# Six months after the patients stayed home – a study of cardiac mortality and readmissions following the first wave of the COVID-19 pandemic in Malta

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**Background/Introduction**

The first COVID-19 wave in Malta resulted in a significant decline in acute cardiac admissions (ACAs) and delays in presentation to Mater Dei Hospital, as well as an excess of community cardiac deaths during the two-month period between end February and end April 2020 compared to the same nine-week period of 2019.

**Purpose**

The aims of the current follow-up study were to investigate the impact of the observed delays in presentation in 2020 on mortality and cardiac readmissions at 6 months.

**Methods**

All ACAs between 28th February and 30th April 2020(9-week period covering the first wave) were included and the corresponding 2019 period was used as a control. Outcomes sought over the 6-month follow-up included (a)cardiac readmission, (b)death, (c)planned cardiac intervention upon discharge following index admission, and (d)unplanned cardiac intervention.

A first analysis compared frequency of outcomes between both cohorts. A second analysis assessed differences in 6-month survival and freedom from readmission using Kaplan-Meier curves. Subsequently, sub-analyses were carried out for ACS(STEMI and NSTE-ACS) and non-ACS.

**Results**

There were 330 patients in the 2019 cohort and 220 patients in 2020. There were no significant differences in all-cause deaths(2020, 18 deaths[8.2%] vs 2019, 29 deaths[8.8%],p=0.466) and Kaplan-Meier 6-month survival estimates at 6-month follow-up (2019, mean survival 169.06 days[95% CI 164.95-173.17] vs 2020, 168.27 days [95% CI 162.82-173.72],*p*=0.836), including subgroup analysis for ACS patients (2019 mean survival 169.81 days[95% CI 163.54-176.09] vs 2020,168.45 days[95% CI 160.17-176.73],p=0.739) and for patients admitted with non-ACS pathology (2019 mean survival 168.52 days[95% CI 163.08-173.96] vs 2020,168.11 days[95% CI 160.93-175.30],p=0.952).

A significantly higher number of patients from the 2019 cohort(75/319;23.5%) required readmission compared to 32/212(15.1%) patients in the 2020 cohort(*p*=0.02). Similarly, there was a better freedom from cardiac readmission among 2020 patients(mean 158.66 days,95% CI 151.58-165.74) compared to 2019(mean 150.98 days,95% CI 144.63-157.33)(*p*=0.024).

During sub-analysis, the better freedom from readmission in 2020 was significant only for non-ACS index ACA (mean of 145.45 days[95% CI 136.58-154.32] in 2019 vs 158.92 days[95% CI 149.19-168.64] in 2020,*p*=0.018).

Analysis of cardiac interventions during the 6 months post-index ACA discharge showed a significantly more planned cardiac interventions in 2019(52/319;16.3%) compared to 2020(20/212;9.4%)(*p*=0.027). On the contrary, unplanned cardiac interventions were significantly higher among 2020 patients(13/212;6.1% vs 2019, 7/319;2.2%,*p*=0.022).

**Conclusion(s)**

A reduction and delay in presentation of ACAs during COVID-19 in Malta has resulted in lower re-admission rates and increased freedom from re-admissions, however, a rise in urgent unplanned cardiac interventions. No difference in mortality was noted.