Prioritising research into cancer treatment delays

Better data are essential for effective cancer care both during and after the covid-19 pandemic

Ambica Parmar, 1 Kelvin K W Chan1,2

Timely access to cancer treatment is an urgent priority for patients and their clinicians. A large body of evidence already shows the deleterious impact of excessive waiting times on outcomes for patients with cancer needing treatment with curative intent,1-5 prompting the creation of target waiting times for many cancer treatments.6 7 Since March 2020, coronavirus disease 2019 (covid-19) has delayed patients’ access to cancer treatments across many health jurisdictions, causing international concern about the unintended consequences of pandemic control measures for these patients, and driving a surge of interest in mathematical modelling to help quantify likely changes in long term mortality among affected patients.8 9 Modelling efforts so far have been hampered by a lack of high quality data, in particular by heterogeneity in real world evidence linking treatment delays with increased mortality.

In a linked paper, Hanna and colleagues report a systematic review and meta-analysis (doi:10.1136/bmj.m4087) of the contemporary literature estimating the impact of treatment delays on mortality among patients awaiting cancer treatments with curative intent.10 In a body of literature that is primarily retrospective and observational, Hanna and colleagues included only those studies judged to be of high validity, defined as studies that accounted for major prognostic factors. Through a comprehensive review of 34 studies across seven major cancer types, the authors found that every four week delay between diagnosis and surgery was associated with a 6.8% relative increase in all cause mortality. The corresponding increases in mortality associated with other delays were 9.23% for radiotherapy, and 1.28% for adjuvant or neoadjuvant chemotherapy.

This new work reinforces the critical need for system level efforts to minimise waiting times for cancer treatments. Further, by quantifying the relative impact of treatment delays, Hanna and colleagues’ data can be used as a resource for modelling studies exploring how future treatment delays could influence absolute measures such as years of life lost to patients with cancer or, in pandemics, the balance of risk and benefit associated with pandemic measures at the population level.

Importantly, their study reveals a lack of high quality primary data characterising the effects of extended waiting times on long term outcomes. Hanna and colleagues could identify evidence on time to surgery for only five of the seven included cancer types over the past decade, with even fewer studies on time to radiotherapy or time to systemic treatments such as chemotherapy. Given the wide variation in the relative increases in mortality associated with delays to treatment, extrapolation across cancer types is not possible, and new cancer specific data are now needed.

While the authors should be commended on their efforts to minimise confounding, additional disease specific factors are likely to influence the risk of mortality associated with treatment delays. For instance, we know that heterogeneity in clinical characteristics (such as cancer stage) and in biological characteristics within cancer types influences long term survival. These factors are likely to have a role in the associations between mortality and treatment waiting times.11-14 Even so, most primary studies continue to oversimplify the relation between treatment delays and survival by batching clinically and biologically diverse cancers according to site of origin. More granular data are critically important to help prioritise cancer treatments most effectively during times of severe resource constraints, including during pandemics.

Hanna and colleagues express their findings as hazard ratios for the average relative increased mortality associated with an arbitrary every four week delay. Although this method allows for ease in interpretation and comparison, translation into clinical and policy decisions is more challenging. As acknowledged by the authors, even wait times of four weeks could reduce survival in some patients, such as those with impending airway obstruction due to head and neck cancers. Conversely, waiting times longer than four weeks could have little or no effect on survival in some circumstances, as is the case with some prostate cancers.13 15 Hanna and colleagues’ findings should be used as an aid to model future projections for patient outcomes following changes in expected waiting times, rather than to create or justify specific waiting time targets.

The covid-19 pandemic increases the urgency of developing new initiatives to deal with the data limitations revealed by this review, and to understand the unintended consequences of the pandemic for patients with cancer. Global initiatives should be designed to generate high quality, granular, patient focused data on the impact of delays in treatment, which is essential for system level efforts to provide timely and effective cancer care both during and after this pandemic.

Competing interests: The BMJ has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: AP has received honorariums from Oncology Education.

Provenance and peer reviewed: Commissioned, not externally peer reviewed.


7. Cancer Care Ontario. Target wait times for cancer surgery in Ontario - a quality improvement collaboration of the Provincial Surgical Oncology Program and Surgical Access to Care and Wait Time Subcommittee and the Program in Evidence Based Care. 2006.


This article is made freely available for use in accordance with BMJ’s website terms and conditions for the duration of the covid-19 pandemic or until otherwise determined by BMJ. You may use, download and print the article for any lawful, non-commercial purpose (including text and data mining) provided that all copyright notices and trade marks are retained.