

# Intersection of COVID-19, Cancer, and Racial Health Disparities

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## ABSTRACT

In this article, we explore the intersection between the COVID-19 pandemic with cancer and the health disparities experienced by African Americans. Using extant literature and contemporaneous data, they point out how overlooking the intersections of this triad could lead to the exacerbation of existing disparities for cancer patients based on race and ethnicity. They suggest best practices to balance cancer treatment and survivorship with increasing the potential COVID-19 exposures for patients, families, and health care workers. Drawing upon their analysis, the authors offer a list of recommendations and strategies for system level responses that are designed to foster practice and policy for cancer care health care equity and relate to cancer care equity, infection prevention and control, and cancer pain management, that may reduce disparities among African Americans.

**KEYWORDS:** COVID-19; cancer, health disparities; African Americans.

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## Introduction

The novel coronavirus (COVID-19) has caused untold disruption to conceptions of normative daily living and profound distress to the well-being of the world's population. Although whether or not COVID-19 was a pandemic was bitterly debated as recently as late February 2020, in the United States alone there are now over four million cases of COVID-19. This crisis, characterized by the uncontrollable transmission of disease through a population, with differential effects on subpopulations at higher risk meets the criteria for a once in a century pandemic. [1] Compared with the Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) outbreaks, COVID-19 has spread much faster due to increased globalization and adaptation of the virus to multiple environments. [2] Its widespread incidence and rates of intensive care hospitalizations has strained the health care system, as well as the social and economic foundation of society. Other recent pandemics, such as the 2009 H1N1 (swine flu) pandemic caused concern and led to uncertainty, however the scale of its spread and consequent societal disruption was less notable. Early April of 2009 in Mexico, H1N1 first appeared. Within 3 months, it was reported in every country. By October 11, 2009, close to 400,000 laboratory-identified H1N1 influenza cases and >4735 deaths had been reported to the World Health Organization. [3] In comparison, and as reported by the Coronavirus Resource Center at Johns Hopkins University, there are more than 33 million reported COVID-19 cases worldwide and over 1,103,791 deaths, in less than eight months.[4] In the United States alone, there are more than 7.19 million cases and over 205,000 deaths.[5] In addition to the apparent threats the COVID-19 poses to all individuals, one report from Italy suggested that this epidemic hide subtle menaces,

like the "distraction effect," that are particularly important for patients with cancer. The distraction effect for cancer patients may lead to *diverting the attention exclusively to the COVID-19 situation and overshadowing the everyday clinical practice may have substantial negative implications, especially for cancer patients.* [6] Considering not only the intersection of COVID-19 and cancer, in the United States we must consider the added risk of overlooking the ongoing and systematic health inequities faced by racial and ethnic minorities.

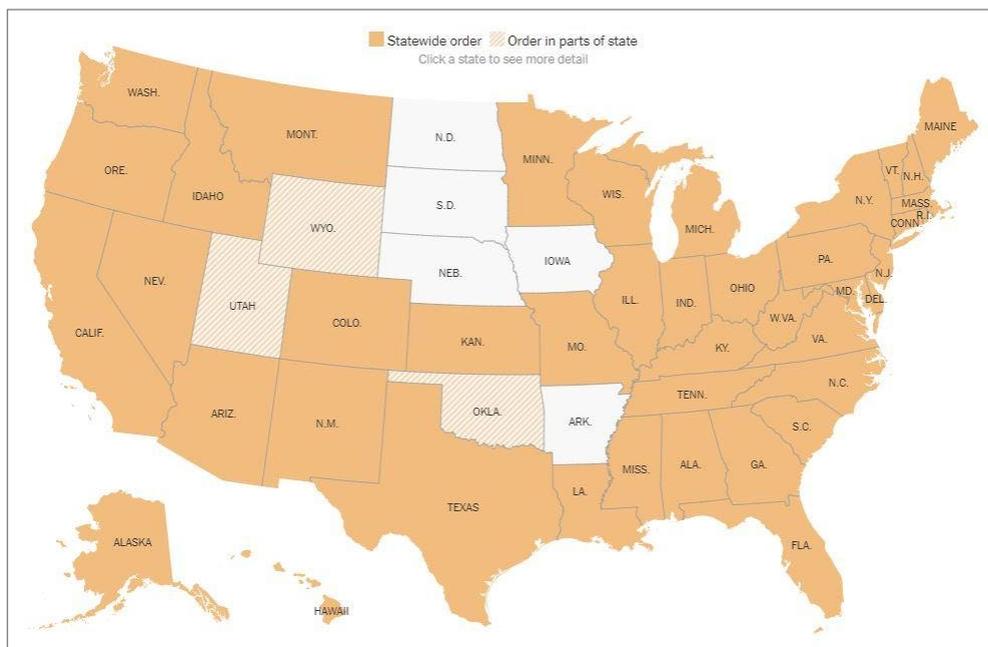
## COVID-19 in the United States

Although China and Italy were differentially affected in the early stages of the pandemic, the United States now has more cases and more deaths than any other country. Inconsistent messages emanating from the President's office at the federal level and from multiple governors at the state level have fostered confusion and heightened the potential of greater risks not only to those who are immune compromised but also to others in the community. Missteps such as a lack of a coordinated, systematic national approach, a failure to issue timely shelter-in-place orders, inadequate numbers of hospital ICU beds in NYC while they awaited the arrival of naval hospital ships, and individual disbelief, claiming that the virus was a hoax, slowed the receipt of essential resources, and likely have resulted in avoidable infections. [7] Compared to five other countries (i.e., China, South Korea, Italy, France, United Kingdom) one cannot help but question if the U.S.'s lagging response and hesitancy to escalate the stringency of its public policies might have saved lives. In April, states like New York and California, large metropolitan areas that have had high transmission rates, stay at home orders were announced and put in effect at earlier dates. The need to shelter-in place, mandated by some state governors, was designed to stem the tide of

community spread, with the hope that the need for emergency department and hospital admissions would flatten and result in slowed transmission. In other less densely populated states

that are predominately rural, like North Dakota, such mandates were not implemented [8]. (Figure 1).

**Figure 1.** States with orders to stay home as of April 20)



## Racial and Ethnic Disparities Related to COVID-19

While the nation strives to address the economic and social impacts of the COVID-19 pandemic, concerns related to the likelihood of overwhelming the healthcare system with crisis-related health care occurred in New York in the first phase of the virus, and are seemingly inevitable now as numbers surge currently in Texas, Arizona, and Florida. Economic impacts are being experienced as nearly 20% of the workforce faces unemployment, while hourly workers must grapple with basic survival and insufficiency due to lost wages and hunger, debt, and a need to care for children at home due to school and daycare closures. Social losses, equally staggering, continue to emanate from a loss of daily connections and livelihoods as well as ceremonial occasions that mark predictable achievements. Although many

geographic regions have experienced differential impacts from COVID-19, there are stark disparities for several populations that have received little attention. One of the most alarming disparity trends is the high incidence of infection and the elevated mortality rate among ethnic/racial minorities, particularly African and Hispanic Americans compared to non-Hispanic Whites. [9] Reports of disparities in testing, access to care, and poor triage practices and decisions resulted in minority individuals being sent home because their symptoms were not severe. However, such cases extending beyond ethnic/racial minority populations appear to be more fatal in minority communities who already face significant barriers to adequate care. Adding to this detriment, many ethnic/racial minorities have existing chronic conditions superimposed on COVID-19 and this leads to progressive worsening of health and

eventual death from the coronavirus. For example, African Americans people are being infected and dying at higher rates in Chicago, New Orleans, Philadelphia, Detroit, Louisiana, and Milwaukee. [9, 10] In Milwaukee, the life expectancy of African Americans is 14 years shorter, on average, compared to Whites. [11] By April 3, 2020, almost half of Milwaukee County's 945 cases were African American and 81% of the 27 deaths occurred in a county whose African American population constituted 26% of residents. While African Americans make up 13% of the US population, they account for 23% of all deaths. As of May, the death rate for COVID-19 in Illinois was 34%, while they make up 15% of the population; Michigan 41%, while they comprise 14% of the population; and Kansas 33% while they make up 6% of the population. In Chicago, where African Americans represent ~30% of the population they represent 43.1 of COVID-19 deaths and 29.8% of all cases [12, 13]

In addition, North Carolina and Connecticut are seeing the same disproportionate cases of deaths. [10, 14, 15] Moreover, collateral cases, such as that illustrated in the exemplars presented earlier, are not accounted for in the mortality rates. In April, the extent to which states report data by race/ethnicity varies: 2 states reported testing, 34 states reported confirmed cases, and 26 states reported deaths and collected information on race/ethnicity.[15] By August, 6 states reported testing, 49 states reported confirmed cases, and 46 states reported deaths and collected information on race/ethnicity,[15] yet not all states collect this data, thus, true epidemiological trends are limited. Failure to capture complete demographic data (1) ignores the hidden inequities in healthcare and public health, (2) perpetuates disparities and structural racism by failing to fully investigate and understand the health of a population of people, and (3) subsumes that race

is an unimportant factor in the prevention, mitigation, and mortality from COVID-19. Some of the trends driving the curve in African American communities may include culturally-specific responses to endemic racism such as the communal mistrust, a high prevalence of risk factors that contribute to death with COVID-19 (diabetes mellitus, high blood pressure, asthma, and immunocompromised), and the fact that African Americans are more likely to be essential workers with required physical presence. Black American men may be concerned about wearing face masks due to the stigma of being viewed as a criminal. Also, minority serving hospitals may not have the resources required for COVID-19 patients while more affluent hospital may limit care to low-income patients. Well known among African Americans and as reported by researchers is that healthcare workers tend to interact differently with African Americans compared to other racial/ethnic groups. [16-20]

The intersection of COVID-19 with cancer has led to further inequities. Research from two large healthcare systems in the Midwest found that cancer patients undergoing active treatment saw their risk for death increase 15-fold with a COVID-19 diagnosis.[21] Specifically, among COVID-19 patients with a history of cancer, an increased risk for death was seen for those ages 60 to 69 years (OR 6.3, 95% CI 1.1-35.3), 70 to 99 years (OR 18.2, 95% CI 3.9-84.3), and those with a history of coagulopathy (OR 3.0, 95% CI 1.2-7.6).[22] In this same study of 2,186 US adults with invasive cancer and laboratory-confirmed SARS-CoV-2 infection, African American patients were approximately half as likely to receive remdesivir as white patients. Despite Black patients consisting of less than 10% of the total study population, Gadgeel noted that 39.4% of COVID-19 diagnoses in the active cancer group were among African American patients, as

were a third of diagnoses in the cancer survivor group.

### Impacts of COVID-19 across the spectrum of cancer treatment

In the United States, African Americans bear a disproportionate share of the cancer burden, having the highest death rate and the lowest survival rate of any racial or ethnic group for most cancers. [23] Key variables associated with this disparity results from a combination of social factors that influence exposure to racism, food deserts, and access to and receipt of appropriate healthcare. [9, 24] COVID-19 may further increase the burden in multiple ways across the cancer prevention and treatment spectrum. Severely immunosuppressed patients generally have a higher risk of developing complications in COVID infections. Thus, it should be assumed that cancer patients are at increased risk of a more severe course of COVID-19. [25] An early report from China indicated [20] a higher incidence of COVID in patients diagnosed with cancer [20]. In another report from China, of 2007 cases from 575 hospitals of patients with cancer were observed to have a higher incidence of COVID, higher risk of severe events (a composite endpoint defined as the percentage of patients being admitted to the intensive care unit requiring invasive ventilation, or death) compared with patients without cancer. [26] Cancer survivors who have been treated with cardiotoxic chemotherapy may also be at higher risk for poor outcomes. [27]

In addition to increased morbidity and mortality associated with COVID-19, cancer patients and individuals at risk for cancer have been adversely affected by the COVID-19 pandemic in several other ways. For patients in active treatment, one of the major risks is the inability to receive necessary medical services (both in terms of getting to hospital and provision of normal medical care

once there) because of the outbreak. Guidance for prioritizing the use of radiotherapy and systemic treatments during the COVID-19 pandemic focuses on including diseases with an imminent risk of early mortality (such as acute leukemias) or substantial morbidities (such as spinal cord compression). [28] With a lack of PPE in combination with risk factors associated with COVID-19, cancer patients' treatment plans were altered earlier in the pandemic with chemotherapy and radiation treatment plans delayed or modified. This is the result of the risk factors associated with COVID-19 as having cancer increases risk of contracting the virus, being hospitalized, being placed on a ventilator and death. [29] Another contributing factor of COVID-19 risks is that cancer treatments suppress the immunity system of cancer patients. A delay in patient treatment minimizes potential immune suppressive treatments as well as risks of transmission at treatment sites. [30] Long-standing protocols for administration of chemotherapy and radiotherapy for lower or middle risk patients are being implemented differently during the pandemic, with different regimens suggested and potential delays in treatment. The excerpt below highlights the risk to an individual whose death may have been hastened by the COVID-19 triage.

*My sister-in-law died today. She survived breast cancer twice. The cancer wing was shutdown to make space for COVID-19 patients. She was told that her treatments were going to be stopped. She died at home. She will not be included in the COVID death count. It makes the numbers look lower than they actually are. In the past three weeks, 3 people within my circle of friends have died, and now family member too ». (A. Lawson, personal communication. 16 April 2020).*

## Differential Effects on Racial and Ethnic Minorities with Cancer-related Pain

Within the African American community, it is a well-known that African Americans who report symptoms of pain are not believed by the health care providers to the same extent as White patients. [16] Similar patterns are noted in patients with cancer pain. For example, having cancer and/or receiving chemotherapy may benefit minority populations because their complaints of new health concerns are likely to be taken more seriously. In contrast, individuals with cancer may be more susceptible to COVID-19 [31], and may experience pain symptoms in addition to cancer-related pain and other non-malignant chronic pain. Further, these pain symptoms may not be taken as seriously given the immediate priorities to contain and mitigate the COVID infection. According to recently published pain guidelines, pain clinics should triage cancer-associated pain syndromes as an urgent priority. [32] Two general consensus statements on pain management have been published to guide care for all patients with COVID-19. [32, 33] The application of identified best practices must be applied consistently and equitably to ethnic/racial minorities. Telemedicine, though a novel solution to healthcare access, may not translate in ways that are beneficial to minorities. Some older racial/ethnic minorities or rural residents with cancer or their caregivers may lack access to the internet, have insufficient bandwidth, or lack smart devices, all of which are necessary for participating in telehealth visits or support groups. If we are to stem the tide of COVID-19 while ensuring patients have adequate pain relief, we must explore the roles of intersectionality and justice moving forward.

### Survivors

Many cancer survivors are concerned and wonder how their cancer status affects potential COVID-19

risks as individuals with underlining health conditions appear to be at higher risk for major complications [1]. The immunosuppressive effects of cancer treatment increases the risks for cancer patients and survivors. In a study of a cohort of 1571 patients with COVID-19, 8 of whom had a prior history of cancer, patients with a history of cancer had a higher incidence of severe events – defined as the percentage of patients admitted to an intensive care unit requiring invasive ventilation, or death – compared with other patients. [34] Routine surveillance in patients considered to be at relatively low risk of recurrence, and those who are asymptomatic during the follow-up period were postponed during the early stages of the pandemic and rates of preventive appointments continue to lag. [35] This trend continues as the pandemic has progressed. Data from March 15 to June 16, 2020 show that 285,000 (breast), 95,000 (colon), and 40,000 (cervical) exams were missed, which represent deficits of 63%, 64%, and 67% relative to the number of screenings in a prior year

For the community at-large, it is unknown at this point how the delay in cancer screening examinations may affect future morbidity and mortality for individuals who have not yet received screening examinations in a timely manner. As quarantine restrictions are relaxed, planning for resuming screening to mitigate harms is an important aspect of cancer detection at early stages in at risk individuals.

### Increasing likelihood for Optimal Outcomes for Cancer Patients and individuals at Heightened Risk of Health Disparities

Historically, many African American individuals distrust hospital-, university- and clinic-practitioners due to historical racism. Addressing racism will require a long-term commitment and a willingness to build partnerships. However, the onus rests with the medical community and the

governmental structures of the United States to demonstrate trustworthiness. [36] Building partnerships with local African American community organizations such as churches, initiating the delivery of forums, retreats, and other social events that are designed to enhance approachability and getting to know individuals on a more personal level are some of the venues that can be implemented to establish trustworthiness. We suggest convening gatekeeper-identified leadership groups, African American physicians, nurses, faith and civic leaders who are trusted by their communities and partnering with them to develop community-based print and media strategies that are responsive to their constituents. Seeking their insight and advice as to best practices for interacting with racial/ethnic minorities and those who suffer disparities are likely to be instrumental in building healthcare systems which are responsive to their socio-cultural preferences and healthcare needs.

Addressing health disparities in cancer treatment and outcomes so that treatment delays do not result in sentinel events must also be considered. Kutikov, Weinberg, Edelman and colleagues recommend that physicians must be mindful of

increased vulnerability to potential adverse outcomes that may emanate from COVID-19 following oncological surgery, systemic chemotherapy, or radiation therapy. [37] They recommend that differentiating treatment options based on cancer types. For example, they suggest that solid tumors arising from pancreatic or lung cancer as well acute leukemia require immediate diagnosis and treatment. However, early-stage cancers such as prostate and breast among others may not. [36] While weighing comorbidities, they recommend weighing the risk of progression with cancer care delay alongside the probably of significant morbidity.

Telemedicine, an emerging approach to ensuring practitioner access, has the potential to mediate long wait times and ensure triaged care. Perhaps, following this pandemic, it will become a viable alternative to in-office visits, where appropriate. Overall increasing the likelihood of optimal outcomes could be addressed by enacting system level responses designed to foster practice and policy for cancer care equity, infection prevention and control, cancer pain management, and cancer palliative care (see Table1)

Table 1. Recommendations for Practice and Policy for Cancer Care

| DOMAIN             | RECOMMENDATION   |
|--------------------|--|
| Cancer Care Equity | <ul style="list-style-type: none"> <li>All cancer care centers should develop and implement a standard, system-wide plan for cancer care equity.</li> </ul>  |
|                    | <ul style="list-style-type: none"> <li>Utilize multiple modalities, e.g., telehealth and traditional methods (phone and mail), to communicate and follow-up with patients.</li> </ul>  |
|                    | <ul style="list-style-type: none"> <li>Cancer care centers are encouraged to develop a helpline and/or online portal that allow patients a safe space to ask questions.</li> </ul>   |
|                    | <ul style="list-style-type: none"> <li>Ensure all patients have access to COVID-19 testing at cancer care centers or at-home, and maintain accurate documentation of positive cases for future data science work.</li> </ul> |

|                                  |   |
|----------------------------------|---|
| Infection Prevention and Control | <ul style="list-style-type: none"> <li>• Ensure all patients with cancer have access to necessary PPE.</li> </ul>   |
|                                  | <ul style="list-style-type: none"> <li>• Develop an emergency response plan with patients and provide education on how to utilize plan.</li> </ul>  |
|                                  | <ul style="list-style-type: none"> <li>• Convene gatekeeper-identified leadership groups within the African American community to provide factual information about COVID-19 and infection control.</li> </ul>          |
| Cancer Pain Management           | <ul style="list-style-type: none"> <li>• Ensure patients have a self-management pain treatment plan in place, in case palliative radiation or other clinic-based pain-relieving procedures are inaccessible.</li> </ul> |
|                                  | <ul style="list-style-type: none"> <li>• Implement and/or adapt consensus-based COVID-19 pain management guidelines for patients with cancer.</li> </ul>  |

As a society, we must prepare for the toll that this pandemic has exerted on patients, families, and caregivers alike for African Americans, their families, and communities. The potential for traumatic impact among family members who lose loved ones without an opportunity to say goodbye, and among those who care for dying patients while family members say their goodbyes virtually, and express unremitting grief to those strangers who witnessed patients' passages, must be recognized. Mental health practitioners must become prepared to treat and care for those who exhibit a sudden onset of depression, anxiety, hypervigilance, or other behaviors that impede their functionality or ability to resume the habits of daily living. Irrespective of the duration of symptomatology, the need for psychological care that is tailored to address acute and chronic mental health issues arising from the pandemic should be anticipated.

## Conclusion

Despite efforts to reduce the unequal impacts being felt by minorities, generations of systemic disadvantage and inequality in healthcare and cancer care for communities of color have become amplified and made more urgent during the coronavirus crisis. Understanding the risks, intersection, and additive effect of COVID-19 in minority individuals with cancer is crucial. Ethnic

and racial disparities already pervasive in our health care system coupled with COVID-19 and existing racial and ethnic disparities in cancer outcomes may lead to greater morbidity and mortality in existing at-risk groups. Unequal access to and use of healthcare and unequal access to treatment in the healthcare environment are a few of the factors that contribute to health disparities specifically for African Americans. It is imperative that the disparities gap does not widen as a result of the COVID-19 pandemic.

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## Conflicts of interest

The authors declare no conflict of interest.

## Authors' contributions

This manuscript was conceived by L.B.H. and D.E. L. L.B.H. and D.E.L. led the writing. All authors contributed to writing and editing the manuscript.

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