SARS-CoV-2 update and request for assistance

**Date:** Monday 30th March 2020  
**Sources:** several see below

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**WHO Coronavirus disease 2019 (COVID-19) - Situation Report 68. 28 March 2020 (1)**

World wide, 571,678 confirmed cases have been reported, and increase of 62,514 since yesterday. 26,494 deaths have been reported, an increase of 3,159. Reported cases and deaths are described from each country.

**Situation update for the EU/EEA and the UK, as of 29 March 2020 (2)**

**The proximal origin of SARS-CoV-2 (3)**

“The genomic features described here may explain in part the infectiousness and transmissibility of SARS-CoV-2 in humans. Although the evidence shows that SARS-CoV-2 is not a purposefully manipulated virus, it is currently impossible to prove or disprove the other theories of its origin described here. However, since we observed all notable SARS-CoV-2 features, including the optimized RBD and polybasic cleavage site, in related coronaviruses in nature, we do not believe that any type of laboratory based scenario is plausible”.

**Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study (4).**

The study provides data showing that the viral load in the throat and sputum is highest at the time clinical illness is diagnosed and declines rapidly thereafter. The study also shows that the viral loads are higher in the elderly.

**SARS-CoV-2 infection in 86 healthcare workers in two Dutch hospitals in March 2020 (5).**

The study was performed on threshold screening in HCWs. Eighty-six (6.4%) out of 1,353 HCWs were infected with SARS-Cov-2.

**COVID-19 in children: the link in the transmission chain (6).**

“Most important finding to come from the present analysis is the clear evidence that children are susceptible to SARS-CoV-2 infection, but frequently do not have notable disease, raising the possibility that children could be facilitators of viral transmission. If children are important in viral transmission and amplification, social and public health policies (eg, avoiding interaction with elderly people) could be established to slow transmission and protect vulnerable populations”.

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ESCMID would like to invite members interested in the COVID-19 outbreak to help us organize a series of Webinars focusing on all aspects of the infection, including treatment, personal protection equipment for health care workers, management in ICU, healthcare infection prevention and control.  
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Case-Fatality Rate and Characteristics of Patients Dying in Relation to COVID-19 in Italy (7).
The study discusses the difference between the case fatality rates, CFR, informed by China and the CFR observed in Italy.

The study found that a large proportion of children were asymptomatic which demonstrates the difficulty in identifying paediatric patients who lack clear epidemiological information.

ESCMID Emerging Infections Task Force comments

The pandemic is spreading fast in most European countries and in the United States. China and South Korea seem to have passed the peak and are now dealing with infections in travellers (China) and low-level activity in the community (South Korea).

Case counts and mortality vary widely between countries, most probably due to different test algorithms with many countries still struggling with inadequate testing capabilities. The varying mortality rates are more difficult to explain.

There is an increasing realisation that seroepidemiological surveys are needed to understand the pandemic and the extent of infected individuals with few or no symptoms.

The past week saw two studies (5,7) demonstrating that children can be infected but have few symptoms. This underlines the difficulty in estimating community spread but supports school closures as part of social distancing.

Nicola Petrosillo and Eskild Petersen
ESCMID Emerging Infections Task Force

Sources

   https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200328-sitrep-68-covid-19.pdf?

2. Situation update for the EU/EEA and the UK, as of 29 March 2020  

   https://www.nature.com/articles/s41591-020-0820-9.pdf

4. Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study  
   To KK-W, Owen Tak-Yin Tsang, Wai-Shing Leung, Anthony Raymond Tam, Tak-Chiu Wu, David Christopher Lung. Lancet Infect Dis 23 March 2020. DOI:  
   https://doi.org/10.1016/S1473-3099(20)30196-1.
https://www.medrxiv.org/content/10.1101/2020.03.23.20041913v1.article-info


6. Case-Fatality Rate and Characteristics of Patients Dying in Relation to COVID-19 in Italy Graziano Onder, MD, PhD1; Giovanni Rezza, MD2; Silvio Brusaferro, MD3 JAMA. Published online 23 March 2020. doi:10.1001/jama.2020.4683 https://jamanetwork.com/journals/jama/fullarticle/2763667


Also in the literature

COVID-19 in Europe: the Italian lesson
Andrea Saglietto, Fabrizio D’Ascenzo, Giuseppe Biondi Zoccai, Gaetano Maria De Ferrari The Lancet, 24 March 2020. DOI: https://doi.org/10.1016/S0140-6736(20)30690-5


“Our projections suggest that premature and sudden lifting of interventions could lead to an earlier secondary peak, which could be flattened by relaxing the interventions gradually. However, there are limitations to our analysis, including large uncertainties around estimates of R0 and the duration of infectiousness”.

SARS-CoV-2: virus dynamics and host response
Yu Chen, Lanjuan Li. The Lancet Infect Dis 23 March 2020. DOI: https://doi.org/10.1016/S1473-3099(20)30235-8

“high viral loads early in the illness suggests that infected patients may be most contagious during that time and raised the possibility of the development of antiviral resistance”.

Noelle BRESLIN et al. AJOG 2020

Clinical characteristics of 113 deceased patients with coronavirus disease 2019: retrospective study. Tao Chen et al. BMJ 2020; 368 DOI: https://doi.org/10.1136/bmj.m1091 (Published 26 March 2020). Cite this as: BMJ 2020;368:m1091

“Concentrations of alanine aminotransferase, aspartate aminotransferase, creatinine, creatine kinase, lactate dehydrogenase, cardiac troponin I, N-terminal pro-brain natriuretic
peptide, and D-dimer were markedly higher in deceased patients than in recovered patients”.

**Fundamental principles of epidemic spread highlight the immediate need for large-scale serological surveys to assess the stage of the SARS-CoV-2 epidemic**
José Lourenço et al. medRxiv 24 March 2020. DOI: [https://doi.org/10.1101/2020.03.24.20042291](https://doi.org/10.1101/2020.03.24.20042291).

**The Italian health system and the COVID-19 challenge**
Benedetta Armocida, Beatrice Formenti, Silvia Ussai, Francesca Palestra, Eduardo Missoni
The Lancet 25 March 2020. DOI: [https://doi.org/10.1016/S2468-2667(20)30074-8](https://doi.org/10.1016/S2468-2667(20)30074-8)

**Treatment for severe acute respiratory distress syndrome from COVID-19**
Michael A Matthay, J Matthew Aldrich, Jeffrey E Gotts
Lancet Respir Med. 20 March 2020. DOI: [https://doi.org/10.1016/S2213-2600(20)30127-2](https://doi.org/10.1016/S2213-2600(20)30127-2)


**The early phase of the COVID-19 outbreak in Lombardy, Italy**

**The effect of control strategies to reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China: a modelling study.** Prem K et al. Lancet Publ Hlth. 25 March 2020. [https://doi.org/10.1016/S2468-2667(20)30073-6](https://doi.org/10.1016/S2468-2667(20)30073-6)


**Care for Critically Ill Patients With COVID-19.** Murthy S et al. JAMA 11 March 2020. [https://jamanetwork.com/](https://jamanetwork.com/) on 03/22/2020

**The early phase of the COVID-19 outbreak in Lombardy, Italy**