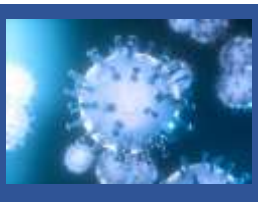
# COVID-19

*Jun 18-24, 2020*



# RESEARCH PUBLICATIONS

**Publication Date: June 24, 2020**

## Coronavirus in continuous flux: From SARS-CoV to SARS-CoV-2

### Abstract

The world is currently experiencing a global pandemic caused by a novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes severe respiratory disease similar to SARS. Previous studies have suggested that SARS-CoV-2 shares 79% and 96% sequence identity to SARS-CoV and to bat coronavirus RaTG13, respectively at the whole-genome level. Furthermore, a series of studies have shown that SARS-CoV-2 induces clusters of severe respiratory illnesses (*i.e.,* pneumonia, acute lung injury (ALI), acute respiratory distress syndrome (ARDS)) resembling SARS-CoV. Moreover, the pathological syndrome may, in part, be caused by cytokine storms and dysregulated immune responses. Thus, in this work the recent literature surrounding the biology, clinical manifestations, and immunology of SARS-CoV-2 is summarized, with the aim of aiding prevention, diagnosis, and treatment for SARS-CoV-2 infection.

### Reference

https://onlinelibrary.wiley.com/doi/10.1002/advs.202001474

## Tocilizumab in patients with severe COVID-19: A retrospective cohort study

### Abstract

*Background:* No therapy is approved for COVID-19 pneumonia. The aim of this study was to assess the role of tocilizumab in reducing the risk of invasive mechanical ventilation

and death in patients with severe COVID-19 pneumonia who received standard of care treatment.

*Methods*: This retrospective, observational cohort study included adults (≥18 years) with severe COVID-19 pneumonia who were admitted to tertiary care centres in Bologna and Reggio Emilia, Italy, between Feb 21 and March 24, 2020, and a tertiary care centre in Modena, Italy, between Feb 21 and April 30, 2020. All patients were treated with the standard of care (*i.e.,* supplemental oxygen, hydroxychloroquine, azithromycin, antiretrovirals, and low molecular weight heparin), and a non-randomly selected subset of patients also received tocilizumab. Tocilizumab was given either intravenously at 8 mg/kg bodyweight (up to a maximum of 800 mg) in two infusions, 12 h apart, or subcutaneously at 162 mg administered in two simultaneous doses, one in each thigh (*i.e.,* 324 mg in total), when the intravenous formulation was unavailable. The primary endpoint was a composite of invasive mechanical ventilation or death. Treatment groups were compared using Kaplan-Meier curves and Cox regression analysis after adjusting for sex, age, recruiting centre, duration of symptoms, and baseline Sequential Organ Failure Assessment (SOFA) score.

*Findings*: Of 1351 patients admitted, 544 (40%) had severe COVID-19 pneumonia and were included in the study. 57 (16%) of 365 patients in the standard care group needed mechanical ventilation, compared with 33 (18%) of 179 patients treated with tocilizumab (p=0·41; 16 [18%] of 88 patients treated intravenously and 17 [19%] of 91 patients treated subcutaneously). 73 (20%) patients in the standard care group died, compared with 13 (7%; p<0·0001) patients treated with tocilizumab (six [7%] treated intravenously and seven [8%] treated subcutaneously). After adjustment for sex, age, recruiting centre, duration of symptoms, and SOFA score, tocilizumab treatment was associated with a reduced risk of invasive mechanical ventilation or death (adjusted hazard ratio 0·61, 95% CI 0·40–0·92; p=0·020). 24 (13%) of 179 patients treated with tocilizumab were diagnosed with new infections, versus 14 (4%) of 365 patients treated with standard of care alone (p<0·0001).

*Interpretation*: Treatment with tocilizumab, whether administered intravenously or subcutaneously, might reduce the risk of invasive mechanical ventilation or death in patients with severe COVID-19 pneumonia.

**Reference**

https://www.thelancet.com/journals/lanrhe/article/PIIS2665-9913(20)30173-9/fulltext

## Temporal radiographic changes in COVID-19 patients: Relationship to disease severity and viral clearance

**Abstract**

COVID-19 is “public enemy number one” and has placed an enormous burden on health authorities across the world. Given the wide clinical spectrum of COVID-19, understanding the factors that can predict disease severity will be essential since this will help frontline clinical staff to stratify patients with increased confidence. To investigate the diagnostic value of the temporal radiographic changes, and the relationship to disease severity and viral clearance in COVID-19 patients. In this retrospective cohort study, we included 99 patients admitted to the Renmin Hospital of Wuhan University, with laboratory confirmed moderate or severe COVID-19. Temporal radiographic changes and viral clearance were explored using appropriate statistical methods. Radiographic features from HRCT scans included ground-glass opacity, consolidation, air bronchogram, nodular opacities and pleural effusion. The HRCT scores (peak) during disease course in COVID-19 patients with severe pneumonia (median: 24.5) were higher compared to those with pneumonia (median: 10) ($p = 3.56 \times 10 - 12$), with more frequency of consolidation ($p = 0.025$) and air bronchogram ($p = 7.50 \times 10 - 6$). The median values of days when the peak HRCT scores were reached in pneumonia or severe pneumonia patients were 12 vs. 14, respectively ($p = 0.048$). Log-rank test and Spearman’s Rank-Order correlation suggested temporal radiographic changes as a valuable predictor for viral clearance. In addition, follow up CT scans from 11 pneumonia patients showed full recovery. Given the values of HRCT scores for both disease severity and viral clearance, a standardised HRCT score system for COVID-19 is highly demanded.

**Reference**

https://www.nature.com/articles/s41598-020-66895-w

## The dark side of COVID-19: The need of integrated medicine for children with special care needs

### Abstract

During the coronavirus disease 2019 (COVID-19) outbreak, the Italian healthcare system dramatically changed in terms of delivery of standard of care. In Italy, about 2 million patients are affected by various rare disorders (70% of these are pediatric patients). A multidisciplinary approach is routinely performed in third-level specialized centers in order to provide an assessment of global disease impact and to prevent and manage disease sequelae and comorbidities. Against this background context, the COVID-19 pandemic completely altered a previously well-organized and carefully planned approach. Medical attention was invariably focused on COVID-19, overshadowing any other potential clinical issue. Families of children affected by rare diseases were often geographically/physical isolated far from their normal treatment centers, and physicians were unable to fulfill their "traditional" role in caring for these patients. In this suddenly and drastically changed system, three main issues (lack of expertise, experience and integrated medicine) have been unmasked with describe specific examples. For more details, read the link given below.

### Reference

https://onlinelibrary.wiley.com/doi/10.1002/ajmg.a.61722

## Mental health status of the general population, healthcare professionals, and university students during 2019 coronavirus disease outbreak in Jordan: A cross-sectional study

### Abstract

*Background*: The emergence of COVID-19 global pandemic coupled with high transmission rate and mortality has created an unprecedented state of emergency worldwide. This global situation may have a negative impact on the psychological well-being of individuals which in turn impacts individuals' performance. This study aims to explore the prevalence of depression and anxiety among the GP, HCPs, and USs during COVID-19 outbreak, and to identify key population(s) who might need psychological intervention.

*Methods*: A cross-sectional study using an online survey was conducted in Jordan between 22 and 28 March 2020 to explore the mental health status (depression and anxiety) of the general population, healthcare professionals, and university students during the COVID-19 outbreak. The Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) were used to assess depression and anxiety among the study participants. Logistic regression analysis was used to identify predictors of depression and anxiety.

*Results*: The prevalence of depression and anxiety among the entire study participants was 23.8% and 13.1%, respectively. Anxiety was most prevalent across university students 21.5%, followed by healthcare professionals 11.3%, and general population 8.8%. Females among healthcare professionals and university students, divorced healthcare professionals, pulmonologists, and university students with history of chronic disease were at higher risk of developing depression. Females, divorced participants among the general population, and university students with history of chronic disease and those with high income (≥1,500 JD) were at higher risk of developing anxiety.

*Conclusions*: During outbreaks, individuals are put under extreme stressful condition resulting in higher risk of developing anxiety and depression particularly for students and healthcare professionals. Policymakers and mental healthcare providers are advised to provide further mental support to these vulnerable groups during this pandemic.

**Reference**

https://onlinelibrary.wiley.com/doi/10.1002/brb3.1730

**Publication Date: June 22, 2020**

## A neutralizing human antibody binds to the *N*-terminal domain of the Spike protein of SARS-CoV-2

**Abstract**

Developing therapeutics against SARS-CoV-2 could be guided by the distribution of epitopes, not only on the receptor binding domain (RBD) of the Spike (S) protein, but also across the full Spike (S) protein. We isolated and characterized monoclonal antibodies (mAbs) from ten convalescent COVID-19 patients. Three mAbs showed neutralizing

activities against authentic SARS-CoV-2. An mAb, named 4A8, exhibits high neutralization potency against both authentic and pseudotyped SARS-CoV-2, but does not bind the RBD. We defined the epitope of 4A8 as the *N* terminal domain (NTD) of the S protein by determining its cryo-EM structure in complex with the S protein to an overall resolution of 3.1 Angstrom and local resolution of 3.3 Angstrom for the 4A8-NTD interface. This points to the NTD as a promising target for therapeutic mAbs against COVID-19.

**Reference**

Chi, Xiangyang, Renhong Yan, Jun Zhang, Guanying Zhang, Yuanyuan Zhang, Meng Hao, *et. al.* "A neutralizing human antibody binds to the N-terminal domain of the Spike protein of SARS-CoV-2." *Science* (2020) (IF = 41.063).

## Clinical epidemiological analyses of overweight/obesity and abnormal liver function contributing to prolonged hospitalization in patients infected with COVID-19

**Abstract**

Background: During the 2019 coronavirus disease (COVID-19) outbreak, obesity may contribute to COVID-19 transmission and deterioration. In addition, many patients with COVID-19 infection have suffered liver damage which might contribute to a worse prognosis. We conducted a clinical epidemiological analysis to investigate the association of overweight/obesity and abnormal liver function (ALF) with hospitalized duration in patients infected with COVID-19.

*Methods*: Fifty-eight patients with diagnosed COVID-19 (22 women & 36 men; average age: 49.2 ± 13.1 yr) were included, and their clinical data were collected at The Second Affiliated and Yuying Children's Hospital of Wenzhou Medical University, Zhejiang. Overweight/obesity was determined as body mass index (BMI) ≥24 kg/m2, ALF was determined as alanine aminotransferase >40 U/L, and prolonged hospitalization was lasting more than the median value of the hospitalized days (19 days) in this population.

*Results:* The proportions of prolonged hospitalization were elevated in patients with overweight/obesity and ALF compared with those without overweight/obesity (62.1% versus 26.1%, P = 0.010) and those without ALF (70.6% versus 41.5%, P = 0.043). Kaplan–Meier analysis showed that the hospitalized duration was increased from the

patients with neither overweight/obesity nor ALF to those with either overweight/obesity or ALF, and to those with both of overweight/obesity and ALF (mean with 95% confidence interval: 16.4 [14.5–18.3] versus 25.3 [21.6–29.1] versus 28.3 [24.6–32.0], P for trend = 0.001). Being discharged from hospital in time was inversely and independently associated with BMI (hazard ratio [HR] = 0.75, 95% CI: 0.63–0.90, P for trend = 0.002) and ALT (HR = 0.95, 95% CI: 0.92–0.99, P for trend = 0.007).

*Conclusions*: Present findings suggested that overweight/obesity and/or ALF contributed to predicting a probability of prolonged hospitalization in patients with COVID-19 infection, to whom extra attentions and precautions should be paid during clinical treatments.

**Reference**

https://www.nature.com/articles/s41366-020-0634-3

**A systematic review of pathological findings in COVID-19: A pathophysiological timeline and possible mechanisms of disease progression**

**Abstract**

Developing therapeutics against SARS-CoV-2 could be guided by the distribution of epitopes, not only on the receptor binding domain (RBD) of the Spike (S) protein, but also across the full Spike (S) protein. We isolated and characterized monoclonal antibodies (mAbs) from ten convalescent COVID-19 patients. Three mAbs showed neutralizing activities against authentic SARS-CoV-2. An mAb, named 4A8, exhibits high neutralization potency against both authentic and pseudotyped SARS-CoV-2, but does not bind the RBD. We defined the epitope of 4A8 as the *N* terminal domain (NTD) of the S protein by determining its cryo-EM structure in complex with the S protein to an overall resolution of 3.1 Angstrom and local resolution of 3.3 Angstrom for the 4A8-NTD interface. This points to the NTD as a promising target for therapeutic mAbs against COVID-19.

**Reference**

https://www.nature.com/articles/s41379-020-0603-3

## Structure-based design of antiviral drug candidates targeting the SARS-CoV-2 main protease

### Abstract

SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) is the etiological agent responsible for the global COVID-19 (coronavirus disease 2019) outbreak. The main protease of SARS-CoV-2, Mpro, is a key enzyme that plays a pivotal role in mediating viral replication and transcription. We designed and synthesized two lead compounds (11a and 11b) targeting Mpro. Both exhibited excellent inhibitory activity and potent anti–SARS-CoV-2 infection activity. The x-ray crystal structures of SARS-CoV-2 Mpro in complex with 11a or 11b, both determined at a resolution of 1.5 angstroms, showed that the aldehyde groups of 11a and 11b are covalently bound to cysteine 145 of Mpro. Both compounds showed good pharmacokinetic properties in vivo, and 11a also exhibited low toxicity, which suggests that these compounds are promising drug candidates.

### Reference

Dai, Wenhao, Bing Zhang, Haixia Su, Jian Li, Yao Zhao, Xiong Xie, Zhenming Jin *et al.* "Structure-based design of antiviral drug candidates targeting the SARS-CoV-2 main protease." *Science* (2020) (IF = 41.063).

## Natural products' role against COVID-19

### Abstract

COVID-19 is a viral disease caused by a new severe acute respiratory syndrome (SARS-CoV-2), which has quickly resulted in a pandemic. As a great threat to global public health, the development of a treatment has become vital, and a rush to find a cure has mobilized researchers from all areas across the world. Synthetic drugs, such as hydroxychloroquine, have gained attention. However, the efficacy of repositioned drugs is still under evaluation, and besides, some severe side effects are a cause for concern. This emphasizes the urgency for treatment options, which can be both safe and effective. With this in mind, natural products could be an important resource in the development of COVID-19 treatment, as they have already contributed in the past to treatments against

other viruses, such as HIV, MERS-CoV, and influenza. Natural products are described long term as bioactive substances and some phytochemical classes such as flavonoids, alkaloids, and peptides are known antiviral bioproducts, and have been virtually tested with success against COVID-19. However, important issues still need to be addressed as to their bioavailability and true efficacy in vivo. This review intends to systematically evaluate the natural metabolites that could potentially be used against this new disease looking at their natural sources, mechanism of action and previous pharmacological usages. The aim is to provide a starting point for this research area in order to speed up the establishment of anti-SARS-CoV-2 bioproducts.

**Reference**

Da Silva Antonio, Ananda, Larissa S. M. Wiedemann and Valdir F. Veiga-Junior "Structure-based design of antiviral drug candidates targeting the SARS-CoV-2 main protease." *RSC Advances*, no. 10 (2020): 23379-23393 (IF = 3.049).

## Temporal profiling of plasma cytokines, chemokines and growth factors from mild, severe and fatal COVID-19 patients

**Abstract**

The pathogenesis of COVID-19 has been heavily investigated in the past months, which is characterized by diffuse alveolar damage, focal reactive hyperplasia of pneumocytes, inflammatory cellular infiltration, vasculitis, hypercoagulability, neutrophilia, and lymphopenia. Studies have suggested that hyper-inflammation is linked to more severe disease of COVID-19, which is characterized by a cytokine releasing syndrome (CRS). It has been reported that some inflammatory cytokines and chemokines are upregulated in COVID-19 patients. However, these studies are limited by the small sample size, narrowed cytokine and chemokine spectrum, and absence of temporal kinetic analysis of these factors with disease progression. Currently, limited information is available on host factors and biomarkers affecting individual outcomes in COVID-19. Identification of host plasma factors that are correlated to COVID-19 progression may provide potential biomarkers and targets for developing therapeutics.

In current study, the kinetic changes of plasma levels of cytokines was systematically investigated by collecting chemokines and growth factors (CCGFs) over the disease

courses in COVID-19 patients as well as the correlations between the CCGF profiles and disease severity, levels of 48 CCGFs in plasma of mild, severe and fatal COVID-19 patients. In conclusion, results suggested that SARS-CoV-2 infection induced an extensive CRS, which contributed to the pathogenesis of COVID-19. The primary proinflammatory cytokines, Th2-type cytokines, certain inflammatory chemokines and growth factors are upregulated in mild, severe and fatal COVID-19 patients. It is also possible that these CCGFs are involved in common pulmonary inflammation and respiratory symptoms in COVID-19 patients. In this context, the recent clinical trial of the IL-6 receptor antibody tocilizumab for the treatment of severe COVID-19 is provided as an example. For details, read the link below.

**Reference**

Xu, Zhi-Sheng, Ting Shu, Liang Kang, Di Wu, Xing Zhou, Bo-Wei Liao, Xiu-Lian Sun, Xi Zhou, and Yan-Yi Wang. "Temporal profiling of plasma cytokines, chemokines and growth factors from mild, severe and fatal COVID-19 patients." *Signal Transduction and Targeted Therapy* 5, no. 1 (2020): 1-3 (IF = 1.548).

# NEWSLETTER

**Publication Date: June 24, 2020**

## Coronavirus research updates: A finely detailed map reveals a viral protein's Achilles' heel

Jesse Bloom (Fred Hutchinson Cancer Research Center in Seattle) and his colleagues have created and described (*published on June 24*) more than 3,800 variations of the protein that the new coronavirus uses to latch on to its targets — a feat that reveals which parts of the protein are crucial for binding to human cells. This knowledge could help researchers to develop molecules that neutralize the virus's ability to infect cells. More than 16,000 people in Lombardy have died of COVID-19, making the region the epicentre of Italy's coronavirus outbreak. Piero Poletti (at the Health Protection Agency of Pavia, Itlay) and colleagues studied (*published on June 23*) people in Lombardy who had had close contact with an infected person. Roughly half of these 5,484 contacts became infected themselves. A trawl (*published on June 22*) through a monkey genome using the CRISPR–Cas9 genome-editing system has identified a handful of genes that might help

the new coronavirus to infect its hosts. The discovery of host genes that aid viral activity could aid the development of new therapies. A report (*published on June 19*) should that people under the age of 20 are much less likely than their elders to catch the new coronavirus from an infected household member. Therefore, youth is a shield against infection by close contacts. For more details, view the link given below.

**Reference**

https://www.nature.com/articles/d41586-020-00502-w

## Mounting clues suggest the coronavirus might trigger diabetes

Diabetes is already known to be a key risk factor for developing severe COVID-191 and people with the condition are more likely to die. P. Zimmet, who studied the metabolic disease (at Monash University in Melbourne, Australia) said: “Diabetes is dynamite if you get COVID-19”. Zimmet is among a growing number of researchers who think that diabetes doesn’t just make people more vulnerable to the coronavirus, but that the virus might also trigger diabetes in some cases. Evidence from tissue studies and some people with COVID-19 showed that the virus damages insulin-producing cells, causing diabetes in the patients. For more details, read the link given below.

**Reference**

https://www.nature.com/articles/d41586-020-01891-8

**Publication Date: June 22, 2020**

## Going back in time for an antibody to fight COVID-19

The COVID-19 pandemic is the biggest public-health crisis in a century, and the development of medical interventions to combat the SARS-CoV-2 coronavirus is a top priority. Pinto *et al.* provided evidence needed to take one of the crucial first steps for such efforts in the developing arena of antibody immunotherapy. The study revealed the insights that can be gained from antibodies made by a person, who had a coronavirus infection that caused the disease SARS.

**Reference**

https://www.nature.com/articles/d41586-020-01816-5

# REPORT

**Publication Date: June 23, 2020**

## A mathematical model reveals the influence of population heterogeneity on herd immunity to SARS-CoV-2

Despite various levels of preventive measures, in 2020 many countries have suffered severely from the coronavirus 2019 (COVID-19) pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. We show that population heterogeneity can significantly impact disease-induced immunity as the proportion infected in groups with the highest contact rates is greater than in groups with low contact rates. We estimate that if $R_0 = 2.5$ in an age-structured community with mixing rates fitted to social activity then the disease-induced herd immunity level can be around 43%, which is substantially less than the classical herd immunity level of 60% obtained through homogeneous immunization of the population. Our estimates should be interpreted as an illustration of how population heterogeneity affects herd immunity, rather than an exact value or even a best estimate. For details, read the link given below.

**Reference**

https://science.sciencemag.org/content/early/2020/06/22/science.abc6810?rss=1

# PERSPECTIVE

**Publication Date: June 23, 2020**

## Seeing COVID-19 through José Saramago's Blindness

Therapeutics against coronavirus disease 2019 (COVID-19) are urgently needed. Granulocyte–macrophage colony-stimulating factor (GM-CSF), a myelopoietic growth factor and pro-inflammatory cytokine, plays a critical role in alveolar macrophage homeostasis, lung inflammation and immunological disease. Both administration and

inhibition of GM-CSF are currently being therapeutically tested in COVID-19 clinical trials. This Perspective discusses the pleiotropic biology of GM-CSF and the scientific merits behind these contrasting approaches.

**Reference**

https://www.nature.com/articles/s41577-020-0357-7

**Publication Date: June 19, 2020**

## COVID-19 revisiting inflammatory pathways of arthritis

**Abstract**

Coronavirus disease 2019 (COVID-19) is an infectious disease, caused by severe acute respiratory syndrome coronavirus 2, which predominantly affects the lungs and, under certain circumstances, leads to an excessive or uncontrolled immune activation and cytokine response in alveolar structures. The pattern of pro-inflammatory cytokines induced in COVID-19 has similarities to those targeted in the treatment of rheumatoid arthritis. Several clinical studies are underway that test the effects of inhibiting IL-6, IL-1β or TNF or targeting cytokine signalling via Janus kinase inhibition in the treatment of COVID-19. Despite these similarities, COVID-19 and other zoonotic coronavirus-mediated diseases do not induce clinical arthritis, suggesting that a local inflammatory niche develops in alveolar structures and drives the disease process. COVID-19 constitutes a challenge for patients with inflammatory arthritis for several reasons, in particular, the safety of immune interventions during the pandemic. Preliminary data, however, do not suggest that patients with inflammatory arthritis are at increased risk of COVID-19.

**Reference**

https://www.nature.com/articles/s41584-020-0451-z

Publication Date: June 22, 2020

## Children with COVID-19 at a specialist centre: Initial experience and outcome

**Abstract**

The 2019 novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes COVID-19, characterised by potentially severe respiratory and gastrointestinal symptoms, in humans. As of late May 2020, there were around 5 million confirmed cases of COVID-19 and more than 300,000 associated deaths globally. COVID-19 can affect children, but it appears to be associated with fewer symptoms and less severe disease compared with adults, with correspondingly lower case-fatality rates. A cohort of paediatric patients was examined between March 1 and May 15, 2020, presenting to Great Ormond Street Hospital, London, UK (a specialist children's hospital), with suspected COVID-19 to document their clinical characteristics and outcomes with regard to the presence of underlying medical conditions associated with vulnerability. During the study, with a daily average of 326 inpatients, on average ten were positive for SARS-CoV-2 at any time, representing around 3% of the hospital inpatient population. This is much lower than the estimated 25% COVID-19-positive population reported across adult London trusts. These data also confirmed that some children with SARS-CoV-2 might have severe disease with requirement for intensive care admission. In addition, most of the infected children showed mild disease, in contrast to adults with typical features of COVID-19 disease. For more details, read the link below.

**Reference**

https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(20)30204-2/fulltext

Publication Date: June 19, 2020

## COVID-19 and cancer

With the spread of coronavirus disease 2019 (COVID-19), countries and states have instituted lockdowns. These decisions have been difficult and are sometimes described as benefiting the public health at the expense of the economy. Fear of contracting the coronavirus in health care settings has dissuaded people from screening, diagnosis, and treatment for non–COVID-19 diseases. The consequences for cancer outcomes, for example, could be substantial.

At many hospitals, so-called “elective” cancer treatments and surgeries have been deprioritized to preserve clinical capacity for COVID-19 patients. For example, some patients are receiving less intense chemotherapy and/or radiotherapy. In other cases, patients' operations to remove a newly detected tumor are being delayed. There can be no doubt that the COVID-19 pandemic is causing delayed diagnosis and suboptimal care for people with cancer. This delay is expected to increase the number of excess deaths per year would peak in the next year or two, due to breast and colorectal cancers.

In addition, the COVID-19 pandemic has caused an unprecedented disruption throughout the cancer research community, shuttering many labs and slowing down cancer clinical trial operations. Given the long timeline between basic cancer research and changes to cancer care, the effects of pausing research today may lead to slowdowns in cancer progress for many years to come. Therefore, ignoring life-threatening non–COVID-19 conditions, such as cancer for too long may turn one public health crisis into many others. For more detail, see the link given below.

**Reference**

https://science.sciencemag.org/content/368/6497/1290

**Publication Date: June 24, 2020**

## Observational study of UK mobile health apps for COVID-19

**Abstract**

The COVID-19 pandemic has caused global disruption to society and their health-care systems. In the setting of COVID-19, organisations in the UK such as National Health Service (NHS) Digital, NHSX, and NHS Business Services Authority have emphasised the need for mobile technology in managing the situation. This technology focus has led to an increase in the mobile phone apps developed for COVID-19. However, despite the increased enthusiasm for mobile health technologies during the COVID-19 pandemic, data for their wider adoption is currently scarce because of potential hurdles related to their design, usability, functionality, and security features. It is difficult to evaluate the effectiveness of COVID-19 apps because they have been implemented quickly to ensure they have a timely effect. An observational study was carried out to evaluate the features of mobile phone apps released in response to the COVID-19 pandemic. Foir more details, read the link given below.

**Reference**

https://www.thelancet.com/journals/landig/article/PIIS2589-7500(20)30144-8/fulltext

**Publication Date: June 22, 2020**

## Use of aerosolised medications at home for COVID-19

**Abstract**

Respiratory viruses are the most common trigger for pulmonary disease exacerbations and infection can result in deterioration in patient symptoms. Although inhaled medications are commonly used, many clinicians have questioned whether inhaled corticosteroids (ICS) affect acute respiratory infection and disease progression caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Because ICS are considered immunosuppressive, some clinicians are unsure about using these

medications during the COVID-19 pandemic. Patients also hesitate to use inhaled medications that are seen as a potential source of viral transmission and immunosuppression. Despite many discussions on COVID-19 having taken place, little attention has been brought to patients with pulmonary diseases treated at home. This study showed that avoiding unnecessary aerosol therapy is essential in patients with COVID-19 and pulmonary diseases treated at home. If aerosolised medications must be used, clinicians should prefer inhalers over nebulisers, unless the patient cannot perform the specific breathing techniques the inhaler requires or the drug formulation is unavailable as an inhaler. Additionally, regularly cleaning the device will reduce the risk of contamination, and improves treatment efficiency and safety in this patient population. For more details, read the link given below.

**Reference**

https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30270-8/fulltext

**Publication Date: June 19, 2020**

## Reordering gender systems: Can COVID-19 lead to improved gender equality and health?

**Abstract**

COVID-19 has delivered a shock to existing gender systems that could recalibrate gender roles, with beneficial effects on population health. The economic arrangements, policy frameworks, and market forces that determine the distribution of paid and unpaid labour across society are powerful structural determinants of health. The way that paid and unpaid labour is inequitably divided between men and women is central to the perpetuation of gender inequalities across the globe, and the ways that such divisions can be shifted or disrupted offer critical opportunities to modify the gender-differentiated effects of COVID-19 on health. For more details, read the link given below.

**Reference**

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31418-5/fulltext

## Solidarity in the wake of COVID-19: Reimagining the International Health Regulations

### Abstract

Amid frenzied national responses to COVID-19, the world could soon reach a critical juncture to revisit and strengthen the International Health Regulations (IHR), the multilateral instrument that governs how 196 states and WHO collectively address the global spread of disease. In many countries, IHR obligations that are vital to an effective pandemic response remain unfulfilled, and the instrument has been largely side-lined in the COVID-19 pandemic, the largest global health crisis in a century. It is time to reimagine the IHR as an instrument that will compel global solidarity and national action against the threat of emerging and re-emerging pathogens. State parties were called to reform the IHR to improve supervision, international assistance, dispute resolution, and overall textual clarity. For more details read the link given below.

### Reference

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31417-3/fulltext

## Ethnic disparities in COVID-19 mortality: Are comorbidities to blame?

### Abstract

On June 2, 2020, Public Health England (PHE) reported on the disparities in the risk and outcomes of COVID-19. After adjusting for sex, age, deprivation, and region, people from a Black, Asian, and Minority Ethnic (BAME) background had a higher risk of death from COVID-19 than White British people. This analysis did not adjust for comorbidities, and the PHE report highlighted this to be an important limitation as comorbidities were postulated to be “more commonly seen in some BAME groups”.

PHE refers to a study from the COVID-19 Clinical Information Network (CO-CIN), led by Harrison and colleagues, of the difference in survival from COVID-19 associated with membership of an ethnic group. In this study, once comorbidities were accounted for, there was no difference in COVID-19 mortality between ethnic groups. This initially appears to support PHE's conclusion that differences in the distribution of comorbidities may account for the increased COVID-19 mortality of BAME patients.

However, in CO-CIN's analysis2 of more than 14 000 patients with COVID-19 admitted to UK hospitals, BAME patients were more likely to have diabetes, but less likely to have other comorbidities such as chronic cardiac, pulmonary, kidney, and neurological disease, malignancy, and dementia. In the multivariate analysis of risk factors for COVID-19 mortality, the adjusted hazard ratio for diabetes (1·11) was less than that for chronic cardiac (1·20), pulmonary (1·24), and kidney disease (1·28), and dementia (1·40), and equal to the adjusted hazard ratio for malignancy (1·11).

Furthermore, age was by far the largest contributor to risk of death, with an adjusted hazard ratio of 9·09 for patients aged 70–79 years and 11·72 for those aged 80 years and older, compared with people younger than 50 years. 60·7% of White patients admitted to hospital with COVID-19 were aged 70 years and older, compared with 30·7% of Black, 29·2% of Asian, and 35·2% of Minority Ethnic patients.

As patients from a White ethnic background were more likely to be older and have comorbidities associated with a higher risk of dying from COVID-19, it is very concerning that the case fatality at 30 days after hospital admission for COVID-19 appears to be the same in Black and White patients. The lack of association between ethnicity and COVID-19 mortality after adjustment for comorbidities is not reassuring. This suggests that research into ethnic disparities in COVID-19 mortality must consider social as well as biological factors.

**Reference**

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31423-9/fulltext