Cancer Biology

Cancer and COVID-19

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Abstract: Cancer is the general name for a group of more than 100 diseases. Although there are many kinds of cancer, all cancers start because abnormal cells grow out of control. Untreated cancers can cause serious illness and death. The body is made up of trillions of living cells. Normal body cells grow, divide, and die in an orderly fashion. During the early years of a person's life, normal cells divide faster to allow the person to grow. After the person becomes an adult, most cells divide only to replace worn-out or dying cells or to repair injuries. This article introduces recent research reports as references in the related studies.
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Key words: cancer; COVID-19; life; research; literature; cell

1. Introduction

Cancer is the general name for a group of more than 100 diseases. Although there are many kinds of cancer, all cancers start because abnormal cells grow out of control. Untreated cancers can cause serious illness and death. The body is made up of trillions of living cells. Normal body cells grow, divide, and die in an orderly fashion. During the early years of a person's life, normal cells divide faster to allow the person to grow. After the person becomes an adult, most cells divide only to replace worn-out or dying cells or to repair injuries.

The following introduces recent reports as references in the related studies.

Agha, M., et al. (2021). "A Population-Based Study of COVID-19 Infection Among Childhood Cancer Survivors." Front Med (Lausanne) **8**: 718316.

Childhood cancer survivors are known to be at risk of chronic co-morbidities, although their risk of COVID-19 infection remains uncertain. Understanding the risk of COVID-19 in this population is necessary to counsel survivors and inform potential mitigation strategies. The objective of this study was to determine whether the rates of COVID-19 infection differed between childhood cancer survivors and the general population. Administrative health care data from a population-based registry of children and adolescents diagnosed with cancer in Ontario, Canada, were linked with a universal health insurance registry and a repository of laboratory data. Rates of COVID-19 testing, test positivity and infection between March 1, 2020 and March 31, 2021 among childhood cancer survivors (n = 10 242) were compared to matched controls from the general population (n = 49 068).

Compared to the general population, childhood cancer survivors were more likely to have COVID-19 testing (35.9% [95% CI, 34.5-37.4%] vs. 32.0% [95% CI, 31.4-32.6%]), but had a lower likelihood of positive COVID-19 result among those tested (4.3% [95% CI, 3.6-4.9%] vs. 5.5% [95% CI, 5.1-5.8%]) and a similar rate of infection among all subjects at risk (1.5% [95% CI, 1.3-1.8%] vs. 1.7% [95% CI, 1.6-1.9%]). These findings can inform counseling of survivors and clinician recommendations for this population.

Babady, N. E., et al. (2021). "Variable duration of viral shedding in cancer patients with coronavirus disease 2019 (COVID-19)." Infect Control Hosp Epidemiol: 1-3.

In this retrospective study of 105 severe acute respiratory coronavirus virus 2 (SARS-CoV-2)-infected cancer patients with longitudinal nasopharyngeal sampling, the duration of viral shedding and time to attain cycle threshold >30 was longer in patients with hematologic malignancy than in those with solid tumors. These findings have important public health implications.

Barrett, R., et al. (2021). "Gonadorelins adherence in prostate cancer: A time-series analysis of England's national prescriptions during the COVID-19 pandemic (from Jan 2019 to Oct 2020)." BJUI Compass.

Objective: To examine the effect of the COVID-19 pandemic on gonadorelin analogue prescription for community patients in England. Materials and methods: We included data from all primary-care patients who had relevant prescriptions dispensed in the community in England. Descriptive statistics and interrupted time series analysis over 22 months (15 months before and 7 months after

lockdown) was evaluated. Results: A total of 22 months' worth of data were analyzed (or 1 041 638 total items, monthly average 47 347 items). Goserelin; leuprorelin, and triptorelin are the medicines most used by total quantity in the study period. Simple descriptive statistics show that mean values have declined during the pandemic. The Interrupted Time Series (ARIMA Modeling) shows declining trends.After the pandemic's onset, we observe a statistically significant downward trend for goserelin (P = .017) and leuprorelin (P = .014). As these are the major constituents of the model, we interpret this overall data as showing a significant downward category trend. Aside from linearity, a significant step change was noted for leuprorelin (P = .029) showing an increase in prescription items with a similar effect that is close to being statistically significant for goserelin (P = .051).The actual cost of medicines shows minimal variation suggesting that prices of individual medicines have remained stable. The regional data showed variation but this was not statistically significant. In all cases, the Oct-20 figures are lower "year on year." This novel work reports the impact of a global pandemic on prescription volumes of prostate cancer (PCa) medicines. Conclusions: A worrying decrease in prescription medicines raises concerns for the care of PCa patients. We encourage diagnosed patients to discuss their planned care with their doctor.

Bhalla, S., et al. (2021). "Care disruptions among patients with lung cancer: A COVID-19 and cancer outcomes study." Lung Cancer **160**: 78-83.

INTRODUCTION: Patients with lung cancer (LC) are susceptible to severe outcomes from COVID-19. This study evaluated disruption to care of patients with LC during the COVID-19 pandemic. METHODS: The COVID-19 and Cancer Outcomes Study (CCOS) is a prospective cohort study comprised of patients with a current or past history of hematological or solid malignancies with outpatient visits between March 2 and March 6, 2020, at two academic cancer centers in the Northeastern United States (US). Data was collected for the three months prior to the index week (baseline period) and the following three months (pandemic period). RESULTS: 313 of 2365 patients had LC, 1578 had other solid tumors, and 474 had hematological malignancies. Patients with LC were not at increased risk of COVID-19 diagnosis compared to patients with other solid or hematological malignancies. When comparing data from the pandemic period to the baseline period, patients with LC were more likely to have a decrease in in-person visits compared to patients with other solid tumors (aOR 1.94; 95% CI, 1.46-2.58), but without an increase in telehealth visits (aOR 1.13; 95% CI 0.85-1.50). Patients with LC were more likely to experience pandemic-related treatment delays than patients with other solid tumors (aOR 1.80; 95% CI 1.13-2.80) and were more likely to experience imaging/diagnostic procedure delays than patients with other solid tumors (aOR 2.59; 95% CI, 1.46-4.47) and hematological malignancies (aOR 2.01; 95% CI, 1.02-3.93). Among patients on systemic therapy, patients with LC were also at increased risk for decreased in-person visits and increased treatment delays compared to those with other solid tumors. DISCUSSION: Patients with LC experienced increased cancer care disruption compared to patients with other malignancies during the early phase of the COVID-19 pandemic. Focused efforts to ensure continuity of care for this patient population are warranted.

Bondeson, L., et al. (2021). "Clinical outcomes in cancer patients with COVID-19 in Sweden." Acta Oncol: 1-8.

BACKGROUND: The results of studies on the relationship between cancer and COVID-19 have been conflicting and therefore further studies are needed. We aimed to examine the incidence of COVID-19 among patients at one of the largest oncology departments in Sweden, and to evaluate and identify risk factors for poor outcomes, hospital care and death, associated with COVID-19 among cancer patients. MATERIAL AND METHODS: This retrospective study included cancer patients at a single center who tested positive for SARS-CoV-2 by PCR either in hospital, primary health care center or commercial laboratory between 1 March and 14 August 2020. Clinical and demographic data were collected from the medical records. Logistic regression analysis was used to identify variables that associated the primary outcomes of need for hospital care and death within 30 days of positive test. RESULTS: Of 10,774 patients from the Department of Oncology at Sahlgrenska University Hospital, 135 tested positive for SARS-CoV-2 (1.3%). Twenty-eight patients were excluded from further the data collection since they did not meet the inclusion criteria. Altogether, 107 cancer patients were included and the case fatality rate (CFR) was 12% (13) within 30 days of confirmed SARS-CoV-2 infection by PCR. Increasing years of age (OR 1.10; CI 95% 1.03-1.18), palliative treatment intent (OR 15.7; CI 95% 1.8-135.8), and transition to end-of-life care (OR 52.0; CI 95% 3.7-735.6) were associated with increased odds of death within 30 days. Male sex was associated with needing hospital care (OR 3.7; CI 95% 1.50-9.1). CONCLUSION: As in the general population, male sex was found to be at greater risk of needing hospital care for COVID-19, with terminal cancer disease, and older age increasing the odds of fatality. Compared to the general population, slightly more cancer patients had COVID-19. The CFR was within the lower range of others reported in cancer patients.

Bourgin, M., et al. (2021). "Circulating acetylated polyamines correlate with Covid-19 severity in cancer patients." Aging (Albany NY) **13**(17): 20860-20885.

Cancer patients are particularly susceptible to the development of severe Covid-19, prompting us to investigate the serum metabolome of 204 cancer patients enrolled in the ONCOVID trial. We previously described that the immunosuppressive tryptophan/kynurenine metabolite anthranilic acid correlates with poor prognosis in non-cancer patients. In cancer patients, we observed an elevation of anthranilic acid at baseline (without Covid-19 diagnosis) and no further increase with mild or severe Covid-19. We found that, in cancer patients, Covid-19 severity was associated with the depletion of two bacterial metabolites, indole-3-proprionate and 3-phenylproprionate, that both positively correlated with the levels of several inflammatory cytokines. Most importantly, we observed that the levels of acetylated polyamines (in particular N1-acetylspermidine, N1,N8-diacetylspermidine and N1,N12-diacetylspermine), alone or in aggregate, were elevated in severe Covid-19 cancer patients requiring hospitalization as compared to uninfected cancer patients or cancer patients with mild Covid-19. N1-acetylspermidine and N1,N8-diacetylspermidine were also increased in patients exhibiting prolonged viral shedding (>40 days). An abundant literature indicates that such acetylated polyamines increase in the serum from patients with cancer, cardiovascular disease or neurodegeneration, associated with poor prognosis. Our present work supports the contention that acetylated polyamines are associated with severe Covid-19, both in the general population and in patients with malignant disease. Severe Covid-19 is characterized by a specific metabolomic signature suggestive of the overactivation of spermine/spermidine N1-acetyl transferase-1 (SAT1), which catalyzes the first step of polyamine catabolism.

Buti, S., et al. (2021). "Clinical Impact of COVID-19 Outbreak on Cancer Patients: A Retrospective Study." Clin Med Insights Oncol **15**: 11795549211043427.

Background: Coronavirus disease (COVID-19), an acute respiratory syndrome caused by a novel severe acute respiratory syndrome coronavirus (SARS-CoV-2), has rapidly spread worldwide, significantly affecting the outcome of a highly vulnerable group such as cancer patients. The aim of the present study was to evaluate the clinical impact of COVID-19 infection on outcome and oncologic treatment of cancer patients. Patient and methods: We retrospectively enrolled cancer patients with laboratory and/or radiologic confirmed SARS-CoV-2 infection, admitted to our center from February to April 2020. Descriptive statistics were used to summarize the clinical data and univariate analyses were performed to investigate the impact of anticancer treatment modifications due to COVID-19 outbreak on the short-term overall survival (OS). Results: Among 61 patients enrolled, 49 (80%) were undergoing anticancer treatment and 41 (67%) had metastatic disease. Most patients were men; median age was 68 years. Median OS was 46.6 days (40% of deaths occurred within 20 days from COVID-19 diagnosis). Among 59 patients with available data on therapeutic course, 46 experienced consequences on their anticancer treatment schedule. Interruption or a starting failure of the oncologic therapy correlated with significant shorter OS. Anticancer treatment delays did not negatively affect the OS. Lymphocytopenia development after COVID was significantly associated with worst outcome. Conclusions: COVID-19 diagnosis in cancer patients may affect their short-term OS, especially in case of interruption/starting failure of cancer therapy. Maintaining/delaying cancer therapy seems not to influence the outcome in selected patients with recent COVID-19 diagnosis.

Campos, M. L. M., et al. (2021). "Towards Machine-Readable (Meta) Data and the FAIR Value for Artificial Intelligence Exploration of COVID-19 and Cancer Research Data." Front Big Data **4**: 656553.

Canturk, N. Z., et al. (2021). "The new normal for breast cancer surgery during COVID-19 pandemic: An international survey conducted by SENATURK." J BUON **26**(4): 1405-1414.

PURPOSE: The COVID-19 pandemic has changed the way many health institutions approach their workload. Physicians managing patients with cancer now have to deal not only with the disease but also the restrictions and limitations imposed because of the global pandemic. We aimed to determine how surgical preferences in breast cancer management were affected globally using a questionnaire-based survey. METHODS: Under the auspices of the Turkish Senology Society (SENATURK) we asked 122 surgeons from 27 countries to reply to a 26-question survey designed to measure the impact of COVID-19 on their surgical practice when treating patients with breast cancer. RESULTS: The characteristics of participant surgeons were statistically similar when comparing the participants' answers from Turkey and other countries. From the responses given to our questionnaire, it was understood that breast cancer surgery decreased by 25% (p<0.05) in institutions all over the world, including Turkey, but there was no change in the approach technique to the axilla. CONCLUSIONS: Globally breast surgeons have adapted to the new normal due to the COVID-19 pandemic. Many surgical approaches and some follow up protocols have been changed, although the degree of change has varied from country to country. In addition, the availability of multidisciplinary case conferences

has been reduced in some centers which may affect the quality of services provided to patients.

Cavanna, L., et al. (2021). "COVID-19 Vaccines in Cancer Patients. Seropositivity and Safety. Systematic Review and Meta-Analysis." Vaccines (Basel) **9**(9).

Patients with cancer are among the most vulnerable groups of the COVID-19 pandemic, whereas vaccinations can represent a cornerstone in overcoming the pandemic itself. However, cancer patients were excluded from clinical trials for COVID-19 vaccinations, and thus the data on the immunogenicity and safety of COVID-19 vaccines in cancer patients are limited. In this systematic review, we assessed the seroconversion rate and the safety of COVID-19 vaccinations in cancer patients. We searched a bibliographic database up until 31 July 2021. Utilizing inclusion criteria, six studies were selected and analyzed for this meta-analysis. This included 621 cancer patients and 256 controls. Results show that patients with solid tumors show adequate antibody responses (>90%), though the antibody titers were significantly lower than those of healthy controls. Similarly, a significantly lower rate of seroconversion was registered in patients with hematologic malignances. The vaccines showed a good safety profile; no grade 3-4 adverse events were registered. This review demonstrates generally high immunogenicity from COVID-19 vaccines in patients with cancer, with better results for solid tumors than hematological malignancies, and with a good safety profile.

Chazan, G., et al. (2021). "Impact of COVID-19 on cancer service delivery: a follow-up international survey of oncology clinicians." ESMO Open **6**(5): 100224.

BACKGROUND: The COVID-19 pandemic has had a vast impact on cancer service delivery around the world. Previously reported results from our international survey of oncology clinicians, conducted through March-April 2020, found that clinicians reported altering management in both the curative and palliative settings and not in proportion to the COVID-19 case burden in their region of practice. This follow-up survey, conducted from 27(th) September to 7(th) November 2020, aimed to explore how attitudes and practices evolved over the 2020 pandemic period. PARTICIPANTS AND METHODS: Participants were medical, radiation and surgical oncologist and trainees. Surveys were distributed electronically via ESMO and other collaborating professional societies. Participants were asked to compare their practice prior to the pandemic to both the period of March-April 2020, referred to as the 'early' period, and the current survey period, referred to as the 'later' period. RESULTS: One hundred and seventy-two oncology clinicians completed the survey. The majority of respondents were medical oncologists (n = 136, 79%) and many were from Europe (n = 82, 48%). In the 'early' period, 88% (n = 133) of clinicians reported altering their practice compared to 63% (n = 96) in the 'later' period. Compared to prior to the pandemic, clinicians reported fewer new patient presentations in the 'early' period and a trend towards more patients presenting with advanced disease in the 'later' period. CONCLUSIONS: Results indicate a swing back towards pre-COVID-19 practices despite an increase in the rate of cumulative COVID-19 cases across 2020. The impact of these changes on cancer associated morbidity and mortality remains to be measured over the months and years to come.

Chen, K., et al. (2021). "Effectiveness of telerehabilitation on short-term quality of life of patients after esophageal cancer surgery during COVID-19: a single-center, randomized, controlled study." J Gastrointest Oncol **12**(4): 1255-1264.

Background: The occurrence of postoperative complications may lead to delayed recovery and a decline in physical function in the first 3 months after esophagectomy. The outbreak of COVID-19 imposed physical and emotional obstacles for traditional face-to-face rehabilitation. Meanwhile, the effectiveness of telerehabilitation remained unknown. In this study, we aimed to investigate the effectiveness of telerehabilitation. Methods: A cohort of 86 patients who received minimally invasive esophagectomy between September 2020 and January 2021 was randomly allocated into two groups. The telerehabilitation group received additional online consulting and training, including (I) precautions for nutritional support; (II) swallowing function training; (III) respiratory function training; (IV) guidance and feedback on matters such as patient's current vital signs, wound status, medication, and sleep status. The primary outcome was the change of quality of life (QOL) of each patient at 3 months after surgery. Results: No serious adverse events were observed in either group. The telerehabilitation group showed significant improvements in pain using the OLQ-C30 scale (P<0.001), and in choking using the QLQ-OES18 scale (P<0.001). The comparison of the QLQ-C30 and QES-18 score changes at three months after discharge revealed that nearly all aspects in the telerehabilitation group displayed more score changes with significant changes in the appetite loss and pain part (P<0.001 and P<0.05, respectively). The score changes in QLQ-OES18 revealed significant improvement in swallowing saliva (P<0.05), as well slight improvements in choking, dry mouth, taste, and cough without significance. Conclusions: Our study demonstrated that telerehabilitation was at least an important supplement to traditional face-to-face consulting and training for patients after esophageal cancer surgery during the COVID-19 period. Trial

Registration: Chinese Clinical Trial Registry ChiCTR2100049186.

Citgez, B., et al. (2021). "The change in incidence of breast cancer by stage: how is it changed after the COVID-19 pandemic? A single-center retrospective study." Ann Ital Chir **10**.

AIM: The impact of COVID-19 pandemic is pronounced in each healthcare process, including the management of breast cancer. The anxiety of COVID-19 changes patient preferences and some delay in routine controls and surgical managements occur. Some disintegration in medical care is to be expected during the pandemic, but the new coping strategies are needed in order to avoid delayed diagnosis of breast cancer. METHODS: A total number of 140 patients assigned for biopsy and diagnosed with breast cancer in our tertiary clinic between December 1st and August 31st were classified into 3 groups; A (December-February), B (March-May) and C (June-August) in order to compare the stage of breast cancer at the time of diagnosis before, during and after the peak period of pandemic. Clinical stage and age at presentation, family history of breast, ovarian and other types of cancer, BRCA (genetic testing), menopausal status, side of involvement (uni- or bilateral), histopathologic subtype, receptor positivity and molecular subtype were recorded for each patient. RESULTS: Group A included 20 stage I (27.77 %), 32 stage II (44.44 %), 16 stage III (22.22 %) and 4 stage IV (5.55 %) breast cancer patients. Group B had 5 stage I (22.72 %), 8 stage II (36.36 %), 7 stage III (31.81 %) and 2 stage IV (9.09 %) breast cancer patients. Whereas in group C there were 4 stage I (8.69 %), 21 stage II (45.65 %), 16 stage III (34.78 %) and 5 stage IV (10.86 %) patients with breast cancer. The number of late-stage cancer patients in group C was significantly higher in comparison with the other groups (p<0.05). CONCLUSION: We speculate that the change in incidence of breast cancer by stage is attributable to a delay in the diagnosis of breast cancer due to COVID-19 related restrictions and presentation of new cases at more advanced stages once the restrictions were eased. KEY WORDS: Biopsy, Breast cancer, COVID-19, PandemicStage.

de Degani, G. L., et al. (2021). "The impact of the COVID-19 pandemic on cancer care in the public health subsector, province of Santa Fe, Argentina." Ecancermedicalscience **15**: 1270.

Introduction: The severe acute respiratory syndrome coronavirus 2 pandemic coronavirus disease (COVID-19) and the measures taken to lessen its impact have had side effects affecting timely care of other diseases. The aim of this paper is to quantify the impact of the pandemic on the cancer care line in the province of Santa Fe, Argentina. Method: It is an observational cross-sectional study comparing the impact on selected variables of the pre-pandemic and intra-pandemic periods. The formula of percentage variation was used to show the differences. The positivity index was calculated and expressed as a percentage. The proportions of both periods were compared through the chi-squared test and its p-value. Results: Reductions were observed in all the variables under study. However, the deeper impact was evident in screening, with 56%-87% decreases in the number of procedures carried out. A 26% reduction was seen in diagnosis. Treatment was the variable with the least impact, with a 3% decrease. Discussion: COVID-19 as well as the measures taken to reduce its impact caused alterations in the cancer care line in the province, with clear differences according to the variable under study. Measures related to cancer screening were displaced, prioritising the care of patients already diagnosed and treated. Conclusion: Considering the new increase in the number of COVID-19 cases, it is essential to adapt the healthcare system, and design new innovative strategies to reduce long-term consequences.

Demirci, A., et al. (2021). "Has the COVID-19 Pandemic Increased Mortality Among Patients with Cancer Receiving Systemic Anticancer Treatments?" J Coll Physicians Surg Pak **31**(1): S66-S70.

OBJECTIVE: To evaluate the mortality rates in patients receiving anticancer therapy in the coronavirus disease-19 (COVID-19) pandemic period. STUDY DESIGN: Descriptive study. PLACE AND DURATION OF STUDY: Department of Medical Oncology, Sakarya University Training and Research Hospital, Sakarya, Turkey, from December 2017 to May 2020. METHODOLOGY: Only patients who received chemotherapy and immunotherapy were selected and enrolled in the study. All patients (n=3,204) were divided into three groups, namely the first group (1st December 2017-31st May 2018, n=918), second group (1st December 2018-31st May 2019, n=1,147), and the pandemic period group (PPG) (1st December 2019-31st May 2020, n=1,139), according to the period during which they received anticancer treatment. The clinical and demographic characteristics and mortality rates of these three groups of patients were compared. RESULTS: The median age of the total of 3,204 patients was 61 (53-69). In this study, 51.1% (n=1,636) were females and 48.9% were males. The mortality rates were 13.5% (n=124) in the first group, 13.4% (n=154) in the second group, and 13.0% (n=148) in the PPG, respectively. Overall mortality rates did not differ among patients with cancer in the three different six-month periods analysed (p = 0.931). CONCLUSION: There was no unexpected increased in mortality rate among patients undergoing cancer therapy during the COVID-19 pandemic as compared to the previous years of the same timeline.

No increase in monthly mortality rates among patients receiving anti-cancer treatment were demonstrated during the pandemic period.

Desai, A., et al. (2021). "COVID-19 and Cancer: A Review of the Registry-Based Pandemic Response." JAMA Oncol.

Importance: The COVID-19 pandemic has had consequences for patients with cancer worldwide and has been associated with delays in diagnosis, interruption of treatment and follow-up care, and increases in overall infection rates and premature mortality. Observations: Despite the challenges experienced during the pandemic, the global oncology community has responded with an unprecedented level of investigation, collaboration, and technological innovation through the rapid development of COVID-19 registries that have allowed an increased understanding of the natural history, risk factors, and outcomes of patients with cancer who are diagnosed with COVID-19. This review describes 14 major registries comprising more than 28 500 patients with cancer and COVID-19; these ongoing registry efforts have provided an improved understanding of the impact and outcomes of COVID-19 among patients with cancer. Conclusions and Relevance: An initiative is needed to promote active collaboration between different registries to improve the quality and consistency of information. Well-designed prospective and randomized clinical trials are needed to collect high-level evidence to guide long-term epidemiologic, behavioral, and clinical decision-making for this and future pandemics.

Diamond, L. M., et al. (2021). "Vaccinations against human papillomavirus missed because of COVID-19 may lead to a rise in preventable cervical cancer." CMAJ **193**(37): E1467.

Diers, J., et al. (2021). "Fewer Operations for Cancer in Germany During the First Wave of COVID-19 in 2020." Dtsch Arztebl Int **118**(27-28): 481-482.

Dilawari, A., et al. (2021). "Medical care disruptions during the first six months of the COVID-19 pandemic: the experience of older breast cancer survivors." Breast Cancer Res Treat.

PURPOSE: Older cancer survivors required medical care during the COVID-19 pandemic, but there are limited data on medical care in this age group. METHODS: We evaluated care disruptions in a longitudinal cohort of non-metastatic breast cancer survivors aged 60-98 from five US regions (n = 321). Survivors completed a web-based or telephone survey from May 27, 2020 to September 11, 2020. Care disruptions included interruptions in seeing or speaking to doctors, receiving medical treatment or supportive therapies, or filling prescriptions since the pandemic began. Logistic regression models evaluated associations between care disruptions and education, medical, psychosocial, and COVID-19-related factors. Multivariate models included age, county COVID-19 death rates, comorbidity, and post-diagnosis time. RESULTS: There was a high response rate (n = 262, 81.6%). Survivors were 32.2 months post-diagnosis (SD 17.5, range 4-73). Nearly half (48%) reported a medical disruption. The unadjusted odds of care disruptions were higher with each year of education (OR 1.22, 95% CI 1.08-1.37, p = < 0.001) and increased depression by CES-D score (OR 1.04, CI 1.003-1.08, p = 0.033) while increased tangible support decreased the odds of disruptions (OR 0.99, 95% CI 0.97-0.99, p = 0.012). There was a trend between disruptions and comorbidities (unadjusted OR 1.13 per comorbidity, 95% CI 0.99-1.29, p = 0.07). Adjusting for covariates, higher education years (OR1.23, 95% CI 1.09-1.39, p = 0.001) and tangible social support (OR 0.98 95% CI 0.97-1.00, p = 0.006) remained significantly associated with having care disruptions. CONCLUSION: Older breast cancer survivors reported high rates of medical care disruptions during the COVID-19 pandemic and psychosocial factors were associated with care disruptions. CLINICALTRIALS. GOV IDENTIFIER: NCT03451383.

Dontchos, B. N., et al. (2021). "Disparities in Same-Day Diagnostic Imaging in Breast Cancer Screening: Impact of an Immediate-Read Screening Mammography Program Implemented During the COVID-19 Pandemic." AJR Am J Roentgenol.

Background: The need for second visits between screening mammograms and diagnostic imaging contributes to disparities in the time to breast cancer diagnosis. During the COVID-19 pandemic, we implemented an immediate-read screening mammography program to reduce patient visits and decrease time to diagnostic imaging. Objective: To measure the impact of an immediate-read screening program, with focus on disparities in sameday diagnostic imaging after abnormal screening mammograms. Methods: In May 2020, we implemented an immediate-read screening program whereby a dedicated breast imaging radiologist interprets all screening mammograms in real-time; patients receive results before discharge, and efforts are made to perform any recommended diagnostic imaging during the visit (performed by different radiologists). We retrospectively identified screening mammograms performed from 6/1/2019-10/31/2019 (pre-implementation) or 6/1/2020-10/31/2020 (post-implementation). Patient characteristics were recorded from the electronic medical record. Multivariable logistic regression models incorporating patient age, race and ethnicity, language, and insurance type were estimated to identify factors associated with same-day diagnostic imaging. Screening metrics were compared

between periods. Results: A total of 8,222 pre-implementation and 7,235 post-implementation screening examinations were included; 521 and 359 patients had abnormal screening examinations, respectively. A total of 14.8% and 60.7% of patients, respectively, had same-day diagnostic imaging after abnormal screening mammograms. Pre-implementation, patients with other races had significantly lower odds than White patients of same-day diagnostic imaging after abnormal screening examinations (adjusted odds ratio: 0.30; 95% CI: 0.10, 0.86; p=.03). Post-implementation, odds of same-day diagnostic imaging was not significantly different between patients with other races and White patients (adjusted odds ratio: 0.92; 95% CI: 0.50, 1.71; p=.80). Post-implementation, patients with and without same-day diagnostic imaging after abnormal screening mammograms showed no significant difference in race and ethnicity (p>.05). Abnormal interpretation rate was significantly lower post-implementation than pre-implementation (5.0% vs 6.3%, respectively; p<.001). Pre- and post-implementation periods were not significantly different (p>.05) in cancer detection rate or PPV1. Conclusion: The immediate-read screening mammography program reduced prior racial and ethnic disparities in same-day diagnostic imaging after abnormal screening mammograms. Clinical Impact: An immediate-read screening program provides a new paradigm for improved screening mammography workflow that allows more rapid diagnostic workup with reduced care disparities.

Edge, R., et al. (2021). "Cancer care disruption and reorganisation during the COVID-19 pandemic in Australia: A patient, carer and healthcare worker perspective." PLoS One **16**(9): e0257420.

The COVID-19 pandemic has dramatically impacted cancer care worldwide. Disruptions have been seen across all facets of care. While the long-term impact of COVID-19 remains unclear, the immediate impacts on patients, their carers and the healthcare workforce are increasingly evident. This study describes disruptions and reorganisation of cancer services in Australia since the onset of COVID-19, from the perspectives of people affected by cancer and healthcare workers. Two separate online cross-sectional surveys were completed by: a) cancer patients, survivors, carers, family members or friends (n = 852) and b) healthcare workers (n = 150). Descriptive analyses of quantitative survey data were conducted, followed by inductive thematic content analyses of qualitative survey responses relating to cancer care disruption and perceptions of telehealth. Overall, 42% of cancer patients and survivors reported experiencing some level of care disruption. A further 43% of healthcare workers reported atypical delays in delivering cancer care, and 50% agreed that patient

access to research and clinical trials had been reduced. Almost three quarters (73%) of patients and carers reported using telehealth following the onset of COVID-19, with high overall satisfaction. However, gaps were identified in provision of psychological support and 20% of participants reported that they were unlikely to use telehealth again. The reorganisation of cancer care increased the psychological and practical burden on carers, with hospital visitation restrictions and appointment changes reducing their ability to provide essential support. COVID-19 has exacerbated a stressful and uncertain time for people affected by cancer and healthcare workers. Service reconfiguration and the adoption of telehealth have been essential adaptations for the pandemic response, offering long-term value. However, our findings highlight the need to better integrate psychosocial support and the important role of carers into evolving pandemic response measures. Learnings from this study could inform service improvements that would benefit patients and carers longer-term.

Elliott, L. and M. Sharma (2021). "Teledermatology 2 week wait skin cancer referrals during the COVID-19 pandemic: A service evaluation." Clin Exp Dermatol.

With the impact of the COVID-19 pandemic, the British Association of Dermatologists (BAD) advised the use of teledermatology for skin cancer referrals from primary to secondary care (1). However, a disproportionate increase in two-week wait (2WW) referrals to secondary care dermatology was noted.

Erdmann, F., et al. (2021). "Impact of the COVID-19 pandemic on incidence, time of diagnosis and delivery of healthcare among paediatric oncology patients in Germany in 2020: Evidence from the German Childhood Cancer Registry and a qualitative survey." Lancet Reg Health Eur: 100188.

Background: The indirect impact of the COVID-19 pandemic on cancer care and timely diagnosis is of increasing concern. We investigated the impact of the COVID-19 pandemic on incidence, time of diagnosis and delivery of healthcare among paediatric oncology patients in Germany in 2020. Methods: We analysed incident paediatric cancer cases diagnosed in 0- to 17-year olds in Germany in 2020 using data of the German Childhood Cancer Registry. Absolute numbers and age-standardised incidence rates (ASR) in 2020 were compared to the previous five years (2015-2019). Moreover, we conducted a survey with open-ended questions, gathering perceptions of the diagnostic process and healthcare delivery for paediatric oncology patients during the COVID-19 pandemic. Findings: More or similar numbers of paediatric cancer patients were newly diagnosed each month throughout 2020 in comparison to the previous five years. The estimated ASRs showed markedly higher incidence rates, overall and across diagnostic

groups, in 2020 compared to 2015-2019. Results from the qualitative survey indicated that diagnostic processes, timeliness of diagnosis, and delivery of treatment were hardly affected during the COVID-19 pandemic. However, psychosocial supportive care and non-urgent appointments were considerably reduced during the lockdown periods. Interpretation: We found no indications of severe adverse effects of the COVID-19 pandemic on diagnosis and delivery of healthcare among children with cancer in Germany. The underlying reasons of the increase in incidence rates remain speculative. Continued close monitoring of incidence patterns may shed light on the underlying reasons of the present increase and contribute to understanding disease aetiology. Funding: None.

Fang, H., et al. (2021). "New wine in old bottles: (68)Ga-PSMA-11 PET/CT reveals COVID-19 in patients with prostate cancer." Am J Nucl Med Mol Imaging **11**(4): 332-336.

The COVID-19 pandemic continues to influence every aspect of human life across the globe. It was reported that vascular angiogenesis of COVID-19 was elevated in patients with equally severe influenza virus infection. In this issue of AJNMMI, Farolfi et al. reported that there was lung uptake not related to prostate cancer in almost all COVID-19 patients who performed (68)Ga-PSMA-11 PET/CT scans and most of the lung uptake lesions were matched with typical CT patterns of COVID-19. With the advantages of having various tracers for whole-body imaging, PET provides opportunities to study the mechanism of COVID-19 from different aspects and obtain patterns of extrapulmonary lesions in COVID-19, which helps explore more effective treatments for the patients. This case series opened the door to many future studies. Furthermore, such a multi-national/multi-institutional collaboration in the pandemic truly encouraged us that science is indeed without borders.

Fedewa, S. A., et al. (2021). "Changes in breast cancer screening rates among 32 community health centers during the COVID-19 pandemic." Cancer.

BACKGROUND: Breast cancer screening utilization steeply dropped at the start of the coronavirus disease 2019 (COVID-19) pandemic. However, the effects on breast cancer screening in lower income populations are unknown. This study examined changes in breast cancer screening rates (BCSRs) during the pandemic among 32 community health centers (CHCs) that provided health care to lower income populations. METHODS: Secondary data from 32 CHCs participating in an American Cancer Society grant program to increase breast cancer screening services were used. BCSRs were defined as the percentage of women aged 50 to 74 years who had a medical visit in the past 12 months (142,207 in 2018,

142,003 in 2019, and 150,630 in 2020) and received a screening mammogram within the last 27 months. BCSRs in July 2020, July 2019, and June 2018 were compared with screening rate ratios (SRRs) and corresponding 95% confidence intervals (CIs). RESULTS: BCSRs significantly rose by 18% between 2018 and 2019 (from 45.8% to 53.9%; SRR, 1.18; 95% CI, 1.17-1.18) and then declined by 8% between 2019 and 2020 (from 53.9% to 49.6%; SRR, 0.92; 95% CI, 0.92-0.93). If the 2018-2019 BCSR trends had continued through 2020, 63.3% of women would have been screened in 2020 in contrast to the 49.6% who were; this potentially translated into 47,517 fewer mammograms and 242 missed breast cancer diagnoses in this population. CONCLUSIONS: In this study of 32 CHCs, BCSRs declined by 8% from July 2019 to 2020, and this reversed an 18% improvement between July 2018 and 2019. Declining BCSRs among CHCs during the COVID-19 pandemic call for policies to support and resources to identify women in need of screening.

Foo, F. J., et al. (2021). "Colorectal cancer surgery in Asia during the COVID-19 pandemic: A tale of 3 cities." Asian J Surg.

PURPOSE: The COVID-19 pandemic has put tremendous strain on healthcare systems. Surgical societies worldwide have advised minimizing non-essential surgeries in order to preserve hospital resources. Given the medical resources and COVID-19 incidence between countries across the world differ, so should colorectal practices. No formal guidelines have emerged from Asia. We wanted to find out what the current practice was in Asian colorectal centres outside China. INTRODUCTION: The COVID-19 pandemic has significantly impacted surgical practice worldwide. At the time of the writing of this paper, there are over 4.2 million cases reported with deaths exceeding 290 000 patients.(1) With an abrupt disruption to worldwide supply chains, societal lockdowns and surge of cases into many hospitals, resource allocation was diverted and prioritised for all COVID-19 related services. METHODS: A questionnaire survey of current colorectal practice was carried out involving 3 major colorectal cancer centres, one each from 3 major cities: Singapore, Taichung and Daegu. Components of the survey include infrastructure and manpower, case selection, surgical approach, operating room management and endoscopy practice. RESULTS: All 3 centres continued to provide standard-of-care colorectal cancer surgery despite the COVID-19 pandemic. Two centres deferred surgery for benign colorectal conditions. Minimally Invasive Surgery (MIS) was still the preferred approach when indicated but with protocolized precautions undertaken. Other services such as pelvic exenteration, TATME and pelvic lymph node dissection were still offered if oncologically indicated. Elective diagnostic endoscopy

services have also continued in two centres. CONCLUSION: Elective colorectal services continue to take place in the 3 surveyed Asian hospitals with heightened precautions. Provided there is adequate resource, colorectal cancer services should still continue to prevent consequences of neglecting or delaying cancer treatment. Practice should hence be tailored to the local resource of individual centres accordingly.

Forner, J. K., et al. (2021). "Quality of Life: A Nurse-Led Physical Activity Coaching Program to Improve the Quality of Life of Patients With Cancer During the COVID-19 Pandemic." Clin J Oncol Nurs **25**(5): 571-577.

BACKGROUND: Physical activity has been shown to mitigate many of the effects of cancer treatment, yet it often is not embraced by the patient or made part of the nursing standard of care. OBJECTIVES: This pilot study evaluates the impact of the Oncology Nursing Society's Get Up, Get Moving program, a personalized, home-based, nurse-led physical activity coaching program. METHODS: Patients with cancer in the intervention and control groups completed the SF-36(R) and the Godin Leisure-Time Exercise Questionnaire at weeks 1 and 12. All patients were initially counseled on exercise. A nurse called each member of the intervention group weekly to encourage physical activity and asked about fatigue, nausea, and step count. The control group was contacted at 6 weeks and 12 weeks only. FINDINGS: The program, coupled with nurse telephone calls, increased steps, decreased fatigue, and maintained health-related quality of life among patients in the intervention group. The control group had a decrease in steps, a decline in their SF-36 general health score, and an increase in fatigue. Nurse coaching positively affects physical activity, which may help to decrease cancer treatment side effects.

Goenka, L., et al. (2021). "The "collateral damage" of the war on COVID-19: impact of the pandemic on the care of epithelial ovarian cancer." Med Oncol **38**(11): 137.

The covid-19 pandemic has impacted the management of non-covid-19 illnesses. Epithelial ovarian cancer (EOC) requires long-duration multidisciplinary treatment. Teleconsultation and shared care are suggested solutions to mitigate the consequences of the pandemic. However, these may be challenging to implement among patients who come from the lower economic strata. We report the disastrous impact of the pandemic on the care of EOC by comparing patients who were treated during the pandemic with those treated in the previous year. We collected the following data from newly diagnosed patients with EOC: time from diagnosis to treatment, time for completion of planned chemotherapy, and

proportion of patients completing various components of therapy (surgery and chemotherapy). Patients treated between January 2019 and September 2019 (Group 1: Pre-covid) were compared with those treated between January 2020 and December 2020 (Group 2: During covid pandemic). A total of 82 patients were registered [Group 1: 43(51%) Group 2: 39(49)]. The median time from diagnosis to start of treatment was longer in group 2 when compared to group 1 [31(23-58) days versus 17(11-30) days (p = 0.03)]. The proportion of patients who had surgery in group 2 was lower in comparison to group 1 [33(77%) versus 21(54%) (p = 0.02)]. Proportion of patients who underwent neoadjuvant (NACT) and surgery were fewer in group 2 in comparison to group 1 [9(33%) versus 18(64%) p = 0.002]. Among patients planned for adjuvant chemotherapy, the median time from diagnosis to treatment was longer in group 2 [28(17-45) days, group 1 versus 49(26-78) days, group 2 (p = 0.04)]. The treatment of patients with EOC was adversely impacted due to the COVID-19 pandemic. There was a compromise in the proportion of patients completing planned therapy. Even among those who completed the treatment, there were considerable delays when compared with the pre-covid period. The impact of these compromises on the outcomes will be known with longer follow-up.

Grimmett, C., et al. (2021). "SafeFit Trial: virtual clinics to deliver a multimodal intervention to improve psychological and physical well-being in people with cancer. Protocol of a COVID-19 targeted non-randomised phase III trial." BMJ Open **11**(8): e048175.

INTRODUCTION: The impact of the COVID-19 pandemic (caused by the SARS-CoV-2 virus) on individuals with cancer has been profound. It has led to increased anxiety, distress and deconditioning due to reduced physical activity. We aim to investigate whether SafeFit, a multimodal intervention of physical activity, nutrition and psychological support delivered virtually by cancer exercise specialists (CES), can improve physical and emotional functionings during the COVID-19 pandemic. METHODS AND ANALYSIS: A phase III non-randomised intervention trial, target recruitment of 1050 adults with suspected or confirmed diagnosis of cancer. All recruited participants will receive the multimodal intervention delivered by CES for 6 months. Sessions will be delivered 1-to-1 using telephone/video conferencing consultations. CES will work with each participant to devise a personalised programme of (1) physical activity, (2) basic dietary advice and (3) psychological support, all underpinned by behaviour change support. PRIMARY OUTCOME: Physical and emotional functioning as measured by the European Organisation for Research and Treatment of Cancer-Quality of Life Questionnaire (EORTC-QLQ-

C30). SECONDARY OUTCOMES: overall quality of life measured by EORTC-QLQ-C30 and EQ-5D-5L, health economics, patient activation, self-efficacy to self-manage chronic disease, distress, impact of COVID-19 on emotional functioning, self-reported physical activity, functional capacity and nutrition. Adherence to the intervention will also be measured and a process evaluation conducted. ETHICS AND DISSEMINATION: Ethical approval was obtained from the Health Research Authority (reference number 20/NW/0254). Results of this trial will be disseminated through publication of peer-reviewed articles, presentations at scientific conferences, and to the public and people with cancer in collaboration with our patient and public involvement representatives and partners. TRIAL REGISTRATION NUMBER: NCT04425616.

Gundavda, M. K. and K. K. Gundavda (2021). "Cancer or COVID-19? A Review of Recommendations for COVID-19 Vaccination in Cancer Patients." Curr Treat Options Oncol 22(10): 95.

OPINION STATEMENT: While emergency use is authorized for numerous COVID-19 vaccines and the high-risk population including cancer patients or those with immunosuppression due to disease or therapy is prioritized, data on this group's specific safety and efficacy of these vaccines remains limited. Safety data from clinical trials and population data may be extrapolated, and these vaccines may be used for cancer patients. However, concerns of efficacy due to the variable immune response in patients with active cancers undergoing active therapy and cancer survivors with chronic immunosuppression remain. The authors aim to discuss the current recommendations for use of COVID-19 vaccination in patients with cancer.

Gupta, N., et al. (2021). "Effect of COVID-19 on Access to Cancer Care in India." South Asian J Cancer 10(1): 46-47.

Gupta, S., et al. (2021). "Increase in Cancer Patient Load during COVID-19 Pandemic: The Faridabad Experience." South Asian J Cancer 10(1): 36-38.

Introduction Coronavirus disease 2019 (COVID-19) has affected oncology care differently across the world. We evaluated our experience of infusional chemotherapy during the active phase of ongoing pandemic. Methods Prospectively collected month wise data from January 2019 to November 2020 was compared between the 2 years. Results A total of 6,003 chemotherapy infusions were administered between January 1, 2019 and November 30, 2020 (2,548 in 11 months of 2019 and 3,455 in the same 11 months of 2020). Between May 1 and October 31, 2020, 2,337 chemotherapy infusions were administered to 570 patients all of whom were also tested for COVID-19 positivity, of which 65 (11.4%) were COVID-19 positive. The majority (63/65; 97%) could receive their chemotherapy infusions safely. Discussion Paradoxically, our hospital recorded an increase in the number of cancer patients receiving infusional chemotherapy in 2020, with a linear increase in the cancer case being treated (from 309 in June to 398 in November 2020). We believe that this was possible because cancer patients wanted treatment near their homes to avoid/minimize risk of exposure to COVID-19, cross state border travel restrictions was an additional roadblock, and our quality of service provided earned the trust of cancer patients.

Herrera, C. A., et al. (2021). "Anticipating the COVID-19-related surge in cancer care demand is urgent in Latin America and the Caribbean." Lancet Oncol.

Hesary, F. B. and H. Salehiniya (2021). "The Impact of the COVID-19 Epidemic on Diagnosis, Treatment, Concerns, Problems, and Mental Health in Patients with Gastric Cancer." J Gastrointest Cancer.

INTRODUCTION: COVID-19 epidemic has had different effects on many diseases, including gastric cancer. Due to COVID-19 epidemic the importance of knowing the effects of the epidemic in patients to deal with it, the present study aimed to investigate the effect of COVID-19 on the diagnosis, treatment, concerns, problems, and mental health of patients with gastric cancer. METHODS: The present study was a systematic review by searching the PubMed, Scopus, and Web of Science databases with the keywords of COVID-19 and gastric cancer. The articles that addressed any aspect of COVID-19 epidemic on diagnosis, treatment, problems, and mental health in patients with gastric cancer were included; the data were qualitatively summarized and presented in related tables. RESULTS: A total 22 articles were included. The effects of COVID-19 on gastric cancer were divided into four categories of the effects of COVID-19 on the diagnosis, treatment and follow-up, concerns, and problems and mental health of patients with gastric cancer. The COVID-19 epidemic has reduced the number of screenings, altered treatment, and delayed or discontinued treatment, which caused problems and concerns such as sleep disturbances and stress. CONCLUSION: Considering the effects of COVID-19 epidemic on gastric cancer and on the other hand, the continuation of the epidemic in the society, it is necessary for the officials and experts of the health system to design and implement necessary interventions to minimize the negative effects of epidemic on patients with gastric cancer.

Hewamana, S., et al. (2021). "Blood cancer care in a resource limited setting during the Covid-19 outbreak; a single center experience from Sri Lanka." PLoS One 16(9): e0256941.

BACKGROUND: The Covid-19 pandemic has caused significant morbidity and mortality among patients with cancer. Most countries employed

measures to prevent spread of Covid-19 infection which include shielding, quarantine, lockdown, travel restrictions, physical distancing and the use of personal protective equipment. This study was carried out to assess the change in patient attendance and the efficacy of newly implemented strategies to mitigate the impact of Covid-19 on services at the Lanka Hospital Blood Cancer Centre (LHBCC) in Colombo, Sri Lanka. METHODOLOGY: Telephone consultation, infection control, personal protective measures and emergency admission policy were implemented with the aim of having a Covid-19 free ward and to prevent cross-infections. This descriptive cross-sectional study was conducted with 1399 patient episodes (in-patient care or day-case review). We analysed patients treated as in-patient as well as day-case basis between 01st April 2020 and 31st December 2020. RESULTS: There were 977 day-case based episodes and 422 in-patient based episodes. There was a 14% drop in episode numbers compared to same period in 2019. There was no cross infection and no patients with Covid-19 related symptoms or positive test results entered the LHBCC during the study period. CONCLUSION: Services in blood cancer care were maintained to prevent late stage presentation and adverse outcome. Measures implemented to prevent Covid-19 were effective to allow continuation of treatment. This study highlights the importance of implementing strict protocols, clinical screening, use of appropriate personal protective equipment in delivering blood cancer care during the Covid-19 pandemic. This is the only documented study relating to outcome and successful applicability of measures to prevent spread of Covid-19 infection and maintaining services among blood cancer patients in Sri Lanka.

Himbert, C., et al. (2021). "Impact of the COVID-19 pandemic on exercise habits among cancer patients." Res Sq.

Purpose There is limited information on how the COVID-19 pandemic has changed health behaviors among cancer patients. We examined the impact of the pandemic on changes in exercise behaviors and identified characteristics associated with these changes among cancer patients. Methods Cancer patients (n = 1,361) completed a survey from August-September 2020 to assess COVID-19 pandemic-related changes in health behaviors and psychosocial factors. Patients were categorized into 3 groups: exercising less, exercising did not change, and exercising more. Patient characteristics were compared by exercise groups. Results One-third of the patients reported a decreased amount of regular exercise, while 11% reported exercising more during the pandemic. Patients who exercised less were more likely to be unemployed/retired, undergoing active treatment, and had increased pandemic-related alcohol consumption

and psychosocial stressors such as loneliness and financial stress (all $p < 0.05$). In contrast, patients who exercised more were younger, female, full-time employed, did not consume alcohol, and had good health status and more social interactions (all $p < 0.05$). Patients who were living in rural areas and did not experience changes in daily life, were also more likely not to experience changes in exercise habits (all $p < 0.05$). Conclusion Our results indicate that a significant proportion of cancer patients experienced changes in exercise habits during the first 6 months of the COVID-19 pandemic. Age, sex, employment status, health status, alcohol consumption, and psychosocial factors were associated with changes in exercise behaviors. Providers should monitor for changes in health behaviors, such as exercise, because of their importance in improving cancer survivorship.

Huang, P. T., et al. (2021). "PIKfyve: a lipid kinase target for COVID-19, cancer and neurodegenerative disorders." Nat Rev Drug Discov.

Huang, Y., et al. (2021). "Durable tracking anti-SARS-CoV-2 antibodies in cancer patients recovered from COVID-19." Sci Rep **11**(1): 17381.

Cancer patients are more susceptible to SARS-CoV-2 infection and generally have higher mortality rate. Anti-SARS-CoV-2 IgG is an important consideration for the patients in this COVID-19 pandemic. Recent researches suggested the rapid decay of anti-SARS-CoV-2 antibodies in the general population, but the decline rate of the antibodies in cancer patients was unknown. In this observational study, we reported the clinical features of the 53 cancer patients infected by SARS-CoV-2 from Wuhan, China and tracked the presence of anti-SARS-CoV-2 antibodies in the patients for more than 12 months. We found the duration (days) of anti-SARS-CoV-2 IgG in the patients was significant longer in chemotherapy (mean: 175; range: 75 to 315) and radiotherapy groups (mean: 168; range: 85 to 265) than in non-chemo- or radio-therapy group (mean: 58; range: 21 to 123) after their recovery from COVID-19. We also used single-cell RNA sequencing to track the immunologic changes in a representative patient recovered from COVID-19 and found that CD8 + effective T cells, memory B cells and plasma cells were persistently activated in the patient undergoing chemotherapy. Together, our findings show that chemotherapy and radiotherapy might be beneficial to extend the duration of anti-SARS-CoV-2 IgG.

Ivanus, U., et al. (2021). "The impact of the COVID-19 pandemic on organised cervical cancer screening: The first results of the Slovenian cervical screening programme and registry." Lancet Reg Health Eur **5**: 100101.

Background: The COVID-19 pandemic threatens the impact of cervical cancer screening and global cervical cancer elimination goals. As cervical cancer screening programmes were adjusting to the new situation, we evaluated the intensity, quality, and outcomes of cervical cancer screening in Slovenia in the first seven months of the pandemic. Methods: Historical observational study on data from a population-based cervical cancer screening registry. Number of cervical cytopathology (screening and follow-up), histopathology (diagnostic procedures, invasive procedures and number of newly diagnosed CIN2+ cases) and HPV test results from the entire Slovenian women population between January 1st and September 30th 2020 were compared to a three-year average of the years 2017-19. Findings: A two-month screening lock-down between March 12th and May 8th 2020 resulted in an epidemic deficit of screening (-92%), follow-up (-70%), and HPV triage tests (-68%), as well as invasive diagnostic (-47%) and treatment (-15%) of cervical lesions. Time to diagnosis and treatment did not increase; times to laboratory results fluctuated but stayed within standards. Slovenia has entered the second epidemic intending to add as little as possible to the pandemic deficit of screening smears (-23%) and yearly CIN2+ cases (-10%). Women aged 30-39 were most affected, with the highest pandemic deficit of screening smears (-26%) and yearly CIN2+ cases (-19%). Interpretation: The pandemic has deeply affected all levels of our lives. New vulnerable groups and inequalities have emerged that require recognition and action. To prevent long-term increases in the cervical cancer burden due to the COVID-19 pandemic, it is crucial that organised screening is maintained and monitored in settings where it can be safely and comprehensively provided. Funding: None.

Jazieh, A. R., et al. (2021). "Predictors of poor precautionary practices towards COVID-19 among cancer patients." Future Oncol.

Objective: Our study goal was to evaluate the behavioral response and practices of cancer patients to the coronavirus disease 2019 (COVID-19) pandemic in the Middle East and north Africa. Methods: A cross-sectional study was conducted using a validated anonymous 45-question survey administered via SurveyMonkey((R)) to cancer patients in 13 centers in Algeria, Egypt, Jordan, Kuwait, Morocco and Saudi Arabia. Results: During the study period (from 21 April to 30 May 2020), 3642 patients participated in the study. The majority of patients (84.81%) were worried about contracting the infection. The reported strict adherence to precautions included avoiding the following actions: hand-shaking (77.40%), hugging and kissing (82.89%), social gathering (90.09%), meeting friends (84.68%) and visiting markets (75.65%). In a multivariate analysis, patients with poor precautionary practices were about twice as likely to cancel their medical appointment or a treatment session. Conclusion: Improving cancer patients' knowledge of and adherence to precautionary measures is needed not just to reduce the risk of acquiring infection but also to minimize the interruption of their medical care.

Lay abstract COVID-19 poses a higher risk for patients with cancer than other patients; therefore, it is prudent that they adhere to precautionary measures to protect themselves from the infection. We conducted a study to evaluate the behaviors and practices of these patients in response to the COVID-19 pandemic in the Middle, East and North Africa. We developed a survey of 45 questions that was distributed in 13 centers in Algeria, Egypt, Jordan, Kuwait, Morocco and Saudi Arabia between 21 April and 30 May 2020. About 85% of the 3642 patients who participated in the study were worried about contracting the infection. A substantial percentage of them (10-30%) were not adhering to various precautions and social distancing rules. On the other hand, 16% of them canceled medical appointments and 12% canceled treatment sessions. Our study showed the need for better adherence of patients with cancer to the infection precautions and most importantly, the need to have a better compliance with their treatment plans, such as keeping their scheduled appointments, to avoid harms from treatment delays.

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Jimenez-Alcaide, E., et al. (2021). "Influence of androgen deprivation therapy on the severity of COVID-19 in prostate cancer patients." Prostate.

BACKGROUND: The TMPRSS2 protein has been involved in severe acute respiratory syndrome caused by coronavirus 2 (SARS-CoV-2). The production is regulated by the androgen receptor (AR). It is speculated that androgen deprivation therapy (ADT) may protect patients affected by prostate cancer (PC) from SARS-CoV-2 infection. METHODS: This is a retrospective study of patients treated for COVID-19 in our institution who had a previous diagnosis of PC. We analyzed the influence of exposure of ADT on the presence of severe course of COVID-19. RESULTS: A total of 2280 patients were treated in our center for COVID-19 with a worse course of disease in males (higher rates of hospitalization, intense care unit [ICU] admission, and death). Out of 1349 subjects registered in our PC database, 156 were on ADT and 1193 were not. Out of those, 61 (4.52%) PC patients suffered from COVID-19, 11 (18.0%) belonged to the ADT group, and 50 (82.0%) to the non-ADT group. Regarding the influence of ADT on the course of the disease, statistically significant differences were found neither in the death rate (27.3% vs. 34%; p = 0.481), nor in the presence of severe COVID-19: need for intubation or

ICU admission (0% vs. 6.3%; p = 0.561) and need for corticoid treatment, interferon beta, or tocilizumab (60% vs. 34.7%; p = 0.128). Multivariate analysis adjusted for clinically relevant comorbidities did not find that ADT was a protective factor for worse clinical evolution (risk ratio [RR] 1.08; 95% confidence interval [CI], 0.64-1.83; p = 0.77) or death (RR, 0.67; 95% CI, 0.26-1.74; p = 0.41). CONCLUSIONS: Our study confirms that COVID-19 is more severe in men. However, the use of ADT in patients with PC was not shown to prevent the risk of severe COVID-19.

K, P. K. R., et al. (2021). "The Impact of COVID-19 Pandemic on Cancer Care in a Tertiary Care Facility." South Asian J Cancer **10**(1): 32-35.

Background Coronavirus disease 2019 (COVID-19) pandemic had an overwhelming impact on health care worldwide. Cancer patients represent a subgroup that is vulnerable and is under high risk. It is, therefore, necessary to analyze factors that predict outcomes in these patients so that they can be triaged accordingly to mitigate the effects of COVID-19 on cancer management. To date, the impact of COVID-19 on cancer patients remain largely unknown. Methods Data of 291 cancer patients undergoing active treatment from March 23 to August 15, 2020 were retrospectively reviewed; the incidence, demographic and clinical characteristics, treatment, and outcomes of cancer patients infected by COVID-19 were included in the analysis. Discussion During the index period (March 23-August 15, 2020), 4,494 confirmed cases of COVID-19 were admitted at our institute. In the department of medical oncology out of 578 patients presented to outpatient department, 291 patients were admitted for active treatment. Considering the cancer patients, infection rate was 7.9% (23/291) and mortality 13% (3/23). Median age was 40 years and the majority of patients were male (60%). The most common cancer type was acute lymphoblastic leukemia presented at various stages of treatment. Twenty patients (86.9%) were discharged after full clinical recovery and negative real-time polymerase chain reaction on a nasopharyngeal swab. Anticancer treatment was modified according to the type of cancer under intensive surveillance. Conclusion Although mortality rate in COVID-19 cancer patients is elevated, our results support the feasibility and safety of continuing anticancer treatment during pandemic by endorsing consistent preventive measures, but however should be modified based on the type and prognosis of cancer.

Kaltofen, T., et al. (2021). "Changes in gynecologic and breast cancer diagnoses during the first wave of the COVID-19 pandemic: analysis from a tertiary academic gyneco-oncological center in Germany." Arch Gynecol Obstet.

PURPOSE: With the beginning of 2021, the world has been suffering from the COVID-19 pandemic for more than 1 year. More and more, we are able to evaluate side effects of the pandemic in the healthcare sector. A negative impact on cancer diagnoses is one of them. Careful observation of trends in an academic gyneco-oncological context appears important to identify potential negative developments. METHODS: We analyzed the case number of gynecologic and breast cancer diagnoses in the period from January to June 2020 compared to 2019 and during the period of the first general German lockdown (March 22nd until May 5th 2020). Patients were characterized by age, tumor type, FIGO or TNM stage and presence of symptoms at initial hospital presentation. RESULTS: The frequency of newly diagnosed gynecologic and breast cancer cases from beginning of January until end of June changed by -10% and by -12% during the lockdown in 2020 compared to 2019. In both periods, reduction of breast cancer cases was relatively larger than decrease of gynecologic cancers. Moreover, median patient age decreased. For the first half of 2020, we found a shift towards higher tumor stages (N+/M1 or FIGO III-IV). During the lockdown period, the appearance of tumor-associated symptoms at diagnosis increased by about 12%. CONCLUSION: This analysis illustrates the anticipated general decrease in diagnoses of primary cancers during the lockdown periods in 2020 due to COVID-19 pandemic for gynecologic and breast cancer cases.

Kaufman, H. W., et al. (2021). "Changes in Newly Identified Cancer Among US Patients From Before COVID-19 Through the First Full Year of the Pandemic." JAMA Netw Open **4**(8): e2125681.

Kotecha, R. S. (2021). "COVID-19 vaccination for children with cancer." Pediatr Blood Cancer: e29340.

Krull, K. R., et al. (2021). "Impact of COVID-19 pandemic on a large cohort of adult survivors of childhood cancer." Pediatr Blood Cancer **68**(11): e29324.

Childhood cancersurvivors may be differentially impacted by coronavirus disease 2019 (COVID-19). From April to June of 2020, we examined psychosocial/health concerns in 4148 adult survivors and 571 siblings. Although more survivors reported concerns about getting sick (p = .002) and needing hospitalization (p = .003) in general, survivors and siblings were comparably concerned about being infected with and the consequences of COVID-19. Cranial radiation was associated with social isolation (relative risk [RR] = 1.3, CI = 1.1-1.7), and central nervous system (CNS) tumors were associated with unemployment due to COVID-19 (RR = 1.7, CI = 1.2-2.2). Some survivors appear more vulnerable and may require more support to meet health care and vocational

needs during COVID-19, though siblings also perceive substantial risk.

Kuzuu, K., et al. (2021). "Gastrointestinal Cancer Stage at Diagnosis Before and During the COVID-19 Pandemic in Japan." JAMA Netw Open **4**(9): e2126334.

Importance: The COVID-19 pandemic has delayed medical consultations, possibly leading to the diagnosis of gastrointestinal cancer at advanced stages. Objective: To evaluate stage at diagnosis among patients with gastrointestinal cancer in Japan before and during the COVID-19 pandemic. Design, Setting, and Participants: This retrospective cohort study included patients in a hospital-based cancer registry who were diagnosed with gastrointestinal cancer (ie, esophageal, gastric, colorectal, pancreatic, liver, and biliary tract cancers) between January 2016 and December 2020 at 2 tertiary Japanese hospitals. Exposures: The pre-COVID-19 period was defined as January 2017 to February 2020, and the COVID-19 period was defined as March 2020 to December 2020. Main Outcome and Measure: Monthly numbers of patients with newly diagnosed cancer were aggregated, classified by stage, and compared. Results: The study evaluated 5167 patients, including 4218 patients (2825 [67.0%] men; mean [SD] age, 71.3 [10.9] years) in the pre-COVID-19 period and 949 patients (607 [64.0%] men; mean [SD] age, 71.8 [10.7] years) in the COVID-19 period. Comparing the pre-COVID-19 period with the COVID-19 period, significant decreases were observed in the mean (SD) number of patients with newly diagnosed gastric cancer (30.63 [6.62] patients/month vs 22.40 [5.85] patients/month; -26.87% change; P < .001) and colorectal cancer (41.61 [6.81] patients/month vs 36.00 [6.72] patients/month; -13.47% change; P = .03). Significant decreases were also observed in the mean (SD) number of cases of stage I gastric cancer (21.55 [5.66] cases/month vs 13.90 [5.99] cases/month; -35.51% change; P < .001), stage 0 colorectal cancer (10.58 [3.36] cases/month vs 7.10 [4.10] cases/month; -32.89% change; P = .008), and stage I colorectal cancer (10.16 [3.14] cases/month vs 6.70 [2.91] cases/month; -34.04% change; P = .003). No significant increases were observed for esophageal, gastric, pancreatic, liver, or biliary tract cancers. A significant decrease was observed in the mean (SD) number of cases per month of stage II colorectal cancer (7.42 [3.06] cases/month vs 4.80 [1.75] cases/month; -35.32% change; P = .01); a significant increase was observed for the mean (SD) number of cases per month of stage III colorectal cancer (7.18 [2.85] cases/month vs 12.10 [2.42] cases/month; 68.42% change; P < .001). Conclusions and Relevance: In this cohort study of patients in a hospital-based cancer registry form Japan, significantly fewer patients were diagnosed with stage I gastric and colorectal cancers during the COVID-19 pandemic. Thus, the number of screening-detected cancers might have decreased, and colorectal cancer may have been diagnosed at more advanced stages.

Lesley, G. C., et al. (2021). "Cancer Treatment During COVID-19: A Qualitative Analysis of Patient-Perceived Risks and Experiences with Virtual Care." J Patient Exp **8**: 23743735211039328.

During the COVID-19 pandemic, most cancer centers shifted from in-person to virtual cancer care to curb community spread and ensure care continuity. This qualitative descriptive study aimed to understand cancer patient-perceived risks related to COVID-19 and cancer treatment, as well as the patient-perceived and experienced value of virtual care. From June to August 2020, focus groups were conducted with patients under active management or observation for a diagnosed malignancy in Toronto, Canada. A thematic analysis of six focus groups found that most participants worried more about treatment delays than they did about COVID-19 infection. Despite some concern about COVID-19 exposure in the hospital, care delays contributed to increased anxiety among participants who already subscribed to strict safety measures in their everyday lives. Most participants accepted virtual care for some appointment types; however, preference for in-person care was found to sustain the humanistic and therapeutic aspects of cancer care that many participants valued. Nuances in the appropriateness and adequacy of virtual cancer care still need exploration. Preserving the humanistic aspects of care is of paramount importance.

Li, Y., et al. (2021). "The Impact of COVID-19 on Cancer." Infect Drug Resist **14**: 3809-3816.

Since late December 2019, the 2019 coronavirus disease (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and its rapid international spread have posed a global health threat. The World Health Organization has declared the outbreak of COVID-19 as "public health emergency of international concern". COVID-19 not only brings tremendous pressure to the medical system but also brings new challenges to the global economy. The occurrence and development of cancer has always been an area of active research, and COVID-19 also has a long-lasting impact on the diagnosis, treatment, and research of cancer. In the context, we review the adverse effects of COVID-19 on the screening, diagnosis, treatment and prognosis of cancer patients and the countermeasures in this situation, and provide solutions for improving the quality of life of cancer patients in the normalized prevention and control of COVID-19.

Ligumsky, H., et al. (2021). "Immunogenicity and Safety of the BNT162b2 mRNA COVID-19 Vaccine

Among Actively Treated Cancer Patients." J Natl Cancer Inst.

BACKGROUND: Activity and safety of the SARS-CoV2 BNT162b2 vaccine in actively treated patients with solid tumors is currently unknown. METHODS: We conducted a retrospective study of 326 patients with solid tumors treated with anti-cancer medications to determine the proportion of cancer patients with immunogenicity against SARS-CoV2, following two doses of the BNT162b2 vaccine. Control group was comprised of 164 vaccinated healthy adults. Anti-SARS-CoV-2 S IgG (Immunoglobulin G) antibodies (Abs) were measured, using level>50 AU/ml as cutoff for seropositivity. Adverse effects were collected using a questionnaire. All statistical tests were 2-sided. RESULTS: Most patients (205, 62.9%) were treated with chemotherapy, either alone or with additional therapy, 55 (16.9%) were treated with immune checkpoint inhibitors (ICI) and 38 (11.7%) with targeted therapy alone, 28 (8.6%) received other combinations. The vaccine was well tolerated and no severe side effects were reported. Among patients with cancer 39 (11.9%) were seronegative, compared to 5 (3.0%) of the control group (P=0.001). Median IgG titers were statistically significant lower among patients with cancer compared to control (931 AU/ml vs. 2817 AU/ml, P=0.003). Seronegativity proportions were higher in the chemotherapy treated group (19, 18.8%) compared to the ICI-treated patients (5, 9.1%) and to those treated with targeted therapy (1, 2.6%) (P=0.02. Titers were also statistically significant different among treatment types (P=0.002). CONCLUSION: The BNT162b2 vaccine is safe and effective in actively treated patients with cancer. The relatively lower antibody titers and lower proportion of seropositive patients, especially among chemotherapy treated patients, call for continuing the use of personal protective measures in these patients, even following vaccination.

Lima, A., et al. (2021). "The Impact of COVID-19 Pandemic in Portuguese Cancer Patients: A Retrospective Study." Int J Environ Res Public Health **18**(16).

Literature reports that SARS-CoV-2 infection in cancer patients may be associated with higher severity and mortality, nevertheless the knowledge is limited. We aimed to describe patients' demographic characteristics and COVID-19 disease outcomes in Portuguese cancer patients. We conducted a retrospective study in a cohort of cancer patients diagnosed with COVID-19. A total of 127 individuals were included: 46.5% males and 53.5% females, with a median age of 72 years. Clinicopathological characteristics were used in univariate and multivariable logistic regression analyses to estimate odds ratios for each variable with outcomes adjusting for potential confounders. Our cohort revealed that 84.3% of patients had more than one risk factor for severe disease rather than cancer. In total, 36.2% of patients were admitted to the Department of Internal Medicine, 14.2% developed severe disease, 1.6% required Intensive Care Unit, and mortality was observed in 11.8%. Severe COVID-19 disease was associated with unfit (ECOG PS > 2) patients (p = 0.009; OR = 6.39; 95% CI: 1.60-25.59), chronic kidney disease (p = 0.004; OR = 20.7; 95% CI: 2.64-162.8), immunosuppression (p < 0.001; OR = 10.3; 95% CI: 2.58-41.2), and presence of respiratory symptoms at diagnosis (p = 0.033; OR = 5.05; 95% CI: 1.14-22.4). Increased risk for mortality was associated with unfit patients (p = 0.036; OR = 4.22; 95% CI: 1.10-16.3), cardiac disease (p = 0.003; OR = 8.26; 95% CI: 2.03-33.6) and immunosuppression (p = 0.022; OR = 5.06; 95% CI: 1.27-20.18). Our results demonstrated that unfit and immunosuppressed patients, with chronic kidney disease and cardiac disease, have, respectively, an increased risk for severe disease and mortality related to COVID-19. Hence, this study provides important information on risk factors for severe COVID-19 disease and associated mortality in a Portuguese cancer population.

Martinez-Mardones, M., et al. (2021). "[Strategies to advance recovery (STAR) protocol implemented colorectal cancer patients during the COVID-19 pandemic]." Rev Med Chil **149**(2): 203-209.

BACKGROUND: SARS-CoV-2 hampered the resolution of multiple diseases, including cancer. AIM: To show that a multidisciplinary program of Strategies to Advance Recovery (STAR) can be implemented in a public hospital in Chile, despite the global pandemic and state of a national catastrophe, to provide a solution to cancer patients. MATERIAL AND METHODS: A retrospective descriptive study, of patients requiring an elective resolution of a colorectal cancer. Patients met the inclusion criteria, established in the STAR program. A total of 24 perioperative interventions were performed in the protocol. Demographic variables, days of hospitalization, complications, mortality, and readmissions were described. RESULTS: The 24 interventions of the protocol were successfully implemented, although some partially. Sixteen patients aged 53 to 83 years (50% women) were operated. The median length of hospitalization was four days (range 2 to 9). Four complications were recorded, all were grade I or II according to the Clavien-Dindo classification. Two patients were readmitted. There were no reoperations or mortality. One patient was infected with coronavirus, diagnosed at the time of readmission. CONCLUSIONS: The STAR protocol reduces the length of hospital stay. In a pandemic context such as

COVID-19 it becomes a useful resource and can be implemented in cancer patients, as herein reported.

Marzo-Castillejo, M., et al. (2021). "[The impact of COVID-19 on cancer diagnosis delay: possible consequences]." Aten Primaria **53**(9): 102142.

McFarland, D. C. (2021). "Cancer-related anxiety, COVID-19, and the oncologist: the formation of a 'Balint' process group." Curr Res Psychiatry **1**(1): 10-12.

Metzger, K., et al. (2021). "Treatment delay and tumor size in patients with oral cancer during the first year of the COVID-19 pandemic." Head Neck.

BACKGROUND: We set out to investigate how the ongoing coronavirus pandemic affected the size of tumors and the duration of treatment delay in patients with surgically treated oral squamous cell carcinoma. METHODS: Patients with surgically treated oral cavity squamous cell carcinoma were assessed retrospectively and divided into two groups depending on when they had first presented at our clinic. Patients presenting from 2010 to 2019, that is, before COVID-19 onset (n = 566) were compared to patients presenting in 2020 (n = 58). RESULTS: A total of 624 patients were included. Treatment delay was significantly longer in 2020 (median = 45 days) versus 2010-2019 (median = 35 days) (p = 0.004). We observed a higher pathological T classification in 2020 (p = 0.046), whereas pathological N classification was unchanged between groups (p = 0.843). CONCLUSIONS: While extraordinary efforts continue to be made in the context of the pandemic, it is imperative that this does not lead to significant disadvantages for many people with oral cancer.

Mishra, S., et al. (2021). "The COVID-19 pandemic: a new epoch and fresh challenges for cancer patients and caregivers-a descriptive cross-sectional study." Support Care Cancer.

PURPOSE: Cancer patients and their caregivers are overwhelmed with features of uncertainty, fear, shock, worry, anxiety, sadness, and grief. To add on to their misery, the COVID-19 pandemic has severely afflicted the cancer care delivery. The study was conducted to observe the challenges faced by cancer patients and their caregivers and to formulate strategies for oncological setups to overcome those challenges. METHODS: After obtaining institutional ethical clearance, a descriptive cross-sectional study was conducted to observe the challenges faced by patients and their caregivers at the level of various domains (physical, logistic, psychological, socioeconomic, and spiritual) who visited the outpatient and inpatient department of cancer pain and palliative care unit. The results were expressed in absolute numbers. RESULTS: Major challenges encountered were suffering from physical symptoms like pain, nausea, vomiting, dyspnea (90%), postponement of cancer treatment (80%), fear of contracting COVID infection due to hospital visit (93.5%), lack of accommodation (70%), and lack of spiritual clarity and hope (50%). CONCLUSIONS: Major challenges faced by patients were in physical and psychological domains, and those by caregivers were in socioeconomic domains and handling physical symptoms of their patients. It is imperative to recognize and be cognizant of the challenges faced by cancer patients and their caregivers. Health care setups should formulate strategies to alleviate these challenges and provide holistic care to cancer patients. These strategies will hold in good stead for future pandemics also.

Moentmann, M. R., et al. (2021). "Telemedicine trends at a comprehensive cancer center during the first wave of the COVID-19 pandemic." J Surg Oncol.

INTRODUCTION: This article reports on the effects of an early outbreak during the COVID-19 pandemic on visit volume and telehealth use by various specialists at a comprehensive cancer center. MATERIALS AND METHODS: The number of on-site and telehealth visits (THV) for medical and surgical specialties were obtained from scheduling software. RESULTS: Total visits were most drastically limited in April 2020 to a low point of 3139; THV made up 28% of all visits. For head and neck surgery, THV made up 54% and 30% of visits in April and May, respectively. Other specialties, such as psychiatry and palliative care, had higher levels of THV. For most specialties, the rebound in June through September did not make up for visits lost during the outbreak, and fiscal year (FY) 2020 had a 9% loss from FY 2019 with 5786 fewer total annual visits across all specialties. CONCLUSIONS: While telemedicine was a helpful part of this cancer center's response to the initial COVID-19 surge, it was not able to replace the in-person services offered at the same center. The main strategy of physicians at this cancer center was to defer care, with telemedicine being an auxiliary response.

Mohamed, N. E., et al. (2021). "COVID-19 in patients with and without cancer: Examining differences in patient characteristics and outcomes." J Cancer Biol **2**(1): 25-32.

This study examines differences between patients with and without cancer in patient demographic and clinical characteristics and COVID-19 mortality and discusses the implications of these differences in relation to existing cancer disparities and COVID-19 vulnerabilities. Data was collected as a part of a retrospective study on a cohort of COVID-19 positive patients across Mount Sinai Health System from March 28, 2020 to April 26, 2020. Descriptive, comparative, and regression analyses were applied to examine differences between patients with and without cancer in demographic and clinical characteristics and

COVID-19 mortality and whether cancer status predicts COVID-19 mortality controlling for these covariates using SAS 9.4. Results showed that, of 4641 patients who tested positive for COVID-19, 5.1% (N=236) had cancer. The median age of the total sample was 58 years (Q1-Q3: 41-71); 55.3% were male, 19.2% were current/former smokers, 6.1% were obese. The most commonly reported comorbidities were hypertension (22.6%) and diabetes (16.0%). Overall, the COVID-19 mortality rate was 8.3%. Examining differences between COVID-19 patients with and without cancer revealed significant differences (p<0.05) in COVID-19 mortality, hospitalization rates, age, gender, race, smoking status, obesity, and comorbidity indicators (e.g., diabetes) with cancer patients more likely to be older, male, black, obese, smokers, and with existing comorbidities. Controlling for these clinical, demographic, and behavioral characteristics, results of logistic regression analyses showed significant effects of older age and male gender on COVID-19 mortality (p<0.05). While cancer patients with COVID-19 were more likely to experience worse COVID-19 outcomes, these associations might be related to common cancer and COVID-19 vulnerability factors such as older age and gender. The coexistence of these vulnerability age and gender factors in both cancer and COVID-19 populations emphasizes the need for better understanding of their implications for cancer and COVID-19 disparities, both diseases prevention efforts, policies, and clinical management.

Mooghal, M., et al. (2021). "COVID 19 pandemic: Effect on management of patients with breast cancer; single center retrospective cohort study." Int J Surg Open **35**: 100386.

Background: (SARS-COV-2) infection, led to a pandemic affecting many countries, resulting in hospitals diverting most of their resources to fight the pandemic. Breast cancer, already a healthcare dilemma, is also affected in this scenario. Our aim was to find out the impact of COVID-19 on presentation of breast cancer stage and its effects on overall onco-surgical management. Methods: This cohort single-centered retrospective review was carried out at our hospital, over a period of 18 months. Females with known breast cancer were included in the study. Data was collected on performas by a single researcher. Effect of COVID pandemic on presentation stage and its impact on overall management was studied. SPSS 23.0 used for data analysis. A 95% CI was used. Descriptive statistics were presented as range/means. Categorical data was analyzed by Fisher exact test, t-test was applied to numerical data, p value </= 0.05 was considered significant. Results: Out of 87 patients presenting with suspicious lump, 69 who had malignancy on histo-pathology were included in study.

Twelve out of 69 were COVID positive. Sixty patients presented with advanced stage (>/=stage 2b) out of which 21 underwent upstaging of disease due to delay in presentation/management. We found that 9 out of 12 (majority) Covid positive patients had disease upstaging. Overall main reason for delay in presentation was found to be unawareness of disease. Conclusion: We concluded that COVID-19 pandemic had no impact on presentation delay, breast cancer management/treatment and disease upstaging as compared to figures available for our population before the pandemic. However, our study showed significant correlation between disease upstaging and COVID status. This led us to reconsider our preformed protocols for COVID positive breast cancer patients. Our results can be used by future researchers to investigate if COVID itself can contributes in patho-physiology of upstaging in breast cancer or not.

Morais, S., et al. (2021). "The impact of the COVID-19 pandemic on cancer screening." Eur J Cancer Prev.

Mungmunpuntipamtip, R. and V. Wiwanitkit (2021). "COVID-19 on cervical cancer screening." Eur J Cancer Prev.

Murewanhema, G. (2021). "The COVID-19 pandemic and its implications for cervical cancer treatment and prevention in Zimbabwe: perspectives and recommendations." Pan Afr Med J **39**: 149.

Cervical cancer is the leading gynaecological malignancy in Zimbabwe, constituting 33% of all female cancers in 2016. Primary prevention through vaccination and secondary prevention through screening are important public health interventions to reduce the cervical cancer burden. Unfortunately, the ongoing COVID-19 pandemic has brought unprecedented challenges to healthcare delivery, posing threats to prevention efforts at a time when the public health sector is extremely fragile. The fragility of the sector has complicated treatment for cervical cancer before and during the COVID-19 pandemic, and is expected to worsen beyond the pandemic. A multi-sectoral intersection between public health experts, clinicians and communities is urgently required to restore preventive and treatment services for cervical cancer and reduce the increased burden, morbidity and mortality stemming indirectly from the pandemic.

Mynard, N., et al. (2021). "Lung Cancer Stage Shift as a Result of COVID-19 Lockdowns in New York City, a Brief Report." Clin Lung Cancer.

INTRODUCTION: The COVID-19 pandemic reached New York City in early March 2020 resulting in an 11-week lockdown period to mitigate further spread. It has been well documented that cancer care was drastically affected as a result. Given New York City's early involvement, we attempted to identify any stage shift that may have occurred in the diagnoses of non-small cell lung cancer (NSCLC) at our institution

as a result of these lockdowns. PATIENTS AND METHODS: We conducted a retrospective review of a prospective database of lung cancer patients at our institution from July 1, 2019 until March 31, 2021. Patients were grouped by calendar year quarter in which they received care. Basic demographics and clinical staging were compared across quarters. RESULTS: Five hundred and fifty four patients were identified that underwent treatment during the time period of interest. During the lockdown period, there was a 50% reduction in the mean number of patients seen (15 +/- 3 vs. 28 +/- 7, P = .004). In the quarter following easing of restrictions, there was a significant trend towards earlier stage (cStage I/II) disease. In comparison to quarters preceding the pandemic lockdown, there was a significant increase in the proportion of patients with Stage IV disease in the quarters following phased reopening (P = .026). CONCLUSION: After a transient but significant increase in Stage I/II disease with easing of restrictions there was a significant increase in patients with Stage IV disease. Extended longitudinal studies must be conducted to determine whether COVID-19 lockdowns will lead to further increases in the proportion of patients with advanced NSCLC.

Nelli, F., et al. (2021). "Effects of active cancer treatment on safety and immunogenicity of COVID-19 mRNA-BNT162b2 vaccine: Preliminary results from the prospective observational Vax-On study." Ann Oncol.

Paris, E. (2021). "Importance of modelling for cancer management during COVID-19." Lancet Oncol.

Patel, R. H., et al. (2021). "COVID-19 in Immunocompromised Cancer Patients: A Case Series and Review of the Literature." Cancer Control **28**: 10732748211044361.

The global pandemic of the novel coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has presented newfound challenges to the oncology community regarding management of disease progression in immunocompromised and cancer patients. Further, the large influx of COVID-19 patients has overwhelmed healthcare facilities, limited access to intensive care unit beds and ventilators, and canceled elective surgeries causing disruptions to the cancer care continuum and re-organization of oncological care. While it is known that the potential threat of infection is greatest in elderly patients (>60 years of age) and patients with underlying comorbidities, there is still insufficient data to determine the risk of COVID-19 in cancer patients. Given the immunosuppressive status in cancer patients arising from chemotherapy and other comorbidities, management of COVID-19 in this patient population carries a unique set of challenges. We report three cases of COVID-19 in immunocompromised cancer patients and discuss the challenges in preventing, diagnosing, and treating this vulnerable group.

Peacock, H. M., et al. (2021). "Decline and incomplete recovery in cancer diagnoses during the COVID-19 pandemic in Belgium: a year-long, population-level analysis." ESMO Open **6**(4): 100197.

BACKGROUND: Oncological care was considerably impacted by the COVID-19 pandemic. Worrisome declines in diagnostic procedures and cancer diagnoses in 2020 have been reported; however, nationwide, population-based evidence is limited. Quantification of the magnitude and distribution of the remaining outstanding diagnoses is likewise lacking. METHODS: Using accelerated delivery of data from pathology laboratories to the Belgian Cancer Registry, we compared the nationwide rates of new diagnoses of invasive cancers in 2020 to 2019. RESULTS: We observed a 44% reduction in total diagnoses of invasive cancers in April 2020 compared with April 2019, coinciding with the first wave of the COVID-19 pandemic. The reduction was largest in older patients and for skin cancers (melanoma and nonmelanoma). Reductions in diagnosis were less pronounced among children and adolescents (0-19 years). A smaller decline was observed for most cancers with typically poorer prognosis or obvious symptoms, including some hematological malignancies, lung, and pancreatic cancer. Suspension of organized population screening programs was reflected in a strong decline in diagnosis in the screening age groups for female breast cancer (56%) and for colorectal cancer in both men (49%) and women (60%). The number of diagnoses began to increase from the end of April and stabilized at the beginning of June at or just above 2019 levels. There has yet to be a complete recovery in cancer diagnoses, with an estimated 6%, or approximately 4000 diagnoses, still outstanding for all of 2020. Among solid tumors, head and neck cancers have the largest remaining year-over-year decrease in diagnoses at 14%. CONCLUSION: These results add to the evidence of a profound impact of the COVID-19 pandemic on oncological care and identify groups at risk for continuing diagnostic delays. These data should stimulate health care providers worldwide to facilitate targeted, accessible, and efficient procedures for detection of cancers affected by this delay.

Pearson, A. L., et al. (2021). "Increased Use of Porch or Backyard Nature during COVID-19 Associated with Lower Stress and Better Symptom Experience among Breast Cancer Patients." Int J Environ Res Public Health **18**(17).

Contact with nature has been used to promote both physical and mental health, and is increasingly used among cancer patients. However, the COVID-19 pandemic created new challenges in both access to

nature in public spaces and in cancer care. The purpose of our study was to evaluate the change in active and passive use of nature, places of engaging with nature and associations of nature contact with respect to improvements to perceived stress and symptom experience among breast cancer patients during the pandemic. We conducted a cross-sectional survey of people diagnosed with breast cancer using ResearchMatch (n = 56) in July 2020 (the first wave of COVID-19). In this US-based, predominantly white, affluent, highly educated, female sample, we found that, on average, participants were first diagnosed with breast cancer at 54 years old and at stage 2 or 3. Eighteen percent of participants experienced disruptions in their cancer care due to the pandemic. As expected, activities in public places significantly decreased as well, including use of parks/trails and botanical gardens. In contrast, spending time near home, on the porch or in the backyard significantly increased. Also observed were significant increases in indoor activities involving passive nature contact, such as watching birds through a window, listening to birdsong, and smelling rain or plants. Decreased usage of parks/trails was significantly associated with higher stress (Coef = -2.30, p = 0.030) and increased usage of the backyard/porch was significantly associated with lower stress (Coef = -2.69, p = 0.032), lower symptom distress (Coef = -0.80, p = 0.063) and lower symptom severity (Coef = -0.52, p = 0.009). The most commonly reported alternatives to outdoor engagement with nature were watching nature through a window (84%), followed by looking at images of nature (71%), and listening to nature through a window (66%). The least commonly enjoyed alternative was virtual reality of nature scenes (25%). While outdoor contact with nature away from home decreased, participants still found ways to experience the restorative benefits of nature in and around their home. Of special interest in planning interventions was the fact that actual or real nature was preferred over that experienced through technology. This could be an artifact of our sample, or could represent a desire to be in touch with the "real world" during a health crisis. Nature contact may represent a flexible strategy to decrease stress and improve symptom experience among patients with cancer, particularly during public health crises or disruptions to cancer care.

Peerschke, E. I., et al. (2021). "Thromboinflammation Supports Complement Activation in Cancer Patients With COVID-19." Front Immunol **12**: 716361.

Background: COVID-19 pathology is associated with exuberant inflammation, vascular damage, and activation of coagulation. In addition, complement activation has been described and is linked to disease pathology. However, few studies have been conducted in cancer patients. Objective: This study examined complement activation in response to COVID-19 in the setting of cancer associated thromboinflammation. Methods: Markers of complement activation (C3a, C5a, sC5b-9) and complement inhibitors (Factor H, C1-Inhibitor) were evaluated in plasma of cancer patients with (n=43) and without (n=43) COVID-19 and stratified based on elevated plasma D-dimer levels (>1.0 mug/ml FEU). Markers of vascular endothelial cell dysfunction and platelet activation (ICAM-1, thrombomodulin, P-selectin) as well as systemic inflammation (pentraxin-3, serum amyloid A, soluble urokinase plasminogen activator receptor) were analyzed to further evaluate the inflammatory response. Results: Increases in circulating markers of endothelial cell dysfunction, platelet activation, and systemic inflammation were noted in cancer patients with COVID-19. In contrast, complement activation increased in cancer patients with COVID-19 and elevated D-dimers. This was accompanied by decreased C1-Inhibitor levels in patients with D-dimers > 5 ug/ml FEU. Conclusion: Complement activation in cancer patients with COVID-19 is significantly increased in the setting of thromboinflammation. These findings support a link between coagulation and complement cascades in the setting of inflammation.

Peltrini, R., et al. (2021). "Effects of the first and second wave of the COVID-19 pandemic on patients with colorectal cancer: what has really changed in the outcomes?" Br J Surg.

Perrone, F., et al. (2021). "Differential diagnosis of COVID-19 at the chest computed tomography scan: A review with special focus on cancer patients." World J Radiol **13**(8): 243-257.

BACKGROUND: Given the several radiological features shared by coronavirus disease 2019 pneumonia and other infective or non-infective diseases with lung involvement, the differential diagnosis is often tricky, and no unequivocal tool exists to help the radiologist in the proper diagnosis. Computed tomography is considered the gold standard in detecting pulmonary illness caused by severe acute respiratory syndrome coronavirus 2. AIM: To conduct a systematic review including the available studies evaluating computed tomography similarities and discrepancies between coronavirus disease 2019 pneumonia and other pulmonary illness, then providing a discussion focus on cancer patients. METHODS: Using pertinent keywords, we performed a systematic review using PubMed to select relevant studies published until October 30, 2020. RESULTS: Of the identified 133 studies, 18 were eligible and included in this review. CONCLUSION: Ground-glass opacity and consolidations are the most common computed tomography lesions in coronavirus disease 2019 pneumonia and other respiratory diseases. Only two

studies included cancer patients, and the differential diagnosis with early lung cancer and radiation pneumonitis was performed. A single lesion associated with pleural effusion and lymphadenopathies in lung cancer and the onset of the lesions in the radiation field in the case of radiation pneumonitis allowed the differential diagnosis. Nevertheless, the studies were heterogeneous, and the type and prevalence of lesions, distributions, morphology, evolution, and additional signs, together with epidemiological, clinical, and laboratory findings, are crucial to help in the differential diagnosis.

Piao, X. M., et al. (2021). "Prominence of urinary biomarkers for bladder cancer in the COVID-19 era: From the commercially available to new prospective candidates." Investig Clin Urol **62**(5): 500-519.

Molecular markers detected in urine may improve our understanding of the evolution of bladder cancer (BCa) and its micro- and macroenvironment. Detection of such markers will identify disease earlier, allow stratification of patients according to risk, and improve prognostication and prediction of outcomes, thereby facilitating targeted therapy. However, current guidelines have yet to embrace such markers for routine management of BCa, and most research studies have focused on urine-based tumor markers. In this review, we summarize known urinary biomarkers for BCa and highlight newly identified molecules. We then discuss the challenges that must be overcome to incorporate these markers into clinical care.

Price, J. and J. Brunet (2021). "Exploring cancer survivors' experiences in a group-based walking program before and during the COVID-19 pandemic: a qualitative study." Support Care Cancer.

PURPOSE: Physical activity (PA) can help reduce side effects related to cancer whilst promoting quality of life. This qualitative study explored cancer survivors' experiences in an 8-week group-based walking program with behavioural support that was delivered within the community to highlight factors central to successful adoption and sustainability of such programs. METHODS: Eleven cancer survivors who took part in the program before (n = 7) or during (n = 4) the COVID-19 pandemic were interviewed and asked to discuss their PA behaviour, motivation to join and complete the program, and experienced benefits and barriers, as well as offer feedback that could be incorporated into future programs. Interview transcripts were thematically analysed using a hybrid deductive-inductive approach. RESULTS: Participants' experiences were summarised into six themes: (1) PA behaviour and motivation were enhanced, (2) seeking accountability to take steps for better health, (3) mutual support encourages in-group bonding, (4) placing value on building PA confidence, (5) the impact of the COVID-19 pandemic and (6) recommendations for future programs. By receiving social and behavioural support, and thus experiencing increased PA confidence, participants felt the program supported their PA behaviour. However, key differences were evident for participants attending the program during the pandemic. CONCLUSIONS: Exploring strategies that foster a communal focus amongst participants within community-based walking programs may be beneficial. Moreover, findings underscore the value of offering PA programming (walking or otherwise) with behavioural support during a pandemic with appropriate safety measures, though social relationships may not be fully fostered.

Qiu, S. and Y. Hu (2021). "Are COVID-19 susceptibility genes related to lung cancer?" J Infect.

Qiu, S., et al. (2021). "The high expression of SARS-CoV-2 cell receptors might lead to higher COVID-19 infection rates in cancer patients." J Infect.

Quinn-Scoggins, H. D., et al. (2021). "Cancer symptom experience and help-seeking behaviour during the COVID-19 pandemic in the UK: a cross-sectional population survey." BMJ Open **11**(9): e053095.

OBJECTIVES: To understand self-reported potential cancer symptom help-seeking behaviours and attitudes during the first 6 months (March-August 2020) of the UK COVID-19 pandemic. DESIGN: UK population-based survey conducted during August and September 2020. Correlates of help-seeking behaviour were modelled using logistic regression in participants reporting potential cancer symptoms during the previous 6 months. Qualitative telephone interviews with a purposeful subsample of participants, analysed thematically. SETTING: Online UK wide survey. PARTICIPANTS: 7543 adults recruited via Cancer Research UK online panel provider (Dynata) and HealthWise Wales (a national register of 'research ready' participants) supplemented with social media (Facebook and Twitter) recruitment. 30 participants were also interviewed. MAIN OUTCOME MEASURES: Survey measures included experiences of 15 potential cancer symptoms, help-seeking behaviour, barriers and prompts to help-seeking. RESULTS: Of 3025 (40.1%) participants who experienced a potential cancer symptom, 44.8% (1355/3025) had not contacted their general practitioner (GP). Odds of help-seeking were higher among participants with disability (adjusted OR (aOR)=1.38, 95% CI 1.11 to 1.71) and who experienced more symptoms (aOR=1.68, 95% CI 1.56 to 1.82), and lower among those who perceived COVID-19 as the cause of symptom(s) (aOR=0.36, 95% CI 0.25 to 0.52). Barriers included worries about wasting the doctor's time (1158/7543, 15.4%), putting strain on healthcare services (945, 12.6%) and not wanting to make a fuss (907, 12.0%). Interviewees reported reluctance to contact the GP due to concerns

about COVID-19 and fear of attending hospitals, and described putting their health concerns on hold. CONCLUSIONS: Many people avoided healthcare services despite experiencing potential cancer symptoms during the COVID-19 pandemic. Alongside current help-seeking campaigns, well-timed and appropriate nationally coordinated campaigns should signal that services are open safely for those with unusual or persistent symptoms. TRIAL REGISTRATION NUMBER: ISRCTN17782018.

Rashid, M. U., et al. (2021). "Comparison of Colorectal Cancer Surgery Services During COVID-19 First Wave With Pre-COVID Time." Cureus **13**(8): e17585.

Introduction The first confirmed case of COVID-19 in the United Kingdom (UK) was reported on 29 January 2020. The country saw the peak of infection between March and May of 2020. The result was a change in the practice of how we treat most surgical conditions including cancer. We continued providing service to our colorectal cancer patients at a District General Hospital. The aim of this study was to compare our provision of colorectal cancer service during the peak of the pandemic to that of the pre-COVID time in our hospital. Methods We collected data of all colorectal cancer patients who underwent surgery between 1 March 2020 and 30 April 2020 in our hospital. The comparative data were collected for similar patients during the same time frame in 2019. A detailed data set was compiled on Microsoft Excel (Microsoft Corp, Washington) and analysed using IBM SPSS Statistics for Windows, Version 21.0 (Released 2012. IBM Corp, Armonk, NY). Results The two groups were comparable in demographics including age, BMI, gender, and Charlson comorbidity index. Time from decision- to-treat to surgery, post-operative HDU/ITU stay, and overall length of stay was shorter in the COVID group than the Pre-COVID group without any significant statistical difference. There was no statistically significant difference between the two groups in Calvien-Dindo complications grade 1 and 2. No mortality was reported due to direct or indirect consequences of COVID-19 infection. More open procedures were performed in our department during the first wave of COVID-19 in the UK compared to Pre-COVID time. Conclusions Despite the challenges we faced during the peak of the COVID-19 pandemic, we managed to provide standard care to our colorectal cancer patients with comparable post-operative surgical and oncological outcomes.

Rashid, S. and H. Tsao (2021). "Effect of the COVID-19 Pandemic on Delayed Skin Cancer Services." Dermatol Clin **39**(4): 627-637.

The COVID-19 pandemic has presented a unique set of challenges to cancer care centers around the world. Diagnostic and treatment delays associated with lockdown periods may be expected to increase the total number of avoidable skin cancer deaths. During this unprecedented time, dermatologists have been pressed to balance early surgical interventions for skin cancer with the risk of viral transmission. This article summarizes evidenced-based recommendations for the surgical management of cutaneous melanoma, keratinocyte cancer, and Merkel cell carcinoma during the COVID-19 pandemic. Additional long-term studies are required to determine the effect of COVID-19 on skin cancer outcomes.

Rodriguez, G. M., et al. (2021). "The Impact of COVID-19 on Patients With Cancer: A National Study of Patient Experiences." Am J Clin Oncol.

OBJECTIVES: The coronavirus disease 2019 (COVID-19) pandemic abruptly disrupted cancer care. The impact of these disruptions on patient experiences remain relatively understudied. The objective of this study was to assess patients' perspectives regarding the impact of COVID-19 on their experiences, including their cancer care, emotional and mental health, and social determinants of health, and to evaluate whether these outcomes differed by cancer stage. MATERIALS AND METHODS: We conducted a survey among adults with cancer across the United States from April 1, 2020 to August 26, 2020 using virtual snowball sampling strategy in collaboration with professional organizations, cancer care providers, and patient advocacy groups. We analyzed data using descriptive statistics, chi2 and t tests. RESULTS: Three hundred twelve people with cancer participated and represented 38 states. The majority were non-Hispanic White (n=183; 58.7%) and female (n=177; 56.7%) with median age of 57 years. Ninety-one percent spoke English at home, 70.1% had health insurance, and 67% had access to home internet. Breast cancer was the most common diagnosis (n=67; 21.5%). Most had Stage 4 disease (n=80; 25.6%). Forty-six percent (n=145) experienced a change in their care due to COVID-19. Sixty percent (n=187) reported feeling very or extremely concerned that the pandemic would affect their cancer and disproportionately experienced among those with advanced cancer stages compared with earlier stages (P<0.001). Fifty-two percent (n=162) reported impact of COVID-19 on 1 or more aspects of social determinants of health with disproportionate impact among those with advanced cancer stages compared with earlier stages. CONCLUSIONS: COVID-19 impacted the care and well-being of patients with cancer and this impact was more pronounced among people with advanced cancer stages. Future work should consider tailored interventions to mitigate the impact of COVID-19 on patients with cancer.

Rodriguez, M., et al. (2021). "Influence of Health Beliefs on COVID-19 Vaccination among Individuals

with Cancer and Other Comorbidities in Puerto Rico." Vaccines (Basel) **9**(9).

Ethnic minority populations are more likely to suffer from chronic comorbidities, making them more susceptible to the poor health outcomes associated with COVID-19 infection. Therefore, ensuring COVID-19 vaccination among vulnerable populations is of utmost importance. We aimed to investigate health behaviors and perceptions of COVID-19 vaccination among adults self-reporting diagnosis of cancer and of other chronic comorbidities in Puerto Rico (PR). This secondary analysis used data from 1911 participants who completed an online survey from December 2020 to February 2021. The Health Belief Model was used to measure perceptions surrounding COVID-19 vaccination among individuals self-reporting diagnosis of cancer and of other chronic comorbidities, and healthy adults. Among study participants, 76% were female, 34% were 50 years or older, 5% self-reported cancer diagnosis, and 70% had other chronic comorbidities. Participants self-reporting a cancer diagnosis had two times higher odds of getting vaccinated than healthy individuals (95% CI: 1.00-4.30). Compared to healthy participants, those self-reporting being diagnosed with cancer and those with chronic conditions other than cancer had significantly higher perceived COVID-19 susceptibility and severity. Our findings elucidate the effect of disease status on health-related decision-making and highlights information needed to be included in education campaigns to increase vaccine uptake among ethnic minority populations.

Roy, S., et al. (2021). "Outcome of COVID-19 in Solid Organ Malignancies: Experience From a Tertiary Cancer Center in Eastern India." JCO Glob Oncol **7**: 1374-1379.

PURPOSE: The COVID-19 pandemic has imposed a unique challenge to oncology patients. Outcome data on COVID-19 in patients with cancer from the Indian subcontinent are scarce in the literature. We aimed to evaluate the outcome of patients with COVID-19 on active systemic anticancer therapy. MATERIALS AND METHODS: This is a retrospective study of patients with solid organ malignancies undergoing systemic therapy with a diagnosis of COVID-19 between March 2020 and February 2021. COVID-19 was diagnosed if a reverse transcriptase polymerase chain reaction assay from oropharyngeal or nasopharyngeal swab was positive for severe acute respiratory syndrome coronavirus 2. The objectives were to evaluate the outcome of COVID-19 and factors predicting the outcome. RESULTS: A total of 145 patients were included with a median age of 58 years (range, 20-81 years). Treatment was curative in 60 (42%) patients. Of all symptomatic cases (n = 88, 61%), 50 had mild, 27 had moderate and 19 had severe

COVID-19-related symptoms as per WHO criteria. Fifty (34%) patients required hospitalization with a median duration of hospital stay of 12 days (range, 4-25 days); five patients required intensive care unit admission. The rest were treated with home isolation and did not require further hospitalization. Twenty-two (15%) patients died, and the risk of death was significantly associated with severity of symptoms (odds ratio, 91.3; 95% CI, 9.1 to 919.5, P = .0001) but not with any other clinical factors. Drug holiday was given to 63 (44%) patients with a median duration of 25 days (range, 7-88 days). The median duration to reverse transcriptase polymerase chain reaction-negative was 16 days (range, 7-62 days). CONCLUSION: COVD-19-related death rate was 15% among patients with solid organ malignancies. The severity of the symptoms was related to mortality. The majority of patients with mild symptoms were treated at home isolation.

Sakthivel, P., et al. (2021). "8 "S" of obturators in Head and Neck Cancer Rehabilitation during COVID-19 pandemic." Oral Oncol: 105523.

Schoenborn, N. L., et al. (2021). "Impact of the COVID-19 pandemic on cancer screening attitudes, intentions, and behaviors in older adults." J Am Geriatr Soc.

Sereno, M., et al. (2021). "A Multicenter Analysis of the Outcome of Cancer Patients with Neutropenia and COVID-19 Optionally Treated with Granulocyte-Colony Stimulating Factor (G-CSF): A Comparative Analysis." Cancers (Basel) **13**(16).

BACKGROUND: Approximately 15% of patients infected by SARS-CoV-2 develop a distress syndrome secondary to a host hyperinflammatory response induced by a cytokine storm. Myelosuppression is associated with a higher risk of infections and mortality. There are data to support methods of management for neutropenia and COVID-19. We present a multicenter experience during the first COVID-19 outbreak in neutropenic cancer patients infected by SARS-CoV-2. METHODS: Clinical retrospective data were collected from neutropenic cancer patients with COVID-19. Comorbidities, tumor type, stage, treatment, neutropenia severity, G-CSF, COVID-19 parameters, and mortality were analyzed. A bivariate analysis of the impact on mortality was carried out. Additionally, we performed a multivariable logistic regression to predict respiratory failure and death. RESULTS: Among the 943 cancer patients screened, 83 patients (11.3%) simultaneously had neutropenia and an infection with COVID-19. The lungs (26%) and breasts (22%) were the primary locations affected, and most patients had advanced disease (67%). In the logistic model, as adjusted covariates, sex, age, treatment (palliative vs. curative), tumor type, and the lowest level of neutrophils were

used. A significant effect was obtained for the number of days of G-CSF treatment (OR = 1.4, 95% CI [1,1,03,92], p-value = 0.01). CONCLUSIONS: Our findings suggest that a prolonged G-CSF treatment could be disadvantageous for these cancer patients with infections by COVID-19, with a higher probability of worse outcome.

Serra Mitja, P., et al. (2021). "Impact of the COVID-19 pandemic on lung cancer diagnosis and treatment." Med Clin (Barc).

Shaheen, N., et al. (2021). "Acute Morbidity and Mortality Analysis of COVID-19 in Children Receiving Cancer Treatment." J Coll Physicians Surg Pak **31**(1): S83-S86.

The aim of this study was to determine overall morbidity and mortality of COVID-19 infection in children on cancer treatment. It was an observational study, carried at Shaukat Khanum Cancer Hospital from 1st April 2020 to 31st July 2020. A total of 165 children on active cancer treatment were tested for COVID-19 with PCR; out of these, 17 were detected positive. Twelve children were symptomatic having fever with or without cough, sore throat, body aches, rash or diarrhea. Two children had concurrent gram negative bacteremia. Ten children (58.8%) required hospitalisation, 23.5% required oxygen and two had intensive care unit admission. One death was reported in this study. Chemotherapy was modified in five children, while elective surgery, chemotherapy and radiotherapy schedule were affected in eight children. Overall, the spread of Covid-19 was limited, the course of disease was mild, and anticancer treatment was provided and continued as per standard protocols. Key Words: Covid -19, Cancer, Anticancer chemotherapy, Immunosuppression, Children.

Situm, M., et al. (2021). "A Reminder of Skin Cancer During the COVID-19 Pandemic." Acta Dermatovenerol Croat **291**(1): 58.

The year 2020 has been marked by the coronavirus disease 2019 (COVID-19) pandemic, caused by an RNA virus called SARS-COV2 (severe acute respiratory syndrome coronavirus). The fight against this epidemic has become the center of our daily clinical practice as well as of our private lives, in which avoiding infection has become one of our most important goals. Even though COVID-19 is a potentially lethal disease, especially for the elderly and people with chronic diseases, it did not cause all the other life-threatening diseases to vanish. On the contrary, many scheduled medical activities and procedures, especially preventive and non-urgent internal and surgical activities, had to be postponed due to COVID-19 crisis. This interruption in the health care system can negatively affect the diagnosis and management of our patients with other health issues, namely malignant skin tumors, of which melanoma is

the most aggressive. In this letter, we as dermatovenereologists from the Croatian Referral Centre of The Ministry of Health for Melanoma needed to express our concern regarding the increasing number of patients with delayed diagnosis of skin cancer, with special emphasis on melanoma detection and treatment. In the last few months, a large number of our newly-diagnosed patients with melanoma, as well as those with non-melanoma skin cancers, reported that they had noticed a suspicious skin lesion a few months ago but decided not to seek help from dermatologist due to the worrisome epidemiologic situation. In the current environment, clinical skin examination may be viewed as less important and thus postponed, but neglecting melanoma throughout the virus outbreak may lead to increased rates of morbidity, mortality, and consequently a greater financial burden for the health system (1). There are several reasons for such a relaxed attitude towards skin health in our patients. Unlike cardiac, pulmonary, or digestive difficulties, which patients consider life-threatening and for which they seek emergency care despite the coronavirus pandemic, skin tumors do not cause great subjective or significantly noticeable objective symptoms. Moreover, all of the skin tumors and especially melanoma , mostly present as small changes of just a few millimeters in diameter in the early stage at which they are prognostically most favorable. For the average person with no medical education, such small lesions usually do not cause any concern as they have no awareness of the fact that small and inconspicuous skin lesions may be dangerous and potentially even lethal. According to the recommendations concerning patient management during COVID-19 pandemic, oncological examinations should still be performed regularly (2). In spite of that, the cancelation of appointments, especially by patients who are being monitored for high-risk lesions, is inevitable when COVID-19 is disrupting everyone's lives. With the pandemic evolving and no clear solutions in sight, now is the time to emphasize the importance of self-examination and teledermatology in early melanoma diagnosis. Even though diagnosing and managing pigmented skin lesions usually requires face-to-face examinations and dermoscopy as a crucial tool in early melanoma detection, in these times, and especially for people with a higher risk of SARS-COV2 infection, remote communication could prevent delays resulting in worse prognosis and could also eliminate the risk of infecting healthcare workers. Moreover, teledermatology can also be initiated by doctors asking patients to monitor lesions between clinical visits (3). However, we should not rely solely on this technology but should instead assess every patient individually and insist on a face-to-face examination for those at greater risk, with the aim that, if necessary, surgery be performed in timely manner.

The collaboration between general practitioners and dermatologists represents an important aspect of achieving the most rational and effective health care in terms of performing triage of patients who can be assessed by teledermatology as well as referring to hospital centers those who need face-to-face examination and further treatment. During the first breakout of the epidemic in March 2020, the multidisciplinary team for melanoma from the Croatian National Referral Melanoma Centre provided recommendations for the management of patients with melanoma during COVID epidemic, designed according to the guidelines of the National Comprehensive Cancer Network (NCCN) (4) and considering the specifics of health care and clinical practice in the Republic of Croatia. Due to epidemic circumstances, preventive actions such as Euromelanoma and many other campaigns that included massive preventive skin examinations of the population and which were conducted for years by Croatian dermatologists throughout the country, could not be organized this year. This is particularly worrisome because on average about 800 patients are diagnosed with melanoma annually in Croatia, of which 60 during public health preventive actions. Despite these circumstances, we were able to maintain public awareness of the importance of early skin cancer recognition by sending the message through different media such as newspapers, television, and social media (Facebook and Instagram). We find that now more than ever it is essential to remind and teach the population about the importance of regular monthly skin self-examinations and recognition of atypical lesions. Clearly, a thorough dermatological examination includes full skin examination from head to toe. Herein we would also like to remind our readers that most skin cancers develop in the head and neck area, which is the most UV-exposed part of the body. Therefore, despite the epidemic conditions, the removal of patients' masks and thorough inspection of the face is mandatory. We find it most practical and efficient to perform the body and scalp examination first, followed by the face examination after the patient gets dressed. Prior to removal of the mask, we ask the patient not to talk during close examination. Even though this could make dermoscopic examination harder to perform, we strongly suggest wearing a protective shield and mask during close examination whenever possible. Between patients, the examining room should be disinfected and ventilated. As doctors, we live in uncertain times when we are heavily burdened by the currently unstoppable COVID epidemic, always awaiting new instructions from the state administration every day and wondering whether perhaps tomorrow we dermatologists will be assigned solely to the service of patients with COVID-19. In the end, we would like to once again remind you

that despite the ravaging COVID pandemic and all the epidemiological measures that come with it, other diseases still exist. It is expected of us to draw attention to the still growing incidence of skin cancers and the serious consequences that can occur as a result of a delayed diagnosis.

Soerjomataram, I., et al. (2021). "Impact of the COVID-19 pandemic on population-based cancer registry." Int J Cancer.

The COVID-19 pandemic has caused disruptions to national health systems and impacted health outcomes worldwide. However, the extent to which surveillance systems, such as population-based cancer registration, have been affected was not reported. Here we sought to evaluate the effect of the pandemic on registry operations across different areas and development levels worldwide. We investigated the impact of COVID-19 on three main areas of cancer registry operations: staffing, financing and data collection. An online survey was administered to 750 member registries of the International Association for Cancer Registries. Among 212 responding registries from 90 countries, 65.6% reported a disruption in operations, ranging between 45% in south-eastern Asia and 87% in the Latin America and Caribbean. Active data collection was disrupted more than case notifications or hybrid methods. In countries categorized with low Human Development Index (HDI), a greater number of registries reported a negative impact (81.3%) than in very high HDI countries (57.8%). This contrast was highest in term of impact on financing: 9/16 (56%) registries in low HDI countries reported a current or an expected decline in funding, compared to 7/108 (7%) in very high HDI countries. With many cancer registries worldwide reporting disruption to their operations during the early COVID-19 pandemic, urgent actions are needed to ensure their continuity. Governmental commitment to support future registry operations as an asset to disease control, alongside a move toward electronic reporting systems will help to ensure the sustainability of cancer surveillance worldwide.

Sonkar, C., et al. (2021). "Repurposing of gastric cancer drugs against COVID-19." Comput Biol Med **137**: 104826.

Corona Virus Disease 2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has become a global pandemic. Additionally, the SARS-CoV-2 infection in the patients of Gastric Cancer (GC; the third leading cause of death in the world) pose a great challenge for the health management of the patients. Since there have been uncertainties to develop a new drug against COVID-19, there is an urgent need for repurposing drugs that can target key proteins of both SARS-CoV-2 and GC. The SARS-CoV-2-RdRp protein contains the

NiRAN domain, which is known to have kinase-like folds. A docking study of the FDA approved drugs against GC was performed using AutoDock 4.2 and Glide Schrodinger suite 2019 against SARS-CoV-2-RdRp protein. MMGBSA and MD simulation studies were performed to investigate the binding and stability of the inhibitors with the target protein. In this study, we have found 12 kinase inhibitors with high binding energies namely Baricitinib, Brepocitinib, Decernotinib, Fasudil, Filgotinib, GSK2606414, Peficitinib, Ruxolitinib, Tofacitinib, Upadacitinib, Pamapimod and Ibrutinib. These FDA approved drugs against GC can play a key role in the treatment of COVID-19 patients along with GC as comorbidity. We also hypothesize that JAK, ITK, Rho-associated kinases, FGFR2, FYN, PERK, TYK2, p38-MAPK and SYK kinases can be considered as key therapeutic targets in COVID-19 treatment. Taken altogether, we have proposed the SARS-CoV-2-RdRp as a potential therapeutic target through in-silico studies. However, further in-vitro and in-vivo studies are required for the validation of the proposed targets and drugs for the treatment of COVID-19 patients already suffering from GC.

Sun, J., et al. (2021). "Computational Methods to Study Human Transcript Variants in COVID-19 Infected Lung Cancer Cells." Int J Mol Sci **22**(18).

Microbes and viruses are known to alter host transcriptomes by means of infection. In light of recent challenges posed by the COVID-19 pandemic, a deeper understanding of the disease at the transcriptome level is needed. However, research about transcriptome reprogramming by post-transcriptional regulation is very limited. In this study, computational methods developed by our lab were applied to RNA-seq data to detect transcript variants (i.e., alternative splicing (AS) and alternative polyadenylation (APA) events). The RNA-seq data were obtained from a publicly available source, and they consist of mock-treated and SARS-CoV-2 infected (COVID-19) lung alveolar (A549) cells. Data analysis results show that more AS events are found in SARS-CoV-2 infected cells than in mock-treated cells, whereas fewer APA events are detected in SARS-CoV-2 infected cells. A combination of conventional differential gene expression analysis and transcript variants analysis revealed that most of the genes with transcript variants are not differentially expressed. This indicates that no strong correlation exists between differential gene expression and the AS/APA events in the mock-treated or SARS-CoV-2 infected samples. These genes with transcript variants can be applied as another layer of molecular signatures for COVID-19 studies. In addition, the transcript variants are enriched in important biological pathways that were not detected in the studies that only focused on differential gene expression analysis. Therefore, the

pathways may lead to new molecular mechanisms of SARS-CoV-2 pathogenesis.

Tembhare, P. R., et al. (2021). "Comprehensive immune cell profiling depicts an early immune response associated with severe COVID-19 disease in cancer patients." Immunol Cell Biol.

Recent studies have highlighted multiple immune perturbations related to SARS-CoV-2 infection-associated respiratory disease (COVID-19). Some of them were associated with immunopathogenesis of the severe COVID-19. However, the reports on immunological indicators of severe COVID-19 in the early phase of infection in patients with comorbidities like cancer are scarce. We prospectively studied ~200 immune response parameters, including a comprehensive immune-cell profile, inflammatory cytokines, and other parameters in 95 patients with COVID-19 (37 cancer patients without active disease and intensive chemo/immunotherapy, 58 patients without cancer) and 21 healthy donors. Of 95 patients, 41 had severe disease, and the remaining 54 were categorized into non-severe disease. We evaluated the association of immune response parameters with severe COVID-19. By principal component analysis, three immune signatures defining characteristic immune response in COVID-19 patients were found. Immune cell perturbations, in particular, decreased levels of circulating dendritic cells (DC) along with reduced levels of CD4 T-cell subsets such as regulatory T cells (Tregs), Th1, Th9 and relative expansion of effector NK cells were significantly associated with severe-COVID-19. Compared to patients without cancer, the levels of terminal effector-CD4 T, Tregs, Th9, effector NK cells, B cells, intermediate-type monocytes, and myeloid-DC were significantly lower in cancer patients with mild and severe COVID-19. We concluded that severely depleted circulating myeloid-DCs and helper-T-subsets in the initial phase of infection were strongly associated with the severe COVID-19 independent of age, type of comorbidity and other parameters. Thus, our study describes the early immune response associated with severe COVID-19 disease in cancer patients without intensive chemo/immunotherapy.

Thakkar, A., et al. (2021). "COVID-19 Vaccine among Actively-Treated People with Cancer: A Glimpse into the Known Unknowns?" J Natl Cancer Inst.

Thierry, A. R., et al. (2021). "Association of COVID-19 Lockdown With the Tumor Burden in Patients With Newly Diagnosed Metastatic Colorectal Cancer." JAMA Netw Open **4**(9): e2124483.

Importance: The COVID-19 pandemic has been associated with substantial reduction in screening, case identification, and hospital referrals among patients with cancer. However, no study has quantitatively examined the implications of this

correlation for cancer patient management. Objective: To evaluate the association of the COVID-19 pandemic lockdown with the tumor burden of patients who were diagnosed with metastatic colorectal cancer (mCRC) before vs after lockdown. Design, Setting, and Participants: This cohort study analyzed participants in the screening procedure of the PANIRINOX (Phase II Randomized Study Comparing FOLFIRINOX + Panitumumab vs FOLFOX + Panitumumab in Metastatic Colorectal Cancer Patients Stratified by RAS Status from Circulating DNA Analysis) phase 2 randomized clinical trial. These newly diagnosed patients received care at 1 of 18 different clinical centers in France and were recruited before or after the lockdown was enacted in France in the spring of 2020. Patients underwent a blood-sampling screening procedure to identify their RAS and BRAF tumor status. Exposures: mCRC. Main Outcomes and Measures: Circulating tumor DNA (ctDNA) analysis was used to identify RAS and BRAF status. Tumor burden was evaluated by the total plasma ctDNA concentration. The median ctDNA concentration was compared in patients who underwent screening before (November 11, 2019, to March 9, 2020) vs after (May 14 to September 3, 2020) lockdown and in patients who were included from the start of the PANIRINOX study. Results: A total of 80 patients were included, of whom 40 underwent screening before and 40 others underwent screening after the first COVID-19 lockdown in France. These patients included 48 men (60.0%) and 32 women (40.0%) and had a median (range) age of 62 (37-77) years. The median ctDNA concentration was statistically higher in patients who were newly diagnosed after lockdown compared with those who were diagnosed before lockdown (119.2 ng/mL vs 17.3 ng/mL; P < .001). Patients with mCRC and high ctDNA concentration had lower median survival compared with those with lower concentration (14.7 [95% CI, 8.8-18.0] months vs 20.0 [95% CI, 14.1-32.0] months). This finding points to the potential adverse consequences of the COVID-19 pandemic and related lockdown. Conclusions and Relevance: This cohort study found that tumor burden differed between patients who received an mCRC diagnosis before vs after the first COVID-19 lockdown in France. The findings of this study suggest that CRC is a major area for intervention to minimize pandemic-associated delays in screening, diagnosis, and treatment.

Turan, U., et al. (2021). "The reliability of breast cancer surgery in a regional pandemic hospital during the COVID-19 pandemic: Delay or Do?" J BUON 26(4): 1379-1385.

PURPOSE: The purpose of this study was to examine the effect of COVID-19 infection on the morbidity and mortality rates of breast cancer patients performed in the East Mediterranean region of Turkey during the COVID-19 pandemic and to share the results of those investigations. METHODS: This retrospective study included all breast cancer patients that underwent surgery during the COVID-19 pandemic in the General Surgery Clinic of Adana City Training and Research Hospital, a regional pandemic hospital, between March 11, 2020 and December 25, 2020. The patients were evaluated preoperatively and postoperatively (the first 30 days) in terms of COVID-19 infection. Moreover, these patients were also evaluated in terms of admission to the hospital, length of hospital stay, and mortality due to COVID-19 infection during the follow-up period of the study. RESULTS: Included in the study were 139 patients that underwent surgery for breast cancer during the pandemic period, with no observed mortality or morbidity associated with COVID-19 in any patient postoperatively within the first 30 days. In addition, within 121.22+/-70.05 days, the mean and standard deviation of the study's follow-up period, 19 patients (15.7%) were admitted to the hospital with a suspected COVID-19 infection (after the first 30 days postoperatively) and 6 of them (4.3%) returned a positive PCR test. All of the COVID-19 positive patients (6 patients, 4.3%) were hospitalised and 3 of them (2.2%) died due to the COVID-19 infection. CONCLUSION: Breast cancer surgery can be performed safely during the COVID-19 pandemic period after taking the necessary precautions.

Van Hemelrijck, M., et al. (2021). "Global cancer research in the era of COVID-19: a bibliometric analysis." Ecancermedicalscience 15: 1264.

Background: Patients with cancer across the world have been impacted by the COVID-19 pandemic due to increased risk of infection and disruption to cancer diagnosis and treatment. Widening of healthcare disparities is expected as the gap between health systems with and without adequate resources to mitigate the pandemic become more apparent. We undertook a bibliometric analysis of research related to cancer and COVID-19 to understand (1) the type of research that has been conducted (e.g. patients, services and systems) and (2) whether the pandemic has impacted the state of global cancer research as measured by research outputs to date. Methods: An existing filter for cancer research consisting of title words and the names of specialist cancer journals was used to identify cancer and COVID-19 related articles and reviews in the Web of Science ((c)Clarivate Analytics) between January 2019 and February 2021. Results: One thousand five hundred and forty-five publications were identified. The majority (57%) were reviews, opinion pieces or concerned with modelling impact of delays to diagnosis and treatment. The main research domains focused on managing or estimating COVID-19 risk to cancer patients accounting for 384

papers (25%). High Income countries contributed the largest volume (n = 1,115; 72%), compared to Upper Middle (n = 302; 20%), Lower Middle (n = 122; 8%) and Low Income countries (n = 2.4; 0.2%). No evidence of a reduction in global cancer research output was observed in 2020. Conclusions: We observed a shift in research focus rather than a decline in absolute output. However, there is variation based on national income and collaborations are minimal. There has been a focus on pan-cancer studies rather than cancer site-specific studies. Strengthening global multidisciplinary research partnerships with teams from diverse backgrounds with regard to gender, clinical expertise and resource setting is essential to prevent the widening of cancer inequalities.

Vanni, G., et al. (2021). "Impact of COVID-19 Pandemic on Surgical Breast Cancer Patients Undergoing Neoadjuvant Therapy: A Multicentric Study." Anticancer Res **41**(9): 4535-4542.

BACKGROUND/AIM: Due to the SARS-CoV-2 pandemic, many scientific committees proposed neoadjuvant therapy (NACT) bridging treatment as a novel strategy and indication. The aim of the study was to evaluate the impact of COVID-19 pandemic on breast cancer patients undergoing NACT. PATIENTS AND METHODS: All breast cancer patients referred to two Breast Units during COVID-19-pandemic were enrolled. RESULTS: Out of 814 patients, 43(5.3%) were enrolled in the COVID-19-group and compared with 94 (7.9%) similar Pre-COVID-19 patients. We observed a reduction in the number of patients undergoing NACT, p=0.0019. No difference was reported in terms of clinical presentation, indications, and tumor response. In contrast, a higher number of vascular adverse events was reported (6.9% vs. 0% p=0.029). Immediate breast cancer reconstructions following invasive surgery suffered a significant slowdown (5.9% vs. 47.7%, p=0.019). CONCLUSION: COVID-19 caused a reduction in the number of patients undergoing NACT, with no changes in terms of indications, clinical presentation, and tumor response. Furthermore, there was an increased incidence of vascular events.

Vos, D., et al. (2021). "COVID-19 infection in the cancer population: a study of emergency department imaging utilization and findings." Emerg Radiol.

PURPOSE: To analyze emergency department (ED) computerized tomography (CT) utilization in cancer patients with coronavirus disease 2019 (COVID-19). METHODS: A retrospective chart review was performed to identify cancer patients who received COVID-19 diagnosis within the single healthcare system and presented to the ED within 30 days of COVID-19 positive date between May 1 and December 31, 2020. RESULTS: In our 61 patients, the mean age was 72.5 years old, with 34% of patients (n =

21) on active cancer therapy and 66% (n = 40) on surveillance only. Most patients (n = 53) received their COVID-19 diagnosis within the ED, with 8 patients diagnosed prior to initial ED visit. The most common CT studies ordered within the ED were CT chest (n = 25), CT abdomen/pelvis (A/P) (n = 20), CT head (n = 8), and CT chest/abdomen/pelvis (C/A/P) (n = 7). COVID-19 findings were present on 33 scans, findings of worsening malignancy on 12 scans, and non-COVID non-cancer findings on 9 scans. Significant differences in CT severity score (p = 0.0001), indication for hospitalization (p = 0.026), length of hospitalization (p = 0.004), interventions (remdesivir, mechanical ventilation, and vasopressor support) while hospitalized (p < 0.05), and mortality (p = 0.042) were found between the prior diagnosis and ED diagnosis groups. No such differences were found between the active treatment and surveillance groups. CONCLUSION: ED CT imaging findings in patients with cancer and COVID-19 are predominantly related to COVID-19 infection, rather than cancer history or anti-cancer therapy status.

Walker, E., et al. (2021). "Delayed Colorectal Cancer Diagnosis during the COVID-19 Pandemic in Alberta: A Framework for Analyzing Barriers to Diagnosis and Generating Evidence to Support Health System Changes Aimed at Reducing Time to Diagnosis." Int J Environ Res Public Health **18**(17).

The frequency of colorectal cancer (CRC) diagnosis has decreased due to the COVID-19 pandemic. Health system planning is needed to address the backlog of undiagnosed patients. We developed a framework for analyzing barriers to diagnosis and estimating patient volumes under different system relaunch scenarios. This retrospective study included CRC cases from the Alberta Cancer Registry for the pre-pandemic (1 January 2016-4 March 2020) and intra-pandemic (5 March 2020-1 July 2020) periods. The data on all the diagnostic milestones in the year prior to a CRC diagnosis were obtained from administrative health data. The CRC diagnostic pathways were identified, and diagnostic intervals were measured. CRC diagnoses made during hospitalization were used as a proxy for severe disease at presentation. A modified Poisson regression analysis was used to estimate the adjusted relative risk (adjRR) and a 95% confidence interval (CI) for the effect of the pandemic on the risk of hospital-based diagnoses. During the study period, 8254 Albertans were diagnosed with CRC. During the pandemic, diagnosis through asymptomatic screening decreased by 6.5%. The adjRR for hospital-based diagnoses intra-COVID-19 vs. pre-COVID-19 was 1.24 (95% CI: 1.03, 1.49). Colonoscopies were identified as the main bottleneck for CRC diagnoses. To clear the backlog before

progression is expected, high-risk subgroups should be targeted to double the colonoscopy yield for CRC diagnosis, along with the need for a 140% increase in monthly colonoscopy volumes for a period of 3 months. Given the substantial health system changes required, it is unlikely that a surge in CRC cases will be diagnosed over the coming months. Administrators in Alberta are using these findings to reduce wait times for CRC diagnoses and monitor progression.

The above contents are the collected information from Internet and public resources to offer to the people for the convenient reading and information disseminating and sharing.

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