

New COVID-19 study

An actuary from the Government Actuary's Department (GAD) is one of a group of scientists, clinicians and cross-government analysts who have published new research on further effects of COVID-19.

The [research featured in the British Medical Journal](#) establishes which groups of the population could still be at risk from COVID-19 despite being vaccinated. Among those identified are people with Down's Syndrome, people who've had organ transplants and others with weakened immune systems. Risks are highest for people who have not been fully vaccinated.

The report includes expertise from actuary Nazmus Haq, seconded to the Department of Health and Social Care as the senior analyst for COVID-19 clinically extremely vulnerable.

Fresh research

The conclusions identify a range of important clinical risk factors for severe COVID-19 outcomes despite vaccination. The highest risk ratios are for people with specific medical conditions. The research was based on data from the second pandemic wave in England which started at the beginning of September 2020.

The team developed and validated multiple new QCovid® risk algorithms. QCovid® 2 is based on unvaccinated patients while QCovid® 3 is based on vaccinated patients.

The models combine several characteristics to calculate weighted, cumulative risk scores for serious health outcomes due to COVID-19 including:

- age
- sex registered at birth
- ethnicity
- deprivation
- body mass index
- specific health conditions and treatments

The new data collected to update the [original QCovid®](#) model indicates some risk factors identified in QCovid® 1 now have a smaller impact in updated models.

This could be due to changes in the virus, levels of immunity within the population and the roll out of coronavirus vaccinations. Other risk factors continue to have a similar impact in the updated models, showing certain groups within the population remain at elevated risk despite vaccination.

Research and success

Actuary Nazmus Haq said: "This research is so vital in identifying people

most at risk from COVID 19. Our population-based risk model has broken new ground by identifying the patients at highest risk of COVID-related death and hospital admission after vaccination.

“It really demonstrates the value of having a cross-partnership team of multiple specialities in delivering innovative research and improvements for the healthcare system. It also shows how actuaries can use their skillset outside of traditional actuarial applications. We hope this research will help to facilitate discussions between clinicians and patients regarding individual COVID-19 risk.”

The publication of the research follows the team’s success earlier this year [when they won a Royal Statistical Society award](#). The [Covid-19 Population Risk assessment powered by QCovid®](#) is a predictive model used to estimate the risk of serious health outcomes due to COVID-19 for individuals.