

ORIGINAL RESEARCH

Impact of COVID-19 on cancer service delivery: a follow-up international survey of oncology clinicians

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Available online 9 July 2021

Background: The COVID-19 pandemic has had a vast impact on cancer service delivery around the world. Previously reported results from our international survey of oncology clinicians, conducted through March-April 2020, found that clinicians reported altering management in both the curative and palliative settings and not in proportion to the COVID-19 case burden in their region of practice. This follow-up survey, conducted from 27th September to 7th November 2020, aimed to explore how attitudes and practices evolved over the 2020 pandemic period.

Participants and methods: Participants were medical, radiation and surgical oncologist and trainees. Surveys were distributed electronically via ESMO and other collaborating professional societies. Participants were asked to compare their practice prior to the pandemic to both the period of March-April 2020, referred to as the 'early' period, and the current survey period, referred to as the 'later' period.

Results: One hundred and seventy-two oncology clinicians completed the survey. The majority of respondents were medical oncologists ($n = 136$, 79%) and many were from Europe ($n = 82$, 48%). In the 'early' period, 88% ($n = 133$) of clinicians reported altering their practice compared to 63% ($n = 96$) in the 'later' period. Compared to prior to the pandemic, clinicians reported fewer new patient presentations in the 'early' period and a trend towards more patients presenting with advanced disease in the 'later' period.

Conclusions: Results indicate a swing back towards pre-COVID-19 practices despite an increase in the rate of cumulative COVID-19 cases across 2020. The impact of these changes on cancer associated morbidity and mortality remains to be measured over the months and years to come.

Key words: COVID-19, oncology, telehealth, service delivery

INTRODUCTION

This paper describes new data ascertained from a collaborative follow-up survey and delves into key topics related to delivery of cancer services during the coronavirus disease-2019 (COVID-19) pandemic, as previously identified in an

international survey of >500 oncology clinicians. The COVID-19 pandemic has led to vast impacts on the way cancer services are delivered around the world. The need to balance health care resources and concerns about increasing patients' risk of serious or fatal COVID-19 infection with the goal of mitigating the impact on cancer-associated morbidity and mortality has been explored by many groups. Practices are dynamic as our understanding grows, our anxiety plateaus, COVID-19 community transmission varies and vaccination campaigns are rolled out across the world.

In November of 2020, we published results from an international survey of oncology clinicians (conducted during May-June 2020), with pertinent findings including 89% of

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oncology clinicians reporting altering cancer management, significantly fewer patient consultations per week and an almost eightfold increase in use of telehealth for patient consultations, with many clinicians expressing concerns that increased telehealth use may negatively impact patient outcomes.¹ Here, we describe findings from a follow-up survey, conducted from 27 September to 7 November, intended to explore how attitudes and practices evolved over the pandemic period in 2020.

MATERIALS AND METHODS

The survey was developed in response to results from our previous survey and was designed by the project team with refinement and piloting by an expert panel of clinicians. Target participants were medical, radiation and surgical oncologists and trainees. The survey consisted of 24 questions and was distributed by collaborating professional societies via e-mail hyperlink and/or online newsletters (European Society for Medical Oncology, Clinical Oncology Group of Australia, Royal Australasian College of Surgeons, Trans Tasman Radiation Oncology Group and Australian and New Zealand Sarcoma Association). Responses were anonymous and non-identifiable. Results included qualitative and quantitative data. The Peter MacCallum Ethics Committee approved this project (HREC/63588/PMCC). For further details of methods, please see [Supplementary Methods](#), available at <https://doi.org/10.1016/j.esmooop.2021.100224>.

RESULTS

One hundred and seventy-two oncology clinicians completed the survey. The majority were medical oncologists ($n = 136$, 79%) and were from Europe ($n = 82$, 48%), Asia ($n = 33$, 19%) and Australia/New Zealand (NZ) ($n = 31$, 18%). The most common place of work was a metropolitan specialised cancer centre ($n = 42$, 32%) followed by metropolitan general hospitals ($n = 38$, 29%). The majority ($n = 86$, 65%) worked in the public setting.

Clinicians were asked to compare their practice in the 'early period' of the pandemic (defined as March-April 2020) with their current practice at the time of the survey (October-November 2020), here described as the 'later period'. For context, the cumulative number of COVID-19 cases per million people in Australia at the beginning of the 'early' and 'later' survey periods was 267 and 1060, respectively. The relative change in cumulative cases (absolute change relative to number at the start of the survey period) was +59% during the first survey period and +145% during the second survey period. In Europe, the cumulative number of COVID-19 cases per million people at the beginning of the 'early' and 'later' survey periods was 1846 and 6538, respectively, with a relative change of +9% during the first survey period and +25% during the second survey period.² Eighty-eight percent ($n = 133$) of clinicians reported altering their practice as a result of the pandemic during the 'early period' compared to 63% ($n = 96$) in the 'later period'. The factors that influenced clinicians to alter

management remained consistent across 2020 and were also consistent with findings from our previous survey. Patient factors influencing decisions in the 'early' and 'later' periods, respectively, included patient age (75%/59%) and performance status (76%/70%). System factors included institutional guidelines (69%/70%) and national/international guidelines (69%/70%).

When medical oncologists were asked to indicate the ways in which management plans were altered, all responses were selected less frequently in reference to the 'later period' compared with the 'early period'. For example, in the curative setting, the percentage of respondents reporting being less likely to refer a patient for a clinical trial reduced from 56% to 31% and the percentage reporting being 'more likely to alter the choice of systemic therapy regimen' reduced from 40% to 26%. In the palliative setting, 37% reported that they were 'less likely to prescribe systemic therapy' in the 'early period' compared to 19% in the 'later period'. When radiation oncologists were asked to indicate the ways in which management plans were altered, the proportion who continues to report being 'more likely to alter the fractionation of radiotherapy' in the palliative setting remained consistent across the 'early' and 'later' periods of the pandemic (60%). All other responses were selected less frequently in reference to the 'later period'.

In the 'early period' of the pandemic, there was a reported trend towards fewer new patient presentations, and in the 'later period', this swung towards a trend of more new patient presentations ([Figure 1](#)). Additionally, clinicians reported an increased number of patients presenting with advanced disease in the 'later period' compared with the 'early period' of the pandemic ([Figure 2](#)).

Reported telehealth use across surveyed regions varied throughout 2020, with the median percentage of patient consultations by telehealth increasing from 4.0% before the pandemic to 43.0% in the 'early period' before reducing back to 23.0% at the time this survey was conducted ([Table 1](#)). The percentage of telehealth consultations using video technology compared to telephone varied across regions, with Europe reporting a median of 0.0% via video [mean = 8.0, standard deviation (SD) = 17.11, quartile 1 (Q1) = 0.00, quartile 3 (Q3) = 10.00] compared to Australia/NZ where a median of 20.0% was reported (mean = 26.9, SD = 28.4, Q1 = 0.0, Q3 = 45.0).

In keeping with our previous survey findings, 23% ($n = 31$) of surveyed clinicians reported concerns that patient outcomes may be worse as a result of telehealth consultations. We asked clinicians to comment on reasons for this concern. The most common answers pertained to the inability to physically examine the patient ($n = 17$), being more likely to miss a diagnosis ($n = 9$) and reduced clinical assessment ($n = 8$).

DISCUSSION

This follow-up survey of oncology clinicians highlights the dynamic nature of oncology service delivery across the period of the pandemic, with attitudes and practices

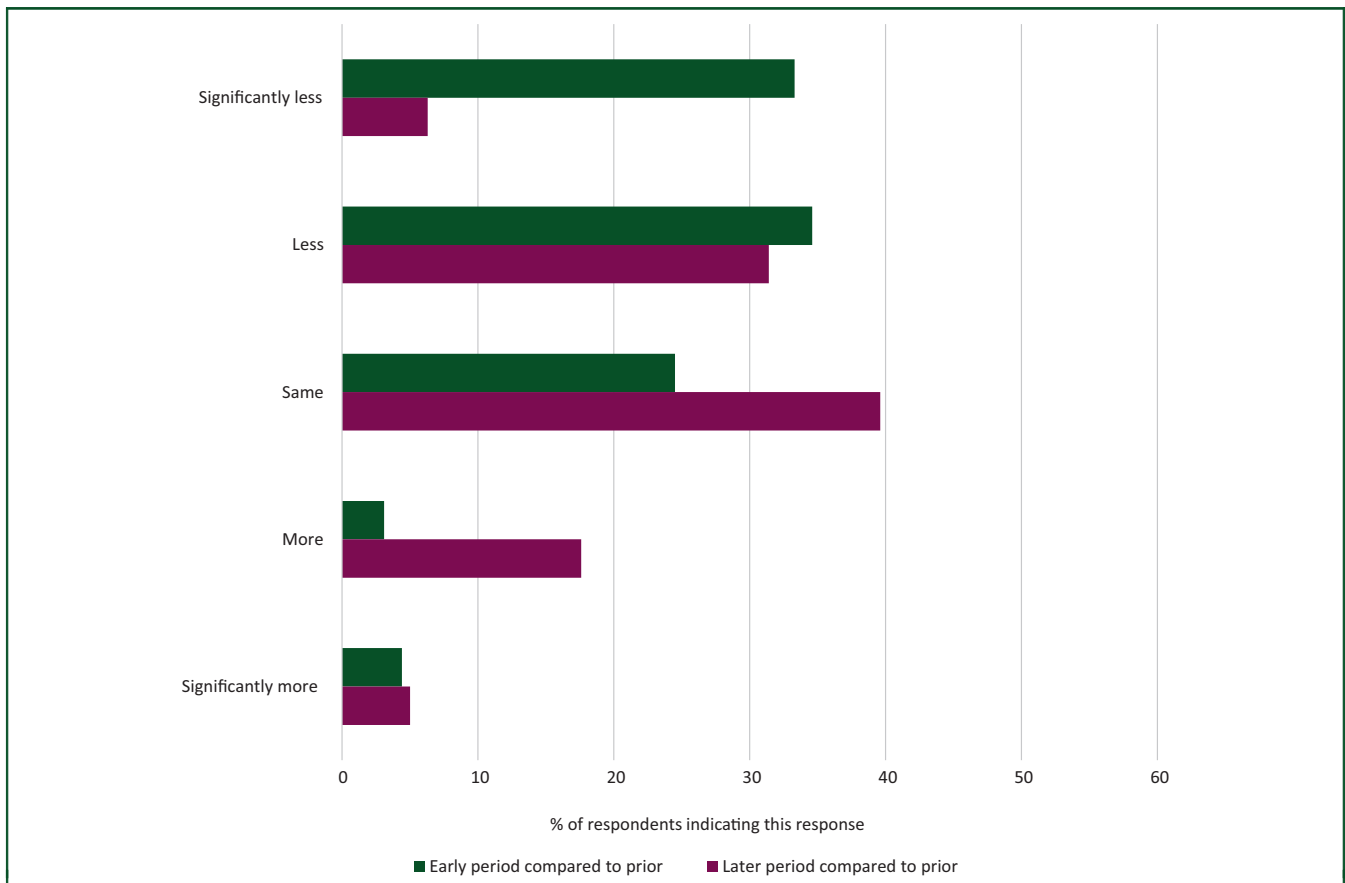


Figure 1. Changes to new patient presentations compared with before the pandemic.

The figure shows reported changes to new patient presentations in both the ‘early period’ of the COVID-19 pandemic (defined as March-April 2020) compared to before the pandemic, and in the ‘later period’ (defined as October-November 2020) compared to before the pandemic.

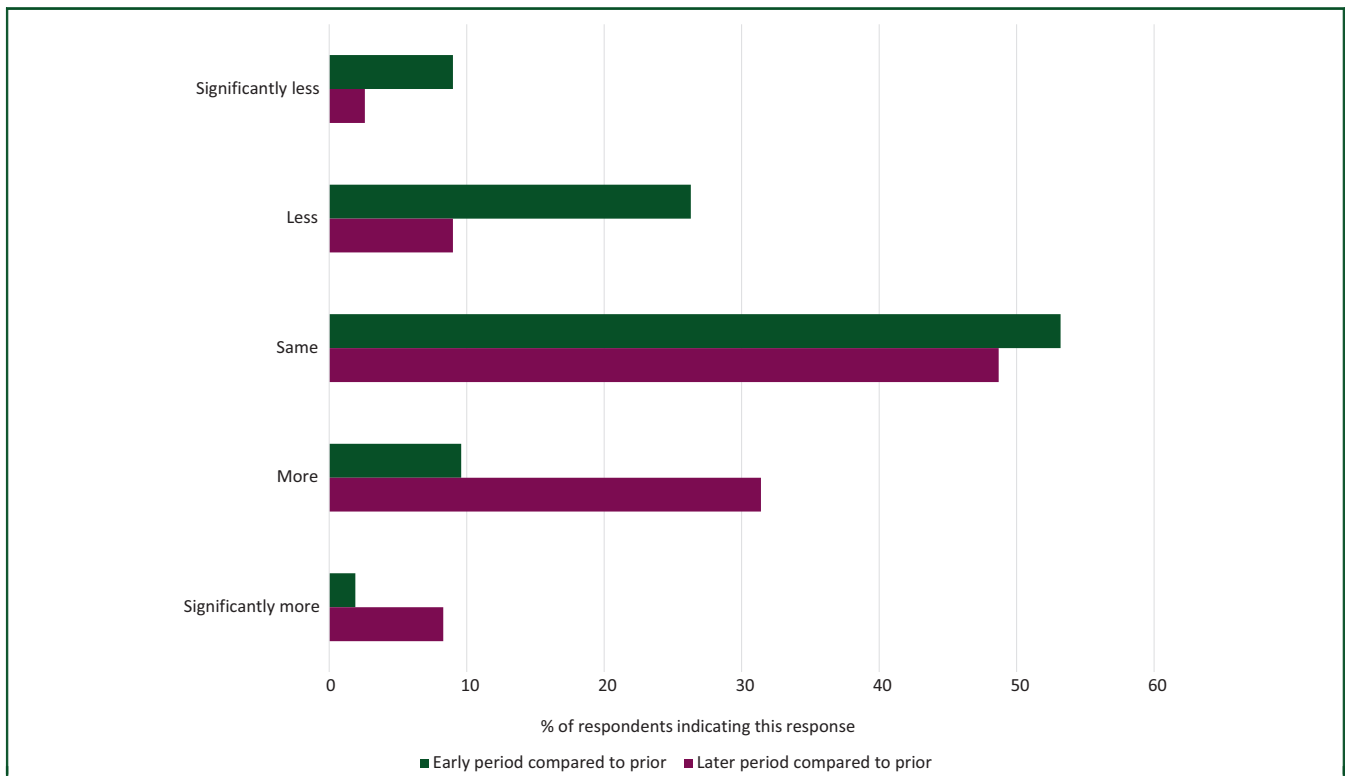


Figure 2. Changes to numbers of patients presenting with advanced disease compared with before the pandemic.

The figure shows reported changes to the number of patients presenting with advanced disease in both the ‘early period’ of the COVID-19 pandemic (defined as March-April 2020) compared to before the pandemic, and in the ‘later period’ (defined as October-November 2020) compared to before the pandemic.

Table 1. Reported telehealth use throughout the 2020 pandemic period

Percentage of consultations using telehealth	Before pandemic (n = 172)	'Early' period of pandemic (n = 172)	'Later' period of pandemic (n = 172)
Median	4.00	43.00	23.00
Mean (SD)	8.57 (13.99)	45.54 (29.28)	29.18 (25.53)
Q1, Q3	0.00, 10.00	20.00, 71.00	9.00, 45.00

Q1, Q3, quartile 1, quartile 3; SD, standard deviation.

changing over a period of months as evidence and guidelines evolve and as COVID-19 case numbers vary. Despite the increase in rate of cumulative COVID-19 cases in Australia/NZ and in Europe (two of the major regions of respondents), oncology clinicians overall reported being 'less' likely to alter their practice in the later period compared with the early period in the pandemic. This finding may reflect the growing knowledge of the indirect impact of COVID-19 on cancer-associated morbidity and mortality, with publications of delayed cancer presentations and diagnoses, associated stage shifts and predictions of increased mortality.³⁻⁵ In addition, published guidelines began to acknowledge this competing indirect impact of COVID-19 and to propose mitigation strategies to allow ongoing high-quality cancer care during the pandemic, likely assisting clinicians and patients to feel more confident in their decision to pursue standard therapeutic approaches.⁶ Furthermore, the early period of the pandemic in 2020 represented uncharted territory, and many cancer services responded with an initial pause, re-prioritisation and harm-minimisation response. Novel strategies for delivering oncology care, such as telehealth, teletrials and at-home drug delivery, were rapidly employed to enable cancer services to resume caring for patients.

Oncology clinicians reported a trend of fewer patient presentations in the 'early period' (Figure 1) and increasing number of patients presenting with more advanced disease in the 'later' period of the pandemic (Figure 2). This is supported by data such as those from the United States, where the weekly number of newly identified patients with cancer fell by 46.4% during the period March-April 2020.⁷ Groups have explored the likely impact of such diagnostic delays and anticipate 'stage shifts' with more patients likely to present with incurable/advanced disease, in keeping with the trend detected in results from this survey.^{4,5} This indirect impact of COVID-19 on cancer-related mortality has been increasingly recognised and has contributed to enormous efforts to re-instate/continue screening programs and to encourage patients with symptoms to seek medical attention, as well as likely contributing to the reported swing back to 'pre-COVID practice' described in these survey results. These results demonstrate the ability of the oncology community to dynamically adapt to a situation of rapidly evolving evidence, guidelines and risks. However, it must be noted that this requirement for immense flexibility and the drive to continue to deliver high-quality cancer care in the face of the pandemic have taken a significant toll on clinician well-being. A recent survey series of >1500

oncology professionals found that 38% reported feeling burnout and 25% indicated being at risk of distress.⁸

The increased use of telehealth throughout the pandemic period has been fundamental in enabling ongoing delivery of cancer care throughout the pandemic.^{9,10} The many benefits of telehealth have been widely cited and infrastructure to continue using telehealth as a major consultation modality is being implemented in many centres. Some clinicians (23% in this survey) have expressed concerns about how the increased use of telehealth may negatively impact patient outcomes. These issues have also been described elsewhere and include the potential for impaired communication, difficulty building rapport and the inability to physically examine patients.¹⁰ Despite these potential issues, groups such as Sabesan et al. have reported similar outcomes in patients from regional and remote Australia managed using telehealth and a structured remote chemotherapy service, compared to those managed face to face.¹¹ It is important that potential challenges are explored with clinicians at their health care services and that solutions are instigated, such as formal education programs on how to conduct effective telehealth appointments, pathways for alternating face-to-face/telehealth reviews and utilising the patients' local health care provider to assist with patient examination.^{10,11} Additionally, clinicians should remain involved in the process of selecting clinical scenarios where telehealth should and should not be utilised, rather than this being driven by hospital administration. The variation in telehealth utilisation and in particular videoconference across regions may also reflect differences in time available for patient consultations in different regions, impacted differently by COVID-19, differences in widely available technology, cultural differences or differences in billing structure. Of note, in a study by Onesti et al., the proportion of telehealth consultations that were reimbursed was reported to vary across different surveyed regions.¹²

This international collaborative survey provides important insight into the evolution of oncology service delivery through the 2020 pandemic period, from the perspective of practicing oncology clinicians. However, it must be noted that results reflect the opinion of respondents and rely upon recall of attitudes, events and practice from earlier periods. Additionally, the number of respondents (n = 172) was significantly less than that for the earlier survey in this series (n = 501). This is consistent with the 'survey fatigue' that has been observed across many survey-based studies in 2020 and importantly may limit the generalisability of results.

The results from this follow-up survey of oncology clinicians highlight the capacity of oncology service delivery to be dynamic and to rapidly adapt to contemporary restraints and guidelines. The impact of delayed patient presentations and alterations to standard treatment pathways on cancer-related morbidity and mortality will be measured in the coming years, but in the meantime we must continue to utilise innovative methods to deliver cancer care and continue complex discussions with patients regarding the potential risks and benefits of different cancer management strategies in the era of the COVID-19 pandemic. Simultaneously, in the face of the additional challenges placed

upon the oncology community as a result of the pandemic, we must prioritise strategies to support clinician well-being and to minimise burnout.

Table 1 shows changes to the proportion of consultations conducted via telehealth across the 2020 pandemic period as reported by oncology clinicians across surveyed regions.

ACKNOWLEDGEMENTS

We acknowledge our collaborators European Society for Medical Oncology (ESMO), Clinical Oncology Group of Australia (COSA), Royal Australasian College of Surgeons (RACS), Trans Tasman Radiation Oncology Group (TROG) and the Australian and New Zealand Sarcoma Association (ANZSA). We also sincerely thank all the clinicians who took the time to complete this survey.

FUNDING

None declared.

DISCLOSURE

GC is receiving a Research Training Program Scholarship from the University of Melbourne as part of her higher degree. SB, FL and SP hold leadership positions on the ESMO Executive Board. All other authors have declared no conflicts of interest.

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