

## The Paradoxical Effects of COVID-19 for Cancer Care

**Title:** The Paradoxical Effects of COVID-19 on Cancer Care: Current Context and Potential Lasting Impacts

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**Running title:** The Paradoxical Effects of COVID-19 for Cancer Care

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**Funding:** None.

**Conflicts of interest:** Alex Broom reports no conflicts of interest. Katherine Kenny reports no conflicts of interest. Alexander Page reports no conflicts of interest. Nicole Cort reports no conflicts of interest. Eric Lipp reports no conflicts of interest. Aaron Tan reports no conflicts of interest. David Ashley reports stock and other ownership interests in Diverse Biotech; consulting or advisory positions for Istari Oncology and Jackson Laboratory for Genomic Medicine; patents, royalties, other intellectual property for “Methods for predicting tumor response to immunotherapy, U.S. Provisional application no. 62/787” and “Methods for predicting tumor response to immunotherapy, U.S. Provisional application no. 62/620,577”; and expert testimony for Tanoury, Nauts, McKinney & Gabarino, PLLC. Mustafa Khasraw reports consultant or advisory roles for Ipsen, Pfizer, Roche and Jackson Laboratory for Genomic Medicine; and research funding paid to his institution from AbbVie, Bristol-Myers Squibb and Specialized Therapeutics.

**Acknowledgements:** None.

**Keywords:** Oncology practice; Cancer Care; COVID-19; Clinical Trials; Social Impact.

**Word count:** main text 2340, abstract 232

**References:** 49

**Number of tables:** 1

**Number of figures:** 0

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**Translational Relevance:**

Oncology practice and cancer research have rapidly adapted in the face of the coronavirus (COVID-19) pandemic. We highlight how the advent of the pandemic may impact on relations between oncologists and their patients, (re)assessments of ‘essential’ and ‘non-essential’ treatments, implications for patient access to cutting-edge innovations, and alterations to how cancer care and research is funded. Each of these domains holds important implications for the pursuit of quality care, for achieving equity and driving innovation in cancer care. Here we posit that alongside the immediate biophysical consequences of the COVID-19 pandemic, these social and economic implications are likely to have enduring implications. We outline some key principles for consideration peri and post pandemic for delivery of cancer care and clinical research.

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### **Abstract:**

COVID-19 has fundamentally disrupted the practice of oncology, shifting care onto virtual platforms, rearranging the logistics and economics of running a successful clinical practice and research, and in some contexts, redefining what treatments cancer patients should and can receive. Since the start of the pandemic in early 2020 there has been considerable emphasis placed on the implications for cancer patients in terms of their vulnerability to the virus and potential exposure in healthcare settings. But little emphasis has been placed on the significant, and potentially enduring, consequences of COVID-19 for how cancer care is delivered. In this article we outline the importance of a focus on the effects of COVID-19 for oncology practice during and potentially after the pandemic, focusing on key shifts that are already evident, including: the pivot to online consultations; shifts in access to clinical trial and definitions of ‘essential care’; the changing economics of practice; and, the potential legacy effects of rapidly implemented changes in cancer care. COVID-19 is re-shaping oncology practice, clinical trials, and delivery of cancer care broadly, and these changes might endure well beyond the short- to mid-term of the active pandemic. Therefore, shifts in practice brought about by the pandemic must be accompanied by improved training and awareness, enhanced infrastructure, and evidence-based support if they are to harness the positives and offset the potential negative consequences of the impacts of COVID-19 on cancer care.

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## **Introduction**

The emergence of COVID-19 as a global pandemic over the first half of 2020 has had an immediate and dramatic impact on cancer care. From hand hygiene stations and social distancing measures, through to the rapid expansion of telehealth and suspension or delay of clinical trial activities (1), COVID-19 has fundamentally reshaped oncology practice at every level (2). While some of these changes will likely be rolled back once the initial (and subsequent) waves of the pandemic recede, others are poised to endure – transforming how oncology is practiced and experienced in a variety of subtle and not-so-subtle ways.

To date, the COVID-19 pandemic has spurred a wide range of research, initially around healthcare systems' capacities to cope under the pandemic pressures, leading to high profile campaigns to 'flatten the curve' through various public health orders (3). In oncology, there has been particular emphasis, on the challenges of maintaining a high standard of care while preserving social distancing guidelines (1). These concerns have led to further analysis of the continuing timely but realistic provision of care within pandemic conditions and the disproportionate infective risk and potential mortality for cancer patients (4-6). While these are critical areas of concern, other important effects of COVID-19 on oncology practice have received relatively little attention, despite their potentially enduring consequences. Here, we highlight how the aftermath of the pandemic may impact on relations between oncologists and their patients, assessments of 'essential' and 'non-essential' treatments, and implications for access now and post pandemic. We will also discuss the impact of COVID-19 on how oncology care is funded and thus reimbursed. Each of these domains hold important implications for the pursuit of quality oncology care *and* achieving equity and justice in cancer care settings. These social and economic implications are potentially more enduring and impactful than the immediate biophysical consequences of the COVID-19 pandemic.

## **The Oncology Consultation During and Post COVID-19: The Virtual Pivot**

COVID-19 has catalyzed a rapid 'pivot' towards virtual consultations both in oncology and in medicine more broadly. This has been driven by the need to minimize physical contact within

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hospitals and cancer centers to reduce potential exposure to infection. This is amplified in the context of oncology due to the potential for treatment complications, immunocompromized status of some patients and hence, increased vulnerability to infection (4, 7). The deployment of this virtual infrastructure during the pandemic has been both swift, and in many instances, successful. As such, video consultations and other modes of virtual interaction are likely to endure as a standard feature of therapeutic processes in oncology (8, 9). However, moving the face-to-face, physical clinic to the (virtual) cloud has a number of effects for doctor-patient interactions, some potentially positive but also some quite negative.

A review of the health informatics and telemedicine literature tells the mixed story of the ‘virtual turn’ in medicine. There is evidence, for example, that patients in some disease contexts (e.g. cancer surgery and caregivers) may prefer virtual consultations (9, 10). Certainly, virtual healthcare has a number of *identifiable benefits* (11, 12) especially in contexts such as natural disasters where surges in demand for healthcare can be responded to swiftly. Virtual visits deviate from the necessity to quickly transport staff to hotspots and thus minimize exposure (13, 14).

However, there are also serious consequences to a virtual shift, which are worth considering. First, it changes the degree of proximity or distance between clinicians and patients – not just physically but emotionally as well (15). What we know from existing evidence is that the clinical encounter in oncology is *not* only an exchange of facts about disease, or a neutral forum for making decisions about treatment; rather, it also has social, moral, and ritual significance. As shown in the research examining clinical encounters, such dimensions do not simply translate without effort from face-to-face to virtual realms (10, 14, 16). For medical oncologists during COVID-19, certain types of skills (e.g. rapport building) and treatment issues (e.g. diagnosis, the transition to palliative care) may be undermined due to the virtual medium of consultation (17, 18). This is in addition to ensuring cybersecurity of telemedicine arrangements are prepared for when establishing these services across multiple platforms (19), and the maintaining of confidentiality, sharing laboratory test results, and delivery of medications and documentation for patients in the process. Bridging the virtual void will

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require new communicative and technological skills, which might include the need for further administrative support for the virtual shift paired with greater nursing and allied-health involvement therein (20).

Critically, we know that success in the virtual space is mediated by sociodemographic including race, age, language background, and educational attainment (10, 21). There is an enduring ‘digital divide’ between those who have access to, and are comfortable using digital technologies, and those who do not. The pivot towards virtual consultations in oncology thus brings into view a different set of issues of access and accessibility than clinic-based care. Reliable internet connection, functioning electronic devices, and platform-literacy become central concerns in achieving successful and equitable virtual care and communications. Given the regressive impacts of the pandemic across already disadvantaged and marginalized groups (7, 22), we are likely to witness a deepening of the digital divide at the very moment virtual consultations become crucial to accessing cancer care (23). In the US, one might anticipate a reduced divide post-COVID for urban residents of low socioeconomic status due to reliance on widely available mobile devices and the broad availability of network coverage. The rural poor on the other hand may experience similar physical distance issues as the urban poor, but also have diminished access to web connectivity. In other words, both groups may not have internet or computer access that is reliable.

Will these concerns become redundant in a post COVID-19 face-to-face world? It seems unlikely. Instead, it seems that virtual consultations will become an enduring feature of cancer care and that oncologists will increasingly need to grapple with these complex issues. Many oncologists will at least offer some patients on-going virtual consultations (24), and some if not many patients will request them (25). This will create a complex space to negotiate and requires sustained attention to best practice within this realm.

### **Rationing Care: Determining ‘Essential’ Care and the Paradox of Access**

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As the COVID-19 pandemic began to unfold, it has quickly become evident that demand for healthcare services would likely outstrip supply. Thus, questions of rationing and what constitutes essential and non-essential care, came to be a central focus of economic modelling, ethical reflection, and social concern (26). In this, COVID-19 is not entirely unprecedented: previous catastrophes including various natural disasters have been studied extensively for their impacts of health care (27-29). There is evidence that similar large-scale events – which we can broadly be considered as having a similar scale of health system disruption to COVID-19 – have considerable impacts on cancer care including significant treatment interruptions, reduced capacity to manage treatment side-effects, and delays in patients receiving standard care with impacts on survival (27-29). It is already clear in the context of COVID-19, that such processes are occurring, including rationing of resources and delays in the provision of standard care with some uncertainties about the consequences (30).

Oncologists face the unenviable task of weighing up the intended benefits of planned cancer therapies (and potential risks of delaying treatment) versus the novel threat of death and morbidity associated with COVID-19 (4, 31). The latest evidence suggests that these competing interests (i.e. pandemic conditions vis-à-vis delivering best practice) have already led to substantial alterations in care. Standard therapeutic approaches are being altered/delayed including surveillance imaging (32), non-emergency surgical procedures have been postponed (2, 5), and clinical trials suspended given their ‘non-essential’ nature (6, 33, 34). This is especially detrimental for patients with rare cancers, for whom enrolling in a clinical trial with an investigational but promising new therapy may be the best option in the absence of available effective treatments. The impact of COVID-19 on the research/treatment nexus is also evident in cancer research laboratories, with many oncology “wet labs” closed during the pandemic. While these labs conduct research, they also contribute significantly to cancer care, having direct or indirectly contribution to diagnostic services, but also in some cases being involved in the development of personalized therapies, e.g., adoptive cellular therapies.

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Such unintended consequences of pandemic conditions raises the stakes further in terms of the dynamics of access to, and availability of key cancer drugs. This was already an enduring and complex issue prior to COVID-19 (35), and it has since been amplified leading to sustained implications across communities. Crucially, these impacts are not distributed evenly across societies. In line with the sociodemographic characteristics of the digital divide, some patients will have their treatment regimens maintained, while others will experience considerable disruption to their care (28, 36). Enduring and emerging forms of vulnerability are thus important dimensions of the pandemic to consider.

Yet, questioning what is ‘essential’ and ‘non-essential’ in cancer care has presented some learning opportunities as well as day-to-day challenges. The de-escalation of anticancer regimens has presented a natural experiment of sorts (5). This avant-garde approach may lead to new formulations of what is considered efficacious and futile treatment. In the current context, there is evidence *non-essential drugs* are being more clearly identified and even withdrawn at a faster rate, and that there may be decreasing use of futile treatments (37, 38, 39, 40). The pandemic conditions we are currently experiencing may be functioning to identify some of the unnecessary and even damaging practices which were prevalent in some clinical contexts prior to its occurrence (41, 42).

This is not a purely positive outcome per se but rather a *paradoxical* effect of COVID-19. It both creates challenges, such as making access more challenging and potentially inequitable, but also forces us to identify inefficiencies in current practice (40). The risk, of course, is that as rationing persists, potential modes of care that medical oncologists deem helpful for overall survival may be interrupted in an effort to prioritize preventing a fallout of COVID-19.

### **Implications of COVID-19 for Economic Viability of Practice and Economic Returns Therein**

Oncology practice is a product of caring for the patient alongside the economic realm. The pandemic has fundamentally challenged the standard forms of economic exchange between clinic, oncologist, other cancer health care providers and the patient. One of the earliest measures established by the U.S.

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Government was the allowance of reimbursement for video and telephone encounters. Although it is evident that the rules on telehealth payment as well as regulations are changing by the day (43), this has created considerable ambiguity about what is chargeable and what is not. Previously, incidental phone calls, for example, and other virtual/telehealth interactions have become ‘chargeable moments’, and yet it is unclear whether this reimbursement or form of economic exchange will endure post COVID-19. Furthermore, it is not clear if these practices are uniform across clinicians and how they will be monitored. Additionally, the allowance of non-face-to-face (whether phone, text, or video) reimbursement has not addressed the changes seen in many other forms of income surrounding the face-to-face oncology encounter in clinical contexts (examples include laboratory tests, imaging, and cross referrals to other specialties within the same health organization). This fundamentally changes the flow of funds within the health system, including jobs therein. Creating a challenge to the existing web of services/business supporting cancer care (from the seemingly incidental services of parking to cafeterias). COVID-19 thus has long-term financial implications for practicing oncologists (2, 7). Accordingly, the expectation of adaptation without unintended consequences (for practice and care) would be naive at best.

### **Legacy Effects and the Significance of Social Change for Oncology**

The assumption of many, including often those in government, is that we will return to ‘normal’. The literature on pandemics and major social upheaval, suggests otherwise (44). In fact, oncology will likely experience mid- and long-term ripples effects and is unlikely to ever be the same post COVID-19. The legacy effects of COVID-19 and the responses of government to the pandemic will be seen in the practices of clinicians and the experiences of patients and their families for years to come. The consequences will be far ranging, short-term and mid-term, and the *broader challenges* COVID-19 offers across societies and economies will slowly make their way into oncology practice. These will include: the shock of unemployment which will reduce capacity to pay for existing and emerging cancer therapeutics (45, 46); heightened social justice issues whereby the pandemic’s structural impacts further frame access to cutting-edge oncological care and clinical trials (47); increased polarization along racial, class, political, and ethnic difference and minority experiences of care (45,

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48); and, the enhanced mental health consequences for cancer patients already experiencing cancer related psychosocial issues (49). As post-pandemic austerity shapes the experience of living with cancer, these structural vulnerabilities will intersect with the aforementioned challenges of on-going virtual consultations, as well as worries around physical contact on the part of patients, families, and clinicians. COVID-19 will change the social relations of cancer care for the foreseeable future, and often in uneven and inequitable ways. The question that must be asked is: how can we best support patients, families, and one another in ways that foster *adaptation* and *equity*, rather than assuming an eventual return to pre-pandemic relations and linear effects across patient groups?

### **Importance of In-Depth Analysis of Clinician and Patient Experiences of COVID-19**

Understanding the complexity of swiftly evolving oncology practice in a peri- and post- pandemic world needs to be a priority to assess the consequences of COVID-19 as they develop. This should be undertaken to develop an evidence base and key principles for the rapid changes that are currently taking effect, and the serious implications for patients, families, and clinicians post-pandemic (see Table 1). Within two forthcoming papers, the process will begin with one-on-one, in-depth interviews. Oncologists and patients will be interviewed to reflect on how oncology is being fundamentally changed by this particular historical moment and how we might lower the multifarious potential ‘costs’ for oncologists, their patients, and their patient’s family.

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**Table 1: Key Principles to Consider for Cancer Care Peri- and Post-COVID-19**

|                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>A return to pre-pandemic conditions for oncology is unlikely. Adaptation to a ‘new normal’ in cancer care will require regular reassessment of many interactive, economic and physiological aspects of cancer care to ensure equity of access for patients and their families to healthcare.</p> |
| <p>Safety of both staff and patients following the COVID-19 pandemic will need to be a priority. However, when in conflict, formal protocols must be established to determine who is protected and why this is the case.</p>                                                                        |
| <p>Consideration of the impact of reduction of immunosuppression, if COVID-19 is unable to be suppressed or eliminated through a vaccine, and how this presents costs (to optimal outcomes) and might be unevenly distributed across patient groups and communities.</p>                            |
| <p>Rapid evaluations of best practice when resources are rationed, likely to continue owing to new waves of COVID-19, will need to be undertaken to ensure equitable and optimal treatment options for patients, including consistency around essential and non-essential care</p>                  |
| <p>The interpersonal and technological ramifications of the pivot to telehealth will need to be targeted according to patient circumstances and capabilities, and the evolving financial mechanisms of oncologists nationally.</p>                                                                  |
| <p>Rigorous analysis of clinicians’ assessments of value of life, under the strain of COVID-19 must be undertaken, in consideration of vulnerabilities of particular populations, including those receiving palliative care, the elderly, and patients with comorbidities.</p>                      |

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*Clin Cancer Res* Published OnlineFirst August 18, 2020.

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