exercise of the state's compelling interest even in the absence of an epidemic or a single case. As the U.S. Supreme Court held in 1905 in the case *Jacobson vs. Massachusetts*: "...in every well-ordered society charged with the duty of conserving the safety of its members, the rights of the individuals in respect of his liberty may at times, under the pressure of great dangers, be subjected to such restraint, to be enforced by reasonable regulations as the safety of the general public may demand."

The Supreme Court makes clear that "the liberty secured by the Constitution of the United States to every person within its jurisdiction does not import an absolute right in each person to be, at all times and in all circumstances, wholly freed from restraint. There are manifold restraints to which every person is necessarily subject for the common good. [Liberty] is only freedom from restraint under conditions essential to the equal enjoyment of the same right by others."

Source:

The Federal Government's Role:

www.healthaffairs.org/doi/10.1377/hblog20190318.382995/full/

General Vaccine Resources:

American Academy of Pediatrics (AAP) www.aap.org

Centers for Disease Control and Prevention (CDC) www.cdc.gov/vaccines/parents

History of Vaccines www.historyofvaccines.org

Immunize Nevada www.immunizenevada.org

Vaccinate Your Family (formerly Every Child by Two) www.vaccinateyourfamily.org

Vaccine Education Center (VEC), Children's Hospital of Philadelphia www.chop.edu/centers-programs/vaccine-education-center

Vaxopedia www.vaxopedia.org/about/

Voices for Vaccines (VfV) www.voicesforvaccines.org