“Must reads” (12/02/2020)


In January 2020, an increasing number of cases confirmed to be infected with 2019-nCoV were detected outside Wuhan. For 88 cases detected between 20 and 28 January, the travel history (to and) from Wuhan is known, as well as their symptom onset date. Their ages range from 2 to 72 years of age (information missing for four cases); 31 were female and 57 were male. During this initial stage of the epidemic, it is most likely that these travellers were infected in Wuhan. Consequently, their time spent in Wuhan can be taken as the duration of exposure to infection. Of these 88 cases with known travel history, 63 were Wuhan residents who travelled elsewhere and 25 were visitors who stayed in Wuhan for a limited time. By taking the date of symptom onset and travel history together, we inferred the possible incubation period for each of these cases. The data used for this analysis has been translated from Chinese sources such as provincial centres of disease control, and made publicly available [8]. We took the data as available on 29 January 2020 (Supplementary Material S1).

Categories: **must reads**; EPI
Full text: https://doi.org/10.2807/1560-7917.ES.2020.25.5.2000062


Infections with 2019-nCoV can spread from person to person, and in the earliest phase of the outbreak the basic reproductive number was estimated to be around 2.2, assuming a mean serial interval of 7.5 days [2]. The serial interval was not precisely estimated, and a potentially shorter mean serial interval would have corresponded to a slightly lower basic reproductive number. Control measures and changes in population behaviour later in January should have reduced the effective reproductive number. However, it is too early to estimate whether the effective reproductive number has been reduced to below the critical threshold of 1 because cases currently being detected and reported would have mostly been infected in mid- to late-January. Average delays between infection and illness onset have been estimated at around 5–6 days, with an upper limit of around 11-14 days [2,5], and delays from illness onset to laboratory confirmation added a further 10 days on average [2].

Categories: **must reads**; EPI
Full text: https://doi.org/10.2807/1560-7917.ES.2020.25.6.2000110

Topics: case series, clinical, epi, virology (12/02/2020)


With the expanding use of molecular assays, viral pathogens are increasingly recognized among critically ill adult patients with community-acquired severe respiratory illness; studies have detected respiratory viral infections (RVIs) in 17–53% of such patients. In addition, novel pathogens including zoonotic coronaviruses like the agents causing Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and the 2019 novel coronavirus (2019 nCoV) are still being identified. Patients with severe RVIs requiring ICU care present typically with hypoxemic respiratory failure. Oseltamivir is the most widely used neuraminidase inhibitor for treatment of influenza; data suggest that early use is associated with reduced
mortality in critically ill patients with influenza. At present, there are no antiviral therapies of proven efficacy for other severe RVIs. Several adjunctive pharmacologic interventions have been studied for their immunomodulatory effects, including macrolides, corticosteroids, cyclooxygenase-2 inhibitors, sirolimus, statins, anti-influenza immune plasma, and vitamin C, but none is recommended at present in severe RVIs. Evidence-based supportive care is the mainstay for management of severe respiratory viral infection. Non-invasive ventilation in patients with severe RVI causing acute hypoxemic respiratory failure and pneumonia is associated with a high likelihood of transition to invasive ventilation. Limited existing knowledge highlights the need for data regarding supportive care and adjunctive pharmacologic therapy that is specific for critically ill patients with severe RVI. There is a need for more pragmatic and efficient designs to test different therapeutics both individually and in combination.

**Categories:** clinical

**Full text:** [https://doi.org/10.1007/s11427-020-09941-3](https://doi.org/10.1007/s11427-020-09941-3)


BACKGROUND: A novel coronavirus (2019-nCoV) causing an outbreak of pneumonia in Wuhan, Hubei province of China was isolated in January 2020. This study aims to investigate its epidemiologic history, and analyzed the clinical characteristics, treatment regimens, and prognosis of patients infected with 2019-nCoV during this outbreak. METHODS: Clinical data from 137 2019-nCoV-infected patients admitted to the respiratory departments of nine tertiary hospitals in Hubei province from December 30, 2019 to January 24, 2020 were collected, including general status, clinical manifestations, laboratory test results, imaging characteristics, and treatment regimens. RESULTS: None of the 137 patients (61 males, 76 females, aged 20-83 years, mean age 55±16 years) had a definite history of exposure to Huanan Seafood Wholesale Market. Major initial symptoms included fever (112/137, 81.8%), coughing (66/137, 48.2%), and muscle pain or fatigue (44/137, 32.1%), with other, less typical initial symptoms observed at low frequency, including heart palpitations, diarrhea, and headache. Nearly 80% of the patients had normal or decreased white blood cell counts, and 72.3% (99/137) had lymphocytopenia. Lung involvement was present in all cases, with most chest computed tomography scans showing lesions in multiple lung lobes, some of which were dense ground-glass opacity co-existed with consolidation shadows or cord-like shadows. Given the lack of effective drugs, treatment focused on symptomatic and respiratory support. Immunoglobulin G was delivered to some critically ill patients according to their condition. Systemic corticosteroid treatment did not show significant benefits. Notably, early respiratory support facilitated disease recovery and improved prognosis. The risk of death was primarily associated with age, underlying chronic diseases, and median interval from the appearance of initial symptoms to dyspnea. CONCLUSIONS: The majority of patients with 2019-nCoV coronavirus pneumonia present with fever as the first symptom, and most of them still showed typical manifestations of viral pneumonia on chest imaging. Middle-aged and elderly patients with underlying comorbidities are susceptible to respiratory failure and may have a poorer prognosis.

**Categories:** case reports/series

**Full text:** [https://doi.org/10.1007/s41167-020-00099-7](https://doi.org/10.1007/s41167-020-00099-7)


**Categories:** EPI; virology

**Full text:** [https://doi.org/10.1007/s11427-020-1641-5](https://doi.org/10.1007/s11427-020-1641-5)


The outbreak of the 2019-nCoV infection began in December 2019 in Wuhan, Hubei province, and rapidly spread to many provinces in China as well as other countries. Here we report the epidemiological, clinical, laboratory, and radiological characteristics, as well as potential biomarkers for predicting disease severity in 2019-nCoV-infected patients in Shenzhen, China. All 12 cases of the 2019-nCoV-infected patients developed pneumonia and half of them developed acute respiratory distress syndrome (ARDS). The most common laboratory abnormalities were hypoalbuminemia, lymphopenia, decreased percentage of lymphocytes (LYM) and neutrophils (NEU), elevated C-reactive protein (CRP) and lactate dehydrogenase (LDH), and decreased CD8 count. The viral load of 2019-nCoV detected from patient respiratory tracts was positively linked to lung
disease severity. ALB, LYM, LYM (%), LDH, NEU (%), and CRP were highly correlated to the acute lung injury. Age, viral load, lung injury score, and blood biochemical indexes, albumin (ALB), CRP, LDH, LYM (%), LYM, and NEU (%), may be predictors of disease severity. Moreover, the Angiotensin II level in the plasma sample from 2019-nCoV infected patients was markedly elevated and linearly associated to viral load and lung injury. Our results suggest a number of potential diagnosis biomarkers and angiotensin receptor blocker (ARB) drugs for potential repurposing treatment of 2019-nCoV infection.

Categories: clinical
Full text: https://doi.org/10.2807/1560-7917.ES.2020.25.5.2000080

Nishiura, H., et al. (2020). "Initial Cluster of Novel Coronavirus (2019-nCoV) Infections in Wuhan, China Is Consistent with Substantial Human-to-Human Transmission: Reanalysis of the Epidemic Curve from the Initial Cluster of Cases with Novel Coronavirus (2019-nCoV) in December 2019 Indicates Substantial Human-to-Human Transmission. It is Possible that the Common Exposure History at a Seafood Market in Wuhan Originated from the Human-to-Human Transmission Events Within the Market, and the Early, Strong Emphasis That Market Exposure Indicated an Inimal-to-Human Transmission Was Potentially the Result of Observer Bias. To Support the Hypothesis of Zoonotic Origin of 2019-nCoV Stemming from the Huanan Seafood Market, the Index Case Should Have Had Exposure History Related to the Market and the Virus Should Have Been Identified From Animals Sold at the Market. As These Requirements Remain Unmet, Zoonotic Spillover at the Market Must Not Be Overemphasized. The Outbreak of Pneumonia Originating in Wuhan, China, Has Generated 24,500 Confirmed Cases, Including 492 Deaths, As of 5 February 2020. The Virus (2019-nCoV) Has Spread Elsewhere in China and to 24 Countries, Including South Korea, Thailand, Japan and USA. Fortunately, There Has Only Been Limited Human-to-Human Transmission Outside of China. Here, We Assess the Risk of Sustained Transmission Whenever the Coronavirus Arrives in Other Countries. Data Describing the Times from Symptom Onset to Hospitalisation for 47 Patients Infected Early in the Current Outbreak Are Used to Generate an Estimate for the Probability That an Imported Case Is Followed By Sustained Human-to-Human Transmission. Under the Assumptions That the Imported Case Is Representative of the Patients in China, and That the 2019-nCoV Is Similarly Transmissible to the SARS Coronavirus, the Probability That an Imported Case Is Followed by Sustained Human-to-Human Transmission Is 0.41 (Credible Interval [0.27, 0.55]). However, If the Mean Time From Symptom Onset to Hospitalisation Can Be Halved by Intense Surveillance, Then the Probability That an Imported Case Leads to Sustained Transmission Is Only 0.012 (Credible Interval [0, 0.099]). This Emphasises the Importance of Current Surveillance Efforts in Countries Around the World, to Ensure That the Ongoing Outbreak Will Not Become a Global Pandemic.

Categories: EPI; reservoir
Full text: https://doi.org/10.3390/jcm9020488


We simulated 100 2019-nCoV infected travellers planning to board a flight who would pose a risk for seeding transmission in a new region. The duration of travel was considered as the flight time plus a small amount of additional travel time (ca 1 hour) for airport procedures. We assumed that infected individuals will develop symptoms, including fever, at the end of their incubation period (mean 5.2 days (Table)) [8] and progress to more severe symptoms after a few days, resulting in hospitalisation and isolation. We also took into account that individuals may have asymptomatic (subclinical) infection that would not be detected by thermal scanning or cause them to seek medical care, although these individuals may be infectious, and that infected travellers may exhibit severe symptoms during their travel and be hospitalised upon arrival without undergoing entry screening. We then estimated the proportion of infected travellers who would be detected by exit and entry screening, develop severe symptoms during travel, or go undetected, under varying assumptions of: (i) the duration of travel; (ii) the sensitivity of exit and entry screening; (iii) the proportion of asymptomatic infections; (iv) the incubation period and (v) the time from symptom onset to hospitalisation (Table).

Categories: EPI
Full text: https://doi.org/10.2807/1560-7917.ES.2020.25.5.2000080

OBJECTIVES: The 2019 novel coronavirus (2019-nCoV) from Wuhan, China is currently recognized as a public health emergency of global concern. METHODS: We reviewed the currently available literature to provide up-to-date guidance on control measures to be implemented by public health authorities. RESULTS: Some of the epidemiological characteristics of 2019-nCoV have been identified. However, there remain considerable uncertainties, which should be considered when providing guidance to public health authorities on control measures. CONCLUSIONS: Additional studies incorporating more detailed information from confirmed cases would be valuable.

Categories: EPI; systematic reviews
Full text: https://doi.org/10.4178/epih.e2020006


Categories: case reports/series
Full text: https://doi.org/10.3760/cma.j.issn.0578-1310.2020.0006

Topic: editorials, commentaries, narrative reviews (12/02/2020)


A novel epidemic is challenging the global health care system. Starting from probably November to December 2019, another Coronavirus entered the arena of human pathogens, to be then defined 2019-nCoV [...].

Categories: commentaries/reviews/letter
Full text: https://doi.org/10.4081/pr.2020.8495


The seeming precision of the global tallies of cases and deaths caused by the novel coronavirus now spreading from Wuhan, China belies an alarming fact. ... (A study group of the International Committee on Taxonomy of Viruses christened the novel virus severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2, the same day) But many news stories have reported shortages of diagnostics in Hubei.

Categories: commentaries/reviews/letter
Full text: https://doi.org/10.1126/science.abb2651


In a very recent work by a research team led by Drs. Gengfu Xiao, Wu Zhong and Zhihong Hu, the antiviral efficiency of the FDA-approved drugs including ribavirin, penciclovir, nitazoxanide, nafamostat, chloroquine (CQ) and two well-known broad-spectrum antiviral drugs remdesivir (RDV, GS-5734) and favipiravir (T-705) were evaluated against a clinical isolate of 2019-nCoV in a cell culture infection model (Wang et al.2020). The authors found that two compounds CQ (EC50 value = 1.13 μmol/L; CC50 > 100 μmol/L; SI > 88.50) and RDV (EC50 = 0.77 μmol/L; CC50 > 100 μmol/L; SI > 129.87) potently blocked virus infection at low-micromolar concentration and showed high selectivity index (SI). From the in vitro results, these two compounds appear promising to be transformed into clinical drugs for treatment of 2019-nCoV infections.AU - Guo, Deyin

Categories: commentaries/reviews/letter
Full text: https://doi.org/10.1007/s12250-020-00204-7

The novel coronavirus pneumonia (NCP) continues to spread throughout the country, and the prevention and control of the epidemic has entered a critical period. However, southern cities with severe outbreaks are about to enter the seasonal influenza season. We should strengthen the epidemiological investigation, optimize the laboratory testing strategy, take effective measures, strengthen the prevention and control of influenza epidemic, and minimize the interference to the new coronavirus epidemic.

Categories: N/A
Full text: https://doi.org/10.3760/cma.j.issn.0253-9624.2020.0002


This, though, is an official organ of the Chinese state – none more so – showing all sorts of white-fog-spraying devices being deployed outdoors, with the caption “Full-front disinfection work has started in #Wuhan, an effort to contain the spread of #coronavirus”. ... Maybe there’s something in the mix that someone thinks will do some good against coronavirus particles – I doubt if they’re correct, if so – or maybe the whole thing is just meant to show that the Authorities Are Doing Something.

Categories: commentaries/reviews/letter
Full text: https://doi.org/10.1126/scitranslmed.abb2600


The demand for personal protective equipment such as masks and respirators is 100 times the normal level, and costs have skyrocketed to around 20 times their usual price, the World Health Organization has reported.WHO warned of “severe disruption” in the market for personal protective equipment and said that worldwide stocks were “now insufficient” to meet demand. The warning came from ...

Categories: commentaries/reviews/letter
Full text: https://doi.org/10.1136/bmj.m543


The World Health Organization has officially named the disease caused by the coronavirus COVID-19. This will replace various monikers and hashtags given to the emerging illness over the past few weeks. Most recently, on 8 February, China’s National Health Commission decided to temporarily call the disease novel coronavirus pneumonia, or NCP. But because viruses continue to spread from animals to people, this coronavirus won’t be novel for long.

Categories: commentaries/reviews/letter
Full text: https://www.nature.com/articles/d41586-020-00154-w


Categories: commentaries/reviews/letter
Full text: https://doi.org/10.1038/s41564-020-0670-8


Timely detection of novel coronavirus (2019-nCoV) infection cases is crucial to interrupt the spread of this virus. We assessed the required expertise and capacity for molecular detection of 2019-nCoV in specialised laboratories in 30 European Union/European Economic Area (EU/EEA) countries. Thirty-eight laboratories in 24 EU/EEA countries had diagnostic tests available by 29 January 2020. A coverage of all EU/EEA countries was expected by mid-February. Availability of primers/probes, positive controls and personnel were main implementation barriers.

Categories: N/A
Full text: https://doi.org/10.2807/1560-7917.ES.2020.25.6.2000082
A novel epidemic is challenging the global health care system. Starting from probably November to December 2019, another Coronavirus entered the arena of human pathogens, to be then defined 2019-nCoV [...].

Categories: commentaries/reviews/letter
Full text: https://doi.org/10.13175/swjpcc011.21

Categories: commentaries/reviews/letter