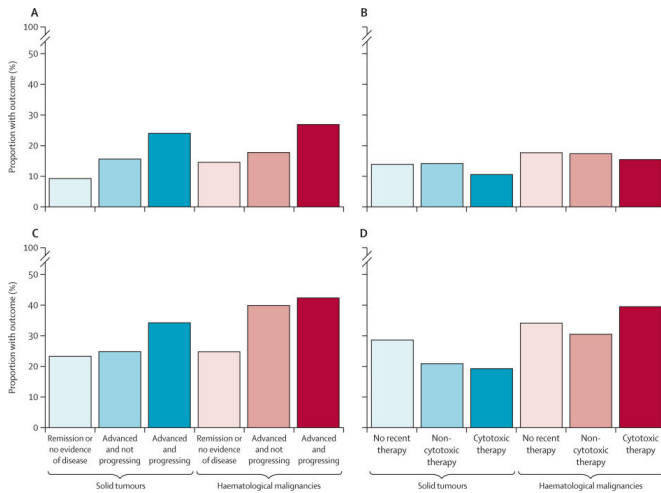


# COVID-19 in people with cancer: What we know so far

7 January 2021, by Lyndsy Ambler



Primary and composite secondary outcome by cancer type, cancer status, and anticancer therapy Mortality as a function of cancer type and status (A) and cancer type and therapy type (B). Composite outcome as a function of cancer type and status (C) and cancer type and therapy type (D). Results are descriptive; no statistical analyses were applied. DOI: [https://doi.org/10.1016/S0140-6736\(20\)31187-9](https://doi.org/10.1016/S0140-6736(20)31187-9)

When the coronavirus outbreak began, information about the mysterious virus that caused COVID-19 was scarce.

Governments and health services alike had to act on relatively [limited information](#) about the outbreak, while experts hurried to gather data on how the virus behaves and spreads, and who was most at risk.

Throughout this period of uncertainty—which severely affected cancer services, trials and research—people were being diagnosed with, or treated for cancer and millions were living the disease. And one of the big questions was—does having cancer affect someone's risk of developing severe COVID-19 symptoms?

Now, as we enter our third lockdown, we now have a clearer picture of how COVID-19 affects people with cancer. Information that will be invaluable in supporting people with cancer during future waves of COVID-19, and in helping people understand their individual risk.

## COVID-19 severity in people with cancer

Because mass testing wasn't available at the start of the pandemic, most of the evidence we have comes from studies involving people who were admitted to hospital.

It's clear from many of these studies that patients with COVID-19 admitted to hospital during the first wave were at risk of lung complications, needing intensive care and, sadly, death. A similar pattern emerged when looking at [evidence involving people with cancer more specifically](#).

But does having cancer increase someone's risk of developing severe COVID-19 symptoms? It turns out that's a tricky question to untangle.

We know that in the general population, someone's age, sex and comorbidities are linked to COVID-19 severity. Researchers have found that [similar factors](#) are [also associated](#) with COVID-19 severity in people with cancer. Because cancer is more common in older people, and people with cancer often have comorbidities, it can be difficult to unpick whether having cancer itself increase someone's risk of developing severe COVID-19 symptoms, but researchers have been trying.

[Results from a study](#) of 20,000 hospital inpatients that took age, sex and some comorbidities into account found that having cancer was still associated with an increased risk of dying whilst still in hospital compared to COVID-19 patients without cancer, though the risk was lower than for people with other conditions like liver disease or dementia.

These results highlight the importance of maintaining COVID-19 protected spaces in hospitals for cancer tests, treatment and care, as [we've blogged about before](#). But it may be that looking at people with cancer collectively isn't the most helpful view, as risk may vary depending on the type of cancer someone has, the type of treatment they're undergoing and how advanced their cancer is.

### COVID-19 in different types of cancer

During the first wave of the pandemic, people with blood cancer were advised to shield as they may be at higher risk of worse outcomes from COVID-19. This is because cancers of the blood or bone marrow—such as lymphoma, leukemia and myeloma—can lower your ability to fight infection by affecting your immune system.

[Findings from the UK](#) Coronavirus Cancer Monitoring Project (UKCCMP), which covered 61 UK centers, suggest that people with blood cancer are overrepresented in the group of people with cancer who tested positive for the virus—meaning they may be more likely to catch COVID-19 than people with other cancer types.

And [research so far](#) suggests that people with [blood cancer](#) are more likely to have severe COVID-19 compared with those diagnosed with solid tumors. However, experts say that studies haven't factored in other comorbidities and [larger numbers](#) are needed to analyze the risk associated with individual blood cancers.

The [SOAP study](#) has looked at the immune response to the virus in people with solid and blood cancers. The findings of this study suggest that people with blood cancers may have a more variable response with some patients struggling to clear the virus. Read more about what this could mean for COVID-19 vaccination in our [COVID-19 vaccine and cancer blog](#).

Researchers have also been looking into if people with lung cancer might be at higher risk of severe COVID-19. A [few](#) small studies have reported poor outcomes for a small cohort of patients with lung cancer and COVID-19.

But the UKCCMP study reported that the proportion of people who died after testing positive for COVID-19 was not significantly higher for patients with lung cancer than for patients with other types of cancer. One [study has also reported](#) current or past smoking as a risk factor for severe COVID-19 in people with lung cancer, but larger studies are needed to confirm this finding.

### COVID-19 in people with cancer having different types of cancer treatment

Cancer treatment was [heavily disrupted during the first wave](#) of COVID-19, with many having their treatment delayed or altered because of the potential risks of COVID-19, or due to demands on the NHS during the pandemic.

Since the start of the pandemic, researchers have been working hard not only to monitor the impact of COVID-19 on people's treatment, but also to understand the COVID-19 related risks of individual treatment options to help doctors and people with cancer make more informed decisions in future waves.

The biggest question mark was around [surgery](#). Surgery was the worst hit during the first wave, mainly because of the demand for intensive care unit (ICU) beds. But there were also questions about risk, as having a big operation involving a hospital stay can make it more likely that someone will get an infection.

A large, international, ongoing study is aiming to answer questions about surgery and risk of severe outcomes from COVID-19. Findings from the COVIDSurg study have shown that having COVID-19 around the time of surgery—not just cancer surgery—leads to worse outcomes than were seen pre-pandemic, including higher rates of lung complications and higher risk of death. This initial data mainly looked at emergency surgeries, so may not be applicable to surgery in general.

COVIDSurg has begun to look at whether having had COVID-19 affects outcomes in people undergoing suspected cancer surgery. We don't have the full findings yet, but initial results suggest that previous COVID-19 infection can increase the

risk of lung complications.

The international team has also compared outcomes for patients undergoing cancer surgery in a COVID-protected environment with those having surgery in a hospital with no defined COVID-protected pathway during the height of the first wave. And the good news is it looks like COVID-protected environments do [make a difference](#) – rates of lung complications, COVID-19 infections following surgery and deaths were low in patients treated in a COVID-protected environment. This has been backed up by several other [studies](#) suggesting that it's safe and feasible for patients to have elective cancer surgery in COVID-protected safe spaces in the UK.

Analysis of surgery for specific types of cancer is now starting to become available. International data from the first wave of the pandemic on over 2000 patients with colon or rectal cancer showed that most of these patients did not develop COVID-19 in the period after surgery. Developing COVID-19 in the period after surgery and complications after surgery were both associated with worse outcomes for patients.

[COVIDSurg data](#) are also now available of patients with head and neck cancers, a particular concern because of the chances of spreading infection by operating in the airway. The analysis of 1,137 patients shows that the majority did not develop COVID-19 in the period after surgery and that their outcomes were similar to those normally expected from this group of patients. While this suggests that the measures introduced to make surgery safer are working, there was an association between patients and members of the surgical team testing positive. This can probably be explained by in part by high levels of infection in the community. The data also show differences in the types of head and neck cancer patients having surgery to what you would normally expect to see suggesting that some patients received alternative treatment.

Beyond surgery, some people with cancer have also had [changes made to their systemic anticancer treatment](#) or the way in which this treatment has been provided to try to minimize their risk. For example, a switch to an oral treatment that

can be taken at home rather than in hospital, or to a different drug with fewer side effects to reduce the impact on the immune system.

Radiotherapy was perhaps the least impacted type of cancer treatment and, in some cases, was even used as a treatment option for people who couldn't have surgery or other treatments. There were some changes to radiotherapy—some patients were able to have the same overall dose of radiation in fewer visits to the hospital, reducing the risk of being infected.

### **But are patients receiving systemic anticancer therapy or radiotherapy at higher risk of severe COVID-19?**

While [some smaller studies](#) of people with COVID-19 and cancer have suggested that recent systemic anticancer therapy is not associated with an increased risk of dying from COVID-19, other studies have reported an increased risk. This includes the [QCOVID study](#), a large study using data on over 6 million adults from GP and other records to develop a tool to predict COVID-19 risk based on different factors. In this study, people receiving chemotherapy were found to be at increased risk of COVID-related hospital admission and death compared to people who hadn't had chemotherapy in the past 12 months. Similarly, people who had radiotherapy within the last 6 months were also found to be at increased risk.

Some studies have looked at whether recent systemic anticancer therapy might increase risk specifically in patients with blood cancers. One study suggested that the risk is higher with recent treatment, but a recent review of multiple studies found no increase in risk.

### **How useful is this evidence?**

Initially, evidence was limited to fairly small, single center studies. But findings from some of the larger cohorts like COVIDSurg are now becoming available, including evidence from the UK.

The speed at which some of these studies were conceived, set up and data collected—while impressive –could have resulted in missing data.

And when looking at factors associated with risk of severe disease or death in subgroups of patients, analyses may be limited by small numbers.

Finally, most of the studies have only looked at hospitalized patients, which may skew the results. And because of the way testing has been carried out in hospitals, some patients may have had unidentified asymptomatic infection, potentially affecting their outcomes. Finally the way hospitals care for people with COVID-19 has changed since the first wave, so some of this evidence may not reflect what happens now.

We've still got a lot to learn about this relatively new virus and how it affects people with cancer, including how prior infection affects treatment outcomes, how common less severe COVID-19 is in the cancer community and whether people with [cancer](#) could have a less effective immune response to infection or a vaccine. We're summarizing the [latest COVID-19 vaccine news](#) in a separate blog post.

With large studies ongoing, we're learning more about people's individual risk all the time, which will be vital to help make sure that everyone gets the right treatment and care for them during the pandemic.

**More information:** David J. Pinato et al. Clinical Portrait of the SARS-CoV-2 Epidemic in European Patients with Cancer, *Cancer Discovery* (2020). [DOI: 10.1158/2159-8290.CD-20-0773](https://doi.org/10.1158/2159-8290.CD-20-0773)

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