Are vaccines safe?

Vaccines are tested for safety, but like all medical products, they can sometimes cause side effects.

January 27, 2023 By Liz Highleyman

All vaccines authorized in the United States are tested for safety and efficacy. Testing starts with laboratory and animal studies, followed by human clinical trials. These trials first look for immune responses—for example, antibody production—then evaluate whether a vaccine prevents infection, illness or death.

Vaccines have prevented countless cases of severe illness and reduced mortality. But like all medical products, they can sometimes cause side effects and, more rarely, serious complications. Many vaccines cause mild to moderate injection site reactions, including redness, swelling or pain. They can also cause flu-like symptoms, such as fever and fatigue—a sign that the vaccine is triggering an immune response.

Less common adverse events include allergic reactions. For example, people who are allergic to eggs may not be able to receive vaccines that contain virus produced in chicken eggs. People who have a compromised immune system (such as people living with HIV, organ transplant recipients and those undergoing cancer chemotherapy) should avoid vaccines that contain live virus. Some vaccines can cause rare complications, such as Guillain-Barré syndrome (a severe skin reaction) or the blood-clotting condition linked to certain COVID-19 vaccines.

Before being vaccinated, you should be given information about the vaccine, its effectiveness and its possible side effects and complications and discuss with your provider whether you have any risk factors for adverse outcomes.

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