AACR Report on the Impact of COVID-19 on Cancer Research and Patient Care

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The coronavirus disease 2019 (COVID-19), now entering its third year, has led to major disruptions to economic stability, health care, and scientific research across the globe. To address the negative impact of COVID-19 on the cancer care continuum as well as the broader interruptions caused by the pandemic to the field of cancer research, the American Association for Cancer Research launched several initiatives. *The AACR Report on the Impact of COVID-19 on Cancer Research and Patient Care* (https://www.aacr.org/professionals/research/aacr-covid-19-and-cancer-report-2022/) is one of these initiatives that presents current evidence on the burden of COVID-19 among patients with cancer and highlights the challenges as well as future opportunities created by the pandemic in cancer research and patient care. The report concludes with a Call to Action that provides policy guidance on how to better serve the cancer community in the future. In this article, we highlight key findings of the report including how COVID-19 disrupted cancer care for patients; how cancer researchers fueled progress in fighting the pandemic; how interruptions caused by COVID-19 impacted cancer research more broadly; and how regulatory changes necessitated by to the pandemic led to a revolution in telehealth adoption and clinical trial design.

Cancer Researchers Mobilize Resources and Infrastructure to Fight a New Health Crisis

It became immediately apparent in early 2020 that the rapidly developing COVID-19 health crisis required an equally rapid and adaptive strategy to understand the biology of COVID-19, prevent the spread of SARS-CoV-2—the virus that causes COVID-19, and treat patients who become severely ill from the disease. As highlighted in the report, the cancer research community was uniquely positioned to help because of decades of experience in scientific areas—genetics; immunology; drug development; clinical trials; and mRNA vaccine development—that played a pivotal role in developing preventive and therapeutic strategies against COVID-19. The NCI harnessed the power of its national network of serology centers to collect and integrate epidemiologic data and trends of COVID-19 genetics (COVIDcode and COVNET), immune responses (SeroNet and SeroHub), and mortality (COVID-Mortality Tracker). Studies, such as NCCAPS and COVCan, interrogated the impact of cancer patients from COVID-19 to better support patients and health care providers. These resources were paramount to tracking the spread, providing resources for health officials and cancer care providers.

Beyond the NCI initiatives, cancer researchers have greatly contributed to understanding basic SARS-CoV-2 biology, including its mechanism of infection through the host receptor TMPRSS2. In addition, the drugs developed to alleviate adverse side effects—such as cytokine release syndrome—sometimes experienced during cancer immunotherapies have been used to treat patients who develop immunologically similar complications associated with COVID-19. Finally, decades of research by the cancer community into mRNA vaccines helped pave the way for the rapid development of SARS-CoV-2 vaccines, which have significantly contributed to reducing COVID-19 mortality.

Although some cancer researchers refocused their research interests to address COVID-19, the disruption to the medical research community at large was pervasive, with 76% of the respondents to an NIH survey indicating that the pandemic had lowered their levels of productivity. This was especially pronounced for women and researchers belonging to underrepresented minorities, who are already less likely to receive NIH funding compared to their non-minority counterparts. According to an AACR survey of cancer researchers from North America, Europe, and Asia, 99% of the survey respondents indicated that COVID-19 negatively impacted their research, career in cancer research, and/or patient care. Therefore, it is imperative that all stakeholders work together to develop effective approaches and accessible resources through policies and programs that ensure a strong and diverse medical research workforce.

Cancer Care during a Pandemic

The report synthesizes the overwhelming evidence that cancer is an independent risk factor for severe disease and mortality in patients who develop COVID-19, with the risk of infection seven times higher for recently diagnosed patients with cancer. This risk of infection is even higher in Black patients with cancer compared to whites with an increased likelihood of hospitalization due to complications associated with COVID-19 observed in patients with certain types of cancers. The increased burden of COVID-19 on patients with cancer, especially those who belong to racial and ethnic minorities and other medically underserved populations, underscores the importance of equitable access to health care, and highlights the critical need for investment in cancer health disparities research including community outreach and education.

The COVID-19 vaccines are the best intervention to decrease community spread and reduce mortality and morbidity from COVID-19. Patients with cancer, who are often immunocompromised, may not develop a strong immune response after vaccine administration. Emerging data show that the COVID-19 vaccines can reduce infection among patients with cancer by as much as 58 percent depending on cancer type and active treatment regimen. The report urges recruitment of vulnerable populations, including patients with cancer who were not enrolled in initial vaccine trials, in future vaccine clinical trials to understand how best to protect them.

The development of lifesaving cancer therapies relies heavily on the performance of basic and translational research and clinical trials. Unfortunately, the pandemic led to many basic and translational labs

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suspending research in early 2020, disrupting ongoing projects, animal studies, and clinical trials. Researchers estimate that this has set back cancer research projects by 6 months, with breakthroughs in treating cancer potentially being delayed by almost 18 months. Clinical trial enrollments at institutions were reduced by 80% and new trial initiations were reduced by 60% from January 2020 to May 2020 compared with prepandemic levels. To mitigate this effect, researchers and regulatory agencies including NCI and FDA adapted decentralized clinical trials, which take advantage of community-based network sites, telemedicine, and delivery of drugs direct to patients. This patient-centric approach increases access to participants, such as those belonging to racial and ethnic minorities and other medically underserved populations, who otherwise may not be able to enroll in these trials. The report highlights the importance of these changes and urges for their continuity through policy-based action.

The impact of COVID-19 on the continuum of clinical cancer care has had both immediate and long-term effects for cancer patients and their families. Because of the reduction of cancer screenings in early 2020, there has been an increase in cancer diagnoses at an advanced stage of the disease. The population-level use of at-home tests that detect biomarkers of cancer are currently being evaluated; however whether these tests can reduce cancer mortality in the long-term must be assessed through follow up studies. It is imperative that we continue to monitor the long-term impact of the pandemic and devise strategies to mitigate any potential increase in cancer morbidity and mortality in coming years.

Delays and interruptions in radiotherapies, surgeries, chemotherapies, and immunotherapies to treat patients with cancer were observed widely across the United States and globally during the pandemic. Predictive analysis shows that due to this delay, the 5-year survival rates for certain cancers including lung, pancreatic, or ovarian cancer could be reduced by 30%. Notably, COVID-19 has led to a rethinking of cancer treatment schedules and delivery. The report highlights how drug schedules were revised during the pandemic and how this reevaluation has potential benefits. In addition, the expansion and increased use of telemedicine has allowed for more flexibility for patient care while reducing physician burnout. While the telemedicine has helped reduce stress and anxiety in patients with cancer, access to tools necessary for telehealth has not been equitable and requires investment from all stakeholders to ensure these critical services are available to all.

Finally, survivors of cancer encounter physical, psychosocial, and financial stress with, through and beyond their experience with cancer. The isolation brought on by the shelter-in-place mandates led to concerns about the impact on mental health of survivors of cancer, with one study reporting that 53% of patients with cancer experienced loneliness during the pandemic. This anxiety experienced by patients and survivors of cancer, as well as their caregivers, demands access to financial and psychosocial resources to support these vulnerable populations.

The pandemic has highlighted the importance of investing in medical research. Despite the progress made against COVID-19 and cancer since 2020, the pandemic has taken its toll on the cancer care continuum, the impact of which will resonate for years to come. The report includes the AACR Call to Action which emphasizes what was learned during the public health emergency and offers concerted steps that should be taken to rebuild public health infrastructure, revitalize medical research, and modernize how patients receive care. These steps include investing in medical research and its workforce, rebuilding the public health care system at the local, state, and federal level, expanding access to health care and telehealth, and strengthening and modernizing clinical trial design. AACR urges Congress to provide additional funding increases for the federal agencies to offset the adverse effect of the pandemic on cancer research and patient care. Doing so will foster future scientific advances, maximize returns from prior investments in medical research, drive economic prosperity, and support new lifesaving breakthroughs for the citizens of the United States and around the world.

Authors' Disclosures

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