

May 2, 2020

Daily COVID-19 Literature Surveillance Summary



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NOW LIVE!



COVID-19 Daily Literature Surveillance

COVID19LST



Bringing you real time, distilled information for guiding best practices during the COVID-19 pandemic

Coming soon:



The Swab

Jasmine Rah



The untold stories of the coronavirus (COVID-19) pandemic.

May 2nd, 2020

Executive Summary

Climate

- Recovery plans for the COVID-19 pandemic should happen concurrently with the [disaster response efforts](#).
 - Furthermore, there is an urge to think of the [refugee and immigrant populations in Europe](#), where it has been difficult to decrease spread and provide care in tents, leading a Swiss physician to recommend evacuating some to other underused asylum countries, like Switzerland.

Epidemiology

- Preliminary data from Portugal found that excess all cause mortality during the pandemic has been [3-5 fold higher](#) than what can be explained by the official COVID-19 death count, highlighting the significant role of undiagnosed COVID-19 and overall reduced access to healthcare during the pandemic.
 - On a related note, data from Italian hospitals shows a [significant decrease in acute coronary syndrome \(ACS\) hospitalizations](#) without a proportional decrease in the rate of non-COVID-19 related deaths, raising the question of whether some patients have died from ACS without seeking medical attention.
- Reports of atypical presentations of COVID-19 continue:
 - Increasing reports of [acute abdominal pain](#) as the presenting symptom in COVID-19 positive patients.
 - Analysis of 5 COVID-19 positive stroke patients in New York under the age of 50 found that COVID-19 patients exhibit an [increased incidence of large vessel strokes](#).
- A study of SARS-CoV-2 specific IgG in COVID-19 patients found that one patient was able to clear COVID-19 [without ever developing antibodies](#), though it took 50 days, suggesting that innate immunity alone may be powerful enough to eliminate the virus.

Understanding the Pathology

- Based on a literature review, the top theory for [ageusia includes binding of SARS-CoV-2 to ACE2 and sialic acid receptors in the oral mucosa](#). Anosmia is also speculated to be related to ACE2 mediated inflammation.
- There are also more postulations regarding the disparity of COVID-19 [mortality rates between males and females](#). Some hypothesize this may be, in part, due to differing dosing effects of the X chromosome antiviral immune system receptors, toll-like receptors-7 and 8.

Transmission & Prevention

- A woman from Wuhan exhibited persistent viral shedding for [36 days after symptom resolution](#), demonstrating the prolonged potential infectivity of recovered patients.
- Amid growing concerns about [COVID-19 in prisons](#), public health experts are developing strategies to address overcrowding in subsequent increased transmission risk in this vulnerable population.
- A new report of SARS-CoV-2 [RT-PCR positivity in urine](#) of an infected patient grows concerns of its spread.

Management

- One case-series stated that though COVID-19 cannot be ruled out in a timely manner, [patients should not be discharged or moved to non-COVID units prior to official diagnosis](#).
- A case report noted a [missed STEMI due to overemphasis on COVID-19 symptoms](#). A balance must be achieved where common pathologies are not overlooked.
- Guidelines are now available for [interventional radiology procedures](#) in infected patients.
- A meta analysis of 9 studies found that [IL-6 levels were significantly higher in severe COVID-19 patients and were positively correlated to increased mortality](#). Thus, IL-6 levels could help with risk stratification systems of disease severity.
 - A cohort study also found [early, low-dose and short-term application of methylprednisolone](#) is associated with better clinical outcomes in severe patients with COVID-19 pneumonia.

Adjusting Practice during COVID-19

- Public health officials in Washington state developed a standardized model of care for COVID-19 response in [skilled nursing facilities](#) based on experiences in King County.
- The American Society of Clinical Oncology developed recommendations on [ethics and resource scarcity](#) for the oncology community during the pandemic.
- As surgeons adapt to new practice guidelines, surgeons in Chicago outline [what constitutes an urgent surgery](#) in orthopedics.
- A case series of 8 pediatric patients illustrates [microlaryngoscopy and bronchoscopy modifications](#) to reduce risk of secretions in pediatric patients. These include the implementation of plastic sheeting and use of the laryngoscope blade for applying topical anesthesia.

R&D: Diagnosis & Treatments

- There are [anatomical considerations for nasopharyngeal swabs](#) that have been recommended:
 - Use nares-to-tragus distance for swab insertion
 - Direct the swab posteriorly along the floor and aim laterally
 - Tilt the head by 70 degrees, and
 - Do not use great force.

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Acknowledgements

Levels of Evidence

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard"**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or n-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, n-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)*	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or n-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non -randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

* Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.

** As always, a systematic review is generally better than an individual study.

Credit: OCEBM Levels of Evidence Working Group*. "The Oxford 2011 Levels of Evidence". Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=5653>

We have added Level 6 to denote papers that do not cite any sources or provide any supporting evidence.

Climate

Global

Exercise against SARS-CoV-2 (COVID-19): Does workout intensity matter? (A mini review of some indirect evidence related to obesity).

Rahmati-Ahmabad S, Hosseini F

Obes Med

2020 Apr 27; PMID: 32342019

Level of Evidence: 5 - Expert opinion

Type of Article: Review

BLUF: After reviewing the literature on the effects of exercise intensity on inflammatory response/immune function in obese individuals, the authors found that most evidence suggests a decrease in immune function and increased susceptibility to upper respiratory infection following high intensity exercise. However, moderate intensity exercise promotes a favorable immune response without the elevated risk of upper respiratory infection (figures 1 and 2). The authors conclude that the evidence indirectly suggests that obese individuals would likely benefit from moderate rather than high intensity exercise during the COVID-19 pandemic.

Abstract:

SARS-CoV-2 (COVID-19) is a new virus causing respiratory illness outbreak. Nowadays, COVID-19 has spread to several countries around the world and is presently a major global concern. It appears that no certain effective pharmaceutical agent is currently available for it. It seems that obesity is one of the biggest risk factors related to COVID-19 hospitalization and critical illness. The strengthening of the body systems by non-drug ways is very important especially in obese people. On the basis of some indirect evidence, it seems that moderate physical activity can be recommended as a non-pharmacological, inexpensive, and viable way to cope with corona [sic]. On the other hand, recommending higher intensity exercise needs further consideration to make final [sic] decision in this regard.

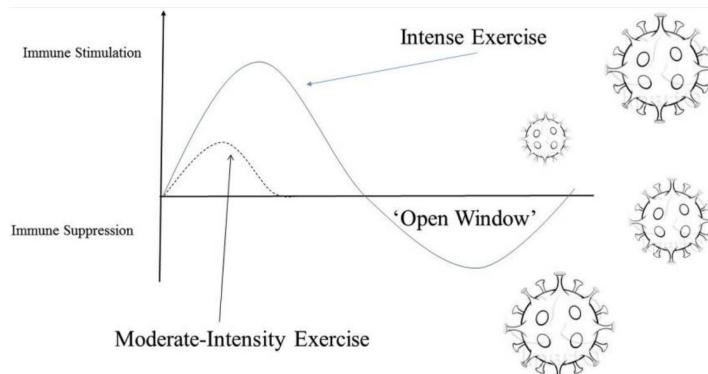


Figure 1: "Open window" theory. It is characterized by suppression of the immune system following the intense exercise.

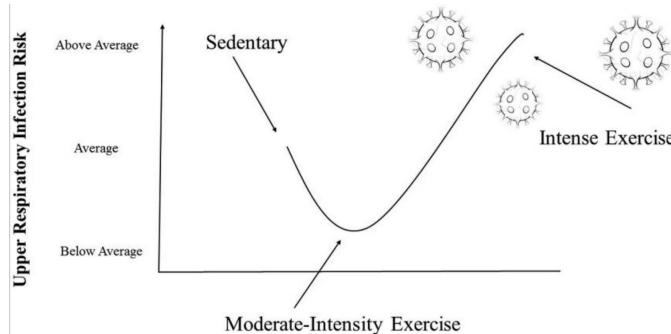


Figure 2: "J curve" concept. It suggests that individuals that regularly perform moderate intensity exercise improve their immune system. Excessive bouts of prolonged training can impair immune function.

Distance, Diffusion, and the Role of Social Media in a Time of COVID Contagion.

Moukarzel S, Del Fresno M, Bode L, Daly AJ

Matern Child Nutr

2020 Apr 28; PMID: 32343487; No abstract available

Level of Evidence: N/A, non-medical data

Type of Article: Letter

Summary: A social network analysis of media, such as Twitter, analyzed flow of information regarding the health of mothers and infants. A vast majority of tweets reflected scientific guidance and updates from researchers ongoing COVID-19 studies, engagement, and breastfeeding advocacy. Additionally, 6% of tweets contained scientifically unfounded recommendations and commercial promotions, such as specific brands of breast pumps or feeding bottles. This brings awareness of anecdotal health recommendations and misinformation that may overwhelm the healthcare system and cause large numbers of preventable illness and death.

Referencing the novel coronavirus as the "Chinese virus" or "China virus" on Twitter: COVID-19 stigma

Budhwani, Henna; Sun, Ruoyan

BLUF: Researchers analyzed the use of "Chinese virus" or phrases similar to it on the Twitter social media platform. When comparing the use of the phrase before and after the United States' president first did, the use of the phrase significantly increased across all states with some states increasing more than others. The authors suggest that COVID-19 stigma is being perpetuated on Twitter, which may translate to the public's understanding of the pandemic and spread stigma.

Abstract:

Background: Stigma is the deleterious, structural force that devalues members of groups that hold undesirable characteristics. Since, stigma is created and reinforced by society -- through in-person and online social interactions -- referencing the novel coronavirus as the "Chinese virus" or "China virus" has the potential to create and perpetuate stigma.

Objective: Our objective was to assess if there was an increase in the frequency of the phrases "Chinese virus" and "China virus" on Twitter, post- the March 16, 2020 United States presidential reference of this term.

Methods: Using the Sysomos software, we extracted tweets from the United States using a list of keywords that were derivatives of "Chinese virus." We compared tweets at the national and state levels posted between March 9th and March 15th (pre-period) with those posted between March 19th and March 25th (post-period). We used Stata 16 for quantitative analysis and Python to plot a state-level heat map.

Results: A total of 16,535 "Chinese virus" or "China virus" tweets were identified in the pre-period and 177,327 of these tweets were identified in the post-period, illustrating an increase of nearly ten times at the national level. All fifty states witnessed an increase in the number of tweets exclusively mentioning "Chinese virus" or "China virus" instead of COVID-19 or coronavirus. On average, 0.38 tweets referencing "Chinese virus" or "China virus" were posted per 10,000 population at the state level in the pre-period, and 4.08 of these stigmatizing tweets were posted in the post-period, also indicating a ten fold increase. The five states with [sic] highest number of post-period "Chinese virus" tweets were: Pennsylvania (5,249), New York (11,754), Florida (13,070), Texas (14,861), and California (19,442). Adjusting for population size, the five states with the highest prevalence of post-period "Chinese virus" tweets were: Arizona (5.85), New York (6.04), Florida (6.09), Nevada (7.72), and Wyoming (8.76). The five states with the largest increase in pre- to post-period "Chinese virus" tweets were: Kansas (1,202%), South Dakota (1,233%), Mississippi (1,387%), New Hampshire (1,420%), and Idaho (1,457%).

Conclusions: The rise in tweets referencing "Chinese virus" or "China virus," along with the content of these tweets, indicate that 1) knowledge translation may be occurring online and that 2) COVID-19 stigma is likely being perpetuated on Twitter.

Readying for a Post-COVID-19 World: The Case for Concurrent Pandemic Disaster Response and Recovery Efforts in Public Health.

Barnett DJ, Rosenblum AJ, Strauss-Riggs K, Kirsch TD

J Public Health Manag Pract.

2020 Apr 23; PMID: 32341285

Level of Evidence: 5 - Expert opinion

Type of Article: Commentary

Summary: The authors argue that efforts to plan for the recovery from the COVID-19 pandemic need to happen concurrently with the disaster response efforts. They cite the National Disaster Recovery Framework from the Federal Emergency Management Agency as a model for simultaneous recovery planning and acute response efforts.

The global COVID-19 response must include refugees and migrants.

Brandenberger JR, Baauw A, Kruse A, Ritz N.

Swiss Med Wkly.

2020 Apr 28; PMID: 32343357

Level of Evidence: 5 - Expert Opinion

Type of Article: Comment

Summary: This comment brings to light the difficult reality faced by refugees living in Europe during the time of the COVID-19 pandemic. A number of camps had individuals who tested positive, but the density of people made it difficult to isolate and prevent spread of the disease. This Swiss physician discusses the possibility of evacuating a number of these refugees to other countries, like Switzerland, with currently underused asylum centers to mitigate disease spread.

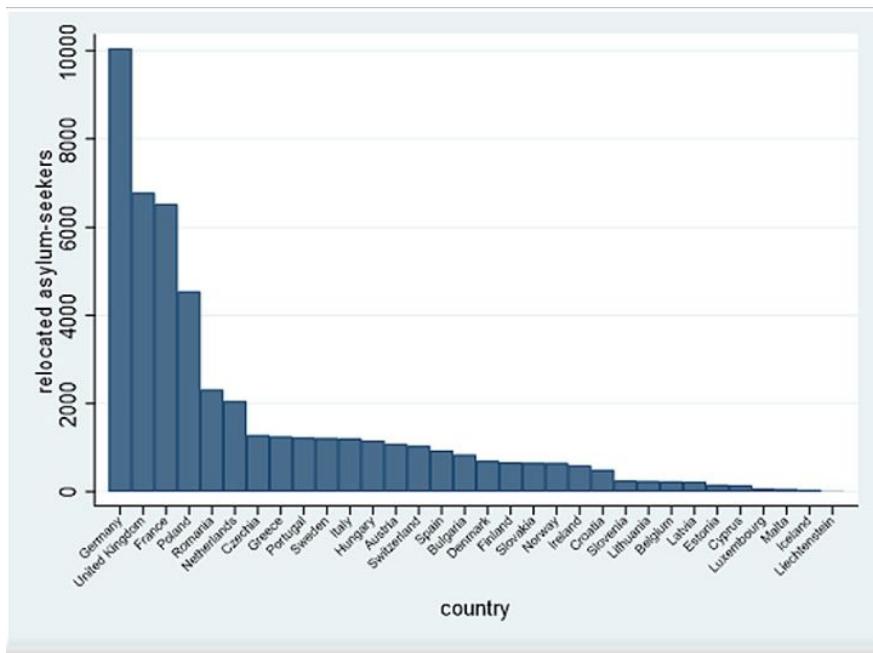


Figure 4

Number of asylum seekers the 32 European and associated countries are required to accommodate. Distribution was calculated based on population size and current death rates due to COVID-19. Countries with death rates below 20 per 100,000 receive 12 asylum-seekers per 100,000 inhabitants; those with death rates between 20 and 35 per 100,000 receive 10 asylum-seekers per 100,000 inhabitants and countries with death rates above 35 per 100,000 receive 2 asylum-seekers per 100,000 inhabitants. Graph adapted from the open letter to the European Parliament ([9], <https://www.evacuate-moria.com/>) with permission from Prof. Bozorgmehr. Mortality rates and population sizes were extracted from Eurostat on 16 April 2020.

Could BCG be used to protect against COVID-19?

Redelman-Sidi G.

Nat Rev Urol.

2020 Apr 27; PMID: 32341531

Level of Evidence: 5 - Expert Opinion

Type of Article: Comment

Summary: The authors explain that “parts of the world that do not have a policy of universal BCG vaccination, such as Italy and the USA, have experienced higher mortality associated with COVID-19 than places with long-standing universal BCG vaccination policies, such as South Korea and Japan”. They question whether the BCG vaccine is protective against COVID-19, and emphasize the necessity of more research in this area.

Affecting the Healthcare Workforce

Health Insurance Status and Risk Factors for Poor Outcomes With COVID-19 Among U.S. Health Care Workers: A Cross-sectional Study.

Himmelstein DU, Woolhandler S

Ann Intern Med

2020 Apr 28; PMID: 32343764

Level of Evidence: 2 - Analysis of national survey data

Type of Article: Letter

Summary: Relying on data from the 2018 National Health Interview Survey ($n = 72,831$) and the March 2019 Current Population Survey (CPS) ($n = 180,101$) researchers quantify the number of healthcare workers in the US living with pre-existing conditions that increase the risk of COVID-19, as well as those who lack health insurance or paid sick leave. They note particularly concerning results for nursing home and home care workers (>10% uninsured and >10% living in poverty). They argue that these conditions may promote dangerous decisions to continue working when sick and necessitate policy changes that increase wages and expand access to sick leave and insurance for these workers.

Table. Health Care Workers With Direct Patient Contact at Elevated Risk for Poor COVID-19 Outcomes*

Condition Indicating Elevated Risk†	National Estimate of Workers With Direct Patient Contact (95% CI), n‡	All Direct Care Workers (95% CI), %	Uninsured Workers (95% CI), n	Uninsured Workers (95% CI), %	Workers Without Paid Sick Leave (95% CI), %	Workers Unable to Afford Prescription Medications (95% CI), %	Workers Very or Moderately Worried About Medical Costs (95% CI), %
Any of the following conditions	3 285 148 (2 834 788–3 735 508)	23.8 (20.9–26.8)	273 565 (152 671–349 459)	8.3 (4.7–12.0)	28.2 (22.4–34.0)	9.5 (5.7–13.3)	26.3 (20.3–32.4)
Chronic lung disease	360 324 (218 899–501 749)	2.6 (1.6–3.6)	74 965 (58 540–91 390)	20.8 (13.8–27.8)	31.7 (23.4–39.9)	33.3 (24.8–41.7)	44.4 (33.0–55.8)
Moderate or severe asthma	561 004 (368 842–753 166)	4.1 (2.7–5.5)	43 128 (4481–81 775)	7.7 (1.0–14.3)	37.9 (25.8–49.9)	17.5 (4.1–31.0)	19.0 (6.6–31.4)
Serious heart condition	984 306 (738 136–1 230 476)	7.1 (5.4–8.9)	30 706 (2857–58 555)	3.1 (0.2–6.1)	28.6 (20.0–37.2)	12.4 (5.1–19.8)	19.9 (11.4–28.5)
Morbid obesity (BMI >40 kg/m ²)	1 233 543 (938 307–1 528 779)	8.9 (6.9–11.0)	110 919 (27 762–194 076)	9.0 (2.2–15.8)	24.9 (14.6–35.2)	11.0 (4.3–17.7)	33.0 (20.6–45.3)
Diabetes	812 317 (615 587–1 009 047)	5.9 (4.5–7.3)	92 500 (34 192–150 808)	11.4 (4.6–18.2)	28.7 (20.2–37.1)	11.4 (4.4–18.4)	33.9 (24.4–43.4)
Liver disease	162 348 (73 729–250 967)	1.2 (0.5–1.8)	8146 (163–16 128)	5.0 (0.1–9.9)	9.7 (0–51.5)	8.0 (0.2–15.9)	47.7 (0–100)
Age >64 y	504 160 (367 315–641 005)	3.7 (2.7–4.6)	12 015 (325–23 705)	2.4 (0.4–4.7)	54.3 (46.2–62.3)	2.9 (1.8–4.0)	17.1 (8.0–26.1)
Any elevated risk	3 661 134 (3 196 889–4 125 379)	26.6 (23.6–29.5)	274 945 (154 175–395 715)	7.5 (4.2–10.8)	30.5 (25.0–36.0)	8.8 (5.4–12.2)	25.2 (19.6–30.8)
No indicator of elevated risk	10 124 934 (9 347 385–10 902 483)	73.4 (70.5–76.4)	562 900 (396 871–728 929)	5.6 (3.9–7.2)	27.9 (24.5–31.2)	4.8 (3.2–5.5)	24.6 (21.1–28.1)

BMI = body mass index; COVID-19 = coronavirus disease 2019.

* Data from authors' analysis of the 2018 National Health Interview Survey.

† Elevated risk for poor COVID-19 outcomes was defined according to Centers for Disease Control and Prevention guidelines (2). However, no reliable indicators of dialysis or immunocompromise were available. Chronic lung disease = Told you had chronic bronchitis in past 12 mo or ever told you had chronic obstructive pulmonary disease or ever told you had emphysema.

Moderate/severe asthma = Had an asthma attack in past 12 mo or had an emergency department visit for asthma in past 12 mo or used more than 3 canisters or disks of inhalers in past 3 mo.

Serious heart condition = Ever told you had angina pectoris or coronary heart disease or a heart condition/disease or a heart attack. Diabetes = Ever told that you have diabetes. Liver disease = Ever told you had a chronic/long-term liver condition or told you had a liver condition in past 12 mo.

‡ Based on a sample of 1267 persons.

COVID-19 Preparedness in Nursing Homes in the Midst of the Pandemic.

Quigley DD, Dick A, Agarwal M, Jones KM, Mody L, Stone PW

J Am Geriatr Soc

2020 Apr 28; PMID: 32343362

Level of Evidence: 3- Survey of non-random sample

Type of Article: Research Letter

Summary: Responses of 56 nursing homes throughout the US to an email survey about COVID-19. Highlights of the findings include common concern about lack of adequate PPE and a shortage of trained clinical personnel (RN/LPN). Most nursing homes noted they did have specific COVID-19 response plans in place and were using the CDC and state/local health departments for guidance.

Disparities

This Time Must Be Different: Disparities During the COVID-19 Pandemic.

Bibbins-Domingo K.

Ann Intern Med.

2020 Apr 28; PMID: 32343767

Level of Evidence: 5 - Expert Opinion

Type of Article: Comment

Summary: Sensitive populations (minority groups, those experiencing homelessness, etc.) are at a disproportionately higher risk of contracting COVID-19 due to increased comorbidities, overcrowding of housing, and limited access to care. The following comment urges for change in the healthcare system centered around funding for increased access to care, and ultimately vaccination if a vaccine is developed, to better address protecting these sensitive populations from feeling the devastation of the current pandemic.

Impact of the digital divide in the age of COVID-19.

Ramsetty A, Adams C. Ramsetty A, et al.

J Am Med Inform Assoc.

2020 Apr 28; PMID: 32343813

Level of Evidence: 5 - Expert opinion

Article Type: Commentary

Summary: The authors examine telehealth as a means to close the healthcare gap to rural populations, however argue that in the recent pandemic technology has actually been widening the gap between groups both nationally and globally due to persistent social, economic, and political factors. Taken within the context of several social determinants of health, they evaluate how the digital divide occurs and can perpetuate inequality based on various social factors.

Table 1: The Digital divide in the context of pertinent social determinants of health

	Built environment	Social and community context	Education	Economic Stability	Health and healthcare access
Contributions to the digital divide in healthcare	Lack of broadband internet availability region-wise; Limited access to free public internet in community buildings such as libraries; Absence of structural support/public housing insecurity.	Shared or cultural expectations regarding use of digital devices, telehealth and telemonitoring; Mistrust of technology and/or medical community.	Literacy; Varying degrees of digital literacy; Inconsistent or unavailable education regarding changes in technology.	Inability to purchase devices or upgrades; Affordable devices may not have capability to work with proposed programs; Inconsistent access to devices due to economic instability.	Choices of technology/programs heavily tied to reimbursement; Healthcare systems likely to pursue advanced technology that may outpace patient capability; Patient comorbidities may affect ability to effectively use technology.

Downloaded from www.sagepub.com by on April 2, 2020

Epidemiology

Covid-19 pandemic by the "real-time" monitoring: the Tunisian case and lessons for global epidemics in the context of 3PM strategies

Chaari L, Golubnitschaja O, Chaari L, et al.

EPMA J.

2020 Apr 25; PMID: 32341719

Level of Evidence: 4 - Cross-Sectional Study

Type of Article: Letter to editor

Summary: This article is evaluating the COVID-19 pandemic progression in Tunisia by utilizing the 3P medical approach (advanced Predictive, Preventative, and Personalized approach), and with that, a nine day comparative analysis between France, Italy and Tunisia showing cumulative infection and new cases per day. All three countries show a similar pandemic evolution, even with Tunisia starting containment 2 weeks earlier. The preventative strategy for Tunisia is to increase their testing capacity, RT-PCR specifically, but there needs to be a better equality in testing throughout the various regions of Tunisia as some lack specialized medical centers. There is also the limitation of only testing those who came in contact with positive COVID-19 patients or patients showing severe symptoms. The article concludes more "real time" antigen testing monitoring is essential to assist in prediction data and identifying those who are presumed negative today, but may be positive another day.

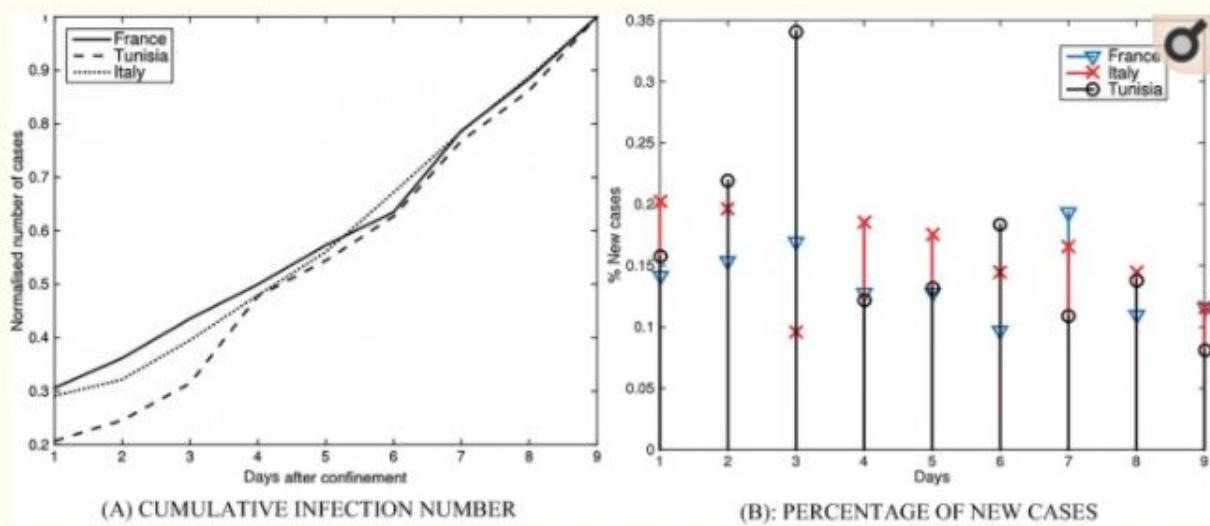


Fig. 1

Evolution A of infection numbers and B of percentage of new cases

Reduced Rate of Hospital Admissions for ACS during Covid-19 Outbreak in Northern Italy.

De Filippo O, D'Ascenzo F, Angelini F, Bochino PP, Conrotto F, Saglietto A, Secco GG, Campo G, Gallone G, Verardi R, Gaido L, Iannaccone M, Galvani M, Ugo F, Barbero U, Infantino V, Olivotti L, Mennuni M, Gili S, Infusino F, Vercellino M, Zucchetti O, Casella G, Giannmaria M, Bocuzzi G, Tolomeo P, Doronzo B, Senatore G, Grosso Marra W, Rognoni A, Trabattoni D, Franchin L, Borin A, Bruno F, Galluzzo A, Gambino A, Nicolino A, Truffa Giachet A, Sardella G, Fedele F, Monticone S, Montefusco A, Omedè P, Pennone M, Patti G, Mancone M, De Ferrari GM

N Engl J Med

2020 Apr 28; PMID: 32343497

Level of Evidence: 4 - Expert Opinion

Type of Article: Letter

Summarizing Excerpt: "This report shows a significant decrease in acute coronary syndrome (ACS) related hospitalization rates across several cardiovascular centers in northern Italy during the early days of the COVID-19 outbreak. Recent data suggest a significant increase in mortality during this period that was not fully explained by COVID-19 cases alone. [This raises] the question of whether some patients have died from ACS without seeking medical attention during the COVID-19 pandemic."

Modeling

Evaluating the Effectiveness of Social Distancing Interventions to Delay or Flatten the Epidemic Curve of Coronavirus Disease.

Laura Matrajt, Tiffany Leung

Emerg Infect Dis

2020 Apr 28; PMID: 32343222

Level of Evidence: Statistical Modeling

Type of Article: Research

Summary: This mathematical model evaluated the timing of social distancing interventions and the effects on the epidemic curve. It was found that interventions established and removed early in the epidemic simply delayed the epidemic and did not flatten the curve whereas interventions placed later showed a flattening of the curve. Furthermore, the effectiveness of the intervention depends on the ratio of susceptible, infected, and recovered persons identified at the beginning of the intervention.

Figure 3

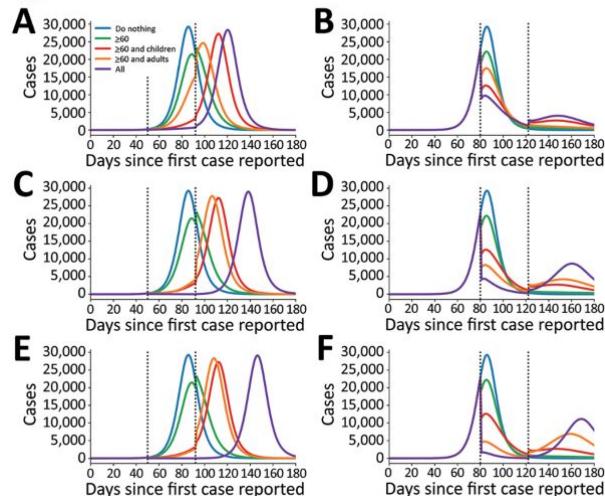


Figure 3. Number of ascertained coronavirus disease (cases over time calculated by mathematical model with adults reducing their contact by 25% (A, B); 75% (C, D); and 95% (E, F). We used parameter values of $R_0 = 2.26$, $\gamma = 1/5.02$, $\sigma = 1/5.16$. Dotted lines represent the beginning and end of the 6-week social distancing interventions, after which contact rates return to normal. For panels A, C, and E, intervention starts at day 50 after identification of first case; for panels B, D, and F, intervention starts at day 80 after identification of first case.

Outbreak dynamics of COVID-19 in China and the United States.

Peirlinck M, Linka K, Sahli Costabal F, Kuhl E.

Biomech Model Mechanobiol

2020 Apr 27; PMID: 32342242

Level of Evidence: Statistical Modeling

Type of Article: Research

BLUF: The authors model the epidemiology of the COVID-19 outbreak in China and the US using a SEIRs model. For the 30 Chinese provinces included they found an average latent period of 2.56 ± 0.72 days, a contact period of 1.47 ± 0.32 days, an infectious period of 17.82 ± 2.95 days, and a basic reproductive number of 12.58 ± 3.17 . For the US, across all 50 states, the average contact period was 3.38 ± 0.69 days. Without the political mitigation strategies currently in place the model predicts the US would have had a basic reproduction number of 5.39 ± 0.95 and a nation-wide peak on May 10, 2020. The authors suggest this model can be used to qualify the impact of community measures and provide decision guidelines for successful outbreak control.

Abstract:

On March 11, 2020, the World Health Organization declared the coronavirus disease 2019, COVID-19, a global pandemic. In an unprecedented collective effort, massive amounts of data are now being collected worldwide to estimate the immediate and long-term impact of this pandemic on the health system and the global economy. However, the precise timeline of the disease, its transmissibility, and the effect of mitigation strategies remain incompletely understood. Here we integrate a global network model with a local epidemic SEIR model to quantify the outbreak dynamics of COVID-19 in China and the United States. For the outbreak in China, in $n=30$ provinces, we found a latent period of 2.56 ± 0.72 days, a contact period of 1.47 ± 0.32 days, and an infectious period of 17.82 ± 2.95 days. We postulate that the latent and infectious periods are disease-specific, whereas the contact period is behavior-specific and can vary between different provinces, states, or countries. For the early stages of the outbreak in the United States, in $n=50$ states, we adopted the disease-specific values from China and found a contact period of 3.38 ± 0.69 days. Our network model predicts that—without the massive political mitigation strategies that are in place today—the United States would have faced a basic reproduction number of 5.30 ± 0.95 and a nationwide peak of the outbreak on May 10, 2020 with 3 million infections. Our results demonstrate how mathematical modeling can help estimate outbreak dynamics and provide decision guidelines for successful outbreak control. We anticipate that our model will become a valuable tool to estimate the potential of vaccination and quantify the effect of relaxing political measures including total lockdown, shelter in place, and travel restrictions for low-risk subgroups of the population or for the population as a whole.

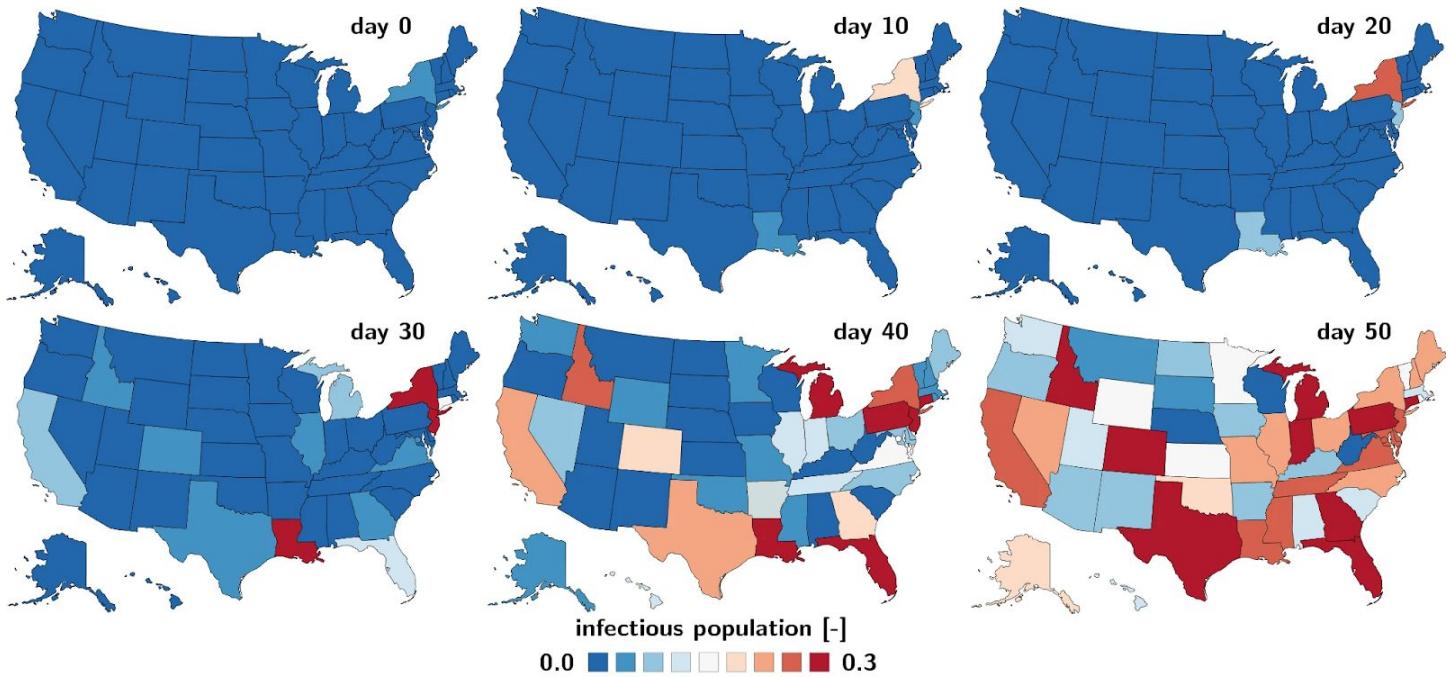


Fig 16. COVID-19 outbreak dynamics across the United States predicted with the SEIR network model. Regional evolution of the infectious population I predicted by the SEIR network model using data from the early stages of the outbreak. Days 10 and 20 illustrate the slow growth of the infectious population during the early stages of the outbreak. The state of New York sees the outbreak first, followed by New Jersey, Louisiana, and California. Days 30 and 40 illustrate how the outbreak spreads across the country. With no additional countermeasures, the SEIR network model predicts a nation-wide peak of the outbreak on day 54, on May 10, 2020. Day 50 illustrates that the earlier affected states, New York, New Jersey, and Louisiana already see a decrease in the infected population, while other states like Nebraska, West Virginia, and Wisconsin are still far from reaching the peak. Latent period $A=2.56$ days, contact period $B=3.38$ days, infectious period $C=17.83$ days, fraction of initial latent population $p=E_0/I_0=43.75$, day at which the last state recorded an outbreak $d_0=\text{March 17, 2020}$, and travel coefficient $\vartheta=0.43$

Staffing with disease-based epidemiologic indices may reduce shortage of intensive care unit staff during the COVID-19 pandemic.

Mascha EJ, Schober P, Schefold JC, Stueber F, Luedi MM. Mascha EJ, et al.

Anesth Analg.

2020 Apr 7; PMID: 32343514

Level of Evidence: Statistical Modeling

Type of Article: Guidelines

BLUF: Researchers in the fields of quantitative health metrics and critical care propose an epidemiologic-based model that may help optimize staffing of intensive care units (ICUs) during a pandemic. The model, which is based-off simulation data assuming varying rates of nosocomial infection of ICU staff, is hypothesized to “reduce workforce shortages and maintain operational functionality”. Potential limitations of this model include that it assumes exceedingly high rates of exposure and infection of staff (10/20/40% per week), and requires significant resources to implement this reactionary system, rather than applying preventative measures to reduce staff exposure from occurring.

Abstract:

Purpose: Healthcare worker (HCW) safety is of pivotal importance during a pandemic such as Coronavirus Disease 2019 (COVID-19), and employee health and well-being ensures functionality of healthcare institutions. This is particularly true for an intensive care unit (ICU) where highly specialized staff cannot be readily replaced. In the light of lacking evidence for optimal staffing models in a pandemic, we hypothesized that staff shortage can be reduced when staff scheduling takes the epidemiology of a disease epidemic into account.

Methods: Various staffing models were constructed and comprehensive statistical modeling performed. A typical, routine staffing model was defined that assumed full-time employment (40 hours/week) in a 40 bed ICU with a 2:1 ratio of patients to staff. The pandemic model assumed staff worked 12-hour shifts for 7 days every other week. Potential in-hospital staff infections were constructed for a total period of 120 days with a probability of 10%, 25%, and 40% being infected per week when at work. Simulations included the probability of infection at work for a given week, of fatality once infected, and the quarantine time, if infected.

Results: Pandemic-adjusted staffing significantly reduced workforce shortage and the effect progressively increased as the probability of infection increased. Maximum effects were observed at week 4 for each infection probability with a 17%, 32%, and 38% staffing reduction for an infection probability of 0.10, 0.25, and 0.40, respectively.

Conclusions: Staffing along epidemiologic considerations may reduce HCW shortage by leveling the nadir from affected workforce. Although this requires considerable efforts and commitment of staff, it may be essential in an effort to best maintain staff health and operational functionality of healthcare facilities and systems.

Estimating the infection horizon of COVID-19 in eight countries with a data-driven approach.

Barmparis GD, Tsironis GP.

Chaos Solitons Fractals.

2020 Apr 27; PMID: 32341627

Level of Evidence: Statistical Modeling

Type of Article: Research

BLUF: The authors created a mathematical model to estimate the infection horizon of COVID-19 for eight countries using data reported on April 4, 2020 and mimicking the spread that occurred in China. The authors hypothesized that the Chinese outbreak follows a Gaussian distribution when the incidence is plotted against time. They concluded that if gradual social distancing measures are retained, the mathematical model does not predict an infection recurrence.

Abstract: The COVID-19 pandemic has affected all countries of the world producing a substantial number of fatalities accompanied by a major disruption in their social, financial and educational organization. The strict disciplinary measures implemented by China were very effective and thus were subsequently adopted by most world countries to various degrees. The infection duration and number of infected persons are of critical importance for the battle against the pandemic. We use the quantitative landscape of the disease spreading in China as a benchmark and utilize infection data from eight countries to estimate the complete evolution of the infection in each of these countries. The analysis predicts successfully both the expected number of daily infections per country and, perhaps more importantly, the duration of the epidemic in each country. Our quantitative approach is based on a Gaussian spreading hypothesis that is shown to arise as a result of imposed measures in a simple dynamical infection model. This may have consequences and shed light in the efficiency of policies once the phenomenon is over.

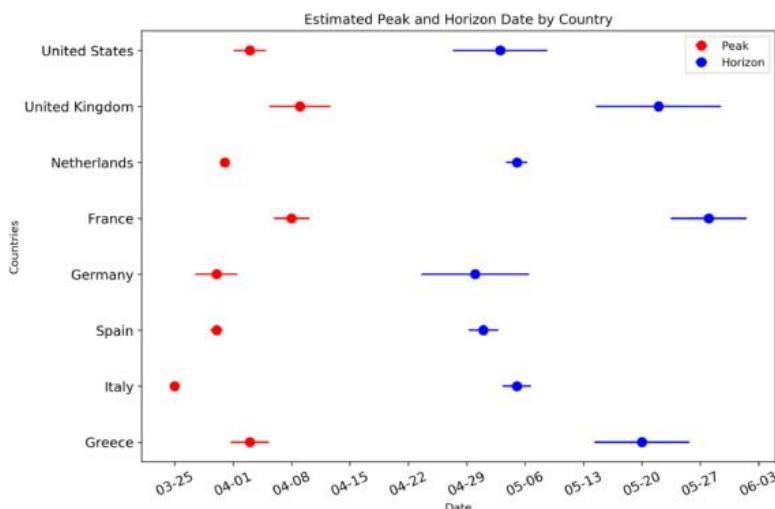


Figure 1. Peak (red) and Horizon (blue) date mean value and standard deviation for each country considered in this work

Forecasting the Impact of Coronavirus Disease During Delivery Hospitalization: An Aid for Resources Utilization.

Putra M, Kesavan MM, Brackney K, Hackney DN, Roosa MKM.

Am J Obstet Gynecol MFM.

2020 Apr 25; PMID: 32342041

Level of Evidence: Modeling

Type of Article: Research

BLUF: This article uses a phenomenological model to predict that there would be a total of 860,475 COVID-19 cases in the US between 3/1/2020-12/31/2020 and that peak new incidence would occur during the first 2 weeks of April before declining and plateauing around the end of June. They predict 16,601 patients will be pregnant and hospitalized with COVID-19 during delivery, and of these cases, there will be “3,308 severe and 681 critical cases, with about 52 COVID-19 related maternal mortalities during delivery hospitalization in the United States.”

Abstract:

Background: The ongoing Coronavirus disease (COVID-19) pandemic has severely impacted the United States. In cases of infectious disease outbreak, forecasting models are often developed for resources utilization. Pregnancy and delivery pose unique challenges, given the altered maternal immune system and the fact that the majority of American women choose to deliver in the hospital setting.

Objectives: The aim of our study is to forecast the incidence of COVID-19 in general (*sic*) population and to forecast the overall incidence, severe cases, critical cases and fatal COVID-19 cases during delivery hospitalization in the United States.

Study design: We use a phenomenological model with generalized logistic growth models to forecast the incidence of COVID-19 in the United States from 4/15/2020 - 12/31/2020. Incidence data from 3/1/2020 - 4/14/2020 were used to provide best-fit model solution. Subsequently, Monte-Carlo simulation was performed for each week from 3/1/2020 - 12/31/2020 to estimate the incidence of COVID-19 in delivery hospitalizations using the available data estimate.

Results: From 3/1/2020 - 12/31/2020, our model forecasted a total of 860,475 cases of COVID-19 in general [*sic*] population across the United States. The cumulative incidence for COVID-19 during delivery hospitalization is anticipated to be 16,601 (95% CI, 9,711 - 23,491) cases. Among those, 3,308 (95% CI, 1,755 - 4,861) cases are expected to be severe, 681 (95% CI, 1,324 - 1,038) critical and 52 (95% CI, 23 - 81) maternal mortality. Assuming similar baseline maternal mortality rate as the year of 2018, we projected an increase in maternal mortality rate in the US to at least 18.7 (95% CI, 18.0 - 19.5) deaths per 100,000 live birth [*sic*] as a direct result of COVID-19.

Conclusions: COVID-19 infection in pregnant women is expected to severely impact obstetrical care. From 3/1/2020 - 12/31/2020, we project 3,308 severe and 681 critical cases, with about 52 COVID-19 related maternal mortalities during delivery hospitalization in the United States. These data might be helpful for counseling and resource allocation.

Mathematical Modeling of COVID-19 Transmission Dynamics with a Case Study of Wuhan.

Ndaïrou F, Area I, Nieto JJ, Torres DFM.

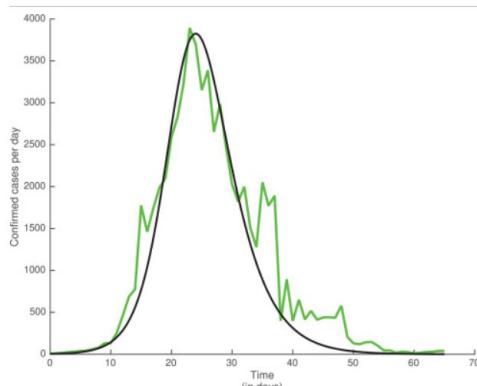
Chaos Solitons Fractal

2020 Apr 27; PMID: 32341628

Level of Evidence: Statistical Modeling

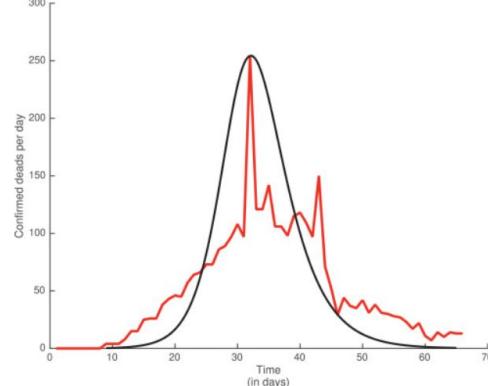
Type of Article: Research

BLUF: The authors created the mathematical models of COVID-19 transmission and deaths based on parameters derived from the data of Wuhan, China and with special focus on the transmissibility of super-spreader individuals. The models are in the images below represented by the black lines.



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Fig. 2. Number of confirmed cases per day. The green line corresponds to the real data obtained from reports [5], [20], [21] while the black line ($I + P + H$) has been obtained by solving numerically the system of ordinary differential equations (1), by using the Matlab code `ode45`.

Fig. 3. Number of confirmed deaths per day. The red line corresponds to the real data obtained from reports [5], [20], [21] while the black line has been obtained by solving numerically, using the Matlab code `ode45`, our system of ordinary differential equations (1) to derive $D(t)$ given in (2).

Chaos game representation dataset of SARS-CoV-2 genome.

Barbosa, Raquel de M; Fernandes, Marcelo A C

Data Brief

2020 Apr 25; PMID: 32341946

Level of Evidence: Proof of concept study

Type of Article: Data Article

BLUF: These authors present a new dataset of a chaos game representation (CGR) of SARS-CoV-2 virus nucleotide sequences; by doing this, the nucleotide sequence is converted to bi-dimensional real values and allows for an investigation of the local and global patterns in sequences through data stream, digital signal processing, and machine learning algorithms.

Abstract: As of April 16, 2020, the novel coronavirus disease (called COVID-19) spread to more than 185 countries/regions with more than 142,000 deaths and more than 2,000,000 confirmed cases. In the bioinformatics area, one of the crucial points is the analysis of the virus nucleotide sequences using approaches such as data stream, digital signal processing, and machine learning techniques and algorithms. However, to make feasible this approach, it is necessary to transform the nucleotide sequences string to numerical values representation. Thus, the dataset provides a chaos game representation (CGR) of SARS-CoV-2 virus nucleotide sequences. The dataset provides the CGR of 100 instances of SARS-CoV-2 virus, 11540 instances of other viruses from the Virus-Host DB dataset, and three instances of Riboviria viruses from NCBI (Betacoronavirus RaTG13, bat-SL-CoVZC45, and bat-SL-CoVZXC21).

Cardiovascular comorbidity and its impact on patients with Covid-19.

Guan WJ, Liang WH, He JX, Zhong NS, Guan WJ, et al.

Eur Respir J.

2020 Apr 27; PMID: 32341104

Level of Evidence: Statistical Modeling

Article Type: Letter to the Editor

Summary: The authors, who are investigating cardiovascular comorbidities and COVID-19 clinical outcomes, attempted to add cardiovascular disease into their multivariate regression model based on a suggestion from [Sisnieguéz et al.](#) Their model, reported in the study [Comorbidity and its impact on 1590 patients with Covid-19 in China: A Nationwide Analysis](#), indicated a linear association between hypertension and coronary heart disease, leading the authors to propose keeping hypertension in the model for further analyses.

Symptoms and Clinical Presentation

Adults

Sex-specific clinical characteristics and prognosis of coronavirus disease-19 infection in Wuhan, China: A retrospective study of 168 severe patients.

Meng Y, Wu P, Lu W, Liu K, Ma K, Huang L, Cai J, Zhang H, Qin Y, Sun H, Ding W, Gui L, Wu P.

PLoS Pathog

2020 Apr 28; PMID: 32343745

Level of Evidence: 4 - Case Series

Type of Article: Research

BLUF: This retrospective analysis compares outcomes, clinical features, and laboratory parameters between male and female patients who were severely or critically ill secondary to COVID-19 infections and received treatment in January and February at a hospital in Wuhan. Male patients were found to have a slightly higher mortality rate and comorbidities and age had a stronger impact on their outcomes than on women. The authors also suggest five laboratory parameters (neutrophil to lymphocyte ratio, CRP, AST, LDH, and serum creatinine) could potentially be involved in sex-based differences in COVID-19 pathology.

Summary: This retrospective study investigated the relationship between patient sex and their clinical features, laboratory values, and outcomes based on a sample of 168 severe or critically ill patients with confirmed COVID-19 infection who received treatment at the Tongji Hospital in Wuhan between January 16th and February 4th. Mortality was slightly higher for the male patients (12.8% vs. 7.3%), in concordance with findings from other studies. Based on logistic regression analysis, age and comorbidities had a stronger effect on outcomes for male patients than for female patients. Headache was the only symptom that had a significant difference in frequency for male (7.0%) vs. female (19.5%) patients. Several laboratory parameters, including inflammatory markers and kidney and liver functional tests, were significantly ($p < 0.05$) more elevated in male patients compared to female patients. The authors also observed that neutrophil to lymphocyte ratio, CRP, AST, LDH, BUN, and serum creatinine were higher in patients that died compared to patients who were discharged, and that among the patients who died only BUN did not have sex-based differences. The authors suggest that these laboratory parameter may be worth investigating when trying to understand sex-based differences in COVID-19 outcomes.

Abstract: To confirm the relationship between sex and the progression of Coronavirus Disease-19 (COVID-19), and its potential mechanism, among severe patients. For this retrospective study, we included 168 consecutive severe patients with pathogen-confirmed COVID-19 who were hospitalized between January 16th and February 4th, 2020, at Tongji Hospital in Wuhan, China. Clinical characteristics, laboratory parameters, and outcomes were compared and analyzed between males and females. In the present study, we analyzed 168 severe patients with COVID-19, including 86 males and 82 females, and 48 patients (28.6%) were diagnosed as critically ill. Of 86 male patients, 12.8% (11/86) died and 75.6% (65/86) were discharged; of 82 female patients, 7.3% (6/82) died and 86.6% (71/82) were discharged. Eleven laboratory parameters showed significant differences between male and female patients, and six of them were higher during the whole clinical course in patients who died than in patients who were discharged. In adjusted logistic regression analysis, males with comorbidities presented a higher risk of being critically ill than males without comorbidities (OR = 3.824, 95% CI = 1.279–11.435). However, this association attenuated to null in female patients (OR = 2.992, 95% CI = 0.937–9.558). A similar sex-specific trend was observed in the relation between age and critically ill conditions. We highlighted sex-specific differences in clinical characteristics and prognosis. Male patients appeared to be more susceptible to age and comorbidities. Sex is an important biological variable that should be considered in the prevention and treatment of COVID-19.

Covid-19 may present with acute abdominal pain.

Saeed U, Sellevoll HB, Young VS, Sandbaek G, Glomsaker T, Mala T.

Br J Surg.

2020 Apr 28; PMID: 32343396

Level of Evidence: 4 - Case series

Type of Article: Research

BLUF: This is a retrospective analysis of medical records of 76 patients over the age of 18 years admitted between 17 March and 1 April 2020 due to acute abdominal pain of which nine patients (11.8%) were diagnosed with COVID-19. From these limited observations, findings indicate that COVID-19 can present with abdominal pain without respiratory symptoms.

Summarizing Excerpt:

"In total, 76 patients were admitted with acute abdominal pain as their main complaint. Nine patients (11.8 per cent) were diagnosed with COVID-19 and were included in this study. Median age (range) was 48 (31–81) years. Patient findings from the work-up are shown in Table 1. Following a positive COVID-19 test, patients were re-evaluated for respiratory tract symptoms, which they denied having experienced. In five patients, suspicion of COVID-19 was made from pulmonary findings on acute CT performed for abdominal symptoms. All five subsequently tested positive for SARS-CoV-2. The remaining four patients were diagnosed directly using reverse-transcription polymer chain reaction on oro- and nasopharyngeal swabs. Six patients had no findings on abdominal CT while showing typical findings of COVID-19 on chest CT. All patients were discharged to self-isolation at home. No patient needed ICU treatment."

Table 1 Clinical, laboratory and radiologic data from nine patients with acute abdominal pain diagnosed with COVID-19

Patient	Abdominal pain region	Other GI symptoms	Fever	O ₂ saturation (%)	C-reactive protein (mg/l)	White blood cell count ($\times 10^9/l$)	CT		Follow-up (days)
							Abdomen	Chest	
1	Epigastric	Nausea, vomiting	No	94	67	3.4	Normal	Bilateral ground-glass opacities	18
2	Epigastric	Nausea, vomiting	Yes	95	123	4.3	Normal	Bilateral ground-glass opacities	17
3	Global	Nausea	Yes	95	140	7.2	Normal	Bilateral ground-glass opacities	17
4	Left iliac fossa	Nausea, vomiting	Yes	94	111	7.4	Normal	Unilateral ground-glass opacities	16
5	Right iliac fossa	Nausea	Yes	97	43	7.6	Normal	Bilateral ground-glass opacities	21
6	Global	Nausea, vomiting	No	97	7.7	2.6	Normal	Bilateral ground-glass opacities	9
7	Right iliac fossa	Nausea, vomiting	No	90	350	23.8	Cholecystitis	Normal	8
8	Right iliac fossa	Diarrhoea	Yes	100	82	4.6	Appendicitis	Normal	9
9	Umbilical	Nausea	No	99	<0.6	7.7	Ileus	Normal	12

Long-term Coexistence of SARS-CoV-2 with Antibody Response in COVID-19 Patients.

Wang B, Wang L, Kong X, Geng J, Xiao D, Ma C, Jiang XM, Wang PH, Wang B, et al.

J Med Virol.

2020 Apr 28; PMID: 32343415

Level of Evidence: 4 - Case series

Article Type: Research

Summary: The authors examined 26 cases of mild to moderate symptoms of COVID-19 in Jinan, China. They evaluated virus-specific IgG in these patients and found in two cases it lasted up to 50 days. "One COVID-19 patient who did not produce any SARS-CoV-2-bound IgG successfully cleared SARS-CoV-2 after 46 days of illness, revealing that without antibody-mediated adaptive immunity, innate immunity alone may still be powerful enough

to eliminate SARS-CoV-2. This report may provide a basis for further analysis of both innate and adaptive immunity in SARS-CoV-2 clearance, especially in non-severe cases."

Large-Vessel Stroke as a Presenting Feature of Covid-19 in the Young.

Oxley TJ, Mocco J, Majidi S, Kellner CP, Shoirah H, Singh IP, De Leacy RA, Shigematsu T, Ladner TR, Yaeger KA, Skliut M, Weinberger J, Dangayach NS, Bederson JB, Tuhrim S, Fifi JT

N Engl J Med

2020 Apr 28; PMID: 32343504

Level of Evidence: 4 - Case Series

Type of Article: Communication

SUMMARY: A case series in New York City conducted from March 23 to April 7, 2020 describes the incidence of severe large-vessel stroke in five patients under the age of 50 (33-49) who tested positive for COVID-19. Compared to the two-week average rate of 0.73 patients under the age of 50 treated for large-vessel stroke at the same health system, this case series suggests an increased incidence in large vessel stroke in young patients with COVID-19.

Focal status epilepticus as unique clinical feature of COVID-19: A case report.

Vollono C, Rollo E, Romozzi M, Frisullo G, Servidei S, Borghetti A, Calabresi P

Seizure

2020 Apr 21; PMID: 32344366

Level of Evidence: Level 4 - Case Report

Type of Article: Short Communication

BLUF: This is a case report of a 78-year old woman with a past medical history of well-controlled postherpetic encephalitic epilepsy who suddenly developed focal status epilepticus. She developed fever 12 hours after admission and never developed respiratory symptoms. Blood cultures exhibited lymphocytopenia. No lumbar puncture was performed. She was ultimately diagnosed with COVID-19 and authors suggest she may be the first COVID-19 case with a focal status epilepticus as a presenting symptom, though further testing would have been required to confirm this.

Summary: This is a case report of a 78-year old woman who may be the first case of COVID-19 with a focal status epilepticus as a presenting symptom. Two years prior she had developed HSV-1 encephalitis and non-convulsive status epilepticus. She had been treated with antiepileptic drugs and had been seizure-free for two years while taking valproic acid and levetiracetam. On March 12, 2020 she developed a focal status epilepticus consisting of myoclonic jerks of her right face and right limbs. The seizures were treated with IV valproic acid and midazolam, and she developed a fever 12 hours later. She was diagnosed via RT-PRC with COVID-19 after further history was taken, revealing positive sick contact with her son. Two weeks after admission she was discharged in stable condition. "It is possible to hypothesize that SARS-CoV-2 could trigger seizures through a neurotropic pathogenic mechanism. Overall, we suggest the importance of considering possible neurological manifestations of SARS-CoV-2 infection, even as initial presentation."

Isolation of Infectious SARS-CoV-2 from Urine of a COVID-19 Patient.

Sun J, et al.

Emerg Microbes Infect.

2020 Apr 28; PMID: 32342724

Level of Evidence: 4 - Case Report

Type of Article: Research

BLUF: This case report outlines a case in which infectious SARS-CoV-2 was successfully isolated from the urine of a patient with COVID-19, serving as a warning to avoid transmission through urine.

Abstract:

SARS-CoV-2 caused a major outbreak of severe pneumonia (COVID-19) in humans. Viral RNA was detected in multiple organs in COVID-19 patients. However, infectious SARS-CoV-2 was only isolated from respiratory specimens. Here, infectious SARS-CoV-2 was successfully isolated from urine of a COVID-19 patient. The virus isolated could infect new susceptible cells and was recognized by its own patient sera. Appropriate precautions should be taken to avoid transmission from urine.

A Moderate Case of COVID-19 Viral Pneumonia During the SARS-CoV-2 Pandemic.

Spinner CD, Schuldt A, Schuster J. A

Dtsch Arztebl Int.

2020 Mar 27; PMID: 32343659

Level of Evidence: 4 – Case Report

Type of Article: ResearchCorrespondence

Summary: A case report from Bavaria that describes the clinical progression of COVID-19 in a 44-year-old woman with allergic asthma. On day seven, the patient was hospitalized and a CT scan showed ground glass infiltrates compatible with pneumonia. On day twelve, the patient had COVID-19 associated hepatitis. The patient gradually improved, during hospitalization, with use of antipyretics.

Updates on What ACS Reported: Emerging Evidences of COVID-19 with Nervous System Involvement.

Baig AM

ACS Chem Neurosci.

2020 Apr 28; PMID: 32343122

Level of Evidence: 5 - Expert Opinion

Type of Article: Viewpoint

BLUF: The author examines SARS-CoV-2 impacts on the nervous system, including:

- Anosmia and taste-related changes as a heralding sign for COVID-19 infection.
- Reports of serious neurological manifestations, including COVID-19-associated acute necrotizing hemorrhagic encephalopathy, COVID-19-associated encephalitis (gene sequencing confirmed SARS-CoV-2 in CSF), and cases of Guillain-Barre Syndrome.
- The need for understanding potential transmission pathways to prevent or minimize neurological damage.

- The importance of tools like the American Academy of Otolaryngology–Head and Neck Surgery (AAO-HNS) COVID-19 “Anosmia” reporting tool (confidential reporting of anosmia and dysgeusia symptoms) in gathering information on nervous system-related COVID-19 impacts.

ABSTRACT: With the ongoing pandemic of coronavirus disease (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), our knowledge of the pathogenesis of COVID-19 is still in its infancy. Almost every aspect of the pathogen remains largely unknown, ranging from mechanisms involved in infection transmission, interplay with the human immune system, and covert mechanisms of end-organ damage. COVID-19 has manifested itself worldwide with a syndromic appearance that is dominated by respiratory dysregulations. While clinicians are focused on correcting respiratory homeostasis, echoing the original SARS, SARS-CoV-2 is also invading other end-organs, which may not exhibit overt clinical features. Nervous system involvement was not initially considered to play a significant role in patients with COVID-19. However, since this viewpoint was initially published, multiple studies have been released regarding the possible neurovirulence of SARS-CoV-2. In our previous viewpoint, we implored our colleagues to recognize the covert tactics of SARS-CoV-2 and emphasized that symptoms like anosmia, dysgeusia, ataxia, and altered mental status could be early signs of the neurotropic potential of this virus. The past few weeks, after the viewpoint surfaced, it was noticed that it has enabled clinicians and healthcare professionals to compute the neurovirulence associated with SARS-CoV-2 in COVID-19 patients, as evidenced by very recently reported studies.

Clinical Characteristics of 145 Patients With Corona Virus Disease 2019 (COVID-19) in Taizhou, Zhejiang, China.

Qingqing Chen, Zhencang Zheng, Chao Zhang, Xijiang Zhang, et al.

Infection.

2020 Apr 28, PMID: 32343222

Level of Evidence: 3 - Retrospective study

Type of Article: Research

BLUF: This retrospective study identified the following clinical characteristics of 145 COVID-19 patients at a single center:

- The most common reported symptoms in all patients were dry cough (81.4%), fever (75.2%),
- Severely ill patients were older and had comorbidities(obesity and diabetes mellitus being the most common) compared to non-severely ill patients
- No gender difference was observed between severely and non severely ill patients
- Severely ill patients had a higher mortality risk predictor scores on the Acute Physiology And Chronic Health Evaluation II (APACHE II), Sequential Organ Failure Assessment (SOFA), and MuLBSTA than non-severely ill patients.

Abstract:

Objective: The aim of this study was to investigate the clinical characteristics of Corona Virus Disease 2019 in Taizhou, China.

Methods: A single center retrospective observational study was performed between Jan 1, 2020 and Mar 11, 2020 at Taizhou Public Health Medical Center, Zhejiang, China. All patients with confirmed Corona Virus Disease 2019 were enrolled, and their clinical data were gathered by reviewing electronic medical records. Outcomes of severely ill patients and non-severely ill patients were compared.

Results: Of 145 hospitalized patients with COVID-19, the average age was 47.5 years old (standard deviation, 14.6) and 54.5% were men. Hypertension was the most common comorbidity (15.2%), followed by diabetes mellitus (9.7%). Common symptoms included dry cough (81.4%), fever (75.2%), anorexia (42.8%), fatigue (40.7%), chest tightness (32.4%), diarrhea (26.9%) and dizziness (20%). According to imaging examination, 79.3% patients showed bilateral pneumonia, 18.6% showed unilateral pneumonia, 61.4% showed ground-glass opacity, and 2.1% showed no abnormal result. Compared with non-severely ill patients, severely ill patients were older (mean, years, 52.8 vs. 45.3, $p < 0.01$), had a higher proportion of diabetes mellitus (16.3% vs. 6.9%, $p = 0.08$), had a higher body mass index (mean, 24.78 vs. 23.20, $p = 0.02$) and were more likely to have fever (90.7% vs. 68.6%, $p = 0.01$), anorexia (60.5% vs. 35.3%, $p = 0.01$), chest tightness (60.5% vs. 20.6%, $p < 0.01$) and dyspnea (7.0% vs. 0%, $p = 0.03$). Of the 43 severely ill patients, 6 (14%) received high-flow nasal cannula oxygen therapy, and 1 (2.3%) received invasive mechanical ventilation.

Conclusions: Older patients or patients with comorbidities such as obesity or diabetes mellitus were more likely to have severe condition. Treatments of COVID-19 is still experimental and more clinical trials are needed.

Understanding the Pathology

COVID-19: Are T Lymphocytes Simply Watching?

Saverino D

Panminerva Med

2020 Apr 28; PMID: 32343510

Level of Evidence: 5 – Expert Opinion

Type of Article: Letter

Summary: An Italian physician-scientist writes on the role of T-cells in COVID-19, citing studies showing significantly reduced numbers of CD4⁺, CD8⁺, and regulatory T-cells and hyperactive CD4⁺ T-cells in patients with COVID-19. The author suggests a central role of altered CD4⁺ responses, noting decreased lymphocyte infiltration in lung tissue and increased recruitment of other leukocytes via upregulation of certain cytokines. To the end of bolstering T-cell activation and infiltration, they conclude with a call for clinical trials on immune checkpoint inhibitors while acknowledging potential aggravation of cytokine responses.

The Importance Of Naturally Attenuated Sars-Cov-2 In The Fight Against Covid-19.

Armengaud, Jean; Delaunay-Moisan, Agnes; Thuret, Jean-Yves; van Anken, Eelco; Acosta-Alvear, Diego; Aragon, Tomas; Arias, Carolina; Blondel, Marc; Braakman, Ineke; Collet, Jean-Francois; Courcol, Rene; Danchin, Antoine; Deleuze, Jean-Francois; Lavigne, Jean-Philippe; Lucas, Sophie; Michiels, Thomas; Moore, Edward R B; Nixon-Abell, Jonathon; Rossello-Mora, Ramon; Shi, Zhengli; Siccardi, Antonio G; Sitia, Roberto; Tillett, Daniel; Timmis, Kenneth N; Toledano, Michel B; van der Sluijs, Peter; Vicenzi, Elisa

Environ Microbiol

2020 Apr 28; PMID: 32342578

Level of Evidence: 5 - Expert Opinion

Type of Article: Opinion

BLUF: This opinion piece makes an argument that there should be an urgent focus on investigating and understanding the naturally attenuated variants of SARS-CoV-2, especially genetic determinants of isolates that are correlated with asymptomatic outcomes. This knowledge may help develop safer and more effective anti-SARS-CoV-2 vaccines.

Abstract:

The current SARS-CoV-2 pandemic is wreaking havoc throughout the world and has rapidly become a global health emergency. A central question concerning COVID-19 is why some individuals become sick and others not. Many have pointed already at variation in risk factors between individuals. However, the variable outcome of SARS-CoV-2 infections may, at least in part, be due also to differences between the viral subspecies with which individuals are infected. A more pertinent question is how we are to overcome the current pandemic. A vaccine against SARS-CoV-2 would offer significant relief, although vaccine developers have warned that design, testing, and production of vaccines may take a year if not longer. Vaccines are based on a handful of different designs (1), but the earliest vaccines were based on live, attenuated virus. As has been the case for other viruses during earlier pandemics, SARS-CoV-2 will mutate and may naturally attenuate over time (2). What makes the current pandemic unique is that, thanks to state-of-the-art nucleic acid sequencing technologies, we can follow in detail how SARS-CoV-2 evolves while it spreads. We argue that knowledge of naturally emerging attenuated SARS-CoV-2 variants across the globe should be of key interest in our fight against the pandemic.

IgA-Ab response to spike glycoprotein of SARS-CoV-2 in patients with COVID-19: A longitudinal study.

Padoan A, Sciacovelli L, Basso D, Negrini D, Zuin S, Cosma C, Faggian D, Matricardi P, Plebani M, Padoan A, et al.

Clin Chim Acta

2020 Apr 25; PMID: 32343948

Level of Evidence: 5 - Mechanism-based reasoning

Type of Article: Research

BLUF: The authors examined the antibody kinetics in 37 SARS-CoV-2 positive patients (confirmed with rRT-PCR). Levels of IgA (n=19) or IgM (n=18) antibodies were measured for six weeks after onset of fever and included in the data set if at least three serial antibody levels were obtained. Findings bolded below.

Abstract: Validation studies of serological antibody tests must be properly designed for clinical, epidemiological and Public Health objectives such as confirmation of suspected COVID-19 cases, certification of seroconversion after infection, and epidemiological surveillance. We evaluated the kinetics of IgM, IgA and IgG SARS-CoV-2 antibodies in COVID-19 patients with confirmed (rRT-PCR) infection. We found that the IgA response appears and grows early, peaks at week 3, and it is stronger and more persistent than the IgM response. Further longitudinal investigations of virus-specific antibodies functions and of their protective efficacy over time are needed.

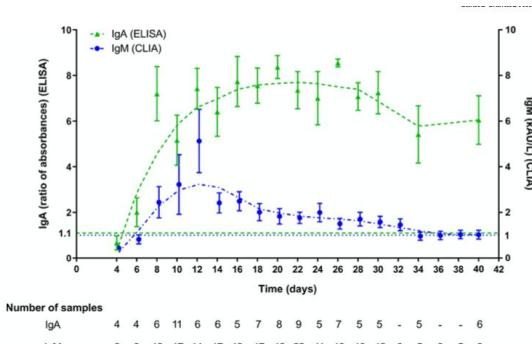


Fig. 1. Kinetics of IgA (ELISA) and IgM (CLIA) of patients monitored from the onset of symptoms (fever).

A

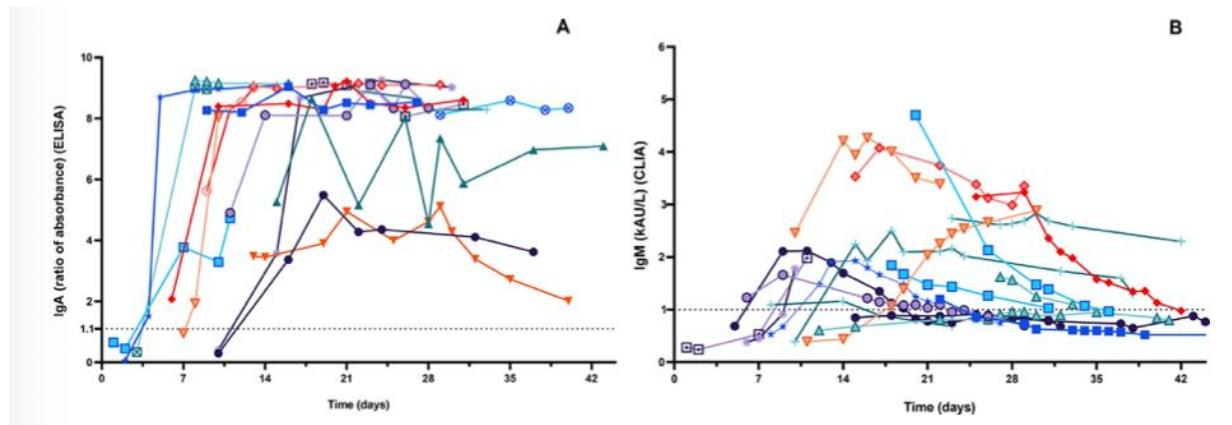


Fig. 2. Spaghetti plot of patients with more than 3 serial antibody determinations after the onset of symptoms (fever): A) IgA ($n = 17$ patients); B) IgM ($n = 18$ patients).

Potential pathogenesis of ageusia and anosmia in COVID-19 patients.

Vaira LA, Salzano G, Fois AG, Piombino P, De Riu G, Vaira LA, et al.

Int Forum Allergy Rhinol.

2020 Apr 27; PMID: 32342636

Level of Evidence: 5 - Literature review

Type of Article: Letter to the Editor

Summary: Based on a review of the literature the authors propose possible mechanisms for ageusia and anosmia in COVID-19. Their top theories for ageusia include binding of SARS-CoV-2 to ACE2 and sialic acid receptors in the oral mucosa. Anosmia may also be related to ACE2 mediated inflammation. Other theories for anosmia, include direct viral damage of olfactory tissue or in prolonged cases, olfactory neurons.

COVID-19 pandemic: is a gender-defined dosage effect responsible for the high mortality rate among males?

de Groot NG, Bontrop RE, de Groot NG

Immunogenetics

2020 Apr 28; PMID: 32342146

Level of Evidence: 5 - Expert Opinion

Type of Article: Research

BLUF: To describe the disparity in COVID-19 mortality rate between males and females, the authors propose that a gender-defined dosage effect of the antiviral immune system receptors toll-like receptors (TLR)-7 and 8, found as genes on the X chromosome, is a contributor.

Summary: A further investigation on the pathogenesis of SARS-CoV-2 reveals a possible association between the disease pathology and a gender-defined genetic polymorphism. SARS-CoV-2 gains access to the human cell through the use of ACE2 receptors and the gene for ACE2 is located on the female sex chromosome; however, poor prognosis for male patients is not associated with ACE2 location or polymorphism. In contrast, Toll-like receptors (TLR) such as TLR3, 7, 8 and 9 play an essential function of the innate immune system to clear viral infections. Of interest, TLR 7 and 8 are encoded by the female X chromosome. The location of the TLR7,8 gene may represent a gender-related risk factor when comparing to male individuals who only possess a single copy of the X chromosome. This significant finding could ultimately lead to a gender-determined dosage effect for future vaccines; however, more evidence is needed to make any further decisions.

Transmission & Prevention

Developments in Transmission & Prevention

Is there evidence of intra-uterine vertical transmission potential of COVID-19 infection in samples tested by quantitative RT-PCR?

Cheruiyot I, Henry BM, Lippi G. Cheruiyot I, et al.

Eur J Obstet Gynecol Reprod Biol.

2020 Apr 18; PMID: 32336661

Level of Evidence: 3 - Systematic Review of Case Series

Article Type: Letter to the Editor

Summary: The authors performed an analysis of 5 studies with 16 total COVID-19 pregnant women in their 3rd trimesters and found no evidence of intra-uterine vertical transmission of COVID-19. Specimen samples, either from amniotic fluid, nasopharyngeal swabs, placenta, etc., all tested negative with RT-PCR (Table 1).

Table 1

Characteristics of the studies included in the analysis.

Author	Region	No. of patients tested for vertical transmission	Gestational age at onset of symptoms/ diagnosis of COVID-19	Mode of delivery	Specimens tested	Number of positive tests
Lei et al. [7]	China	4 women; 4 neonates	3 rd trimester	Caesarian section	amniotic fluid, umbilical cord blood, neonatal nasopharyngeal swabs	0
Chen et al. [8]	China	3 women	3 rd trimester	Caesarian section	Placenta	0
Chen et al. [8]	China	6 women; 6 neonates	3 rd trimester (36–39 weeks)	Caesarian section	amniotic fluid, cord blood, neonatal throat swab	0
Fan et al. [9]	China	2 women; 2 neonates	3 rd trimester (36 & 37 weeks)	Caesarian section	newborn's nasopharyngeal swab, maternal serum, placenta tissues, umbilical cord blood, amniotic fluid	0
Xiong et al. [10]	China	1 woman; 1 neonate	3 rd trimester (33 weeks)	Vaginal delivery	amniotic fluid, neonatal throat swab	0

Isolation of Infectious SARS-CoV-2 from Urine of a COVID-19 Patient.

Sun J, et al.

Emerg Microbes Infect.

2020 Apr 28; PMID: 32342724

Level of Evidence: 4 - Case Report

Type of Article: Research

BLUF: This case report outlines a case in which infectious SARS-CoV-2 was successfully isolated from the urine of a patient with COVID-19, serving as a warning to avoid transmission through urine.

Abstract:

SARS-CoV-2 caused a major outbreak of severe pneumonia (COVID-19) in humans. Viral RNA was detected in multiple organs in COVID-19 patients. However, infectious SARS-CoV-2 was only isolated from respiratory specimens. Here, infectious SARS-CoV-2 was successfully isolated from urine of a COVID-19 patient. The virus isolated could infect new susceptible cells and was recognized by its own patient sera. Appropriate precautions should be taken to avoid transmission from urine.

Case Report: Viral Shedding for 60 Days in a Woman with Novel Coronavirus Disease (COVID-19).

Li, Junyao; Zhang, Lin; Liu, Baihui; Song, Debiao

Am J Trop Med Hyg

2020 Apr 27; PMID: 32342849

Level of Evidence: 4 - Case Report

Type of Article: Research

BLUF: This is a case report of a 71 y/o woman from Wuhan, who recovered from a fairly mild episode of COVID-19. This patient exhibited persistent viral shedding for 36 days after symptom resolution, which is the longest duration of SARS-CoV-2 shedding reported to date; the association between prolonged shedding and prolonged infectivity remains unclear and needs to be further explored.

Abstract:

Novel coronavirus disease (COVID-19) caused by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) has become a public health emergency of international concern. This was first noted in Wuhan, Hubei Province, China, and since then has become widespread globally. We report a 71-year-old woman with documented viral shedding (based on reverse transcription-polymerase chain reaction (RT-PCR) testing) of SARS-CoV-2 for 60 days from the onset of symptoms (55 days from her first positive test and 36 days after complete resolution of symptoms). This is to our knowledge the longest duration of viral shedding reported to date. This case demonstrates that viral shedding after COVID-19 diagnosis can be prolonged.

Prevention in the Community

Tackling Corona Virus Disease 2019 (COVID 19) in Workplaces.

Ramesh N, Siddaiah A, Joseph B.

Indian J Occup Environ Med

2020 Jan-Apr; PMID: 32341630

Level of Evidence: 5 - Review with guidelines

Type of Article: Review

BLUF: This review provides the following guidelines for transmission prevention in the workplace:

- Employees with symptoms of acute respiratory illness like fever greater than 100.4 degrees Fahrenheit and mild symptoms should be encouraged to stay at home. Those with severe symptoms should seek professional healthcare.
- Separate sick employees

- Flexible sick leave policies
- Emphasize respiratory and hand hygiene
- Regular environmental cleaning with disinfectants
- Specific travel advice
- Informational/educational information about personal hygiene

Abstract:

Coronaviruses are zoonotic viruses and six species of Coronaviruses are known to cause human disease such as cause common cold *[sic]*, severe acute respiratory syndrome and the Middle East Respiratory Syndrome. In January 2020, scientists in Wuhan, China isolated a novel coronavirus (SARS-CoV-2), responsible for an outbreak of unknown pneumonia that had not been previously reported among humans. This virus spreads from person to person, through respiratory droplets, close contact, and by touching surfaces or objects contaminated by the virus. The incubation period varies between 2 days and 14 days. Symptoms usually include fever, cough, difficulty in breathing, pneumonia, severe acute respiratory syndrome. Older age and co-morbid conditions increase the fatality. Any person with a history of travel to and from COVID-19 affected countries in the past 14 days or any person who has had close contact with a laboratory confirmed COVID-19 are suspect cases and needs evaluation. Currently no vaccine is available and treatment is mainly supportive. Measures at workplace *[sic]* should include- avoiding non-essential travel, identifying and isolating sick employees at the earliest, hand hygiene, respiratory hygiene, environmental hygiene and social distancing.

Estimating the burden of United States workers exposed to infection or disease: A key factor in containing risk of COVID-19 infection.

Baker MG, Peckham TK, Seixas NS

PLoS One

2020 Apr 28; PMID: 32343747

Level of Evidence: 5 - Mechanism-Based Reasoning

Type of Article: Research

BLUF: Authors analyzed data from the 2018 Occupation Employment Statistics database (Bureau of Labor Statistics) and responses to a Occupational Information Network (O*NET) database (job characterization tool) survey to determine the number and percentage of workers exposed to infection or disease more than once a month or week in 2018 (Table 1). Occupations with high exposure risk include occupations in healthcare and support, technical, protective, service, community and social services, office and administration support, compliance specialists (environmental compliance and coroners), indicating the need for prevention measures both at the work and in regulatory levels.

ABSTRACT:

Introduction: With the global spread of COVID-19, there is a compelling public health interest in quantifying who is at increased risk of contracting disease. Occupational characteristics, such as interfacing with the public and being in close quarters with other workers, not only put workers at high risk for disease, but also make them a nexus of disease transmission to the community. This can further be exacerbated through presenteeism, the term used to describe the act of coming to work despite being symptomatic for disease. Quantifying the number of workers who are frequently exposed to infection and disease in the workplace, and understanding which occupational groups they represent, can help to prompt public health risk response and management for COVID-19 in the workplace, and subsequent infectious disease outbreaks.

Methods: To estimate the number of United States workers frequently exposed to infection and disease in the workplace, national employment data (by Standard Occupational Classification) maintained by the Bureau of Labor Statistics (BLS) was merged with a BLS O*NET survey measure reporting how frequently workers in each occupation are exposed to infection or disease at work. This allowed us to estimate the number of United States workers, across all occupations, exposed to disease or infection at work more than once a month.

Results: Based on our analyses, approximately 10% (14.4 M) of United States workers are employed in occupations where exposure to disease or infection occurs at least once per week. Approximately 18.4% (26.7 M) of all United States workers are employed in occupations where exposure to disease or infection occurs at least once per month. While the majority of exposed workers are employed in healthcare sectors, other occupational sectors also have high proportions of exposed workers. These include protective service occupations (e.g. police officers, correctional officers, firefighters), office and administrative support occupations (e.g. couriers and messengers, patient service representatives), education occupations (e.g. preschool and daycare teachers), community and social services occupations (community health workers, social workers, counselors), and even construction and extraction occupations (e.g. plumbers, septic tank installers, elevator repair).

Conclusions: The large number of persons employed in occupations with frequent exposure to infection and disease underscore the importance of all workplaces developing risk response plans for COVID-19. Given the proportion of the United States workforce exposed to disease or infection at work, this analysis also serves as an important reminder that the workplace is a key locus for public health interventions, which could protect both workers and the communities they serve.

			Exposed > 1 time/month		Exposed > 1 time/week	
	2-digit SOC	total in SOC	#	%	#	%
31	Healthcare Support	4,117,450	3,958,560	96.1%	3,160,890	76.8%
29	Healthcare Practitioners and Technical	8,646,730	7,911,430	91.5%	6,728,420	77.8%
33	Protective Services	3,437,410	1,789,490	52.1%	1,026,660	29.9%
39	Personal Care and Service	5,451,330	2,841,730	52.1%	29,810	0.5%
21	Community and Social Services	2,171,820	704,280	32.4%	168,190	7.7%
25	Education, Training, and Library	8,779,780	2,048,070	23.3%	--	--
37	Building and Grounds Cleaning and Maintenance	4,421,980	924,290	20.9%	--	--
43	Office and Administrative Support	21,828,990	3,532,530	16.2%	2,871,400	13.2%
19	Life, Physical, and Social Science	1,171,910	159,970	13.7%	20,030	1.7%
15	Computer and Mathematical	4,384,300	587,970	13.4%	--	--
53	Transportation and Material Moving	10,244,260	930,930	9.1%	118,770	1.2%
47	Construction and Extraction	5,962,640	491,990	8.3%	--	--
51	Production	9,115,530	371,480	4.1%	--	--
13	Business and Financial Operations	7,721,300	300,900	3.9%	300,900	3.9%
27	Arts, Design, Entertainment, Sports, and Media	1,951,170	57,140	2.9%	--	--
11	Management	7,616,650	59,050	0.8%	--	--
17	Architecture and Engineering	2,556,220	--	--	--	--
23	Legal	1,127,900	--	--	--	--
35	Food Preparation and Serving Related	13,374,620	--	--	--	--
41	Sales and Related	14,542,290	--	--	--	--
45	Farming, Fishing, and Forestry	480,130	--	--	--	--
49	Installation, Maintenance, and Repair	5,628,880	--	--	--	--
All SOCs		144,944,620	26,669,810	18.4%	14,425,070	10.0%

<https://doi.org/10.1371/journal.pone.0232452.t001>

Table 1. Number and percent of workers exposed to infection or disease more than one time per month, and more than one time per week, by major (2-digit) Standard Occupational Classification code (SOC).

COVID-19 in Prisons and Jails in the United States.

Hawks L, Woolhandler S, McCormick D.

JAMA Intern Med

2020 Apr 28; PMID: 32343355

Level of Evidence: 5 - Expert Opinion

Type of Article: Commentary

Summary: Given that it has thus far proven to be very challenging to manage the spread of COVID-19 among the staff and incarcerated at prisons in the United States, with many prisons experiencing significant rates of infection, the authors of this article present potential strategies to mitigate the potential harms of the pandemic in this setting, including addressing the problem of overcrowding in prisons, noting that significant policy changes throughout the criminal justice system will be needed to successfully minimize the harms of COVID-19.

Prevention in the Hospital

Emergency Responses to Covid-19 Outbreak: Experiences and Lessons from a General Hospital in Nanjing, China.

Shen Y, Cui Y, Li N, Tian C, Chen M, Zhang YW, Huang YZ, Chen H, Kong QF, Zhang Q, Teng GJ

Cardiovasc Intervent Radiol

2020 Apr 27; PMID: 32342164

Level of Evidence: 5 - Expert opinion

Type of Article: Letter

BLUF: Table 1 details the steps taken by a general hospital in Nanjing, China to specifically decrease in-hospital transmission of COVID-19. These included strict in-hospital flow control, temperature and COVID-19 RT-PCR testing for all visitors and patients, increased personnel support, and halting of elective surgeries and procedures.

Abstract:

Background: The novel coronavirus 2019 (SARS-CoV-2) has caused wide dissemination across the world. Global health systems are facing the unprecedented challenges [sic]. Here we shared the experiences and lessons in emergency responses and management from our hospital, a government-assigned regional anti-Covid-19 general hospital in Nanjing, Jiangsu Province, China.

Methods: Our periodic strategies in dealing with Covid-19 were described in detail. An administrative response including the establishment of Emergency Leadership Committee that was in full charge of management was established. Modifications of infrastructure including the Fever Clinic, inpatient ward, outpatient clinic and operation room were carried out. Special arrangements for outpatient services, hospitalization and surgeries were introduced. Medical personnel training and patient educations [sic] were performed. Initiations of Covid-19 researches [sic] and application of information technology were introduced.

Findings: Since January 16, three cases have been confirmed in our hospital and no healthcare-associated infection was found. During the epidemics, 6.46% staffs suffered depression, 9.87% had anxiety, and 98% were satisfied with the infection control policy. Shortages in staffs and medical consumables, and limitation in space were the obstacles we encountered *[sic]*.

Interpretation: As the cost of in-hospital transmission is unbearable, our experiences and lessons suggested that prompt actions should be taken immediately to decrease or eliminate potential in-hospital transmission. Experience shared herein may be useful for those facilities that are and may encounter Covid-19.

	Duration	China	Outside of China	Key measures in Zhongda Hospital
Phase I	January 16 to January 23	Declaration of human-to-human transmission 600 cases nationwide with substantial increase Covid-19 was ranked as Cat. B in China Wuhan locked down the city Nanjing's first confirmed case reported on Jan 23	First case in the USA, Japan, Thailand, Vietnam, etc. Warnings for traveling and contacting Wuhan and China	Emergency Leadership Committee and advanced IPC and MDT establishment PPE and medical consumables reservation and preparation Representative protocols for Covid-19 cases and regular medical services Covid-19 education and training for physicians, nurses and hospital staffs Infrastructure modifications including the ward, Fever Clinic, quarantine unit and operating theater
Phase II	January 24 to January 14	Dramatic accumulation with more than 10,000 daily increase in confirmed and suspected cases in China Level I emergency status declaration in multiple cities Intercity traffic and transportation suspended Severe shortage in medical supplies	WHO determined a Public Health Emergency of International Concern International traffic restriction on China announced by 130 countries and regions (as of Feb 13)	Strict in-hospital flow control, temperature and Covid-19 RT-PCR screening covered 100% visitors and patients Enhanced personnel support to the Fever Clinic, Emergency and respiratory department Temporary suspension of elective surgeries, and special arrangement for emergency operation Attempts of online medical services and consultation
Phase III	Since February 15	Pandemic in China was under gradual control except Hubei Province New challenges from social and industrial production recovery, and imported infections emerges In Nanjing, a total of 93 Covid-19 cases were reported with no new case in 12 successive days (as of Mar 1)	Global spread in 58 countries with outpaced number than China (as of Mar 1) Worldwide anxiety affected social and financial system	All measures above continued in force Resumption of elective services under full monitoring Surgical and hospitalization workflow was individualized upon MDT evaluation and committee approval

Management

[COVID-19 - A Reminder to Reason.](#)

Zagury-Orly I, Schwartzstein RM

N Engl J Med.

2020 Apr 28; PMID: 32343505

Level of Evidence: 5 - Expert Opinion

Type of Article: Perspective

BLUF: This perspective article discusses several biases that doctors must overcome during the COVID-19 pandemic to provide evidence-based medicine to their patients. These include:

- Availability bias: the tendency to ascribe greater importance to recently acquired information because it is more easily recalled
- Confirmation bias: the tendency to interpret results to confirm our preconceived notions, despite evidence to the contrary
- Anchoring bias: the tendency to prematurely make a decision and close-off the decision making process without all evidence available
- Cognitive bias: the tendency to rely on personal experiences and anecdotes in the decision making process, rather than scientific inquiry

Summarizing statement: "Thus far in the COVID-19 pandemic, we've observed that therapeutic management has often been initiated and altered on the basis of individual case reports and physician opinion, rather than of randomized trials. In these uncertain times, physicians fall prey to cognitive error and unconsciously rely on limited experiences, whether their own or others', instead of scientific inquiry. We believe that physicians should be acting in concert with clinical equipoise. We should be skeptical of any purported therapeutic strategy until enough statistical evidence is gathered that would convince any 'open-minded clinician informed of the results' that one treatment is superior to another...We are living through an unprecedented biopsychosocial crisis; physicians must be the voice of reason and lead by example. We must reason critically and reflect on the biases that may influence our thinking processes, critically appraise evidence in deciding how to treat patients, and use anecdotal observations only to generate hypotheses for trials that can be conducted with clinical equipoise. We must act swiftly but carefully, with caution and reason."

Acute care

[Emergency Medicine](#)

[COVID-19: before stopping specific infection control measures, be sure to exclude the diagnosis.](#)

Farfour E, Ballester MC, Lecuru M, et al.

J Hosp Infect.

2020 Apr 25; PMID: 32343984

Level of Evidence: 4 - Case Series

Type of Article: Research

Summary: Six COVID-19 positive cases were followed, in which patients were either discharged or moved to a non-COVID unit before receiving diagnosis. Although there is no specific test to rule out COVID-19 in a timely manner, patients' disposition should not be decided until ruling out COVID-19 as a diagnosis.

[Misdiagnosis in the COVID era: When Zebras are Everywhere, Don't Forget the Horses.](#)

Yousefzai R, Bhimaraj A.

JACC Case Rep.

2020 Apr 27. PMID: 32342051

Level of Evidence: 4 - Case Report

Type of Article: Research

BLUF: The case report presents a 56 year-old male with coronary disease risk factors who presents with STEMI that was initially missed due to an emphasis on COVID-19 symptoms. There was a delay in ordering an angiogram since COVID-19 can have cardiac manifestations. Common pathologies should not be missed, even in a pandemic.

Abstract:

We report a patient who presented with respiratory failure, chest pain, and fever. In the COVID-19 pandemic era, the focus was diverted to the coronavirus infection, and STEMI was missed. Even though we need to be vigilant in the diagnosis of COVID-19, we should not forget about the common pathologies.

[Diagnostic radiology](#)

[COVID-19: A primer for Neuroradiologists.](#)

Mankad K, Perry MD, Mirsky DM, Rossi A.

Neuroradiology

2020 Apr 28; PMID: 32342126

Level of Evidence: 5 - Expert Opinion

Type of Article: Editorial

BLUF: Patients with SARS-CoV-2 infection have shown neurological symptoms including anosmia, dysgeusia, headache, nausea, and vomiting. Additionally, the production of a cytokine storm by the host's immune system may lead to neurological disease such as encephalitis, acute flaccid paralysis, or acute necrotising encephalopathy. For these reasons, it is important to consider the possibility of central nervous system (CNS) migration in patients with COVID-19 who present with neurological signs.

Abstract:

The potential for central nervous system (CNS) involvement in coronavirus disease 2019 (COVID-19) is a matter of grave concern and there is a relevant body of evidence in the basic sciences to support this possibility. A neuroradiologist should be aware of the potential mechanisms involved in the neuropathogenesis of this virus, as we begin to see cases with abnormal brain scans emerging from all parts of the world.

[Interventional Radiology](#)

[Interventional Radiology Procedures for COVID-19 Patients: How We Do It](#)

Too CW, et al.

Cardiovasc Intervent Radiol

2020 Apr 27; PMID: 32342154

Level of Evidence: 5 – Expert opinion

Type of Article: Guidelines

BLUF: The authors of this correspondence provide detailed guidelines for performing interventional procedures on COVID-19 positive patients in Singapore while minimizing infectious risk to staff and other patients. Guidelines include:

- Postpone non-urgent procedures
- Division of interventional radiologists (IR) into two functional teams without intermingling
- Definitive roles with “stakeholders” (i.e. staff involved in the care of a patient; Table 1)
- Use of powered air-purifying respirators (PAPR) when N95 mask fitting fails or when performing aerosol-generating procedures (AGP) on COVID-19 patients
- Performing procedures at patient’s bedside (Table 2) when applicable
 - If unable to do bedside procedures, procedures may be performed in an operating room (OR) designed for COVID-19 patients or at the IR Centre [sic] (IRC) if the patient requires angiography or CT (Table 4)
 - May also perform select procedures (central venous catheter insertions, drainages) in isolation room (Figure 1)
 - Dedicated ultrasound (US) machine available in isolation room
- Address other miscellaneous issues, such as disposal of COVID-19 patient’s biological waste after double-bagging, disinfecting the procedure room and equipment with wipes and use of sodium hypochlorite solution

Abstract:

With astonishing speed, COVID-19 has become a global pandemic. As it is uncertain when the pandemic will be controlled, it is crucial for proceduralists [sic] of all stripes to be familiar and confident in performing procedures for COVID-19 patients to prevent intra-hospital infection. In this article, we will detail our approach on how to perform interventional procedures for COVID-19 patients at the bedside in the isolation room and with the patient transferred to the interventional radiology centre [sic]. These workflows have been developed in conjunction with multiple other stakeholders within our hospital, drawing from valuable lessons we have learnt from the SARS outbreak of 2003.

Stakeholder		Role
1.	Infection prevention and epidemiology	Formulate infection prevention measures at all points of patient movement. This includes PPE, disinfection of procedural suites and equipment
2.	Isolation ward staff	Coordinate transfer of patient and to handover/takeover care of patient
3.	Anaesthesia	Manage airway/intubation Provide intraprocedural monitoring Coordination of anaesthetic unit personnel before, during and after procedure, including infection control measures
4.	Environmental services	Provide prompt disinfecting services along the patient movement path and procedural areas
5.	Security	Clear predesignated path to the procedure suite to minimise contact with other patients, hospital staff and visitors

Table 1. Roles of various other stakeholders

Initials	Staff	Role	Attire	Remarks
<i>Support team (no patient contact)</i>				
CO	Controller	Maintains command and control of the entire event and coordinates with various external parties Doubles up as runner nurse (RN)	N95/eye protection	Stays in corridor Holds walkie-talkie
<i>Procedural team</i>				
SN	Scrub nurse	Scrubs for procedure	Full PPE	
CN	Circulating nurse	Circulates for procedure	Full PPE	Moves between rooms. Not to touch surfaces in ante room Walkie-talkie in breast pocket
UR	Ultrasound radiographer	Operates US machine and cassette of digital radiography unit	Full PPE	
DR	Digital radiography radiographer	Operates digital radiography unit	Full PPE	Minimal patient contact
IR	Interventional Radiologist	Performs procedure	Full PPE	

Table 2. Personnel involved in bedside procedure

Bedside procedure in isolation ward	Procedure in IRC			
<i>Pre-procedure</i>				
IR to confirm indication, urgency and where to perform procedure CO to gather team, assign roles and conduct briefing				
Gather necessary equipment for a portable procedure To secure digital radiography unit if needed Proceed to isolation ward Wrap imaging equipment	<p><i>Patient prep</i></p> <p>Controller to liaise with ward, ED, security staff Ward staff to prepare patient for transfer Security to clear route Coordinate anaesthetic support if needed Security team meets ward staff at patient location</p>	<p><i>Procedure room prep</i></p> <p>Procedure room cleared of mobile cabinets and non-essential items. Remaining equipment to be wrapped Recovery area cordoned off and set up for post-procedure PPE removal Signages placed to direct traffic</p>		
IR, PR, SN, MN, CN to don full PPE to receive patient inside IR suite. Perform buddy check for PPE When patient and room are ready, CO to approve transfer of patient Patient transfer directly to procedure room				
<i>Intra-procedure</i>				
CN to don full PPE, enter isolation room, brief patient, conduct preprocedural checks with CO via walkie talkie UR to don full PPE enter room and position US machine CN and UR to position patient SN to enter with full PPE to clean and drape IR to enter with full PPE to perform procedure	<p>Perform patient checks and transfer to angiography table If required, anaesthetic team to perform intubation in PAPR Procedure commences. All personnel of procedure team to remain in room in full PPE Patient's trolley to be cleaned and parked Equipment or drugs to be passed into IR suite, from support to procedure team members without physical contact</p>			
<i>Post-procedure</i>				
Procedure team to remove PPE and equipment as per guidance Proceed to shower	<p>Controller informs ward staff/security Patient transferred to ward, escorted by ward staff and security Procedure team to remove plastic wrapping and wipe down equipment Procedure team to remove PPE in designated order and locations and then proceed to shower Controller activates Environmental Services to provide terminal cleaning of IR suite, recovery area and showers</p>			

Table 3. Detailed processes

Initials	Staff	Role	Attire	Remarks
<i>Support team (no patient contact)</i>				
CO	Controller	Maintains command and control of the entire event and coordinates with various external parties	N95/eye protection	
RN	Runner nurse	Circulates outside room	N95/eye protection	Hands equipment over to CN without direct physical contact Holds walkie-talkie
TN	Traffic nurse	Manages traffic at entry to department for all personnel involved in procedure as well as other parties like MRI staff and patients who use the same corridor	N95/eye protection	
CR	Control Radiographer	Manages control room	N95/eye protection	
<i>Procedural team</i>				
PR	Procedure Radiographer	Operates equipment inside procedural room.	Full PPE	
SN	Scrub nurse	Scrubs for procedure	Full PPE	
CN	Circulating nurse	Circulates for procedure inside procedure room. To minimise patient contact	Full PPE	Walkie-talkie in the pocket of the lead suit
MN	Monitoring nurse	Looks after patient in procedure room	Full PPE	
IR	Interventional radiologist	Performs procedure	Full PPE	
ANA	Anaesthetist/ICU team	Supports patient during procedure.	Full PPR KIV with PAPR	

Table 4. Personnel involved in procedure in IRC

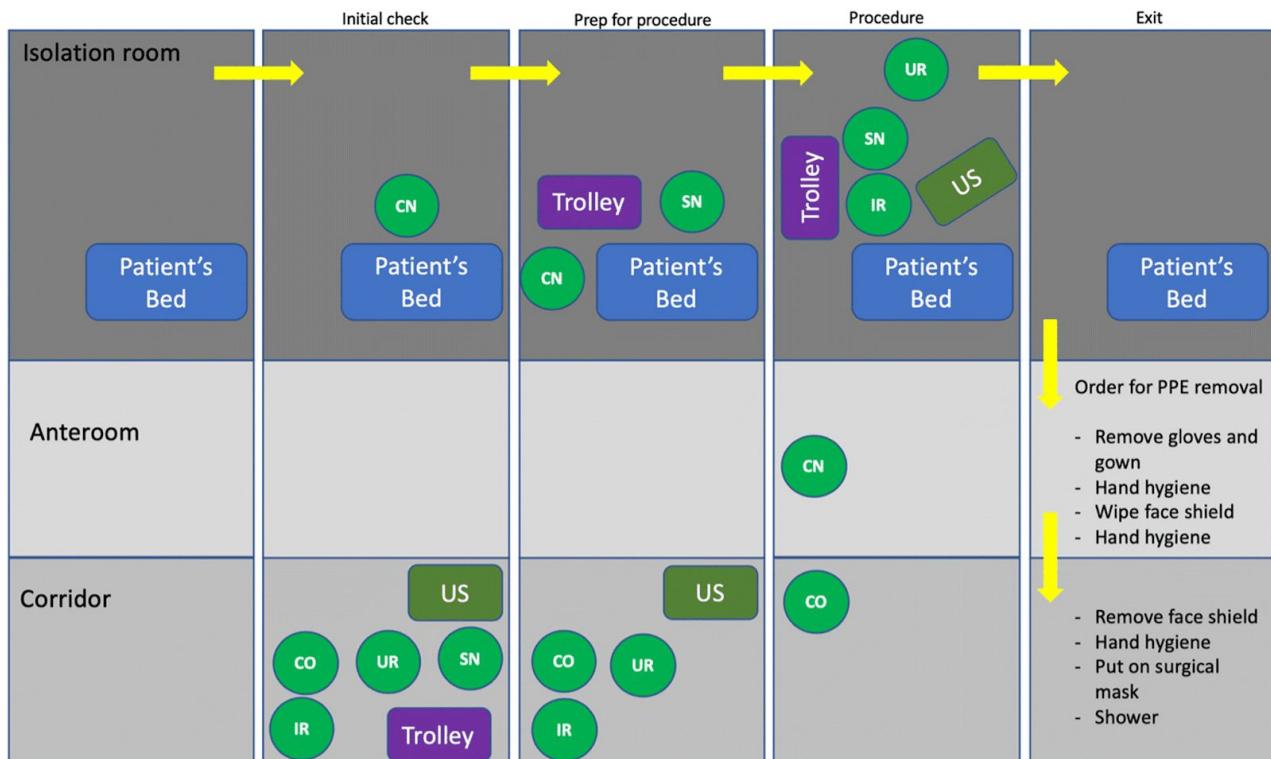


Figure 1. Schematic diagram of isolation room with staff movement before and during procedure and order for PPE removal

Elevated Interleukin-6 and Severe COVID-19: A Meta-Analysis.

Aziz M, Fatima R, Assaly R.

J Med Virol.

2020 Apr 28; PMID: 32343429

Level of Evidence: 1- Meta-analysis

Type of Article: Research

BLUF: Authors within the departments of medicine and critical care at the University of Toledo performed a systematic review of nine studies involving 1426 patients finding that IL-6 levels were significantly higher in severe COVID-19 patients compared to non-severe patients ($p < 0.001$), and mean IL-6 levels were positively correlated with increased mortality ($p = 0.03$). They recommend incorporating IL-6 levels into risk stratification systems of disease severity and encourage further trials evaluating efficacy of anti IL-6 therapies such as Tocilizumab in COVID-19 patients with severe disease.

Abstract:

Interleukin-6 is an important marker of inflammation. We performed a systematic review and meta-analysis to demonstrate the association of elevated IL-6 with severe Coronavirus disease-2019 (COVID-19). A total of 9 studies were included in the systematic review and meta-analysis. Patients with severe COVID-19 had a significantly higher serum IL-6 levels compared to non-severe patients (mean difference (MD): 38.6 pg/mL, 95% CI: 24.3 - 52.9 pg/mL, $p < 0.001$, $I^2 = 98.5\%$). On meta-regression, increasing mean IL-6 level was associated with increased mortality in patients (Coefficient (Q): 0.01, 95% CI: 0.01-0.03, $p = 0.03$). Given the association of elevated IL-6 with severe COVID-19 and mortality, clinicians should use this as a potential marker to recognize severe disease. IL-6 should be incorporated in a scoring system along with other inflammatory markers to risk stratify the patients for early recognition of severe disease. Our study should encourage researchers to conduct trial [sic] evaluating Anti IL-6 antibodies such as Tocilizumab to assess the efficacy in patients with severe COVID-19.

A retrospective cohort study of methylprednisolone therapy in severe patients with COVID-19 pneumonia.

Wang Y, Jiang W, He Q, Wang C, Wang B, Zhou P, Dong N, Tong Q.

Signal Transduct Target Ther.

2020 Apr 28; PMID: 32341331

Level of Evidence: 3 - Cohort study

Type of Article: Research

BLUF: This is a retrospective cohort study comparing the clinical outcomes of 46 COVID-19 pneumonia patients with or without methylprednisolone treatment. It was concluded that early, low-dose and short-term application of methylprednisolone was associated with better clinical outcomes in severe patients with COVID-19 pneumonia.

Summarizing Excerpt:

"We studied 46 severe patients with COVID-19 pneumonia at the isolation ward of Union Hospital of Huazhong University of Science and Technology, Wuhan, China, from January 20 to February 25, 2020. The clinical classification is based on the coronavirus pneumonia diagnosis and treatment plan (trial version 5) developed by the National Health Committee of the People's Republic of China. Severe case was defined when any of the following criteria was met: (1) respiratory distress, respiratory rate per min ≥ 30 ; (2) in the resting state, means oxygen saturation $\leq 93\%$; (3) arterial blood oxygen partial pressure/oxygen concentration ≤ 300 mmHg...The median of SpO_2 at rest on admission was similar between the two groups. All of the 46 patients received oxygen therapy. The dynamic change of SpO_2 was shown in Figure 1, and the patients with methylprednisolone treatment had a faster improvement of SpO_2 . Moreover, patients without methylprednisolone treatment had significantly longer interval of using supplemental oxygen therapy than those with methylprednisolone treatment (8 days [interquartile range (IQR) 7–10] vs. 14 days (IQR 10–16); $P < 0.001$). Regarding the most intense level of oxygen support, the patients who received methylprednisolone treatment were less likely to be developed to receive the mechanical ventilation ($P = 0.05$); 35% (7/20) patients without methylprednisolone treatment developed to receive the mechanical ventilation (5 non-invasive ventilator [NIV], 2 IMV [invasive ventilator], no IMV with extracorporeal membrane oxygenation (ECMO)); while only 11.5% (3/26) patients with methylprednisolone treatment developed to receive the mechanical ventilation (2 NIV, 1 IMV, no IMV with ECMO)."'

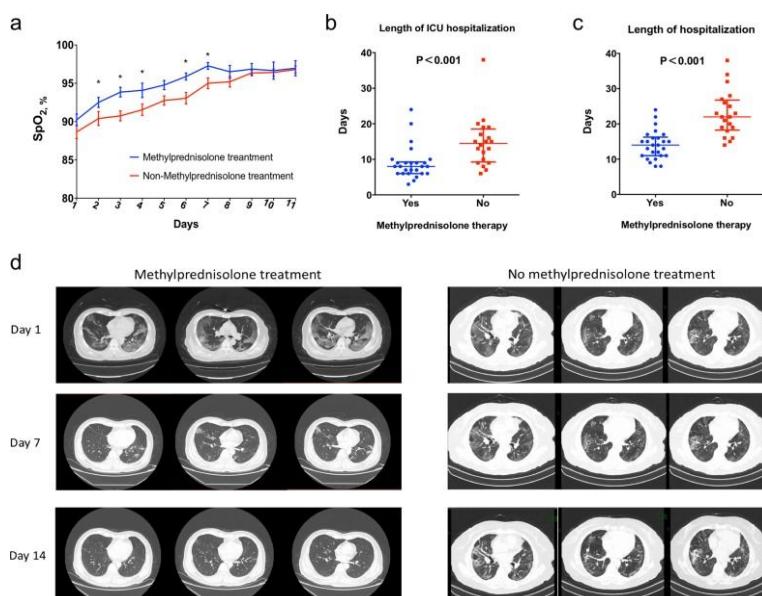


Figure 1. Comparison of the clinical outcomes between severe COVID-19 pneumonia patients with and without methylprednisolone treatment. a Dynamic change of SpO_2 at rest; b length of ICU hospitalization; c length of hospitalization; d images of chest CT scan on day 1, 7, and 14 after hospitalization

Use of Tocilizumab for COVID-19 Infection-Induced Cytokine Release Syndrome: A Cautionary Case Report

Radbel J, Narayanan N, Bhatt PJ

Chest

2020 Apr 25; PMID: 32343968

Level of Evidence: 4 – Case Series

Type of Article: Research

BLUF: This n=2 case series details the death of two patients treated with anti- interleukin-6 (IL-6) antibody tocilizumab, which has been used to manage cytokine release syndrome. Despite decreased C-reactive protein, which is released in response to IL-6, in both patients, both patients' diseases progressed to secondary hemophagocytic lymphohistiocytosis (sHLH). The authors posit a tocilizumab-mediated immunosuppression, since IL-6 bolsters CD8+ T-cell activation, though they emphasize the need for clinical trials.

Abstract:

Novel coronavirus, COVID-19 emerged late December 2019 in Wuhan, China. Since then, COVID-19 has become a pandemic affecting more than 1.5 million people worldwide. Patients with COVID-19 have a wide spectrum of manifestations, one being cytokine release syndrome (CRS) and its fatal correlate, secondary hemophagocytic lymphohistiocytosis (sHLH). Anti-cytokine therapy such as tocilizumab, an interleukin-6 (IL-6) receptor antagonist, is a potential treatment for COVID-19, however data regarding the efficacy of this anti-IL-6 therapy is currently lacking. We report two cases of patients diagnosed with COVID-19 complicated by CRS treated with tocilizumab. Both patients progressed to sHLH despite treatment with tocilizumab and one developed viral myocarditis challenging the safety and clinical utility of tocilizumab in the treatment of COVID-19-induced CRS. These cases highlight the need for clinical trials to determine optimal patient selection and timing for the use of tocilizumab during this disease process.

Negative-Pressure Aerosol Cover for COVID-19 Tracheostomy.

Bertroche JT, Pipkorn P, Zolkind P, Buchman CA, Zevallos JP.

JAMA Otolaryngol Head Neck Surg.

2020 Apr 28; PMID: 32343299

Level of Evidence: 4 - Case study

Type of Article: Case study

BLUF: This article details a novel method of reducing aerosol spread using negative-pressure aerosol reduction cover during a tracheostomy case. The figure below shows the apparatus.

Abstract:

This quality improvement study evaluates the use of a novel negative-pressure aerosol reduction cover for use during tracheostomy in a patient with confirmed or suspected COVID-19.



Figure Legend:

Aerosol Reduction Cover in PlaceNote position of the laryngoscope suspension arm at the head of the bed, allowing the aerosol cover to remain suspended over the surgical field.

Fatal Invasive Aspergillosis and Coronavirus Disease in an Immunocompetent Patient.

Blaize M, Mayaux J, Nabet C, Lampros A, Marcelin AG, Thellier M, Piarroux R, Demoule A, Fekkar A.
Emerg Infect Dis.

2020 Apr 28; PMID: 32343223

Level of Evidence: 4- Case Report

Type of Article: Research

BLUF: A case report by French authors describes a previously immunocompetent patient with severe COVID-19 pulmonary disease who expired due to invasive aspergillosis (IA). This adds to a limited, but growing, body of evidence suggesting that immune dysregulation in severe viral pneumonias may cause susceptibility to secondary infection. There is a need for more robust research, but this is complicated by diagnostic criteria for IA requiring resource-intensive methods with limited sensitivity and high exposure risk (respiratory sampling).

Abstract:

Invasive pulmonary aspergillosis is a complication in critically ill patients with acute respiratory distress syndrome, especially those with severe influenza pneumonia. We report a fatal case of invasive pulmonary aspergillosis in an immunocompetent patient in France who had severe coronavirus disease-associated pneumonia.

Medical subspecialties

Interim Guidelines on Antiviral Therapy for COVID-19.

Kim SB, Huh K, Heo JY, Joo EJ, Kim YJ, Choi WS, Kim YJ, Seo YB, Yoon YK, Ku NS, Jeong SJ, Kim SH, Peck KR, Yeom JS. Infect Chemother.

2020 Apr 23; PMID: 32342676

Level of Evidence: 5 - Expert opinion

Type of Article: Clinical guidelines

BLUF: The article proposes an interim guideline for antiviral therapy for patients with COVID-19. There is currently no antiviral therapy that has been definitively proven to be effective for COVID-19. These authors suggest, however, antiviral therapy may be initiated at the discretion of the healthcare provider. Chloroquine and Lopinavir/Ritonavir can be used in practice; however, other drugs can be used only in clinical trials. The routine use of glucocorticoid, antibiotics, neuraminidase inhibitors, and intravenous immunoglobulin is not recommended. Convalescent plasma therapy has been proposed as a treatment, but careful selection of donors is needed.

Abstract:

Since the first case was reported in Wuhan, Hubei Province, China on December 12, 2019, Coronavirus disease 2019 (COVID-19) has spread widely to other countries since January 2020. As of April 16, 2020, 10635 confirmed cases have been reported, with 230 deaths in Korea. COVID-19 patients may be asymptomatic or show various clinical manifestations, including acute symptoms such as fever, fatigue, sore throat; pneumonia presenting as acute respiratory distress syndrome; and multiple organ failure. As COVID-19 has such varied clinical manifestations and case fatality rates, no standard antiviral therapy regimen has been established other than supportive therapy. In the present guideline, we aim to introduce potentially helpful antiviral and other drug therapies based on *in vivo* and *in vitro* research and clinical experiences from many countries.

Surgical Subspecialties

Rising Concern on Damaged Testis of COVID-19 Patients.

Chen F, Lou D.

Urology.

2020 Apr 25; PMID: 32343996

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

BLUF: Concern has been raised that SARS-CoV-2 may attack the testes as it interacts with ACE2, which has rich expression in the testes. The authors suggest testing COVID-19 male patients for their testicular and reproductive function after recovery.

Summary: Greater than 50% of patients infected with SARS-CoV-2 are male, many of these people being of child-bearing age. Concern has been raised that SARS-CoV-2 may attack the testis as it interacts with ACE2, which has rich expression in the testis. However, a case in which the testis were biopsied post-infection showed a negative result, though the case was limited and without histopathology. Also of note, SARS, the “cousin” of SARS-CoV-2, has been shown by many studies to cause orchitis; SARS and SARS-CoV-2 share 78% genetic homology. Given this evidence, it is highly suggested that infected males have their testicular and reproductive function tested after recovery.

Pathology

The clinical course and its correlated immune status in COVID-19 pneumonia.

He R, Lu Z, Zhang L, Fan T, Xiong R, Shen X, Feng H, Meng H, Lin W, Jiang W, Geng Q. J Clin Virol.

2020 Apr 12; PMID: 32344320

Level of Evidence: 3 - Retrospective cohort study

Type of Article: Research

BLUF: This retrospective study of 204 COVID-19 patients including 54 with comorbidities (hypertension, cardiovascular diseases and cerebral aneurysm) aimed to identify factors that contributed to severe SARS-CoV-2 infections. They found severe infections were correlated with comorbidities, male sex, and decreased of CD3+, CD4+ and CD8+ T lymphocytes.

Abstract:

Objectives: To explore the clinical course and its dynamic features of immune status in COVID-19 patients and find predictors correlated with severity and prognosis of COVID-19.

Methods: The electronic medical records of 204 patients with COVID-19 pneumonia confirmed by nucleic acid testing were retrospectively collected and analyzed.

Results: All patients were divided into severe (69) and non-severe group (135). Lymphocyte subsets count, including CD3+ T cell, CD4+ T cell, CD8+ T cell, B cell (CD19+) and NK cell (CD16+ 56+), were significantly lower in severe group ($P < 0.001$). The dynamic levels of T lymphocyte in [sic] severe group were significantly lower from disease onset, but in the improved subgroup the value of T lymphocyte began to increase after about 15-day treatment and finally returned to the normal level. The cut-off value of the counts of CD3+ (576), CD4+ (391) and CD8+ (214) T cell were calculated and indicated significantly high sensitivity and specificity for severity of COVID-19.

Conclusion: Our results shown [sic] that the decrease of CD3+, CD4+ and CD8+ T lymphocyte correlated with the course of patients with COVID-19 pneumonia, especially in severe cases. The level of T lymphocyte could be used as an indicator for prediction of severity and prognosis of patients with COVID-19 pneumonia. The application of glucocorticoid should be cautious in severe cases.

Pediatrics

Cutaneous manifestations in the current pandemic of coronavirus infection disease (COVID-2019).

Morey-Olivé M, Espiau M, Mercadal-Hally M, Lera-Carballo E, García-Patós V.

An Pediatr (Engl Ed).

2020 Apr 27; PMID: 32341944

Level of Evidence: 4 - Case series

Type of Article: Letter to the Editor

Summary: This article details the clinical presentation of two pediatric patients (6 y.o. male and 2 m.o. female) with concurrent SARS-CoV-2 infection and cutaneous manifestations. The author warns clinicians that in addition to the exanthems characteristic of acute viral infections, other etiologies such

as drug reactions, late inflammatory manifestations of the immune phase of disease, and other childhood rashes should be considered in pediatric COVID-19 patients.

Geriatics

Typically Atypical: COVID-19 Presenting as a Fall in an Older Adult

Norman, RE; Stall, NM; Sinha, SK

J Am Geriatr Soc

2020 Apr 28; PMID: 32343395

Level of Evidence: 4 - Case Report

Type of Article: Research

BLUF: Older adults often have atypical presentations for illness. Authors suggest having a low index of suspicion to test for COVID-19, especially in close quarters such as nursing homes.

Summarizing Excerpt: “Atypical presentation of illness is common in older adults. Symptoms, when present, may be non-specific, with presentations including falls, delirium, or functional decline. Symptoms of chronic conditions may mask acute illness and sensory or cognitive impairment may limit an older adult’s ability to perceive or report symptoms. Signs such as fever may be diminished or absent. There is already evidence that screening based on typical symptoms alone, which failed in this case, is insufficient to identify COVID-19 in older adults. This has significant implications both for clinical care and for infection prevention and control, particularly in congregate living settings such as nursing homes where frail older adults have experienced disproportionately high COVID-19-related morbidity and mortality. Given this, emerging recommendations are increasingly emphasizing the consideration of COVID-19 in older adults with any significant change from baseline. The threshold to test should also be low.”

Adjusting Practice During COVID-19

Respiratory Muscle Performance Screening for Infectious Disease Management Following COVID-19: A Highly Pressurized Situation.

Severin R, Arena R, Lavie CJ, Bond S, Phillips SA.

Am J Med

2020 Apr 25; PMID: 32343947

Level of Evidence: 5 - Literature Review

Type of Article: Review

BLUF: Impaired respiratory muscle performance, often seen in those with poor health and obesity, could contribute to outcomes related to acute respiratory distress syndrome in COVID-19 patients. Initiating a prophylactic respiratory muscle training protocol at the first outbreak of a viral pandemic could reduce the number of cases requiring intensive care units and mechanical ventilation.

Abstract:

The 2019-2020 coronavirus pandemic elucidated how a single highly infectious virus can overburden healthcare systems of even highly economically developed nations. A leading contributor to these concerning outcomes is a lack of available intensive care unit (intensive care unit) beds and mechanical ventilation support. Poorer health is associated with a higher risk for severe respiratory complications from the coronavirus. We hypothesize that impaired respiratory muscle performance is an underappreciated factor contributing to poor outcomes unfolding during the coronavirus pandemic. While impaired respiratory muscle performance is considered to be rare, it is more frequently encountered in patients with poorer health, in particular obesity. However, measures of respiratory muscle performance are not routinely performed in clinical practice, including those with symptoms such as dyspnea. The purpose of this perspective paper is to discuss the potential role of respiratory muscle performance from the perspective of the coronavirus pandemic. We also provide a theoretical patient management model to screen for impaired respiratory muscle performance and intervene if identified with the goal of unburdening healthcare systems during future pandemic crises.

A Health System Response to COVID-19 in Long Term Care and Post-Acute Care: A Three-Phase Approach

Kim, G; Wang, M; Pan, H; Neukirch, J; Lei, D; Hawken-Dennis, E; Simpson, L; Ong, TD

J Am Geriatr Soc

2020 Apr 28; PMID: 32343363

Level of Evidence: 5 - Expert Opinion

Type of Article: Clinical Guidelines

BLUF: Authors detail a 3-phase standardized model of care they used in response to COVID-19 in their skilled nursing facilities (SNF) in King County, WA, detailed below:

- Initial phase: optimizing communication, reviewing infection prevention control guidelines, and creating a centralized process to track the target population
- Delayed phase: education, reinforce best practice, and prepare facilities
- Surge phase: deploy designated “drop” team within 24 hours
- Telemedicine when possible

Abstract:

The Seattle, Washington area was ground zero for coronavirus disease 2019 (COVID-19). Its initial emergence in a skilled nursing facility (SNF) not only highlighted the vulnerability of its patients and residents, but also the limited clinical support that led to national headlines. Furthermore, the coronavirus pandemic heightened the need for improved collaboration among healthcare organizations and local and state public health. The University of Washington Medicine's Post-Acute Care Network developed a three phase approach, Initial, Delayed and Surge Phases, to help slow the spread of the disease, support local area SNFs from becoming overwhelmed when inundated with COVID-19 cases or persons under investigation, and help decrease the burden on area hospitals, clinics, and emergency medical services.

For Healthcare Professionals

Diagnostic and digital solutions to address the COVID-19 pandemic: The need for international collaboration to close the gap.

Kyhlstedt M, Andersson SW.

Health Policy Technol.

2020 Apr 25. PMID: 32341908

Level of Evidence: 5 - Expert Opinion

Type of Article: Editorial

Summary: The authors propose a framework for integrating and disseminating diagnostic and digital solutions to the COVID-19 pandemic. The article reports at least 300 diagnostic tests and 50 digital solutions currently. Guidelines for diagnostics should be based on evidence, intention, and detailed performance requirements. The authors conclude with a call for action from experts around the world.

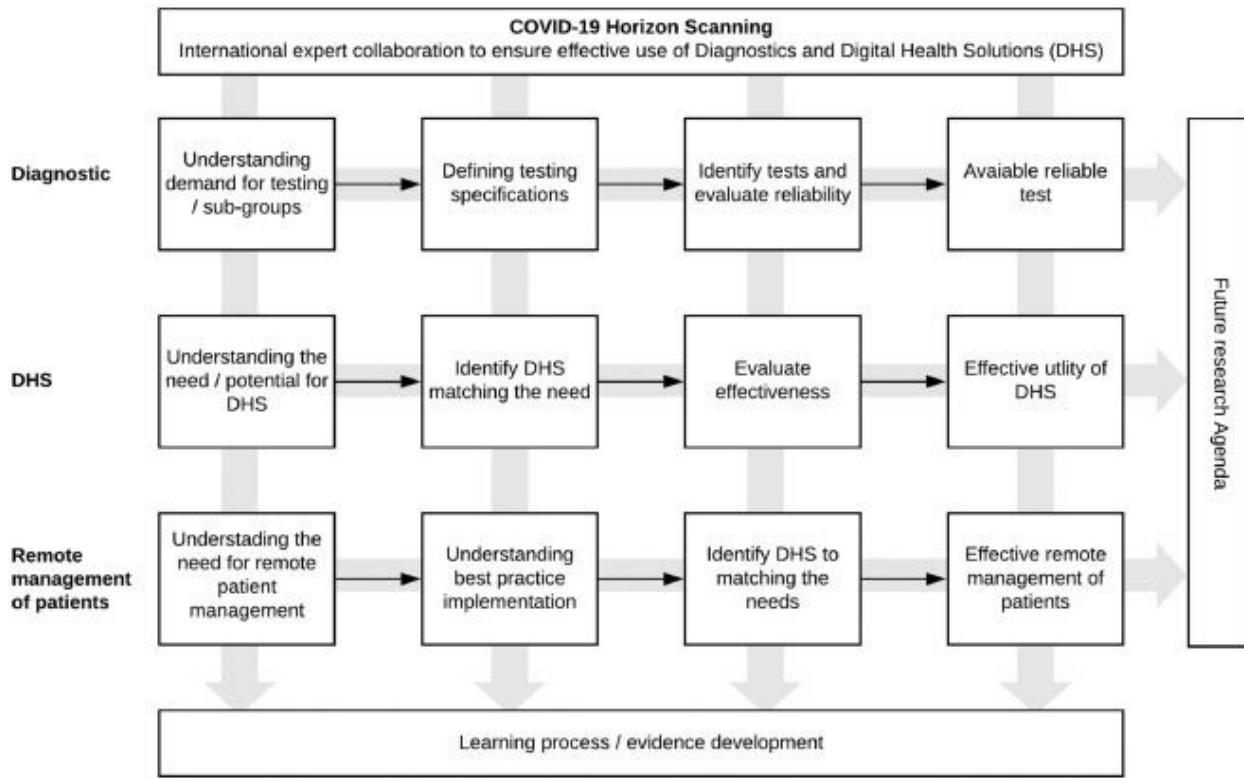


Figure 1. Proposed framework for integrating and disseminating diagnostic and digital solutions to the COVID-19 pandemic.

Acute care

Emergency Medicine

[Can You Catch It? Lessons Learned and Modification of ED Triage Symptom- and Travel-Screening Strategy.](#)

Schwedhelm MM, Herstein JJ, Watson SM, Mead AL, Maddalena L, Liston DD, Hewlett AL, Schwedhelm MM, et al.

J Emerg Nurs.

2020 Apr 16; PMID: 32340737

Level of Evidence: 5 - Expert Opinion

Type of Article: Research

BLUF: In August 2014, an algorithm to triage suspected Ebola cases was developed and this article served to discuss lessons learned as well as present insight for tool improvement. They cited iterative improvement of the tool since its inception, citing MERS exposure investigations dropping from 30 to 0 between 2018 and 2019, explaining that this could be modified to effectively identify COVID-19 cases (see images below).

Abstract:

Introduction: Efficient identification and isolation of patients with communicable diseases limits exposure to health care workers, other patients, and visitors. In August 2014, our team developed and implemented an algorithm to triage suspected cases of Ebola virus disease in a midwestern United States emergency department and outpatient clinics based on patient travel history and symptoms. Here, we present the lessons learned and modifications to update the tool.

Methods: Two strategies were developed and utilized to properly identify, isolate, and inform on patients with suspected highly hazardous communicable diseases: 1) a robust electronic symptom and travel screen with decision support tools in the electronic medical record, and 2) the availability of workflow protocols for Ebola virus disease, Middle East Respiratory Syndrome (MERS), and coronavirus 2019 (COVID-19) once a person under investigation is identified. After action reports provided opportunities to modify the algorithm and improve the identification and isolation processes.

Results: Since our screening and travel electronic medical record inception 5 years ago, modifications changed iteratively to further enhance the screening process. Since 2018, staff have identified 5 patients at risk for MERS; in all cases, identification occurred during the check-in process. Exposure investigations in the emergency department decreased significantly after algorithm implementation in January 2019, from 30 in 2018 to 0 in 2019.

Discussion: Although highly hazardous communicable diseases like Ebola virus disease and MERS are of concern due to their mortality rates and limited treatment options, these same concepts may be applied to the early identification and isolation of patients suspected of having more common communicable diseases like measles and influenza, emphasizing the importance of protocol-based screening in the healthcare environment.

Travel screening

Do you have a cough, fever or rash? Yes No
No taken 2 weeks ago

Respiratory Risk: Offer patient a mask

Have you traveled to and/or been in contact with a person that has traveled outside of the country within the last month? Yes No Unable to answer\Refuses
No taken 2 weeks ago

Figure 1. Initial screening questions for patients arriving in the emergency department and the result of a positive response.

Travel screening

Do you have a cough, fever or rash? Yes No

Respiratory Risk: Offer patient a mask

Have you traveled to and/or been in contact with a person that has traveled outside of the country within the last month? Yes No Unable to answer\Refuses

When did you or the person you have been in contact with return to the U.S.? 9/26/2019

Have you and/or someone you have been in contact with been to any of the following regions in the last month? Asia Africa North America South America Australia Antarctica Europe Middle East

<input type="checkbox"/> Algeria	<input type="checkbox"/> Angola	<input type="checkbox"/> Benin	<input type="checkbox"/> Botswana
<input type="checkbox"/> Central African Rep.	<input type="checkbox"/> Chad	<input type="checkbox"/> Congo	<input type="checkbox"/> Dem. Rep. of Congo (Zaire)
<input type="checkbox"/> Ethiopia	<input type="checkbox"/> Gabon	<input type="checkbox"/> Gambia	<input type="checkbox"/> Ghana
<input type="checkbox"/> Lesotho	<input type="checkbox"/> Liberia	<input type="checkbox"/> Libya	<input type="checkbox"/> Madagascar
<input type="checkbox"/> Morocco	<input type="checkbox"/> Mozambique	<input type="checkbox"/> Namibia	<input type="checkbox"/> Niger
<input type="checkbox"/> Senegal	<input type="checkbox"/> Seychelles	<input type="checkbox"/> Sierra Leone	<input type="checkbox"/> Somalia
<input type="checkbox"/> Togo	<input type="checkbox"/> Tunisia	<input type="checkbox"/> Uganda	<input type="checkbox"/> Zambia

Symptom Screening

Ebola: Do you have any of these symptoms? Patient reported fever >38.0 (100.4) Clinic Measured Temp >38.0 (100.4) Subjective fever
 Headache Weakness Muscle pain
 Vomiting Diarrhea Abdominal pain
 Hemorrhage (comment) Other (comment) No symptoms

Ebola Risk Factors Identified

1. Avoid direct contact
2. Put a mask and gloves on yourself then supply the patient with a procedure mask and gloves to put on themselves
3. Place the patient in the designated room in the dept. Instruct them to remain in the room with the door closed
4. Notify the charge nurse and the patient's primary nurse
5. Place appropriate signage on door
6. Resource Notification:
NMC/BMC: Notify Infection Control

Figure 2. Result of a positive travel in the past month and the selection of an active outbreak country.

Medical subspecialties

Conducting Clinical Trials During the COVID-19 Pandemic.

Collier EK, Hsiao JL, Shi VY

J Dermatolog Treat

2020 Apr 28; PMID: 32343162

Level of Evidence: 5-Expert opinion

Type of Article: Guideline

BLUF: The article suggests guidelines for conducting dermatology clinical trials during the pandemic. Highlights of the guidelines include:

- Consider halting trials that are unlikely to provide immediate clear benefit
- Pay attention to supply levels as resupplies could be delayed
- Consider removing participants at high risk for COVID-19 for whom other treatment options exist
- Perform study processes remotely when feasible
- Carefully document any pandemic related procedure alterations for later analysis

Abstract:

The COVID-19 pandemic has greatly impacted dermatology clinical trial operations due to mandated governmental and institutional shut-downs and newly implemented restrictions. During this unprecedented time, measures should be taken to maintain research conduct compliance while also

ensuring the safety of trial staff and participants. Herein, we underscore the challenges facing dermatology trials during the COVID-19 pandemic, and offer strategies to maintain compliant and safe conduct.

Component of clinical trial	Practical Considerations
Facility	<ul style="list-style-type: none"> Inquire with the institution's research office or IRB if the clinical trial is still active, has been suspended, or requires updated protocols Follow the CDC's guidelines for cleaning and disinfecting surfaces that may have been exposed to COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html#Definitions) Adjust clinic hours of operation to allow study participants to come in during off-hours
Supplies	<ul style="list-style-type: none"> Call delivery services and central labs to inquire about updated operational schedules Call for additional supplies ahead of time if needed, especially if specimen collection kits will expire soon Obtain approval to mail IP, if possible, when in-person visits are not needed (need to confirm IP is packaged appropriately)
Research team	<ul style="list-style-type: none"> Obtain approval from CRA/Sponsor to conduct visits virtually via privacy-compliant platforms (e.g. Zoom, VSee, SimplePractice,) or the medical record system itself (e.g. EPIC) Determine whether continuing the clinical trial is justified Consider assigning separate study teams (1 investigator, 1 coordinator) and alternating schedules for when each team conducts their in-person visits For at-risk research staff (comorbidities, older age), limit their activities to those that can be completed remotely Minimize nonessential personnel, such as student and resident learners If possible, avoid screening and enrolling new patients into trials Refer to the FDA (https://www.fda.gov/media/136238/download) or EMA for most-updated guidance (https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-10/guidanceclinicaltrials_covid19_en.pdf) For questions on clinical trial conduct during the COVID-19 pandemic, email Clinicaltrialconduct-COVID19@fda.hhs.gov
Participants	<ul style="list-style-type: none"> Stratify patients and trials by risk (high risk, moderate risk, low risk) to help decide whether appropriate for certain study participants to continue <ul style="list-style-type: none"> <i>High risk:</i> Participant characteristics: ≥60 years, immunosuppressed, or underlying health conditions (e.g. cardiovascular disease, asthma, COPD, or other respiratory illnesses) Trial types: cutaneous oncology trials, immunosuppressive drug trials <i>Moderate risk:</i> Participant characteristics: middle aged adult with no severe comorbidities or respiratory illnesses Trial types: immunomodulator trials where there is an increased risk of infection <i>Low risk:</i> Participant characteristics: young and healthy patients with no comorbidities Trial types: topical prescription trials Conduct study patient visits virtually whenever possible; will need prior approval from sponsors and regulatory bodies Let patients know they may experience disease flares if enrolled in a trial with a randomized withdrawal phase; can offer option to withdraw from current study and start an alternate agent if available Discourage use of public transportation Counsel patients to notify trial team immediately if they develop symptoms suggestive of COVID-19 infection, including fever, cough, and shortness of breath, or come into contact with a person with COVID-19 Pre-emptively inform subjects that there may be a delay in any compensation from the trial if financial operations are interrupted by the pandemic

Table 1. Practical recommendations for clinical trials during the COVID-19 pandemic *Abbreviations: Centers For Disease Control (CDC), Chronic Obstructive Pulmonary Disorder (COPD), Clinical Research Associate (CRA), Food and Drug Administration (FDA), EMA (European Medicine Agency), Institutional Review Board (IRB)

Cardiology

[COVID-19 STEMI 2020: It's Not What You Know, It's How You Think.](#)

Vidovich MI, Fischman DL, Bates ER.

JACC Case Rep

2020 Apr 27; PMID: 32342050

Level of Evidence: 5 - Expert opinion

Type of Article: Editorial

Summary: Cardiologists must change their approach when treating patients with suspected STEMI in the COVID-19 era and must use their clinical acumen to decide whether to perform an emergent angiography before automatically activating the STEMI team. Due to the delays in transferring patients to the catheterization labs and the prevalence of AKI in patients with COVID-19, fibrinolytic therapy may be a more rapid and logically easier approach to reperfusion therapy while reducing staff exposure to infection. However, the patient must be eligible for fibrinolytic therapy and primary PCI is still preferred at hospitals with PCI-capability.

[A Focus on Covid-19: Fast and Accurate Information to Guide Management for Pandemic-Related Issues in Cardiac Patients.](#)

Nattel S, Graham M, Krahn A

Can J Cardiol.

2020 Apr 25; PMID: 32343999

Level of Evidence: 5 - Expert Opinion

Type of Article: Editorial

BLUF: The Canadian Journal of Cardiology and Canadian Cardiovascular Society have both created processes to expedite the review and publication of pieces related to COVID-19. Articles being published discuss special considerations when providing care for COVID-19 patients, as well as the social impacts of the pandemic.

Summary: The Canadian Journal of Cardiology (CJC) and Canadian Cardiovascular Society (CCS) are both taking measures to quickly facilitate the transfer of relevant information regarding COVID-19 through rapid review and publication. Areas covered by CCS include the use of renin-angiotensin system inhibiting agents in COVID-19 patients, special considerations in managing cardiac implanted electronic devices (CIEDs), guidance on extracorporeal membrane oxygenation (ECMO), cardiac procedures, and the distinction between COVID-19 pneumonia and heart failure. The CJC and CCS are working in collaboration to provide information on cardiac surgery during the COVID-19 epidemic, minimizing the risk of drug-induced long QT Syndrome with QT-prolonging drugs used to treat COVID-19, and post-discharge cardiac rehabilitation needs during the pandemic. The collaboration also published an article regarding the psychological well-being of health-care workers. This article deals with the risks of anxiety, insomnia, depression and burnout, and also with mitigation strategies to prevent them.

Geriatrics

American Geriatrics Society (AGS) Policy Brief: COVID-19 and Assisted Living Facilities.

Society A. G.

J Am Geriatr Soc

2020 Apr 28; PMID: 32342998

Level of Evidence: 5 – Expert Opinion

Type of Article: Editorial

BLUF: This article presents the American Geriatrics Society's (AGS's) recommendations for older adults in assisted living facilities (ALFs) during the COVID-19 pandemic stressing the need for personal protective equipment (PPE), access to testing, public health support for infection control, and workforce training.

Abstract:

This policy brief sets forth the American Geriatrics Society's (AGS's) recommendations to guide federal, state, and local governments when making decisions about care for older adults in assisted living facilities (ALFs) during the COVID-19 pandemic. It focuses on the need for personal protective equipment (PPE), access to testing, public health support for infection control, and workforce training. The AGS continues to review guidance set forth in peer-reviewed articles, as well as ongoing and updated guidance from the U.S. Department of Health and Human Services (HHS), the Centers for Medicare & Medicaid Services (CMS), the Centers for Disease Control and Prevention (CDC), and other key agencies. This brief is based on the situation and any federal guidance or actions as of April 15, 2020. Joining a separate AGS policy brief on COVID-19 in nursing homes, this brief is focused on ALFs, given that varied structure and staffing can impact their response to COVID-19.

Hematology and Oncology

Management of ovarian cancer patients in affected areas during COVID-19 pandemic: Japan and Korea.

Kobayashi Y, Suh DH, Aoki D, Kim JW.

J Gynecol Oncol.

2020 May 1, PMID: 3234267

Level of Evidence: 4 – Case-series

Type of Article: Research

BLUF: This case series of three patients with ovarian cancer highlights that main challenges of cancer care in the COVID-19 pandemic period include postponements of procedures and treatment, the requirement of additional essential precautions, and educating patients and addressing moral issues surrounding postponing treatment.

Summary: Herein, two obstetrics and gynecologic departments present three gynecologic cancer cases in Japan and Korea of which the management courses were affected by COVID-19. The first case presents a 49-year-old woman diagnosed with ovarian serous carcinoma. She underwent neoadjuvant chemotherapy for para-aortic and closed lymph node metastasis, which was considered stage IIIC. Two months after beginning neoadjuvant therapy, bilateral and peripheral dominant ground glass-opacity and consolidation of the lower lobes was observed on CT scan, despite the absence of physical symptoms. RT-PCR testing was negative, but because of the possibility of false-negative results, she was treated as if she had COVID-19 pneumonia. She stayed home in isolation, and the fourth cycle of neoadjuvant therapy was postponed. This patient had advanced cancer and required timely anticancer treatment, but nonetheless treatment had to be postponed for strong suspicion of COVID-19. The remaining two cases describe patients with varying grade ovarian cancer: one was diagnosed with high-grade serous ovarian cancer stage IIa and underwent primary debulking, while the second was diagnosed with possible low-grade serous carcinoma, but could not undergo debulking because of local COVID-19 concerns. Although both patients were negative on diagnostic tests, both patients' treatments were impacted by local COVID-19 burden, and either neoadjuvant therapy or surgical treatment were postponed.

Ethics and Resource Scarcity: ASCO Recommendations for the Oncology Community During the COVID-19 Pandemic

Marron, JM; Joffe, S; Jaggi, R; Spence, RA; Hlubocky, FJ

J Clin Oncol

2020 Apr 28; PMID: 32343643

Level of Evidence: 5 - Expert Opinion

Type of Article: Clinical Guidelines

Summary: Authors provide recommendations to the oncology community during the COVID-19 pandemic, detailed below:

- Allocation should be based on maximizing health benefits
- Develop fair policy before allocating becomes necessary
- Use The Hastings Center's "Ethical Framework for Health Care Institutions & Guidelines for Institutional Ethics Services Responding to the Coronavirus Pandemic" as a model
- Cancer treatment should still be individualized, regardless of type or stage
- Oncologists involved directly in a patient's care should not be making the decision to allocate resources to this patient

Cancer Management in India during Covid-19.

Pramesh CS, Badwe RA.

N Engl J Med.

2020 Apr 28; PMID: 32343498

Level of Evidence: 5 - Expert Opinion

Type of Article: Correspondence

Summary: In order to cope with the significantly increased demand in medical needs presented by the COVID-19 pandemic, the Tata Memorial Center in India has made a number of changes in its healthcare system. The changes are summarized in the table below, and mainly consist of increasing COVID-19 screening, creating COVID-19-specific action groups and care floors, and transitioning as much as possible to teleconsults in order to make their system more efficient.

Table 1. Summary of Covid-19 Measures Taken at Tata Memorial Centre.	
Administration	Creation of a core Covid-19 action group Daily debriefings and formulation of action plans
Cancer care	Avoidance of complex surgeries likely to require multiple blood transfusions and prolonged intensive care unit stays Use of hypofractionated regimens whenever possible (e.g., for breast, prostate, and lung cancers); provision of palliative radiotherapy in a single fraction or weekly regimens Reduced use of myelosuppressive systemic therapy; conversion to oral agents when feasible; deferral when magnitude of benefit is marginal
Patient-directed	Establishment of "screening camps" outside the hospital to reduce patient visits Stringent restriction of relatives and friends in outpatient clinics and inpatient wards Use of teleconsults as a substitute for routine follow-up visits
Hospital preparedness	Establishment of standard operating procedures for cases of suspected or confirmed Covid-19 infection; use of simulation drills Establishment of a fever clinic and creation of isolation wards
Employee-directed	Provision of paid leave for high-risk staff members (elderly people, people with multiple comorbidities or who are taking immunosuppressive agents, and pregnant people) Rotation of staff to ensure a fallback option in case of mass quarantine Provision of hospital buses to transport staff unable to reach work because of the transportation lockdown

Respiratory and pulmonary complications in head and neck cancer patients: An evidence-based review for the COVID-19 era.

Silverman DA, et al.

Head Neck

2020 Apr 28; PMID: 32343013

Level of Evidence: 5 – Literature Review

Type of Article: Review

BLUF: A literature review involving 10 articles of 193,701 patients with head and neck squamous cell carcinoma (HNSCC) was performed to evaluate the impact of pulmonary comorbidities and adverse respiratory outcomes. Their findings were then extrapolated to the COVID-19 pandemic and concluded that individuals with HNSCC may be more susceptible to infection with and severe pulmonary complications of SARS-CoV-2; thus, interventions such as smoking and alcohol use cessation, improved oral hygiene, maximized nutrition, and treatment of underlying comorbidities are central to management of patients with HNSCC during the COVID-19 era.

Abstract:

Background: Pulmonary complications and infections frequently affect patients with head and neck squamous cell carcinoma (HNSCC). Common characteristics can predispose these patients to the development of severe respiratory illness, which may be particularly relevant during the 2019 coronavirus disease (COVID-19) pandemic.

Methods: A scoping review was performed to assess the impact of pulmonary comorbidities and adverse respiratory outcomes in HNSCC patients.

Results: Advanced age, history of tobacco and alcohol abuse, and cardiopulmonary comorbidities are significant risk factors for the development of adverse respiratory outcomes. Treatment toxicities from radiation or chemoradiation therapy significantly increase these risks.

Conclusion: Respiratory complications are a frequent cause of morbidity and mortality among HNSCC patients, and the COVID-19 pandemic may disproportionately affect this population. Interventions designed to decrease smoking and alcohol use, improve oral hygiene, and aggressively manage medical comorbidities are important to the long-term management and health of these patients.

Author	Study period	Registry/site	No. of HNSCC patients	Known treatment	Outcome ^a	Key findings
Hussain et al ³²	1985	Single institution	662 hospital admissions	Not specified	Infections (all etiologies)	PNA made up 40% of infections
Argiris et al ²⁶	1989-1999	Multi-institutional	324	CRT	Noncancer mortality (respiratory etiology)	21% (COPD, PNA, other respiratory causes made up 37% of deaths)
Baxi et al ³	1992-2000	SEER	35 958	Surgery 28%	Noncancer mortality	23% (excluding CVD) (COPD, PNA, influenza made up 35% of deaths)
	2000-2005			RT 37%	Second cancer mortality	23% (lung cancer made up 43% of deaths)
				Surgery + RT 35%		
Buitelaar et al ³³	1993-1998	Single institution	469	Surgery	Respiratory complications	11% (PNA made up 42% of complications)
Rose et al ⁷	1994-2003	SEER	34 568	Not specified	Noncancer mortality	13.0% (95% CI, 12.6%-13.3%) at 5 years (COPD made up 8.5% of deaths)
					Second cancer mortality	14.6% (95% CI, 14.2%-15.0%) at 5 years (lung cancer made up 46% of deaths)
Kawakita et al ⁶	1996-2012	Utah population database	1901	Surgery 34%	Respiratory complications	HR 6.61 (95% CI, 5.99-7.29) at 2 years (all respiratory diseases ^b)
				Surgery + RT 21%		HR 1.88 (95% CI, 1.66-2.13) at 5+ years
				CRT 16%		
				Triple modality 11%		
Shen et al ⁸	2000-2010	SEER	23 494	Surgery	Noncancer mortality	12.7% (95% CI, 12.2%-13.3%) at 5 years (lung cancer and COPD made up 18.9% of deaths)
Semenov et al ²⁴	2003-2008	Nationwide inpatient sample	93 663	Surgery	PNA	5% infectious
					1% aspiration	
					<1% ventilator associated	
Mirabile et al ³⁴	2005-2009	Single institution	2288 hospital admissions	(ORT)	Infections (nosocomial, all etiologies)	Respiratory etiology made up 40% of infections
	2010-2012					
Shirasu et al ³⁵	2006-2016	Single institution	374	CRT	PNA (during therapy)	25% HR 1.58 ($P = .024$)

Table 1. Summary of adverse respiratory outcomes in HNSCC.

Surgical Subspecialties

Orthopedic surgery

Returning to orthopaedic business as usual after COVID-19: strategies and options.

de Caro F, Hirschmann TM, Verdonk P
Knee Surg Sports Traumatol Arthrosc
2020 Apr 27; PMID: 32342140

Level of Evidence: 5 - Expert opinion

Type of Article: Guideline

BLUF: In an attempted literature review to find strategies for returning to normal clinic and surgical activities in orthopaedic surgery following the aftermath of the first wave of COVID-19, the authors found no literature recommendations. They then expressed a need for organized start-up planning and provided their own recommendations surrounding the logistics of returning to clinical (table 1) and surgical (table 2) orthopaedic practice.

Abstract:

Purpose: The aim of this manuscript is to review the available strategies in the international literature to efficiently and safely return to both normal orthopaedic surgical activities and to normal outpatient clinical activities in the aftermath of a large epidemic or pandemic. This information would be beneficial to adequately reorganize outpatient clinics and hospitals to provide the highest possible level of orthopaedic care to our patients in a safe and efficient manner.

Methods: A literature search was performed for relevant research articles. In addition, the World Health Organisation (WHO), the US Centers for Disease Control (CDC), American Association of Orthopaedic Surgeons (AAOS), the EU CDC and other government health agency websites were searched for any relevant information. In particular, interest was paid to strategies and advise *[sic]* on managing the orthopaedic patient flow during outpatient clinics as well as surgical procedures including the necessary safety measures, while still providing a high-quality patient experience. The obtained information is provided as a narrative review.

Results: There was not any specific literature concerning the organization of an outpatient clinic and surgical activities and the particular challenges in dealing with a high-volume practice, in the afterwave of a pandemic.

Conclusions: As the COVID-19 crisis has abruptly halted most of the orthopaedic activities both in the outpatient clinic and the operating room, a progressive start-up scenario needs to be planned. The exact timing largely depends on factors outside of our control. After restrictions will be lifted, clinical and surgical volume will progressively increase. This paper offers key points and possible strategies to provide the highest level of safety to both the orthopaedic patient and the orthopaedic team including administrative staff and nurses, during the start-up phase.

LEVEL 0	Screening of symptoms and testing of orthopaedic team (including physicians, nurses, administrative staff)
LEVEL 1	Routine self-questionnaire that routes the patients to the most convenient time slot
LEVEL 2	Temperature controls entering the clinic, symptomatic patients (cough, dyspnea) to be sent to emergency; surgical masks provided to each patient
LEVEL 3	Maintain social distancing, no crowded waiting rooms, patients waiting in the car until they are called in
LEVEL 4	Clinical visit made efficiently and swiftly, subjective history digitally recorded before entering room
LEVEL 5	Digital scheduling of follow-up visits and payment avoiding exchange of documents

Table 1: Multilevel approach to clinics

Screening of patients day before of surgery (NP Swab, Serological Test, CT Scan)
Definition of "Urgent", and "Urgent, Somewhat Elective Surgery"
Favour day surgical cases (requiring ≤ 24 h of hospital stay), younger patients or ASA 1–2 older patients
If major surgery (I.E total joint replacement) is needed, strictly apply fast-track protocols
Avoid general anesthesia and all aerosol-generating procedures
Negative pressure rooms and strict sanitification after each patient to be required

Table 2: Key points for approaching surgeries

COVID-19 coronavirus: recommended personal protective equipment for the orthopaedic and trauma surgeon.

Hirschmann MT, Hart A, Henckel J, Sadoghi P, Seil R, Mouton C

Knee Surg Sports Traumatol Arthrosc

2020 Apr 27; PMID: 32342138

Level of Evidence: 5 - Expert opinion

Type of Article: Review, Guideline

BLUF: The authors of this article reviewed the available literature regarding the use of personal protective equipment (PPE) during surgical procedures and conclude that the current guidelines for PPE use during surgical aerosol generating procedures common to orthopaedics and traumatology (power tools, burrs, or electrocautery) do not adequately reflect the risk of transmission of COVID-19. The authors suggest that orthopaedic surgeons and their surgical teams should utilize PPE consisting of level 4 surgical gowns, face shields or goggles, double gloves, FFP2-3/N95-99 respirator masks, or powered air-purifying respirators when operating on suspected or confirmed COVID-19 patients for adequate protection from disease transmission.

Abstract:

Purpose: With the COVID-19 crisis, recommendations for personal protective equipment (PPE) are necessary for protection in orthopaedics and traumatology. The primary purpose of this study is to review and present current evidence and recommendations for personal protective equipment and safety recommendations for orthopaedic surgeons and trauma surgeons.

Methods: A systematic review of the available literature was performed using the keyword terms "COVID-19", "Coronavirus", "surgeon", "health-care workers", "protection", "masks", "gloves", "gowns", "helmets", and "aerosol" in several combinations. The following databases were assessed: Pubmed, Cochrane Reviews, Google Scholar. Due to the paucity of available data, it was decided to present it in a narrative manner. In addition, participating doctors were asked to provide their guidelines for PPE in their countries (Austria, Luxembourg, Switzerland, Germany, UK) for consideration in the presented practice recommendations.

Results: World Health Organization guidance for respiratory aerosol-generating procedures (AGPs) such as intubation in a COVID19 environment was clear and included the use of an FFP3 (filtering face piece level 3) mask and face protection. However, the recommendation for surgical AGPs, such as the use of high-speed power tools in the operating theatre, was not clear until the UK Public Health England (PHE) guidance of 27 March 2020. This guidance included FFP3 masks and face protection, which UK surgeons quickly adopted. The recommended PPE for orthopaedic surgeons, working in a COVID19 environment, should consist of level 4 surgical gowns, face shields or goggles, double gloves, FFP2-3 or N95-99 respirator masks. An alternative to the mask, face shield and goggles is a powered air-purifying respirator, particularly if the surgeons fail the mask fit test or are required to undertake a long procedure. However, there is a high cost and limited availability *[sic]* of these devices at present. Currently available surgical helmets

and toga systems may not be the solution due to a permeable top for air intake. During the current COVID-19 crisis, it appeared that telemedicine can be considered as an electronic personal protective equipment by reducing the number of physical contacts and risk contamination.

Conclusion: Orthopaedic and trauma surgery using power tools, pulsatile lavage and electrocautery are surgical aerosol-generating procedures and all body fluids contain virus particles. Raising awareness of these issues will help avoid occupational transmission of COVID-19 to the surgical team by aerosolization of blood or other body fluids and hence adequate PPE should be available and used during orthopaedic surgery. In addition, efforts have to be made to improve the current evidence in this regard.

Recommendation to Optimize Safety of Elective Surgical Care While Limiting the Spread of COVID-19: Primum Non Nocere.

Gilat R, Haunschmid ED, Tauro T, Cole BJ.

Arthrosc Sports Med Rehabil.

2020 Apr 27; PMID: 32342047

Level of Evidence: 5 – Expert Opinion

Type of Article: Commentary

BLUF: The authors provide recommendations for what procedures should be considered “urgent surgery” after reviewing currently available literature related to COVID-19 and elective orthopedic surgery. Urgent surgeries that should be delayed include those that without treatment could result in compromised outcomes, failed to respond to non-surgical care, involve neurologic deficits, intolerable pain especially when narcotics are required, functional losses precluding return to activities of daily living, and injuries resulting in significant financial hardship.

Abstract:

COVID-19 has drastically altered our lives in an unprecedented manner, shuttering industries, and leaving most of the country in isolation as we adapt to the evolving crisis. Orthopedic surgery has not been spared from these effects, with the postponement of elective procedures in an attempt to mitigate disease transmission and preserve hospital resources as the pandemic continues to expand. During these turbulent times, it is crucial to understand that while patient and care-providers safety is paramount, canceling or postponing essential surgical care is not without consequences, and may be irreversibly detrimental to a patient's health and quality of life in some cases. The optimal solution of how to effectively balance the resumption of standard surgical care while doing everything possible to limit the spread of COVID-19 is undetermined, and could include strategies such as social distancing, screening forms and tests including temperature screening, segregation of inpatient and outpatient teams, proper use of protective gear, and the use of ambulatory surgery centers (ASCs) to provide elective, yet ultimately essential, surgical care while conserving resources and protecting the health of patients and health-care providers. Of importance, these recommendations do not and should not supersede evolving United States Centers for Disease Control and Prevention (CDC), and relevant federal, state and local public health guidelines.

General Surgery

Managing Chronic Wounds During Novel Coronavirus Pneumonia Outbreak

Wang R, Peng Y, Jiang Y, Gu J

Burns Trauma

2020 Apr 7; PMID: 32341922

Level of Evidence: 5 – Expert Opinion

Type of Article: Letter to the Editor

Summary: This letter to the editor from authors in China during the COVID-19 pandemic have developed a management strategy for patients with chronic wounds who display risk factors for SARS-CoV-2 adverse outcomes.

- Use of online communication strategy called WeChat, the allows for texting, voice and video calls, and file sharing
- Use of negative pressure wound therapy and foam dressings to prolong the intervals and decrease frequency of dressing change
- Educate patients on basic wound management skills so that they may change dressings at home
- In the case of required treatment, the patient will receive appropriate medical advice online instead of visiting the physician's office
 - If hospitalization is required, the patient will instead visit a professional wound-cleaning clinic after first being screened for fever and other SARS-CoV-2 symptoms

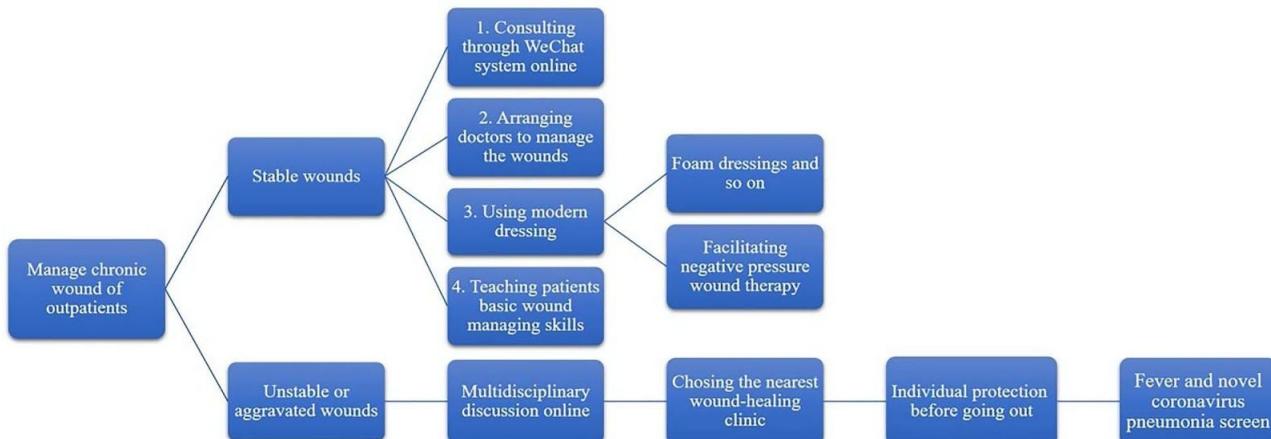


Figure 6. Flow chart of managing chronic wounds during novel coronavirus pneumonia outbreak

Otolaryngology

Salivary gland disease in the era of COVID-19 pandemic.

Soldatova L, Rassekh CH, Baloch ZW, Jalaly JB, Sedora-Roman NI, Loewner LL, Cognetti DM, Witt RL, Dulguerov P.

Head Neck.

2020 Apr 28, PMID: 32343454

Level of Evidence: 5 - Expert Opinion

Article Type: Commentary

BLUF: The authors provide their recommendations on evaluating new onset of salivary gland swelling. Recommendations include: asking about symptoms, family history of cancer, and inflammatory disease during initial telemedicine encounter, performing diagnostic workup only if suspicious for neoplasm and screening for COVID-19. Surgery should only be performed if the patient tests negative for COVID-19 or if the surgery is absolutely necessary.

Abstract:

Coronavirus disease 2019 (COVID-19) pandemic forced significant changes in current approach to outpatient evaluation of common otolaryngology complaints as hospitals around the world are trying to limit the spread of the virus and to preserve health care resources. These changes raise a lot of questions regarding patient triage and treatment decisions in clinical situations when it is unclear if the workup and management can be postponed. In this communication, we present our approach to evaluation and triage of new patients with complaints concerning for salivary gland disease.

OBGYN

A guide for urogynecologic patient care utilizing telemedicine during the COVID-19 pandemic: review of existing evidence.

Grimes CL, Balk EM, Crisp CC, Antosh DD, Murphy M, Halder GE, Jeppson PC, Weber LeBrun EE, Raman S, Kim-Fine S, Iglesia C, Dieter AA, Yurteri-Kaplan L, Adam G, Meriwether KV. Grimes CL, et al.

Int Urogynecol J.

2020 Apr 27; PMID: 32342112

Level of Evidence: 5 - Expert opinion

Type of Article: Guideline

BLUF: The authors present a guideline for the telemedicine management of seven common complaints in Female Pelvic Medicine and Reconstructive Surgery (FPMRS) patients. Their recommendations are based on a literature review for new topics as well as a survey of existing systematic reviews and guidelines, the methodology is well explained and their findings appear to be based on fair to good quality evidence. Recommendations summarized below.

Summary: The review was divided into three parts:

- Is telemedicine acceptable to FPMRS patients?
 - Similar patient satisfaction rates for both general and postop. Additionally, patients in rural locations are more likely to follow-up.
 - Ideal in patients who do not require a physical exam including uncomplicated postoperative patients.
 - Encourages a broader educational discussion of alternative treatments.
 - May be inappropriate in patients with severe complaints and multiple comorbidities.
- Complaints for which telemedicine requires change in management:
 - Pessaries
 - For patients without complications (discharge or bleeding) it may be safe to extend intervals between cleaning but capable patients should be encouraged to clean the pessary at home.
 - Consider empiric vaginal estrogen and treatment for bacterial vaginosis.
 - UTIs
 - Consider 3-7 days of empiric antibiotics for typical symptoms (dysuria, frequency, urgency, hematuria without vaginal symptoms).
 - If a culture is available, use known sensitivities to guide antibiotic selection.
 - TMP-SMX or nitrofurantoin for uncomplicated cases. Consider a fluoroquinolone in patients with risk factors (>65, immunosuppression, DM, catheter use, recent antibiotics, and/or UTI in the last year).
 - Vaginal estrogen and D-mannose (1000 mg BID) may reduce UTIs.
 - Hydration, cranberry supplements, and phenazopyridine for home management without antibiotics.
 - Urinary retention
 - Management of acute urinary retention (< 6 months) may be appropriate.
 - Behavioral modifications (relaxing environment, pelvic floor relaxation) should be first-line with clean intermittent self-catheterization the preferred step-up.
 - Regional anesthesia vs general may reduce risk for urinary retention postop.
 - Immediate postop assessment can identify patients at risk (voiding < 50% retrograde filled volume and urinary stream less than 50% subjective preop strength).
 - No strong evidence for empiric or prophylactic antibiotics or oral medications (alpha-adrenergic antagonists).
 - Complaints for which telemedicine management is similar to conservative management:
 - Urinary incontinence
 - Behavioral interventions (pelvic floor exercises) first with reversion to this in patients being treated with third-line treatments (botox injections or nerve stimulation).
 - Can also offer incontinence tampons, self-fitted pessaries, or anticholinergic medications with appropriate clinical judgement.
 - Prolapse
 - Telemedicine should be considered appropriate given low risk for acute worsening symptoms.
 - Behavioral management first (weight loss, avoiding constipation, pelvic floor exercises)
 - Splinting and tampon insertion can also be tried.
 - Defecatory dysfunction
 - Encourage healthy diet with fiber supplements.
 - Education on position changes or squatting potty and prescribe laxatives with appropriate clinical judgement.
 - Vaginal or perineal splinting for patients with rectocele.
 - Fecal incontinence
 - Protective devices (adult diapers or pads, zinc based ointments) first.
 - Food diary and medication reconciliation can identify triggers.
 - Scheduled evacuation with or without enemas/suppository and/or medication may be helpful.
 - Anal plugs second-line as they are poorly tolerated.

COVID-19 and gynecological cancers: A Moroccan point-of-view.

Ismaili N.

Radiother Oncol

2020 Apr 22; PMID: 32342881

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

Summary: The author of this article notes that, besides increasing general precautions to minimize transmission risk and delaying non-urgent treatment when possible, there have overall been very few changes to the management of gynecological treatment at the Cheikh Khalifa University Hospital in Morocco.

Spinal anesthesia for Cesarean delivery in women with COVID-19 infection: questions regarding the cause of hypotension.

Benhamou D, Meyer HK, Morau E, Chassard D, Mercier FJ; French Obstetric Anesthesia Working Group (Club Anesthésie-Réanimation en Obstétrique [CARO]).

Can J Anaesth.

2020 Apr 27; PMID: 32342348

Level of Evidence: 5 - Expert Opinion

Article Type: Letter to the Editor

Summary: The authors ask the editor to provide more information on the [Chen et al.](#) case series, which involved 17 COVID-19 positive women who underwent Cesarean delivery. The authors wish to better understand the high incidence of hypotension in the series and thus ask for clarification on the anesthesia technique used (combined-spinal or epidural anesthesia), mode of anesthesia in the three emergency Cesarean deliveries, and specific clinical details of the maternal hypotension.

Pediatrics

Pediatric Microlaryngoscopy and Bronchoscopy in the COVID-19 Era.

Pollaers K, Herbert H, Vijayasekaran S.

JAMA Otolaryngol Head Neck Surg.

2020 Apr 28; PMID: 32343300

Level of Evidence: 4 - Case Series

Article Type: Research

BLUF: A case series of eight pediatric patients investigated in Australia during March and April 2020 studied modifications to using microlaryngoscopy and bronchoscopy to decrease risk of secretions and found that although it took longer to perform the procedure, their risk of exposure to COVID-19 was reduced. Modifications include: sheet drape tape at three sides, use C-MAC blade to apply topical anesthesia, keep instruments under plastic sheet to limit lifting sheet.

Abstract:

Importance: As an aerosol-generating procedure, traditional pediatric microlaryngoscopy and bronchoscopy techniques must be adapted in order to reduce the risk of transmission of severe acute respiratory syndrome coronavirus 2.

Objective: To describe a modified technique for pediatric microlaryngoscopy and bronchoscopy for use in the COVID-19 era and present a case series of patients for whom the technique has been used.

Design, Setting, and Participants: Observational case series of pediatric patients undergoing emergency or urgent airway procedures performed at a tertiary pediatric otolaryngology department in Australia. Procedures were completed between March 23 and April 9, 2020, with a median (range) follow-up of 24.5 (11-28) days.

Exposures: Modified technique for microlaryngoscopy and bronchoscopy, minimizing aerosolization of respiratory tract secretions.

Main Outcomes and Measures: The main outcome was the feasibility of technique, which was measured by ability to perform microlaryngoscopy and bronchoscopy with comparable success to the usual technique (ie, adequate examination of the patient for diagnostic procedures and ability to perform interventional procedures).

Results: The technique was used successfully in 8 patients (median [range] age, 160 days [27 days to 2 years 6 months]); 5 patients were male, and 3 were female. Intervention was performed on 6 patients; 2 balloon dilations for subglottic stenosis, 2 injections of hyaluronic acid for type 1 clefts, and 2 cold-steel supraglottoplasties. No adverse events occurred.

Conclusions and Relevance: In this case series, feasibility of a modified technique for pediatric microlaryngoscopy and bronchoscopy was demonstrated. By reconsidering the surgical approach in light of specific COVID-19 infection risks, this technique may be associated with reduced spread of aerosolized respiratory secretions perioperatively and intraoperatively, but the technique and patient outcomes require further study.

COVID-19: Fever syndrome and neurological symptoms in a neonate.

Chacón-Aguilar R, Osorio-Cámara JM, Sanjurjo-Jimenez I, González-González C, López-Carnero J, Pérez-Moneo-Agapito B.

An Pediatr (Engl Ed).

2020 Apr 27; PMID: 32341945

Level of Evidence: 4 - Case report

Type of Article: Case report

BLUF: Infants can present with a range of atypical COVID-19 symptoms, making it imperative to get a good exposure history. Authors emphasize the importance of including an RT-PCR test for COVID-19 in the work up of all patients under three months of age.

Summary: This article documents the atypical presentation of an infant that tested positive for COVID-19. His symptoms began with two paroxysmal episodes, including rolling of the eyes, generalised hypertonia, and facial cyanosis followed by a persistent fever. "Blood tests, blood, urine and stool cultures, a nasal wash respiratory virus panel and cerebrospinal fluid analysis were performed at admission." Abnormal results included elevated creatine kinase, lactate dehydrogenase, and fibrinogen in addition to a positive RT-PCR for SARS-CoV-2. The authors emphasize that many infants have presented with non-traditional symptoms, and it is necessary to include the SARS-CoV-2 RT-PCR test in all work ups for patients under 3 months old.

Prevention and Control of COVID-19 in Chronic Kidney Disease.

Feng S, Xie M, Luo W, Wang L, Guo L, Wu Y, Liu J, Duan Q, Yang Q, Li J, Liu X, Zhu R.

Indian J Pediatr.

2020 Apr 28; PMID: 32342336

Level of Evidence: 5 - Expert opinion

Type of Article: Letter to the Editor

BLUF: The authors recommend not to exceed 1-2 mg/kg per day used for methylprednisolone in children with Chronic Kidney Disease (CKD) on hormone therapy. Immunosuppressants should be used judiciously, while angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (ARBs) should be discontinued in favor of other anti-hypertensives.

Summary: Herein, a pediatric nephrology department in China reports their experience in the prevention and control of COVID-19 infection in patients with chronic kidney disease (CKD). General management consists of proper rest, adequate nutrition support, and symptomatic treatment. For antiviral therapy, alpha-interferon, lopinavir/ritonavir, or abidol can be used. Authors provide specific guidance with maintenance of glucocorticoids in mild and severe COVID-19 infection for children with CKD on hormone treatment. There remains little evidence underlying the effects of immunosuppressants, particularly cyclosporine and mycophenolate mofetil, on SARS-CoV-2. Therefore, the use of immunosuppressants in children with CKD should be determined according to the specific conditions of each patient. Lastly, it is suggested that ACE inhibitors and ARBs be discontinued among children with CKD; other anti-hypertensives should be utilized.

A rapid review of evidence and recommendations from the SIOPE Radiation Oncology working group to help mitigate for reduced paediatric radiotherapy capacity during the COVID-19 pandemic or other crises.

Janssens GO, Mandeville HC, Timmermann B, Maduro JH, Alapetite C, Padovani L, Horan G, Lassen-Ramshad Y, Dieckmann K, Ruebe C, Thorp N, Gandola L, Ajithkumar T, Boterberg T.

Radiother Oncol.

2020 Apr 26; PMID: 32342872

Level of Evidence: 5 – Expert Opinion

Type of Article: Recommendations

BLUF: Experts from the European Society of Paediatric Oncology Radiation Oncology Work Group have developed evidence-based recommendations for the optimal utilization of resources for the treatment of the following conditions during this unexpected shortage of radiotherapy capacity: neuroblastoma, Wilms' tumor, soft tissue sarcoma, Ewing sarcoma, Hodgkin lymphoma, leukemia, medulloblastoma, ependymoma, low/high grade glioma, intracranial germ cell tumors, atypical and teratoid/rhabdoid tumors.

Abstract:

Objective: To derive evidence-based recommendations for the optimal utilisation of resources during unexpected shortage of radiotherapy capacity.

Methods and materials: We have undertaken a rapid review of published literature on the role of radiotherapy in the multimodality treatment of paediatric cancers governing the European practice of paediatric radiotherapy. The derived data has been discussed with expert paediatric radiation oncologists to derive a hierarchy of recommendations.

Results: The general recommendations to mitigate the potential detriment of an unexpected shortage of radiotherapy facilities include: (1) maintain current standards of care as long as possible (2) refer to another specialist paediatric radiotherapy department with similar level of expertise (3) prioritise use of existing radiotherapy resources to treat patients with tumours where radiotherapy has the most effect on clinical outcome (4) use chemotherapy to defer the start of radiotherapy where timing of radiotherapy is not expected to be detrimental (5) active surveillance for low-grade tumours if appropriate and (6) consider iso-effective hypofractionated radiotherapy regimens only for selected patients with predicted poor prognosis. The effectiveness of radiotherapy and recommendations for prioritisation of its use for common and challenging paediatric tumours are discussed.

Conclusion: This review provides evidence-based treatment recommendations during [sic] unexpected shortage of paediatric radiotherapy facilities. It has wider applications for the optimal utilization of facilities, to improve clinical outcome [sic] in low- and middle-income countries, where limited resources continue to be a challenge.

Geriatics

Special considerations for elderly patients with head and neck cancer during the COVID-19 pandemic.

Sharma A, Crosby DL.

Head Neck.

2020 Apr 28; PMID: 32343444

Level of Evidence: 5 – Expert Opinion

Type of Article: Letter

BLUF: Elderly patients with head and neck cancer are particularly susceptible to adverse outcomes during the COVID-19 pandemic. "For those reasons, we have a responsibility to provide multidisciplinary care, thorough assessment of risks and benefits of any possible interventions, shared decision making, social resources, and, when appropriate, comprehensive palliative care for elderly patients with head and neck cancer."

Abstract:

Elderly patients with head and neck cancer are at increased risk of adverse outcomes during and after treatment of head and neck cancer. COVID-19 severity and mortality can be expected to be significantly greater in elderly patients with head and neck cancer, given that increased age, comorbidities, and presence of malignancy are known risk factors for disease severity and mortality in patients with COVID-19. Therefore, their management requires multidisciplinary consensus and patient input. A thorough geriatric assessment, which has been shown to be beneficial prior to the COVID-19 pandemic, could be particularly helpful in this patient population with the added dimension of COVID-19 risk. In many cases, prudent treatment plan modification may allow for overall best outcomes. Furthermore, recruitment of social services and, when appropriate, palliative care, may allow for optimal management of these patients.

Examining Older Adult Cognitive Status in the Time of COVID-19.

Hantke NC, Gould C

J Am Geriatr Soc.

2020 Apr 28; PMID: 32343394

Level of Evidence: 5 - Expert Opinion

Type of Article: Letter

Summary: This letter to the editor outlines how several clinical cognitive assessments can be translated to telemedicine. The authors conclude that future research into cognitive tests designed for telehealth are vital for the changing healthcare landscape. Recommendations include:

- The Mini-Mental State Exam (MMSE) and Geriatric Depression Screen, which appears to be equally diagnostic through video and in-person.
- The Montreal Cognitive Assessment, which is now available both online and in a form for telephone use.
- The Telephone Interview for Cognitive Status, which is appropriate for individuals between 60 and 98 years of age and is strongly correlated with the MMSE.
- The Brief Test of Adult Cognition, which has similar validity to more traditional neuropsychological testing and could easily be translated to telephone-based care.

Psychiatry

The COVID-19 Global Pandemic: Implications for People With Schizophrenia and Related Disorders.

Kozloff N, Mulsant BH, Stergiopoulos V, Voineskos AN. Kozloff N, et al

Schizophr Bull.

2020 Apr 28; PMID: 32343342

Level of Evidence: 5 - Expert Opinion

Article Type: Letter

Summarizing excerpt: "We discuss the implications of the COVID-19 global pandemic with respect to:

- (1) increased risk of infection and poor outcomes among people with schizophrenia
- (2) anticipated adverse mental health consequences for people with schizophrenia
- (3) considerations for mental health service delivery in inpatient and outpatient settings
- (4) potential impact on clinical research in schizophrenia

Recommendations emphasize rapid implementation of measures to both decrease the risk of COVID-19 transmission and maintain continuity of clinical care and research to preserve safety of both people with schizophrenia and the public."

Current Diagnostics

Diagnostic performance of COVID-19 serology assays.

Zainol Rashid Z, Othman SN, Abdul Samat MN, Ali UK, Wong KK.
Malays J Pathol.

2020 Apr; PMID: 32342927

Level of Evidence: 3 - Non-consecutive Reports

Type of Article: Research

BLUF: Preliminary data for nine rapid detection (RDT) kits with serological assays for COVID-19 were reported. All the tests are 1-step and based on colloidal gold-labeled immunochromatography principles with turnaround time of 15 minutes. The sensitivity and specificity ranges for these immunological tests (i.e. IgM and IgG) are 72.7%-100% and 98.7%-100%, respectively.

Abstract:

Introduction: The World Health Organization (WHO) declared COVID-19 outbreak as a world pandemic on 12th March 2020. Diagnosis of suspected cases is confirmed by nucleic acid assays with real-time PCR, using respiratory samples. Serology tests are comparatively easier to perform, but their utility may be limited by the performance and the fact that antibodies appear later during the disease course. We aimed to describe the performance data on serological assays for COVID-19.

Materials and methods: A review of multiple reports and kit inserts on the diagnostic performance of rapid tests from various manufacturers that are commercially available were performed. Only preliminary data are available currently.

Results: From a total of nine rapid detection test (RDT) kits, three kits offer total antibody detection, while six kits offer combination SARS-CoV-2 IgM and IgG detection in two separate test lines. All kits are based on colloidal gold-labeled immunochromatography principle and one-step method with results obtained within 15 minutes, using whole blood, serum or plasma samples. The sensitivity for both IgM and IgG tests ranges between 72.7% and 100%, while specificity ranges between 98.7% to 100%. Two immunochromatography using nasopharyngeal or throat swab for detection of COVID-19 specific antigen are also reviewed.

Conclusions: There is much to determine regarding the value of serological testing in COVID-19 diagnosis and monitoring. More comprehensive evaluations of their performance are rapidly underway. The use of serology methods requires appropriate interpretations of the results and understanding the strengths and limitations of such tests.

Upper respiratory tract sampling in COVID-19.

Mawaddah A, Gendeh HS, Lum SG, Marina MB. Mawaddah A, et al.
Malays J Pathol.

2020 Apr; PMID: 32342928

Level of Evidence: 3 - Review without consistently applied reference standards

Article Type: Review

BLUF: This review found that patient self-collected throat washing samples of suspected COVID-19 patients have a better diagnostic accuracy compared to the poorer sensitivity of oropharyngeal swabs. The authors recommend anatomical considerations for nasopharyngeal swabs: 1) use nares-to-tragus distance for swab insertion, 2) direct the swab posteriorly along the floor and aim laterally, 3) tilt the head by 70 degrees, and 4) do not use great force.

Abstract: Introduction: To review the present literature on upper respiratory tract sampling in COVID-19 and provide recommendations to improve healthcare practices and directions in future studies.

Methods: Twelve relevant manuscripts were sourced from a total of 7288 search results obtained using PubMed, Medline and Google Scholar. The search keywords used were COVID-19, nasopharyngeal, oropharyngeal, swabs, SARS and CoV2. Original manuscripts were obtained and analysed by all authors. The review included manuscripts which have not undergone rigorous peer-review process in view of the magnitude of the topic discussed.

Results: The viral load of SARS-CoV-2 RNA in the upper respiratory tract was significantly higher during the first week and peaked at 4-6 days after onset of symptoms, during which it can be potentially sampled. Nasopharyngeal swab has demonstrated higher viral load than oropharyngeal swab, where the difference in paired samples is best seen at 0-9 days after the onset of illness. Sensitivity of nasopharyngeal swab was higher than oropharyngeal swabs in COVID-19 patients. Patient self-collected throat washing has been shown to contain higher viral load than nasopharyngeal or oropharyngeal swab, with significantly higher sensitivity when compared with paired nasopharyngeal swab.

Recommendations: Routine nasopharyngeal swab of suspected COVID-19 infection should take anatomy of the nasal cavity into consideration to increase patient comfort and diagnostic yield. Routine oropharyngeal swab should be replaced by throat washing which has demonstrated better diagnostic accuracy, and it is safe towards others.

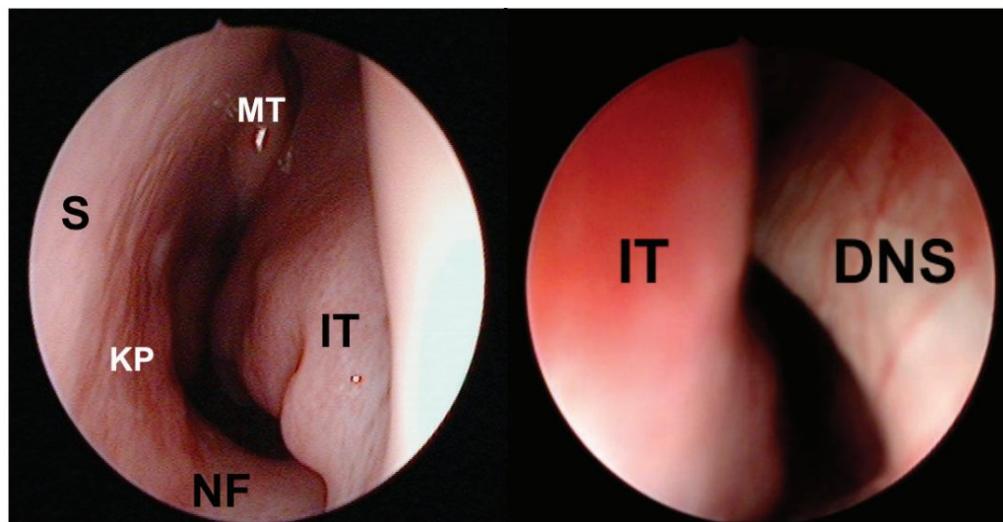


FIG. 2A (left): Endoscopic picture of the left nasal cavity showing the rigid septum (S), compressible inferior turbinate (IT) and roomier cavity at its inferior portion above the nasal floor (NF). The superior portion is less roomy at the level of the middle turbinate (MT). The Kiesselbach plexus is located at the anterior part of the septum (KP). **B (right):** Endoscopic picture of the right nasal cavity showing a deviated nasal septum (DNS) touching the inferior turbinate (IT) which can potentially cause problems during nasopharyngeal sampling.

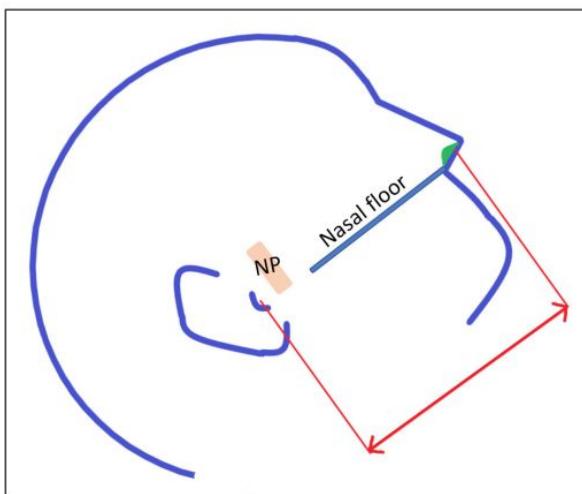


FIG. 3: Schematic diagram of the recommended head position. The nares (green) to nasopharynx (NP) distance is shorter than the distance between the nares and tragus (posterior to the NP) marked with red line.

Comparison of Four Molecular *In Vitro* Diagnostic Assays for the Detection of SARS-CoV-2 in Nasopharyngeal Specimens.

Zhen W, Manji R, Smith E, Berry GJ, Zhen W, et al.

J Clin Microbiol.

2020 Apr 27; PMID: 32341143

Level of Evidence: 5 - Basic Research

Type of Article: Research

BLUF: Between March and April of 2020, specimens were obtained from COVID-19 cases and used to compare four diagnostic tests, which were granted emergency use authorization by the United States. Testing results showed that DiaSorin Molecular and Hologic Fusion assays outperformed other tests (see image below). These findings could serve to inform test implementation strategies.

Abstract:

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the novel human coronavirus that causes coronavirus disease 2019 (COVID-19), was first discovered in December 2019 as the cause of an outbreak of pneumonia in the city of Wuhan, Hubei province, China. The clinical presentation of COVID-19 is fairly non-specific, and symptoms overlap with other seasonal respiratory infections concurrently circulating in the population. Furthermore, it is estimated that up to 80% of infected individuals experience mild symptoms or are asymptomatic, confounding efforts to reliably diagnose COVID-19 empirically. To support infection control measures, there is an urgent need for rapid and accurate molecular diagnostics to identify

COVID-19 positive patients. In the present study, we have evaluated the analytical sensitivity and clinical performance of four SARS-CoV-2 molecular diagnostic assays granted Emergency Use Authorization by the FDA using nasopharyngeal swabs from symptomatic patients: the New York SARS-CoV-2 Real-time Reverse Transcriptase (RT)-PCR Diagnostic Panel (Modified CDC), the Simplexa COVID-19 Direct (Diasorin Molecular), GenMark ePlex SARS-CoV-2 assay (GenMark) and the Hologic Panther Fusion® SARS-CoV-2 assay (Hologic). This information is crucial for both laboratories and clinical teams, as decisions on which testing platform to implement are made.

Table 4. Details of discordant sample analysis.

SARS-CoV-2 Molecular Assay Results (Ct) ^a						
Sample ID	Reference Standard	Modified CDC (N1/N2)	DiaSorin Molecular (S/ORF1ab)	GenMark	Hologic	Comment
A	NEG	POS (38.9/39.6)	NEG	NEG	NEG	Sample was repeated by CDC and determined NEG
B	POS	POS (35.5/34.5)	POS (31.9/31.8)	NEG	POS (35.0)	Sample was repeated by GenMark and determined POS
C	POS	POS (35.3/35.0)	POS (29.3/29.9)	NEG	POS (33.0)	Sample was repeated by GenMark and determined POS
D	NEG	NEG	NEG	NEG	POS (36.2)	Sample was repeated by Hologic and determined POS
E	NEG	NEG	NEG	NEG	POS (38.5)	Sample was repeated by Hologic and determined NEG

^aDiscordant sample results are highlighted in bold

^bCt, Cycle threshold

Evaluation of Transport Media and Specimen Transport Conditions for the Detection of SARS-CoV-2 Using Real Time Reverse Transcription PCR

Rogers AA, Baumann RE, Borillo GA, Kagan RM, Batterman HJ, Galdzicka M, Marlowe EM. Rogers AA, et al.

J Clin Microbiol.

2020 Apr 27; PMID: 32341141

Level of Evidence: 5 - Basic Research

Type of Article: Research

BLUF: Due to limited stability studies on SARS-CoV-2 RNA, Quest Diagnostic Infectious Disease in California conducted an experimental research and found that the qualitative detection of SARS-CoV-2 RNA via rRT-PCR was still detected despite the different transport medias (VCM, UTM®-RT, ESwab™, M4 and saline (0.9% NaCl), specimen types (nasopharyngeal/oropharyngeal swabs, bronchoalveolar lavage (BAL) and sputum), and storage conditions (18°C to 25°C, 2°C to 8°C and -10°C to -30°C).

Abstract: The global COVID-19 pandemic has resulted in a worldwide shortage of viral transport media and raised questions about specimen stability. The objective of this study was to determine the stability of SARS-CoV-2 virus RNA in specimen transport media under various storage conditions. Transport medium tested included: VCM, UTM®-RT, ESwab™, M4 and saline (0.9% NaCl). Specimen types tested included Nasopharyngeal/Oropharyngeal (NP/OP) swabs in the above transport media, bronchoalveolar lavage (BAL) and Sputum. A high-titer SARS-CoV-2 remnant patient specimen was spiked into pooled SARS-CoV-2 RNA-negative specimen remnants for the various media types. Aliquots of samples were stored at 18°C to 25°C, 2°C to 8°C and -10°C to -30°C and then tested at time points up to 14 days. Specimens consistently yielded amplifiable RNA with mean Ct differences of <3 over the various conditions assayed, thus supporting the use and transport of alternative collection media and specimen types under a variety of temperature storage conditions.

SARS-CoV-2 Serology: Much Hype, Little Data

Farnsworth, Christopher W; Anderson, Neil W

Clin Chem

2020 Apr 28; PMID: 32343775

Level of Evidence: 5 - Expert Opinion

Type of Article: Comment

Summary: Authors comment upon the current research surrounding serology for COVID-19 antibodies.

- Diagnosis: serology has only been able to detect previously negatively tested patients in 1% of cases
- Convalescent plasma: the authors report possible usefulness of this application for potential treatment of COVID-19
- Population screening: authors urge caution since research is not clear on whether or not seroconversion indicates protection from COVID-19
- Increasing diagnostic utility: in low-risk populations, the authors recommend using a serology test with 99%+ specificity due to the current prevalence of COVID-19

An Overview of COVID-19 Testing and Implications for Otolaryngologists.

Vinh DB, Zhao X, Kiong KL, Guo T, Jozaghi Y, Yao C, Kelley JM, Hanna E.

Head Neck.

2020 Apr 27; PMID: 32342570
Level of Evidence: 5 - Literature Review
Article Type: Review

BLUF: The authors discuss current testing modalities for COVID-19 in this review. It is currently recommended to perform a qualitative RT-PCR nasopharyngeal swab detecting segments of SARS-CoV-2 for N1 and N2. The test has been evaluated by CDC and has reliability for detecting copies. Chest CT has higher sensitivity for diagnosis compared to RT-PCR but is not recommended as a routine screen. Utilizing a RT-PCR and an antibody detection improves sensitivity for diagnosis, but would only confirm they have been exposed. When performing necessary surgeries on patients it is recommended to screen patients 24 hours prior to surgery to reduce risk of exposure.

Abstract:

Background: Testing for SARS-CoV-2 is important for decision making prior to surgery in otolaryngology. An understanding of current and developing testing methods is important for interpreting test results.

Methods: We performed a literature review of current evidence surrounding SARS-CoV-2 diagnostic testing highlighting its utility, limitations, and implications for otolaryngologists.

Results: The currently accepted RT-PCR test for SARS-CoV-2 has varying sensitivity according to which subsite of the aerodigestive tract is sampled. Nasal swab sensitivities appear to be about 70%. Chest CT imaging for screening purposes is not currently recommended.

Conclusions: Due to the current sensitivity of RT-PCR based testing for SARS-CoV-2, a negative test cannot rule out COVID-19. Full PPE should be worn during high risk procedures such as aerosol generating procedures even if testing is negative. Patients who test positive during screening should have their surgeries postponed if possible until asymptomatic and have tested negative for SARS-CoV-2.

Serological tests for COVID-19 antibodies: limitations must be recognised.

Ismail AAA
Ann Clin Biochem.
2020 Apr 28; PMID: 32343598
Level of Evidence: 5 - Expert Opinion
Type of Article: Editorial

Summary: This editorial comments on the limitations of serological (antibody) tests, including for COVID-19. They first highlight the intrinsic error rates of serological tests for all antibodies. They next discuss the impact of prevalence on results: low prevalence of the antibodies in the tested population will lead to a higher false positive rate, while high prevalence will lead to a higher false negative rate. The article concludes that COVID-19 serological testing is desirable to help identify those with a recent COVID-19 infection, however inaccuracies and limitations of the test must be acknowledged.

Developments in Treatments

SARS-CoV-2 infection in a patient on chronic hydroxychloroquine therapy: Implications for prophylaxis.

Dousa KM, Malavade SS, Furin J, Gripshover B, Hatszegi M, Hojat L, Saade E, Salata RA.
IDCases.
2020 Apr 27; PMID: 32341910
Level of Evidence: 4 - Case study
Type of Article: Case study

BLUF: This article details a case study involving a 39 year old female patient on long term hydroxychloroquine regimen who acquired COVID-19. Because the patient acquired SARS-CoV-2 in the presence of pre-existing hydroxychloroquine, the authors argue against the use of hydroxychloroquine as a prophylactic treatment.

Abstract:

People exposed to COVID-19 have a risk of developing disease, and health care workers are at risk at a time when they are badly needed during a health care crisis. Hydroxychloroquine and chloroquine have been used as treatment and are being considered as prophylaxis. Our patient developed COVID-19 while on hydroxychloroquine and although more work is needed, this calls into question the role of these medications as preventive therapy.

Medication for COVID-19-an Overview of Approaches Currently Under Study.

Stahlmann R, Lode H.
Dtsch Arztebl.
Int. 2020 Mar 27; PMID: 32343658
Level of Evidence: 5 - Review
Type of Article: Literature Review

BLUF: As of March 11th 2020, 84 clinical trials are ongoing to determine the ability of various drugs—antimalarials, glucocorticoids, antiretrovirals—to treat patients with COVID-19. A number of substances such as nitazoxanide and nafamostat have shown activity against the virus in *in vitro* experiments. Current drug development is focused on targeting proteins involved in the COVID-19 virus life cycle: angiotensin converting enzyme 2 (ACE2) and transmembrane protease serine 2 (TMPRSS2).

Abstract:

Background: With the worldwide spread of SARS-CoV-2 infection, it is becoming increasingly urgent to develop a vaccine to prevent COVID-19, as well as effective drugs to treat it.

Methods: This article is based on a selective literature search in PubMed and ClinicalTrials.gov, followed by an assessment of the ongoing clinical trials that were revealed by the search.

Results: A number of substances have been found to prevent the reproduction of SARS-CoV-2 *in vitro*. These include virustatic agents that have already been approved for the treatment of other types of viral infection, as well as drugs that are currently used for entirely different purposes. High *in vitro* activity has been found for the nucleotide analogue remdesivir, for the antimalarial drug chloroquine, and for nitazoxanide, a drug used to treat protozoan infections. Because the virus enters human cells by way of the membrane-associated angiotensin converting enzyme 2 (ACE2), keeping the virus from docking to this receptor is a conceivable treatment approach. Transmembrane protease serine 2 (TMPRSS2) plays a role in the fusion of the virus with cells; inhibitors of this enzyme are known as well. The potential therapeutic efficacy and tolerability of these and other active substances remain to be investigated in clinical trials. At present, more than 80 trials on COVID-19 have already been registered with ClinicalTrials.gov. Some initial findings should already be available in late April 2020.

Conclusion: Clinical trials are now indispensable in order to determine the true clinical benefits and risks of the substances that have been found to be active against SARS-CoV-2 in vitro. There is not yet any recommendation for the therapeutic use of any particular agent beyond standard supportive treatment.

Potential Effect of Natural and Anabolic Steroids in Elderly Patient With COVID-19

Karaahmet, F; Karaahmet, OZ

Med Hypotheses

2020 Apr 22; PMID: 32344312

Level of evidence: 5 - Expert Opinion

Type of Article: Comment

Summary: The authors comment upon the possibility of using estrogen and testosterone-based medications to reduce the pro-inflammatory state of a COVID-19 patient, based upon a number of past studies showing an inverse link between sex steroid levels and pro-inflammatory cytokines such as interleukin-6 (IL-6) or IL-2. These inflammatory mediators have been shown to play a role in severe elderly COVID-19 patients and it is postulated that endogenous pro- inflammatory modulation agents, such as estrogen and testosterone, may be effective in their management .

A Novel Plan to Deal with SARS-CoV-2 and COVID-19 Disease.

Stricker RB, Fesler MC

J Med Virol.

2020 Apr 28; PMID: 32343423

Level of Evidence: 5-Expert opinion

Type of Article: Commentary

BLUF: Based on finding that none of their 700 tick-borne illness patients maintained on long term combination antibiotic therapy have tested positive for COVID-19, the authors suggest that tetracyclines or other antibiotics might be used to avoid complications from COVID-19. They suggest everyone returning to work wear a pulse oximeter and begin treatment with these drugs immediately upon low SpO₂ or any clinical symptoms of COVID-19.

Abstract:

As we write this report in April 2020, more than two million people worldwide have been infected with the SARS-CoV-2 coronavirus and more than 150,000 have died of COVID-19 disease. International economies have been brought to a standstill, and social isolation based on palpable fear of death remains the order of the day. Appropriately or not, the United States government is talking about resuming work activities and social interaction to boost economic recovery. While this makes financial sense, from a medical perspective our population will be left defenseless in the absence of a viable treatment strategy for SARS-CoV-2. Herein we present a plan to deal with this looming threat.

Immunoglobulins or convalescent plasma to tackle COVID-19: buying time to save lives - current situation and perspectives.

Tamburello, Adriana; Morando, Marco

Swiss Med Wkly

2020 Apr 28; PMID: 32343358

Level of Evidence: 5 - Expert Opinion

Type of Article: Viewpoint

BLUF: Convalescent plasma has been shown to be effective in other severe respiratory infections of viral origin (SARS-CoV, MERS-CoV) and initial studies in the COVID-19 pandemic are encouraging; however, there are several unanswered questions and challenges that need to be solved prior to establishing this as a treatment for COVID-19. With further high-quality studies, this could become an important tool in this pandemic.

Summary: Studies have shown that convalescent plasma in patients with severe viral respiratory infections have shown a significant reduction in viral load and mortality. The author cites a case series of five patients who have shown improvement with convalescent plasma therapy in the current pandemic. While there has been evidence to show that this treatment could help improve clinical outcomes, it is equally important to keep in mind some drawbacks and unsolved questions: these include logistical difficulties of plasma collection and use, an increased risk of same-day thrombotic complications (from 0.04 to 14.9%), how representative plasma collected locally is of the circulating virus in the population, and lack of high-quality studies investigating plasma use.

Mental Health & Resilience Needs

COVID-19's Impact on Healthcare Workforce

[Mental health care for medical staff and affiliated healthcare workers during the COVID-19 pandemic](#)

Walton M, Murray E, Christian MD. Walton M, et al.

Eur Heart J Acute Cardiovasc Care.

2020 Apr 28; PMID: 32342698

Level of Evidence: 5 - Expert Opinion

Type of Article: Review

Summary: This article provides a list of details on how COVID-19 pandemic causes stress on healthcare workers, and describes ways to mitigate it through organizational, leadership, peer and individual support. Examples include:

1. Organization - should encourage psychiatric counseling, allow for time off, supporting staff in quarantine
2. Leadership - should always have good communication with employees, a sense of empowerment, and humanity and humility
3. Individuals - reminders of good self care (eat/drinking, sleeping, and exercising), and allow for breaks

Resources

[COVID-19, Australia: Epidemiology Report 12 \(Reporting Week to 23:59 AEST 19 April 2020\)](#)

COVID-19 National Incident Room Surveillance Team

Commun Dis Intell

2020 Apr 24; PMID: 32343939

Level of Evidence: Level 2- Non random, local and current population data

Type of Article: Review

BLUF: The Australian Department of Health reports the epidemiology of COVID-19 and public health measures implemented. Most notable was the low case fatality rate (1% vs 6.8% worldwide), which is attributed to a high level of testing not limited to the sickest populations. They warn against extrapolations to other countries based on their data due to heterogeneous social and policy factors that influence the spread of SARS-CoV-2.

Abstract:

Confirmed cases in Australia notified up to 19 April 2020: notifications = 6,606; deaths = 69. The reduction in international travel and domestic movement, social distancing measures and public health action have likely slowed the spread of the disease. Notifications in Australia remain predominantly among people with recent overseas travel, with some locally-acquired cases being detected. Most locally-acquired cases can be linked back to a confirmed case, with a small portion unable to be epidemiologically linked. The distribution of overseas-acquired cases to locally-acquired cases varies by jurisdiction. The crude case fatality rate (CFR) in Australia remains low (1.0%) compared to the World Health Organization's globally-reported rate (6.8%) and to other comparable high-income countries such as the United States of America (4.7%) and the United Kingdom (13.5%). The low CFR is likely reflective of high case ascertainment including detection of mild cases. High case ascertainment enables public health response and reduction of disease transmission. Internationally, cases continue to increase. The rates of increase have started to slow in several regions, although it is too soon to tell whether this trend will be sustained. Interpretation of international epidemiology should be conducted with caution as it differs from country to country depending not only on the disease dynamics, but also on differences in case detection, testing and implemented public health measures.

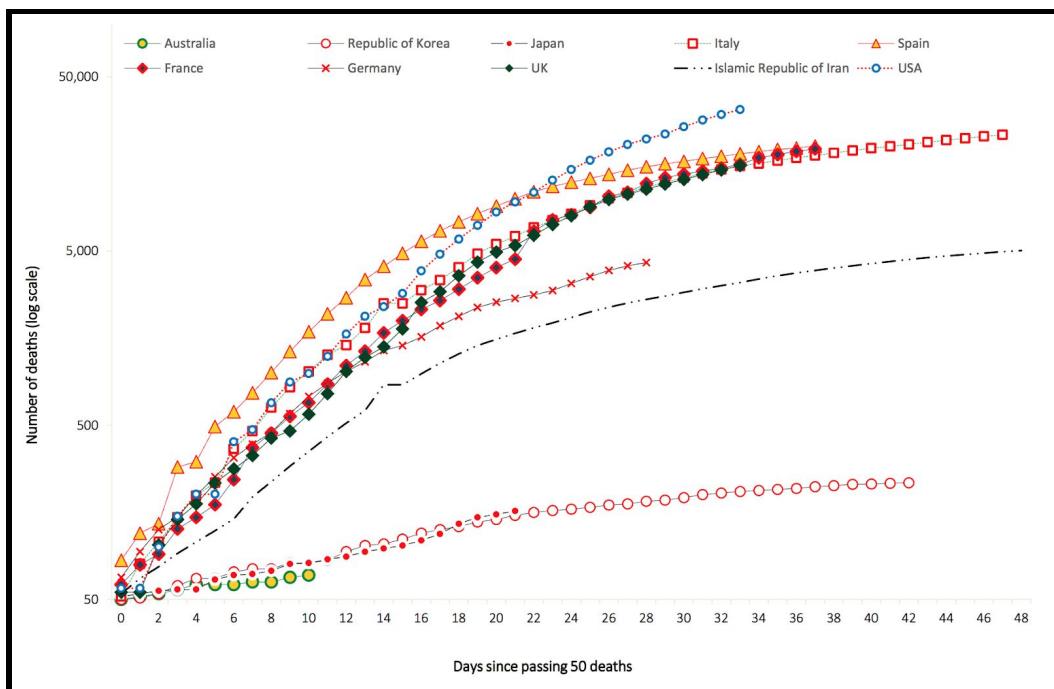


Figure 10. Number of COVID-19 deaths (logarithmic scale) by selected country and days since passing 50 deaths, up to 19 April 2020

Acknowledgements

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