Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

guidelines, and the country-specific COVID-19 case burden will dictate our actions, most likely negatively.

In west Africa, COVID-19 protocols are defined by individual institutions. Elective procedures and physical meetings are cancelled and a small number of patients are to be seen per day. Patients are educated about possible additional risk while receiving chemotherapy (ie, of contracting COVID-19 and having poorer treatment outcomes[1]) and appointments are rescheduled. Patients with a fever are referred to the emergency room. A minimum number of essential staff (in protective gear when available) will be rotated, prescriptions refilled remotely, and second-line and third-line palliative chemotherapy halted. Primary radiotherapy treatments will continue, and patients on concurrent chemoradiotherapy will only receive radiotherapy. New referrals, including emergencies, will be triaged on the basis of the effect of treatment delays on outcomes. These strategies will be reviewed as the situation evolves.

South Africa is currently at the beginning of a local epidemic. Of particular concern is the large population infected by HIV, which includes approximately 8 million people.[6] While public hospitals prepare for the first wave of COVID-19 patients, oncology services at this point are still aiming to deliver full service when possible, although follow-up outpatient services have been severely curtailed. Subsequently, adjuvant therapy will be reduced when the risk of COVID-19 outweighs the benefit of treatment to decrease avoidable cancer deaths. Primary therapy will continue in ultra-fractioned short courses to curtail treatment delays. Staff will be divided into teams consisting of core personnel.

In Sudan, despite the low COVID-19 burden, cancer centres have established a contingency plan by deferring new referrals except for emergency cases. Elective surgery, non-urgent intravenous chemotherapy, and follow-up visits are currently suspended for 2 weeks until the situation is better understood. Scheduled appointments for patients on radiotherapy are maintained; however, many remote patients are unable to travel for treatment. Inpatients can only have one visitor per day. Multidisciplinary meetings are strictly done via telecommunication. Medical teams and core support staff work as divided teams after having attended mandatory COVID-19 training sessions.

Oncologists in Africa, in the absence of centralised and resource-appropriate COVID-19 guidelines, are pragmatically safeguarding patients and the workforce while providing essential cancer care. This task is difficult considering the scarcity of cancer workforce and logistics to fight the pandemic as well as compounding health challenges.

We declare no competing interests.

*Verna Vanderpuye, Moawia Mohammed Ali Elhassan, Hannah Simonds
vanaglat@yahoo.com

National Center for Radiotherapy, Oncology and Nuclear medicine, P.O BOX KB 369. Korle Bu Teaching Hospital, Accra GQQF+6R, Ghana (VV); The National Cancer Institute, University of Gezira, Wad Madani, Sudan (MMAE); and Stellenbosch University, Stellenbosch, South Africa (HS)

1 Yu J, Ouyang W, Chua MLK, Xie C. SARS-CoV-2 transmission in patients with cancer at a tertiary care hospital in Wuhan, China. *JAMA Oncol* 2020; published online March 25. DOI:10·1001/jamaoncol.2020·0980.
2 Souadka A, Benkabbou A, Al Ahmadi B, Boutayeb S, Anass Majbar M. Preparing African anticancer centres in the COVID-19 outbreak. *Lancet Oncol* 2020; published online April 3. https:/doi.org/10.1016/S1470-2045(20)30216-3.
3 Ueda M, Martins R, Hendrie PC, et al. Managing cancer care during the COVID-19 pandemic: agility and collaboration toward a common goal. *J Natl Compr Canc Netw* 2020; published online March 20. DOI:10.6004/jnccn.2020.7560.
4 American College of Surgeons. COVID-19: elective case triage guidelines for surgical care. https://www.facs.org/covid-19/clinical-guidance/elective-case (accessed March 29, 2020).
5 Kerr DJ. How COVID-19 is already changing cancer care. https://www.medscape.com/viewarticle/926974 (accessed March 24, 2020).
6 UNAIDS. South Africa. https://www.unaids.org/en/regionscountries/countries/southafrica (accessed March 29, 2020).

The UK Coronavirus Cancer Monitoring Project: protecting patients with cancer in the era of COVID-19

Published Online
April 15, 2020
https://doi.org/10.1016/S1470-2045(20)30230-8

The UK Coronavirus Cancer Monitoring Project (UKCCMP) aims to collect, analyse, and disseminate in real time data from the UK cancer centres about severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection rates in patients with cancer, and their outcomes in terms of coronavirus disease 2019 (COVID-19). This approach will enable oncologists to gain crucial insights to inform decision making.

In December, 2019, several cases of acute respiratory syndrome in Hubei province, China were identified; these were the first described cases of COVID-19. The causative virus, SARS-CoV-2, is a new strain of betacoronavirus previously not identified in humans and thought to be of zoonotic origin.[1] The presentation of COVID-19 varies from no or minor symptoms akin to the common cold, to severe acute respiratory distress syndrome, resulting in severely impaired respiratory function.[1] SARS-CoV-2 is highly contagious through direct transfer of respiratory droplets during coughing and sneezing or indirect fomite spread via contaminated surfaces.[2] This simple transmission, coupled with international travel, has enabled rapid spread of the virus with more than 870 000 cases and 43 000 deaths reported worldwide as of April 1, 2020.[3]

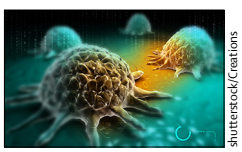
Approximately 2·5 million individuals live with, or have a history of, cancer in the UK, with 1000 new diagnoses each day.[4] Of these patients, a substantial proportion require, are undergoing, or are recovering from surgery and complex treatments. Patients with cancer potentially have increased susceptibility to SARS-CoV-2 infection and have more serious sequelae, resulting from impaired immune function due to cancer itself, cancer treatment, or both.[5,6]

Wenhua Liang and colleagues[6] reported their identification of 18 patients with cancer in a cohort of 1590 patients with COVID-19 in China, indicating an increased incidence of COVID-19 in patients with cancer compared with the general Chinese population (1·13% *vs* 0·29%). This observation was also suggested by Yu and colleagues[7] who investigated SARS-CoV-2 infection in patients with cancer at a tertiary care hospital in Wuhan. The incidence of COVID-19 in patients with cancer (12 [0·79%] of 1524 patients) was higher than in the general Wuhan population (0·37%).

Patients with specific types of cancer might be at an increased risk of COVID-19, with both these reports highlighting the high proportion of patients with lung cancer with confirmed diagnoses of COVID-19 (five of 18 patients in Liang et al,[6] and seven of 12 in Yu et al[7]). Specific cancer treatments might also differentially contribute to risk of COVID-19. Severe infection with SARS-CoV-2 is associated with cytokine storm and increased concentrations of C-reactive protein and IL-6 pneumonitis, severe adverse events that are also associated with immune checkpoint inhibitor therapy.[8] Consequently, patients on immunotherapy could be at increased risk from COVID-19. Furthermore, cytotoxic treatments used for haematological malignancies diminish lymphocyte populations, potentially rendering patients more susceptible to infection. Conversely, many cancer treatments for solid tumours have little effect on lymphocyte populations or inflammatory responses. Therefore, SARS-CoV-2 infection is highly unlikely to affect all patients with cancer equally.

The European Society of Medical Oncology has published guidelines on how to mitigate the effect of COVID-19 on patients with cancer, by prioritisation of cancer treatment in patients expected to derive a substantial absolute survival benefit, reducing hospital visits, and converting from intravenous to oral regimens.[9] However, these guidelines take a broad approach for a very heterogenous population. Policies, including self-isolation and social distancing, are widely acknowledged to be required to suppress viral spread, both in the general and at-risk populations, thereby reducing pressure on already stretched health-care resources. However, substantial reallocation of resources away from cancer care services could potentially have unintended cancer-related implications, including increased morbidity and mortality. Therefore, real-time collection, analysis, and dissemination of data from our cancer centres about SARS-CoV-2 infection rates in patients with cancer, and their disease outcomes, is needed.

The UKCCMP, launched on March 18, 2020, and aiming to involve over 90% of UK cancer centres, will achieve this goal. A Local Emergency Response Reporting Group has been created at each UK cancer centre to ensure continued updating of the UKCCMP live clinical data dissemination system. The project will collect data on patients with cancer who are positive for SARS-CoV-2 infection, including tumour type and stage, patient age, present cancer treatment, and clinical outcomes, with the aim to enable oncologists to gain crucial insights to inform decision making. Data collection, analysis, and dissemination is coordinated by the Centre for Computational Biology at the University of Birmingham, (Birmingham, UK) through a dedicated workflow hosted by the Compute and Storage for Life Science infrastructure as part of


shutterstock/Creations

For more on the **UK Coronavirus Cancer Monitoring Project** see https://ukcoronaviruscancermonitoring.com

the Birmingham Environment for Academic Research local Cloud.[10]

UKCCMP delivers meaningful real-time data to all UK cancer centres and clinicians to allow more personalised approaches to individual patient care and inform clinical decision making. This initiative will improve cancer care in the UK and beyond at this time of unprecedented global turmoil and reliance on health-care resources.

We declare no other competing interests. We thank the oncologists, acute physicians, and health-care staff working tirelessly on the frontlines of the COVID-19 pandemic. The UK Coronavirus Monitoring Project team donated time and resources to support the project. The project was initially funded through the donation of time and resources from the supporters and advocates of the project. The University of Birmingham initiated this process, with the Pro-Vice-Chancellor dedicating the computational and human resources of the University's Centre for Computational Biology, the Institute of Translational Medicine, and scientists from the Institute of Cancer and Genomic Sciences. Other academic institutions dedicating time and staff to the project include the University of Oxford, University of Leeds, University College London, Edinburgh Cancer Centre, Clatterbridge Cancer Centre, and King's College London.

The UK Coronavirus Cancer Monitoring Project team
lennard.lee@nhs.net

See Online for appendix

Members of the UK Coronavirus Cancer Monitoring Project team are listed in the appendix (p 1).

Institute of Cancer and Genomic Sciences, University of Birmingham, Birmingham B15 2TT, UK

1 Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020; **395:** 497–506.
2 Report of the WHO-China joint mission on coronavirus disease 2019 (COVID-19). Geneva: World Health Organization, Feb 16–24, 2020. https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf (accessed April 9, 2020).
3 Coronavirus COVID-19 global cases by the Center for Systems Science and Engineering at Johns Hopkins University (JHU). Baltimore, MD: John Hopkins University, 2020. https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6 (accessed March 26, 2020).
4 Macmillan Cancer Support. Cancer in numbers. Macmillan Cancer Support, 2020. https://www.macmillan.org.uk/about-us/media-centre/facts-and-figures/cancer-in-numbers.html (accessed March 31, 2020).
5 Guan W, Ni Z, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med* 2020; published online Feb 28. DOI:10.1056/NEJMoa2002032.
6 Liang W, Guan W, Chen R, et al. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *Lancet Oncol* 2020; **21:** 335–37.
7 Yu J, Ouyang W, Chua MLK, Xie C. SARS-CoV-2 transmission in patients with cancer at a tertiary care hospital in Wuhan, China. *JAMA Oncol* 2020; published online March 25. DOI:10.1001/jamaoncol.2020.0980.
8 Wu C, Chen X, Cai Y, et al. Risk factors associated with acute respiratory distress syndrome and death in patients with coronavirus disease 2019 pneumonia in Wuhan, China. *JAMA Intern Med* 2020; published online March 13. DOI:10.1001/jamainternmed.2020.0994.
9 What should medical oncologists know about COVID-19? European Society for Medical Oncology, 2020. https://www.esmo.org/newsroom/covid-19-and-cancer/q-a-on-covid-19 (accessed March 26, 2020).
10 Thompson SJ, Thompson SEM, Cazier J-B. CaStLeS (Compute and Storage for the Life Sciences): a collection of compute and storage resources for supporting research at the University of Birmingham. Birmingham: Birmingham Environment for Academic Research, June 20, 2019. https://zenodo.org/record/3250616#.XoyEUqhKjIU (accessed April 7, 2020).

Recommendations from national regulatory agencies for ongoing cancer trials during the COVID-19 pandemic

Published Online
April 8, 2020
https://doi.org/10.1016/S1470-2045(20)30226-6

Clinical research has transformed cancer care and is often integrated seamlessly into routine oncology clinics, offering eligible patients additional treatment options or lines of therapy. Typically, and particularly for diseases with poor prognoses or when trials entail biomarker-directed personalised treatment, clinical trial enrolment can be preferred (by both doctors and patients) over standard care.[1]

However, many barriers already preclude patients' participation in clinical trials, with only a small proportion enrolled in interventional trials.[2] The coronavirus disease 2019 (COVID-19) pandemic presents an additional major barrier to patients' enrolment and ongoing participation in clinical trials. Institutions are adapting their oncology practice, considering alternative treatment strategies to appropriately balance risks and benefits, despite the absolute individual risk increases from COVID-19 for patients being currently unknown.[3]

The US Food and Drug Administration (FDA) and other international bodies have released guidance for sponsors and study sites to ensure the safety of trial participants while maintaining compliance with Good Clinical Practice and minimising risks to study integrity. This guidance is summarised in the panel.[4–10]

Although this guidance is very welcome and helpful, specific considerations must be made for each trial, in view of the wide variety of study types, relative complexities, and perceived risks and benefits. Many study sites and sponsors have already stopped study enrolment, and it is not clear when these studies will reopen because of the probable prolonged effects of the COVID-19 pandemic. For patients on study treatment, the difficult decision to stop or carry on with the investigational medical product or other study treatments should be discussed between