



# Options for Preparedness and Response of COVID-19 (SARS-CoV-2)

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## Abstract

Planning is essential during the times of outbreaks and epidemics. Aligning activities at European and international level in the area of public health emergency helped to the efforts of single countries to strengthen their capacities and ensure coordinated and effective support when faced with cross-border health threats.

**Keywords:** Epidemics; Outbreak; SARS-CoV-2

## Introduction

Several coronaviruses can infect humans that tend to cause mild respiratory disease to severe acute respiratory syndrome. On last December 2019, the Wuhan municipal Health commission in China reported cluster of 27 pneumoniases with unknown etiology, including seven critical cases, with a common reported link to Wuhan's Huanan seafood wholesale market (a wholesale fish and live animal market selling different animal species). The market was closed to the public immediately (on 1 January 2020). Samples from the market tested positive for the novel coronavirus. Initially tentatively named 2019 novel coronavirus (2019-nCoV), the virus has now been named SARS-CoV-2 by the International Committee of Taxonomy of Viruses (ICTV) [1,2].

Cases showed symptoms such as fever, dry cough, dyspnea, and bilateral lung infiltrates in radiological examination. On 9 January 2020, China CDC stated that a novel coronavirus (2019-nCoV) had been identified as the causative agent for 15 of the 59 pneumonia cases. Several facts are pertinent on COVID 19 such as, first it belongs to the same family of coronaviruses that caused the SARS outbreak in 2002-2003 and the Middle East Respiratory Syndrome (MERS) outbreak in 2012. Second, the fatality rate is in the range of 1%-3.4%-significantly lower than SARS (10%), MERS (34%) and Ebola (50%), but substantially higher than seasonal flu (0.05%). Third, although, it appears from animal host, it now spreads through human to human contacts and the infection rate of COVID-19 looks to be higher than that for the seasonal flu and MERS, with the range of possible estimates encompassing the infection rates of SARS and Ebola. The number of confirmed cases has risen speedily, first in the PRC and with the potential to become a worldwide pandemic, quickly surpassing the totals from SARS including health workers. Meta-analysis study showed that the distribution of COVID 19 is different in age and sex. The sex ratio was skewed to males and the age distribution was skewed towards older age groups with a median age of 45. The elderly patients are prone to death with the median age of 70 years (IQR 65–81. Heavy skew of infection towards older age groups, with substantially fewer children infected. In Italy, the case fatality rate was increased as age increase (below 1% on age less than 60 years, 3.5% on 60-69 years, 12.5 on 70-79 years, 19.7 on 80-89 years and 22.7 on age ≥ 90 years) [3,4].

## Transmission

COVID-19 is transmitted through droplets and fomites via close (with in about 6 feet) unprotected contact between infected and healthy individuals. Airborne spread has not been a major driver of transmission, however, if droplets can land in the mouths or noses of

people who are nearby or possibly be inhaled into the lungs, it can be transmitted and infect the healthy individual. Fecal shedding has been demonstrated from same patients, and viable virus has been identified in a limited number of cases. However, the fecal-oral route does not appear to be a driver of COVID-19 transmission [5].

**Susceptibility:** As COVID-19 is a newly identified pathogen, there is no known pre-existing immunity in humans.

**Special settings:** We note that instances of transmission have occurred within health care settings prisons and other closed settings.

## How a COVID-2019 Outbreak Could affect Workplaces?

- Absenteeism/none attendance
- Change in patterns of commerce
- Interrupted supply/delivery

## Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2

1. Develop an Infectious Disease Preparedness and Response Plan
2. Prepare to Implement Basic Infection Prevention Measures
3. Develop Policies and Procedures for Prompt
4. Identification and Isolation of Sick People, if Appropriate
5. Develop, Implement, and Communicate about Workplace Flexibilities and Protections
6. Implement Workplace Controls
7. Engineering Controls
8. Administrative Controls

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**Received** March 02, 2020; **Accepted** December 15, 2020; **Published** December 22, 2020

**Citation:** Desalegn T, Melaku T, Alemayehu D, Mulu T, Belayneh K (2020) Options for Preparedness and Response of COVID-19 (SARS-CoV-2). *Epidemiol Sci* 10: 397.

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9. Safe Work Practices
10. Personal Protective Equipment (PPE)
11. Follow Existing Occupational Safety and Health (OSHA) Standards

### Classifying Worker Exposure to COVID 19 (SARS-CoV-2)

1. Very High Exposure Risk
  - A. Healthcare workers
  - B. Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients
  - C. Morgue workers performing autopsies
2. High Exposure Risk
  - A. Healthcare delivery and support staff
  - B. Medical transport workers
  - C. Mortuary workers involved in preparing
3. Medium Exposure Risk

Medium exposure risk jobs include those that require frequent and/or close contact with (not more than 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-2019 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-2019 transmission. In areas where there is ongoing community transmission, workers in this category may have contact with the general public (in schools, high-population-density work environments, and some high-volume retail settings).

4. Lower Exposure Risk (Caution)

Lower exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers [6,7].

### Economic Impact of COVID- 19

There are several channels through which the COVID -19 outbreaks will affect the economics of the country and the world as a whole. These include a sharp but temporary decline in domestic consumption. Tourism is an important source of revenue for many countries in the world. During the 2003 SARS outbreak, for example, Southeast and East Asian economies such as Indonesia, Thailand, and the Republic of Korea all saw declines in arrivals from economies outside Asia in 2003, even though they had very few SARS cases and China is affected by tourism drought starting from early 2020.

There are other important channels, including supply-side disruptions and economic effects through health and health care. There have been substantial production disruptions as a result of forced business closures and the inability of workers to get to work, as well as disruptions to trade and business as a result of border closures, travel bans, and other restrictions on the movement of properties, people, and capital.

The COVID-19 crisis is estimated to have a very large detrimental economic impact on the EU and euro area. The direct impact through all channels is estimated to reduce real GDP growth in 2020 by 2.5

percentage points compared to a situation where there would be no pandemic. Given that real GDP growth was forecast to be 1.4% for the EU in 2020, this would imply it could fall to just over -1% of GDP in 2020, with a substantial but not complete rebound in 2021 [8].

### Talking to Children about COVID-19

This easily transmittable new virus can expose children and families to anxiety. Parents have to reassure their children and, school officials are working hard to ensure that people throughout the country stay healthy. Teaching children positive preventive measures, talking with them about their fears, and giving them a sense of some control over their risk of infection can help reduce anxiety.

### Precise Procedures

Continue peaceful and supportive.

- Concede what you react because children have to follow your verbal and nonverbal reactions.

- What you talk and do about COVID-19, current prevention methods, and related events can either upsurge or deteriorate your children's anxiety.

- If true, emphasize to your children that they and your family are fine.

- Remind them that you and the adults at their school are there to keep them safe and healthy.

- Let your children talk about their feelings and help reframe their concerns into the appropriate perspective.

### Make yourself obtainable

- Make a supportive environment to your children which means, give free time to ask, to answer and discuss any questions.

- It is important that they know they have someone who will listen to them; make time for them.

### Avoid unnecessary accusing

- When strains become high, sometimes we try to blame someone.

- It is important to avoid stereotyping any one group of people as responsible for the virus.

- Bullying or negative comments made toward others should be stopped and reported to the school.

- Be aware of any comments that other adults are having around your family. You may have to explain what comments mean if they are different than the values that you have at home.

### Monitor television viewing and social media

- Limit television viewing or access to information on the Internet and through social media. Try to avoid watching or listening to information that might be upsetting when your children are present

- Tell to your child about how many stories about COVID-19 on the Internet any other social medias may be based on rumors and inaccurate information.

- Dialogue to your child about accurate information, since it can help reduce anxiety.

- Reduce constantly watching updates information's on the status of COVID-19 because this can rise anxiety

- Be aware that developmentally inappropriate information (i.e., information designed for adults) can cause anxiety or confusion, particularly in young children.

- Engage your child in recreational activities or other interesting activities instead

- Tell them you love them and give them plenty of affection

### **Maintain anormal routine to the extent possible**

- Keep to a regular schedule, as this can be reassuring and promotes physical health.

- Encourage your children to keep up with their schoolwork and extracurricular activities, but don't push them if they seem overwhelmed.

### **Be honest and accurate**

- In the absence of factual information, children often imagine situations far worse than reality.

- Don't ignore their concerns, but rather explain that at the present moment very few people in this country are sick with COVID-19.

- Children can be told this disease is thought to be spread between people who are in close contact with one another—when an infected person coughs or sneezes.

- It is also thought it can be spread when you touch an infected surface or object, which is why it is so important to protect yourself.

Individuals at highest risk for severe disease and death include people aged over 60 years and those with underlying conditions such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer. Peoples with co morbidity

### **Options for preparedness and response**

The following five scenarios, adapted from ECDC's strategic analysis, are used to describe the possible progression of the COVID-19 outbreak.

**Scenario 0:** describes a situation with no reported cases in the country and multiple introductions and/or community transmission elsewhere, at this stage, the main objective for public health measures should be to enable rapid detection and isolation of individual cases to prevent domestic transmission chains, and to prepare for the response once cases are detected in the country [9].

**Scenario 1:** describes a situation with multiple introductions and limited local transmission in the country, In this situation, the objective is containment of the outbreak by blocking transmission opportunities, through early detection of imported and locally-transmitted COVID-19 cases in order to try to avoid or at least delay the spread of infection and the associated burden on healthcare systems.

**Scenario 2:** describes a situation with increasing number of introductions and of more widespread reports of localized human-to-human transmission in the country (more than two generations of cases outside of sporadic clusters with known epidemiological links). In this situation, the objective remains to contain where practicable and otherwise slow down the transmission of the infection. This will increase the time available for development, production and distribution of PPE and effective therapeutic options, and would play a crucial role in reducing the burden on the healthcare system and other sectors, particularly if wider transmission of COVID-19 is delayed beyond the ongoing influenza seasons.

**Scenario 3:** describes a situation with localized outbreaks, which start to merge becoming indistinct. In this scenario, there is sustained human-to-human transmission in the country (more than two generations of cases outside of sporadic clusters with known epidemiological links) and an increasing pressure on healthcare systems. The objective at this stage is to mitigate the impact of the outbreak by decreasing the burden on healthcare systems and protect populations at risk of severe disease. At the same time, operational research should guide developing better and more efficient diagnostic and treatment options.

**Scenario 4:** describes a situation with widespread sustained transmission where healthcare systems are overburdened due to a large demand for emergency healthcare services, a strained ICU capacity, overworked healthcare workers and reduced staff availability due to illness, lack of PPE and lack of diagnostic testing capacity. The objective at this stage is still to mitigate the impact of the outbreak, decrease the burden on healthcare services, protect populations at risk of severe disease and reduce excess mortality. The options proposed for preparedness and response aim to limit the impact of the epidemic. The options for preparedness should be conducted as early as possible, ideally while in scenario 0. The options for response are presented for each scenario.

## **Conclusion**

### **Options for preparedness**

Due to the presence of the virus in multiple countries, public health authorities are recommended to adapt and activate their pandemic preparedness plans now, if this has not already been done. All Member States have pandemic preparedness plans, which are applicable to the current situation. Upon activation of national pandemic preparedness and response strategies, a dedicated multi-disciplinary national crisis team should be established with clear lines of communication to the regional level, and relevant stakeholders and sectors. In addition, the regional level should have clear lines of communication to the local level. The crisis management scheme should be based on public health risk assessments and should evaluate the readiness of the public health system to implement the response measures. The team should receive regular reports on public health system capacities (emergency operations center, surveillance, laboratory diagnostics) and healthcare sector capacities (primary, secondary and higher-level) including isolation capacity, occupancy rate, stockpiles, use and distribution of medical countermeasures (essential drugs, equipment for mechanical ventilation and oxygenation) and other supplies.

It is crucial to prepare or adapt business continuity plans for both healthcare and non-healthcare settings in accordance with the latest public health risk assessment and guidance from national, regional or local health authorities to ensure continuity of essential services (e.g. healthcare, transportation, energy, and information technology sectors) [10].

Community measures: use non-pharmaceutical countermeasures to delay and mitigate the impact of the epidemic of COVID-19 include a description of the measures that can be applied in the community: infection prevention and control, social distancing measure, School and day care measures or closure, Measures related to mass gatherings, travel-related measure, travel advice, travel restriction, Entry screening of travellers, Environmental cleaning and ventilation decontamination, Contact tracing, quarantine and monitoring, Surveillance, and screenings of travellers.

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