The inter-hospital transfer of critically ill patients with COVID-19: a double-edged sword

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We must continue to review and document the safety and outcomes of transfers, despite their apparent safety

That some critically ill patients are transferred between hospitals is inevitable. There are many reasons for such transfers, but they are usually related to the complexity of the patient's needs (after initial stabilisation) and the need for services not available at the initial hospital, generally or because local capacity has been exceeded.

Many specialty services are organised on a geographic basis (eg, statewide or national), including emergency care services for neonates and children; emergency obstetric services; care for people with acute coronary syndromes, acute stroke, or acute trauma; heart, lung, and liver transplantation; and extra-corporeal membrane oxygenation (ECMO). In Australia, several specialised retrieval or transport services support inter-hospital transfer and retrieval, including Paediatric Infant Perinatal Emergency Retrieval (PIPER), the Newborn Emergency Transport Service (NETS), and Adult Retrieval Victoria (ARV).[1]

During the coronavirus disease 2019 (COVID-19) pandemic, the chief requirements for intensive care were the availability of staff with expertise in prolonged mechanical ventilation, and, as the pandemic progressed, experience in the nuances of managing patients with COVID-19. Fortunately, clinicians in Australia, regardless of where they were based, had access to up-to-date online, multidisciplinary, evidence-based guidelines.[2]

Survival for people with COVID-19 varied widely,[3] but was higher for people admitted to intensive care in Australia than in many countries.[4] The factors that contributed to better outcomes here are unclear,[5] but probably include well staffed intensive care units that were not overwhelmed by the increased demand.[6]

Treating teams in centres with functional intensive care units may need to transfer patients critically ill with COVID-19 because of inadequate ventilation or isolation facilities,[7] inadequate numbers of qualified staff, or a desire (or need) to transfer those patients with COVID-19 who could require prolonged intensive care management. Regional agreements about load sharing or cohorting also give reason for transfers (eg, cluster planning of the Victorian Department of Health and Human Services).[8] Overall, the choice of patients for transfer was based on a balance between those safest to transfer and those most likely to benefit from treatment in another hospital. The availability of ECMO at the receiving hospital may have been a consideration, although its benefits for people with COVID-19 are not certain.[9]

The downside of inter-hospital transfers includes delays in definitive treatment and the separation of people from their families or carers, as well as the risks and potential for adverse effects associated with intra- and inter-hospital transport.[10,11]

In this issue of the Journal, Cini and colleagues[12] report their retrospective observational study of patients critically ill with COVID-19. By April 2022, 328 of 5207 people with COVID-19 admitted to intensive care units (6.3%) had been transferred between hospitals. The analysis of registry data is at risk of all the limitations inherent to this approach, including missing data (some of prognostic value), and potential selection bias. Reasons for transfer were not ascertained, but it is interesting that the median age of transferred patients was lower (53 *v* 60 years) and the median body mass index higher (32.5 *v* 30.1 kg/m^2) than for patients who were not transferred; their median APACHE II scores were similar (14.0). Crude in-hospital mortality was similar for patients who were transferred (19%) and those who were not (18%). However, transferred patients required more intense interventions and complications were more frequent, and their median lengths of intensive care unit and hospital stay were each longer. In their regression analysis, the authors found a small survival benefit for transferred patients, but not after propensity score-based adjustment.[12]

Despite the rapidly changing COVID-19 management paradigm, these findings indicate that intensive care transfers in Australia have distributed the COVID-19 case workload without adverse impact on patient mortality. This supports current care practices, but more information about the rationale for transfers would increase our confidence in the safety and benefit-to-risk balance of the transfer process.

Some inter-hospital transfers of critically ill patients are inevitable, but the potential risks and burdens (including prolonged hospital stays) mean that we must continue to review and document their safety and outcomes.

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Inter-hospital transfer of critically ill patients is indeed a double-edged sword. Whether the transfer of patients with COVID-19 in Australia improved outcomes is unclear, but the study by Cini and colleagues provides some reassurance, although it leaves us with a number of questions.

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