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HEALTH CENTRE

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# Scientific Research Monitoring on COVID-19

24 March 2020

# Summary on COVID19



## SARS-COV2 virus

- The virus have been sequenced and found to be similar to MERS-CoV and SARS-CoV. Research revealed that the virus originated in a bat reservoir.
- New designation for the disease and the virus: COVID-19 and SARS-COV2.
- SARS-COV2 stay viable in aerosol for hours and in surface up to 3 days.
- Two strain have been identified for SARS-COV2 (L type (more aggressive ) and S type .

## Transmission

- Transmission from human to human has been confirmed. Incubation period ranges from 5 days and can reach up to 14 days.
- Suggested human-to-human transmission occurs through droplets, contact and fomites, similar to Severe Acute Respiratory Syndrome (SARS).
- Isolation is the best measure to control transmission.

## Clinical features and outcome

- Non-specific and the disease presentation can range from no symptoms (asymptomatic) to severe pneumonia and death.
- Highest risk for severe disease and death include people aged over 60 years and those with underlying conditions
- Pregnant women infected with SARS-COV2 may experience symptoms similar to those of non-pregnant adults. No evidence suggests transmission from mother to newborn if infected late in pregnancy. No evidence of transmission through breast milk.

## Therapies and vaccination

- Efforts currently in developing therapies for this virus focus on previously known medications and vaccination for MERS-CoV and SARS-CoV. In addition to other type of medication.
- WHO forum held 11-12 Feb 2020 to mobilize research on COVID19 vaccinations and therapies.

# Summary on COVID19 (Cont.)

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## COVID19 in figure

- 80% of laboratory confirmed patients have had mild to moderate disease
- 13.8% have severe disease.
- 6.1% are critical
- Children account for 2.4% of all reported cases.(less than 19 years)



# Todays' Highlights

All articles presented in this report represents the authors' views and not necessarily represents Abu Dhabi Public Health Center views or directions.

## Scientific Research

### Public health response:

- Canadian lesson from previous SARS outbreak.
- Article discusses the impact of COVID19 pandemic on the US population using different scenarios and discuss the capacity of the US to respond to such outbreak

*Due to abundant COVID19 information resources and given the urgent need to keep up with the updates .Below is a cluster of other academic articles for interested reviewer.*

*Listed articles may represent information that has been previously shared in the report and/or may target specific technical audience.*

## Others

- [Clinical Management of Children with an Epidemiological History of COVID-19: A Report on a Single Center of a General Hospital in Shenzhen, China](#)
- [Multicenter Development and Validation of a Novel Risk Nomogram for Early Prediction of Severe 2019-Novel Coronavirus Pneumonia](#)
- [Public Activities Preceding the Onset of Acute Respiratory Infection Syndromes in Adults in England - Implications for the Use of Social Distancing to Control Pandemic Respiratory Infections](#)



## DG brief 23 March 2020

“It took 67 days from the first reported case to reach the first 100,000 cases, 11 days for the second 100,000 cases and just 4 days for the third 100,000 cases. You can see how the virus is accelerating.”

- FIFA , tikTok among other have contributed to solidarity fund response for health workers and COVID19 research.
- The DG will meet with the unity in the G20 countries, (who have more than 80% of global GDP) to increase production, avoid export bans and ensure equity of distribution, on the basis of need.
- discourage the Observational and small non-randomized studies which will not give us the answers we need. Using untested medicines without the right evidence could raise false hope, and even do more harm than good and cause a shortage of essential medicines that are needed to treat other diseases. That’s why WHO has launched the SOLIDARITY trial, countries are welcomed to join.
- The DG emphasis to prioritize the protecting of health workers.

# WHO daily report



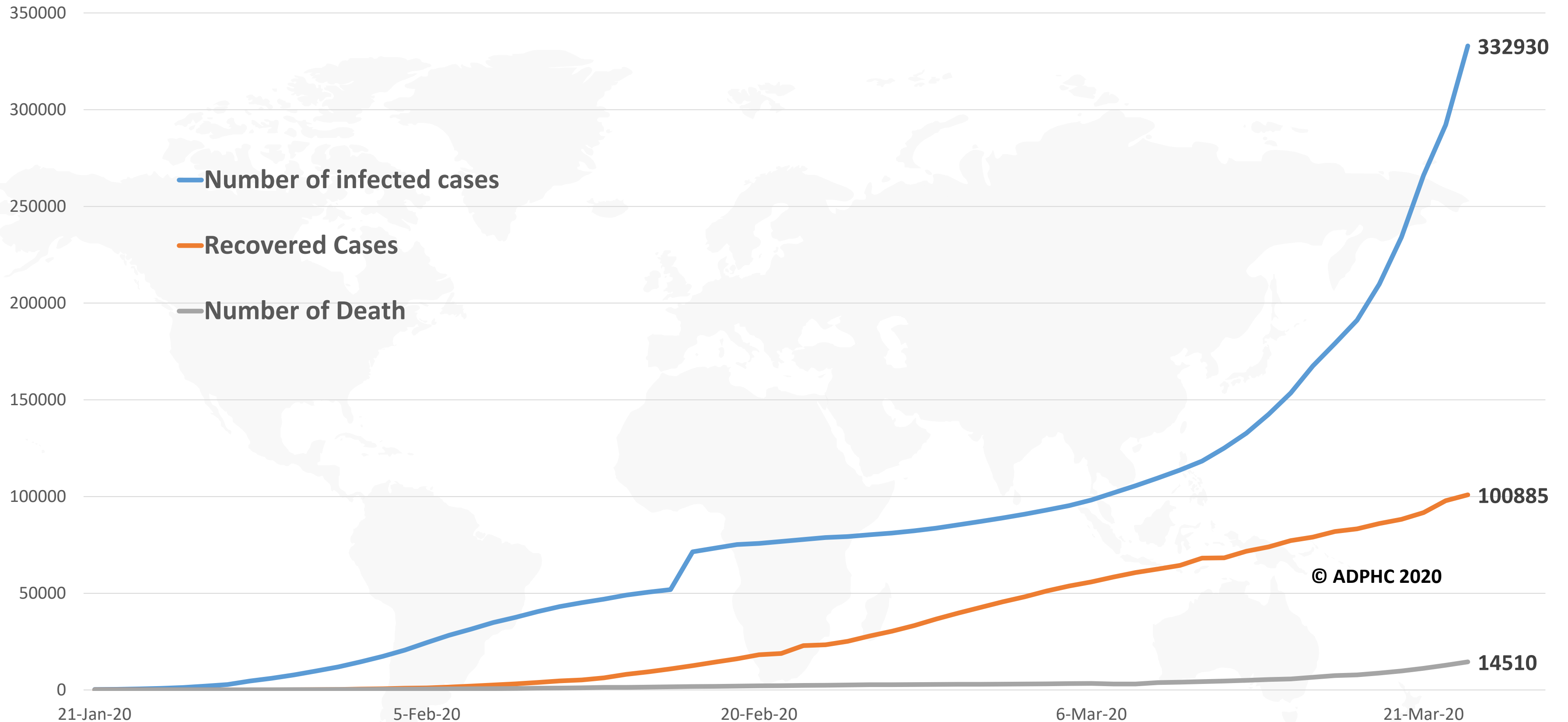
## WHO daily report

- Three new countries/territories/areas from the African Region [1], Region of the Americas [1], and Eastern Mediterranean Region [1], have reported cases of COVID-19.
- The number of COVID-19 cases surpassed 300,000 globally.
- Data reported are based on information received from national authorities by 10:00 AM CET, 23 March 2020.
- Diagnostic testing for COVID-19 is critical to tracking the virus, understanding epidemiology, informing case management, and to suppressing transmission. WHO has updated the **Laboratory Testing Strategy** document according to the **4Cs transmission scenarios**.
- WHO Regional Office for Europe has published interim guidance on how to deal with COVID-19 **in prisons and other places of detention**.
- World Water Day 2020, celebrated on 22 March, highlighted the **essential role of hand washing in hygiene** to protect you and those around you.

# Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21<sup>st</sup> to March 23<sup>rd</sup>, 2020)



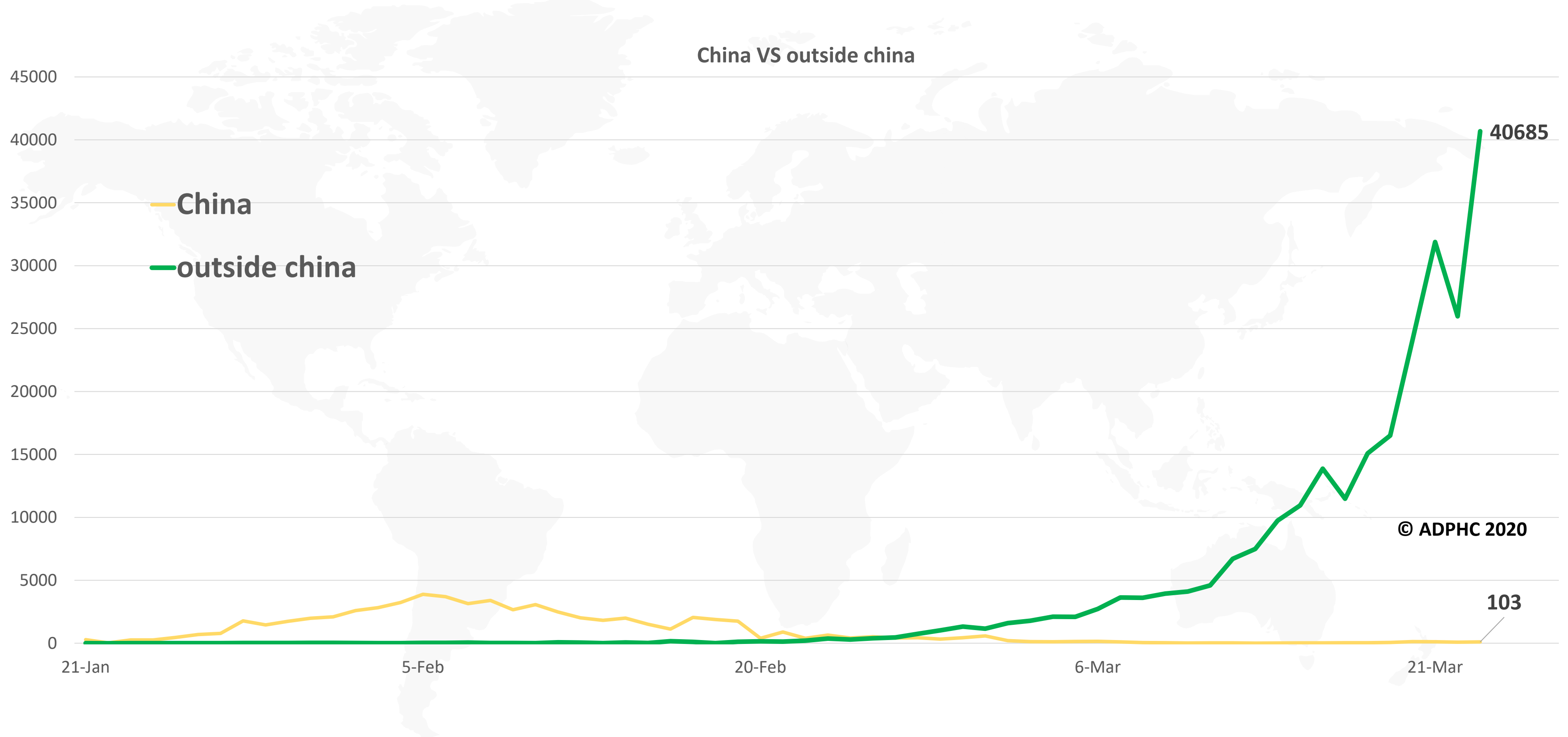
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)

# Epidemiology



**Figure 2: Daily new infected COVID-19 cases reported by China and the rest of the world (January 21 to March 23 , 2020).**



Line graph published by Abu Dhabi Public Health Center 2020.

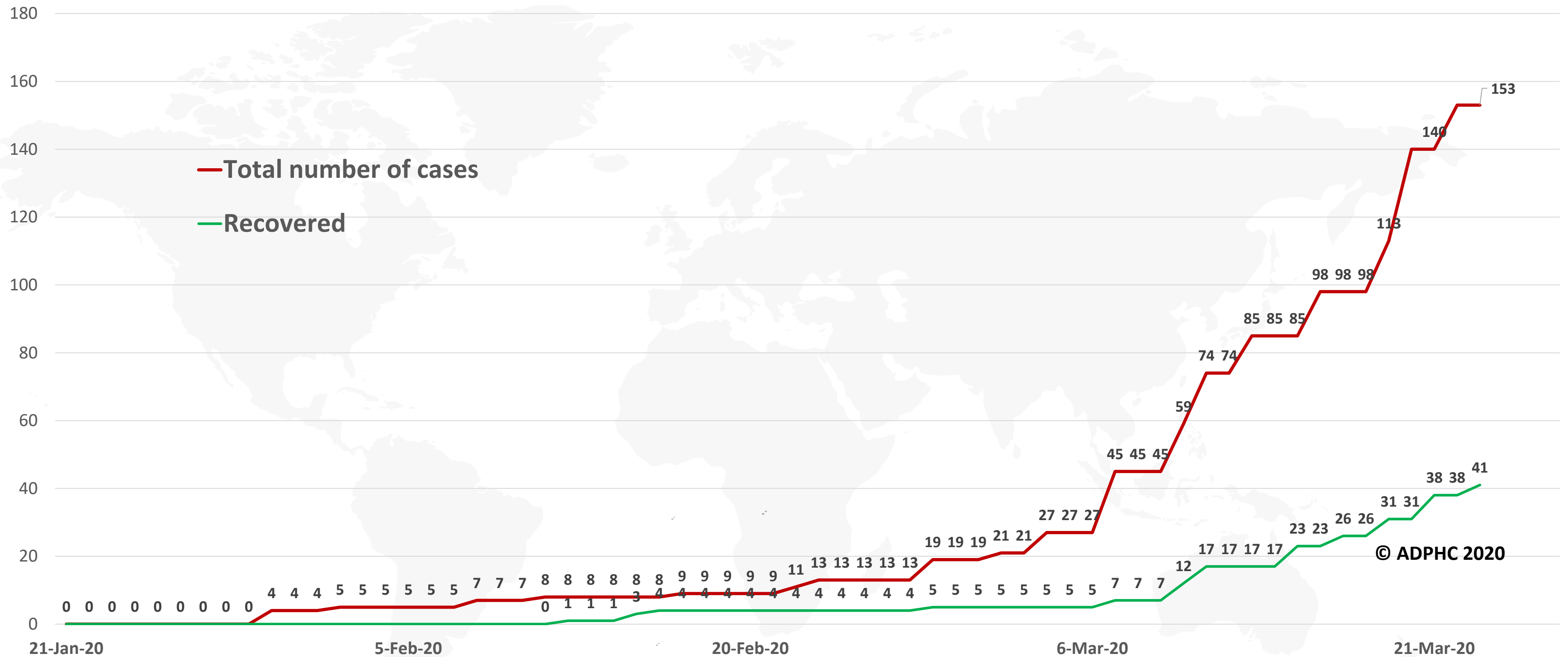
Data resources: [WHO](https://www.who.int/)



# Epidemiology



**Figure 3: Total number of COVID-19 infected and recovered cases in UAE over time**

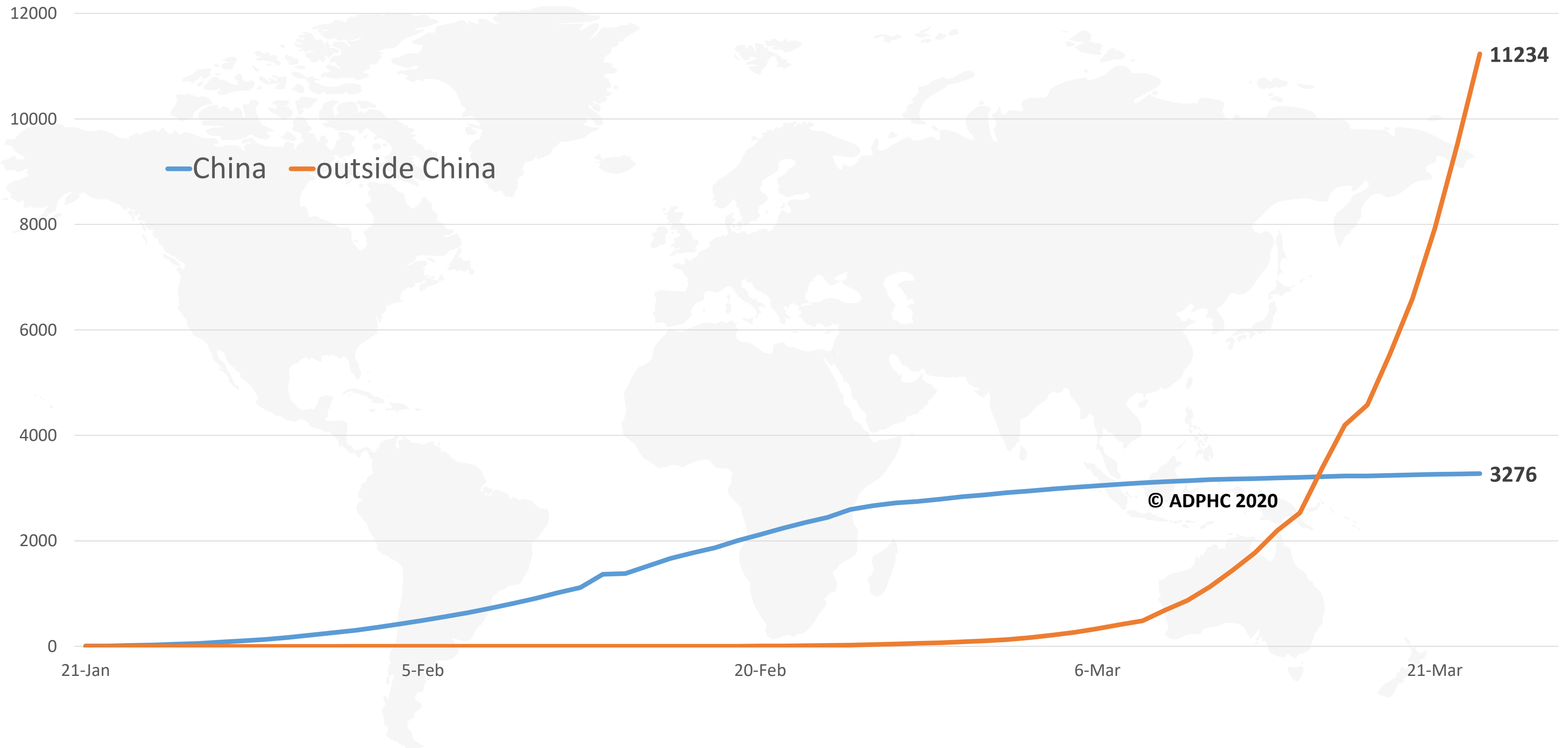


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)



**Figure 4: Total number of death due to COVID-19 reported by China and the rest of the world (January 21 to March 23 , 2020).**

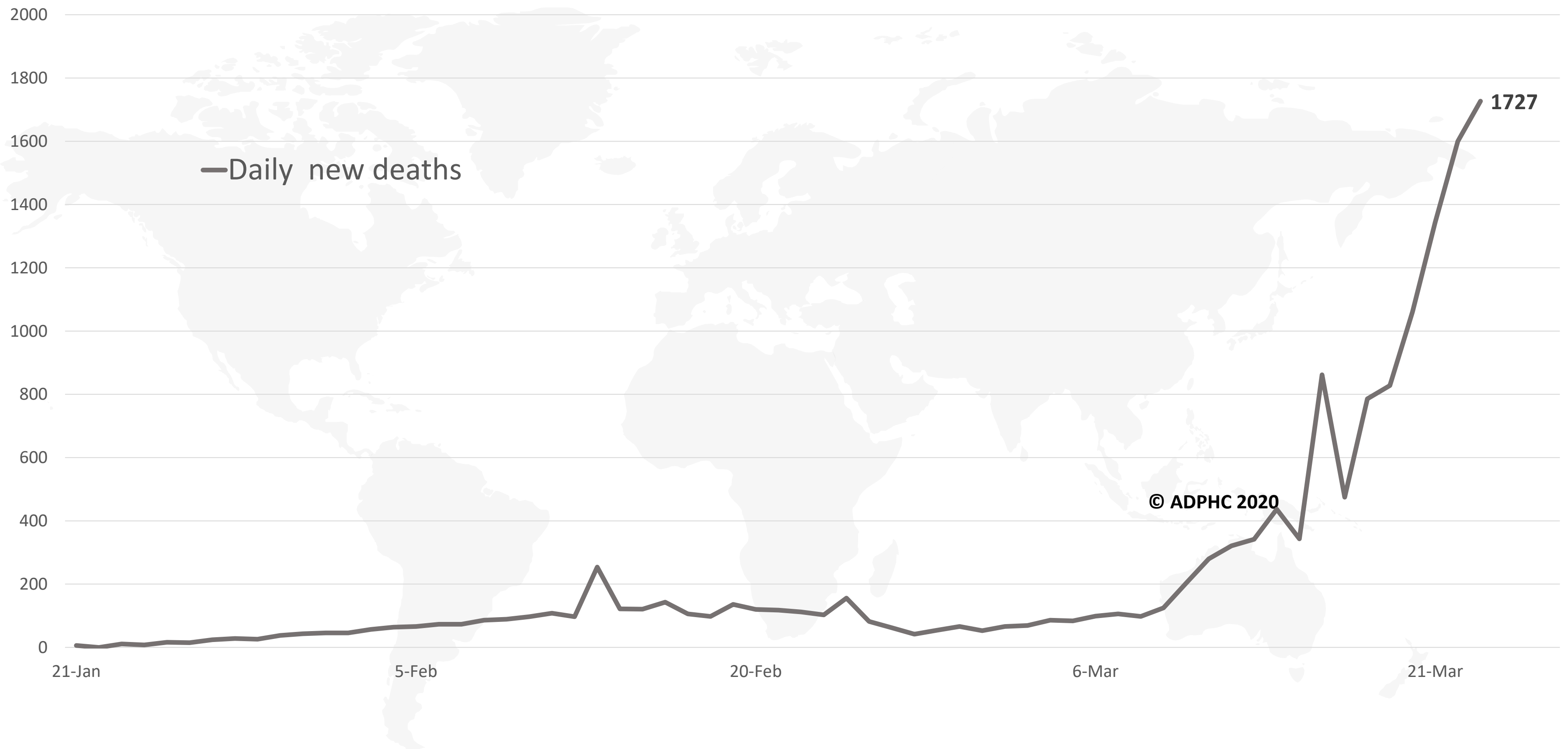


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



**Figure 5: Global daily new deaths due to COVID-19 (January 21 to March 23 , 2020).**

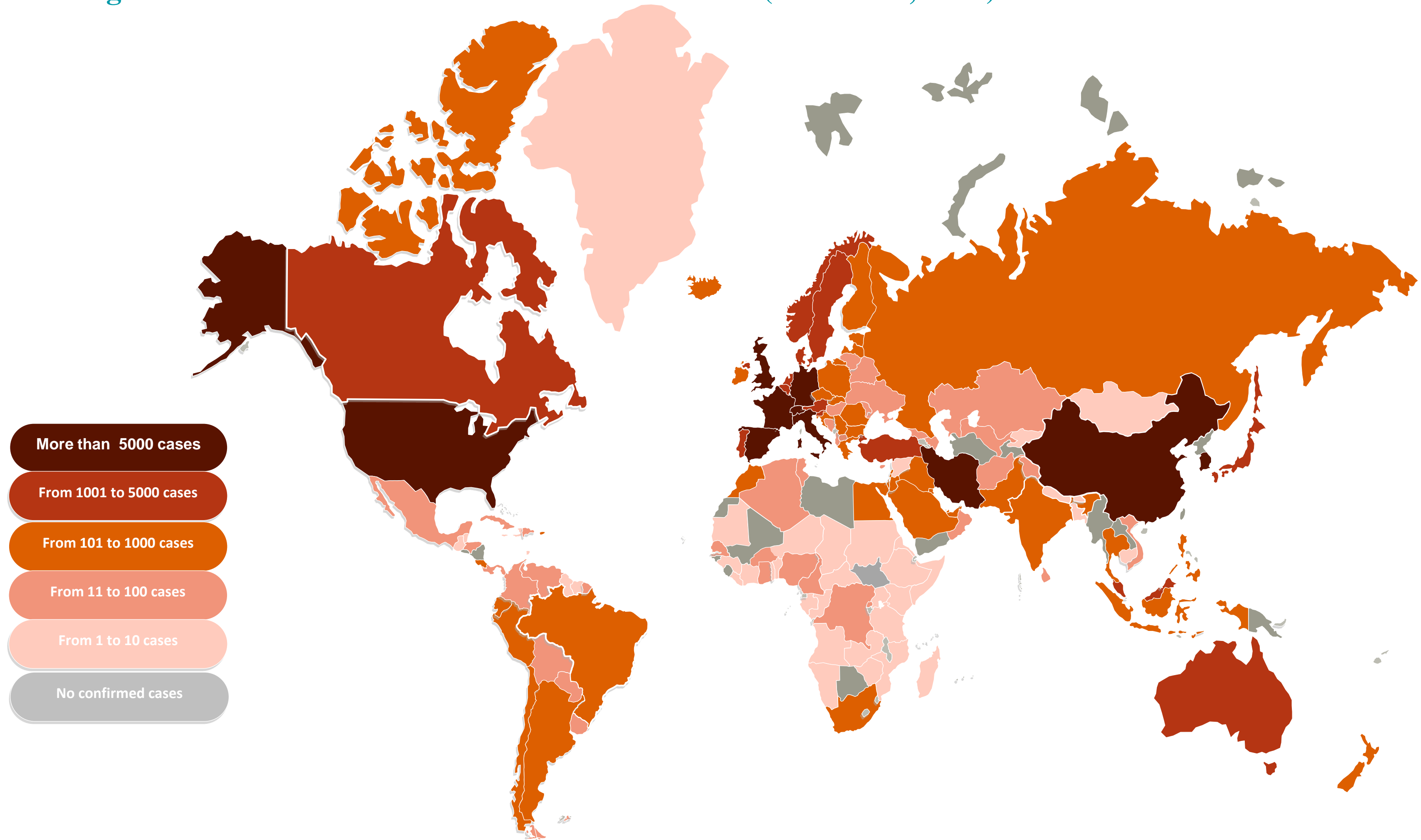


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 6A: Global distribution of COVID-19 cases ( March 23, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.

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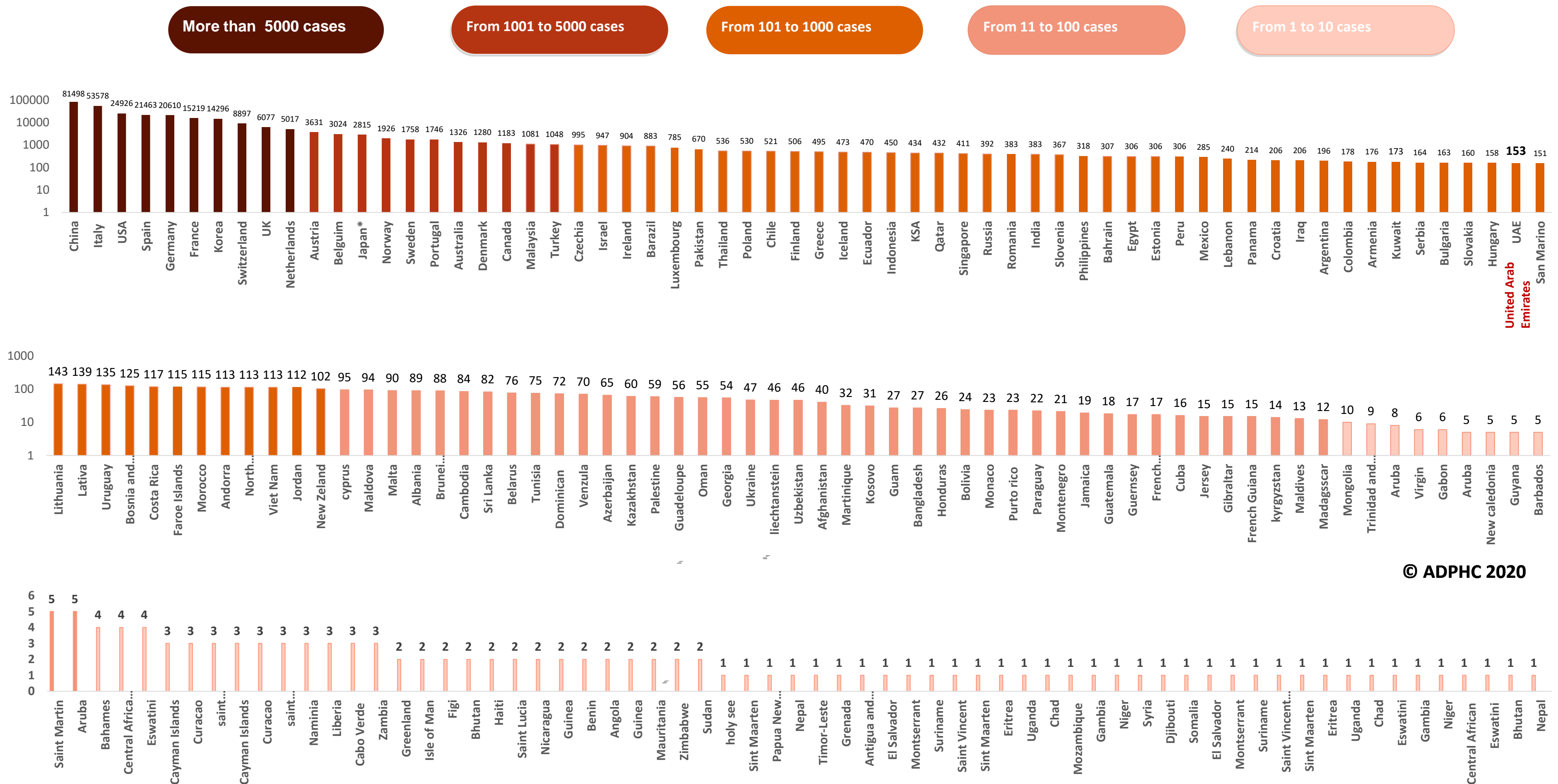
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# Epidemiology



Figure 5B: Bar chart illustrate the global distribution of COVID19 cases (March 23, 2020)



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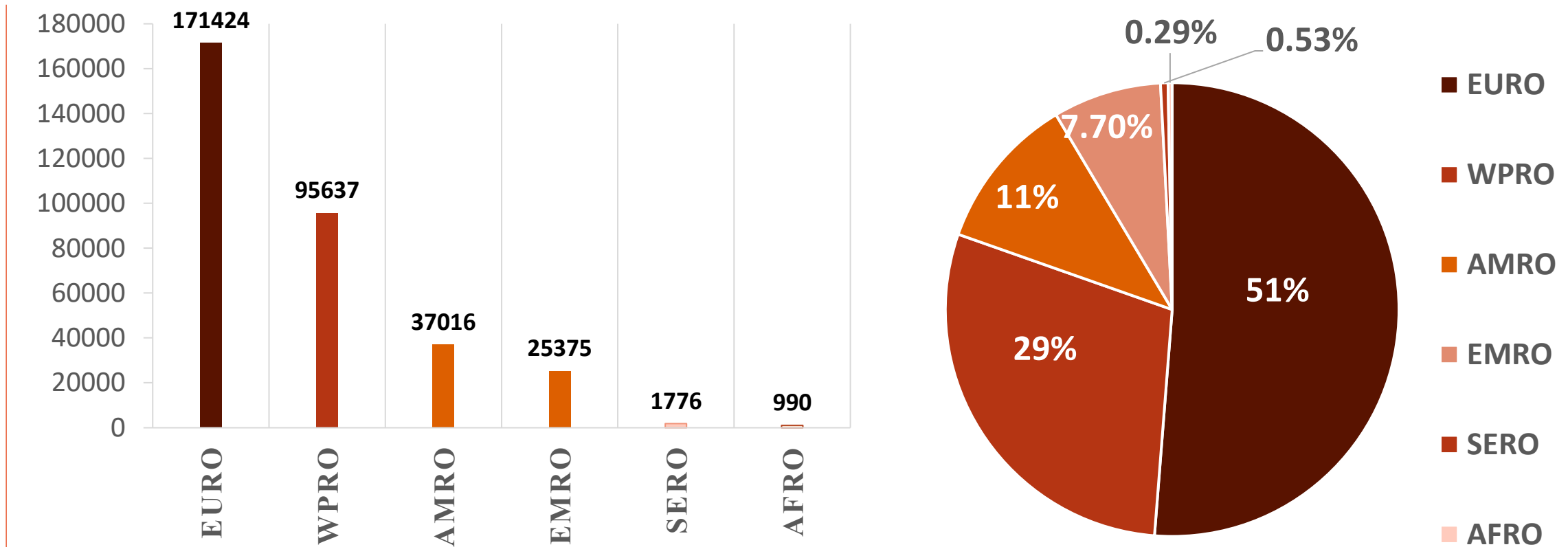
Map chart published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](http://www.who.int)

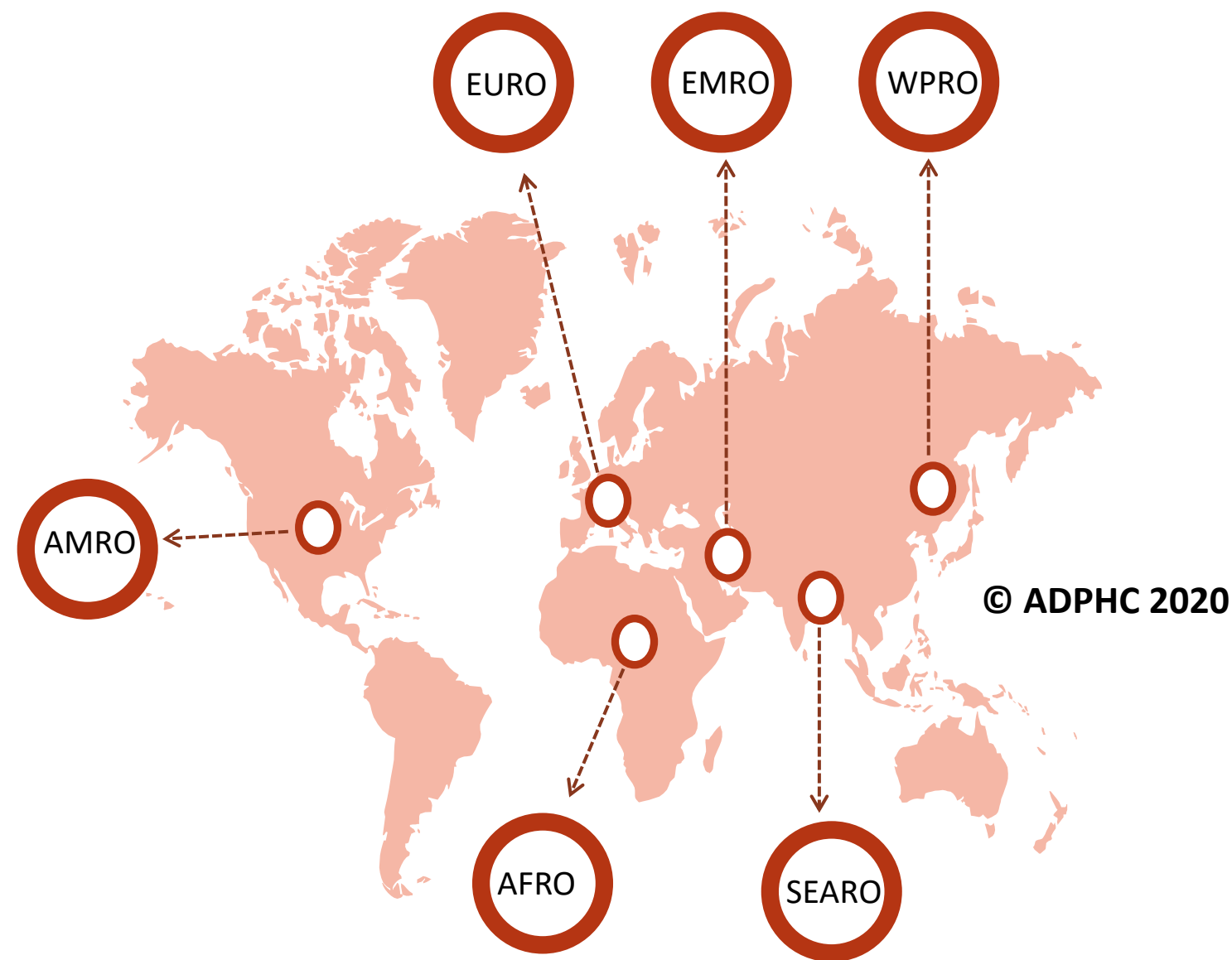
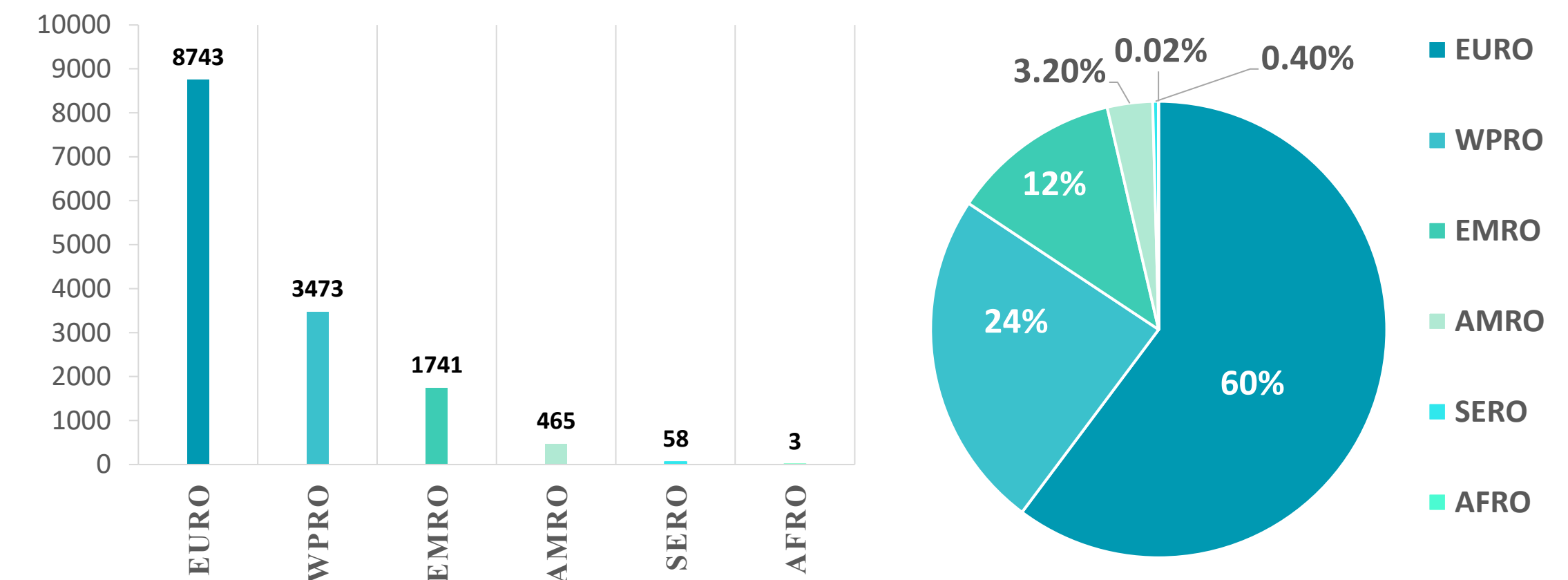


Figure 6: illustrate the Global distribution of COVID19 cases per region (March 23<sup>rd</sup> , 2020)

## COMPERATIVE ANALYSIS OF INFECTED CASES PER REGION



## COMPERATIVE ANYALSIS OF DEATH CASES PER REGION



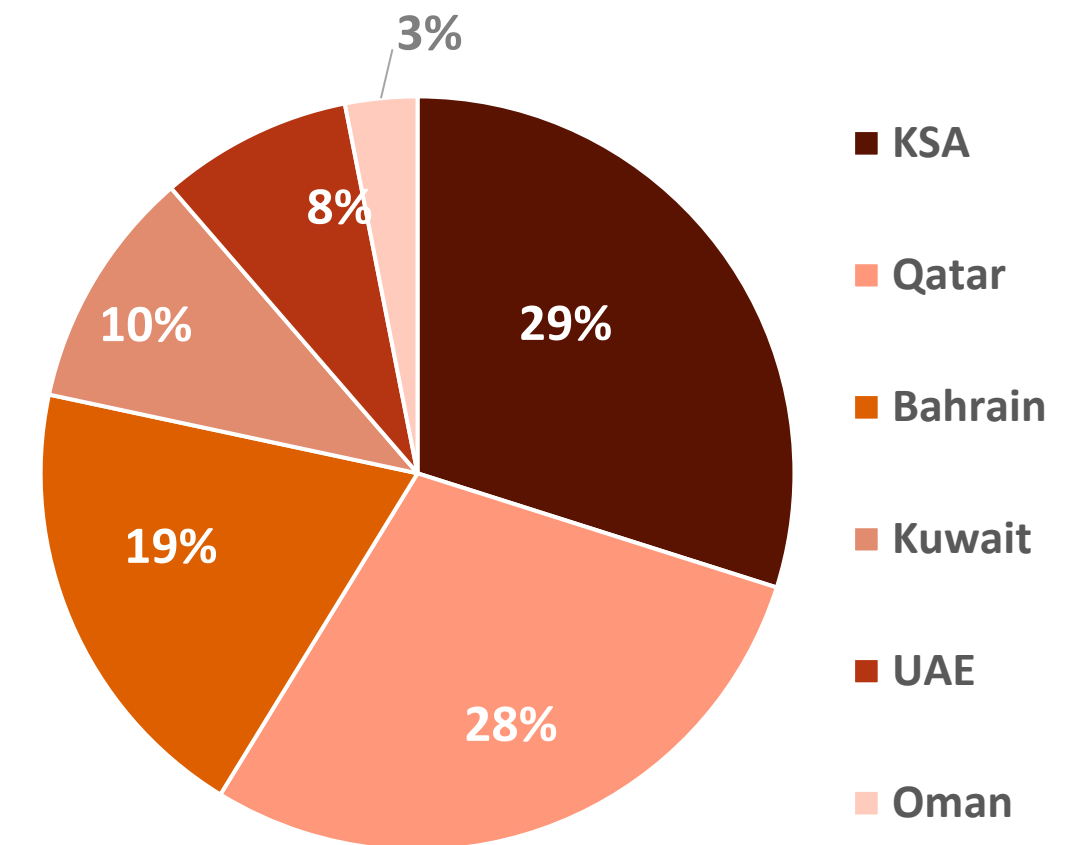
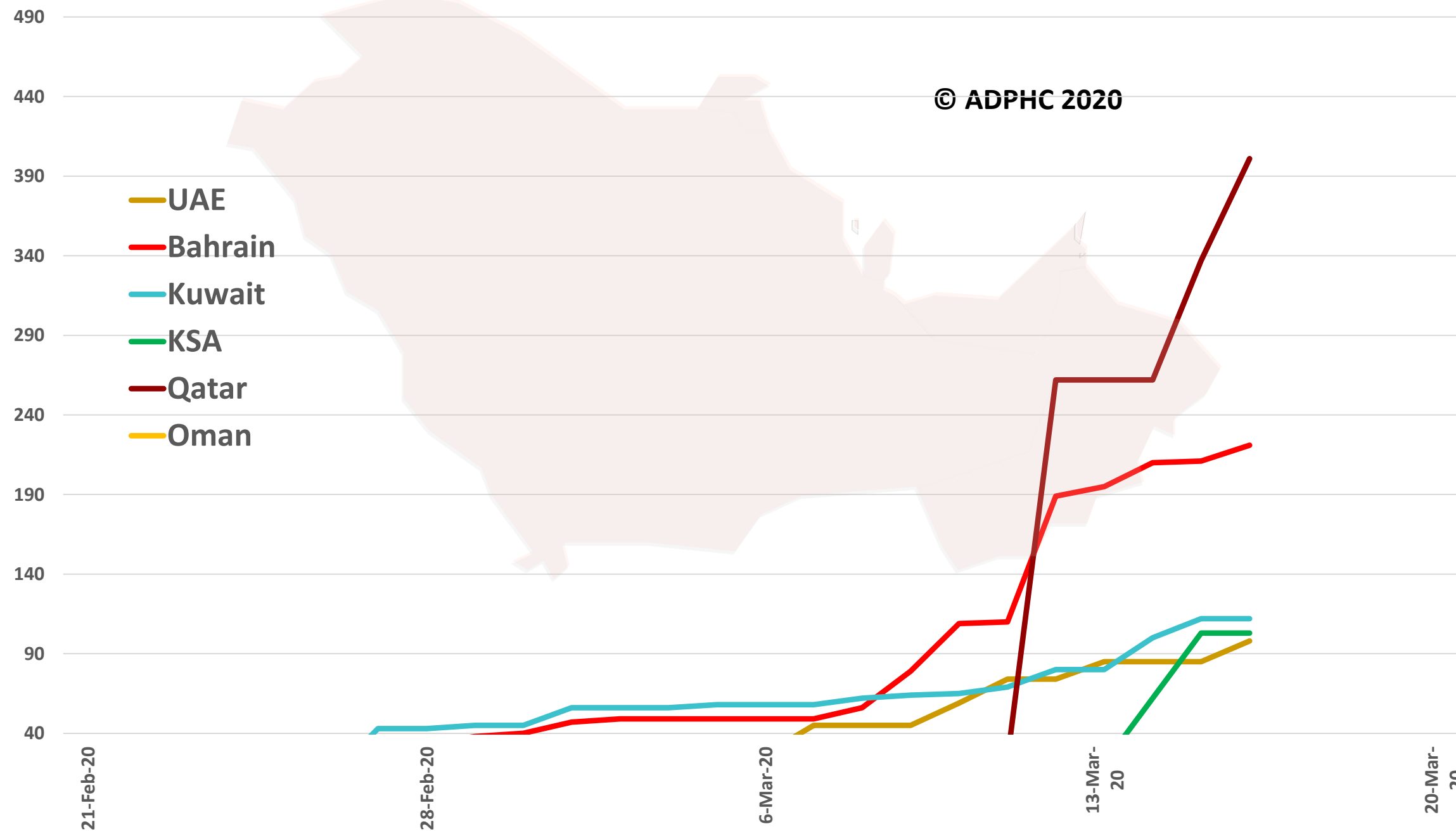
Map chart published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

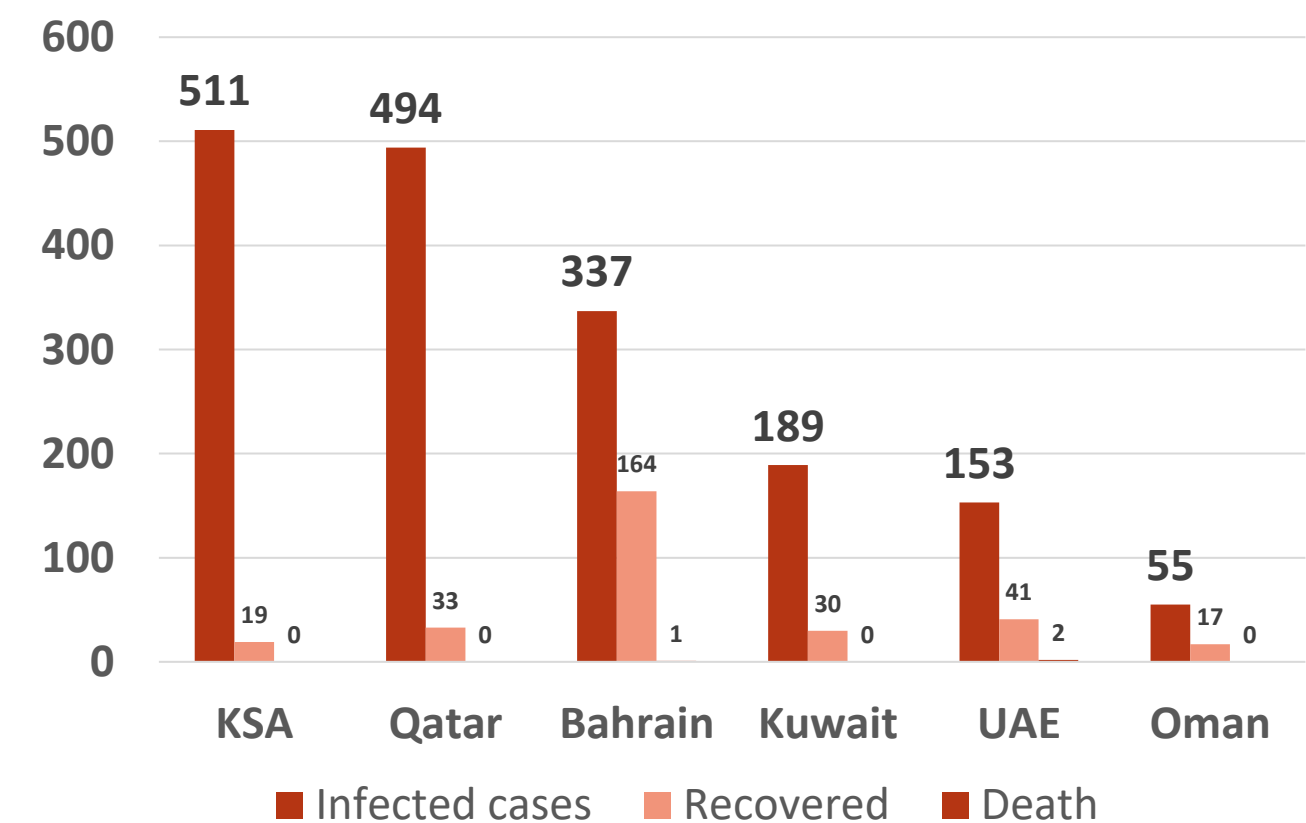


Figure 7: Comparative analysis of the distribution of COVID19 cases in GCC countries (March 23 , 2020)

## TOTAL NUMBER OF INFECTED CASES



## Total number of infected, recovered and death



Map chart published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

# Public Health Response:



## Article 1: Canada and COVID-19: learning from SARS

Published: 21 March 2020

Link: [Click Here](#)

### Summary:

- During 2003, after the SARS epidemic, a set of recommendations (titled ‘Learning from SARS’) were made by Canada’s top epidemic control experts to federal, provincial, and territorial leaders. Public health and epidemic control systems have been **reshaped** according to the recommendations. Most importantly, these recommendations **led to the creation of the Public Health Agency of Canada that now leads the response to COVID-19.**
- One of the main lessons of SARS was that it is important **to reduce all avoidable hospitalizations** in advance of the outbreak and **treat the patients at home as much as possible.** To avoid quickly overwhelming the hospitals.
- The report (Learning from SARS) was early to recognize that health-care providers can **help patients with reduced risks of exposure to infection in the digital environment.**
- During the 2003 SARS outbreak, there was a **weak federal and provincial collaboration** in terms of public health emergency. In response to the recommendations, a number of improvements were made ranging from **legislative changes to new standing committees** that sorted out the rules for jointly managing a public health emergency and built a new collaboration.
- **Digital media** have developed **since 2003, opening up channels for misinformation** but also ways for public health officials and governments to **get messages out very widely on a more or less instantaneous basis.**
- SARS taught Canadian public health providers and leaders that they take COVID-19 extremely seriously. Their experiences with SARS have put them in a much better position than they would otherwise have been in now.





# Public Health response

## Article 2: Fair Allocation of Scarce Medical Resources in the Time of Covid-19

Published : March 23, 2020

link: [Click Here](#)

### Summary:

The article gives predictive situation scenarios of COVID19 pandemic in the US.

It then addressed the US capacity to respond to such pandemic. The last one gave ethical recommendation on who get health resource in COVID19 pandemics.

**Table 1. Potential U.S. Health and Health Care Effects of Pandemic Covid-19 as Compared with Influenza.\***

Category	Influenza		Covid-19†	
	Moderate	Severe	Moderate	Severe
Percentage of population infected (U.S. population, 320 million)	20	20	5	20
No. of ill persons	64,000,000	64,000,000	16,000,000	64,000,000
No. of outpatients	32,000,000	32,000,000	3,200,000	12,800,000
No. of hospitalized patients	800,000	3,800,000	1,280,000	5,120,000
No. of patients admitted to the ICU	160,000	1,200,000	960,000	3,840,000
No. of deaths	48,000	510,000	80,000	1,920,000

In COVID19 moderate scenario : consider 5% of the population affected and 0.5% death rate.

In COVID19 sever scenario : consider 20% of the population affected and 3% death rate.



# Public health response

**Article 2: Continued,**

**link: [Click Here](#)**

**Summary:**

**B- Capacity of the US data of 2018 :**

Hospital #	5198 209	Community Federal
Hospital bed #	792,417	
ICU bed #	96,500	23,000 neo- natal 5100 pediatric, 68,400 adults
Critical nurse #	512,000	
Respiratory therapist	76,000	1RT per 4 pt , capacity 100,000pt daily(CA law)
ED#	3532	
Ventilator #	62,000 full-featured 98,000 ventilators	10,000 to 20,000 more are estimated to be on call

**unless the epidemic curve of infected individuals is flattened over a very long period of time — the Covid-19 pandemic is likely to cause a shortage of hospital beds, ICU beds, and ventilators and medical force**



## Article 2: Continued, Summary:

### B- ethical consideration and recommendation

Table 2. Ethical Values to Guide Rationing of Absolutely Scarce Health Care Resources in a Covid-19 Pandemic.	
Ethical Values and Guiding Principles	Application to COVID-19 Pandemic
<b>Maximize benefits</b>	
Save the most lives	Receives the highest priority
Save the most life-years — maximize prognosis	Receives the highest priority
<b>Treat people equally</b>	
First-come, first-served	Should not be used
Random selection	Used for selecting among patients with similar prognosis
<b>Promote and reward instrumental value (benefit to others)</b>	
Retrospective — priority to those who have made relevant contributions	Gives priority to research participants and health care workers when other factors such as maximizing benefits are equal
Prospective — priority to those who are likely to make relevant contributions	Gives priority to health care workers
<b>Give priority to the worst off</b>	
Sickest first	Used when it aligns with maximizing benefits
Youngest first	Used when it aligns with maximizing benefits such as preventing spread of the virus

There is a need of development of prioritization guidelines that ensure that individual physicians are not faced with the terrible task of improvising decisions about whom to treat or making these decisions in isolation.