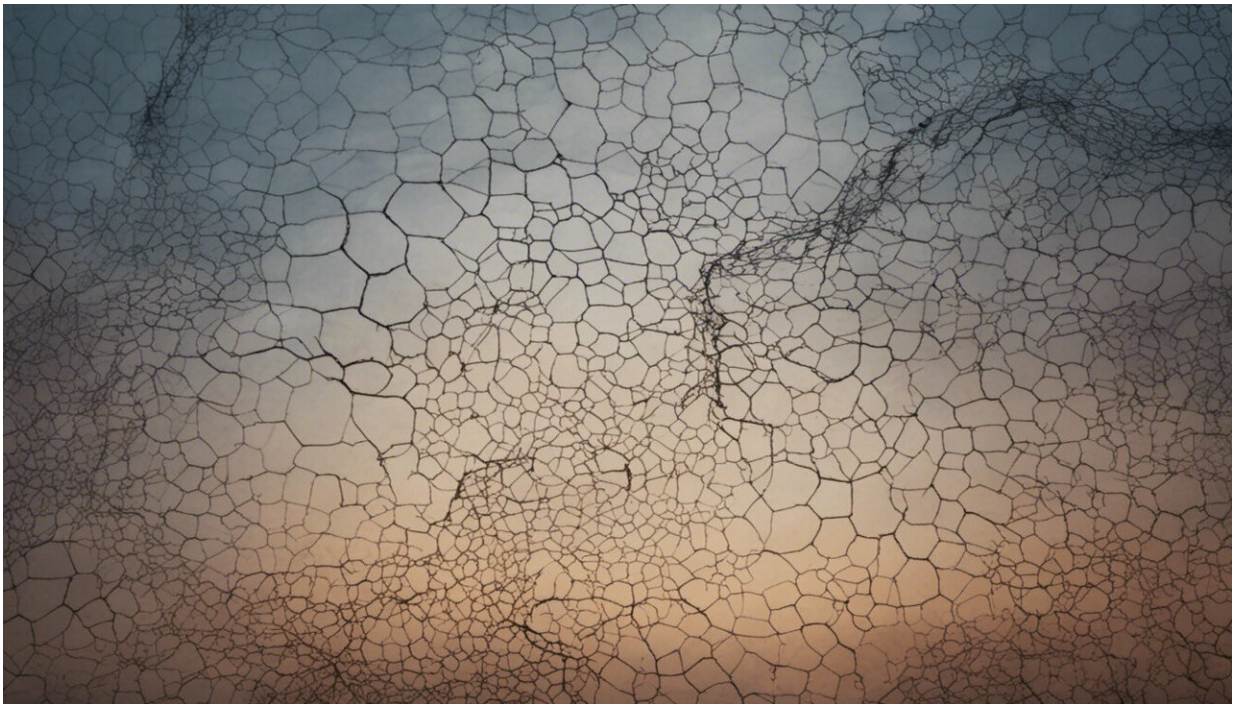


# Finding the source of an outbreak is important. But the term 'patient zero' is a problem

August 14 2020, by Adrian Esterman

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Credit: AI-generated image ([disclaimer](#))

Security guards at Melbourne's quarantine hotels have been widely blamed for Victoria's current outbreak of COVID-19.

Reports have suggested they [mixed inappropriately](#) with people under

quarantine, and did not properly follow instructions around infection control.

But late yesterday we heard the first positive case was in fact a [night manager](#) at Rydges on Swanston, one of the hotels at the center of the quarantine bungle. We don't know how this person became infected, but there's no suggestion it was a result of any improper behavior.

This night manager has now become known as "patient zero" in Victoria's second wave of coronavirus infections. But what does this term actually mean?

## The beginning of the chain of infections

The first case in a chain of infections is popularly called "patient zero." However, "patient zero" is not a very precise term.

In [epidemiological language](#), we call the first case in an [outbreak](#) to come to the *attention* of investigators the "index case." The actual individual who *introduced* the disease at the start of the outbreak is called the "primary case."

According to these definitions, because the night manager was the first person *recorded* as being infected at the hotel (apart from the guests, who of course were already under quarantine), he or she would be the index case. However, the night manager was also the person who *started* the chain of infections, so he or she was also the primary case.

The one thing the night manager is *not*, however, is "patient zero." That expression should really be reserved for the first human ever to be infected with SARS-CoV-2 (the [coronavirus](#) that causes COVID-19).

## Origins of patient zero

The expression "[patient zero](#)" originated from the HIV epidemic in the United States.

Reports emerged in early 1982 of sexual links between several gay men with AIDS in Los Angeles, and investigators from the Centers for Disease Control and Prevention (CDC) interviewed these men for the names of their sexual contacts.

The CDC gave each of the cases pseudonyms, and the person they eventually identified as the first to have the disease had a moniker beginning with the letter "O."

This was later mistakenly interpreted as a zero, and so we got the expression "patient zero" for the first known case of a disease.

## Why finding patient zero is important

It's important for epidemiologists to find the first known case because it helps work out how the outbreak occurred, and gives us an idea of how to prevent further outbreaks in the future.

For example, scientists believe the COVID-19 pandemic started in the [Huanan seafood market](#) in Wuhan, China, in December 2019. If this proves to be correct (an international investigation is underway to determine this), authorities may choose to close wet markets, or at least better regulate them to prevent future outbreaks.

Beyond "patient zero" in the sense of the first ever case of a disease, it's also important to find the first case in each particular outbreak.

In the case of the Rydges hotel night manager, this person would clearly have been infected by one of the hotel's quarantined guests. Authorities now need to determine exactly how, where and when this person became infected, so they can tighten procedures to make sure this doesn't happen again.

New Zealand is in a similar situation with its current COVID-19 outbreak. Until [health authorities](#) can work out who the primary case is, it will be very difficult to determine where the infection came from, and what actions they must take to ensure it's not repeated.

Potentially, the primary case in this outbreak could have picked it up from a contaminated surface, a breakdown in quarantine regulations, or simply an asymptomatic person moving around in the community.

## **A political blame game**

Unfortunately, finding out how Victoria's second-wave outbreak started seems to have become a [political blame game](#) rather than a serious attempt to prevent it happening again.

The current finger-pointing is not only counterproductive—it could easily see the night manager designated as patient zero unfairly stigmatized, when that person is most likely blameless.

Richard McKay, a Cambridge academic who has written extensively on the concept of patient zero, captured the issue perfectly in an earlier Conversation article:

"Writing of a patient zero is a damaging red herring that distracts from constructive efforts to contain the epidemic. Let's wash our hands of this toxic phrase."

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