Report and Opinion

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Coronavirus disease 2019 Research Literatures

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Abstract: Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus is mainly spread during close contact and via respiratory droplets that are produced when a person talks, coughs, or sneezes. Respiratory droplets may be produced during breathing, however, current research indicates that the virus is not considered airborne. People may also contract COVID-19 by touching a contaminated surface (Fomite) and then inadvertently transfer the pathogen to a mucous membrane (such as the eyes, nose, or mouth). It is most contagious when people are symptomatic, although spread may be possible before symptoms appear. The virus can live on surfaces up to 72 hours. Time from exposure to onset of symptoms is generally between two and fourteen days, with an average of five days. The standard method of diagnosis is by reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab. The infection can also be diagnosed from a combination of symptoms, risk factors and a chest CT scan showing features of pneumonia. This article introduces recent research reports as references in the related studies.

Key words: Coronavirus disease 2019; life; research; literature

Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus is mainly spread during close contact and via respiratory droplets that are produced when a person talks, coughs, or sneezes. Respiratory droplets may be produced during breathing, however, current research indicates that the virus is not considered airborne. People may also contract COVID-19 by touching a contaminated surface (Fomite) and then inadvertently transfer the pathogen to a mucous membrane (such as the eyes, nose, or mouth). It is most contagious when people are symptomatic, although spread may be possible before symptoms appear. The virus can live on surfaces up to 72 hours. Time from exposure to onset of symptoms is generally between two and fourteen days, with an average of five days. The standard method of diagnosis is by reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab. The infection can also be diagnosed from a combination of symptoms, risk factors and a chest CT scan showing features of pneumonia. This article introduces recent research reports as references in the related studies.

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

Ai, T., et al. (2020). "Correlation of Chest CT and RT-PCR Testing in Coronavirus Disease 2019 (COVID-19) in China: A Report of 1014 Cases." Radiology: 200642.

Background Chest CT is used for diagnosis of 2019 novel coronavirus disease (COVID-19), as an important complement to the reverse-transcription polymerase chain reaction (RT-PCR) tests. Purpose To investigate the diagnostic value and consistency of chest CT as compared with comparison to RT-PCR assay in COVID-19. Methods From January 6 to February 6, 2020, 1014 patients in Wuhan, China who underwent both chest CT and RT-PCR tests were included. With RT-PCR as reference standard, the performance of chest CT in diagnosing COVID-19 was assessed. Besides, for patients with multiple RT-PCR assays, the dynamic conversion of RT-PCR results (negative to positive, positive to negative, respectively) was analyzed as compared with serial chest CT scans for those with time-interval of 4 days or more. Results Of 1014 patients, 59% (601/1014) had positive RT-PCR results, and 88% (888/1014) had positive chest CT scans. The sensitivity of chest CT in suggesting COVID-19 was 97% (95%CI, 95-98%, 580/601 patients) based on positive RT-PCR results. In patients with negative RT-PCR results, 75% (308/413) had positive chest CT findings; of 308, 48% were considered as highly likely cases, with 33% as probable cases. By analysis of serial RT-PCR assays

and CT scans, the mean interval time between the initial negative to positive RT-PCR results was 5.1 +/- 1.5 days; the initial positive to subsequent negative RT-PCR result was 6.9 +/- 2.3 days). 60% to 93% of cases had initial positive CT consistent with COVID-19 prior (or parallel) to the initial positive RT-PCR results. 42% (24/57) cases showed improvement in follow-up chest CT scans before the RT-PCR results turning negative. Conclusion Chest CT has a high sensitivity for diagnosis of COVID-19. Chest CT may be considered as a primary tool for the current COVID-19 detection in epidemic areas.

Al-Mandhari, A., et al. (2020). "Coronavirus Disease 2019 outbreak: preparedness and readiness of countries in the Eastern Mediterranean Region." East Mediterr Health J **26**(2): 136-137.

On 31 December 2019, a cluster of acute respiratory illness was reported from China and later confirmed as novel coronavirus on 7 January 2020. This virus is the same member of the coronavirus family that caused the severe acute respiratory syndrome (SARS-CoV) reported in China 2003, and Middle East respiratory syndrome (MERS-CoV) reported in Saudi Arabia in 2012. The initial cases have been linked to a live seafood market in Wuhan, China, and the specific animal source is yet to be determined. The detection of this new virus in humans without knowing the source of the infection has raised greatly heightened concerns not only in China, but also internationally. To date, the outbreak has spread to most provinces in China and 25 other countries within a relatively short period. Consequent to its spread, Dr Tedros Ghebreyesus, Director General of the World Health Organization (WHO), declared the outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020.

Andrea, G., et al. (2020). "Coronavirus Disease 2019 and Transplantation: a view from the inside." Am J Transplant.

Since December 2019, world healthcare community faced with Coronavirus Disease 2019 (COVID-19) outbreak caused by SARS-CoV-2. Due to the high viral contagiousness and the possible transmission during the pre-symptomatic phase, COVID-19 progressively spread to several countries. Currently, Italy is the third Country for number of confirmed cases after mainland China and South Chorea, and the first western nation with a well-established deceased transplant program to tackle a COVID-19 outbreak (1).

Arshad Ali, S., et al. (2020). "The outbreak of Coronavirus Disease 2019 (COVID-19)-An emerging global health threat." J Infect Public Health.

The outbreak of Coronavirus Disease 2019 (COVID-19) causing novel coronavirus-infected pneumonia (NCIP), has affected the lives of 71,429 people globally. Originating in China, the disease has a rapid progression to other countries. Research suggests remarkable genomic resemblance of 2019-nCoV with Severe Acute Respiratory Syndrome (SARS) which has a history of a pandemic in 2002. With evidence of nosocomial spread, a number of diligent measures are being employed to constrain its propagation. Hence, the Public Health Emergency of International Concern (PHEIC) has been established by the World Health Organization (WHO) with strategic objectives for public health to curtail its impact on global health and economy.

Bernard Stoecklin, S., et al. (2020). "First cases of coronavirus disease 2019 (COVID-19) in France: surveillance, investigations and control measures, January 2020." Euro Surveill **25**(6).

A novel coronavirus (severe acute respiratory syndrome coronavirus 2, SARS-CoV-2) causing a cluster of respiratory infections (coronavirus disease 2019, COVID-19) in Wuhan, China, was identified on 7 January 2020. The epidemic quickly disseminated from Wuhan and as at 12 February 2020, 45,179 cases have been confirmed in 25 countries, including 1,116 deaths. Strengthened surveillance was implemented in France on 10 January 2020 in order to identify imported cases early and prevent secondary transmission. Three categories of risk exposure and follow-up procedure were defined for contacts. Three cases of COVID-19 were confirmed on 24 January, the first cases in Europe. Contact tracing was immediately initiated. Five contacts were evaluated as at low risk of exposure and 18 at moderate/high risk. As at 12 February 2020, two cases have been discharged and the third one remains symptomatic with a persistent cough, and no secondary transmission has been identified. Effective collaboration between all parties involved in the surveillance and response to emerging threats is required to detect imported cases early and to implement adequate control measures.

Bhatnagar, T., et al. (2020). "Lopinavir/ritonavir combination therapy amongst symptomatic coronavirus disease 2019 patients in India: Protocol for restricted public health emergency use." Indian J Med Res.

As of February 29, 2020, more than 85,000 cases of coronavirus disease 2019 (COVID-19) have been reported from China and 53 other countries with 2,924 deaths. On January 30, 2020, the first laboratory-confirmed case of COVID was reported from Kerala, India. In view of the earlier evidence about effectiveness of repurposed lopinavir/ritonavir against

severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) coronavirus (CoV), as well as preliminary docking studies conducted by the ICMR-National Institute of Virology, Pune, the Central Drugs Standard Control Organization approved the restricted public health use of lopinavir/ritonavir combination amongst symptomatic COVID-19 patients detected in the country. Hospitalized adult patients with laboratory-confirmed SARS-CoV-2 infection with any one of the following criteria will be eligible to receive lopinavir/ritonavir for 14 days after obtaining written informed consent: (i) respiratory distress with respiratory rate >/=22/min or SpO2 of <94 per cent; (ii) lung parenchymal infiltrates on chest X-ray; (iii) hypotension defined as systolic blood pressure <90 mmHg or need for vasopressor/inotropic medication; (iv) new-onset organ dysfunction; and (v) high-risk groups - age >60 yr, diabetes mellitus, renal failure, chronic lung disease and immunocompromised persons. Patients will be monitored to document clinical (hospital length of stay and mortality at 14, 28 and 90 days), laboratory (presence of viral RNA in serial throat swab samples) and safety (adverse events and serious adverse events) outcomes. Treatment outcomes amongst initial cases would be useful in providing guidance about the clinical management of patients with COVID-19. If found useful in managing initial SARS-CoV-2-infected patients, further evaluation using a randomized control trial design is warranted to guide future therapeutic use of this combination.

Bwire, G. M. and L. S. Paulo (2020). "Coronavirus disease-2019: is fever an adequate screening for the returning travelers?" Trop Med Health **48**: 14.

On Thursday, 30 January 2020, World Health Organization declared Coronavirus disease-2019 (COVID-2019) a Public Health Emergency of International Concern. Since its identification in late December 2019 in Wuhan, Hubei Province, People's Republic of China, the number of cases imported into other countries is increasing, and the epidemiological map is changing rapidly. On the other hand, body temperature screening (fever) is the major test performed at points of entry, i.e., airports, in the returning travelers in most of the countries with limited resources. However, the recent report on asymptomatic contact transmission of COVID-19 and travelers who passed the symptoms-based screening and tested positive for COVID-19 using reverse transcription polymerase chain reaction (RT-PCR) challenges this approach as body temperature screening may miss travelers incubating the disease or travelers concealing fever during travel. On this note, travel restrictions to and from high risk areas and/or 14 days quarantine of travelers coming from high risk areas are recommended to prevent possible importation of COVID-19. Currently, RT-PCR is a reliable test in detecting both symptomatic and asymptomatic COVID-19.

Chan, K. W., et al. (2020). "COVID-19: An Update on the Epidemiological, Clinical, Preventive and Therapeutic Evidence and Guidelines of Integrative Chinese-Western Medicine for the Management of 2019 Novel Coronavirus Disease." Am J Chin Med: 1-26.

As of 22 February 2020, more than 77662 cases of confirmed COVID-19 have been documented globally with over 2360 deaths. Common presentations of confirmed cases include fever, fatigue, dry cough, upper airway congestion, sputum production, shortness of breath, myalgia/arthralgia with lymphopenia, prolonged prothrombin time, elevated C-reactive protein, and elevated lactate dehydrogenase. The reported severe/critical case ratio is approximately 7-10% and median time to intensive care admission is 9.5-10.5 days with mortality of around 1-2% varied geographically. Similar to outbreaks of other newly identified virus, there is no proven regimen from conventional medicine and most reports managed the patients with lopinavir/ritonavir, ribavirin, beta-interferon, glucocorticoid and supportive treatment with remdesivir undergoing clinical trial. In China, Chinese medicine is proposed as a treatment option by national and provincial guidelines with substantial utilization. We reviewed the latest national and provincial clinical guidelines, retrospective cohort studies, and case series regarding the treatment of COVID-19 by add-on Chinese medicine. We have also reviewed the clinical evidence generated from SARS and H1N1 management with hypothesized mechanisms and latest in silico findings to identify candidate Chinese medicines for the consideration of possible trials and management. Given the paucity of strongly evidence-based regimens, the available data suggest that Chinese medicine could be considered as an adjunctive therapeutic option in the management of COVID-19.

Chang, L., et al. (2020). "Coronavirus Disease 2019: Coronaviruses and Blood Safety." Transfus Med Rev.

With the outbreak of unknown pneumonia in Wuhan, China, in December 2019, a new coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), aroused the attention of the entire world. The current outbreak of infections with SARS-CoV-2 is termed Coronavirus Disease 2019 (COVID-19). The World Health Organization declared COVID-19 in China as a Public Health Emergency of

International Concern. Two other coronavirus infections-SARS in 2002-2003 and Middle East Respiratory Syndrome (MERS) in 2012-both caused severe respiratory syndrome in humans. All 3 of these emerging infectious diseases leading to a global spread are caused by beta-coronaviruses. Although coronaviruses usually infect the upper or lower respiratory tract, viral shedding in plasma or serum is common. Therefore, there is still a theoretical risk of transmission of coronaviruses through the transfusion of labile blood products. Because more and more asymptomatic infections are being found among COVID-19 cases, considerations of blood safety and coronaviruses have arisen especially in endemic areas. In this review, we detail current evidence and understanding of the transmission of SARS-CoV, MERS-CoV, and SARS-CoV-2 through blood products as of February 10, 2020, and also discuss pathogen inactivation methods on coronaviruses.

Chen, Q., et al. (2020). "A report of clinical diagnosis and treatment of nine cases of coronavirus disease 2019." J Med Virol.
Coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 has become an important public health issue in the world. More than 118 000 cases were confirmed around the world. The main clinical manifestations were respiratory symptoms and occasional gastrointestinal symptoms. However, there is no unified standard for the diagnosis and treatment of COVID-19. In the retrospective analysis, we report nine cases of COVID-19, describe the history of contact, clinical manifestations, the course of diagnosis and clinical treatment before, during and after treatment.

Chen, X. and B. Yu (2020). "First two months of the 2019 Coronavirus Disease (COVID-19) epidemic in China: real-time surveillance and evaluation with a second derivative model." Glob Health Res Policy 5: 7.
Background: Similar to outbreaks of many other infectious diseases, success in controlling the novel 2019 coronavirus infection requires a timely and accurate monitoring of the epidemic, particularly during its early period with rather limited data while the need for information increases explosively. Methods: In this study, we used a second derivative model to characterize the coronavirus epidemic in China with cumulatively diagnosed cases during the first 2 months. The analysis was further enhanced by an exponential model with a close-population assumption. This model was built with the data and used to assess the detection rate during the study period, considering the differences between the true infections, detectable and detected cases. Results:

Results from the second derivative modeling suggest the coronavirus epidemic as nonlinear and chaotic in nature. Although it emerged gradually, the epidemic was highly responsive to massive interventions initiated on January 21, 2020, as indicated by results from both second derivative and exponential modeling analyses. The epidemic started to decelerate immediately after the massive actions. The results derived from our analysis signaled the decline of the epidemic 14 days before it eventually occurred on February 4, 2020. Study findings further signaled an accelerated decline in the epidemic starting in 14 days on February 18, 2020. Conclusions: The coronavirus epidemic appeared to be nonlinear and chaotic, and was responsive to effective interventions. The methods used in this study can be applied in surveillance to inform and encourage the general public, public health professionals, clinicians and decision-makers to take coordinative and collaborative efforts to control the epidemic.

Cheng, S. C., et al. (2020). "First case of Coronavirus Disease 2019 (COVID-19) pneumonia in Taiwan." J Formos Med Assoc **119**(3): 747-751.
An outbreak of respiratory illness proved to be infected by a 2019 novel coronavirus, officially named Coronavirus Disease 2019 (COVID-19), was notified first in Wuhan, China, and has spread rapidly in China and to other parts of the world. Herein, we reported the first confirmed case of novel coronavirus pneumonia (NCP) imported from China in Taiwan. This case report revealed a natural course of NCP with self-recovery, which may be a good example in comparison with medical treatments.

Cheng, V. C. C., et al. (2020). "Escalating infection control response to the rapidly evolving epidemiology of the Coronavirus disease 2019 (COVID-19) due to SARS-CoV-2 in Hong Kong." Infect Control Hosp Epidemiol: 1-24.
BACKGROUND: To describe the infection control preparedness for Coronavirus Disease (COVID-19) due to SARS-CoV-2 [previously known as 2019-novel coronavirus] in the first 42 days after announcement of a cluster of pneumonia in China, on 31 December 2019 (day 1) in Hong Kong. METHODS: A bundle approach of active and enhanced laboratory surveillance, early airborne infection isolation, rapid molecular diagnostic testing, and contact tracing for healthcare workers (HCWs) with unprotected exposure in the hospitals was implemented. Epidemiological characteristics of confirmed cases, environmental and air samples were collected and analyzed. RESULTS: From day 1 to day 42, forty-two (3.3%) of 1275 patients fulfilling active (n=29) and enhanced laboratory surveillance (n=13) confirmed to have

SARS-CoV-2 infection. The number of locally acquired case significantly increased from 1 (7.7%) of 13 [day 22 to day 32] to 27 (93.1%) of 29 confirmed case [day 33 to day 42] (p<0.001). Twenty-eight patients (66.6%) came from 8 family clusters. Eleven (2.7%) of 413 HCWs caring these confirmed cases were found to have unprotected exposure requiring quarantine for 14 days. None of them was infected and nosocomial transmission of SARS-CoV-2 was not observed. Environmental surveillance performed in a patient with viral load of 3.3x106 copies/ml (pooled nasopharyngeal/ throat swab) and 5.9x106 copies/ml (saliva) respectively. SARS-CoV-2 revealed in 1 (7.7%) of 13 environmental samples, but not in 8 air samples collected at a distance of 10 cm from patient's chin with or without wearing a surgical mask. CONCLUSION: Appropriate hospital infection control measures could prevent nosocomial transmission of SARS-CoV-2.

Cheng, Z., et al. (2020). "Clinical Features and Chest CT Manifestations of Coronavirus Disease 2019 (COVID-19) in a Single-Center Study in Shanghai, China." AJR Am J Roentgenol: 1-6.

OBJECTIVE. Confronting the new coronavirus infection known as coronavirus disease 2019 (COVID-19) is challenging and requires excluding patients with suspected COVID-19 who actually have other diseases. The purpose of this study was to assess the clinical features and CT manifestations of COVID-19 by comparing patients with COVID-19 pneumonia with patients with non-COVID-19 pneumonia who presented at a fever observation department in Shanghai, China. MATERIALS AND METHODS. Patients were retrospectively enrolled in the study from January 19 through February 6, 2020. All patients underwent real-time reverse transcription-polymerase chain reaction (RT-PCR) testing. RESULTS. Eleven patients had RT-PCR test results that were positive for severe acute respiratory syndrome coronavirus 2, whereas 22 patients had negative results. No statistical difference in clinical features was observed (p > 0.05), with the exception of leukocyte and platelet counts (p < 0.05). The mean (+/- SD) interval between onset of symptoms and admission to the fever observation department was 4.40 +/- 2.00 and 5.52 +/- 4.00 days for patients with positive and negative RT-PCR test results, respectively. The frequency of opacifications in patients with positive results and patients with negative results, respectively, was as follows: ground-glass opacities (GGOs), 100.0% versus 90.9%; mixed GGO, 63.6% versus 72.7%; and consolidation, 54.5% versus 77.3%. In patients with positive RT-PCR results, GGOs were the most commonly observed opacification (seen in 100.0% of patients) and were predominantly located in the peripheral zone (100.0% of patients), compared with patients with negative results (31.8%) (p = 0.05). The median number of affected lung lobes and segments was higher in patients with positive RT-PCR results than in those with negative RT-PCR results (five vs 3.5 affected lobes and 15 vs nine affected segments; p < 0.05). Although the air bronchogram reticular pattern was more frequently seen in patients with positive results, centrilobular nodules were less frequently seen in patients with positive results. CONCLUSION. At the point during the COVID-19 outbreak when this study was performed, imaging patterns of multifocal, peripheral, pure GGO, mixed GGO, or consolidation with slight predominance in the lower lung and findings of more extensive GGO than consolidation on chest CT scans obtained during the first week of illness were considered findings highly suspicious of COVID-19.

Chronic obstructive pulmonary disease group of Chinese Thoracic, S. and P. Chronic obstructive pulmonary disease committee of Chinese Association of Chest (2020). "[Medical management and prevention instruction of chronic obstructive pulmonary disease during the coronavirus disease 2019 epidemic]." Zhonghua Jie He He Hu Xi Za Zhi 43(0): E034.

Currently, coronavirus disease 2019 (COVID-19) was of clustering onset in China and challenging to the Chinese healthcare system. Epidemiological data showed that the older patients with chronic commodities were at high risk of the involvement of the severe and critical type of COVID-19, especially patients with chronic obstructive pulmonary disease (COPD) resulting in high mortalities. There were nearly 100 million COPD patients in China, and most of them were the elderly. Once infected with COVID-19, it would be life-threatening for the COPD patients. Therefore, during the epidemic, it was of vital significance for us to attach great importance to optimize the management of COPD patients. Based on these considerations, the COPD Group of the Chinese Thoracic Society (CTS) and the COPD working Committee of the Chinese Association of Chest Physicians (CACP) altogether drafted the instruction for medical management and prevention of COPD during the COVID-19 epidemic period for the healthcare practitioner and patients.

Deng, S. Q. and H. J. Peng (2020). "Characteristics of and Public Health Responses to the Coronavirus Disease 2019 Outbreak in China." J Clin Med 9(2).

In December 2019, cases of unidentified pneumonia with a history of exposure in the Huanan Seafood Market were reported in Wuhan, Hubei

Province. A novel coronavirus, SARS-CoV-2, was identified to be accountable for this disease. Human-to-human transmission is confirmed, and this disease (named COVID-19 by World Health Organization (WHO)) spread rapidly around the country and the world. As of 18 February 2020, the number of confirmed cases had reached 75,199 with 2009 fatalities. The COVID-19 resulted in a much lower case-fatality rate (about 2.67%) among the confirmed cases, compared with Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). Among the symptom composition of the 45 fatality cases collected from the released official reports, the top four are fever, cough, short of breath, and chest tightness/pain. The major comorbidities of the fatality cases include hypertension, diabetes, coronary heart disease, cerebral infarction, and chronic bronchitis. The source of the virus and the pathogenesis of this disease are still unconfirmed. No specific therapeutic drug has been found. The Chinese Government has initiated a level-1 public health response to prevent the spread of the disease. Meanwhile, it is also crucial to speed up the development of vaccines and drugs for treatment, which will enable us to defeat COVID-19 as soon as possible.

Dong, L., et al. (2020). "Discovering drugs to treat coronavirus disease 2019 (COVID-19)." Drug Discov Ther **14**(1): 58-60.

The SARS-CoV-2 virus emerged in December 2019 and then spread rapidly worldwide, particularly to China, Japan, and South Korea. Scientists are endeavoring to find antivirals specific to the virus. Several drugs such as chloroquine, arbidol, remdesivir, and favipiravir are currently undergoing clinical studies to test their efficacy and safety in the treatment of coronavirus disease 2019 (COVID-19) in China; some promising results have been achieved thus far. This article summarizes agents with potential efficacy against SARS-CoV-2.

Dong, X., et al. (2020). "Eleven Faces of Coronavirus Disease 2019." Allergy.

BACKGROUND AND AIMS: The outbreak of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has recently spread worldwide and been declared a pandemic. We aim to describe here the various clinical presentations of this disease by examining eleven cases. METHODS: Electronic medical records of 11 patients with COVID-19 were collected and demographics, clinical manifestations, outcomes, key laboratory results, and radiological images are discussed. RESULTS: The clinical course of the eleven cases demonstrated the complexity of the COVID-19 profile with different clinical presentations. Clinical manifestations range from asymptomatic cases to patients with mild and severe symptoms, with or without pneumonia. Laboratory detection of the viral nucleic acid can yield false-negative results, and serological testing of virus specific IgG and IgM antibodies should be used as an alternative for diagnosis. Patients with common allergic diseases did not develop distinct symptoms and severe courses. Cases with a pre-existing condition of chronic obstructive pulmonary disease or complicated with a secondary bacterial pneumonia were more severe. CONCLUSION: All different clinical characteristics of COVID-19 should be taken into consideration to identify patients that need to be in strict quarantine for the efficient containment of the pandemic.

Driggin, E., et al. (2020). "Cardiovascular Considerations for Patients, Health Care Workers, and Health Systems During the Coronavirus Disease 2019 (COVID-19) Pandemic." J Am Coll Cardiol.

The coronavirus disease-2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 that has significant implications for the cardiovascular care of patients. First, those with COVID-19 and preexisting cardiovascular disease (CVD) have an increased risk of severe disease and death. Second, infection has been associated with multiple direct and indirect cardiovascular complications including acute myocardial injury, myocarditis, arrhythmias and venous thromboembolism. Third, therapies under investigation for COVID-19 may have cardiovascular side effects. Fourth, the response to COVID-19 can compromise the rapid triage of non-COVID-19 patients with cardiovascular conditions. Finally, the provision of cardiovascular care may place health care workers in a position of vulnerability as they become host or vectors of virus transmission. We hereby review the peer-reviewed and preprint literature pertaining to cardiovascular considerations related to COVID-19 and highlight gaps in knowledge that require further study pertinent to patients, health care workers, and health systems.

Du, Z., et al. (2020). "Risk for Transportation of 2019 Novel Coronavirus Disease from Wuhan to Other Cities in China." Emerg Infect Dis **26**(5).

On January 23, 2020, China quarantined Wuhan to contain 2019 novel coronavirus disease (COVID-19). We estimated the probability of transportation of COVID-19 from Wuhan to 369 other cities in China before the quarantine. Expected COVID-19 risk is >50% in 130 (95% CI 89-190) cities and >99% in the 4 largest metropolitan areas.

Fan, H. H., et al. (2020). "Repurposing of clinically approved drugs for treatment of coronavirus disease 2019 in a 2019-novel coronavirus (2019-nCoV) related coronavirus model." Chin Med J (Engl).

BACKGROUND: Medicines for the treatment of 2019-novel coronavirus (2019-nCoV) infections are urgently needed. However, drug screening using live 2019-nCoV requires high-level biosafety facilities, which imposes an obstacle for those without such facilities or 2019-novel coronavirus (2019-nCoV). This study aims to repurpose the clinically approved drugs for the treatment of coronavirus disease 2019 (COVID-19) in a 2019-nCoV related coronavirus model. METHODS: A 2019-nCoV related pangolin coronavirus GX_P2V/pangolin/2017/ Guangxi was described. Whether GX_P2X uses angiotensin-converting enzyme 2 (ACE2) as the cell receptor was investigated by using small interfering RNA (siRNA) - mediated silencing of ACE2. The pangolin coronavirus model was used to identify drug candidates for treating 2019-nCoV infection. Two libraries of 2406 clinically approved drugs were screened for their ability to inhibit cytopathic effects on Vero E6 cells by GX_P2X infection. The antiviral activities and antiviral mechanisms of potential drugs were further investigated. Viral yields of RNAs and infectious particles were quantified by quantitative real-time polymerase chain reaction (qRT-PCR) and plaque assay, respectively. RESULTS: The spike protein of coronavirus GX_P2V shares 92.2% amino acid identity with that of 2019-nCoV isolate Wuhan-hu-1, and uses ACE2 as the receptor for infection just like 2019-nCoV. Three drugs-cepharanthine (CEP), selamectin and mefloquine hydrochloride exhibited complete inhibition of cytopathic effects in cell culture at 10 mumol/L. CEP demonstrated the most potent inhibition of GX_P2V infection, with a concentration for 50% of maximal effect [EC50] of 0.98 mumol/L. The viral RNA yield in cells treated with 10 mumol/L CEP was 15,393-fold lower than in cells without CEP treatment ([6.48 +/- 0.02] x 10vs. 1.00 +/- 0.12, t = 150.38, P < 0.001) at 72 h post-infection (p.i.). Plaque assays found no production of live viruses in media containing 10 mumol/L CEP at 48 h p.i. Furthermore, we found CEP has potent antiviral activities against both viral entry (1.00 +/- 0.37 vs. 0.46 +/- 0.12, t = 2.42, P < 0.05) and viral replication (1.00 +/- 0.43 vs. [6.18 +/- 0.95] x 10, t = 3.98, P < 0.05). CONCLUSIONS: Our pangolin coronavirus GX_P2V is a workable model for 2019-nCoV research. CEP, selamectin and mefloquine hydrochloride are potential drugs for treating 2019-nCoV infection. Our results strongly suggest that CEP is a wide-spectrum inhibitor of pan-betacoronavirus, and clinical trial of CEP for treatment of 2019-nCoV infection is warranted.

Fan, J., et al. (2020). "Epidemiology of 2019 Novel Coronavirus Disease-19 in Gansu Province, China, 2020." Emerg Infect Dis **26**(6).

To determine the epidemiology of 2019 novel coronavirus disease (COVID-19) in a remote region of China, far from Wuhan, we analyzed the epidemiology of COVID-19 in Gansu Province. From January 23 through February 3, 2020, a total of 35 (64.8%) of 54 reported cases were imported from COVID-19-epidemic areas. Characteristics that differed significantly during the first and second waves of illness in Gansu Province were mean patient age, occupation, having visited epidemic areas, and mode of transportation. Time from infection to illness onset for family clusters was shorter in Gansu Province than in Wuhan, consistent with shortened durations from onset to first medical visit or hospitalization. Spatial distribution pattern analysis indicated hot spots and spatial outliers in Gansu Province. As a result of adequate interventions, transmission of the COVID-19 virus in Gansu Province is decreasing.

Gou, S. M., et al. (2020). "[Treatment of pancreatic diseases and prevention of infection during outbreak of 2019 coronavirus disease]." Zhonghua Wai Ke Za Zhi **58**(0): E006.

Objective: To explorethe proper protective measures for pancreaticdiseases treatment during theoutbreak of 2019 coronavirus disease (COVID-19). Method: Clinical data of four cases of patients that suffered COVID-19from February 2(nd), 2020 to February 9(th), 2020 in pancreatic surgery were reviewed.After the first patientscuffednosocomial infection of COVID-19, the general protective measures in our department wereupdated.Only one patient was admitted to each room alone, with no more than one caregiver.The body temperature of care givers was measuredtwice a day.Primary protections were applied to all staff.The floor was sterilized using disinfectant with an effective chlorine concentration of 1000 mg/L.The protective measures for interventional procedures were as follow.Primary protection was applied to the operators ofcentral venipuncture catheter, percutaneous abdominal/pleural drainage, percutaneous retroperitoneal drainage, percutaneous transhepatic cholangial drainage and other surgical procedures with local anesthesiaand epidural anesthesia.Secondary protection was applied to the operators of endoscopic retrograde cholangiopancreatography and surgical procedures with general anesthesia. Results: During Feb 2(nd), 2020 to Feb 9(th), 2020, four patients in our department were diagnosed with COVID-19, of which one was died of COVID-19, two were cured, and one is still in hospital for COVID-19.After the update

ofprotective measures in our department, no more nosocomial infection of COVID-19occurred.Two central venipuncture catheter, three percutaneous abdominal/pleural drainage, one percutaneous retroperitoneal drainage, one percuteneous transhepatic cholecyst drainage and one open surgery with general anesthesia were performed with no infection of operators. Conclusions: The caregivers of patients are potential infection source of COVID-19.Enhanced protective measures including the management measures of caregivers can decrease the risk of nosocomial infection of COVID-19.

Guan, C. S., et al. (2020). "Imaging Features of Coronavirus disease 2019 (COVID-19): Evaluation on Thin-Section CT." Acad Radiol.

RATIONALE AND OBJECTIVES: To retrospectively analyze the chest imaging findings in patients with coronavirus disease 2019 (COVID-19) on thin-section CT. MATERIALS AND METHODS: Fifty-three patients with confirmed COVID-19 infection underwent thin-section CT examination. Two chest radiologists independently evaluated the imaging in terms of distribution, ground-glass opacity (GGO), consolidation, air bronchogram, stripe, enlarged mediastinal lymph node, and pleural effusion. RESULTS: Fourty-seven cases (88.7%) had findings of COVID-19 infection, and the other six (11.3%) were normal. Among the 47 cases, 78.7% involved both lungs, and 93.6% had peripheral infiltrates distributed along the subpleural area. All cases showed GGO, 59.6% of which were round and 40.4% patchy. Other imaging features included "crazy-paving pattern" (89.4%), consolidation (63.8%), and air bronchogram (76.6%). Air bronchograms were observed within GGO (61.7%) and consolidation (70.3%). Neither enlarged mediastinal lymph nodes nor pleural effusion were present. Thirty-three patients (62.3%) were followed an average interval of 6.2 +/- 2.9 days. The lesions increased in 75.8% and resorbed in 24.2% of patients. CONCLUSION: COVID-19 showed the pulmonary lesions in patients infected with COVID-19 were predominantly distributed peripherally in the subpleural area.

Guan, W. J., et al. (2020). "Clinical Characteristics of Coronavirus Disease 2019 in China." N Engl J Med.

BACKGROUND: Since December 2019, when coronavirus disease 2019 (Covid-19) emerged in Wuhan city and rapidly spread throughout China, data have been needed on the clinical characteristics of the affected patients. METHODS: We extracted data regarding 1099 patients with laboratory-confirmed Covid-19 from 552 hospitals in 30 provinces, autonomous regions, and municipalities in China

through January 29, 2020. The primary composite end point was admission to an intensive care unit (ICU), the use of mechanical ventilation, or death. RESULTS: The median age of the patients was 47 years; 41.9% of the patients were female. The primary composite end point occurred in 67 patients (6.1%), including 5.0% who were admitted to the ICU, 2.3% who underwent invasive mechanical ventilation, and 1.4% who died. Only 1.9% of the patients had a history of direct contact with wildlife. Among nonresidents of Wuhan, 72.3% had contact with residents of Wuhan, including 31.3% who had visited the city. The most common symptoms were fever (43.8% on admission and 88.7% during hospitalization) and cough (67.8%). Diarrhea was uncommon (3.8%). The median incubation period was 4 days (interquartile range, 2 to 7). On admission, ground-glass opacity was the most common radiologic finding on chest computed tomography (CT) (56.4%). No radiographic or CT abnormality was found in 157 of 877 patients (17.9%) with nonsevere disease and in 5 of 173 patients (2.9%) with severe disease. Lymphocytopenia was present in 83.2% of the patients on admission. CONCLUSIONS: During the first 2 months of the current outbreak, Covid-19 spread rapidly throughout China and caused varying degrees of illness. Patients often presented without fever, and many did not have abnormal radiologic findings. (Funded by the National Health Commission of China and others.).

Guo, Y. R., et al. (2020). "The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak - an update on the status." Mil Med Res **7**(1): 11.

An acute respiratory disease, caused by a novel coronavirus (SARS-CoV-2, previously known as 2019-nCoV), the coronavirus disease 2019 (COVID-19) has spread throughout China and received worldwide attention. On 30 January 2020, World Health Organization (WHO) officially declared the COVID-19 epidemic as a public health emergency of international concern. The emergence of SARS-CoV-2, since the severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 and Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012, marked the third introduction of a highly pathogenic and large-scale epidemic coronavirus into the human population in the twenty-first century. As of 1 March 2020, a total of 87,137 confirmed cases globally, 79,968 confirmed in China and 7169 outside of China, with 2977 deaths (3.4%) had been reported by WHO. Meanwhile, several independent research groups have identified that SARS-CoV-2 belongs to beta-coronavirus, with highly identical genome to bat coronavirus, pointing to bat as the natural host. The novel coronavirus uses the same receptor, angiotensin-

converting enzyme 2 (ACE2) as that for SARS-CoV, and mainly spreads through the respiratory tract. Importantly, increasingly evidence showed sustained human-to-human transmission, along with many exported cases across the globe. The clinical symptoms of COVID-19 patients include fever, cough, fatigue and a small population of patients appeared gastrointestinal infection symptoms. The elderly and people with underlying diseases are susceptible to infection and prone to serious outcomes, which may be associated with acute respiratory distress syndrome (ARDS) and cytokine storm. Currently, there are few specific antiviral strategies, but several potent candidates of antivirals and repurposed drugs are under urgent investigation. In this review, we summarized the latest research progress of the epidemiology, pathogenesis, and clinical characteristics of COVID-19, and discussed the current treatment and scientific advancements to combat the epidemic novel coronavirus.

Han, R., et al. (2020). "Early Clinical and CT Manifestations of Coronavirus Disease 2019 (COVID-19) Pneumonia." AJR Am J Roentgenol: 1-6.

OBJECTIVE. The purpose of this study was to investigate early clinical and CT manifestations of coronavirus disease (COVID-19) pneumonia. MATERIALS AND METHODS. Patients with COVID-19 pneumonia confirmed by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) nucleic acid test (reverse transcription-polymerase chain reaction) were enrolled in this retrospective study. The clinical manifestations, laboratory results, and CT findings were evaluated. RESULTS. One hundred eight patients (38 men, 70 women; age range, 21-90 years) were included in the study. The clinical manifestations were fever in 94 of 108 (87%) patients, dry cough in 65 (60%), and fatigue in 42 (39%). The laboratory results were normal WBC count in 97 (90%) patients and normal or reduced lymphocyte count in 65 (60%). High-sensitivity C-reactive protein level was elevated in 107 (99%) patients. The distribution of involved lobes was one lobe in 38 (35%) patients, two or three lobes in 24 (22%), and four or five lobes in 46 (43%). The major involvement was peripheral (97 patients [90%]), and the common lesion shape was patchy (93 patients [86%]). Sixty-five (60%) patients had ground-glass opacity (GGO), and 44 (41%) had GGO with consolidation. The size of lesions varied from smaller than 1 cm (10 patients [9%]) to larger than 3 cm (56 patients [52%]). Vascular thickening (86 patients [80%]), crazy paving pattern (43 patients [40%]), air bronchogram sign (52 patients [48%]), and halo sign (69 [64%]) were also observed in this study. CONCLUSION. The early clinical and laboratory findings of COVID-19 pneumonia are low to midgrade fever, dry cough, and fatigue with normal WBC count, reduced lymphocyte count, and elevated high-sensitivity C-reactive protein level. The early CT findings are patchy GGO with or without consolidation involving multiple lobes, mainly in the peripheral zone, accompanied by halo sign, vascular thickening, crazy paving pattern, or air bronchogram sign.

Han, Y. and H. Yang (2020). "The transmission and diagnosis of 2019 novel coronavirus infection disease (COVID-19): A Chinese perspective." J Med Virol.

2019 novel coronavirus (SARS-CoV-2), which originated in Wuhan, China, has attracted the world's attention over the last month. The Chinese government has taken emergency measures to control the outbreak and has undertaken initial steps in the diagnosis and treatment of 2019 novel coronavirus infection disease (COVID-19). However, SARS-CoV-2 possesses powerful pathogenicity as well as transmissibility and still holds many mysteries that are yet to be solved, such as whether the virus can be transmitted by asymptomatic patients or by mothers to their infants. Our research presents selected available cases of COVID-19 in China to better understand the transmission and diagnosis regarding this infectious disease.

Harcourt, J., et al. (2020). "Severe Acute Respiratory Syndrome Coronavirus 2 from Patient with 2019 Novel Coronavirus Disease, United States." Emerg Infect Dis 26(6).

The etiologic agent of an outbreak of pneumonia in Wuhan, China, was identified as severe acute respiratory syndrome coronavirus 2 in January 2020. A patient in the United States was given a diagnosis of infection with this virus by the state of Washington and the US Centers for Disease Control and Prevention on January 20, 2020. We isolated virus from nasopharyngeal and oropharyngeal specimens from this patient and characterized the viral sequence, replication properties, and cell culture tropism. We found that the virus replicates to high titer in Vero-CCL81 cells and Vero E6 cells in the absence of trypsin. We also deposited the virus into 2 virus repositories, making it broadly available to the public health and research communities. We hope that open access to this reagent will expedite development of medical countermeasures.

Harypursat, V. and Y. K. Chen (2020). "Six weeks into the 2019 coronavirus disease (COVID-19) outbreak- it is time to consider strategies to impede the emergence of new zoonotic infections." Chin Med J (Engl).

He, F., et al. (2020). "Coronavirus Disease 2019 (COVID-19): What we know?" J Med Virol.

In late December 2019, a cluster of unexplained pneumonia cases has been reported in Wuhan, China. A few days later, the causative agent of this mysterious pneumonia was identified as a novel coronavirus. This causative virus has been temporarily named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the relevant infected disease has been named as coronavirus disease 2019 (COVID-19) by the World Health Organization respectively. The COVID-19 epidemic is spreading in China and all over the world now. The purpose of this review is primarily to review the pathogen, clinical features, diagnosis, and treatment of COVID-19, but also to comment briefly on the epidemiology and pathology based on the current evidences. This article is protected by copyright. All rights reserved.

Hosseiny, M., et al. (2020). "Radiology Perspective of Coronavirus Disease 2019 (COVID-19): Lessons From Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome." AJR Am J Roentgenol: 1-5.

OBJECTIVE. Since the outbreak of the novel coronavirus pulmonary illness coronavirus disease 2019 (COVID-19) in China, more than 79,000 people have contracted the virus worldwide. The virus is rapidly spreading with human-to-human transmission despite imposed precautions. Because similar pulmonary syndromes have been reported from other strains of the coronavirus family, our aim is to review the lessons from imaging studies obtained during severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) outbreaks. CONCLUSION. The review of experiences with the MERS and SARS outbreaks will help us better understand the role of the radiologist in combating the outbreak of COVID-19. The known imaging manifestations of the novel coronavirus and the possible unknowns will also be discussed.

Huang, W. H., et al. (2020). "2019 novel coronavirus disease (COVID-19) in Taiwan: Reports of two cases from Wuhan, China." J Microbiol Immunol Infect.

We reported two cases with community-acquired pneumonia caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) who returned from Wuhan, China in January, 2020. The reported cases highlight non-specific clinical presentations of 2019 novel coronavirus disease (COVID-19) as well as the importance of rapid laboratory-based diagnosis.

Huang, Z., et al. (2020). "The Battle Against Coronavirus Disease 2019 (COVID-19): Emergency Management and Infection Control in a Radiology Department." J Am Coll Radiol.

OBJECTIVE: To describe the strategy and the emergency management and infection control procedures of our radiology department during the COVID-19 outbreak. METHODS: We set up emergency management and sensing control teams. The team formulated various measures, such as reconfiguration of the radiology department, personal protection and staff training, standardized imaging examination procedures for fever patients and common patients, and so on. RESULTS: From January 21 to March 9, 3,083 people underwent fever-CT examinations. Including the initial examination and reexamination, the total number of fever CT examination is 3,340. As a result of our precautions, none of the staff of the radiology department was infected with COVID-19. CONCLUSION: Strategic planning and adequate protections can help protect patients and staff against a highly infectious disease while allow normal functioning at a high-volume capacity.

Ioannidis, J. P. A. (2020). "Coronavirus disease 2019: the harms of exaggerated information and non-evidence-based measures." Eur J Clin Invest: e13223.

The evolving coronavirus disease 2019 (COVID-19) pandemic (1) is certainly cause for concern. Proper communication and optimal decision-making is an ongoing challenge, as data evolve. The challenge is compounded, however, by exaggerated information. This can lead to inappropriate actions. It is important to differentiate promptly the true epidemic from an epidemic of false claims and potentially harmful actions.

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Jernigan, D. B. and C. C.-R. Team (2020). "Update: Public Health Response to the Coronavirus Disease 2019 Outbreak - United States, February 24, 2020." MMWR Morb Mortal Wkly Rep **69**(8): 216-219.

An outbreak of coronavirus disease 2019 (COVID-19) caused by the 2019 novel coronavirus (SARS-CoV-2) began in Wuhan, Hubei Province, China in December 2019, and has spread throughout China and to 31 other countries and territories, including the United States (1). As of February 23, 2020, there were 76,936 reported cases in mainland China and 1,875 cases in locations outside mainland China (1). There have been 2,462 associated deaths worldwide; no deaths have been reported in the United States. Fourteen cases have been diagnosed in the United States, and an additional 39 cases have occurred among repatriated persons from high-risk settings, for a current total of 53 cases within the United States. This report summarizes the aggressive measures (2,3) that CDC, state and local health departments, multiple other federal agencies, and other partners are implementing to slow and try to contain transmission of COVID-19 in the United States. These measures require the identification of cases and contacts of persons with COVID-19 in the United States and the recommended assessment, monitoring, and care of travelers arriving from areas with substantial COVID-19 transmission. Although these measures might not prevent widespread transmission of the virus in the United States, they are being implemented to 1) slow the spread of illness; 2) provide time to better prepare state and local health departments, health care systems, businesses, educational organizations, and the general public in the event that widespread transmission occurs; and 3) better characterize COVID-19 to guide public health recommendations and the development and deployment of medical countermeasures, including diagnostics, therapeutics, and vaccines. U.S. public health authorities are monitoring the situation closely, and CDC is coordinating efforts with the World Health Organization (WHO) and other global partners. Interim guidance is available at https://www.cdc.gov/coronavirus/index.html. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action by CDC, state and local health departments, health care providers, and communities.

Jiang, F., et al. (2020). "Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19)." J Gen Intern Med.
In late December 2019, a cluster of cases with 2019 Novel Coronavirus pneumonia (SARS-CoV-2) in Wuhan, China, aroused worldwide concern. Previous studies have reported epidemiological and clinical characteristics of coronavirus disease 2019 (COVID-19). The purpose of this brief review is to summarize those published studies as of late February 2020 on the clinical features, symptoms, complications, and treatments of COVID-19 and help provide guidance for frontline medical staff in the clinical management of this outbreak.

Kam, K. Q., et al. (2020). "A Well Infant with Coronavirus Disease 2019 (COVID-19) with High Viral Load." Clin Infect Dis.
A well 6-month-old infant with coronavirus disease 2019 (COVID-19) had persistently positive nasopharyngeal swabs to day 16 of admission. This case highlights the difficulties in establishing the true incidence of COVID-19 as asymptomatic individuals can excrete the virus. These patients may play important roles in human-to-human transmission in the community.

Kang, X., et al. (2020). "[Anesthesia management in cesarean section for a patient with coronavirus disease 2019]." Zhejiang Da Xue Xue Bao Yi Xue Ban 49(1): 0.
Since the corona virus disease 2019 (COVID-19) affects the cardio-pulmonary function of pregnant women, the anesthetic management in the cesarean section for the patients, as well as the protection for medical staff is significantly different from that in ordinary surgical operation. This paper reports a pregnant woman with COVID-19, for whom a cesarean section was successfully performed in our hospital on February 8, 2020. Anesthetic management, protection of medical staff and psychological intervention for the patients during the operation are discussed. Importance should be attached to the preoperative evaluation of pregnant women with COVID-19 and the implementation of anesthesia plan. For ordinary COVID-19 patients intraspinal anesthesia is preferred in cesarean section, and the influence on respiration and circulation in both maternal and infant should be reduced; while for severe or critically ill patients general anesthesia with endotracheal intubation should be adopted. The safety of medical environment should be ensured, and level- standard protection should be taken for anesthetists. Special attention and support should be given to maternal psychology. It is important to give full explanation before operation to reduce anxiety; to relieve the discomfort during operation to reduce tension; to avoid the bad mood of patients due to pain after operation.

Ki, M. and V. Task Force for -nCo (2020). "Epidemiologic characteristics of early cases with 2019 novel coronavirus (2019-nCoV) disease in Korea." Epidemiol Health 42: e2020007.
In about 20 days since the diagnosis of the first case of the 2019 novel coronavirus (2019-nCoV) in Korea on January 20, 2020, 28 cases have been confirmed. Fifteen patients (53.6%) of them were male

and median age of was 42 years (range, 20-73). Of the confirmed cases, 16, 9, and 3 were index (57.2%), first-generation (32.1%), and second-generation (10.7%) cases, respectively. All first-generation and second-generation patients were family members or intimate acquaintances of the index cases with close contacts. Fifteen among 16 index patients had entered Korea from January 19 to 24, 2020 while 1 patient had entered Korea on January 31, 2020. The average incubation period was 3.9 days (median, 3.0), and the reproduction number was estimated as 0.48. Three of the confirmed patients were asymptomatic when they were diagnosed. Epidemiological indicators will be revised with the availability of additional data in the future. Sharing epidemiological information among researchers worldwide is essential for efficient preparation and response in tackling this new infectious disease.

Korean Society of Infectious, D., et al. (2020). "Report on the Epidemiological Features of Coronavirus Disease 2019 (COVID-19) Outbreak in the Republic of Korea from January 19 to March 2, 2020." J Korean Med Sci **35**(10): e112.

Since the first case of coronavirus disease19 (COVID-19) was reported in Wuhan, China, as of March 2, 2020, the total number of confirmed cases of COVID-19 was 89,069 cases in 67 countries and regions. As of 0 am, March 2, 2020, the Republic of Korea had the second-largest number of confirmed cases (n = 4,212) after China (n = 80,026). This report summarizes the epidemiologic features and the snapshots of the outbreak in the Republic of Korea from January 19 and March 2, 2020.

Lai, C. C., et al. (2020). "Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges." Int J Antimicrob Agents **55**(3): 105924.

The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; previously provisionally named 2019 novel coronavirus or 2019-nCoV) disease (COVID-19) in China at the end of 2019 has caused a large global outbreak and is a major public health issue. As of 11 February 2020, data from the World Health Organization (WHO) have shown that more than 43 000 confirmed cases have been identified in 28 countries/regions, with >99% of cases being detected in China. On 30 January 2020, the WHO declared COVID-19 as the sixth public health emergency of international concern. SARS-CoV-2 is closely related to two bat-derived severe acute respiratory syndrome-like coronaviruses, bat-SL-CoVZC45 and bat-SL-CoVZXC21. It is spread by human-to-human transmission via droplets or direct contact, and infection has been estimated to have mean incubation period of 6.4 days and a basic reproduction number of 2.24-3.58. Among patients with pneumonia caused by SARS-CoV-2 (novel coronavirus pneumonia or Wuhan pneumonia), fever was the most common symptom, followed by cough. Bilateral lung involvement with ground-glass opacity was the most common finding from computed tomography images of the chest. The one case of SARS-CoV-2 pneumonia in the USA is responding well to remdesivir, which is now undergoing a clinical trial in China. Currently, controlling infection to prevent the spread of SARS-CoV-2 is the primary intervention being used. However, public health authorities should keep monitoring the situation closely, as the more we can learn about this novel virus and its associated outbreak, the better we can respond.

Lai, C. C., et al. (2020). "Global epidemiology of coronavirus disease 2019: disease incidence, daily cumulative index, mortality, and their association with country healthcare resources and economic status." Int J Antimicrob Agents: 105946.

It has been 2 months since the first case of coronavirus disease 2019 (COVID-19) was reported in Wuhan. So far, COVID-19 has affected 84,503 patients in 57 countries/territories and caused 2,924 deaths in nine countries. However, the epidemiology data differ across countries. Although China had higher morbidity and mortality than other sites, the number of new cases per day in China is lesser than that outside of China since February 26, 2020. The incidence ranged from 61.4 per 1,000,000 people in Republic of Korea to 0.0002 per 1,000,000 people in India. The daily cumulative index (DCI) of COVID-19 (cumulative cases/no. of days between the first reported case and February 29, 2020) was greatest in China (1,320.85 per day), followed by Republic of Korea (78.78 per day), Iran (43.11 per day), and Italy (30.62 per day). However, the DCI in other countries/territories were less than 10 per day. Several effective measures including restricting travel from China, controlling the distribution of masks, extensive investigation of COVID-19 spread, and at once daily press conference by government to inform and educate people were aggressively conducted in Taiwan. This is probably the reason why there was only 39 cases (as of February 29, 2020) with a DCI of 1 case per day in Taiwan, which was much lower than that of nearby countries, such as Republic of Korea and Japan. Additionally, the incidence and mortality were correlated with DCI. However, further study and continued monitoring are needed to better understand the underlying mechanism of COVID-19.

Lai, J., et al. (2020). "Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019." JAMA Netw Open **3**(3): e203976.

Importance: Health care workers exposed to coronavirus disease 2019 (COVID-19) could be psychologically stressed. Objective: To assess the magnitude of mental health outcomes and associated factors among health care workers treating patients exposed to COVID-19 in China. Design, Settings, and Participants: This cross-sectional, survey-based, region-stratified study collected demographic data and mental health measurements from 1257 health care workers in 34 hospitals from January 29, 2020, to February 3, 2020, in China. Health care workers in hospitals equipped with fever clinics or wards for patients with COVID-19 were eligible. Main Outcomes and Measures: The degree of symptoms of depression, anxiety, insomnia, and distress was assessed by the Chinese versions of the 9-item Patient Health Questionnaire, the 7-item Generalized Anxiety Disorder scale, the 7-item Insomnia Severity Index, and the 22-item Impact of Event Scale-Revised, respectively. Multivariable logistic regression analysis was performed to identify factors associated with mental health outcomes. Results: A total of 1257 of 1830 contacted individuals completed the survey, with a participation rate of 68.7%. A total of 813 (64.7%) were aged 26 to 40 years, and 964 (76.7%) were women. Of all participants, 764 (60.8%) were nurses, and 493 (39.2%) were physicians; 760 (60.5%) worked in hospitals in Wuhan, and 522 (41.5%) were frontline health care workers. A considerable proportion of participants reported symptoms of depression (634 [50.4%]), anxiety (560 [44.6%]), insomnia (427 [34.0%]), and distress (899 [71.5%]). Nurses, women, frontline health care workers, and those working in Wuhan, China, reported more severe degrees of all measurements of mental health symptoms than other health care workers (eg, median [IQR] Patient Health Questionnaire scores among physicians vs nurses: 4.0 [1.0-7.0] vs 5.0 [2.0-8.0]; P =.007; median [interquartile range {IQR}] Generalized Anxiety Disorder scale scores among men vs women: 2.0 [0-6.0] vs 4.0 [1.0-7.0]; P <.001; median [IQR] Insomnia Severity Index scores among frontline vs second-line workers: 6.0 [2.0-11.0] vs 4.0 [1.0-8.0]; P <.001; median [IQR] Impact of Event Scale-Revised scores among those in Wuhan vs those in Hubei outside Wuhan and those outside Hubei: 21.0 [8.5-34.5] vs 18.0 [6.0-28.0] in Hubei outside Wuhan and 15.0 [4.0-26.0] outside Hubei; P <.001). Multivariable logistic regression analysis showed participants from outside Hubei province were associated with lower risk of experiencing symptoms of distress compared with those in Wuhan (odds ratio [OR], 0.62; 95% CI, 0.43-0.88; P =.008). Frontline health care workers engaged in direct diagnosis, treatment, and care of patients with COVID-19 were associated with a higher risk of symptoms of depression (OR, 1.52; 95% CI, 1.11-2.09; P =.01), anxiety (OR, 1.57; 95% CI, 1.22-2.02; P <.001), insomnia (OR, 2.97; 95% CI, 1.92-4.60; P <.001), and distress (OR, 1.60; 95% CI, 1.25-2.04; P <.001). Conclusions and Relevance: In this survey of heath care workers in hospitals equipped with fever clinics or wards for patients with COVID-19 in Wuhan and other regions in China, participants reported experiencing psychological burden, especially nurses, women, those in Wuhan, and frontline health care workers directly engaged in the diagnosis, treatment, and care for patients with COVID-19.

Lauer, S. A., et al. (2020). "The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application." Ann Intern Med.

Background: A novel human coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was identified in China in December 2019. There is limited support for many of its key epidemiologic features, including the incubation period for clinical disease (coronavirus disease 2019 [COVID-19]), which has important implications for surveillance and control activities. Objective: To estimate the length of the incubation period of COVID-19 and describe its public health implications. Design: Pooled analysis of confirmed COVID-19 cases reported between 4 January 2020 and 24 February 2020. Setting: News reports and press releases from 50 provinces, regions, and countries outside Wuhan, Hubei province, China. Participants: Persons with confirmed SARS-CoV-2 infection outside Hubei province, China. Measurements: Patient demographic characteristics and dates and times of possible exposure, symptom onset, fever onset, and hospitalization. Results: There were 181 confirmed cases with identifiable exposure and symptom onset windows to estimate the incubation period of COVID-19. The median incubation period was estimated to be 5.1 days (95% CI, 4.5 to 5.8 days), and 97.5% of those who develop symptoms will do so within 11.5 days (CI, 8.2 to 15.6 days) of infection. These estimates imply that, under conservative assumptions, 101 out of every 10 000 cases (99th percentile, 482) will develop symptoms after 14 days of active monitoring or quarantine. Limitation: Publicly reported cases may overrepresent severe cases, the incubation period for which may differ from that of mild cases. Conclusion: This work provides additional evidence for a median incubation period for COVID-19 of approximately 5 days, similar to SARS. Our results support current proposals for the length of quarantine or active

monitoring of persons potentially exposed to SARS-CoV-2, although longer monitoring periods might be justified in extreme cases. Primary Funding Source: U.S. Centers for Disease Control and Prevention, National Institute of Allergy and Infectious Diseases, National Institute of General Medical Sciences, and Alexander von Humboldt Foundation.

Li, L. H., et al. (2020). "[Treatment strategies of Budd-Chiari syndrome during the epidemic period of 2019 coronavirus disease]." Zhonghua Wai Ke Za Zhi **58**(0): E007.

Prevention and control about the situation of 2019 coronavirus disease (COVID-19) are grim at present. In addition to supporting the frontline actively, medical workers in general surgery spare no efforts in making good diagnosis and treatment of specialized diseases by optimizing treatment process, providing medical advice online, mastering indications of delayed operation and emergency operation reasonably, etc. Budd-Chiari syndrome is a complex disorder, and severity of the disease varies, serious cases can be life threatening. While fighting the epidemic, medical workers should also ensure the medical needs of patients. However, instead of continuing the traditional treatment, a new management system should be developed. Based on the characteristics of Budd-Chiari syndrome patients in China and our experience, we divide the patients into ordinary and critical cases, and treatment strategies suitable for the epidemic period of COVID-19 are put forward for reference and discussion by physicians.

Li, X., et al. (2020). "[Preliminary Recommendations for Lung Surgery during 2019 Novel Coronavirus Disease (COVID-19) Epidemic Period]." Zhongguo Fei Ai Za Zhi **23**(3): 133-135.

In December 2019, China diagnosed the first patient with 2019 novel coronavirus disease (COVID-19), and the following development of the epidemic had a huge impact on China and the whole world. For patients with lung occupying lesions, the whole process of diagnosis and treatment can not be carried out as usual due to the epidemic. For thoracic surgeons, the timing of surgical intervention should be very carefully considered. All thoracic surgeons in China should work together to develop the proper procedures for the diagnosis and treatment in this special situation, and continuously update the recommendations based on epidemic changes and further understanding of COVID-19. Here, we only offer some preliminary suggestions based on our own knowledge for further reference and discussion.

Li, X. Y., et al. (2020). "[The keypoints in treatment of the critical coronavirus disease 2019 patient]." Zhonghua Jie He He Hu Xi Za Zhi **43**(0): E026.

The treatment of critically ill patients with coronavirus disease 2019(COVID-19) faces compelling challenges. In this issue, we'd like to share our first-line treatment experience in treating COVID-19. Hemodynamics need be closely monitored and different types of shock should be distinguished. Vasoconstrictor drugs should be used rationally and alerting of complications is of the same importance. The risk of venous thromboembolism (VTE) needs to be assessed, and effective prevention should be carried out for high-risk patients. It is necessary to consider the possibility of pulmonary thromboembolism (PTE) in patients with sudden onset of oxygenation deterioration, respiratory distress, reduced blood pressure. However, comprehensive analysis of disease state should be taken into the interpretation of abnormally elevated D-Dimer. Nutritional support is the basis of treatment. It's important to establish individual therapy regimens and to evaluate, monitor and adjust dynamically. Under the current epidemic situation, convalescent plasma can only be used empirically, indications need to be strictly screened, the blood transfusion process should be closely monitored and the curative effect should be dynamically evaluated.

Li, Y. and L. Xia (2020). "Coronavirus Disease 2019 (COVID-19): Role of Chest CT in Diagnosis and Management." AJR Am J Roentgenol: 1-7.

OBJECTIVE. The objective of our study was to determine the misdiagnosis rate of radiologists for coronavirus disease 2019 (COVID-19) and evaluate the performance of chest CT in the diagnosis and management of COVID-19. The CT features of COVID-19 are reported and compared with the CT features of other viruses to familiarize radiologists with possible CT patterns. MATERIALS AND METHODS. This study included the first 51 patients with a diagnosis of COVID-19 infection confirmed by nucleic acid testing (23 women and 28 men; age range, 26-83 years) and two patients with adenovirus (one woman and one man; ages, 58 and 66 years). We reviewed the clinical information, CT images, and corresponding image reports of these 53 patients. The CT images included images from 99 chest CT examinations, including initial and follow-up CT studies. We compared the image reports of the initial CT study with the laboratory test results and identified CT patterns suggestive of viral infection. RESULTS. COVID-19 was misdiagnosed as a common infection at the initial CT study in two inpatients with underlying disease and COVID-19. Viral pneumonia was correctly diagnosed at the initial CT study in the remaining 49 patients with COVID-19 and two

patients with adenovirus. These patients were isolated and obtained treatment. Ground-glass opacities (GGOs) and consolidation with or without vascular enlargement, interlobular septal thickening, and air bronchogram sign are common CT features of COVID-19. The The "reversed halo" sign and pulmonary nodules with a halo sign are uncommon CT features. The CT findings of COVID-19 overlap with the CT findings of adenovirus infection. There are differences as well as similarities in the CT features of COVID-19 compared with those of the severe acute respiratory syndrome. CONCLUSION. We found that chest CT had a low rate of missed diagnosis of COVID-19 (3.9%, 2/51) and may be useful as a standard method for the rapid diagnosis of COVID-19 to optimize the management of patients. However, CT is still limited for identifying specific viruses and distinguishing between viruses.

Lima, C. K. T., et al. (2020). "The emotional impact of Coronavirus 2019-nCoV (new Coronavirus disease)." Psychiatry Res **287**: 112915.

BACKGROUND: A novel form of Coronavirus (2019-nCoV) in Wuhan has created a confused and rapidly evolving situation. In this situational framework, patients and front-line healthcare workers are vulnerable. METHOD: Studies were identified using large-circulation international journals found in two electronic databases: Scopus and Embase. RESULTS: Populations of patients that may require tailored interventions are older adults and international migrant workers. Older adults with psychiatric conditions may be experiencing further distress. The COVID-19 epidemic has underscored potential gaps in mental health services during emergencies. CONCLUSIONS: Most health professionals working in isolation units and hospitals do not receive any training for providing mental health care. Fear seems more certainly a consequence of mass quarantine.

Lin, Q., et al. (2020). "A conceptual model for the coronavirus disease 2019 (COVID-19) outbreak in Wuhan, China with individual reaction and governmental action." Int J Infect Dis **93**: 211-216.

The ongoing coronavirus disease 2019 (COVID-19) outbreak, emerged in Wuhan, China in the end of 2019, has claimed more than 2600 lives as of 24 February 2020 and posed a huge threat to global public health. The Chinese government has implemented control measures including setting up special hospitals and travel restriction to mitigate the spread. We propose conceptual models for the COVID-19 outbreak in Wuhan with the consideration of individual behavioural reaction and governmental actions, e.g., holiday extension, travel restriction, hospitalisation and quarantine. We employ the

estimates of these two key components from the 1918 influenza pandemic in London, United Kingdom, incorporated zoonotic introductions and the emigration, and then compute future trends and the reporting ratio. The model is concise in structure, and it successfully captures the course of the COVID-19 outbreak, and thus sheds light on understanding the trends of the outbreak.

Ling, Y., et al. (2020). "Persistence and clearance of viral RNA in 2019 novel coronavirus disease rehabilitation patients." Chin Med J (Engl).

BACKGROUND: A patient's infectivity is determined by the presence of the virus in different body fluids, secretions, and excreta. The persistence and clearance of viral RNA from different specimens of patients with 2019 novel coronavirus disease (COVID-19) remain unclear. This study analyzed the clearance time and factors influencing 2019 novel coronavirus (2019-nCoV) RNA in different samples from patients with COVID-19, providing further evidence to improve the management of patients during convalescence. METHODS: The clinical data and laboratory test results of convalescent patients with COVID-19 who were admitted to from January 20, 2020 to February 10, 2020 were collected retrospectively. The reverse transcription polymerase chain reaction (RT-PCR) results for patients' oropharyngeal swab, stool, urine, and serum samples were collected and analyzed. Convalescent patients refer to recovered non-febrile patients without respiratory symptoms who had two successive (minimum 24 h sampling interval) negative RT-PCR results for viral RNA from oropharyngeal swabs. The effects of cluster of differentiation 4 (CD4)+ T lymphocytes, inflammatory indicators, and glucocorticoid treatment on viral nucleic acid clearance were analyzed. RESULTS: In the 292 confirmed cases, 66 patients recovered after treatment and were included in our study. In total, 28 (42.4%) women and 38 men (57.6%) with a median age of 44.0 (34.0-62.0) years were analyzed. After in-hospital treatment, patients' inflammatory indicators decreased with improved clinical condition. The median time from the onset of symptoms to first negative RT-PCR results for oropharyngeal swabs in convalescent patients was 9.5 (6.0-11.0) days. By February 10, 2020, 11 convalescent patients (16.7%) still tested positive for viral RNA from stool specimens and the other 55 patients' stool specimens were negative for 2019-nCoV following a median duration of 11.0 (9.0-16.0) days after symptom onset. Among these 55 patients, 43 had a longer duration until stool specimens were negative for viral RNA than for throat swabs, with a median delay of 2.0 (1.0-4.0) days. Results for only four (6.9%) urine samples were positive for viral

nucleic acid out of 58 cases; viral RNA was still present in three patients' urine specimens after throat swabs were negative. Using a multiple linear regression model (F = 2.669, P = 0.044, and adjusted R = 0.122), the analysis showed that the CD4+ T lymphocyte count may help predict the duration of viral RNA detection in patients' stools (t = -2.699, P = 0.010). The duration of viral RNA detection from oropharyngeal swabs and fecal samples in the glucocorticoid treatment group was longer than that in the non-glucocorticoid treatment group (15 days vs. 8.0 days, respectively; t = 2.550, P = 0.013) and the duration of viral RNA detection in fecal samples in the glucocorticoid treatment group was longer than that in the non-glucocorticoid treatment group (20 days vs. 11 days, respectively; t = 4.631, P < 0.001). There was no statistically significant difference in inflammatory indicators between patients with positive fecal viral RNA test results and those with negative results (P > 0.05). CONCLUSIONS: In brief, as the clearance of viral RNA in patients' stools was delayed compared to that in oropharyngeal swabs, it is important to identify viral RNA in feces during convalescence. Because of the delayed clearance of viral RNA in the glucocorticoid treatment group, glucocorticoids are not recommended in the treatment of COVID-19, especially for mild disease. The duration of RNA detection may relate to host cell immunity.

Lippi, G. and M. Plebani (2020). "The critical role of laboratory medicine during coronavirus disease 2019 (COVID-19) and other viral outbreaks." Clin Chem Lab Med.

Coronavirus disease 2019, abbreviated to COVID-19 and sustained by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is the latest biological hazard to assume the relevance of insidious worldwide threat. One obvious question that is now engaging the minds of many scientists and healthcare professionals is whether and eventually how laboratory medicine could efficiently contribute to counteract this and other (future) viral outbreaks. Despite there being evidence that laboratory tests are vital throughout many clinical pathways, there are at least three major areas where in vitro diagnostics can also provide essential contributions to diagnostic reasoning and managed care of patients with suspected or confirmed SARS-CoV-2 infection. These include etiological diagnosis, patient monitoring, as well as epidemiologic surveillance. Nonetheless, some structural and practical aspects may generate substantial hurdles in providing timely and efficient response to this infectious emergency, which basically include inadequate (insufficient) environment and shortage of technical and human resources for facing enhanced volume of tests on many infected patients,

some of whom are with severe disease. Some proactive and reactive strategies may hence be identified to confront this serious healthcare challenge, which entail major investments on conventional laboratory resources, reinforcement of regional networks of clinical laboratories, installation of mobile laboratories, as well as being proactive in establishing laboratory emergency plans.

Lippi, G., et al. (2020). "Thrombocytopenia is associated with severe coronavirus disease 2019 (COVID-19) infections: A meta-analysis." Clin Chim Acta.

BACKGROUND: Coronavirus disease 2019 (COVID-19) is a novel infectious disease with lack of established laboratory markers available to evaluate illness severity. In this study, we investigate whether platelet count could differentiate between COVID-19 patients with or without severe disease. Additionally, we evaluate if thrombocytopenia is associated with severe COVID-19. METHODS: An electronic search in Medline, Scopus and Web of Science was performed to identify studies reporting data on platelet count in COVID-19 patients. A meta-analysis was performed, with calculation of weighted mean difference (WMD) of platelet number in COVID-19 patients with or without severe disease and odds ratio (OR) of thrombocytopenia for severe form of COVID-19. RESULTS: Nine studies with 1779 COVID-19 patients, 399 (22.4%) with severe disease, were included in the meta-analysis. The pooled analysis revealed that platelet count was significantly lower in patients with more severe COVID-19 (WMD -31x10(9)/L; 95% CI, from -35 to -29x10(9)/L). A subgroup analysis comparing patients by survival, found an even lower platelet count was observed with mortality (WMD, -48x10(9)/L; 95% CI, -57 to -39x10(9)/L. In the four studies (n=1427) which reported data on rate of thrombocytopenia, a low platelet count was associated with over fivefold enhanced risk of severe COVID-19 (OR, 5.1; 95% CI, 1.8-14.6). CONCLUSIONS: Low platelet count is associated with increased risk of severe disease and mortality in patients with COVID-19, and thus should serve as clinical indicator of worsening illness during hospitalization.

Lippi, G., et al. (2020). "Potential preanalytical and analytical vulnerabilities in the laboratory diagnosis of coronavirus disease 2019 (COVID-19)." Clin Chem Lab Med.

A novel zoonotic coronavirus outbreak is spreading all over the world. This pandemic disease has now been defined as novel coronavirus disease 2019 (COVID-19), and is sustained by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

As the current gold standard for the etiological diagnosis of SARS-CoV-2 infection is (real time) reverse transcription polymerase chain reaction (rRT-PCR) on respiratory tract specimens, the diagnostic accuracy of this technique shall be considered a foremost prerequisite. Overall, potential RT-PCR vulnerabilities include general preanalytical issues such as identification problems, inadequate procedures for collection, handling, transport and storage of the swabs, collection of inappropriate or inadequate material (for quality or volume), presence of interfering substances, manual errors, as well as specific aspects such as sample contamination and testing patients receiving antiretroviral therapy. Some analytical problems may also contribute to jeopardize the diagnostic accuracy, including testing outside the diagnostic window, active viral recombination, use of inadequately validated assays, insufficient harmonization, instrument malfunctioning, along with other specific technical issues. Some practical indications can hence be identified for minimizing the risk of diagnostic errors, encompassing the improvement of diagnostic accuracy by combining clinical evidence with results of chest computed tomography (CT) and RT-PCR, interpretation of RT-PCR results according to epidemiologic, clinical and radiological factors, recollection and testing of upper (or lower) respiratory specimens in patients with negative RT-PCR test results and high suspicion or probability of infection, dissemination of clear instructions for specimen (especially swab) collection, management and storage, together with refinement of molecular target (s) and thorough compliance with analytical procedures, including quality assurance.

Liu, B. L., et al. (2020). "[Health management of breast cancer patients outside the hospital during the outbreak of 2019 novel coronavirus disease]." Zhonghua Zhong Liu Za Zhi **42**(0): E002.

The outbreak of 2019 novel coronavirus disease (COVID-19) is spreading rapidly. In order to prevent cluster outbreaks, the government strengthened the management and control of personnel mobility, which had a great impact on the examination and treatment of breast cancer patients. This paper discusses how to realize scientific health management of breast cancer patients outside the hospital based on the existing epidemic situation, characteristics of breast cancer patients and public health safety factors. The breast cancer patients should synthetically consider the epidemic prevention situation of inhabitance, the disease stage and previous therapeutic schedule to decide the next therapeutic schedule. If necessary, after professional discussion and communication between doctors and patients online or offline, the hospital visiting time should be delayed through

seeking alternative treatment schemes, and psychological counseling for patients should be paid attention to at the same time.

Liu, K. C., et al. (2020). "CT manifestations of coronavirus disease-2019: A retrospective analysis of 73 cases by disease severity." Eur J Radiol **126**: 108941.

PURPOSE: To report CT features of coronavirus disease-2019 (COVID-19) in patients with various disease severity. METHODS: The CT manifestations and clinical data of 73 patients with COVID-19 were retrospectively collected in 6 hospitals from Jan 21 to Feb 3, 2020. We analyzed the initial and follow-up CT features of patients with disease severity, according to the Guidelines for the Diagnosis and Treatment of New Coronavirus Pneumonia. RESULTS: Six patients (8%) were diagnosed as mild type pneumonia; these patients had no obvious abnormal CT findings or manifested mild changes of lung infection. All 43 patients (59 %) with common type presented unique or multiple ground-glass opacities (GGO) in the periphery of the lungs, with or without interlobular septal thickening. In the 21 patients (29 %) with severe type, extensive GGO and pulmonary consolidation were found in 16 cases (16/21, 76 %) and 5 cases (24 %), respectively. An extensive "white lung", with atelectasis and pleural effusion were found in critical type patients (3, 4%). On the resolutive phase of the disease, CT abnormalities showed complete resolution, or demonstrated residual linear opacities. CONCLUSIONS: Different CT features are seen according to disease severity, which can help COVID-19 stratification.

Liu, W., et al. (2020). "Analysis of factors associated with disease outcomes in hospitalized patients with 2019 novel coronavirus disease." Chin Med J (Engl).

BACKGROUND: Since early December 2019, the 2019 novel coronavirus disease (COVID-19) has caused pneumonia epidemic in Wuhan, Hubei province of China. This study aims to investigate the factors affecting the progression of pneumonia in COVID-19 patients. Associated results will be used to evaluate the prognosis and to find the optimal treatment regimens for COVID-19 pneumonia. METHODS: Patients tested positive for the COVID-19 based on nucleic acid detection were included in this study. Patients were admitted to 3 tertiary hospitals in Wuhan between December 30, 2019, and January 15, 2020. Individual data, laboratory indices, imaging characteristics, and clinical data were collected, and statistical analysis was performed. Based on clinical typing results, the patients were divided into a progression group or an

improvement/stabilization group. Continuous variables were analyzed using independent samples t-test or Mann-Whitney U test. Categorical variables were analyzed using Chi-squared test or Fisher exact test. Logistic regression analysis was performed to explore the risk factors for disease progression. RESULTS: Seventy-eight patients with COVID-19-induced pneumonia met the inclusion criteria and were included in this study. Efficacy evaluation at 2 weeks after hospitalization indicated that 11 patients (14.1%) had deteriorated, and 67 patients (85.9%) had improved/stabilized. The patients in the progression group were significantly older than those in the disease improvement/stabilization group (66 [51, 70] vs. 37 [32, 41] years, U = 4.932, P = 0.001). The progression group had a significantly higher proportion of patients with a history of smoking than the improvement/stabilization group (27.3% vs. 3.0%, chi = 9.291, P = 0.018). For all the 78 patients, fever was the most common initial symptom, and the maximum body temperature at admission was significantly higher in the progression group than in the improvement/stabilization group (38.2 [37.8, 38.6] vs. 37.5 [37.0, 38.4] degrees C, U = 2.057, P = 0.027). Moreover, the proportion of patients with respiratory failure (54.5% vs. 20.9%, chi = 5.611, P = 0.028) and respiratory rate (34 [18, 48] vs. 24 [16, 60] breaths/min, U = 4.030, P = 0.004) were significantly higher in the progression group than in the improvement/stabilization group. C-reactive protein was significantly elevated in the progression group compared to the improvement/stabilization group (38.9 [14.3, 64.8] vs. 10.6 [1.9, 33.1] mg/L, U = 1.315, P = 0.024). Albumin was significantly lower in the progression group than in the improvement/stabilization group (36.62 +/- 6.60 vs. 41.27 +/- 4.55 g/L, U = 2.843, P = 0.006). Patients in the progression group were more likely to receive high-level respiratory support than in the improvement/stabilization group (chi = 16.01, P = 0.001). Multivariate logistic analysis indicated that age (odds ratio [OR], 8.546; 95% confidence interval [CI]: 1.628-44.864; P = 0.011), history of smoking (OR, 14.285; 95% CI: 1.577-25.000; P = 0.018), maximum body temperature at admission (OR, 8.999; 95% CI: 1.036-78.147, P = 0.046), respiratory failure (OR, 8.772, 95% CI: 1.942-40.000; P = 0.016), albumin (OR, 7.353, 95% CI: 1.098-50.000; P = 0.003), and C-reactive protein (OR, 10.530; 95% CI: 1.224-34.701, P = 0.028) were risk factors for disease progression. CONCLUSIONS: Several factors that led to the progression of COVID-19 pneumonia were identified, including age, history of smoking, maximum body temperature on admission, respiratory failure, albumin, C-reactive protein. These results can be used to further

enhance the ability of management of COVID-19 pneumonia.

Lu, S., et al. (2020). "Alert for non-respiratory symptoms of Coronavirus Disease 2019 (COVID-19) patients in epidemic period: A case report of familial cluster with three asymptomatic COVID-19 patients." J Med Virol.

At present, Coronavirus Disease 2019 (COVID-19) is rampaging around the world. However, asymptomatic carriers intensified the difficulty of prevention and management. Here we reported the screening, clinical feathers, and treatment process of a family cluster involving three COVID-19 patients. The discovery of the first asymptomatic carrier in this family cluster depends on the repeated and comprehensive epidemiological investigation by disease control experts. In addition, the combination of multiple detection methods can help clinicians find asymptomatic carriers as early as possible. In conclusion, the prevention and control experience of this family cluster showed that comprehensive rigorous epidemiological investigation and combination of multiple detection methods were of great value for the detection of hidden asymptomatic carriers. This article is protected by copyright. All rights reserved.

Lu, T. and H. Pu (2020). "Computed Tomography Manifestations of 5 Cases of the Novel Coronavirus Disease 2019 (COVID-19) Pneumonia From Patients Outside Wuhan." J Thorac Imaging.

Clinical, laboratory, and computed tomography (CT) findings of 5 cases of the novel Coronavirus Disease 2019 (COVID-19) pneumonia from patients outside of Wuhan were reviewed. The human-to-human transmission of the virus may explain the infection of the disease outside of Wuhan. CT examination is important in the early detection and follow-up of the disease. With a history of exposure or travelling, symptoms of fever and cough, and the typical CT manifestation such as ground-glass opacity with a peripheral distribution, we should also think of the possibility of the COVID-19 pneumonia in patients outside of Wuhan.

Ma, K., et al. (2020). "[Management and clinical thinking of Coronavirus Disease 2019]." Zhonghua Gan Zang Bing Za Zhi **28**(0): E002.

In December 2019, the 2019 novel coronavirus pneumonia (NCP, officially named Coronavirus Disease 2019(COVID-19) by the World Health Organization) broke out in Wuhan, Hubei, and it quickly spread to the whole country and abroad. The situation was at stake. The sudden and serious COVID-19 epidemic has brought us a lot of urgent

problems. How to effectively control the spread of COVID-19? When does the population infection rate rise to its peak? What will eventually be the number of infected patients? How to make early diagnosis? What effective antiviral drugs are available? How to effectively treat with existing drugs? Can it successfully improve the survival rate of critically patients? In response to the above questions, we put forward corresponding suggestions and reflections from the perspective of the infectious clinician.

Ma, S. Y., et al. (2020). "[Recommendations for the regulation of medical practices of burn treatment during the outbreak of the coronavirus disease 2019]." Zhonghua Shao Shang Za Zhi **36**(0): E004.

2019 novel coronavirus (2019-nCoV) is one of the beta coronaviruses and was identified as the pathogen of the severe "coronavirus disease 2019 (COVID-19)" in 2019. China has formally included the 2019-nCoV in the statutory notification and control system for infectious diseases according to the Law of the People's Republic of China on the Prevention and Treatment of Infectious Diseases. Currently, the national defending actions on the 2019-nCoV in China is in a critical period. Burn Department is also confronted with risk of infection by the 2019-nCoV. According to the guidelines on the diagnosis and treatment of COVID-19 (6(th) trial edition), the latest relative literature at home and abroad, the features of the COVID-19, recommendations for the COVID-19 prevention and control issued by the National Health Commission of China, and management experience of diagnosis and treatment in the related disciplines, we put forward recommendations for the medical practices of burn treatment during the outbreak of the COVID-19 in outpatient and emergency treatment, inpatient treatment, operation and ward management, etc. We hope these recommendations could benefit the professionals of the same occupation as us and related hospital managers, improve the treatment of burn during the outbreak of the COVID-19, and avoid or reduce the risk of infection of medical staff.

Ma, X. L., et al. (2020). "Management strategies of neonatal jaundice during the coronavirus disease 2019 outbreak." World J Pediatr.

The outbreak of coronavirus disease 2019 (COVID-19; formally known as 2019-nCoV) has become a most challenging health emergency. Owing to rigorous quarantine and control measures taken in China, routine neonatal health surveillance and follow-up have become challenging. Without follow-up surveillance, some rapid and progressive newborn diseases, such as bilirubin encephalopathy, may be ignored. The characteristics of onset age of kernicterus suggest that monitoring of bilirubin level at home

provides a useful way to alert hospital visits and to prevent the development of extremely hyperbilirubinemia. Therefore, we developed an online follow-up program for convenient monitoring of bilirubin level of newborns that is based on our practical experiences. The aim is to make our management strategies of neonatal jaundice tailored to the infection prevention and control during the COVID-19 epidemic.

Maffioli, E. M. (2020). "How Is the World Responding to the 2019 Coronavirus Disease Compared with the 2014 West African Ebola Epidemic? The Importance of China as a Player in the Global Economy." Am J Trop Med Hyg.

This article describes similarities and differences in the response of governments and the international community to the current 2019 coronavirus disease (COVID-19) and the 2014 West African Ebola epidemic. It expresses the opinion that the speed and scale of the response to the 2019 COVID-19 are affected by the important role that China plays in the global economy. By contrast, insufficient and less timely action was initially undertaken in West African countries during the 2014 Ebola epidemic. It concludes by stating why preparedness for and response to all disease outbreaks, also in countries of lower economic importance, should become a priority in the global health agenda.

Mandal, S., et al. (2020). "Prudent public health intervention strategies to control the coronavirus disease 2019 transmission in India: A mathematical model-based approach." Indian J Med Res.

Background & objectives::Coronavirus disease 2019 (COVID-19) has raised urgent questions about containment and mitigation, particularly in countries where the virus has not yet established human-to-human transmission. The objectives of this study were to find out if it was possible to prevent, or delay, the local outbreaks of COVID-19 through restrictions on travel from abroad and if the virus has already established in-country transmission, to what extent would its impact be mitigated through quarantine of symptomatic patients?" Methods::These questions were addressed in the context of India, using simple mathematical models of infectious disease transmission. While there remained important uncertainties in the natural history of COVID-19, using hypothetical epidemic curves, some key findings were illustrated that appeared insensitive to model assumptions, as well as highlighting critical data gaps. Results::It was assumed that symptomatic quarantine would identify and quarantine 50 per cent of symptomatic individuals within three days of developing symptoms. In an optimistic scenario of the

basic reproduction number (R00) being 1.5, and asymptomatic infections lacking any infectiousness, such measures would reduce the cumulative incidence by 62 per cent. In the pessimistic scenario of R0=4, and asymptomatic infections being half as infectious as symptomatic, this projected impact falls to two per cent. Interpretation & conclusions::Port-of-entry-based entry screening of travellers with suggestive clinical features and from COVID-19-affected countries, would achieve modest delays in the introduction of the virus into the community. Acting alone, however, such measures would be insufficient to delay the outbreak by weeks or longer. Once the virus establishes transmission within the community, quarantine of symptomatics may have a meaningful impact on disease burden. Model projections are subject to substantial uncertainty and can be further refined as more is understood about the natural history of infection of this novel virus. As a public health measure, health system and community preparedness would be critical to control any impending spread of COVID-19 in the country.

McNeary, L., et al. (2020). "Navigating Coronavirus Disease 2019 (Covid-19) in Physiatry: A CAN report for Inpatient Rehabilitation Facilities." PM R.
We are facing a global pandemic in relation to coronavirus disease 2019 (Covid-19). Emergency preparedness plans often do not consider issues specific to inpatient rehabilitation facilities. The CAN model can be used to prepare for natural disasters, including the COVID-19 pandemic. This report was created to aid specialists in acute Inpatient Rehabilitation Facilities. This article is protected by copyright. All rights reserved.

Meng, L., et al. (2020). "Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine." J Dent Res: 22034520914246.
The epidemic of coronavirus disease 2019 (COVID-19), originating in Wuhan, China, has become a major public health challenge for not only China but also countries around the world. The World Health Organization announced that the outbreaks of the novel coronavirus have constituted a public health emergency of international concern. As of February 26, 2020, COVID-19 has been recognized in 34 countries, with a total of 80,239 laboratory-confirmed cases and 2,700 deaths. Infection control measures are necessary to prevent the virus from further spreading and to help control the epidemic situation. Due to the characteristics of dental settings, the risk of cross infection can be high between patients and dental practitioners. For dental practices and hospitals in areas that are (potentially) affected with COVID-19, strict and effective infection control protocols are urgently needed. This article, based on our experience and relevant guidelines and research, introduces essential knowledge about COVID-19 and nosocomial infection in dental settings and provides recommended management protocols for dental practitioners and students in (potentially) affected areas.

Michaels, M. G., et al. (2020). "Coronavirus disease 2019: Implications of emerging infections for transplantation." Am J Transplant.
The recent identification of an outbreak of 2019-novel Coronavirus is currently evolving, and the impact on transplantation is unknown. However, it is imperative that we anticipate the potential impact on the transplant community in order to avert severe consequences of this infection on both the transplant community and contacts of transplant patients.

Mizumoto, K. and G. Chowell (2020). "Estimating Risk for Death from 2019 Novel Coronavirus Disease, China, January-February 2020." Emerg Infect Dis 26(6).
Since December 2019, when the first case of 2019 novel coronavirus disease (COVID-19) was identified in the city of Wuhan in the Hubei Province of China, the epidemic has generated tens of thousands of cases throughout China. As of February 28, 2020, the cumulative number of reported deaths in China was 2,858. We estimated the time-delay adjusted risk for death from COVID-19 in Wuhan, as well as for China excluding Wuhan, to assess the severity of the epidemic in the country. Our estimates of the risk for death in Wuhan reached values as high as 12% in the epicenter of the epidemic and approximately 1% in other, more mildly affected areas. The elevated death risk estimates are probably associated with a breakdown of the healthcare system, indicating that enhanced public health interventions, including social distancing and movement restrictions, should be implemented to bring the COVID-19 epidemic under control.

Mizumoto, K., et al. (2020). "Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020." Euro Surveill 25(10).
On 5 February 2020, in Yokohama, Japan, a cruise ship hosting 3,711 people underwent a 2-week quarantine after a former passenger was found with COVID-19 post-disembarking. As at 20 February, 634 persons on board tested positive for the causative virus. We conducted statistical modelling to derive the delay-adjusted asymptomatic proportion of infections, along

with the infections' timeline. The estimated asymptomatic proportion was 17.9% (95% credible interval (CrI): 15.5-20.2%). Most infections occurred before the quarantine start.

Nguyen, T., et al. (2020). "2019 Novel Coronavirus Disease (COVID-19): Paving the Road for Rapid Detection and Point-of-Care Diagnostics." Micromachines (Basel) **11**(3).
We believe a point-of-care (PoC) device for the rapid detection of the 2019 novel Coronavirus (SARS-CoV-2) is crucial and urgently needed. With this perspective, we give suggestions regarding a potential candidate for the rapid detection of the coronavirus disease 2019 (COVID-19), as well as factors for the preparedness and response to the outbreak of the COVID-19.

Okada, P., et al. (2020). "Early transmission patterns of coronavirus disease 2019 (COVID-19) in travellers from Wuhan to Thailand, January 2020." Euro Surveill **25**(8).
We report two cases of coronavirus disease 2019 (COVID-19) in travellers from Wuhan, China to Thailand. Both were independent introductions on separate flights, discovered with thermoscanners and confirmed with RT-PCR and genome sequencing. Both cases do not seem directly linked to the Huanan Seafood Market in Hubei but the viral genomes are identical to four other sequences from Wuhan, suggesting early spread within the city already in the first week of January.

Park, J. Y., et al. (2020). "First Pediatric Case of Coronavirus Disease 2019 in Korea." J Korean Med Sci **35**(11): e124.
The large outbreak of coronavirus disease 2019 (COVID-19) that started in Wuhan, China has now spread to many countries worldwide. Current epidemiologic knowledge suggests that relatively few cases are seen among children, which limits opportunities to address pediatric specific issues on infection control and the children's contribution to viral spread in the community. Here, we report the first pediatric case of COVID-19 in Korea. The 10-year-old girl was a close contact of her uncle and her mother who were confirmed to have COVID-19. In this report, we present mild clinical course of her pneumonia that did not require antiviral treatment and serial viral test results from multiple specimens. Lastly, we raise concerns on the optimal strategy of self-quarantine and patient care in a negative isolation room for children.

Rasmussen, S. A., et al. (2020). "Coronavirus Disease 2019 (COVID-19) and Pregnancy: What obstetricians need to know." Am J Obstet Gynecol.

Coronavirus Disease 2019 (COVID-19) is an emerging disease with a rapid increase in cases and deaths since its first identification in Wuhan, China, in December 2019. Limited data are available about COVID-19 during pregnancy; however, information on illnesses associated with other highly pathogenic coronaviruses (i.e., severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS)) might provide insights into COVID-19's effects during pregnancy.

Rello, J., et al. (2020). "Coronavirus Disease 2019 (COVID-19): A critical care perspective beyond China." Anaesth Crit Care Pain Med.

Ren, S. Y., et al. (2020). "Fear can be more harmful than the severe acute respiratory syndrome coronavirus 2 in controlling the corona virus disease 2019 epidemic." World J Clin Cases **8**(4): 652-657.
The current corona virus disease 2019 outbreak caused by severe acute respiratory syndrome coronavirus 2 started in Wuhan, China in December 2019 and has put the world on alert. To safeguard Chinese citizens and to strengthen global health security, China has made great efforts to control the epidemic. Many in the global community have joined China to limit the epidemic. However, discrimination and prejudice driven by fear or misinformation have been flowing globally, superseding evidence and jeopardizing the anti-severe acute respiratory syndrome coronavirus 2 efforts. We analyze this phenomenon and its underlying causes and suggest practical solutions.

Salehi, S., et al. (2020). "Coronavirus Disease 2019 (COVID-19): A Systematic Review of Imaging Findings in 919 Patients." AJR Am J Roentgenol: 1-7.
OBJECTIVE. Available information on CT features of the 2019 novel coronavirus disease (COVID-19) is scattered in different publications, and a cohesive literature review has yet to be compiled. MATERIALS AND METHODS. This article includes a systematic literature search of PubMed, Embase (Elsevier), Google Scholar, and the World Health Organization database. RESULTS. Known features of COVID-19 on initial CT include bilateral multilobar ground-glass opacification (GGO) with a peripheral or posterior distribution, mainly in the lower lobes and less frequently within the right middle lobe. Atypical initial imaging presentation of consolidative opacities superimposed on GGO may be found in a smaller number of cases, mainly in the elderly population. Septal thickening, bronchiectasis, pleural thickening, and subpleural involvement are some of the less common findings, mainly in the later stages of the disease. Pleural effusion, pericardial effusion,

lymphadenopathy, cavitation, CT halo sign, and pneumothorax are uncommon but may be seen with disease progression. Follow-up CT in the intermediate stage of disease shows an increase in the number and size of GGOs and progressive transformation of GGO into multifocal consolidative opacities, septal thickening, and development of a crazy paving pattern, with the greatest severity of CT findings visible around day 10 after the symptom onset. Acute respiratory distress syndrome is the most common indication for transferring patients with COVID-19 to the ICU and the major cause of death in this patient population. Imaging patterns corresponding to clinical improvement usually occur after week 2 of the disease and include gradual resolution of consolidative opacities and decrease in the number of lesions and involved lobes. CONCLUSION. This systematic review of current literature on COVID-19 provides insight into the initial and follow-up CT characteristics of the disease.

Seah, I. and R. Agrawal (2020). "Can the Coronavirus Disease 2019 (COVID-19) Affect the Eyes? A Review of Coronaviruses and Ocular Implications in Humans and Animals." Ocul Immunol Inflamm: 1-5.

In December 2019, a novel coronavirus (CoV) epidemic, caused by the severe acute respiratory syndrome coronavirus - 2 (SARS-CoV-2) emerged from China. This virus causes the coronavirus disease 2019 (COVID-19). Since then, there have been anecdotal reports of ocular infection. The ocular implications of human CoV infections have not been widely studied. However, CoVs have been known to cause various ocular infections in animals. Clinical entities such as conjunctivitis, anterior uveitis, retinitis, and optic neuritis have been documented in feline and murine models. In this article, the current evidence suggesting possible human CoV infection of ocular tissue is reviewed. The review article will also highlight animal CoVs and their associated ocular infections. We hope that this article will serve as a start for further research into the ocular implications of human CoV infections.

Shen, Z., et al. (2020). "Genomic diversity of SARS-CoV-2 in Coronavirus Disease 2019 patients." Clin Infect Dis.

BACKGROUND: A novel coronavirus (SARS-CoV-2) has infected more than 75,000 individuals and spread to over 20 countries. It is still unclear how fast the virus evolved and how the virus interacts with other microorganisms in the lung. METHODS: We have conducted metatranscriptome sequencing for the bronchoalveolar lavage fluid of eight SARS-CoV-2 patients, 25 community-acquired pneumonia (CAP)

patients, and 20 healthy controls. RESULTS: The median number of intra-host variants was 1-4 in SARS-CoV-2 infected patients, which ranged between 0 and 51 in different samples. The distribution of variants on genes was similar to those observed in the population data (110 sequences). However, very few intra-host variants were observed in the population as polymorphism, implying either a bottleneck or purifying selection involved in the transmission of the virus, or a consequence of the limited diversity represented in the current polymorphism data. Although current evidence did not support the transmission of intra-host variants in a person-to-person spread, the risk should not be overlooked. The microbiota in SARS-CoV-2 infected patients was similar to those in CAP, either dominated by the pathogens or with elevated levels of oral and upper respiratory commensal bacteria. CONCLUSION: SARS-CoV-2 evolves in vivo after infection, which may affect its virulence, infectivity, and transmissibility. Although how the intra-host variant spreads in the population is still elusive, it is necessary to strengthen the surveillance of the viral evolution in the population and associated clinical changes.

Shi, Y. (2020). "[What are the highlights of "Diagnosis and treatment of Disease 2019 novel coronavirus infection suitable for Military support Hubei medical team"]." Zhonghua Jie He He Hu Xi Za Zhi 43(0): E025.

Thousands of medical workers in the Military support Hubei medical team are exerting themselves in many hospitals in Hubei Province. They are diligent in treating patients, at the same time, they constantly summarize experience and combine the characteristics of military hospitals. According to " the Diagnosis and Treatment of New Coronavirus Pneumonia "(6th edition) of the National Health Commission of the People's Republic of China, a new guideline for the diagnosis and treatment of 2019 novel coronavirus infection suitable for the military (first trial version) was established. Some unique opinions and suggestions are put forward in terms of disease name, diagnosis criteria, antiviral treatment, glucocorticoid application, etc. This article will make a proper interpretation in order to understand the guideline better and help guide the diagnosis and treatment of diseases.

Si, Y., et al. (2020). "[Countermeasures and treatment for aortic acute syndrome with 2019 coronavirus disease]." Zhonghua Wai Ke Za Zhi 58(3): 178-182.

The 2019 coronavirus disease (COVID-19) has cost a great loss to the health and economic property of Chines people. Under such a special circumstance,

how to deal with such patients with acute aortic syndrome has become a serious challenge. Rapid diagnosis of concomitant COVID-19, safe and effective transportation, implementation of the interventional procedure, protection of vascular surgical team and postoperative management and follow-up of such patients have become urgent problems for us. Combined with the latest novel government documents, the literature and the experiences from Wuhan, we answered the above questions briefly and plainly. We also hope to inspire the national vascular surgeons to manage critical emergencies in vascular surgery and even routine vascular diseases with COVID-19, as a final point to limit the severe epidemic situation, and minimize the damage of COVID-19.

Singhal, T. (2020). "A Review of Coronavirus Disease-2019 (COVID-19)." Indian J Pediatr **87**(4): 281-286.

There is a new public health crises threatening the world with the emergence and spread of 2019 novel coronavirus (2019-nCoV) or the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus originated in bats and was transmitted to humans through yet unknown intermediary animals in Wuhan, Hubei province, China in December 2019. There have been around 96,000 reported cases of coronavirus disease 2019 (COVID-2019) and 3300 reported deaths to date (05/03/2020). The disease is transmitted by inhalation or contact with infected droplets and the incubation period ranges from 2 to 14 d. The symptoms are usually fever, cough, sore throat, breathlessness, fatigue, malaise among others. The disease is mild in most people; in some (usually the elderly and those with comorbidities), it may progress to pneumonia, acute respiratory distress syndrome (ARDS) and multi organ dysfunction. Many people are asymptomatic. The case fatality rate is estimated to range from 2 to 3%. Diagnosis is by demonstration of the virus in respiratory secretions by special molecular tests. Common laboratory findings include normal/ low white cell counts with elevated C-reactive protein (CRP). The computerized tomographic chest scan is usually abnormal even in those with no symptoms or mild disease. Treatment is essentially supportive; role of antiviral agents is yet to be established. Prevention entails home isolation of suspected cases and those with mild illnesses and strict infection control measures at hospitals that include contact and droplet precautions. The virus spreads faster than its two ancestors the SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV), but has lower fatality. The global impact of this new epidemic is yet uncertain.

Spiteri, G., et al. (2020). "First cases of coronavirus disease 2019 (COVID-19) in the WHO European Region, 24 January to 21 February 2020." Euro Surveill **25**(9).

In the WHO European Region, COVID-19 surveillance was implemented 27 January 2020. We detail the first European cases. As at 21 February, nine European countries reported 47 cases. Among 38 cases studied, 21 were linked to two clusters in Germany and France, 14 were infected in China. Median case age was 42 years; 25 were male. Late detection of the clusters' index cases delayed isolation of further local cases. As at 5 March, there were 4,250 cases.

Subspecialty Group of, H. and S. o. P. o. H. Oncology (2020). "[Standardized management guideline for pediatric wards of hematology and oncology during the epidemic of coronavirus disease 2019]." Zhongguo Dang Dai Er Ke Za Zhi **22**(3): 177-182.

With the spread of coronavirus disease 2019 (COVID-19) and growing knowledge of its diagnosis and treatment, it has been clear that children are also susceptible to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The children with hematological tumors are a special population with immunosuppression and special therapeutic characteristics. Here the management guideline for pediatric wards of hematology and oncology during COVID-19 epidemic is established based on the features of children with hematological tumors.

Sun, D., et al. (2020). "Clinical features of severe pediatric patients with coronavirus disease 2019 in Wuhan: a single center's observational study." World J Pediatr.

BACKGROUND: An outbreak of coronavirus disease 2019 (COVID-19) caused by SARS-CoV-2 was first detected in Wuhan, Hubei, China. People of all ages are susceptible to SARS-CoV-2 infection. No information on severe pediatric patients with COVID-19 has been reported. We aimed to describe the clinical features of severe pediatric patients with COVID-19. METHODS: We included eight severe or critically ill patients with COVID-19 who were treated at the Intensive Care Unit (ICU), Wuhan Children's Hospital from January 24 to February 24. We collected information including demographic data, symptoms, imaging data, laboratory findings, treatments and clinical outcomes of the patients with severe COVID-19. RESULTS: The onset age of the eight patients ranged from 2 months to 15 years; six were boys. The most common symptoms were polypnea (8/8), followed by fever (6/8) and cough (6/8). Chest imaging showed multiple patch-like shadows in seven patients and ground-glass opacity in six. Laboratory

findings revealed normal or increased whole blood counts (7/8), increased C-reactive protein, procalcitonin and lactate dehydrogenase (6/8), and abnormal liver function (4/8). Other findings included decreased CD16 + CD56 (4/8) and Th/Ts*(1/8), increased CD3 (2/8), CD4 (4/8) and CD8 (1/8), IL-6 (2/8), IL-10 (5/8) and IFN-gamma (2/8). Treatment modalities were focused on symptomatic and respiratory support. Two critically ill patients underwent invasive mechanical ventilation. Up to February 24, 2020, three patients remained under treatment in ICU, the other five recovered and were discharged home. CONCLUSIONS: In this series of severe pediatric patients in Wuhan, polypnea was the most common symptom, followed by fever and cough. Common imaging changes included multiple patch-like shadows and ground-glass opacity; and a cytokine storm was found in these patients, which appeared more serious in critically ill patients.

Tao, K. X., et al. (2020). "[Recommendations for general surgery clinical practice in 2019 coronavirus disease situation]." Zhonghua Wai Ke Za Zhi **58**(3): 170-177.

The 2019 coronavirus disease (COVID-19) is a highly infectious disease, has a long incubation period and a variety of clinical manifestations, which has a significant impact on public health and life. Afterwards, scientific and standardized work processing during the epidemic is of great significance for prevention and control. In order to implement the central government's decision-making deployment and defeat the COVID-19 as soon as possible, we had focused on the key points in the clinical work of general surgery according to latest relevant guidelines, literature and experience in epidemic prevention. Finally, we drafted the prevention and control strategies and recommendations to make a reference for medical staff of general surgery to fight against COVID-19.

The Lancet Infectious, D. (2020). "Challenges of coronavirus disease 2019." Lancet Infect Dis **20**(3): 261.

Thomas-Ruddel, D., et al. (2020). "[Coronavirus disease 2019 (COVID-19): update for anesthesiologists and intensivists March 2020]." Anaesthesist.

The current outbreak of coronavirus disease (COVID-19) has reached Germany. The majority of people infected present with mild disease, but there are severe cases that need intensive care. Unlike other acute infectious diseases progressing to sepsis, the severe courses of COVID19 seemingly show prolonged progression from onset of first symptoms to life-threatening deterioration of (primarily) lung function. Diagnosis relies on PCR using specimens from the respiratory tract. Severe ARDS reflects the hallmark of a critical course of the disease. Preventing nosocomial infections (primarily by correct use of personal protective equipment) and maintenance of hospitals' operational capability are of utmost importance. Departments of Anaesthesia, Intensive Care and emergency medicine will envisage major challenges.

Wang, C., et al. (2020). "Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China." Int J Environ Res Public Health **17**(5).

Background: The 2019 coronavirus disease (COVID-19) epidemic is a public health emergency of international concern and poses a challenge to psychological resilience. Research data are needed to develop evidence-driven strategies to reduce adverse psychological impacts and psychiatric symptoms during the epidemic. The aim of this study was to survey the general public in China to better understand their levels of psychological impact, anxiety, depression, and stress during the initial stage of the COVID-19 outbreak. The data will be used for future reference. Methods: From 31 January to 2 February 2020, we conducted an online survey using snowball sampling techniques. The online survey collected information on demographic data, physical symptoms in the past 14 days, contact history with COVID-19, knowledge and concerns about COVID-19, precautionary measures against COVID-19, and additional information required with respect to COVID-19. Psychological impact was assessed by the Impact of Event Scale-Revised (IES-R), and mental health status was assessed by the Depression, Anxiety and Stress Scale (DASS-21). Results: This study included 1210 respondents from 194 cities in China. In total, 53.8% of respondents rated the psychological impact of the outbreak as moderate or severe; 16.5% reported moderate to severe depressive symptoms; 28.8% reported moderate to severe anxiety symptoms; and 8.1% reported moderate to severe stress levels. Most respondents spent 20-24 h per day at home (84.7%); were worried about their family members contracting COVID-19 (75.2%); and were satisfied with the amount of health information available (75.1%). Female gender, student status, specific physical symptoms (e.g., myalgia, dizziness, coryza), and poor self-rated health status were significantly associated with a greater psychological impact of the outbreak and higher levels of stress, anxiety, and depression ($p < 0.05$). Specific up-to-date and accurate

health information (e.g., treatment, local outbreak situation) and particular precautionary measures (e.g., hand hygiene, wearing a mask) were associated with a lower psychological impact of the outbreak and lower levels of stress, anxiety, and depression ($p < 0.05$). Conclusions: During the initial phase of the COVID-19 outbreak in China, more than half of the respondents rated the psychological impact as moderate-to-severe, and about one-third reported moderate-to-severe anxiety. Our findings identify factors associated with a lower level of psychological impact and better mental health status that can be used to formulate psychological interventions to improve the mental health of vulnerable groups during the COVID-19 epidemic.

Wang, H., et al. (2020). "Phase-adjusted estimation of the number of Coronavirus Disease 2019 cases in Wuhan, China." Cell Discov **6**: 10.

An outbreak of clusters of viral pneumonia due to a novel coronavirus (2019-nCoV/SARS-CoV-2) happened in Wuhan, Hubei Province in China in December 2019. Since the outbreak, several groups reported estimated R 0 of Coronavirus Disease 2019 (COVID-19) and generated valuable prediction for the early phase of this outbreak. After implementation of strict prevention and control measures in China, new estimation is needed. An infectious disease dynamics SEIR (Susceptible, Exposed, Infectious, and Removed) model was applied to estimate the epidemic trend in Wuhan, China under two assumptions of R t. In the first assumption, R t was assumed to maintain over 1. The estimated number of infections would continue to increase throughout February without any indication of dropping with R t = 1.9, 2.6, or 3.1. The number of infections would reach 11,044, 70,258, and 227,989, respectively, by 29 February 2020. In the second assumption, R t was assumed to gradually decrease at different phases from high level of transmission (R t = 3.1, 2.6, and 1.9) to below 1 (R t = 0.9 or 0.5) owing to increasingly implemented public health intervention. Several phases were divided by the dates when various levels of prevention and control measures were taken in effect in Wuhan. The estimated number of infections would reach the peak in late February, which is 58,077-84,520 or 55,869-81,393. Whether or not the peak of the number of infections would occur in February 2020 may be an important index for evaluating the sufficiency of the current measures taken in China. Regardless of the occurrence of the peak, the currently strict measures in Wuhan should be continuously implemented and necessary strict public health measures should be applied in other locations in China with high number of COVID-19 cases, in order to reduce R t to an ideal level and control the infection.

Wang, Z., et al. (2020). "Clinical Features of 69 Cases with Coronavirus Disease 2019 in Wuhan, China." Clin Infect Dis.

BACKGROUND: From December 2019 to February 2020, 2019 severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused a serious outbreak of coronavirus disease 2019 (COVID-19) in Wuhan, China. Related clinical features are needed. METHODS: We reviewed 69 patients who were hospitalized in Union hospital in Wuhan between January 16 to January 29, 2020. All patients were confirmed to be infected with SARS-CoV-2 and the final date of follow-up was February 4, 2020. RESULTS: The median age of 69 enrolled patients was 42.0 years (IQR 35.0-62.0), and 32 patients (46%) were men. The most common symptoms were fever (60[87%]), cough (38[55%]), and fatigue (29[42%]). Most patients received antiviral therapy (66 [98.5%] of 67 patients) and antibiotic therapy (66 [98.5%] of 67 patients). As of February 4, 2020, 18 (26.9%) of 67 patients had been discharged, and five patients had died, with a mortality rate of 7.5%. According to the lowest SpO2 during admission, cases were divided into the SpO2>/=90% group (n=55) and the SpO2<90% group (n=14). All 5 deaths occurred in the SpO2<90% group. Compared with SpO2>/=90% group, patients of the SpO2<90% group were older, and showed more comorbidities and higher plasma levels of IL6, IL10, lactate dehydrogenase, and c reactive protein. Arbidol treatment showed tendency to improve the discharging rate and decrease the mortality rate. CONCLUSIONS: COVID-19 appears to show frequent fever, dry cough, and increase of inflammatory cytokines, and induced a mortality rate of 7.5%. Older patients or those with underlying comorbidities are at higher risk of death.

Won, J., et al. (2020). "Development of a Laboratory-safe and Low-cost Detection Protocol for SARS-CoV-2 of the Coronavirus Disease 2019 (COVID-19)." Exp Neurobiol.

The severe acute respiratory coronavirus 2 (SARS-CoV-2), which emerged in December 2019 in Wuhan, China, has spread rapidly to over a dozen countries. Especially, the spike of case numbers in South Korea sparks pandemic worries. This virus is reported to spread mainly through personto- person contact via respiratory droplets generated by coughing and sneezing, or possibly through surface contaminated by people coughing or sneezing on them. More critically, there have been reports about the possibility of this virus to transmit even before a virus-carrying person to show symptoms. Therefore, a low-cost, easy-access protocol for early detection of this virus is desperately needed. Here, we have established a real-time reverse-transcription PCR (rtPCR)-based

assay protocol composed of easy specimen self-collection from a subject via pharyngeal swab, Trizolbased RNA purification, and SYBR Green-based rtPCR. This protocol shows an accuracy and sensitivity limit of 1-10 virus particles as we tested with a known lentivirus. The cost for each sample is estimated to be less than 15 US dollars. Overall time it takes for an entire protocol is estimated to be less than 4 hours. We propose a cost-effective, quick-and-easy method for early detection of SARS-CoV-2 at any conventional Biosafety Level II laboratories that are equipped with a rtPCR machine. Our newly developed protocol should be helpful for a first-hand screening of the asymptomatic virus-carriers for further prevention of transmission and early intervention and treatment for the rapidly propagating virus.

Wu, C., et al. (2020). "Risk Factors Associated With Acute Respiratory Distress Syndrome and Death in Patients With Coronavirus Disease 2019 Pneumonia in Wuhan, China." JAMA Intern Med.

Importance: Coronavirus disease 2019 (COVID-19) is an emerging infectious disease that was first reported in Wuhan, China, and has subsequently spread worldwide. Risk factors for the clinical outcomes of COVID-19 pneumonia have not yet been well delineated. Objective: To describe the clinical characteristics and outcomes in patients with COVID-19 pneumonia who developed acute respiratory distress syndrome (ARDS) or died. Design, Setting, and Participants: Retrospective cohort study of 201 patients with confirmed COVID-19 pneumonia admitted to Wuhan Jinyintan Hospital in China between December 25, 2019, and January 26, 2020. The final date of follow-up was February 13, 2020. Exposures: Confirmed COVID-19 pneumonia. Main Outcomes and Measures: The development of ARDS and death. Epidemiological, demographic, clinical, laboratory, management, treatment, and outcome data were also collected and analyzed. Results: Of 201 patients, the median age was 51 years (interquartile range, 43-60 years), and 128 (63.7%) patients were men. Eighty-four patients (41.8%) developed ARDS, and of those 84 patients, 44 (52.4%) died. In those who developed ARDS, compared with those who did not, more patients presented with dyspnea (50 of 84 [59.5%] patients and 30 of 117 [25.6%] patients, respectively [difference, 33.9%; 95% CI, 19.7%-48.1%]) and had comorbidities such as hypertension (23 of 84 [27.4%] patients and 16 of 117 [13.7%] patients, respectively [difference, 13.7%; 95% CI, 1.3%-26.1%]) and diabetes (16 of 84 [19.0%] patients and 6 of 117 [5.1%] patients, respectively [difference, 13.9%; 95% CI, 3.6%-24.2%]). In bivariate Cox regression analysis, risk factors associated with the development of ARDS and progression from ARDS to death included older age (hazard ratio [HR], 3.26; 95% CI 2.08-5.11; and HR, 6.17; 95% CI, 3.26-11.67, respectively), neutrophilia (HR, 1.14; 95% CI, 1.09-1.19; and HR, 1.08; 95% CI, 1.01-1.17, respectively), and organ and coagulation dysfunction (eg, higher lactate dehydrogenase [HR, 1.61; 95% CI, 1.44-1.79; and HR, 1.30; 95% CI, 1.11-1.52, respectively] and D-dimer [HR, 1.03; 95% CI, 1.01-1.04; and HR, 1.02; 95% CI, 1.01-1.04, respectively]). High fever (>/=39 degrees C) was associated with higher likelihood of ARDS development (HR, 1.77; 95% CI, 1.11-2.84) and lower likelihood of death (HR, 0.41; 95% CI, 0.21-0.82). Among patients with ARDS, treatment with methylprednisolone decreased the risk of death (HR, 0.38; 95% CI, 0.20-0.72). Conclusions and Relevance: Older age was associated with greater risk of development of ARDS and death likely owing to less rigorous immune response. Although high fever was associated with the development of ARDS, it was also associated with better outcomes among patients with ARDS. Moreover, treatment with methylprednisolone may be beneficial for patients who develop ARDS.

Xiao, H., et al. (2020). "The Effects of Social Support on Sleep Quality of Medical Staff Treating Patients with Coronavirus Disease 2019 (COVID-19) in January and February 2020 in China." Med Sci Monit 26: e923549.

BACKGROUND Coronavirus disease 2019 (COVID-19), formerly known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and 2019 novel coronavirus (2019-nCoV), was first identified in December 2019 in Wuhan City, China. Structural equation modeling (SEM) is a multivariate analysis method to determine the structural relationship between measured variables. This observational study aimed to use SEM to determine the effects of social support on sleep quality and function of medical staff who treated patients with COVID-19 in January and February 2020 in Wuhan, China. MATERIAL AND METHODS A one-month cross-sectional observational study included 180 medical staff who treated patients with COVID-19 infection. Levels of anxiety, self-efficacy, stress, sleep quality, and social support were measured using the and the Self-Rating Anxiety Scale (SAS), the General Self-Efficacy Scale (GSES), the Stanford Acute Stress Reaction (SASR) questionnaire, the Pittsburgh Sleep Quality Index (PSQI), and the Social Support Rate Scale (SSRS), respectively. Pearson's correlation analysis and SEM identified the interactions between these factors. RESULTS Levels of social support for medical staff were significantly associated with self-efficacy and sleep quality and negatively associated with the degree of anxiety and stress. Levels of anxiety

were significantly associated with the levels of stress, which negatively impacted self-efficacy and sleep quality. Anxiety, stress, and self-efficacy were mediating variables associated with social support and sleep quality. CONCLUSIONS SEM showed that medical staff in China who were treating patients with COVID-19 infection during January and February 2020 had levels of anxiety, stress, and self-efficacy that were dependent on sleep quality and social support.

Xiao, H., et al. (2020). "Social Capital and Sleep Quality in Individuals Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in January 2020 in China." Med Sci Monit **26**: e923921.

BACKGROUND From the end of December 2019, coronavirus disease 2019 (COVID-19) began to spread in central China. Social capital is a measure of social trust, belonging, and participation. This study aimed to investigate the effects of social capital on sleep quality and the mechanisms involved in people who self-isolated at home for 14 days in January 2020 during the COVID-19 epidemic in central China. MATERIAL AND METHODS Individuals (n=170) who self-isolated at home for 14 days in central China, completed self-reported questionnaires on the third day of isolation. Individual social capital was assessed using the Personal Social Capital Scale 16 (PSCI-16) questionnaire. Anxiety was assessed using the Self-Rating Anxiety Scale (SAS) questionnaire, stress was assessed using the Stanford Acute Stress Reaction (SASR) questionnaire, and sleep was assessed using the Pittsburgh Sleep Quality Index (PSQI) questionnaire. Path analysis was performed to evaluate the relationships between a dependent variable (social capital) and two or more independent variables, using Pearson's correlation analysis and structural equation modeling (SEM). RESULTS Low levels of social capital were associated with increased levels of anxiety and stress, but increased levels of social capital were positively associated with increased quality of sleep. Anxiety was associated with stress and reduced sleep quality, and the combination of anxiety and stress reduced the positive effects of social capital on sleep quality. CONCLUSIONS During a period of individual self-isolation during the COVID-19 virus epidemic in central China, increased social capital improved sleep quality by reducing anxiety and stress.

Xing, Y., et al. (2020). "Post-discharge surveillance and positive virus detection in two medical staff recovered from coronavirus disease 2019 (COVID-19), China, January to February 2020." Euro Surveill **25**(10).

Since December 2019, 62 medical staff of Zhongnan Hospital in Wuhan, China have been hospitalised with coronavirus disease 2019. During the post-discharge surveillance after clinical recovery, swabs were positive in two asymptomatic cases (3.23%). Case 1 had presented typical clinical and radiological manifestations on admission, while manifestation in Case 2 was very mild. In conclusion, a small proportion of recovered patients may test positive after discharge, and post-discharge surveillance and isolation need to be strengthened.

Xu, Y., et al. (2020). "[Clinical Management of Lung Cancer Patients during the Outbreak of 2019 Novel Coronavirus Disease (COVID-19)]." Zhongguo Fei Ai Za Zhi **23**(3): 136-141.

Since late December 2019, an outbreak of 2019 novel coronavirus diseases (COVID-19) in Wuhan, China has spread quickly nationwide. With the spread of COVID-19, the routine clinical diagnosis and treatment for lung cancer patients has been disturbed. Due to the systemic immunosuppressive of lung cancer patients caused by the malignancy and anticancer treatments, lung cancer patients are more susceptible to infection than healthy individuals. Furthermore, patients with cancer had poorer prognosis from infection. Lung cancer patients should be the priority group for COVID-19 prevention. The protection provisions and control measures aiming to protect lung cancer patients from COVID-19 have been increasingly concerned. During the COVID-19 outbreak period, it should be carefully differentiated for fever and respiratory symptoms for lung cancer patients receiving anti-tumor treatment, in order to evaluate the risk of COVID-19. Moreover, it is necessary to carry out meticulous and individualized clinical management for lung cancer patients to effectively protect the patients from COVID-19.

Yan, Y., et al. (2020). "Consensus of Chinese experts on protection of skin and mucous membrane barrier for healthcare workers fighting against coronavirus disease 2019." Dermatol Ther: e13310.

Health professions preventing and controlling Coronavirus Disease 2019 are prone to skin and mucous membrane injury, which may cause acute and chronic dermatitis, secondary infection and aggravation of underlying skin diseases. This is a consensus of Chinese experts on protective measures and advice on hand-cleaning- and medical-glove-related hand protection, mask- and goggles-related face protection, UV-related protection, eye protection, nasal and oral mucosa protection, outer ear and hair protection. It is necessary to strictly follow standards of wearing protective equipment and specification of sterilizing and cleaning. Insufficient and excessive

protection will have adverse effects on the skin and mucous membrane barrier. At the same time, using moisturizing products is highly recommended to achieve better protection. This article is protected by copyright. All rights reserved.

Yang, L., et al. (2020). "[Diagnostic and therapeutic strategies of lung cancer patients during the outbreak of 2019 novel coronavirus disease (COVID-19)]." Zhonghua Zhong Liu Za Zhi **42**(0): E006.

With the increasing number of cases and widening geographical spread, the 2019 novel coronavirus disease (COVID-19) has been classified as one of the class B infectious diseases but prevented and controlled as class A infectious disease by the National Health Commission of China. The diagnosis and treatment of lung cancer patients have been challenged greatly because of extraordinary public health measures since the lung cancer patients are a high-risk population during the COVID-19 outbreak period. Strict protection for lung cancer patients is needed to avoid infection. Lung cancer patients are difficult to differentiate from patients with COVID-19 in terms of clinical symptoms, which will bring great trouble to the clinical work and physical and mental health of lung cancer patients. This review will demonstrate how to applicate appropriate and individual management for lung cancer patients to protect them from COVID-19.

Yang, W., et al. (2020). "Clinical characteristics and imaging manifestations of the 2019 novel coronavirus disease (COVID-19):A multi-center study in Wenzhou city, Zhejiang, China." J Infect **80**(4): 388-393.

BACKGROUND: Little is known about COVID-19 outside Hubei. The aim of this paper was to describe the clinical characteristics and imaging manifestations of hospitalized patients with confirmed COVID-19 infection in Wenzhou, Zhejiang, China. METHODS: In this retrospective cohort study, 149 RT-PCR confirmed positive patients were consecutively enrolled from January 17th to February 10th, 2020 in three tertiary hospitals of Wenzhou. Outcomes were followed up until Feb 15th, 2020. FINDINGS: A total of 85 patients had Hubei travel/residence history, while another 49 had contact with people from Hubei and 15 had no traceable exposure history to Hubei. Fever, cough and expectoration were the most common symptoms, 14 patients had decreased oxygen saturation, 33 had leukopenia, 53 had lymphopenia, and 82 had elevated C-reactive protein. On chest computed tomography (CT), lung segments 6 and 10 were mostly involved. A total of 287 segments presented ground glass opacity,

637 presented mixed opacity and 170 presented consolidation. Lesions were more localized in the peripheral lung with a patchy form. No significant difference was found between patients with or without Hubei exposure history. Seventeen patients had normal CT on admission of these, 12 had negative findings even10 days later. INTERPRETATION: Most patients presented with a mild infection in our study. The imaging pattern of multifocal peripheral ground glass or mixed opacity with predominance in the lower lung is highly suspicious of COVID-19 in the first week of disease onset. Nevertheless, some patients can present with a normal chest finding despite testing positive for COVID-19. FUNDING: We did not receive any fundings.

Ye, Z., et al. (2020). "Chest CT manifestations of new coronavirus disease 2019 (COVID-19): a pictorial review." Eur Radiol.

Coronavirus disease 2019 (COVID-19) outbreak, first reported in Wuhan, China, has rapidly swept around the world just within a month, causing global public health emergency. In diagnosis, chest computed tomography (CT) manifestations can supplement parts of limitations of real-time reverse transcription polymerase chain reaction (RT-PCR) assay. Based on a comprehensive literature review and the experience in the frontline, we aim to review the typical and relatively atypical CT manifestations with representative COVID-19 cases at our hospital, and hope to strengthen the recognition of these features with radiologists and help them make a quick and accurate diagnosis.Key Points * Ground glass opacities, consolidation, reticular pattern, and crazy paving pattern are typical CT manifestations of COVID-19. * Emerging atypical CT manifestations, including airway changes, pleural changes, fibrosis, nodules, etc., were demonstrated in COVID-19 patients. * CT manifestations may associate with the progression and prognosis of COVID-19.

Yoon, S. H., et al. (2020). "Chest Radiographic and CT Findings of the 2019 Novel Coronavirus Disease (COVID-19): Analysis of Nine Patients Treated in Korea." Korean J Radiol **21**(4): 494-500.

OBJECTIVE: This study presents a preliminary report on the chest radiographic and computed tomography (CT) findings of the 2019 novel coronavirus disease (COVID-19) pneumonia in Korea. MATERIALS AND METHODS: As part of a multi-institutional collaboration coordinated by the Korean Society of Thoracic Radiology, we collected nine patients with COVID-19 infections who had undergone chest radiography and CT scans. We analyzed the radiographic and CT findings of COVID-19 pneumonia at baseline. Fisher's exact test was used

to compare CT findings depending on the shape of pulmonary lesions. RESULTS: Three of the nine patients (33.3%) had parenchymal abnormalities detected by chest radiography, and most of the abnormalities were peripheral consolidations. Chest CT images showed bilateral involvement in eight of the nine patients, and a unilobar reversed halo sign in the other patient. In total, 77 pulmonary lesions were found, including patchy lesions (39%), large confluent lesions (13%), and small nodular lesions (48%). The peripheral and posterior lung fields were involved in 78% and 67% of the lesions, respectively. The lesions were typically ill-defined and were composed of mixed ground-glass opacities and consolidation or pure ground-glass opacities. Patchy to confluent lesions were primarily distributed in the lower lobes (p = 0.040) and along the pleura (p < 0.001), whereas nodular lesions were primarily distributed along the bronchovascular bundles (p = 0.006). CONCLUSION: COVID-19 pneumonia in Korea primarily manifested as pure to mixed ground-glass opacities with a patchy to confluent or nodular shape in the bilateral peripheral posterior lungs. A considerable proportion of patients with COVID-19 pneumonia had normal chest radiographs.

Yu, H., et al. (2020). "Reverse Logistics Network Design for Effective Management of Medical Waste in Epidemic Outbreaks: Insights from the Coronavirus Disease 2019 (COVID-19) Outbreak in Wuhan (China)." Int J Environ Res Public Health **17**(5).

The outbreak of an epidemic disease may pose significant treats to human beings and may further lead to a global crisis. In order to control the spread of an epidemic, the effective management of rapidly increased medical waste through establishing a temporary reverse logistics system is of vital importance. However, no research has been conducted with the focus on the design of an epidemic reverse logistics network for dealing with medical waste during epidemic outbreaks, which, if improperly treated, may accelerate disease spread and pose a significant risk for both medical staffs and patients. Therefore, this paper proposes a novel multi-objective multi-period mixed integer program for reverse logistics network design in epidemic outbreaks, which aims at determining the best locations of temporary facilities and the transportation strategies for effective management of the exponentially increased medical waste within a very short period. The application of the model is illustrated with a case study based on the outbreak of the coronavirus disease 2019 (COVID-19) in Wuhan, China. Even though the uncertainty of the future COVID-19 spread tendency is very high at the time of this research, several general policy recommendations can still be obtained based on

computational experiments and quantitative analyses. Among other insights, the results suggest installing temporary incinerators may be an effective solution for managing the tremendous increase of medical waste during the COVID-19 outbreak in Wuhan, but the location selection of these temporary incinerators is of significant importance. Due to the limitation on available data and knowledge at present stage, more real-world information are needed to assess the effectiveness of the current solution.

Zhao, L., et al. (2020). "[The treatment proposal for the patients with breast diseases in the central epidemic area of 2019 coronavirus disease]." Zhonghua Wai Ke Za Zhi **58**(0): E005.

Currently, the epidemic of 2019 coronavirus disease (COVID-19) is still ongoing. The characteristics including high contagiousness, herd susceptibility and clinical phenotype diversity, made a serious influence on people's daily life and routine therapy for other diseases. Breast dieases are clinical common diseases. In the central epidemic area of COVID-19, Hubei province, especially Wuhan, the clinical specialists of breast diseases should consider all of the following factors comprehensively: the prevention of COVID-19, the diagnosis and treatment of breast diseases and the accessibility of medical resources. Besides, we should select the appropriate therapy and optimize treatment process so as to prevent the propagation and cross infection of COVID-19 as well as manage the breast diseases without delay. Therefore, we carried out some management proposals of the patients with breast diseases in the central epidemic area during the epidemic of COVID-19 on the basis of conventional treatment guidelines and clinical experiences. The suggestions and corrections from colleagues will be welcomed.

Zhao, Z., et al. (2020). "[Individualized treatment recommendations for lung cancer patients at different stages of treatment during the outbreak of 2019 novel coronavirus disease epidemic]." Zhonghua Zhong Liu Za Zhi **42**(0): E007.

In order to achieve the overall victory of the 2019 novel coronavirus disease epidemic in this 'war', especially to prevent the disease recurrence from rebounding during the resumption of labor, the government has not loosened any control of personnel mobility, which has obviously affected the normal examination and treatment of lung cancer patients under the influence of this epidemic. During the epidemic period, cancer patients with low immunity levels face the double ordeals of disease and epidemic situation. Compared with the general population, they are more likely to be infected with the new

coronavirus. Among the infected cancer patients, lung cancer is the most common type. It is necessary to provide more appropriate individualized treatment recommendations for patients with lung cancer based on the epidemic situation of the patient's location and in combination with the patient's own condition. Through active prevention of infection, timely conversion of treatment strategies, online and offline joint control, and positive psychological counseling, we significantly hope to help patients with lung cancer to survive this difficult period.

Zheng, F., et al. (2020). "Clinical Characteristics of Children with Coronavirus Disease 2019 in Hubei, China." Curr Med Sci.

Since December 2019, COVID-19 has occurred unexpectedly and emerged as a health problem worldwide. Despite the rapidly increasing number of cases in subsequent weeks, the clinical characteristics of pediatric cases are rarely described. A cross-sectional multicenter study was carried out in 10 hospitals across Hubei province. A total of 25 confirmed pediatric cases of COVID-19 were collected. The demographic data, epidemiological history, underlying diseases, clinical manifestations, laboratory and radiological data, treatments, and outcomes were analyzed. Of 25 hospitalized patients with COVID-19, the boy to girl ratio was 1.27:1. The median age was 3 years. COVID-19 cases in children aged <3 years, 3.6 years, and >/=6-years patients were 10 (40%), 6 (24%), and 9 (36%), respectively. The most common symptoms at onset of illness were fever (13 [52%]), and dry cough (11 [44%]). Chest CT images showed essential normal in 8 cases (33.3%), unilateral involvement of lungs in 5 cases (20.8%), and bilateral involvement in 11 cases (45.8%). Clinical diagnoses included upper respiratory tract infection (n=8), mild pneumonia (n=15), and critical cases (n=2). Two critical cases (8%) were given invasive mechanical ventilation, corticosteroids, and immunoglobulin. The symptoms in 24 (96%) of 25 patients were alleviated and one patient had been discharged. It was concluded that children were susceptible to COVID-19 like adults, while the clinical presentations and outcomes were more favorable in children. However, children less than 3 years old accounted for majority cases and critical cases lied in this age group, which demanded extra attentions during home caring and hospitalization treatment.

Zhong, Q., et al. (2020). "[CT imaging features of patients with different clinical types of coronavirus disease 2019 (COVID-19)]." Zhejiang Da Xue Xue Bao Yi Xue Ban **49**(1): 0.

OBJECTIVE: To analyze the CT findings of patients with different clinical types of coronavirus

disease 2019 (COVID-19). METHODS: A total of 67 patients diagnosed as COVID-19 by nucleic acid testing were included and divided into 4 groups according to the clinical staging based on Diagnosis and treatment of novel coronavirus pneumonia (Trial version 6). The CT imaging characteristics were analyzed among patients with different clinical types. RESULTS: Among 67 patients, 3 (4.5%) were mild cases, 35 (52.2%) were ordinary cases, 22 (32.8%) were severe cases, and 7 (10.4%) were critically ill. There were no abnormal CT findings in mild cases. In 35 ordinary cases, there were single lesions in 3 cases (8.6%) and multiple lesions in 33 cases (91.4%), while in severe case 1 case had single lesion (4.5%) and 21 had multiple lesions (95.5%). CT images of ordinary patients were mainly manifested as solid plaque shadow and halo sign (18/35, 51.4%); while fibrous strip shadow with ground glass shadow was more frequent in severe cases (7/22, 31.8%). Consolidation shadow as the main lesion was observed in 7 cases, and all of them were severe or critical ill patients. CONCLUSIONS: CT images in patients with different clinical types of COVID-19 have characteristic manifestations, and solid shadow may predict severe and critical illness.

Zhou, S., et al. (2020). "CT Features of Coronavirus Disease 2019 (COVID-19) Pneumonia in 62 Patients in Wuhan, China." AJR Am J Roentgenol: 1-8.

OBJECTIVE. The purpose of this study was to investigate 62 subjects in Wuhan, China, with laboratory-confirmed coronavirus disease (COVID-19) pneumonia and describe the CT features of this epidemic disease. MATERIALS AND METHODS. A retrospective study of 62 consecutive patients with laboratory-confirmed COVID-19 pneumonia was performed. CT images and clinical data were reviewed. Two thoracic radiologists evaluated the distribution and CT signs of the lesions and also scored the extent of involvement of the CT signs. The Mann-Whitney U test was used to compare lesion distribution and CT scores. The chi-square test was used to compare the CT signs of early-phase versus advanced-phase COVID-19 pneumonia. RESULTS. A total of 62 patients (39 men and 23 women; mean [+/- SD] age, 52.8 +/- 12.2 years; range, 30-77 years) with COVID-19 pneumonia were evaluated. Twenty-four of 30 patients who underwent routine blood tests (80.0%) had a decreased lymphocyte count. Of 27 patients who had their erythrocyte sedimentation rate and high-sensitivity C-reactive protein level assessed, 18 (66.7%) had an increased erythrocyte sedimentation rate, and all 27 (100.0%) had an elevated high-sensitivity C-reactive protein level. Multiple lesions were seen on the initial CT scan of 52 of 62 patients

(83.9%). Forty-eight of 62 patients (77.4%) had predominantly peripheral distribution of lesions. The mean CT score for the upper zone (3.0 +/- 3.4) was significantly lower than that for the middle (4.5 +/- 3.8) and lower (4.5 +/- 3.7) zones (p = 0.022 and p = 0.020, respectively), and there was no significant difference in the mean CT score of the middle and lower zones (p = 1.00). The mean CT score for the anterior area (4.4 +/- 4.1) was significantly lower than that for the posterior area (7.7 +/- 6.3) (p = 0.003). CT findings for the patients were as follows: 25 patients (40.3%) had ground-glass opacities (GGO), 21 (33.9%), consolidation; 39 (62.9%), GGO plus a reticular pattern; 34 (54.8%), vacuolar sign; 28 (45.2%), microvascular dilation sign; 35 (56.5%), fibrotic streaks; 21 (33.9%), a subpleural line; and 33 (53.2%), a subpleural transparent line. With regard to bronchial changes seen on CT, 45 patients (72.6%) had air bronchogram, and 11 (17.7%) had bronchus distortion. In terms of pleural changes, CT showed that 30 patients (48.4%) had pleural thickening, 35 (56.5%) had pleural retraction sign, and six (9.7%) had pleural effusion. Compared with early-phase disease (</= 7 days after the onset of symptoms), advanced-phase disease (8-14 days after the onset of symptoms) was characterized by significantly increased frequencies of GGO plus a reticular pattern, vacuolar sign, fibrotic streaks, a subpleural line, a subpleural transparent line, air bronchogram, bronchus distortion, and pleural effusion; however, GGO significantly decreased in advanced-phase disease. CONCLUSION. CT examination of patients with COVID-19 pneumonia showed a mixed and diverse pattern with both lung parenchyma and the interstitium involved. Identification of GGO and a single lesion on the initial CT scan suggested early-phase disease. CT signs of aggravation and repair coexisted in advanced-phase disease. Lesions presented with a characteristic multifocal distribution in the middle and lower lung regions and in the posterior lung area. A decreased lymphocyte count and an increased high-sensitivity C-reactive protein level were the most common laboratory findings.

Zhou, Y., et al. (2020). "[Clinical features and chest CT findings of coronavirus disease 2019 in infants and young children]." Zhongguo Dang Dai Er Ke Za Zhi **22**(3): 215-220.

OBJECTIVE: To study the clinical features and chest CT findings of coronavirus disease 2019 (COVID-19) in infants and young children. METHODS: A retrospective analysis was performed for the clinical data and chest CT images of 9 children, aged 0 to 3 years, who were diagnosed with COVID-19 by nucleic acid detection between January 20 and February 10, 2020. RESULTS: All 9 children had an epidemiological history, and family clustering was observed for all infected children. Among the 9 children with COVID-19, 5 had no symptoms, 4 had fever, 2 had cough, and 1 had rhinorrhea. There were only symptoms of the respiratory system. Laboratory examination showed no reductions in leukocyte or lymphocyte count. Among the 9 children, 6 had an increase in lymphocyte count and 2 had an increase in leukocyte count. CT examination showed that among the 9 children, 8 had pulmonary inflammation located below the pleura or near the interlobar fissure and 3 had lesions distributed along the bronchovascular bundles. As for the morphology of the lesions, 6 had nodular lesions and 7 had patchy lesions; ground glass opacity with consolidation was observed in 6 children, among whom 3 had halo sign, and there was no typical paving stone sign. CONCLUSIONS: Infants and young children with COVID-19 tend to have mild clinical symptoms and imaging findings not as typical as those of adults, and therefore, the diagnosis of COVID-19 should be made based on imaging findings along with epidemiological history and nucleic acid detection. Chest CT has guiding significance for the early diagnosis of asymptomatic children.

Zhu, G. D. and J. Cao (2020). "[Challenges and countermeasures on Chinese malaria elimination programme during the coronavirus disease 2019 (COVID-19) outbreak]." Zhongguo Xue Xi Chong Bing Fang Zhi Za Zhi **32**(1): 7-9.

Since the end of 2019, the coronavirus disease 2019 (COVID-19) has been extensively epidemic in China, which not only seriously threatens the safety and health of Chinese people, but also challenges the management of other infectious diseases. Currently, there are still approximately three thousand malaria cases imported into China every year. If the diagnosis and treatment of malaria cases as well as the investigation and response of the epidemic foci are not carried out timely, it may endanger patients'lives and cause the possible of secondary transmission, which threatens the achievements of malaria elimination in China. Due to the extensive spread and high transmission ability of the COVID-19, there is a possibility of virus infections among malaria cases during the medical care-seeking behaviors and among healthcare professionals during clinical diagnosis and treatment, sample collection and testing and epidemiological surveys. This paper analyzes the challenges of the COVID-19 for Chinese malaria elimination programme, and proposes the countermeasures in response to the COVID-19 outbreak, so as to provide the reference for healthcare professionals.

Zhu, W., et al. (2020). "Initial clinical features of suspected coronavirus disease 2019 in two emergency departments outside of Hubei, China." J Med Virol.

With an increasing number of Coronavirus Disease 2019 (COVID-19) cases outside of Hubei, emergency departments (EDs) and fever clinics are facing challenges posed by the large number of admissions of patients suspected to have COVID-19. Therefore, it is of crucial importance to study the initial clinical features of patients, to better differentiate between infected and uninfected patients outside Hubei. A total of 116 patients suspected of having COVID-19 who presented to two emergency departments in Anhui for the first time between 24 January 2020 and 20 February 2020 were enrolled in the study. The initial clinical data of these patients, such as epidemiological features, symptoms, laboratory results, and chest computed tomography (CT) findings were collected using a standard case report form on admission. Thirty-two patients were diagnosed with COVID-19; the remaining 84 patients were referred to as negative cases. The median age of the diagnosed patients was 46 years, but only 35 years for negative cases. History of exposure to Wuhan or COVID-19 patients in the previous 2 weeks was observed in 63% of the diagnosed and 44% of negative cases. Median time from illness onset to ED admission was 5 days for all patients, diagnosed patients, and negative cases, respectively. Fever was observed in 27 (84%) and 57 (68%) diagnosed and negative cases, respectively. Nineteen (59%) diagnosed and 24 (29%) negative cases had lymphopenia on admission in ED. A chest CT scan on admission revealed the presence of pneumonia in the majority of the diagnosed patients (30 out of 32, 94%) and in 56 (67%) negative cases. Bilateral involvement and ground-glass opacity (GGO) were present in 91% and 47% of the diagnosed patients. Thirty-two patients were diagnosed with COVID-19; the remaining 84 patients were referred to as negative cases. The median age of the diagnosed patients was 46 years, but only 35 years for negative cases. History of exposure to Wuhan or COVID-19 patients in the previous 2 weeks was observed in 63% of the diagnosed and 44% of negative cases. Median time from illness onset to ED admission was 5 days for all patients, diagnosed patients, and negative cases, respectively. Fever was observed in 27 (84%) and 57 (68%) diagnosed and negative cases, respectively. Nineteen (59%) diagnosed and 24 (29%) negative cases had lymphopenia on admission in ED. A chest CT scan on admission revealed the presence of pneumonia in the majority of the diagnosed patients (30 out of 32, 94%) and in 56 (67%) negative cases. Bilateral involvement and GGO were present in 91% and 47% of the diagnosed patients.

Zhu, W. J., et al. (2020). "[The differential diagnosis of pulmonary infiltrates in cancer patients during the outbreak of the 2019 novel coronavirus disease]." Zhonghua Zhong Liu Za Zhi **42**(0): E008.

Objective: To investigate the principles of differential diagnosis of pulmonary infiltrates in cancer patients during the outbreak of novel coronavirus (2019-nCoV) by analyzing one case of lymphoma who presented pulmonary ground-glass opacities (GGO) after courses of chemotherapy. Methods: Baseline demographics and clinicopathological data of eligible patients were retrieved from medical records. Information of clinical manifestations, history of epidemiology, lab tests and chest CT scan images of visiting patients from February 13 to February 28 were collected. Literatures about pulmonary infiltrates in cancer patients were searched from databases including PUBMED, EMBASE and CNKI. Results: Among the 139 cancer patients underwent chest CT scans before chemotherapy, pulmonary infiltrates were identified in eight patients (5.8%), five of whom were characterized as GGOs in lungs. 2019-nCoV nuclear acid testing was performed in three patients and the results were negative. One case was a 66-year-old man diagnosed as non-Hodgkin lymphoma and underwent CHOP chemotherapy regimen. His chest CT scan image displayed multiple GGOs in lungs and the complete blood count showed decreased lymphocytes. This patient denied any contact with confirmed/suspected cases of 2019-nCoV infection and without fever and other respiratory symptoms. Considering the negative result of nuclear acid testing, this patient was presumptively diagnosed as viral pneumonia and an experiential anti-infection treatment had been prescribed for him. Conclusions: The 2019 novel coronavirus disease (COVID-19) complicates the clinical scenario of pulmonary infiltrates in cancer patients. The epidemic history, clinical manifestation, CT scan image and lab test should be combined consideration. The 2019-nCoV nuclear acid testing might be applicated in more selected patients. Active anti-infection treatment and surveillance of patient condition should be initiated if infectious disease is considered.

Zhu, Y., et al. (2020). "Clinical and CT imaging features of 2019 novel coronavirus disease (COVID-19)." J Infect.

Zu, Z. Y., et al. (2020). "Coronavirus Disease 2019 (COVID-19): A Perspective from China." Radiology: 200490.

In December 2019, an outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection occurred in Wuhan, Hubei Province, China

and spread across China and beyond. On February 12, 2020, WHO officially named the disease caused by the novel coronavirus as Coronavirus Disease 2019 (COVID-19). Since most COVID-19 infected patients were diagnosed with pneumonia and characteristic CT imaging patterns, radiological examinations have become vital in early diagnosis and assessment of disease course. To date, CT findings have been recommended as major evidence for clinical diagnosis of COVID-19 in Hubei, China. This review focuses on the etiology, epidemiology, and clinical symptoms of COVID-19, while highlighting the role of chest CT in prevention and disease control. A full translation of this article in Chinese is available.

Zuo, M. Z., et al. (2020). "Expert Recommendations for Tracheal Intubation in Critically ill Patients with Noval Coronavirus Disease 2019." Chin Med Sci J.

Coronavirus Disease 2019 (COVID-19), caused by a novel coronavirus (SARS-CoV-2), is a highly contagious disease. It firstly appeared in Wuhan, Hubei province of China in December 2019. During the next two months, it moved rapidly throughout China and spread to multiple countries through infected persons travelling by air. Most of the infected patients have mild symptoms including fever, fatigue and cough. But in severe cases, patients can progress rapidly and develop to the acute respiratory distress syndrome, septic shock, metabolic acidosis and coagulopathy. The new coronavirus was reported to spread via droplets, contact and natural aerosols from human-to-human. Therefore, high-risk aerosol-producing procedures such as endotracheal intubation may put the anesthesiologists at high risk of nosocomial infections. In fact, SARS-CoV-2 infection of anesthesiologists after endotracheal intubation for confirmed COVID-19 patients have been reported in hospitals in Wuhan. The expert panel of airway management in Chinese Society of Anaesthesiology has deliberated and drafted this recommendation, by which we hope to guide the performance of endotracheal intubation by frontline anesthesiologists and critical care physicians. During the airway management, enhanced droplet/airborne PPE should be applied to the health care providers. A good airway assessment before airway intervention is of vital importance. For patients with normal airway, awake intubation should be avoided and modified rapid sequence induction is strongly recommended. Sufficient muscle relaxant should be assured before intubation. For patients with difficult airway, good preparation of airway devices and detailed intubation plans should be made.

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