

ABU DHABI PUBLIC  
HEALTH CENTRE

مركز أبوظبي  
للصحة العامة



# Scientific Research Monitoring on COVID-19

3 May 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.)

ABU DHABI PUBLIC  
HEALTH CENTRE

مركز أبوظبي  
للصحة العامة



## 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

- **Transmission:** an experiment on ER health care worker showed that PPE does not prevent exposure ( study was done by inducing droplet from simulated patient )
- **Public health Response:** a study in Italy found that there are increasing numbers of mortality not related to COVID19 , this raise a concern that patient are not seeking, medical attention during COVID19 pandemic.
- **Treatment:** to understand more the role of cytokine storm in COVID19, a study on a known cases with immune mediated inflammatory disease patient with COVID19 infection showed that the use of biologics is not associated with worse Covid-19 outcomes.

*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.*

## Others

- [COVID-19: remaking the social contract](#)
- [Prisons are “in no way equipped” to deal with COVID-19](#)
- [Variation in COVID-19 Hospitalizations and Deaths Across New York City Boroughs](#)
- [COVID-19 Reveals Urgent Need to Strengthen the World Health Organization](#)



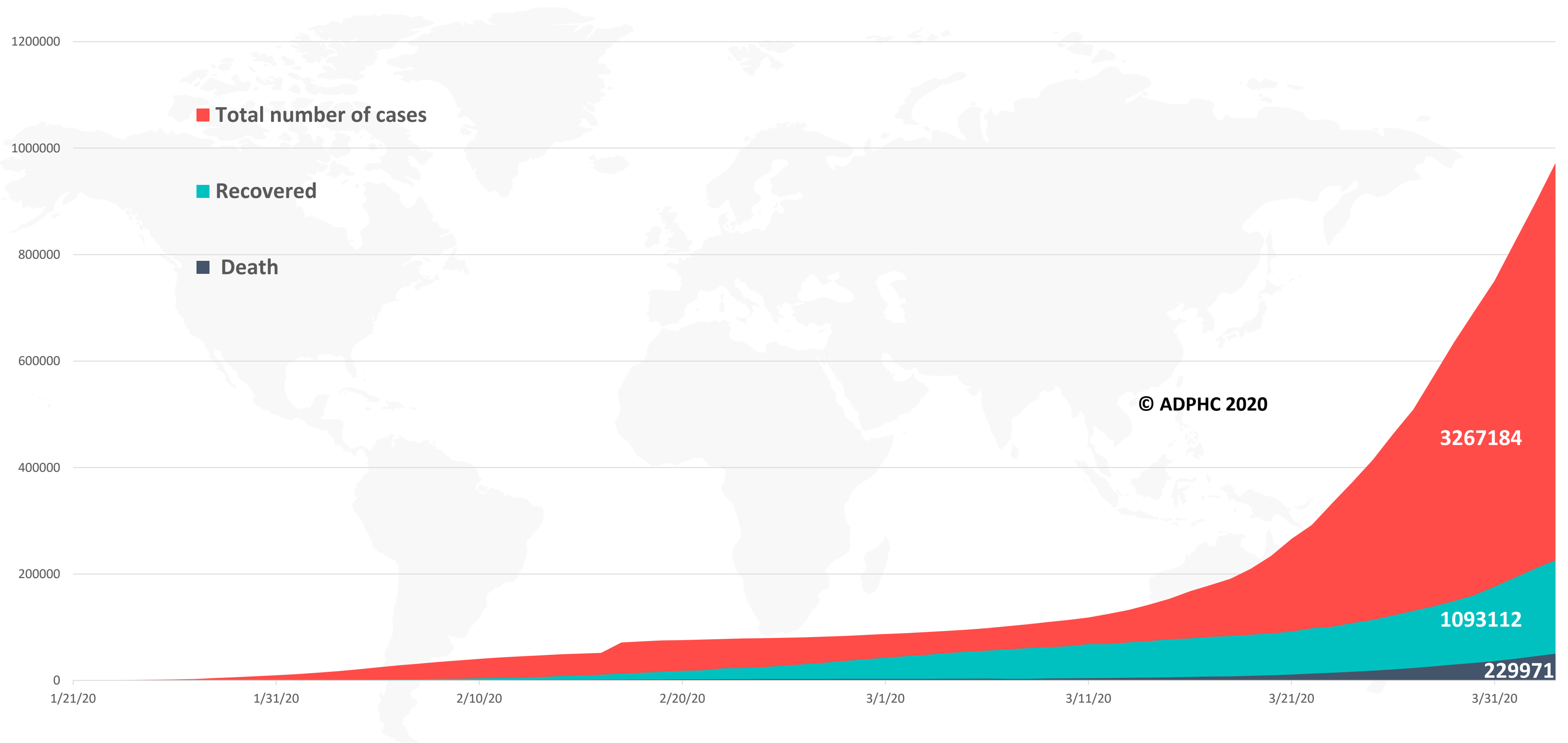
## WHO daily report 2 May 2020

- No new country/territory/area reported cases of COVID-19 in the past 24 hours.
- The Director-General Dr. Tedros, in his regular **media briefing** main points :
  - The announcement of signing of the agreement, with the European Investment Bank to accelerate investment in health preparedness and primary healthcare in countries most vulnerable to the COVID-19 pandemic.
  - The MOU with European Investment Bank focus on malaria, new innovative antibacterial treatments, strengthen primary health care , support the COVID-19 Supply Chain System, study market failures in other areas of public health
  - The first phase will strengthen primary healthcare in ten African countries.
  - Also the DG mentioned that the pandemic **remains a public health emergency of international concern**
  - **WHO works** to identify the **animal source of the virus** through international scientific and collaborative missions

# Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21<sup>st</sup> to May 2<sup>nd</sup>, 2020)

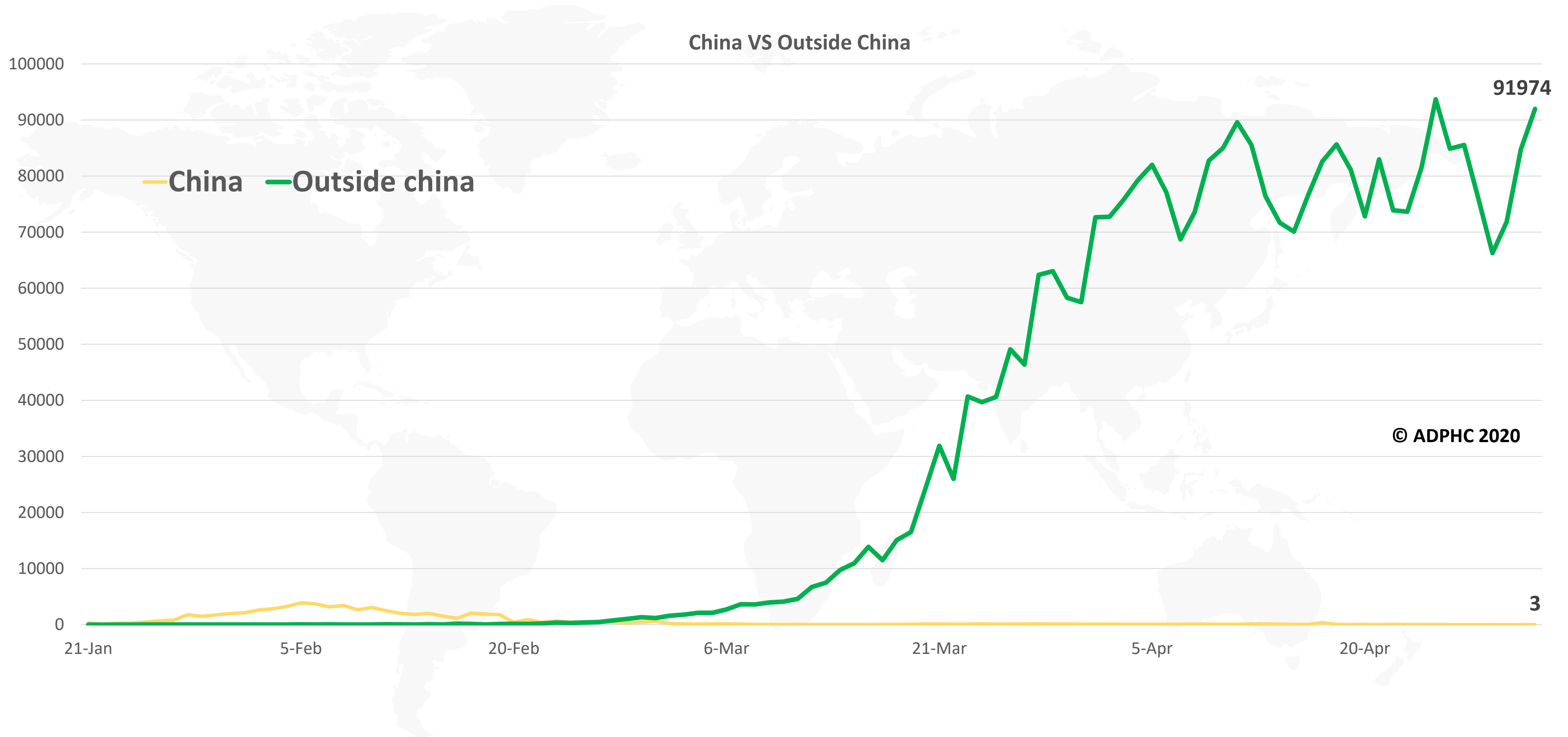


Line graph published by Abu Dhabi Public Health Center 2020.

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



**Figure 2: Daily new infected COVID-19 cases reported between (January 21 to May 2<sup>nd</sup>, 2020).**



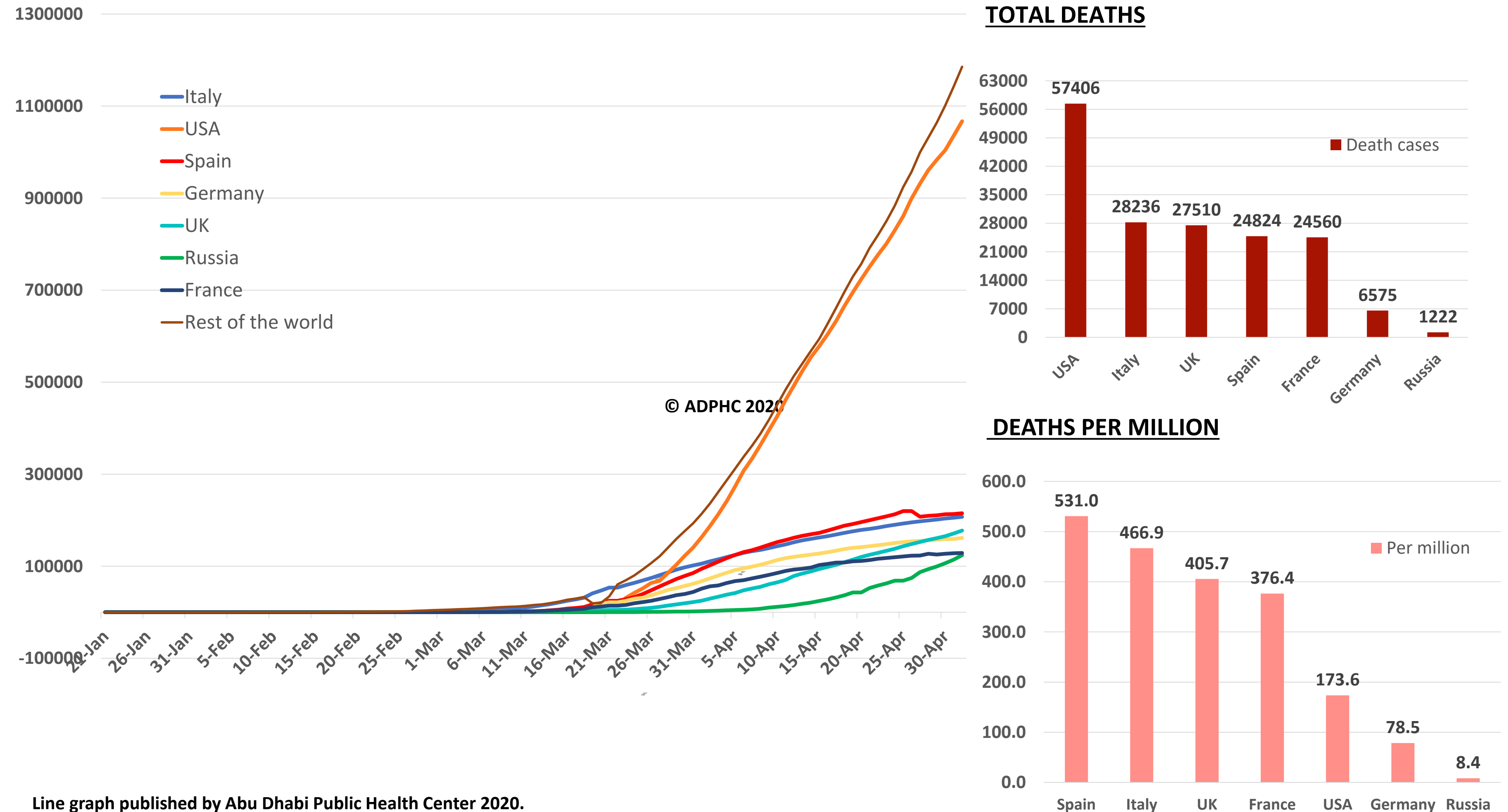
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to May 2<sup>nd</sup>, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

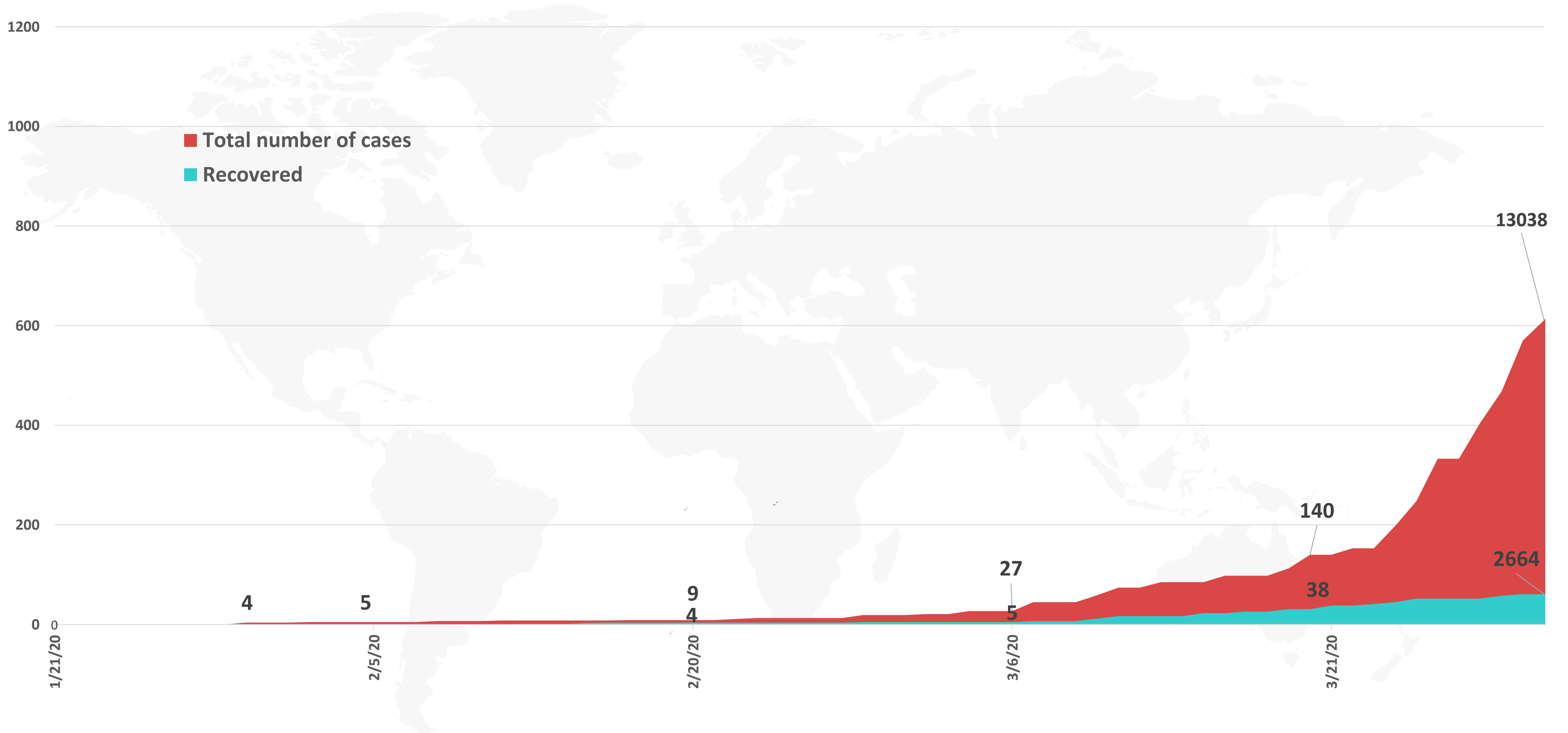
Data resources: [WHO](https://www.who.int/)



# Epidemiology



**Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time**



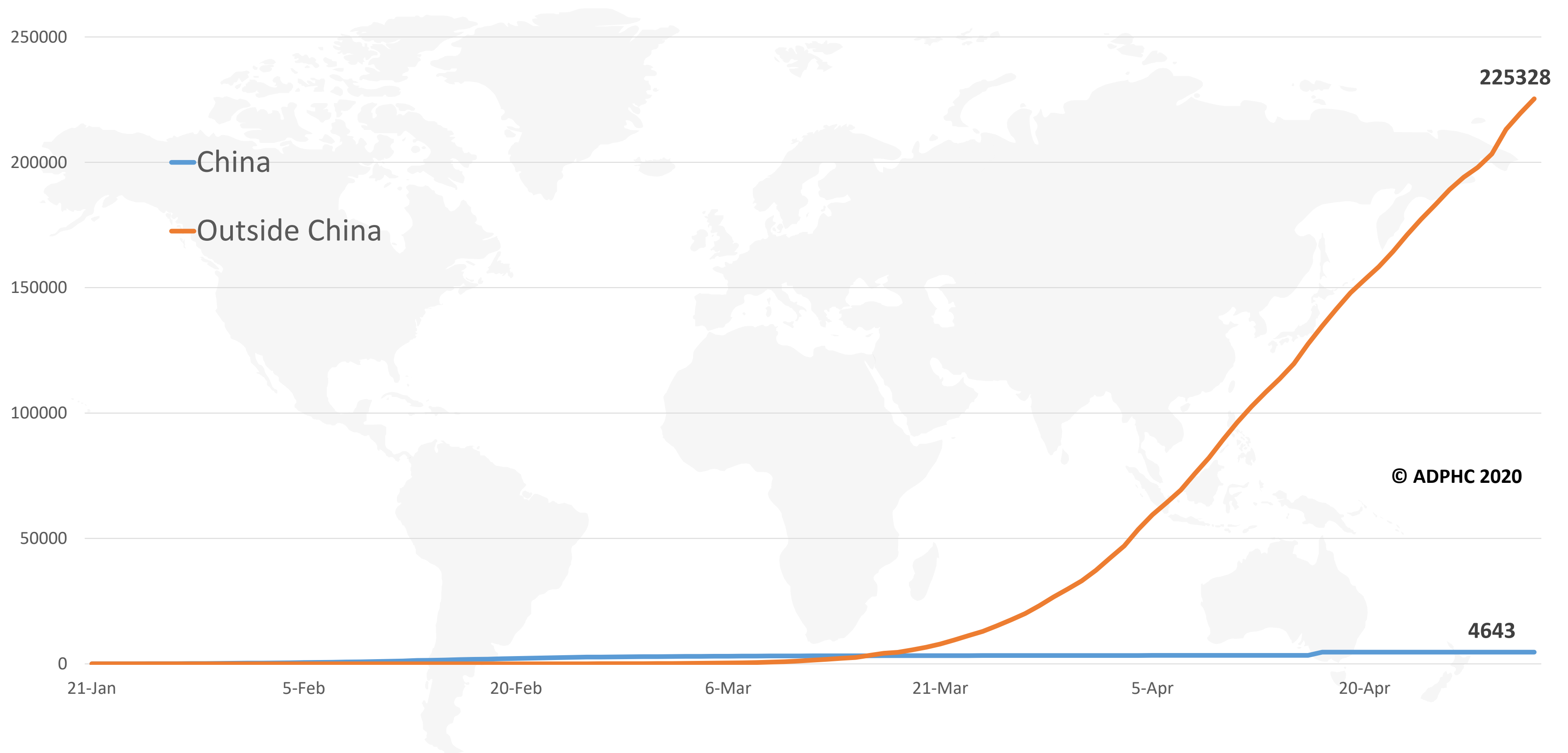
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



**Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 22 to May 2<sup>nd</sup>, 2020).**



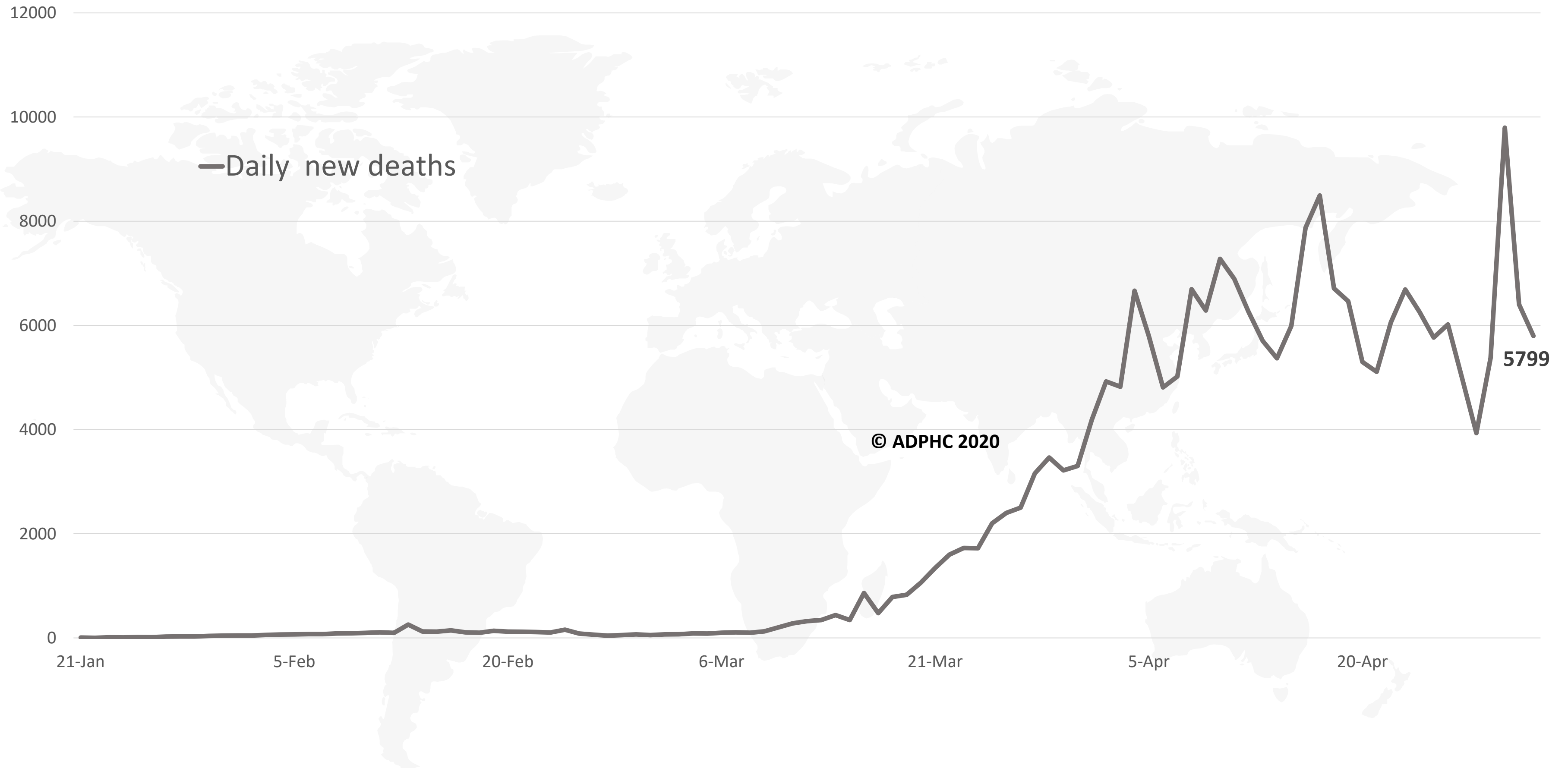
© ADPHC 2020

Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



**Figure 6: Global daily new deaths due to COVID-19 (January 22 to May 2<sup>nd</sup>, 2020).**



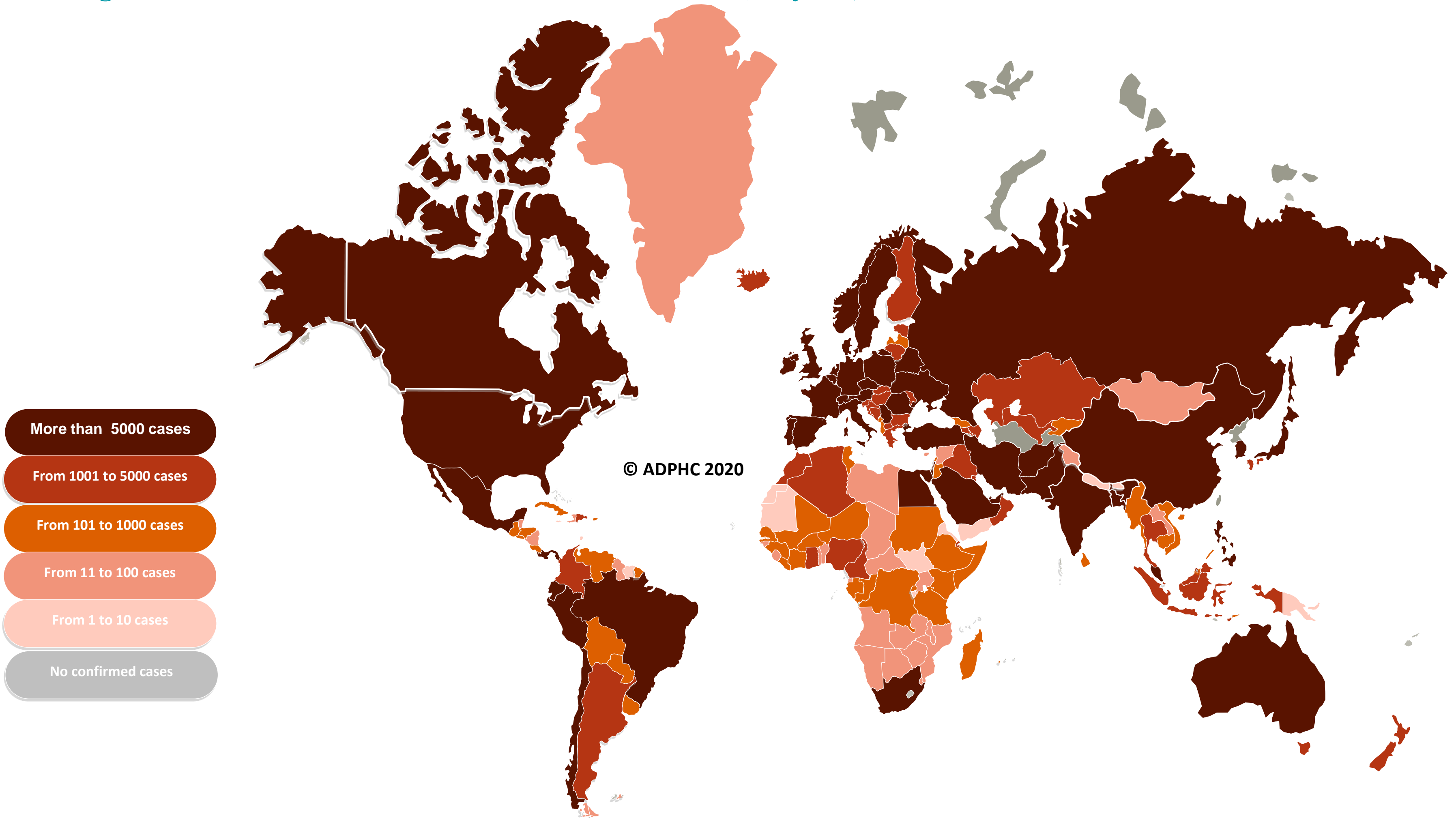
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



Figure 7a : Global distribution of COVID-19 cases (May 2<sup>nd</sup>, 2020).



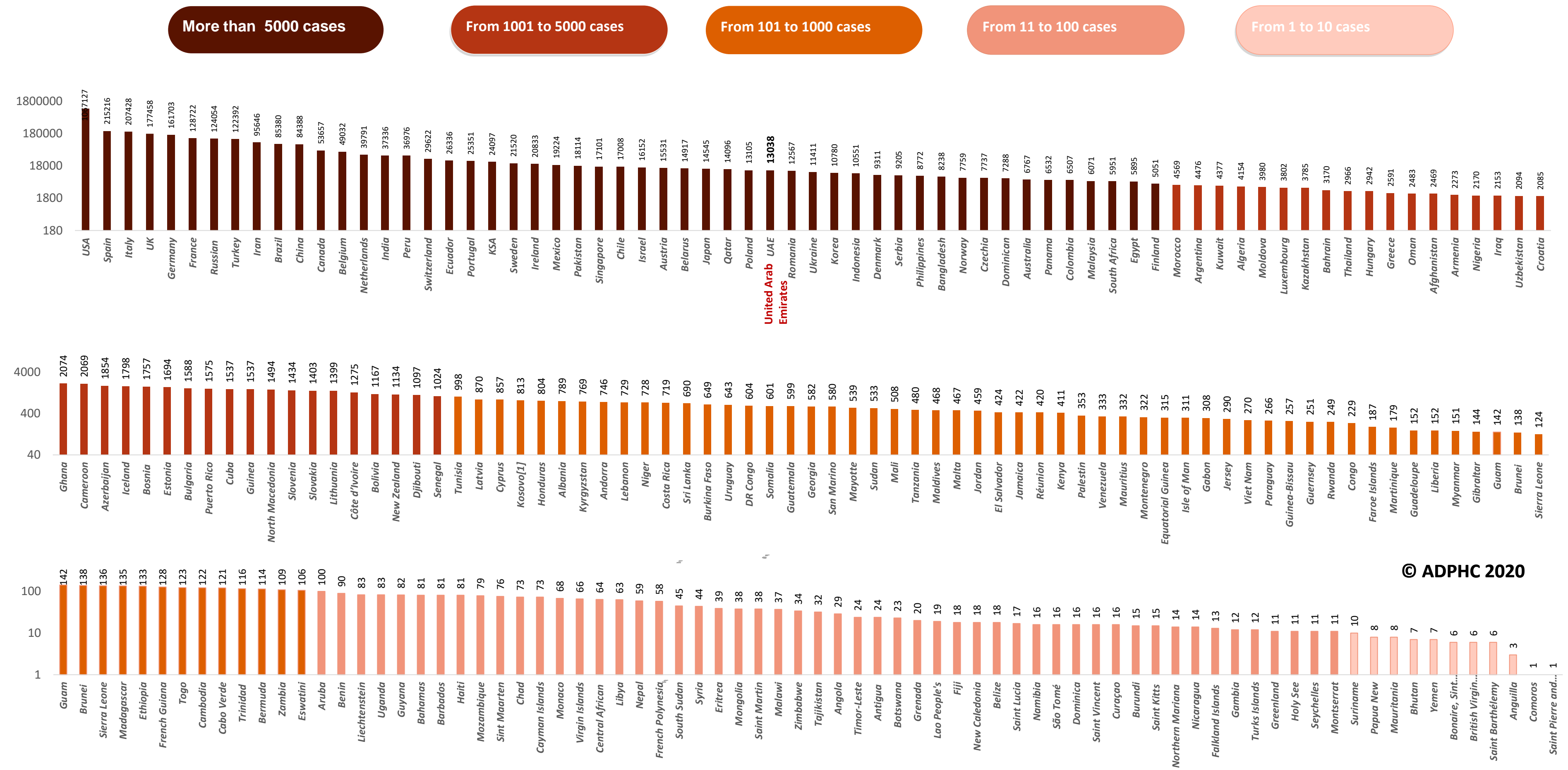
- More than 5000 cases
- From 1001 to 5000 cases
- From 101 to 1000 cases
- From 11 to 100 cases
- From 1 to 10 cases
- No confirmed cases

Map chart published by Abu Dhabi Public Health Center 2020.

# Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases May 2<sup>nd</sup>, 2020)



© ADPHC 2020

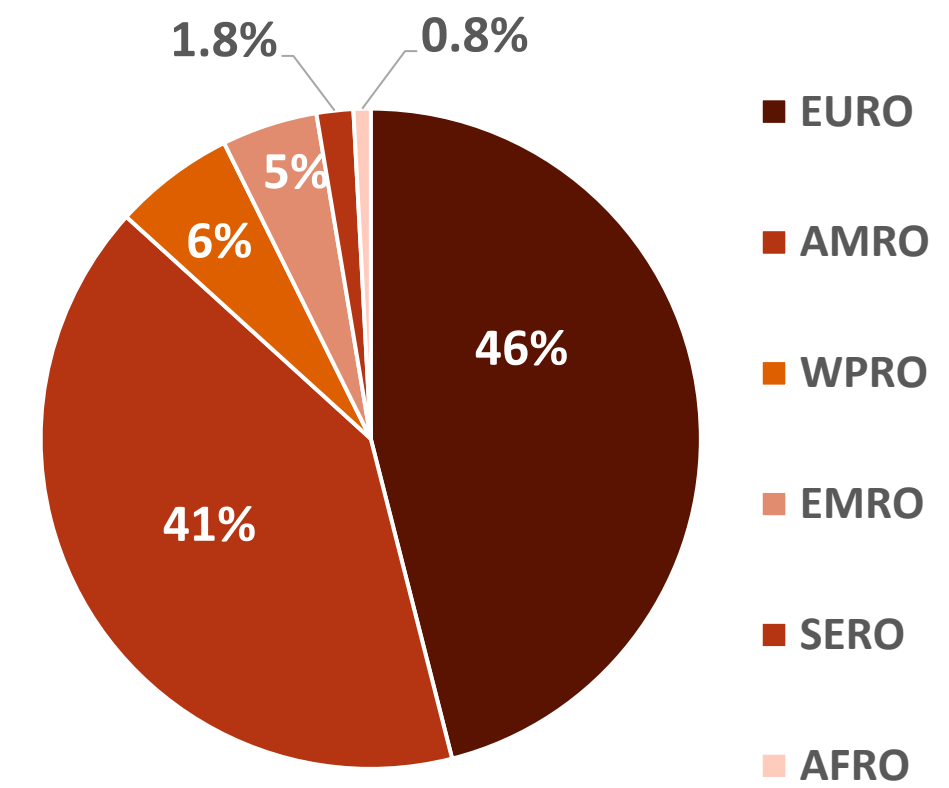
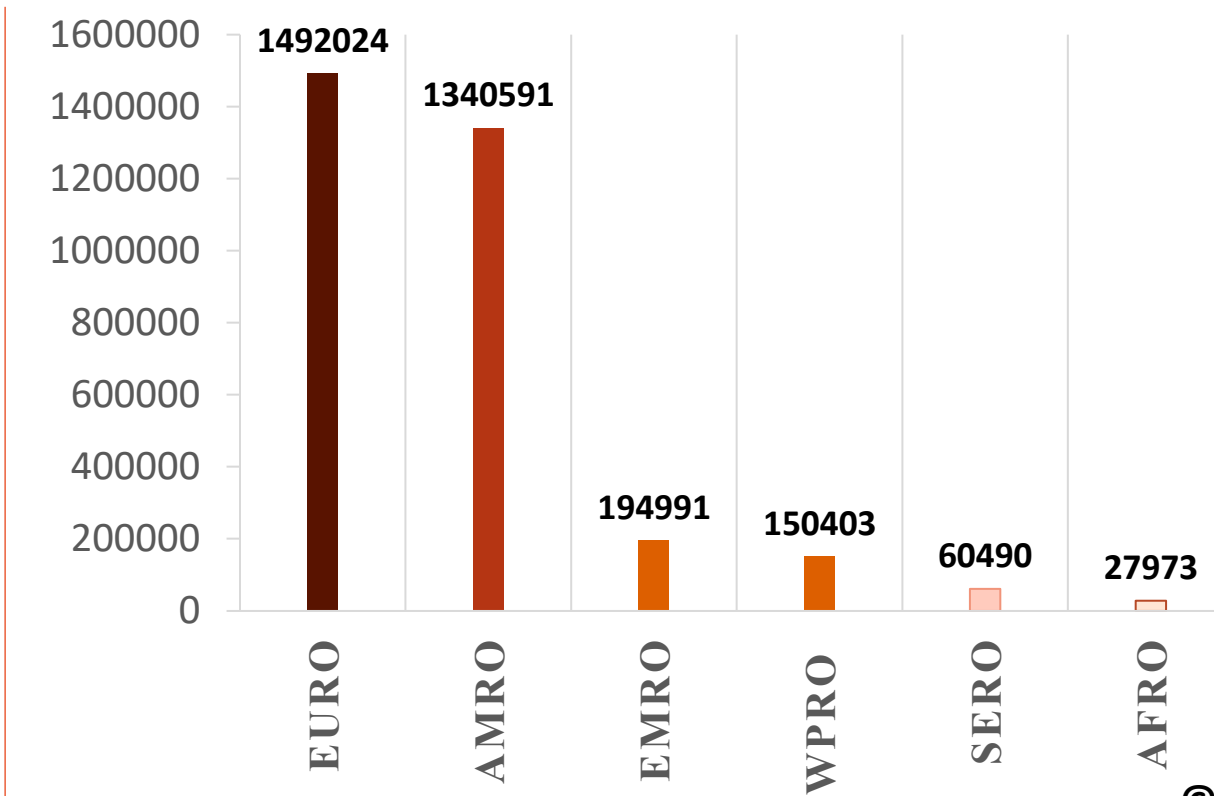
Map chart published by Abu Dhabi Public Health Center 2020.

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



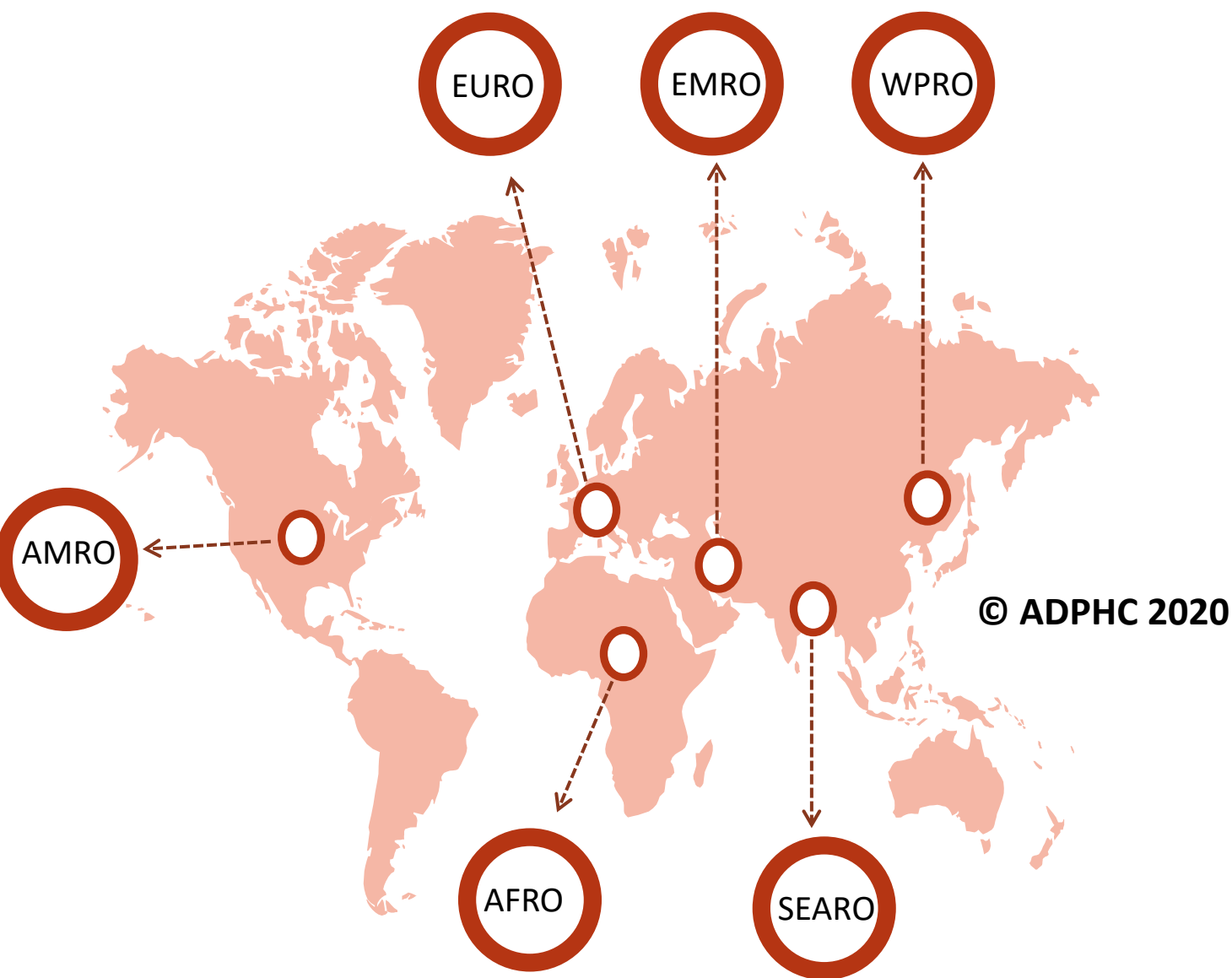
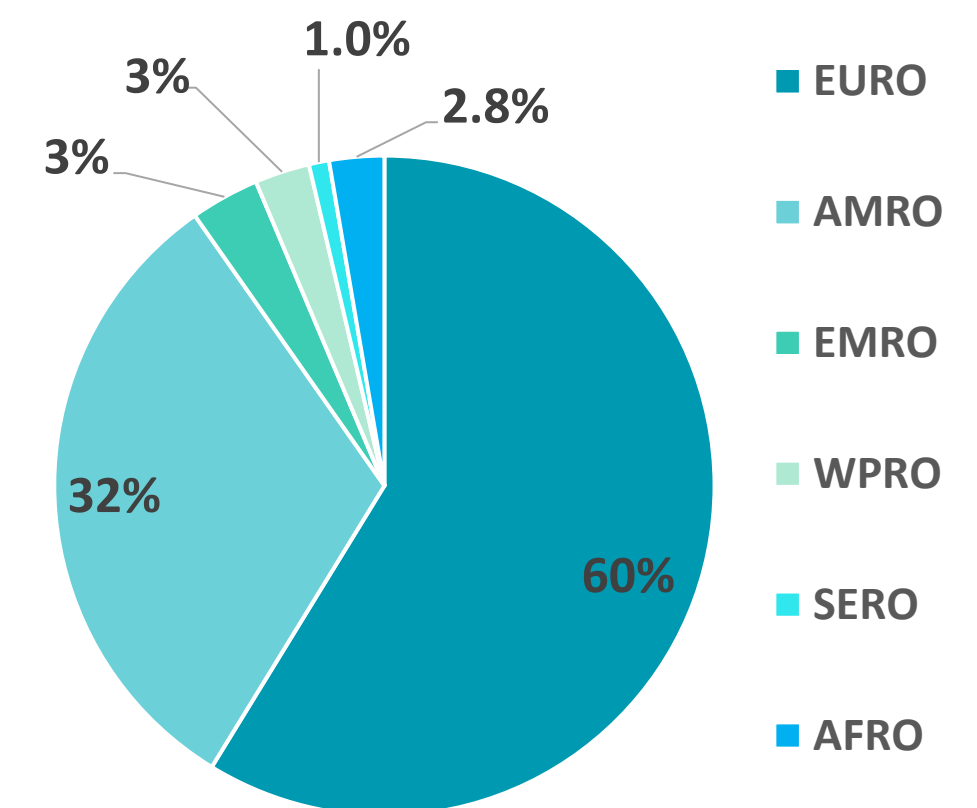
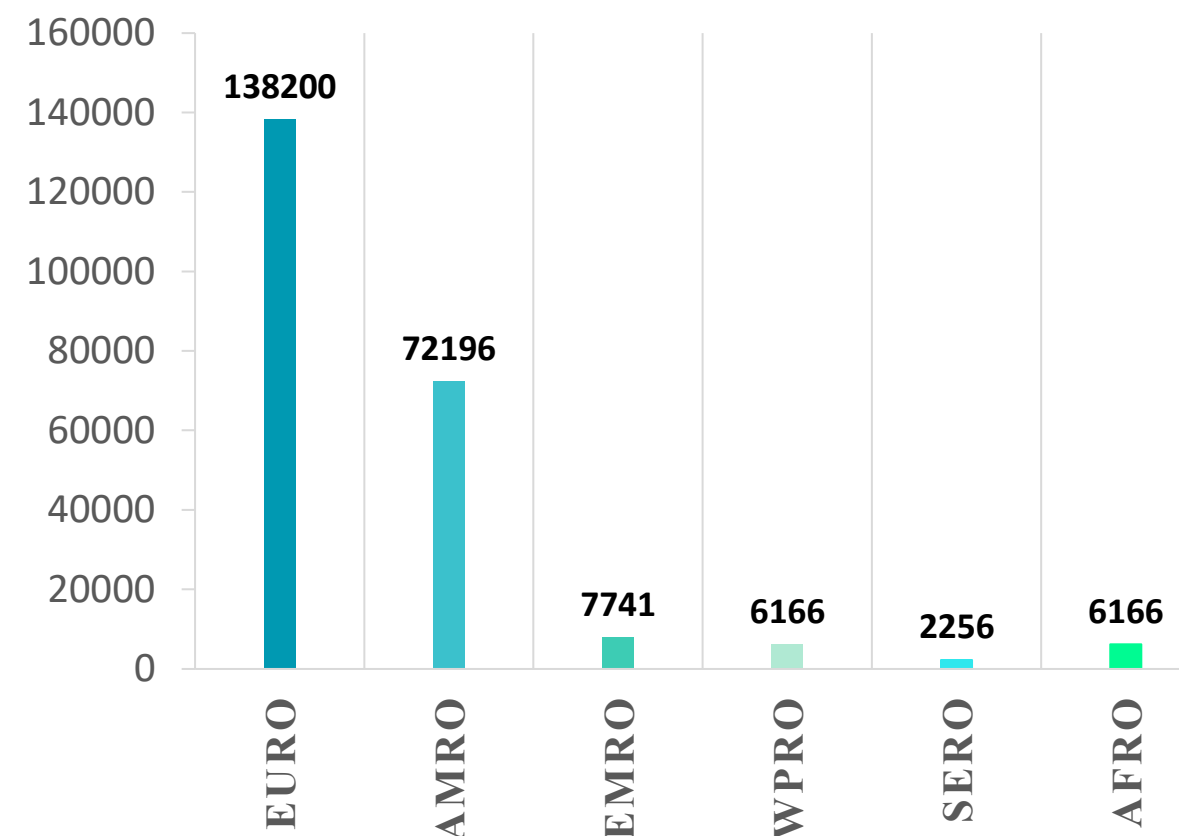
Figure 8: illustrate the Global distribution of COVID19 cases per region (May 2<sup>nd</sup>, 2020)

## INFECTED



© ADPHC 2020

## DEATH



© ADPHC 2020

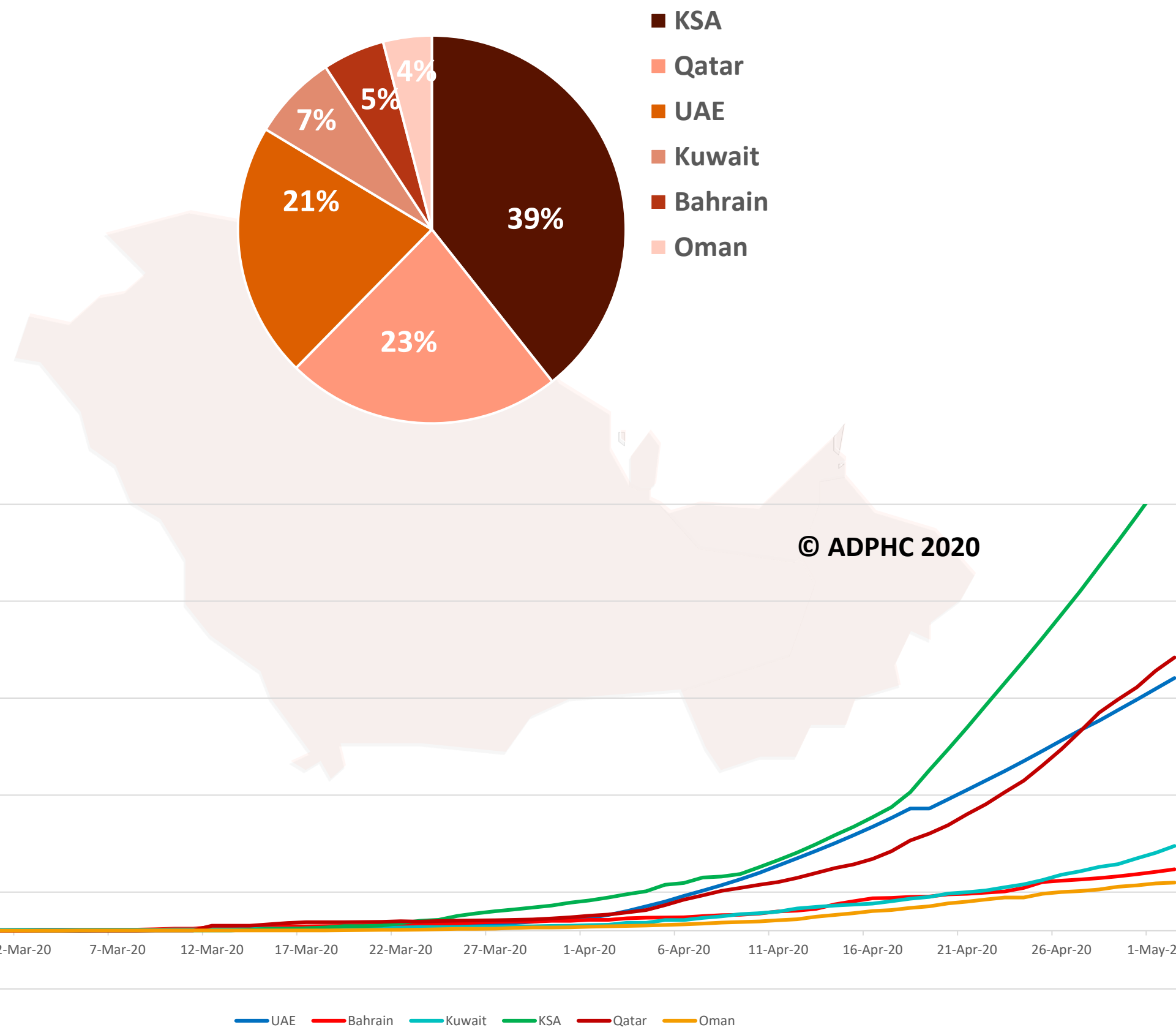
Map chart published by Abu Dhabi Public Health Center 2020.

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

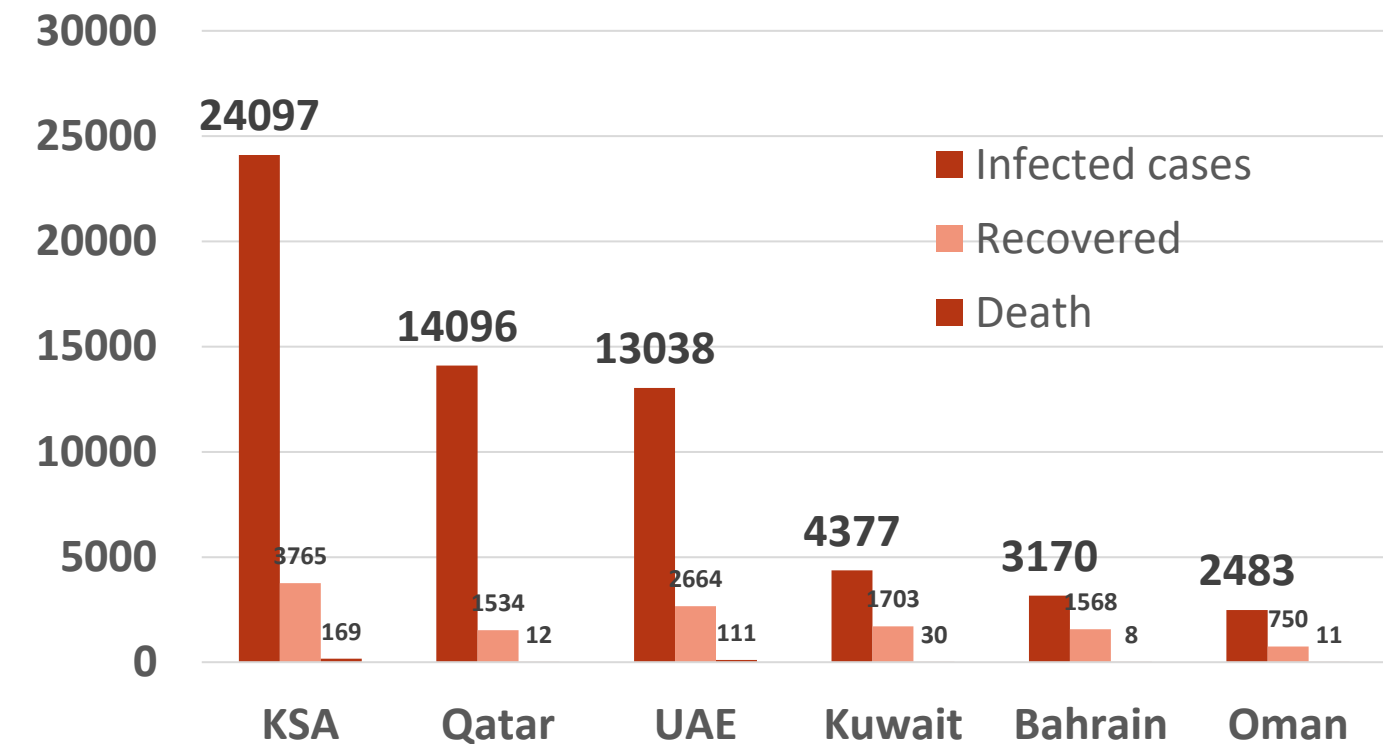


**Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (May 2<sup>nd</sup>, 2020)**

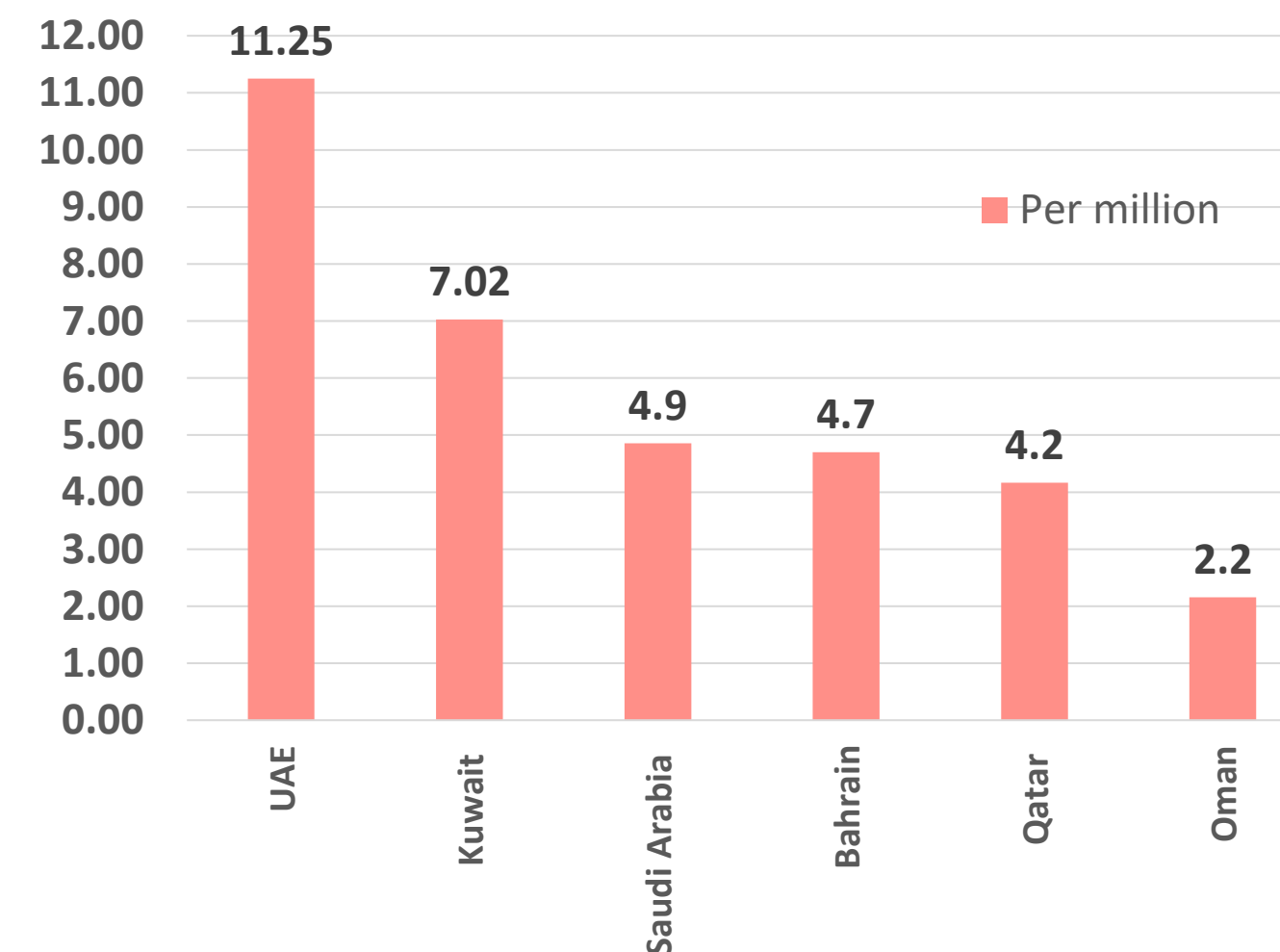
## TOTAL NUMBER OF INFECTED CASES



## Total number of infected, recovered and Deaths



## Death per million



charts published by Abu Dhabi Public Health Center 2020.

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

© ADPHC 2020

This document was developed by Abu Dhabi Public Health Center - ADPHC. The document is and shall remain the property of ADPHC and may only be used for the purposes for which it was intended. Unauthorized use or reproduction of this document is prohibited.

مركز أبوظبي للصحة العامة © 2020 هذه الوثيقة مملوكة لمركز أبوظبي للصحة العامة، ولا يجوز استخدامها لغير الأغراض المخصصة لها. ويحظر استخدام أو إعادة إنتاج هذه الوثيقة بدون إذن



# Transmission :

## Article 1: Exposure to a Surrogate Measure of Contamination From Simulated Patients by Emergency Department Personnel Wearing Personal Protective Equipment

Published: April 27 2020 in the [JAMA](#)

### Summary:

Summarized by subject matter experts

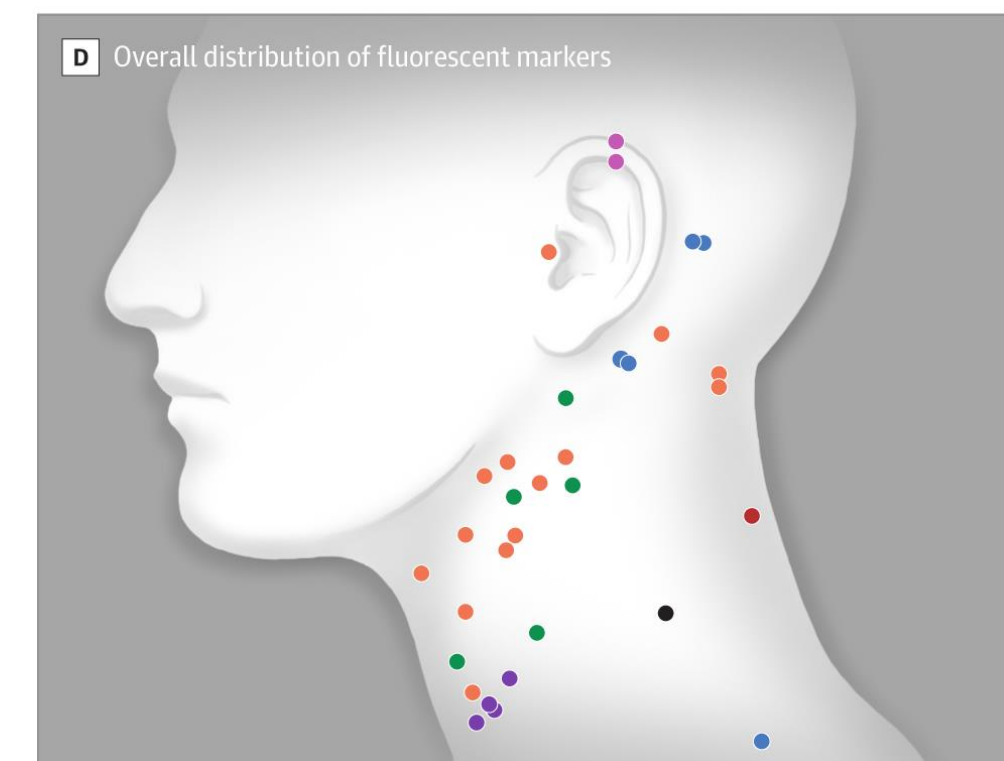
This article assessed the protection of doctors and nurses in emergency department wearing the recommended personal protective equipment while caring for a simulated patient with respiratory illness.

### How the study was done?

- This was a simulation study with one adult and one child surrogate patient – not a real patient, just a manikin.
- A device was used to simulate droplets exhaled during coughing.
- A nonvisible fluorescent compound (Glo Germ) as a marker of contamination was used that was visualized and photographed under UV light.
- A team of doctors and nurses (n=8) wearing the **personal protective equipment – PPE (N95 respirators, eye protection, isolation gowns, and gloves)** performed the intubation in both patients.

### What this study add?

- Seven of 8 participants had fluorescent markers on their exposed skin, 6 on the neck, and 1 on an ear.
- All team members had fluorescent markers on their hair and 4 had markers on their shoes.
- There were 102 direct contacts between doctor/nurse and adult patient during the procedure of intubation.



### Conclusion:

- Despite wearing the PPE, fluorescent markers were found on the uncovered skin, hair, and shoes of participants.
- Current recommendations for PPE may not fully prevent exposures in emergency department settings.
- Clothing that covers all skin may further diminish exposure risk.



# Public Health Response



**Article 2: Reduced Rate of Hospital Admissions for ACS during Covid-19 Outbreak in Northern Italy**  
**Published:** April 28, 2020. the [NEJM](#)

## Summary:

This report shows a significant decrease in acute coronary syndrome -related hospitalization rates across several cardiovascular centers in northern Italy during the early days of the COVID-19 outbreak. A **significant increase in mortality during this period that was not fully explained by COVID-19 cases alone was noted.**

This observation and data from our study raise the question of whether **some patients have died from ACS without seeking medical attention during the COVID-19 pandemic.**

Of the 547 patients who were hospitalized for ACS during 20 Feb-31 March 2020 at 15 hospitals in Northern Italy (the time between the first confirmed case of COVID-19 in Italy and implementation of social containment). The mean admission rate was 13.3 admissions per day.

This rate was significantly lower than the rate during the earlier period in the same year from January 1 to February 19, 2020 (18.9 admissions per day) and the rate of same period of previous year 20 Feb-31 March 2019.

## Conclusion:

Health care systems have to review the pattern of admission of acutely ill patients with conditions other than COVID-19.

# Treatment



## Article 3: Covid-19 in Immune-Mediated Inflammatory Diseases — Case Series from New York

Published: : April 28, 2020 in the [NEJM](#)

### Summary:

previous data shows worse outcomes in term of hospitalization, ventilation or death due to cytokine storm.

This report is assessing outcome of Covid-19 in patients with **known immune-mediated inflammatory disease** (rheumatoid arthritis, ankylosing spondylitis, psoriasis, inflammatory bowel disease, or related conditions) who are receiving long term of **anticytokine biologics** and/or other **immunomodulatory therapies**. These case series include 86 symptomatic patients with both confirm (59) and highly suspected covid-19 (27) at hospital in New York City (from March 3 to April 3, 2020 ) average follow-up was 16 days from symptom onset. The study compares the patients hospitalized patients and ambulatory patients.

Table 1. Baseline Characteristics of the Patients in Whom Covid-19 Was Confirmed or Highly Suspected.\*

Characteristic	All Patients (N = 86)	Ambulatory Patients (N = 72)	Hospitalized Patients (N = 14)
Mean age (range) — yr	46 (22–74)	46 (22–74)	50 (25–73)
Female sex — no. (%)	49 (57)	42 (58)	7 (50)
Diagnosis of Covid-19 — no. (%)			
Positive	59 (69)	45 (62)	14 (100)
Suspected	27 (31)	27 (38)	0
Primary IMID diagnosis — no. (%)†			
Psoriasis	14 (16)	13 (18)	1 (7)
Psoriatic arthritis	21 (24)	18 (25)	3 (21)
Rheumatoid arthritis	20 (23)	14 (19)	6 (43)
Ulcerative colitis	17 (20)	14 (19)	3 (21)
Crohn's disease	20 (23)	19 (26)	1 (7)
Ankylosing spondylitis	9 (10)	9 (12)	0
Long-term medications — no. (%)			
ACE inhibitor or ARB	13 (15)	8 (11)	5 (36)
Any medication for primary IMID diagnosis	75 (87)	62 (86)	13 (93)
Methotrexate	17 (20)	11 (15)	6 (43)
Hydroxychloroquine	8 (9)	5 (7)	3 (21)
Oral glucocorticoids	8 (9)	4 (6)	4 (29)
Any biologic or JAK inhibitor	62 (72)	55 (76)	7 (50)
Tumor necrosis factor inhibitor	38 (44)	35 (49)	3 (21)
Interleukin-17 blocker	6 (7)	5 (7)	1 (7)
Interleukin-23 blocker	3 (3)	3 (4)	0
Interleukin-12/23 blocker	6 (7)	6 (8)	0
JAK inhibitor	6 (7)	5 (7)	1 (7)

# Treatment



## Article 3 : Cont., Summary:

### Findings:

- 62 out of 86 are **on biologics or Janus kinase (JAK) inhibitors**, 14 of them got hospitalized.
- The hospitalized patients were older.
- The percentage of patients on biologics or JAK inhibitors was higher among the ambulatory patients.
- Mostly used medications among the **hospitalized** were **oral glucocorticoids, hydroxychloroquine and methotrexate**.
- 11 of 14 hospitalized patients were discharged with mean stay of **5.6 days** , and 2 remain hospitalized as of April 31 **one received mechanical ventilation**, and the other **died in the emergency department**; neither patient was **receiving biologic therapies on a long-term basis**.

**Conclusion:** These findings suggest that the baseline use of biologics is not associated with worse Covid-19 outcomes.

Table 1. (Continued.)

Characteristic	All Patients (N = 86)	Ambulatory Patients (N = 72)	Hospitalized Patients (N = 14)
Anosmia	10 (12)	6 (8)	4 (29)
Ageusia	10 (12)	6 (8)	4 (29)
Hospitalization			
Days from first symptom to hospitalization			5.8±4
Regular floor — no. (%)			12 (86)
Use of supplementary oxygen — no. (%)			7 (50)
ICU-level care, mechanical ventilation, or both — no. (%)			1 (7)
Death — no. (%)			1 (7)