



Addressing COVID-19 vaccine myths

The Issue

Misinformation about COVID-19 vaccines can be divided into two broad categories. One category can be thought of as *misunderstandings*: a person may not have the necessary background or knowledge for interpreting information. For example, a person who is concerned that the vaccines could produce COVID-19 illness likely does not understand that the vaccines do not contain a live virus and therefore cannot possibly cause infection. Misunderstandings can be addressed with factual information.

The other category can be thought of as *myths*, where “myth” is defined as an unfounded or false notion. Myths are simply not true. It is more challenging to address myths because discussions can devolve into debates or arguments. Nonetheless, it is important for pharmacists to be aware of some of the common myths that are circulating and the possible reasons for them.

Common Vaccine Myths

MYTH: The COVID-19 vaccines were developed as a way to control the general population by injecting microchips, “nanotransducers,” or other tracking technologies.

FACT: There is no vaccine microchip; vaccines contain no transmissible material; and none of the COVID-19 vaccines is able to track people or gather personal information into a database.

This myth seems to have emerged after Bill Gates made a comment that “digital certificates” might be used to show that a person had been tested or vaccinated for COVID-19. The technology he was referencing is not a microchip and has not been implemented in any manner.

This myth also might be tied to the announcement of a contract between the U.S. government and ApiJect Systems America to expand domestic production capability for medical-grade injection devices. The contract supported the creation of a high-speed supply chain for prefilled syringes that might be used for COVID-19 vaccines. (The syringes are not being used for this purpose.) ApiJect has an optional version of its product that contains a microchip within the syringe label; the microchip is intended to help vaccine providers confirm that the actual injectable and the vaccine in it have not expired and are not counterfeit. The microchip is part of the outer label—not inside the syringe—so it could not be injected into the person receiving the vaccine.



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MYTH: Receiving a COVID-19 vaccine can cause a person to become magnetic.

FACT: Receiving a COVID-19 vaccine will not make anyone magnetic, including at the site of vaccination (usually the arm).

COVID-19 vaccines do not contain any ingredients (including the aforementioned microchips) that can produce an electromagnetic field. All COVID-19 vaccines are free from metals such as iron, nickel, cobalt, lithium, and rare earth alloys as well as any manufactured products such as microelectronics, electrodes, carbon nanotubes, and nanowire semiconductors. In addition, the typical dose for a COVID-19 vaccine is less than 1 mL, which is not enough to allow magnets to be attracted to a vaccination site even if the vaccine were filled with a magnetic metal.

MYTH: COVID-19 vaccines cause infertility in women—maybe men too.

FACT: There is no evidence that fertility problems are a side effect of *any* vaccine, including COVID-19 vaccines. Additionally, there currently is no evidence that COVID-19 vaccination causes any problems with pregnancy, including the development of the placenta.

According to an Associated Press “fact check,” the rumors about infertility can be traced to an article published by a blog called “Health and Money News” around the time the Pfizer-BioNTech vaccine was authorized. The article introduced the false claim that the spike protein found on the surface of SARS-CoV-2 is the same as another spike protein—the functional envelope glycoprotein syncytin-1 that is involved in the growth and attachment of the placenta during pregnancy. The article postulated that because of the similarity, vaccine-generated antibodies to SARS-CoV-2 also would attack syncytin-1, thereby affecting the fertility of women seeking to become pregnant.



The SARS-CoV-2 spike protein and syncytin-1 do share an amino acid sequence. However, a Pfizer spokesperson confirmed that this sequence “is too short to plausibly give rise to autoimmunity.” There is one small similarity, but the overall construction of syncytin-1 is completely different. As one expert put it, saying the spike proteins on the surface of SARS-CoV-2 and syncytin-1 are the same “is [like] saying that two people share the same Social Security number because they both contain the number 6.” As for the idea that the body could get “mixed up” and attack syncytin-1 instead of SARS-CoV-2, another expert drew the analogy that it would be “like [a person] mistaking an elephant for an alley cat because they’re both gray.”

An American College of Obstetricians and Gynecologists Practice Advisory states that “claims linking COVID-19 vaccines to infertility are unfounded and have no scientific evidence supporting them.”¹

The idea that a COVID-19 vaccine could affect male fertility may be related to the fact that some men develop a fever following vaccination. Fever can temporarily suppress sperm production.

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MYTH: The COVID-19 vaccines are “shedding” from one person to another and causing problems in unvaccinated people (e.g., affecting women’s menstrual cycles, causing reproductive problems).

FACT: People who have received a COVID-19 vaccine do not shed vaccine material.

The myth that is being perpetuated goes something like this: because vaccinated people are shedding vaccine material, being near someone who received a COVID-19 vaccine can affect you in a manner not unlike secondhand smoke. Purported negative effects include abnormal menstruation and miscarriage.

This idea seems to have a convoluted origin. The term “vaccine shedding” has been used in previous anti-vaccination campaigns to describe the risk of infection due to vaccine-induced viral shedding. Although viral shedding is possible with some vaccines—primarily live attenuated vaccines—the level of shedding is considered to be inadequate to facilitate infection.

With COVID-19 vaccines, the term “vaccine shedding” is being used to describe the release or discharge of *any* vaccine component outside the body. This is not biologically possible. None of the ingredients in any of the authorized COVID-19 vaccines is capable of leaving the body after injection, so nothing can be transferred from one person to another.

Furthermore, there is no evidence that any of the authorized COVID-19 vaccines are capable of affecting a woman’s menstrual cycle in any way. Many things can affect menstrual cycles, including stress, changes in normal routines, problems with sleep, and changes in diet or exercise. Infections also may affect menstrual cycles.

MYTH: COVID-19 vaccines are killing more people than the virus itself.

FACT: No, they aren’t.

As of July 21, 2021, the Centers for Disease Control and Prevention COVID Data Tracker reported more than 607,000 deaths attributable to COVID-19.²

By comparison, the Vaccine Adverse Event Reporting System (VAERS) had received 6,340 reports of deaths among people who received a COVID-19 vaccine. This represents a tiny fraction—0.0019%—of the more than 342 million vaccine doses administered in the United States. Moreover, the U.S. Food and Drug Administration requires health care providers to report any death after COVID-19 vaccination to VAERS, even if it is unclear whether the vaccine was the cause. Reports of adverse events to VAERS following vaccination, including deaths, do not necessarily mean that a vaccine caused a health problem.

This myth is complicated by information circulating on social media stating that the mortality rate of COVID-19 is only 1% to 2%, so people should not be vaccinated against a virus with such a high survival rate. The first part is true: the current observed case fatality ratio is 1.8% or 183 deaths per 100,000 population. Contrast this with seasonal flu, which caused 1.8 deaths per 100,000 population during the most recent reporting period (2019). Even when deaths from both influenza and pneumonia are considered, the mortality rate was 15.2 deaths per 100,000 population.

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MYTH: If you die after getting a COVID-19 vaccine, insurance companies will not pay out on the policy because the vaccine is experimental.

FACT: Getting a COVID-19 vaccine will not affect whether a policy pays out in the event of death.

Like many COVID-19 vaccine myths, this one can be traced to social media. In response to posts claiming that a COVID-19 vaccine could be a factor a life insurer considers in the claims-paying process, the American Council of Life Insurers issued the following statement:³

The fact is that life insurers do not consider whether or not a policyholder has received a COVID vaccine when deciding whether to pay a claim. Life insurance policy contracts are very clear on how policies work, and what cause, if any, might lead to the denial of a benefit. A vaccine for COVID-19 is not one of them. Policyholders should rest assured that nothing has changed in the claims-paying process as a result of COVID-19 vaccinations.

References

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2. U.S. Centers for Disease Control and Prevention. COVID Data Tracker weekly review. July 23, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html>. Accessed July 28, 2021.
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