How do we actually investigate rare COVID-19 vaccine side-effects?

May 6 2021, by Nicholas Wood and Kristine MacArtney

Credit: Nataliya Vaitkevich from Pexels

Investigations are under way to determine whether the deaths of two people in New South Wales who developed blood clots are linked to the AstraZeneca vaccine.

We've also heard today that 11 Australians have so far developed blood clots (thrombosis with thrombocytopenia syndrome) linked with the vaccine.

But what are these investigations? And who decides whether events like these are actually linked to COVID-19 vaccines, or something else?

What triggers the process?

There is a lot of interest in the safety of COVID-19 vaccines. So the public and health-care workers are "highly tuned in" to reporting suspected side-effects.

Anyone can report these to Australia's drug regulator, the Therapeutic Goods Administration (TGA). Alternatively, people who have been vaccinated can do so when prompted with a survey via the AusVaxSafety system.

> AusVaxSafety sending SMS surveys to monitor side effects of COVID vax https://t.co/ehLWJYItra #digitalhealth #ehealth #healthit
>
> — Pulse+IT (@pulseitnews) March 9, 2021

This is a good thing as it means we are likely to pick up any serious or unusual events. Every report is valuable and contributes to our safety monitoring. However, just because an event happened after a vaccine does not mean the vaccine *caused* it.

A serious event could be caused by an underlying medical condition, a medication the person was taking at the time, or some other factor unrelated to the vaccine.

For example, before COVID-19 and vaccines against it, dozens of people across Australia developed blood clots, in their legs, lungs, brain and other parts of the body, every day, often without warning or clear cause.

What happens next?

When a person has a suspected vaccine side-effect it is usually reported to the state or territory health department; some reports go directly to the TGA.

Most reactions reported after vaccination are mild to moderate. AusVaxSafety surveys in more than 365,000 people in Australia confirm what we saw in vaccine trials. Up to two-thirds of people experience symptoms such as fever, muscle aches, joint pains and headache within the first one or two days after vaccination, which go away without treatment. This is the immune system responding to the vaccine.

What if it's serious?

If the person dies or had a serious event needing hospitalization within the days to weeks after vaccination—like the clotting cases you will have heard about, or there was an unusual unexpected event—there are further investigations.

Health department and TGA staff gather as much information as possible about the person, including their medical history, risk factors, any medications they are on, details and timing of the vaccine, hospitalization records, any laboratory test results and whether they have recovered or have any ongoing issues. This will involve liaising with the person's GP, specialists and the hospital.

Many states and territories then convene an expert panel of doctors to discuss a serious case. These panels often include the treating doctor, discuss the case in detail and may advise extra tests that may help them understand the event.

A full clinical dossier is then provided to the TGA, which then further reviews the case and decides whether a group of independent expert advisors, known as a "vaccine safety investigation group" or VSIG, is needed to review the case in detail and assess if the vaccine caused it.

The VSIG often includes independent medical experts in vaccine safety, infectious diseases, hematology, public health and vaccine confidence, other medical specialists, and a consumer representative.

The group reviews the clinical details of the event. It then uses an internationally accepted method to rate the level of certainty of a link between the serious event and the vaccine.

First, the group determines if there is enough clinical information to come to a decision, and if not, will request further information from the state/territory health department and may need to reconvene when that information is available.

The group then determines if the case is classified as:

- caused by the immunization process (such as errors in vaccine technique) or the vaccine itself (the official terminology is "consistent causal association to immunization")
- uncertain if the vaccine or immunization process caused the event ("indeterminate")
- a coincidence ("inconsistent causal association to immunization"). This could when because an underlying condition or something other than vaccine was the cause.

The TGA then publishes the results of this independent assessment on its website. This is accompanied by a summary of the case(s) and extra clinical advice for doctors. The TGA also feeds the results back to the state/territory health department and treating doctor.

This information will also be included in weekly updates published on the TGA website and is reviewed by other key advisory groups, including the Australian Technical Advisory Group on Immunization and the government, who monitor the progress of immunization programs, including for COVID-19.

Here's the context

While such serious vaccine-related events grab the headlines, it's important to remember they are rare. Most side-effects are mild-to-moderate and short-lived. On the other hand, the benefits of COVID-19 vaccination in ending the pandemic are enormous.

When concerning events occur after vaccination, it's important to know Australia has strong systems to properly investigate them, look at any possible link and communicate the results to the public.

Provided by The Conversation

effects.html