

# Effect of COVID-19 on aeromedical primary evacuation retrieval volumes and patient acuity

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The COVID-19 pandemic led to a decrease in access to and use of healthcare services, exacerbating existing social disadvantages.<sup>1</sup> Australia imposed border control measures to prevent the spread of COVID-19, with resources and staff diverted from normal activities to test and treat COVID-19. While this reduced infections and hospitalisations, the consequences of these public health measures are becoming apparent, especially for people with chronic diseases.

Here, we describe the volume and acuity of patients requiring aeromedical retrieval prior to and during the COVID-19 pandemic.<sup>1</sup>

Analysis of the Royal Flying Doctor Service (RFDS) database showed 13 827 aeromedical primary evacuations throughout the period of 1 July 2018–30 December 2021. In the 18 months prior to the pandemic (1 July 2018–30 December 2019), the RFDS conducted 6995 (50.6%) primary evacuations. In the 18 months during the pandemic (1 July 2020–30 December 2021), the RFDS conducted 6832 primary evacuations (49.4%). While this represented a reduction in overall activity, we found that critical, high dependency and serious patients increased from 3655 (52.3%) prior to the COVID-19 pandemic to 3956 (57.9%) during the COVID-19 pandemic (Table 1). There were significant increases in patient severity for diseases of the circulatory, digestive and genitourinary systems (Table 1). We observed a significant increase in priority 1 'life-threatening emergency' primary evacuations during the pandemic (n=1255, 18.4%) compared with the prepandemic period (n=976, 13.95%).

Of concern is the increase in unmanaged chronic disease retrievals, such as poor management of diabetes mellitus during the restriction period. Our observations that circulatory disease severity has

increased during the pandemic is consistent with the literature demonstrating a significant increase in emergency calls for cardiac arrest, heart complaints, overdose/poisoning, pregnancy and stroke.<sup>2</sup>

The majority (n=11 601, 83.9%) of primary evacuations were from areas that did not have access to traditional emergency services (see Figure 1). Furthermore, we found that the majority of patients did not have access to chronic disease management services (n=11 186, 80.9%) or RFDS visiting general

practitioner services (n=9057, 65.5%) within a 60 min travel time. This finding is consistent with the literature, which consistently highlights service accessibility and provision limitations in rural and remote Australia.<sup>3</sup>

While the volume of retrievals was slightly reduced during the pandemic, patient acuity increased. The retrieval locations highly correlate to locations with limited access to healthcare exacerbated by COVID-19 restrictions and avoidance of medical facilities due to fears around COVID-19. This meant patients were not receiving regular care during social isolation, which caused acute emergency episodes.

While public health measures such as test–trace–isolate–quarantine are vital, the increases in unmanaged chronic disease during this period highlighted the importance of primary healthcare maintenance during social isolation.

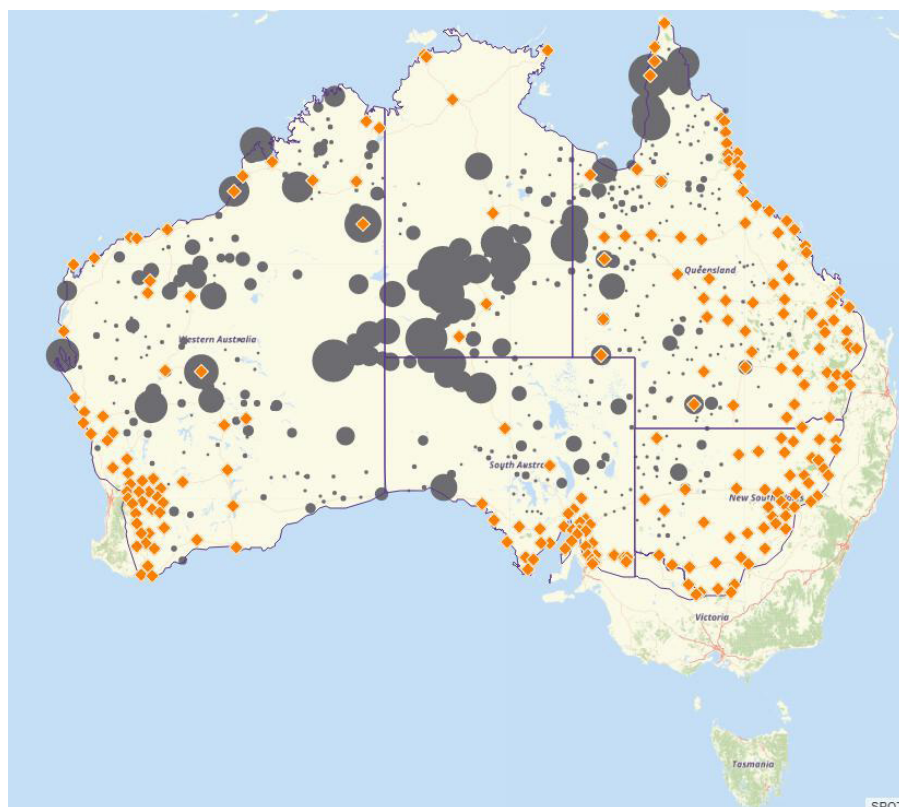
**Table 1** Aeromedical primary evacuations in-flight diagnosis and severity before and during COVID-19

Diagnosis by ICD-10 chapter	Pre-COVID-19 period (1 July 2018–30 December 2019), n	Critical/high dependency/serious, n (%)	COVID-19 period (1 July 2020–30 December 2021), n	Critical/high dependency/serious (%)
Injury, poisoning and certain other consequences of external causes	1693	900 (53.2)	1767	1065 (60.3)
Symptoms, signs and abnormal clinical and laboratory findings (such as headache, abdominal pain, fever and syncope)	1250	626 (50.1)	1303	752 (57.7)
Diseases of the respiratory system (such as pneumonia, bronchiectasis, influenza and COVID-19)	1032	540 (52.3)	653	375 (57.4)
Diseases of the circulatory system (such as stroke and acute myocardial infarction/angina)	725	474 (65.4)	695	499 (71.8)
Diseases of the digestive system (such as acute appendicitis, cholelithiasis and inflammatory bowel disease/irritable bowel syndrome)	390	198 (50.8)	375	230 (61.3)
Diseases of the skin and subcutaneous tissue	310	90 (29.0)	351	79 (22.5)
Diseases of the genitourinary system (such as acute kidney failure, chronic kidney disease)	303	124 (40.9)	350	164 (46.9)
Pregnancy, childbirth and the puerperium (such as premature rupture of membranes, spontaneous delivery, preterm labour and delivery)	280	138 (49.3)	217	119 (54.8)
Certain infectious and parasitic diseases (such as sepsis, bacterial infection)	220	135 (61.4)	279	153 (54.8)
Mental and behavioural disorders	215	156 (72.6)	278	216 (77.7)
All other	577	274 (47.5)	564	304 (53.9)
Total	6995	3655	6832	3956

ICD-10, International Classification of Diseases, 10th Revision.

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**Figure 1** Aeromedical primary evacuation geographical locations (grey dots, scale 5–644 patients) and corresponding emergency department locations (orange diamond).

It is vital that future responses identify at-risk population groups and develop community informed chronic disease management plans specifically aimed at preventing downstream acute presentations.

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