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# Considering community care in public health responses: A national study regarding palliative care during a prolonged coronavirus disease 2019 lockdown

B. A. Daveson,<sup>1,\*</sup> M. Blanchard,<sup>1</sup> W. R. Davis,<sup>1</sup> J. Connolly,<sup>1</sup> S. Clapham,<sup>1</sup> L. William,<sup>2,3,4</sup> M. Kaltner,<sup>1</sup> D. C. Currow,<sup>1,5</sup> P. Yates,<sup>1,6</sup> K. Clark,<sup>1</sup> K. Eagar<sup>1</sup>

<sup>1</sup>Palliative Care Outcomes Collaboration, Australian Health Services Research Institute, University of Wollongong, Australia

<sup>2</sup>Eastern Health, Supportive & Palliative Care Services, VIC, 3152, Australia

<sup>3</sup>Eastern Health Clinical School, Monash University, VIC, 3128, Australia

<sup>4</sup>Public Health Palliative Care Unit, La Trobe University, VIC, 3086, Australia

<sup>5</sup>IMPACCT, Faculty of Health, University of Technology Sydney, Ultimo, NSW, Australia

<sup>6</sup>Centre for Cancer and Palliative Care Outcomes, Faculty of Health, Queensland University of Technology, Kelvin Grove, Queensland, Australia

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## Abstract

**Objective:** To describe changes in palliative care characteristics, utilisation and outcomes in Victoria during a period of enhanced public health management and a prolonged lockdown due to coronavirus disease 2019.

**Methods:** A national retrospective cohort study with palliative care service setting comparisons in Victoria and other mainland states was conducted.

**Results:** Analysis of 48 non-Victorian services (n=53,428 patients) and 20 Victorian services (n=31,125 patients) showed that for community services, patient volume, average length of stay, functional dependency and the proportion of admissions in a deteriorating phase increased during the lockdown in Victoria, yet little changed in comparator states. Regarding inpatient services, the management of family/carer problems remained constant in comparator states, yet substantial fluctuations in outcomes in Victoria were observed.

**Conclusions:** As health systems adapt to changing circumstances during the pandemic, the ability to upscale community services is critical. Addressing the implications of shifting inpatient care to the community needs attention.

**Implications for public health:** Our study highlights the need to ensure community care providers are adequately considered within public health management responses. 'Joined up' policy and implementation across care settings are essential, especially as major barriers to infection control and increased utilisation may be evident in the community during the coronavirus disease 2019 pandemic.

**Key words:** palliative care, public health, COVID-19, health policy, health services research

## Background

In 2020, in Australia, there were two distinct periods of community transmission of the coronavirus disease 2019 (COVID-19). The first period commenced in March, and the second in June. Whilst both periods corresponded with restrictions on social and economic activity, the latter period involved a prolonged lockdown in the Australian state of Victoria.

The prolonged lockdown in Victoria, which commenced in July,<sup>1</sup> included only 'essential' workers being able to leave their house for

service delivery. Residents were only allowed to leave their home to seek health care, to exercise for one hour a day or to shop for necessities while staying within 5 kms from their home. Daily curfews and mask-wearing outside of homes were mandatory.<sup>1</sup> Many restrictions eased in October 2020,<sup>2</sup> with further easing in November 2020.

In Australia, the public health management response to COVID-19 involved Australian health systems and services implementing significant changes to prepare for the impact of the disease. These

\*Correspondence to: Associate Professor and Principal Fellow Dr Barbara A Daveson, Director, Palliative Care Outcomes Collaboration, Australian Health Services Research Institute, University of Wollongong, Australia;

e-mail: [bdaveson@uow.edu.au](mailto:bdaveson@uow.edu.au).

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changes involved considerable re-organisation and innovation to ensure the optimal use of resources to improve the health of the Australian population. Many changes were implemented in the first half of 2020.<sup>3</sup> This included introducing inpatient visitor restrictions (e.g. one or no-visitor policies) within inpatient settings.<sup>4</sup> The introduction of telehealth models more broadly also occurred.<sup>5</sup> Enhanced capacity for community specialist palliative care (as an alternative to inpatient care) was prioritised, as was well coordinated responses between inpatient and community settings.<sup>6</sup> A hold on non-urgent surgery, community and outpatient services also commenced.<sup>4</sup>

Little additional funding was provided to help palliative care services make these changes.<sup>4</sup> Services and staff had to rely on existing funding to make changes while also responding to evolving needs.<sup>7</sup> During June–July 2020, community care providers reported a lack of infection control resources and limited contact tracing information of visitors in the homes they visited and with respect to their own staff visits into homes in the community.<sup>8</sup>

Data to describe changes to the characteristics of those that accessed palliative care during this time, and their service utilisation and outcomes during lockdowns remain scarce. This study aimed to describe changes in patient characteristics, specialist palliative care utilisation and patient outcomes in Victoria during the prolonged lockdown in 2020. Comparisons between Victoria and other Australian mainland states were completed to provide a national context for the observations and to identify the implications of our public health response to COVID-19.

## Methods

### Study design, data source and measures

Our national retrospective cohort study included the analysis of prospectively, routinely collected data. This was collected at the point of care on each consecutive patient admitted for specialist palliative care. Data were collected by services registered with the Australian Palliative Care Outcomes Collaboration (PCOC)—an Australian Government funded program, with participation being voluntary.<sup>9</sup> As of 2019, the PCOC program represented approximately 90% of patients seen by Australian specialist palliative care services.<sup>10</sup> Data were sent by services to the PCOC administering office in two six-month blocks each year: January–June and July–December.

### Study cohort and service eligibility

To remove variation in data over time due to services joining and leaving the PCOC program, only services registered with the PCOC program during 2018–2020 were eligible for analysis. A ‘service’ was defined as a service that provided specialist palliative care to patients with an advanced, life-limiting illness and their unpaid carers (e.g. family). Two types of service settings were included: inpatient and community services.

### Measures

The analysis focussed on clinical characteristics, utilisation and outcomes. Five standardised measures were used: the Palliative Care Phase, Palliative Care Problem Severity Score, PCOC Symptom Assessment Scale (PCOC SAS), Resource Utilisation Group—Activities of Daily Living and Australia-modified Karnofsky Performance Status (AKPS) Scale (Panel 1).<sup>11</sup> This set of measures consists of four clinician-

rated measures and one patient-reported measure, which is the PCOC SAS. The PCOC SAS has been shown to be able to be used by most patients receiving palliative care, with greater odds of self-reporting versus proxy reporting in community versus inpatient settings, and by patients with malignant versus non-malignant disease.<sup>12</sup> Standardised items were also collected at the beginning of each episode of care (Figure 1).

In relation to symptom distress and severity, three areas of critical importance<sup>13</sup> were examined: pain, breathlessness and family/carer problems. These areas were examined due to their relevance to COVID-19 (e.g. chest pain, dyspnoea, pneumonia, distress).<sup>14</sup> In relation to utilisation, the following was examined: service volume, length of stay and average length of stay. Patient outcomes were measured by calculating changes from the beginning to the end of each palliative care phase. The measure of interest was the proportion of patients who ended a phase with absent or mild symptom severity or distress relative to the proportion who started a phase with moderate or severe symptom severity (a score of  $\geq 2$ ) or distress (a score  $\geq 4$ ).

### Analysis

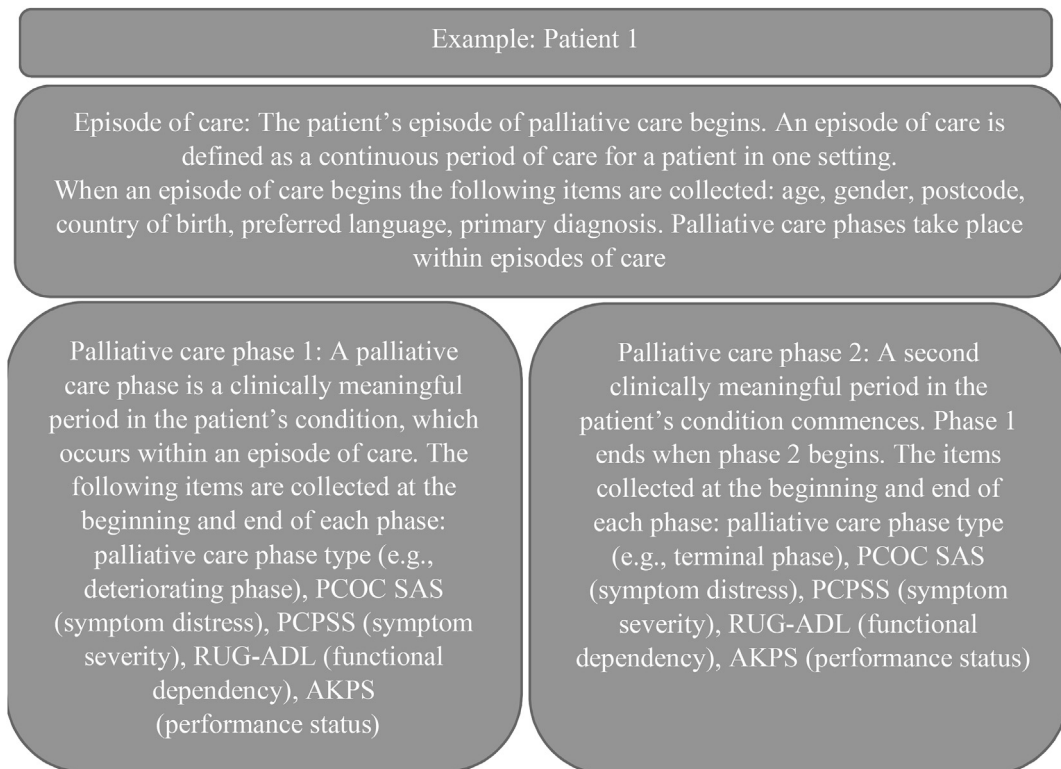
Descriptive analysis was undertaken for six reporting periods (six months of data are contained in each reporting period). The six reporting periods allowed for a 12-month, wash-out period in 2018 to account for the effects of the service joining PCOC, an in-depth examination of a 12-month period during the COVID-19 period in 2020 (2 reporting periods) and a 12-month pre-COVID-19 comparison period in 2019 (2 reporting periods).

Eligible services were stratified across the six reporting periods. Stratification was used to help generate estimates of associations while considering confounding factors. Victorian services were stratified by urbanity (metropolitan/regional), care setting (inpatient/community) and volume of care (high/medium/low) (Figure 2). All eligible Victorian services were analysed, and these were compared with services in the four other mainland states in Australia: New South Wales, Queensland, Western Australia and South Australia.

Weighting was used to help improve the accuracy of our results. Weighting the non-Victorian services allowed for the direct comparison of patient counts and the calculation of weighted means adjusted for differences in the proportion of episodes within the stratum between Victorian and non-Victoria services.

For the descriptive analysis, we defined a significant change as a change of  $\geq 10\%$  between any reporting periods. The Rao-Scott  $\chi^2$  test was used to test for homogeneity of proportions for Victorian and non-Victorian mainland state demographic variables, and the t test was used to test for differences between means. A *p*-value  $< 0.05$  was statistically significant. All analyses were undertaken using the Statistical Analysis System (SAS)<sup>®</sup> software v9.4M5, which is manufactured by SAS Institute Incorporated. To aid interpretation of the findings and strengthen the quality of the study, results from the preliminary analysis were discussed with participating Victorian services, and services were invited to share reflections on the findings. Their reflections have helped refine the interpretation and reporting of results.

Figure 1: An illustration of the demographic and clinical items collected and analysed.



**Reporting**

Results are reported by care setting and state, specifically the state of Victoria compared to all other mainland Australian states. Patient demographics are presented for January–December 2019 as well as January–December 2020. Clinical characteristics, utilisation and outcomes are presented across 2019–2020. Our reporting fulfils the Strengthening the Reporting of Observational Studies in Epidemiology Statement checklist for reporting cohort studies.<sup>21</sup>

**Results**

Thirty-one Victorian palliative care services were assessed for eligibility. Twenty of these services were eligible for analysis (12 inpatient services, 8 community services). One-hundred and thirty-three non-Victorian mainland state services were assessed for eligibility, 48 of these services were eligible for analysis (31 inpatient services, 17 community services). This means the results were derived from analysis of 20 Victorian services (n=31,125

Figure 2: The stratification approach to analysis that was used to help account for confounding factors. To help improve the accuracy of the results, the non-Victorian services received a stratification weight equal to the ratio of the episodes in Victoria to the episodes in the non-Victorian services. For example, 56.8% of all Victorian inpatient episodes occurred in large metropolitan inpatient services compared with 43.1% of all non-Victorian inpatient episodes, so the non-Victorian large metropolitan service episodes were up weighted. The mean episode weight was 0.61 (range: 0.16–1.06). As episodes are not directly proportional to patients or phases, the mean weight differed slightly for patient-level data (0.59 for July–December 2020) and phases (0.64).

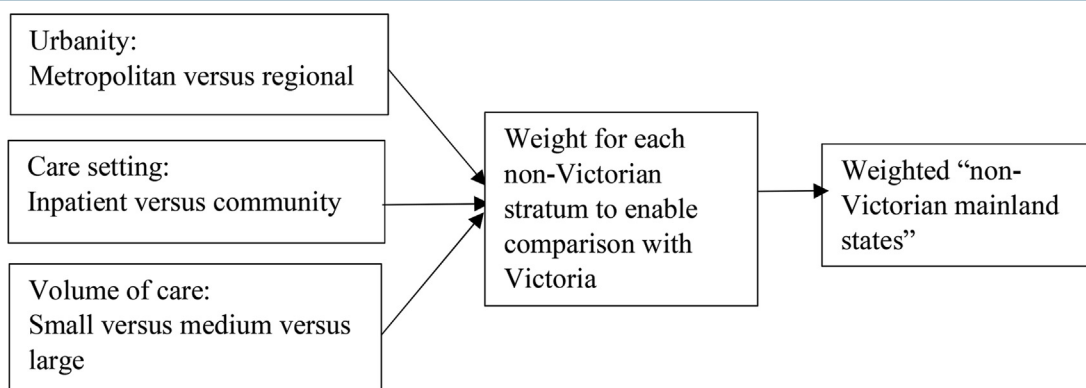


Table 1: Patient demographics for the Victorian and non-Victorian mainland states in January–December 2019 and January–December 2020 by setting of care.

	Inpatient			Community		
	Non-Victorian mainland states (weighted)	Victoria	<i>p</i> -value for difference	Non-Victorian mainland states (weighted)	Victoria	<i>p</i> -value for difference
	Jan–Dec 2019					
Number of patients (n) <sup>a</sup>	12,169	5,780	N/A <sup>b</sup>	9,714	6,377	N/A
Age in years (mean/median)	72.8/73.5	75.4/78.0	<0.01	73.9/75.2	73.9/76.0	0.72
Female (%)	46.8	47.9	0.16	49.6	48.5	0.21
Lowest socioeconomic quintile (%)	15.2	14.6	0.26	13.7	13.7	0.99
Australian born (%)	64.7	53.9	<0.01	63.1	55.5	<0.01
English as preferred language (%)	91.3	78.4	<0.01	94.6	86.5	<0.01
Non-malignant primary diagnosis (%)	24.7	33.2	<0.01	31.2	28.8	<0.01
	Jan–Dec 2020					
Number of patients	12,434	5,716	N/A	10,413	7,254	N/A
Age in years (mean/median)	73.2/74.2	76.0/78.0	<0.01	74.5/75.5	74.0/76.0	0.01
Female (%)	46.1	48.3	0.01	48.8	49.8	0.21
Lowest socioeconomic quintile (%)	15.9	14.7	0.04	13.8	13.8	0.93
Australian born (%)	65.5	54.4	<0.01	64.5	56.2	<0.01
English as preferred language (%)	91.6	77.7	<0.01	94.5	85.2	<0.01
Non-malignant primary diagnosis (%)	27.0	35.9	<0.01	32.7	30.1	<0.01

<sup>a</sup>n=unweighted values for non-Victorian mainland states.

<sup>b</sup>Not applicable. Results for the other mainland states are based on a weighted analysis. Socioeconomic status is measured using the ABS Socioeconomic Index for Areas (SEIFA)—Disadvantage 2016 based on the patient postcode.

patients) and 48 non-Victorian services (n=53,428 patients). For the most part, the excluded services were smaller services that did not meet the eligibility criteria. For Victoria, the eligible sample comprised 73.7% of all Victorian PCOC inpatient episodes and 89.8% of all Victorian PCOC community episodes across 2019–2020.

In relation to patient demographics, prior to COVID-19 (January–December 2019), there were statistically significant differences in the proportion of patients that were born in Australia, those that preferred to speak English and those that had a non-malignant primary diagnosis in both inpatient and community settings for Victoria compared to non-Victorian mainland states. In the inpatient setting only, there were also statistically significant differences in average age (mean).

During the first year of COVID-19 (January–December 2020), these differences between Victorian and non-Victorian mainland services were also observed. In addition, there were statistically significant differences in relation to patients that were female and those in the lowest socioeconomic quintile in Victorian inpatient services. The difference between Victorian and non-Victorian mainland states in relation to mean age was also found to be statistically significant for the January–December 2020 period (Table 1).

### Clinical characteristics

For Victorian inpatient services, no items changed  $\geq 10\%$ , meaning the characteristics remained broadly the same over time (Table 2).

Although no change of  $\geq 10\%$  was observed in relation to Victoria, between the first and second half of 2020, changes in relation to palliative care phase type on admission were evident. A smaller proportion of patients commenced episodes of care with community services in a stable phase (-7.9%), and a greater proportion was admitted in a deteriorating phase (+8.9%). Elsewhere, clinical

characteristics within community services remained largely the same over time (Table 2).

### Healthcare utilisation

The number of inpatients in Victorian and other mainland states remained stable. However, for Victorian community services, there was a 10.1% increase in patients (with phases ending in the reporting periods) between January–June 2020 and July–December 2020 (n=4,064 to 4,474, respectively). The average length of stay in Victorian community services (informed by episodes of care that ended in these reporting periods) increased by 4.4 days (6.8%) between the two reporting periods in 2020 (from 65.1 to 69.5 days) (Fig. 1 and 3).

### Patient outcomes

In relation to patient outcomes, nearly all trends in the data over time remained similar, except for family/carer problems for patients receiving care from inpatient services. Comparatively large and frequent fluctuations occurred. A drop in clinical responsiveness by 7% (i.e. 57.7% to 50.7%) was observed between the end of 2019 and the first half of 2020, followed by an increase in clinical responsiveness by 9.7% in the second half of 2020 (60.4%) (a greater proportion of phases ended with absent-mild scores). The change in this item fulfilled the threshold of a  $\geq 10\%$  change, with rounding conventions. An increase of 8.0% also occurred in responsiveness to distress related to breathing in community services in Victoria between the two reporting periods in 2020 (Table 3).

### Discussion

This study has identified three main differences in relation to specialist palliative care in Victoria during the prolonged lockdown in the second half of 2020. First, both the number of patients and average length of stay increased in Victorian community services

Table 2: Clinical characteristics of patients on admission to an inpatient service and a community service by state and reporting period (2019–2020).

Clinical characteristics	Inpatient services							
	Victoria (n=13,108)				Non-Victorian mainland states (n=28,334)			
	Jan–Jun 2019	Jul–Dec 2019	Jan–Jun 2020	Jul–Dec 2020	Jan–Jun 2019	Jul–Dec 2019	Jan–Jun 2020	Jul–Dec 2020
Number of episodes	3,222	3,396	3,253	3,237	6,765	7,172	6,876	7,521
	Palliative care phase							
Stable	10.7	14.5	14.5	12.1	13.1	12.9	11.3	13.2
Unstable	27.5	23.6	22.9	21.9	39.3	37.0	36.0	32.7
Deteriorating	48.9	47.2	48.3	49.0	38.6	41.1	43.3	43.0
Terminal	13.0	14.8	14.4	17.1	9.0	9.0	9.4	11.2
	Percentage of patients presenting with a moderate or severe score at episode start							
Pain (distress)	27.1	26.3	22.0	19.5	32.2	31.2	33.6	32.6
Pain (severity)	22.0	21.1	21.5	19.5	24.2	21.3	23.5	23.5
Breathlessness (distress)	17.1	16.9	14.0	12.6	22.8	22.8	21.7	20.8
Family/carer (severity)	18.0	18.8	17.3	13.2	19.9	18.0	19.0	18.6
	Performance status (via AKPS)							
10–50	87.6	89.2	86.9	89.0	84.8	84.6	85.8	86.4
60–100	12.4	10.8	13.1	11.0	15.2	15.4	14.2	13.6
	Functional dependency (via RUG-ADL)							
4–10	37.0	36.4	37.0	36.6	39.8	41.1	39.6	40.9
≥11	63.0	63.6	63.0	63.4	60.2	58.9	60.4	59.1
Clinical characteristics	Community services							
	Victoria (n=18,017)				Non-Victorian mainland states (n=25,094)			
	Jan–Jun 2019	Jul–Dec 2019	Jan–Jun 2020	Jul–Dec 2020	Jan–Jun 2019	Jul–Dec 2019	Jan–Jun 2020	Jul–Dec 2020
Number of episodes	4,111	4,374	4,601	4,931	5,980	6,222	6,212	6,680
	Palliative care phase							
Stable	40.8	39.0	38.9	31.0	26.7	26.4	25.7	26.7
Unstable	5.3	6.3	5.2	4.3	4.2	3.8	3.6	3.1
Deteriorating	49.6	50.3	51.6	60.5	64.7	63.6	64.2	63.9
Terminal	4.2	4.3	4.4	4.1	4.4	6.2	6.5	6.4
	Percentage of patients presenting with a moderate or severe score at episode start							
Pain (distress)	8.6	7.8	7.6	7.4	17.9	20.0	19.8	18.9
Pain (severity)	9.6	9.6	9.2	9.9	15.5	18.6	17.7	17.5
Breathlessness (distress)	6.8	7.1	6.5	5.7	14.4	15.3	13.4	13.6
Family/carer (severity)	15.4	16.9	16.7	19.3	22.8	24.0	23.5	23.0
	Performance status (AKPS)							
10–50	59.4	60.2	59.3	64.3	55.7	60.0	59.0	62.4
60–100	40.6	39.8	40.7	35.7	44.3	40.0	41.0	37.6
	Functional dependency (RUG-ADL total)							
4–10	71.6	71.5	71.1	67.9	73.0	70.4	69.6	68.7
≥11	28.4	28.5	28.9	32.1	27.0	29.6	30.4	31.3

AKPS = Australia-modified Karnofsky Performance Status Scale; RUG-ADL = Resource Utilisation Groups—Activities of Daily Living; PCPSS = Palliative Care Problem Severity Score, which was used to measure symptom or problem severity; PCOC SAS = PCOC Symptom Assessment Scale, which was used to measure symptom distress

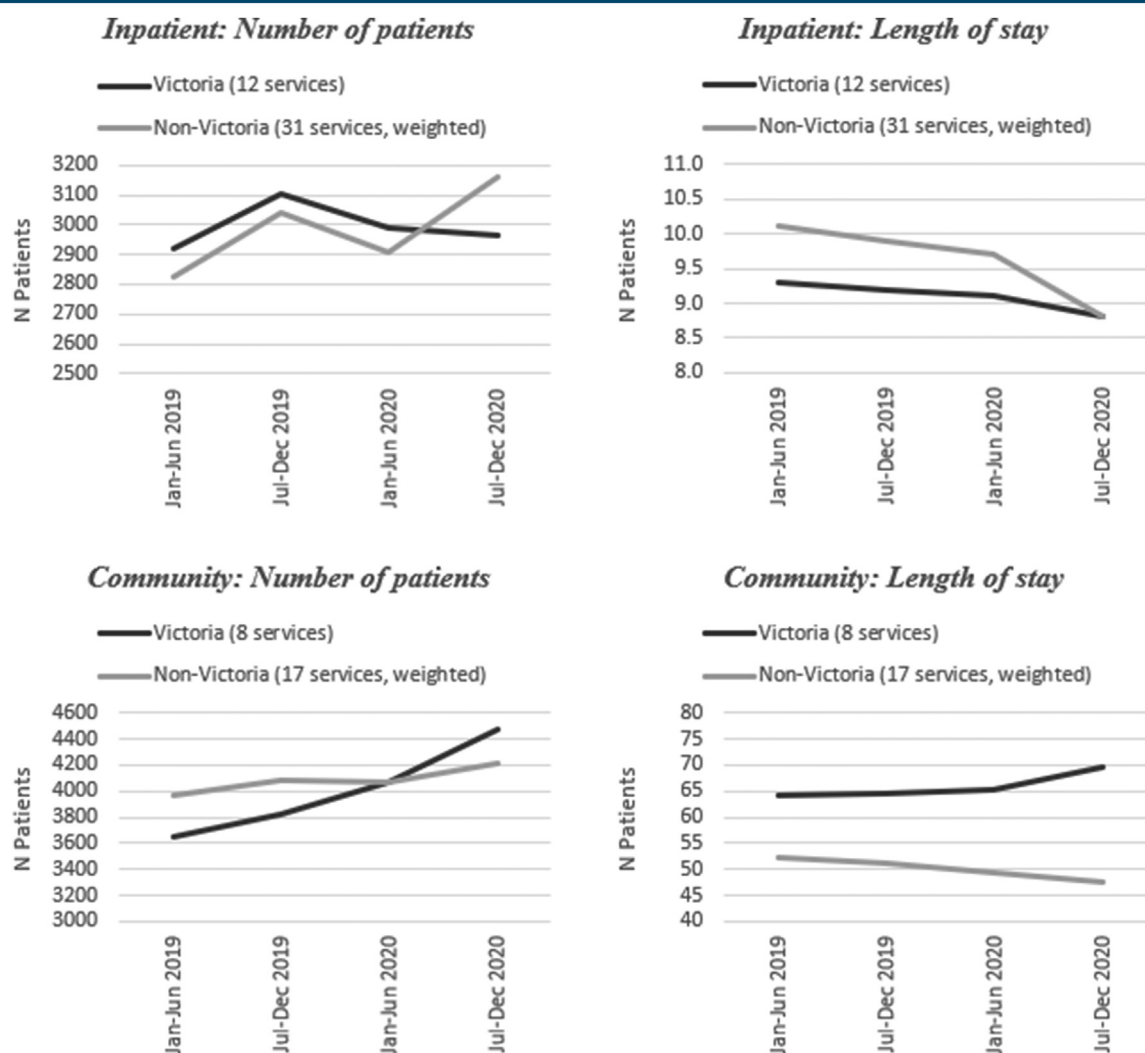
Note: A score of 0 on the AKPS is not recorded in the dataset.

during the prolonged lockdown. These aspects remained broadly the same within inpatient and community services in the other mainland states during the same period. Second, the presentation of specialist palliative care community patients became more complex in Victoria. This was evident in terms of changes in clinical intensity and urgency (palliative care phase) and performance (AKPS). These indicators remained relatively constant elsewhere. Comparatively large and relatively frequent fluctuations in family/carer outcomes within Victorian inpatient services were also observed, yet not elsewhere.

The increase in the number of Victorian community patients and clinical complexity during the lockdown was not surprising as there was consensus at the time regarding the importance that

community care be made available as an alternative to inpatient care. This change was proposed because of the risk of increased transmission of the disease within inpatient settings, and the value of limiting movement in the community to reduce infection risks in the community.<sup>6</sup> However, these increases highlight the importance of ensuring that the needs of community care providers are adequately considered as part of the public health management response, as a surge in patient numbers and complexity was observed. Survey data from community care providers (June to July 2020) identified that community staff in Australia reported a lack of infection control resources and a lack of contact tracing information regarding visitors in homes that community staff visited, and of staff visits in the community.<sup>8</sup> Our findings suggest that in addition to this, during 2020, suboptimal

Figure 3: Number of patients and length of stay by type of service and reporting period (2019–2020).



staff-to-patient ratios may have resulted given the increased number of patients and lack of commensurate increase in service funding. Other evidence shows that suboptimal staff-to-patient ratios in community settings have been associated with poorer patient outcomes and increased likelihood of staff burn out.<sup>22,23</sup> Excessive workloads can also contribute to increased iatrogenic complications (e.g. falls, infections, adverse drug events).<sup>24</sup> Systematic review evidence has shown that the pandemic has caused great psychological burden amongst healthcare staff.<sup>25</sup> Furthermore, the evidence regarding the use of infection control measures and contact tracing in community settings (e.g. patient's homes) is lacking,<sup>26</sup> and social distancing can be difficult in home environments.<sup>27</sup> These risks and challenges highlight the importance of our findings that show an increase in patient numbers and clinical complexity in community settings.

Our study also showed that although the clinical measure of pain remained stable between 2019 and 2020 and that, in Victorian community settings, clinical responsiveness to distress related to breathlessness improved, large fluctuations in relation to family/carer problems within inpatient settings were observed in Victoria. Victoria was also the state with the highest proportion of patients from culturally and linguistically diverse backgrounds, a group already at

risk of poorer outcomes. During the first half of 2020, visitor restrictions within inpatient settings in Australia were introduced, prompted by public health orders. Whilst these restrictive measures were probably undoubtedly useful in reducing infection within inpatient settings, these visitor restrictions may have been associated with an increased burden on family and other unpaid carers<sup>29</sup>. These new measures may have had unintended consequences in older culturally and linguistically diverse carers. Useful guidance regarding how best to manage visitors in palliative care units was released by the Australian New Zealand Society for Palliative Medicine in August 2020, in the latter half of 2020.<sup>28</sup> Our findings prompt the need to further investigate the impact of these public health measures on family caregivers of inpatients with advanced disease, including those that were born outside of Australia and those that prefer a language other than English.

A strength of our study is the large volume of evaluable data retrieved from routine clinical care on every consecutive patient from a diverse group of providers across the state of Victoria and Australia. Although the PCOC program provides substantial coverage of specialist palliative care in Australia, it does not provide full national coverage of palliative care. Also, participation in the PCOC program is voluntary. Furthermore, our sample is limited to services that participated in six

**Table 3: The percentage of palliative care phases that started with moderate—severe symptom scores and ended with absent—mild scores by service type, state and reporting period (2019—2020).**

Symptom or problem (severity or distress)	Jurisdiction	Reporting period			
		Jan–Jun 2019	Jul–Dec 2019	Jan–Jun 2020	Jul–Dec 2020
<b>Inpatients</b>					
Pain (distress)	Victoria	65.2	61.6	61.4	61.5
	Non-Victoria	56.5	54.1	56.2	57.0
Pain (severity)	Victoria	66.2	62.9	60.3	61.4
	Non-Victoria	62.2	63.0	63.6	64.0
Breathing (distress)	Victoria	58.2	58.8	54.1	54.3
	Non-Victoria	52.0	50.6	54.1	55.5
Family/carer (severity)	Victoria	64.7	57.7	50.7	60.4
	Non-Victoria	53.4	52.4	56.0	56.3
<b>Community</b>					
Pain (distress)	Victoria	54.9	56.6	57.7	58.6
	Non-Victoria	62.3	62.5	64.9	63.7
Pain (severity)	Victoria	53.4	53.8	56.5	54.3
	Non-Victoria	66.4	68.7	70.3	71.3
Breathing (distress)	Victoria	39.6	41.8	42.6	50.6
	Non-Victoria	49.5	51.7	52.3	51.0
Family/carer (severity)	Victoria	42.5	43.4	44.0	46.2
	Non-Victoria	59.0	62.3	65.7	62.0

Non-Victorian results are based on a weighted analysis.

**Panel 1: The five measures used routinely at point of care across palliative care services in Australia**

Measure	Domain	Description and items
Palliative care phase type	Clinical intensity and urgency	A palliative care phase is a clinically meaningful period in the patient’s condition (referred to as a phase). The measure is a clinician-rated ordinal scale with four response options—(i) stable phase: symptoms and problems are adequately controlled by established management; (ii) unstable phase: a new problem or an escalation of an existing patient or carer problem is evident; (iii) deteriorating phase: gradual functional decline and or a worsening of existing problems, and or the development of new but expected patient or carer problems; (iv) terminal phase: the death of the patient is likely in a matter of days. <sup>15,16</sup>
Australia-modified Karnofsky Performance Status (AKPS) Scale	Performance status	An ordinal, categorical, clinician-rated scale with scores collected ranging from 0 to 100. Lower scores indicate greater limitation (e.g. 0 equates to death, 10 indicates that the patient is comatose or barely rousable while 100 indicates normal performance) <sup>9, 17</sup>
PCOC Symptom Assessment Scale (SAS)	Symptom distress	Patient-reported numerical rating scale used to measure perceived distress related to pain, difficulty sleeping, nausea, bowel problems, appetite problems, breathing problems, fatigue and an ‘other’ item, which may be added to the measure. Response options range from ‘absent’ to ‘severe’ distress, with 0 indicating that the patient is distress free and 10 means the symptom or problem is causing the worst possible distress. A score $\geq 4$ equates to moderate or severe distress. <sup>18,19</sup>
Palliative Care Problem Severity Score (PCPSS)	Symptom severity	Clinician-rated 4-item, Likert-type tool examining physical and psychological problems, with 0 being absent and 3 meaning severe. The items are pain, physical symptoms other than pain, psychological/spiritual and family/carer. A score of $\geq 2$ equates to moderate or severe severity. <sup>16</sup>
RUG-ADL	Functional dependency	A 4-item scale with function during activities of daily living measured by clinicians: bed mobility, toileting, transfer and eating. Greater scores indicate greater impairment and stable estimates of resource use. <sup>20</sup>

RUG-ADL = Resource Utilisation Groups—Activities of Daily Living.  
<sup>a</sup> AKPS data from 10 to 100 is collected and reported in the PCOC.

consecutive reporting periods, including during the COVID-19 pandemic. An implication of this is that it is possible that the good patient outcomes reported here are over-estimates due to the nature of the services represented in our study as PCOC services are committed to quality improvement. It follows that the proportion of unresolved family/carer needs across Australia may be greater than reported here. Further, our study design, like all observational studies, only allows for observations to be reported. Causality cannot be inferred from our study due to its design. We also elected to not undertake statistical tests on the clinical items for several reasons, including that the purpose of the study was to present what happened, not to propose and test hypotheses or make predictions due to the risk of spurious conclusions. Nevertheless, to date, this is one of the largest national studies to examine what occurred in

palliative care services during the first year of the global COVID-19 pandemic, and it was conducted during the time of enhanced awareness of the importance of public health management.

### Conclusion

Addressing the public health implications of shifting inpatient care to the community during the COVID-19 pandemic needs attention. As health systems adapt to changing circumstances during the pandemic, the ability to upscale services in the community is important and addressing the needs of community providers in our public health management response is essential. This will help ensure a more comprehensive and ‘joined-up’ public health response inclusive of acute care and community settings and one that must be



responsive to the needs of culturally and linguistically diverse older adults.

## Ethical approval

Ethical approval was granted by the University of Wollongong and Illawarra Shoalhaven Local Health District Health and Medical Human Research Ethics Committee (HE2006/045), and the study was also reviewed as part of the Australian Health Services Research Policy. As only routinely collected, de-identified, aggregated clinical data were used in this study, separate participant consent was not necessary.

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## Conflicts of interest

The authors have no competing interests to declare.

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