Health and Community Services Report

Subject: **Vaccine status of COVID-19 patients in Jersey General Hospital**
Date: **21 January 2021**

Executive Summary and Conclusion

In the six-month period July - December 2021 the estimated relative risk of admission to Jersey General Hospital due to clinical COVID for 40+ year old individuals was 3.5 - 14.4 times greater in those who received less than 2 doses of COVID vaccine than in those who received 2 or more doses of vaccine.

The relative risk for admission to ITU with clinical COVID in individuals who received less than 2 doses of vaccine was 7.4 - 30.8 times greater than in those who received 2 or more doses.

Vaccination not only protects against infection (as previously reported) but affords an even greater protection against severe disease and very severe disease. As such it also reduces the COVID burden on secondary care, better permitting routine care to continue to be provided without delay.

Context (Why are we publishing?)

Data from other countries indicates that full vaccination reduces hospitalisation due to COVID disease 10-fold or more[1].

This report has been produced to share important Jersey data in a meaningful way whilst protecting individuals' confidentiality.

It aims to answer the following questions:

- How important is vaccination in protecting the population of Jersey from severe illness that results in admission to hospital?
- How important is vaccination in protecting the population of Jersey from severe illness that results in admission to Intensive Care?

The report adds to a previous report published by the Government of Jersey that calculated the risk of infection is some 2.2- 3.7 times greater in those who are not vaccinated.[2]

Background

Every patient admitted to Jersey General Hospital (JGH) undergoes a PCR test for COVID-19 on admission and at regular intervals until discharge.

Since July 2021, the Health & Community Services (HCS) Infection Prevention and Control (IPaC) team have been collecting detailed data on the clinical status of those patients who test positive to differentiate between those admitted with clinical COVID and coincident COVID (see definitions below). This report uses the data collected in the 6 month period July 2021 to December 2021 to calculate the relative risk of

[1] MMWR Sept 17 2021/70 (37 1284-1290)
[2] https://www.gov.je/Health/Coronavirus/CoronavirusDocuments/R%20COVID%20Cases%20Vaccine%20Status%20Report.pdf

unvaccinated vs vaccinated people being admitted to hospital with “clinical covid” – that is where the primary health care need is the treatment of COVID-19 infection.

The dominant COVID-19 variant in Jersey for the majority of the time period analysed was the “Delta” variant. Whilst not every case is sequenced, the available data showed that the “Omicron” variant became more prevalent in the Island during December – therefore the majority of the admissions in the time period considered in this report are likely to be due to the “Delta” variant.

Scope of Analysis

Young age is protective against serious ill health and therefore admission to hospital due to clinical COVID. The published data show that the youngest death from COVID-19 in Jersey (to date) is aged 40-49 years. To estimate the effect of the vaccine on preventing admission to hospital with clinical covid, the scope has therefore been limited to those aged 40 or above.

Admission to Hospital following adverse reaction to vaccination is outside the scope of this report. However, as published in a response to FOI[1] the numbers are very small and no detailed analyses can be undertaken at this time, to protect patient confidentiality

Definitions

Clinical COVID on Admission: A patient is considered “clinical covid” where the primary health care need being treated is COVID-19. They must have a positive PCR test result prior to admission or within 7 days of admission as these are considered community acquired.

Coincidental COVID on Admission: Admissions to hospital with coincidental covid are where patients are admitted to hospital for reasons other than COVID-19 (e.g. a broken leg) but test positive on admission. These admissions reflect the general prevalence of COVID-19 in the community and not admission caused by COVID disease. Coincident COVID cases and their vaccine status are therefore not included in the study.

Vaccination Status: For the purposes of this analysis a person is considered “vaccinated” if they have received 2 or more doses of covid vaccine plus 2 weeks. Patients who have had only one dose of the vaccine have been grouped with those who have had no doses (even though one vaccine does provide some protection against hospitalisation)

Data Sources

COVID-19 Positive Status: This information is held in the Integrated Public Health Record (IPHR) database that is used by Contact Tracing to monitor covid cases in the Island, direct contacts and other important information in managing the pandemic

Hospital Admission: This information is held in the Hospital Patient Administration System (TrakCare)

Vaccination Details: This information is held in the Primary Care System (EMIS)

Clinical Covid Status: A patient’s clinical vs non-clinical covid status is not held in any of the above systems as medical records in JGH are paper based. Since July 2021, IPaC has used a local spreadsheet to gather this information. It is this dataset, validated case by case to ensure accuracy by IPaC and JGH, that has been linked to the core administrative systems outlined above to form the basis of the analysis reported here.

[1] https://www.gov.je/government/freedomofinformation/pages/foi.aspx?ReportID=4811

There is no common identifier across the systems detailed above. Linkage for the purpose of this analysis and report has been undertaken manually and carefully verified.

Population Estimates: Vaccinated population estimates are from the EMIS system. Unvaccinated population estimates are calculated from the 2019 population estimates published by Statistics Jersey less the number vaccinated. Appendix 1 contains a statement from the Chief Statistician on the 2019 Population Estimates.

Results

During the period July to December 2021, there were 88 people aged 40 years and over admitted to hospital with clinical covid. Of this cohort of people aged over 40 years admitted with clinical covid, 35% were admitted to the intensive care unit.

Table 1 summarises the data by vaccination status and shows the range of relative risk values of people who have had no or just one dose of vaccine being admitted to Jersey General Hospital with clinical covid. Table 2 summarises the relative risk of being admitted to intensive care.

Table 1: Relative Risk of Admission to Jersey General Hospital with Clinical Covid, July – December 2021

	Population Estimate range*	**Number of patients admitted to JGH with Clinical Covid**	**Relative Risk**
Unvaccinated / 1 dose of vaccine	7,932 – 2,152	32**	People with no or only one vaccine dose are **3.5 – 14.4 times more likely to be admitted to hospital with clinical covid**
Vaccinated (2 or more doses of vaccine)	48,724 – 54,504	56	

*Calculated from the known number of people vaccinated at the start and end of the time period and the Statistics Jersey 2019 Population estimates

**The majority of people admitted in the unvaccinated/single dose cohort had not received any COVID vaccination the time of their admission.

Table 2: Relative Risk of Admission to Intensive Care Unit with Clinical Covid, July – December 2021

	Population Estimate range*	**Number of patients admitted to ICU with Clinical Covid**	**Relative Risk**
Unvaccinated / 1 dose of vaccine	7,932 – 2,152	17**	People with no or only one vaccine dose are **7.4 – 30.8 times more likely to be admitted to intensive care unit with clinical covid**
Vaccinated (2 or more doses of vaccine)	48,724 – 54,504	14	

*Calculated from the known number of people vaccinated at the start and end of the time period and the Statistics Jersey 2019 Population estimates

**The majority of people admitted in the unvaccinated/single dose cohort had not received any COVID vaccination at the time of their admission.

Analysis of vaccine effectiveness has been undertaken in larger jurisdictions and clinical trials[i]. This analysis uses local Jersey data to assess the impact of the local vaccination programme on preventing

admission to Jersey General Hospital. It is noted that the relatively small numbers of cases and admissions in Jersey are more prone to volatility.

In this period there were 12 patients admitted with clinical covid who subsequently died in hospital. Although a review of the data would seem to show that vaccination offers similar levels of protection from death as it does from admission to intensive care, it is noted that

i) the numbers are too small to draw meaningful conclusions; and

ii) relative risk analysis would be incomplete as people with COVID disease may die elsewhere (e.g. before admission or soon after discharge from hospital).

Therefore analysis of this subgroup cannot been undertaken at this point. It is important to note that the CDC data[1] shows a greater than 10-fold reduction in risk of death following ITU admission in vaccinated individuals.

Future Updates

Maintaining patient confidentiality is paramount and therefore HCS will not publish detailed data about individual patients or small cohorts of patients where people can be easily identified or feel identified. Additionally, small numbers are much more prone to statistical error creating misleading information and messages. The analysis presented here is considered to sufficiently balance data quality, transparency and patient confidentiality.

The periodicity of future updates on COVID admissions will be determined by the quantity of relevant new data that becomes available such that we can continue to ensure meaningful information whilst maintaining medical confidentiality.

[1] MMWR Sept 17 2021/70 (37 1284-1290)

Appendix 1: Statement from the Chief Statistician on the 2019 Population Estimates

“Statistics Jersey’s end-2019 Population estimates are the most up-to-date available and are the best estimate of the Jersey population, but are not perfect. Using internationally adopted methods, these population estimates are derived from the 2011 Census population numbers. Births since the census are added; deaths are subtracted; and adjustments are made for estimates of in-and-out migration. The calculation of the age/gender distribution is based on the previous population projections. The census, births, and deaths data are robust, but migration figures are subject to greater error – especially the out-migration figures. It is true internationally that population estimates calculated in this way are more prone to error the further they are from the last census – that is part of the reason we run censuses every ten years. In addition, the method adopted in Jersey to calculate the age/gender distribution of the population estimates will have some associated error. It is known, for instance, that Jersey has vaccinated more over 80s on the Island than are in the 2019 population estimates. After the 2021 Census results are published, Statistics Jersey will reconcile the population estimates series back to 2011 and adjust to be in line with the 2011 to 2021 Census changes.”

[i] UK Health Security Agency COVID-19 Vaccine Surveillance Report https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1047814/Vaccine-surveillance-report-week-2-2022.pdf