



Correspondence

Healthcare providers' perspective of COVID-19 pandemic on cancer treatment, screening & early detection services in India

Sir,

Globally, during the initial months of the COVID-19 pandemic, various surveys have been conducted among cancer patients, survivors and healthcare providers aiming to evaluate the impact of the pandemic across the continuum of cancer care¹⁻⁴. These surveys have largely highlighted the disruptions at the provider level due to reductions in service availability⁴. However, such data from India³⁻⁵ contributing to the third-highest cancer numbers in the world annually (1,324,413 estimated new cases in 2020) are sparse⁶.

Through this cross-sectional survey among cancer service providers, designed with quantitative and exploratory components, we aimed to draw insights into the impact of the COVID-19 pandemic on the delivery of cancer services (treatment, screening and early detection) in India, the coping strategies employed to restore the services over time and whether any lessons can be learnt to deal with a similar scenario in the future. This survey addressed healthcare providers' perspectives across the continuum of cancer care, and the different phases of the pandemic, *i.e.* the lockdown phase (March-June, 2020), unlock phase (July-December, 2020) and the successive phase (January-April, 2021).

The participants for this online survey were recruited using snowball sampling. Medical, surgical and radiation oncologists in treatment services, clinicians and programme leaders in screening, early detection and palliative services and public health specialists with a focus on oncological practices were approached through the Center for Chronic Disease Control (CCDC) and Public Health Foundation of India's network. They were asked to share the survey further with colleagues. Efforts were made to get a representation of public, private, charitable and

academic institutions from different parts of the country to get a holistic picture. The online survey allowed participants to answer multiple appropriate responses to the questions. It was circulated *via* email/WhatsApp on March 3, 2021 and remained open for responses until April 25, 2021. This study was approved by the Institutional Ethics Committees of CCDC (Project Code: CCDC_IEC_03_2021) dated February 22, 2021.

Data from the survey were extracted using an excel sheet. The data were then imported into Stata 10.1 (StataCorp.2009.Stata Statistical Software: Release 10. StataCorp LP, Texas, USA) for statistical analysis. Descriptive statistics were presented as mean±standard deviation (SD) for continuous variables and frequencies (%) for categorical variables. Exploratory findings (presented as verbatim) were reported across the four themes: provider-reported impact of COVID-19 on the delivery of cancer services; COVID-19 appropriate precautions undertaken; institutional coping strategies and suggested actions for the future.

The online survey recorded responses from 18 participants (oncologists, clinicians, programme leaders and public health specialists in cancer services) representing 18 institutions across India (Table). Our survey during the first wave of the pandemic in India reported disruptions in cancer services during the lockdown but indicated gradual restoration subsequently by adopting novel coping strategies to handle pandemic-related challenges. Among 18 participants, a majority reported interruptions in services during the lockdown (March-June, 2020) compared to the unlock phase (July-December, 2020): interruptions in diagnostics (n=9 *vs.* 4), postponement of surgeries (n=11 *vs.* 6), chemotherapies (n=9 *vs.* 1) and radiotherapy (n=8 *vs.* 1), delayed outpatient services (n=11 *vs.* 2), interruptions in supportive care (n=9 *vs.* 2) and deferment of new patients (n=11 *vs.* 1)

Table. Basic characteristics of healthcare providers (n=18) who participated in the online survey to share their perspectives of COVID-19 on cancer services in India

| Characteristics of participants and their institutions | n (%) |
|--|---------------------------|
| Mean age of the participants (mean±SD in yr) | 41.4±18.0 yr; range 24-80 |
| Years of experience (mean±SD) | 12.9±11.3 yr; range 3-38 |
| Women (%) | 55.6 |
| Institutions | |
| Tertiary care centres | 4 (22.2) |
| Screening and early detection centres | 6 (33.3) |
| Centres with both cancer care and screening facilities | 5 (27.7) |
| Public health institutions* | 2 (11.1) |
| Policymaking institutions | 1 (5.5) |
| Type of institution | |
| Public | 6 (33.3) |
| Private | 4 (22.2) |
| Charitable/society/non-governmental organization | 6 (33.3) |
| Missing | 2 (11.1) |
| Geographical location of institutions | |
| North India | 4 (22.2) |
| South India | 3 (16.7) |
| North-east India | 1 (11.1) |
| East India | 2 (5.5) |
| West India | 5 (27.7) |
| Missing | 3 (16.7) |

*Reported that their answers were based on interactions with the cancer faculty at their institutes as well as other cancer clinicians and healthcare workers from their network.

(Supplementary Table). Screening and early detection services were largely affected (n=16/18) during the lockdown and resumed gradually during the unlock phases with a third reporting interruption (n=6/18). They mentioned, 'Our volunteer workers are cancer survivors. We cannot afford to jeopardize their health by exposing them to hospital situation'.

Regarding managing the work backlog of lockdown phase, a few were coping well either with their current staff at the time of the survey (n=4), or due to minimal earlier disruptions (n=6), while others were finding it hard to meet the challenges (n=3).

Previous Indian studies, such as an ambidirectional cohort study at 41 cancer centres, reported a similar reduction up to 53 per cent for various cancer services between March 1 and May 31, 2020, when compared with the same period in 2019, while cancer screening was nearly completely disrupted⁵. Several of the 24 pan-India oncology centres (part of the Healthcare

Global Enterprises Ltd. Cancer Hospitals network) witnessed a cumulative drop in new consultations immediately after the lockdowns were imposed (49.1%), partly improving during the unlock phases with a 12.1 per cent reduction⁶. Factors attributed to these delays included pre-emptive strategy and lack of COVID-19-related standard operating protocols in the initial stages of the pandemic, staff shortages due to infection and workforce reallocation and the limited health infrastructure to handle a pandemic situation⁷. A global collaborative study (April-May, 2020), including two Indian centres, reported that a majority (88%) of the 356 participating centres faced challenges in providing usual cancer care and that the impact was more pronounced in low- and middle-income countries³.

The healthcare delivery during the COVID-19 pandemic witnessed considerable uptake of telehealth clinical services including cancer care, both globally and in India⁸. Most centres implemented virtual

clinics and virtual tumour boards, and many believed that these changes would remain active beyond the pandemic³. Our findings also suggested that as part of the coping strategies majority of the participating institutions (n=10) divided cancer patients into priority groups based on their need for urgent care during the lockdown phase, implemented virtual clinics or used online or telehealth services for diagnosis, treatment or follow up services (n=8) and implemented virtual tumour boards to work on complex clinical decisions (n=6) throughout the pandemic (Supplementary Table). These were in line with previous studies and guidelines that recommended cancer patient prioritization and the use of telehealth during the pandemic⁹⁻¹². Therefore, integrating telehealth services into the cancer care system could become an integral part of cancer care to help improve patients' outcomes.

Majority of the participants reported undertaking COVID-19 appropriate precautions such as use of masks and personal protective equipment (PPE) (77.8%) and the use of sanitizers (77.7%) throughout the lockdown phase and the rest of the pandemic. In addition, participants reported implementing crowd reduction measures to curb the spread of COVID-19, such as reducing the number of attendants with each cancer patient, reducing the number of visitors allowed for inpatients and reducing the number of follow up visits for the patients that prevailed more during the lockdown than in the unlock phase (Supplementary Table).

When asked about what lessons could be learnt to deal with a similar situation in the future, participants suggested patient-tailored m-health interventions (72.0%), integrated telehealth for cancer care to help particularly vulnerable cancer patients or those living in far-flung areas (66.6.%) and uninterrupted national cancer screening programmes (44.4%) to prevent future disruptions in a similar scenario. Most participants also responded that treatment of cancer patients should not be delayed even in times of a pandemic (61.1%) and a few (22.2%) further elaborated that all cancer patients require equal amounts of urgent care and should not be divided into priority groups (Supplementary Table). Therefore, dedicated COVID-19-free pathways in hospitals¹³ and adequately managing patients with cancer and COVID-19 are important steps suggested to be established¹⁴.

The strength of this survey was the attempt to collect information on service delivery across

the care continuum through the first wave of the pandemic. However, the low response rate despite high outreach was a major limitation. One potential reason for this could be the 'online survey-related fatigue' during the pandemic times. The responding participants represented 18 different institutions from five geographical regions of the country that included important nodal centres for cancer care, screening and early detection, as well as policymaking. Another limitation was that this survey did not reflect implications during the second wave, which was less apparent during the time of initiation of the survey. As the second wave stretched the Indian healthcare system beyond capacity with more serious implications, our findings need validation through full-scale quantitative and qualitative approaches in the future across the two different waves of the pandemic for informed context-specific recommendations for implementation.

To conclude, this survey through its approach to collecting information on service delivery for cancer care during the COVID-19 pandemic has identified potential scalable strategies for implementation such as virtual clinics, virtual tumour boards and telehealth services. Integrated patient-tailored telehealth practices can help vulnerable patients in remote locations.

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References

1. OncologyPRO. *Expected medium and long term impact of the COVID-19 outbreak in oncology*. Available

- from: <https://oncologypro.esmo.org/meeting-resources/esmo-virtual-congress-2020/expected-medium-and-long-term-impact-of-the-covid-19-outbreak-in-oncology>, accessed on January 7, 2021.
- The ASCO Post. *Effects of the COVID-19 pandemic on cancer care, provider well-being*. Available from: <https://ascopost.com/news/september-2020/effects-of-the-covid-19-pandemic-on-cancer-care-provider-well-being/>, accessed on January 7, 2021.
 - Jazieh AR, Akbulut H, Curigliano G, Rogado A, Alsharm AA, Razis ED, *et al*. Impact of the COVID-19 pandemic on cancer care: A global collaborative study. *JCO Glob Oncol* 2020; 6 :1428-38.
 - Riera R, Bagattini ÂM, Pacheco RL, Pachito DV, Roitberg F, Ilbawi A. Delays and disruptions in cancer health care due to COVID-19 pandemic: Systematic review. *JCO Glob Oncol* 2021; 7 : 311-23.
 - Ranganathan P, Sengar M, Chinnaswamy G, Agrawal G, Arumugham R, Bhatt R, *et al*. Impact of COVID-19 on cancer care in India: A cohort study. *Lancet Oncol* 2021; 22 : 970-6.
 - Rao V, Arakeri G, Subash A, Ajaikumar B, Patil R, Hale B, *et al*. Decreased cancer consultations in the COVID-19 Era: A concern for delay in early cancer diagnosis in India. *JCO Glob Oncol* 2021; 7 : 408-9.
 - Krishnamurthy A. Advances in surgery in 2020: The impact of the COVID-19 pandemic on cancer surgeries and cancer care – A brief overview. *Indian J Cancer* 2021; 58 : 38-40.
 - Gachabayov M, Latifi LA, Parsikia A, Latifi R. Current state and future perspectives of telemedicine use in surgery during the COVID-19 pandemic: A scoping review protocol. *Int J Surg Protoc* 2020; 24 : 17-20.
 - González-Montero J, Valenzuela G, Ahumada M, Barajas O, Villanueva L. Management of cancer patients during COVID-19 pandemic at developing countries. *World J Clin Cases* 2020; 8 : 3390.
 - European Society for Medical Oncology. *Cancer patient management during the COVID-19 pandemic* | Available from: <https://www.esmo.org/guidelines/cancer-patient-management-during-the-covid-19-pandemic>, accessed on January 6, 2021.
 - Curigliano G, Banerjee S, Cervantes A, Garassino MC, Garrido P, Girard N, *et al*. Managing cancer patients during the COVID-19 pandemic: An ESMO multidisciplinary expert consensus. *Ann Oncol* 2020; 31 : 1320-35.
 - Edge R, Meyers J, Tiernan G, Li Z, Schiavuzzi A, Chan P, *et al*. Cancer care disruption and reorganisation during the COVID-19 pandemic in Australia: A patient, carer and healthcare worker perspective. *PLoS One* 2021; 16 : e0257420.
 - Collaborative COVIDS. Elective cancer surgery in COVID-19 free surgical pathways during the SARS-CoV-2 pandemic: An international, multi-centre, comparative cohort study. *Eur J Surg Oncol* 2021; 47 : e3-4.
 - Sharma DC. Lockdown poses new challenges for cancer care in India. *Lancet Oncol* 2020; 21 : 884.

| Supplementary Table. Details of questionnaire items and the responses of healthcare providers (n=18) received through online survey | | | |
|--|---|--|--|
| Questionnaire item | Lockdown phase (March-June 2020), n/N (%) | Unlock phase (July-December 2020), n/N (%) | Successive phase (January-April 2021), n/N (%) |
| Impact of COVID-19 on the delivery of cancer services | | | |
| What has been the impact of COVID-19 on the delivery of cancer services (treatment, screening and early detection) during the following time periods? (please tick all that are appropriate) response=yes | | | |
| Interrupted screening and early detection | 16/18 (88.9) | 6/18 (33.3) | 2/18 (11.1) |
| Postponement of OPDs | 11/18 (61.1) | 2/18 (11.1) | NIL |
| Interrupted diagnostics | 9/18 (50.0) | 4/18 (22.2) | 1/18 (5.5) |
| Postponement of surgery** | 11/12 (91.6) | 6/12 (50.0) | 1/12 (8.3) |
| Postponement of chemotherapy** | 9/12 (75.0) | 1/12 (8.3) | Nil |
| Postponement of radiotherapy** | 8/12 (66.6) | 1/12 (8.3) | Nil |
| Interrupted supportive care | 9/18 (50.0) | 2/18 (11.1) | Nil |
| Deferment of new patients | 11/18 (61.1) | 1/18 (5.5) | Nil |
| No change in any service | 1/18 (5.5) | 1/18 (5.5) | 5/18 (27.7) |
| Don't wish to answer | 2/18 (11.1) | 1/18 (5.5) | Nil |
| Has/is your centre/institute (at the time of this survey) dealt/dealing with the scenario of a backlog of cancer patients that have had treatment or cancer care delayed during the lockdown? (please tick all that are appropriate) | | | |
| Our institute/hospital experienced heavy disruption of services and there is a huge backlog of cancer patients. We are finding it hard to provide treatment and care to all | | 3/18 (16.6) | |
| Our institute/hospital experienced heavy disruption of services and there is a huge backlog of cancer patients, but we are managing well with our current staff | | 3/18 (16.6) | |
| Our institute/hospital experienced heavy disruption of services and there was a huge backlog of patients, but it has been cleared now | | 1/18 (5.5) | |
| Our institute/hospital did not experience much disruption of services | | 6/18 (33.3) | |
| Don't wish to answer | | 2/18 (11.1) | |
| NA | | 3/18 (16.6) | |
| COVID-19 appropriate precautions undertaken | | | |
| How has your institution dealt with taking precautionary measures (wearing masks, PPE, thermal testing, <i>etc.</i>)? (please tick all that are appropriate) | | | |
| All members of the institute/hospital, including non-healthcare professionals (guards, receptionists, <i>etc.</i>) wore masks and PPE | 8/18 (44.4) | 7/18 (38.8) | 7/18 (38.8) |
| Only healthcare professionals (nurses, clinicians and healthcare staff) wore masks and PPE | 4/18 (22.2) | 5/18 (27.7) | 3/18 (16.6) |
| Only clinicians wore masks and PPE, the rest only wore masks | 2/18 (11.1) | 2/18 (11.1) | 2/18 (11.1) |
| All members of the institute/hospital only wore masks because of the unavailability of PPE | Nil | 1/18 (5.5) | 2/18 (11.1) |

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| Questionnaire item | Lockdown phase (March-June 2020), n/N (%) | Unlock phase (July-December 2020), n/N (%) | Successive phase (January-April 2021), n/N (%) |
|---|---|--|--|
| COVID-19 appropriate precautions undertaken | | | |
| All members were thermally tested | 13/18 (72.2) | 11/18 (61.1) | 9/18 (50.0) |
| Only some members were thermally tested | Nil | 1/18 (5.5) | 1/18 (5.5) |
| No one was thermally tested | Nil | Nil | Nil |
| Don't wish to answer | Nil | Nil | Nil |
| How has your institution dealt with following rules to minimize human contact to curb the spread of COVID-19? (please tick all that are appropriate) | | | |
| By reducing the number of attendants with each cancer patient | 8/18 (44.4) | 4/18 (22.2) | 3/18 (16.6) |
| By reducing the number of visitors for inpatients | 9/18 (50.0) | 6/18 (33.3) | 5/18 (27.7) |
| By reducing the number of routine follow-ups required | 9/18 (50.0) | 4/18 (22.2) | 4/18 (22.2) |
| No changes: Everything is the same as it was before the pandemic | Nil | Nil | 1/18 (5.5) |
| Don't wish to answer | 2/18 (11.1) | 1/18 (5.5) | 1/18 (5.5) |
| How has your institution dealt with making sanitizers available at all key points? (please tick all that are appropriate) | | | |
| Sanitizers were kept at all key points and in every room/office | 14/18 (77.7) | 13/18 (72.2) | 14/18 (77.7) |
| Sanitizers were kept only at key points and the reception area | 2/18 (11.1) | 3/18 (16.6) | 5/18 (27.7) |
| Sanitizers were kept only at the main entrance | Nil | Nil | 1/18 (5.5) |
| Don't wish to answer | Nil | Nil | Nil |
| Institutional coping strategies | | | |
| Has your institution/hospital implemented a virtual clinic/used online/telehealth services for diagnosis, treatment or follow up services? (If your institute provides screening and early detection services, please tick NA)** response=yes | 8/12 (66.6) | 9/12 (75.0) | 8/12 (66.6) |
| Has your institutions/hospital implemented virtual tumour boards to work on complex clinical decisions during the pandemic?** response=yes | 6/12 (50.0) | 6/12 (50.0) | 5/12 (41.6) |
| Did your institute/hospital divide cancer patients into priority groups, based on their need for urgent care and provided them treatment accordingly? response=yes | 10/18 (55.5) | 9/18 (50.0) | 5/18 (27.7) |
| Future suggested actions | | | |
| Based on your personal experiences during the pandemic, what lessons can be learnt to deal with a similar situation in the future? (please tick all that are appropriate) response=yes | | | |
| National cancer screening programmes should not be stopped even in times of a pandemic | | 8/18 (44.4) | |
| The treatment of cancer patients should not be delayed even in times of a pandemic | | 11/18 (61.1) | |
| Cancer patients can be divided into priority groups and attended to accordingly | | 10/18 (55.5) | |

Contd...

| Questionnaire item | Lockdown phase (March-June 2020), n/N (%) | Unlock phase (July-December 2020), n/N (%) | Successive phase (January-April 2021), n/N (%) |
|---|---|--|--|
| Future suggested actions | | | |
| All cancer patients require equal amounts of urgent care and should not be divided into priority groups | | 4/18 (22.2) | |
| Tele-health consultations could be integrated within the cancer care system in the future to help fragile/vulnerable/weak cancer patients access follow up services online or those living in far-flung areas | | 12/18 (66.6) | |
| More interventions such as m-health or SMS services, tailored to the cancer patient should be developed and integrated by institutes to enhance the cancer care system | | 13/18 (72.2) | |
| **Six participants representing exclusive screening and early detection centres were excluded. NA, not applicable; OPDs, outpatient department; PPE, personal protective equipment | | | |