

The “Vaccine-Preventable” Illusion

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Many states require students to be vaccinated against so-called “vaccine-preventable diseases” (VPDs). The term itself suggests that vaccination not only protects the recipient from disease, but also prevents infection and transmission to others, a premise that has long been used to justify school vaccination requirements.

In reality, vaccines vary considerably in their ability to prevent infection and transmission. Some targeted illnesses are not readily spread through casual contact, particularly in a school setting. Other vaccines may reduce the severity of illness in the recipient without preventing infection or transmission. Vaccines like tetanus and meningococcal are in both categories. Still others, such as the varicella (chickenpox), measles, and influenza vaccines, are intended to protect against disease, although transmission of vaccine-strain virus may still be possible.

Let’s start with transmissibility in a school setting. The following vaccines target illnesses that do not transfer from student to student in a school setting:

Tetanus	According to the CDC, “tetanus does not spread from person to person.” ¹
Meningococcal	The CDC does not identify attendance at a K–12 school as a risk factor for meningococcal disease. Rather, the CDC identifies specific circumstances that increase risk, including close and prolonged contact with an infected person, certain immune conditions, travel to areas where the disease is common, and living in particular congregate settings. Among students, the CDC specifically identifies first-year college students living in residence halls as being at increased risk because of the cramped living quarters. ²
Hepatitis B	Hepatitis B is not spread through casual, day-to-day contact in schools or other community settings. The Hepatitis B Foundation states “it cannot be spread through the sharing of toys, sneezing, coughing, spitting, or hugging.” ³ It is a bloodborne virus transmitted through exposure to infected blood and bodily fluids, most commonly through sexual contact and the sharing of needles for injection drug use. According to the CDC, there are no documented cases of transmission of Hep B in a school setting. ⁴
Hepatitis A	Hepatitis A is a foodborne illness transmitted via the fecal-oral route. The CDC states that hepatitis A transmission in elementary and secondary schools is uncommon and that cases identified in schools typically reflect infection acquired in the community, and “historically, poor hygiene among children who wore diapers and the staff who handled and changed diapers contributed to the spread of HAV infection in child care centers.” ⁵
HPV	Human papillomavirus (HPV) is transmitted primarily through intimate sexual contact, not through casual contact in a school setting.

Vaccines that do not prevent infection or transmission:

Polio (Inactivated Poliovirus Vaccine (IPV))	According to the CDC, the “[Inactivated poliovirus vaccine (IPV)] protects people from polio disease but does not stop transmission of the virus.” ⁶ Because IPV produces limited intestinal mucosal immunity, vaccinated individuals can still become infected in the gastrointestinal tract and shed poliovirus in their feces following exposure, allowing the virus to spread to others. ⁷
Tetanus	Because tetanus is not spread from person to person, vaccination cannot prevent person-to-person transmission. ⁸
Diphtheria	The target of the diphtheria vaccine is the toxin released by the bacterium, not the bacterium itself; therefore the vaccine does not prevent transmission or infection. ⁹

Pertussis (whooping cough)	A 2019 paper, published following a Consensus Conference organized by the World Association for Infectious Diseases and Immunological Disorders (Waidid), brought together findings from experts in eleven countries who evaluated the resurgence of pertussis and the role of acellular pertussis vaccines (aPVs). ¹⁰ The authors found that aPVs can prevent advanced disease but do not prevent infection, colonization, or transmission. They identified this limitation as one factor contributing to the continued circulation and resurgence of pertussis despite high vaccination rates.
MMR: Measles, Mumps, Rubella	• Measles: Breakthrough infections, including subclinical infections and secondary vaccine failures, have been repeatedly documented in vaccinated individuals, and measles outbreaks have occurred in highly vaccinated populations. Studies have also documented vaccinated individuals transmitting measles to others, including a 1998 school-outbreak study in which vaccinated and unvaccinated cases were equally able to infect their siblings, and a 2026 systematic review identifying 70 vaccinated individuals who transmitted measles to 237 direct secondary cases.”^{11, 12, 13, 14} • Mumps: According to the CDC, “during outbreaks, people who previously had 1 or 2 doses of MMR vaccine can still get mumps and can still transmit the disease.”¹⁵ • Rubella: According to the CDC, rubella breakthrough infection and subclinical reinfection have been well-documented in vaccinated individuals.¹⁶
Meningococcal	According to the CDC, meningococcal vaccines typically produce an immune response, but there is limited evidence showing how well that immune response actually protects against disease. ¹⁷
Influenza	Historically, influenza vaccines are known for having low efficacy rates, and for not completely preventing infection or transmission. For the 2025-2026 flu season, CDC estimated the vaccine was around 40% effective at preventing doctors’ visits or hospitalization. ¹⁸ Repeated (annual) vaccination has been associated in some studies with reduced effectiveness, and increased aerosol viral RNA shedding. In children, influenza vaccination does not reduce flu-related hospitalizations, and conversely, is associated with more non-influenza respiratory infections. ^{19, 20, 21, 22, 23}

Vaccine-strain viruses capable of person-to-person transmission:

Polio (Oral Polio Vaccine (OPV))	Today, vaccine-derived poliovirus is a major source of ongoing polio transmission worldwide. The live, weakened virus contained in oral polio vaccine (OPV), which is still used in developing nations around the world but has not been used in the U.S. since 1999, replicates in the intestine and can spread person-to-person. During continued circulation, vaccine-derived strains can mutate and regain characteristics that allow them to cause paralytic disease and new outbreaks. In 2025, WHO reported 202 cases of circulating vaccine-derived poliovirus (cVDPV), compared with 41 wild-polio cases worldwide. IPV, the vaccine used in the U.S., cannot itself cause polio because it is inactivated, but it provides limited intestinal immunity and does not reliably prevent infection, fecal shedding, or continued circulation of poliovirus following exposure. CDC states that IPV “does not prevent gastrointestinal infection or shedding in exposed persons,” while WHO acknowledges that an IPV-immunized person can still become infected, shed poliovirus in feces, and contribute to continued circulation. ^{24, 25, 26, 27, 28}
Varicella (chickenpox)	According to the VARIVAX package insert, in some cases, a recently vaccinated person can transmit the vaccine-strain virus to someone else, even if the vaccinated person does not develop a rash. Because of this risk, the manufacturer advises avoiding close contact with certain high-risk individuals for up to six weeks after vaccination. ²⁹ Yet during a chickenpox outbreak, unvaccinated students may be excluded from school while recently vaccinated students are allowed to remain. If the purpose of exclusion is to reduce transmission, the potential for vaccine-strain transmission must also be considered.
Measles	Studies have found traces of the measles vaccine virus in urine, blood cells, and respiratory samples after vaccination, with vaccine-strain genetic material detected from days to more than two years later. ^{30, 31, 32} Researchers have specifically noted that additional studies are needed to determine whether this represents viable virus capable of transmission to close contacts. ^{33, 34}

Influenza
(Live Attenuated
Influenza
Vaccine (LAIV))

Studies have found vaccine-strain virus transmitted person to person in up to 80% of young children following LAIV, and a randomized daycare study confirmed transmission of an influenza B vaccine strain from a vaccinated child to an unvaccinated placebo recipient. CDC acknowledges that LAIV recipients can transmit person to person vaccine virus and that transmission of vaccine strains to unvaccinated persons has been documented.^{35, 36, 37}

Given these important differences, it is reasonable to ask whether the label "vaccine-preventable disease" accurately reflects the characteristics of every disease for which vaccination is required?

**What
about
herd
immunity?**

The term "herd immunity" was coined in the 1910s when livestock researchers noticed that a population of cattle could collectively resist an epidemic once a critical mass developed immunity, a concept that has since been applied to human medicine to suggest that vaccination could accomplish the same result.

However, there is an important distinction between "natural immunity" and "artificial immunity."



Natural Immunity occurs when the body fights an illness and builds strong, long-lasting immunity, whereas artificial immunity describes what happens during vaccination when the body produces antibodies and memory cells without the experience of fighting the illness.

A comparison would be the strength of how well someone remembers an event that they've lived through versus an event they've just been told about.

In addition, no vaccine works the same way in every person. A 2016 review found that 2–10% of healthy individuals will never develop protective antibody levels following vaccination (known as primary vaccine failure).³⁸ **Even when a vaccine "works" at first, that protection can wear off over time (known as secondary vaccine failure).**³⁹

Primary and secondary vaccine failure makes "herd immunity," a concept based on natural immunity, impossible.

Public health messaging which tells the public to "vaccinate to protect the herd" is misleading and disingenuous, and contributes to ongoing public distrust.



REFERENCES

- 1 [cdc.gov/tetanus/causes/index.html](https://www.cdc.gov/tetanus/causes/index.html)
- 2 [cdc.gov/meningococcal/risk-factors/index.html](https://www.cdc.gov/meningococcal/risk-factors/index.html)
- 3 [hepb.org/treatment-and-management/children-with-hepatitis-b/advice-for-parents/](https://www.hepb.org/treatment-and-management/children-with-hepatitis-b/advice-for-parents/)
- 4 [icandecide.org/wp-content/uploads/2020/12/Final-Response-No-Records.pdf](https://www.icandecide.org/wp-content/uploads/2020/12/Final-Response-No-Records.pdf)
- 5 [cdc.gov/mmwr/volumes/69/rr/rr6905a1.htm](https://www.cdc.gov/mmwr/volumes/69/rr/rr6905a1.htm)
- 6 [cdc.gov/poliovirus-containment/diseaseandvirus/index.html](https://www.cdc.gov/poliovirus-containment/diseaseandvirus/index.html)
- 7 [ncbi.nlm.nih.gov/pubmed/22532797](https://pubmed.ncbi.nlm.nih.gov/22532797/)
- 8 [cdc.gov/surv-manual/php/table-of-contents/chapter-16-tetanus.html](https://www.cdc.gov/surv-manual/php/table-of-contents/chapter-16-tetanus.html)
- 9 [cdc.gov/surv-manual/php/table-of-contents/chapter-1-diphtheria.html](https://www.cdc.gov/surv-manual/php/table-of-contents/chapter-1-diphtheria.html)
- 10 [pmc.ncbi.nlm.nih.gov/articles/PMC6616129/](https://pubmed.ncbi.nlm.nih.gov/articles/PMC6616129/)

REFERENCES

- 11 pubmed.ncbi.nlm.nih.gov/9850133/
- 12 pubmed.ncbi.nlm.nih.gov/3821823/
- 13 pmc.ncbi.nlm.nih.gov/articles/PMC1349980/
- 14 gao.gov/assets/nsiad-98-114.pdf
- 15 cdc.gov/rubella/vaccines/index.html
- 16 cdc.gov/mumps/hcp/vaccine-considerations/specific-groups.html
- 17 cdc.gov/meningococcal/vaccines/types.html?revision_id=5107#cdc_vaccine_basics_safe_effective-how-well-they-work
- 18 cdc.gov/mmwr/volumes/75/wr/mm7509a2.htm
- 19 pmc.ncbi.nlm.nih.gov/articles/PMC3693492/
- 20 pmc.ncbi.nlm.nih.gov/articles/PMC4207422/
- 21 pmc.ncbi.nlm.nih.gov/articles/PMC5798362/
- 22 sciencedaily.com/releases/2009/05/090519172045.htm
- 23 pmc.ncbi.nlm.nih.gov/articles/PMC3404712/
- 24 [who.int/teams/health-product-policy-and-standards/standards-and-specifications/norms-and-](https://who.int/teams/health-product-policy-and-standards/standards-and-specifications/norms-and-standards/vaccine-standardization/poliomyelitis)
- 25 [standards/vaccine-standardization/poliomyelitis
who.int/news/item/04-03-2026-statement-of-the-forty-fourth-meeting-of-the-polio-ihr-emergency-](https://who.int/news/item/04-03-2026-statement-of-the-forty-fourth-meeting-of-the-polio-ihr-emergency-committee)
- 26 [committee
cdc.gov/mmwr/volumes/72/wr/pdfs/mm7249a3-H.pdf](https://cdc.gov/mmwr/volumes/72/wr/pdfs/mm7249a3-H.pdf)
- 27 who.int/news-room/questions-and-answers/item/poliomyelitis
- 28 [who.int/news/item/25-08-2026-statement-of-the-forty-fifth-meeting-of-the-polio-ihr-emergency-](https://who.int/news/item/25-08-2026-statement-of-the-forty-fifth-meeting-of-the-polio-ihr-emergency-committee)
- 29 [committee
merck.com/product/usa/pi_circulars/v/varivax/varivax_pi.pdf](https://merck.com/product/usa/pi_circulars/v/varivax/varivax_pi.pdf)
- 30 mdpi.com/1999-4915/11/7/636
- 31 pubmed.ncbi.nlm.nih.gov/11536248/
- 32 <https://pmc.ncbi.nlm.nih.gov/articles/PMC228449/>
- 33 pubmed.ncbi.nlm.nih.gov/27083423/
- 34 pubmed.ncbi.nlm.nih.gov/31295941/
- 35 cdc.gov/Mmwr/preview/mmwrhtml/rr5213a1.htm
- 36 pubmed.ncbi.nlm.nih.gov/16804427/
- 37 cdc.gov/mmwr/preview/mmwrhtml/rr6207a1.htm
- 38 pmc.ncbi.nlm.nih.gov/articles/PMC4962729/