COVID-19, Cancer Care and Prevention
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ABSTRACT
The COVID-19 pandemic has had an enormous impact on our society and healthcare delivery in the United States. Importantly, elective procedures and screening exams for cancer have been delayed or canceled over the past 4–5 months raising concerns over the future incidence and outcomes for those at risk or diagnosed with cancer. It is clear to everyone in the cancer field that the earlier we detect premalignant disease or cancer, the better the clinical outcome is for the patient. Most healthcare institutions have now put safety procedures and guidelines in place, which have dramatically reduced the risk of viral spread during encounters in their healthcare facilities. We must now encourage the public and those individuals at high risk for cancer to resume normal cancer screening.

Introduction
As of early September 2020, SARS-CoV-2 (COVID-19) claimed the lives of more than 190,000 Americans and almost 890,000 people worldwide, and the death toll is continuing to rise. This is a remarkable number of deaths from a single virus in only 6 months’ time. Looking back, the 1918–19 influenza pandemic is said to have claimed the lives of more than 675,000 people in the United States and an estimated 50 million lives worldwide over the course of 2.5 years. Compare this with a bad year for influenza, which the U.S. Centers for Disease Control and Prevention (CDC) estimates may claim as many as 12,000–61,000 lives a year in the United States, and according to the World Health Organization, may be responsible for up to 650,000 deaths worldwide. Clearly, COVID-19 will continue to precipitate an unprecedented crisis across the globe.

Yet, our current loss due to COVID-19 actually fails to tell the full story of the tragedy of this pandemic, because it does not include the patients who did not die because of the novel coronavirus directly, but who became and will become circumstantial victims because of issues presented by an overburdened healthcare system and delays for routine screening exams. In many cases, patients have been canceling screening tests because they are fearful of exposure to the virus in healthcare facilities.

Potential Implications of Postponed Screening and Preventive Measures
Initially, after the COVID-19 pandemic began and physical distancing measures were put into place, screenings and elective surgeries were put on hold at many hospitals across the country. These decisions were made to ensure there would be enough personal protective equipment (PPE) and space in intensive care units when the number of cases surged, and to protect those who were not infected from incidental exposure to the virus. Now, 4 months later, most hospitals and outpatient centers have resumed elective surgeries and screening procedures. They have also worked out the logistics for taking proper safety precautions, including nasal swab and saliva testing, PPE, social distancing, and other measures. However, the expected level of cancer screening has not returned to normal. Postponing preventive measures should lead to an increased number of future cancer cases, but in the short term, we may actually see a reduction in cancer cases because of the marked decrease in the number of outpatient diagnostic exams being done. This may be followed by a marked delay in presentation. Also, we may expect to see a dramatic shift to later stages of disease once the screening exams return to a more normal rate.

COVID-19 and Preexisting Conditions
A primary risk factor leading to poor outcomes for people infected with SARS-CoV-2 is having certain preexisting conditions, including diabetes, autoimmune disorders, obesity, heart disease, and pulmonary issues, or any combination of these problems. Having had a cancer diagnosis and/or being immunocompromised also places patients at higher risk for poor outcomes following exposure to COVID-19 (1).

Even while prevention and management remain the best options for COVID-19, the pandemic itself has had profound impacts on the management of several acute and chronic diseases. Hospitals nationwide have seen up to a 60% reduction in admissions for heart attacks (2). Overall, emergency room volumes have been down by 50% in some areas of the country, which means that people having cardiovascular and pulmonary events may not be seeking the acute care they need. Reports have emerged suggesting that COVID-19 contributes to poor outcomes in patients with diabetes because of disruptions...
caused by the pandemic, including stress, changes to routine care, diet, and physical activity (3).

**COVID-19 and Cancer Care**

Cancer care, which often involves immunotherapy, chemotherapy, tumor resection, and inpatient treatment, has been disproportionately affected by COVID-19 (4), as well. From the beginning of the pandemic, healthcare providers were concerned that patients with cancer might be a particularly susceptible subgroup of the population and at increased risk of infection. The American Cancer Society estimates that more than 16.9 million cancer survivors, about 5% of the population, are living in the United States today. Physicians have expressed concern that cancer survivors may be particularly vulnerable to COVID-19 because cancer itself and certain treatments for cancer are both known to suppress the immune system (5). Once infected, patients with cancer often progress to a more severe course of disease, with a large proportion of them requiring high levels of intensive care. In addition, they are more susceptible than patients without cancer to having a rapidly evolving disease and an increased risk of death. Different cancers vary in their effect on a patient’s risk profile. For example, people with leukemia and other blood cancers who contract the coronavirus face as much as 57% higher odds of severe disease compared with those with breast cancer (1).

Many patients with cancer have struggled to receive treatment and follow-up for their cancer due to hospitals canceling or delaying surgeries and/or alterations in the sequencing of other procedures like chemotherapy and radiotherapy. Some patients who are otherwise healthy and have curable cancers that require timely implementation of surgery, chemotherapy, or radiation have unfortunately concluded that the risk of contracting COVID-19 may outweigh the benefits of cancer treatment.

In addition, cancer screenings in the general population are down dramatically. Because of the economic downturn created by the pandemic, quite a few Americans have lost their job-provided health insurance coverage and are tightly budgeting how they spend their available family funds. This can push routine screening exams farther down their list of priorities. Unfortunately, postponing routine or scheduled cancer screening and prevention measures may lead to an increase in the number of new cancer cases that develop in the future.

The competing risks of morbidity and death from cancer versus death or serious complications from infection, and the higher lethality of COVID-19 in immunocompromised hosts creates a huge challenge for both patients and their physicians. A very recent report from the COVID-19 symptoms study smartphone application indicates that those living with cancer had a 60% increased risk of a positive COVID-19 test (6). Among patients with cancer, current treatment with chemotherapy or immunotherapy was associated with a 2.2-fold increased risk of a positive test. They found that the association between cancer and COVID-19 infection was stronger among males in total, and participants of both genders who were older than 65 years of age (6).

**Screening Recommendations for Cervical, Breast, and Colorectal Cancer**

Because the situation is changing frequently related to the impact of COVID-19, recommendations for cancer screening and prevention need to be made clear. Using the most reliable information available, we must remember what the guidelines are for preventive care (ACS or USPSTF).

**Cervical cancer**

Women’s health organizations recommend screening for cervical cancer with a Papanicolaou (Pap) test every 3 years in women who have had a normal Pap exam in the recent past. If an individual has already received the human papillomavirus (HPV) vaccine, then they can be screened every 5 years. As a reminder, cervical cancer testing (screening) should begin at age 25. Those ages 25–65 years should have a primary HPV test every 5 years. If primary HPV testing is not available, screening may be done with either a cotest that combines an HPV test with a Pap test every 5 years or a Pap test alone every 3 years.

**Breast cancer**

Many women obtain an annual mammogram for breast cancer screening. However, leading organizations that issue screening guidelines recommend that average-risk women ages 55 years and older can be screened every 2 years. If a person is 55 years or older and had a normal mammogram within the last year, they could choose to wait and have their next mammogram up to 24 months after their last one.

**Colorectal cancer**

There are several options available for colorectal cancer screening for people at average risk. For example, stool tests, such as fecal immunochemical testing or a stool DNA test (such as Cologuard), which can be done safely at home. If the stool test result is positive, the patient will need a colonoscopy. It is important for people to communicate with their doctors about the safest way to proceed with this process and proceed accordingly. Colonoscopy as a screening test is still an option, but in some areas it may be harder to get an appointment now compared with before the COVID-19 pandemic began.

**Lung cancer**

The U.S. Preventive Service Task Force recommends annual screening for lung cancer with low-dose CT in adults ages 55–80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years.
Screening Safety Measures During the Pandemic

As always, healthcare providers should be consulted to help determine which screening schedules and screening tests are recommended for each individual. Screening must be done safely, and the CDC has recommendations for healthcare facilities to reduce the risk of COVID-19 transmission:

(i) Screening centers should be available to answer questions from patients via phone or web portal before and/or after the screening procedure.

(ii) Patients should be prescreened for COVID-19–related symptoms before screening appointments.

(iii) Scheduling of appointments should allow for physical distancing among patients, and longer appointment times, if needed, to avoid crowding in waiting rooms and patient care areas.

(iv) There should be limitations on visitors other than patients and/or their caregivers into the screening facility.

(v) If not done in front of you, the screening center should be able to tell you how often equipment and surfaces are disinfected and cleaned.

(vi) Everyone, including patients and staff, should wear a face covering or face mask, where appropriate. There should be frequent handwashing and use of hand sanitizer by staff, patients, and visitors.

Pandemic experts generally agree that even after the immediate scourge of COVID-19 is over, after a large enough proportion of the worldwide population has developed immunity, we will still be living with this disease for years to come. As a result, the entire field of prevention, particularly cancer prevention, must adapt to meet this inevitability. We cannot let down our guard. COVID-19 is among us. We must spend the foreseeable future continually developing measures to keep it under control while continuing our cancer early detection efforts.

Disclosure of Potential Conflicts of Interest

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References
