Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
The risks from covid-19 reinfection

A study has found that people who catch the coronavirus two or three times go on to have higher rates of everything from heart disease to kidney disorders, reports Michael Le Page

YOU have been vaccinated and recently had covid-19, so you don’t have to worry about any serious problems if you get it again, right? Wrong. A large study suggests that every time a person is reinfected, they have extra health risks.

“Every reinfection is like rolling the dice again,” says Ziyad Al-Aly at VA St. Louis Health Care System in Missouri. “A second infection is still bad for you.”

The omicron subvariants BA.4 and BA.5, which are driving the latest wave of cases in much of the world, are even better at evading prior immunity than their BA.1 and BA.2 predecessors. In the UK alone, up to 1 in 20 people were thought to have covid-19 in the middle of June, according to the Office for National Statistics. This is despite an estimated 97 per cent of adults having antibodies at a level that should at least provide some protection against the delta variant at the end of May.

Al-Aly and his colleagues’ study gained a lot of attention online when it was released as a preprint on 17 June. It found that people who had two or more covid-19 infections were twice as likely to die of any cause and three times as likely to be hospitalised in the six months after catching the coronavirus, compared with people who caught it just once. This was widely misinterpreted as reinfections being worse than first infections. That absolutely isn’t the case, says Al-Aly.

The risk of serious outcomes is probably smaller after reinfections than after the first infection, he says. We can’t be certain, however, as the study compared people who had been infected at least twice with those who had been infected just once, rather than comparing first and second infections in the same individuals. It is possible that those who were infected twice were vulnerable and more likely to be severely affected, says Al-Aly. Some have argued that all the study shows is that having covid-19 two or three times is worse than having it just once. To some extent, this is true.

While this may seem obvious to some, others assume reinfections will be harmless. In the study, people who had second or third covid-19 infections had significantly higher rates of everything from heart disease to kidney disorders during the first 30 days of infection, as well as in the six months that followed, than people with just one infection.

This was true both for those who were unvaccinated and for those who had received at least one dose of vaccine before catching covid-19 for the second time (Research Square, doi.org/h3t2).

The team has since reanalysed the data looking only at positive tests that occurred at least 90 days after the first, and the results are essentially the same, he says.

Overall, these findings shouldn’t be a big surprise given what we know about the risk of reinfection with other viruses. For instance, flu reinfections occasionally cause serious complications, from heart inflammation to multi-organ failure, especially in older people. It wouldn’t be surprising if covid-19’s disease burden is even higher than flu’s, due to more reinfections and possibly greater risks with each reinfection.

So what should we do? Given there is a reduced will to wear masks and limit social contact in most parts of the world, Al-Aly says we should be giving more people preventative treatments, such as Pfizer’s Paxlovid (made up of the generic drugs nirmatrelvir and ritonavir), while also prioritising the development of more effective vaccines, like nasal ones.

“There is simply no excuse for why these vaccines are not being hyper-aggressively pursued,” Eric Topol at the Scripps Research Translational Institute in California wrote in a commentary on the study. “The lack of priority and resource allocation stems from the illusion that the pandemic is behind us.”