Vaccine misinformation

Myths versus facts

Vaccines are among the safest and most effective means of preventing serious illness; however, misinformation still leads to confusion and hesitation among patients.[1]

Below are some quick, evidence-based responses to common vaccine myths, designed to facilitate clear and confident conversations between health care providers and their patients. Use these facts to address concerns, build trust, and help patients make informed decisions about their health.

Myth	Fact
Natural immunity is better than vaccine-induced immunity.	**While natural infections can produce immunity, it comes with significant risks, including hospitalization, long-term complications, and death.** Vaccines safely teach the immune system to recognize pathogens *without* causing disease.[3, 4]
Vaccines contain harmful toxins.	**Vaccines contain specific ingredients that make them safe and effective, with each component serving an important purpose.** For example, aluminum salts boost the immune response and trace preservatives prevent contamination.[2, 3] *These ingredients are present in extremely small and carefully regulated amounts, far below levels that could cause harm.[3] Everyday foods often contain more of these substances than vaccines* – such as a pear, which has about 13 times more naturally occurring formaldehyde than any vaccine.[2] **Regulatory agencies continuously monitor vaccine safety to ensure all ingredients remain well within safe limits.**[6]
Vaccines overload the immune system.	**The immune system encounters countless antigens daily from our food, environment, and normal bacteria in the body.** Vaccines introduce only a tiny fraction of this exposure. Studies show that receiving multiple vaccines at once is safe and does not weaken or strain the immune system.[4, 7]
Vaccines are rushed and unsafe.	**Vaccines undergo multiphase clinical trials and continuous monitoring before and after approval.[6, 7]** Even when developed quickly – such as during public health emergencies – no safety steps are skipped. Instead, processes are accelerated and overlap to save time while maintaining strict safety standards.[2, 7] Additionally, any side effects typically occur within six weeks of receiving a vaccination.[8]

Myth	Fact
Vaccines cause infertility.	**Studies comparing vaccinated and unvaccinated individuals show no difference in fertility or conception rates for either partner.** Additionally, some studies suggest that natural infection (such as COVID-19) may temporarily reduce male fertility.[9]
Vaccines aren't needed because diseases are rare now.	**Vaccine-preventable diseases are rare *because* vaccines work.** When vaccination coverage drops, outbreaks return – as seen with recent measles surges in multiple countries. Many diseases still circulate globally, and international travel makes reintroduction a constant risk.[4]
Vaccines can change your DNA.	**Messenger ribonucleic acid (mRNA) and viral vector vaccines do not interact with DNA.[5]** They simply deliver instructions that help the body recognize and fight viruses, then break down quickly.[2, 3]
Vaccines cause severe allergic reactions in most people.	**Severe allergic reactions such as anaphylaxis are extremely rare – most people have mild or no side effects.** Health care providers are trained and equipped to treat reactions immediately.[1]
Vaccines contain microchips or tracking devices.	**Vaccines contain biological components and small amounts of preservatives – none are electronic or capable of tracking.** Additionally, vaccine vials do not have enough space to contain such devices.[2]

1 Provider's Role: Importance of Vaccine Administration and Vaccine Storage & Handling | Vaccines & Immunizations | CDC.
2 Top Ten Anti-Vaccine Myths Debunked, Again | History of Vaccines.
3 Vaccines: The Myths and the Facts | AAAAI.
4 Debunking Immunization Myths - PAHO/WHO | Pan American Health Organization.
5 Vaccines: Myth Versus Fact | Family Doctor.
6 Vaccine Safety | HHS.gov.
7 Strategies for Improving Vaccine Communication and Uptake | Pediatrics | American Academy of Pediatrics.