

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة



Scientific Research Monitoring on COVID-19

4 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

- **Public Health Response:** article consider Hospital-at-Home to Support COVID-19 Surge is can be more efficient , safe for health care worker and does not differ in health outcome compare to hospital admission.
- **Country profile:** addressing the public health response to COVID19 pandemic in New Zealand and how the country flattened the curve.
- **Treatment:** a study explore the cardiac complication of hydroxychloroquine with/out Azithromycin in COVID19 patients , showed high QT prolongation in 90% of the studied population.

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

[Digitate Papulosquamous Eruption Associated With Severe Acute Respiratory Syndrome Coronavirus 2 Infection](#)
[Petechial Skin Rash Associated With Severe Acute Respiratory Syndrome Coronavirus 2 Infection](#)



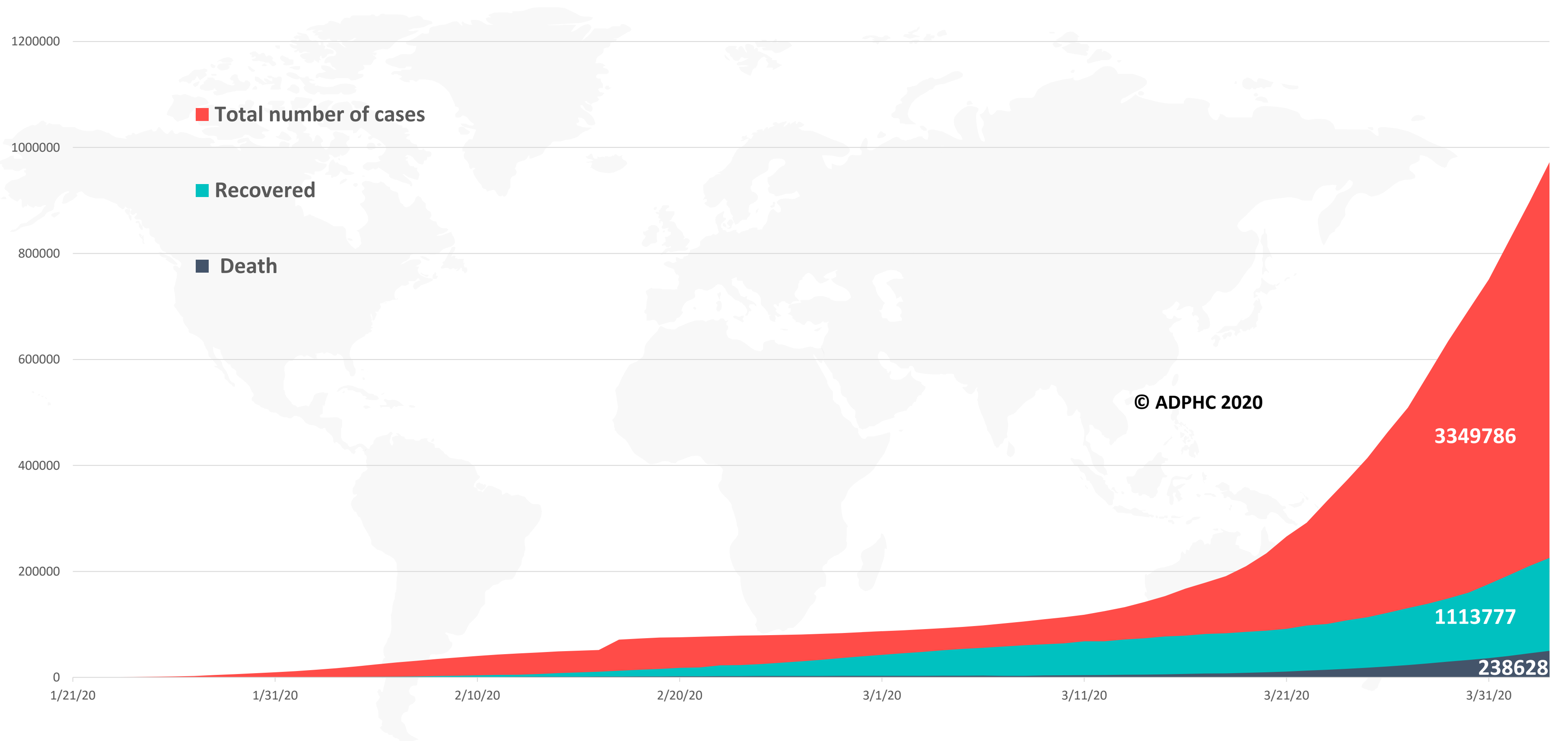
WHO daily report 3 May 2020

- WHO has recently updated the document on **Country Preparedness and Response Status for COVID-19**. The document highlighted that all countries are at risk and need to prepare for and respond to COVID-19. Each country is encouraged to plan its preparedness and response actions in line with the global Strategic Preparedness and Response Plan.
- As Yemen confirms its first cases of COVID-19, **WHO's Regional Office for the Eastern Mediterranean issued a statement**, stressing that collective action and commitment is the only way to mitigate the pandemic. “As long as even one case is unidentified and not properly treated, isolated and contacts traced, COVID-19 will continue to pose a significant threat to the Yemeni people and the country's struggling health system”.
- WHO has recently published **FAQs for COVID-19 Supply Portal**. The COVID-19 Supply Portal is a purpose-built tool to facilitate national authorities and all implementing partners supporting COVID-19 National Action Plans to request critical supplies.
- Since 15 April, WHO is providing **weekly update on COVID-19**, with the latest update published on 1 May. The report complements the daily situation reports, in addition to providing details on WHO funding mechanism

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to May 3, 2020)

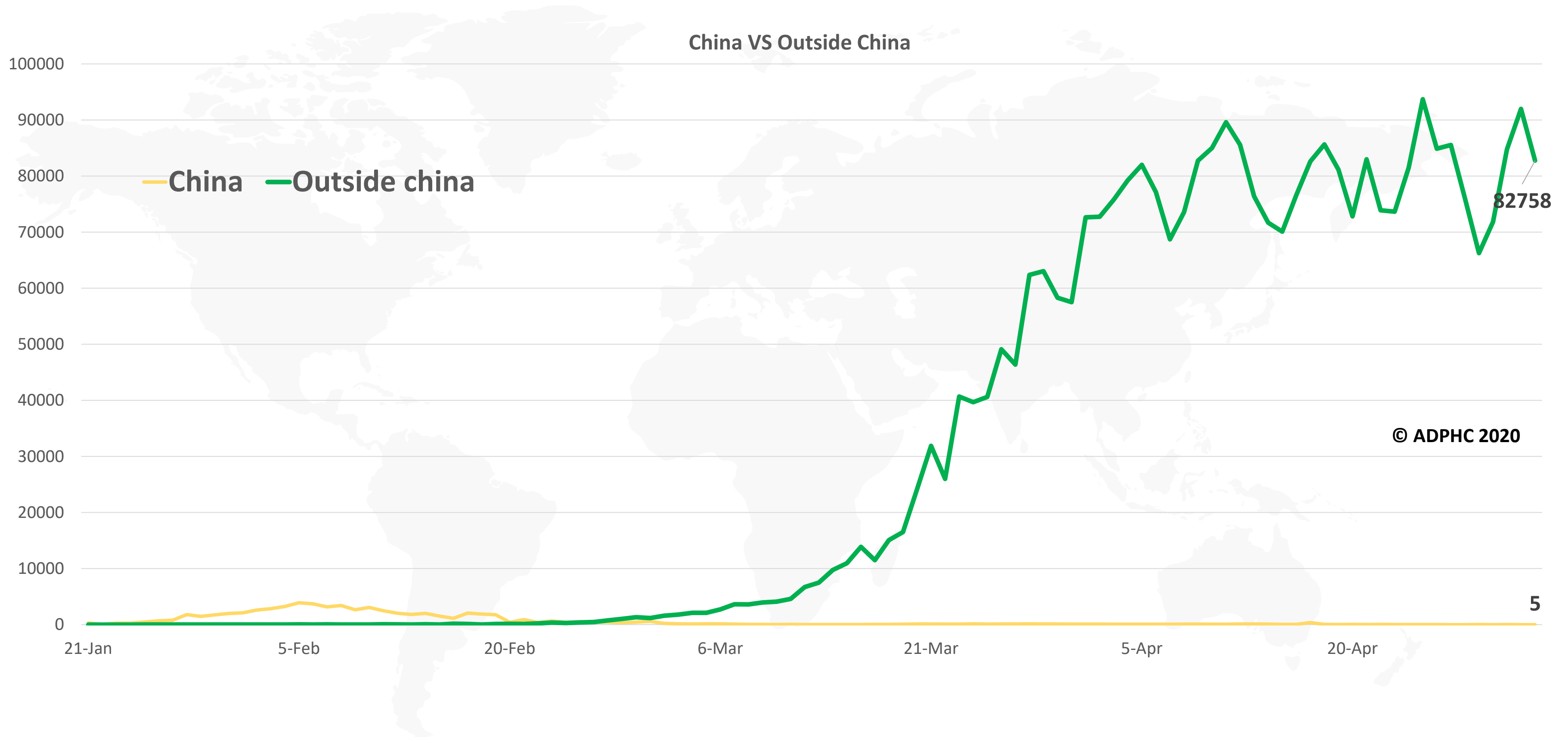


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to May 3, 2020).



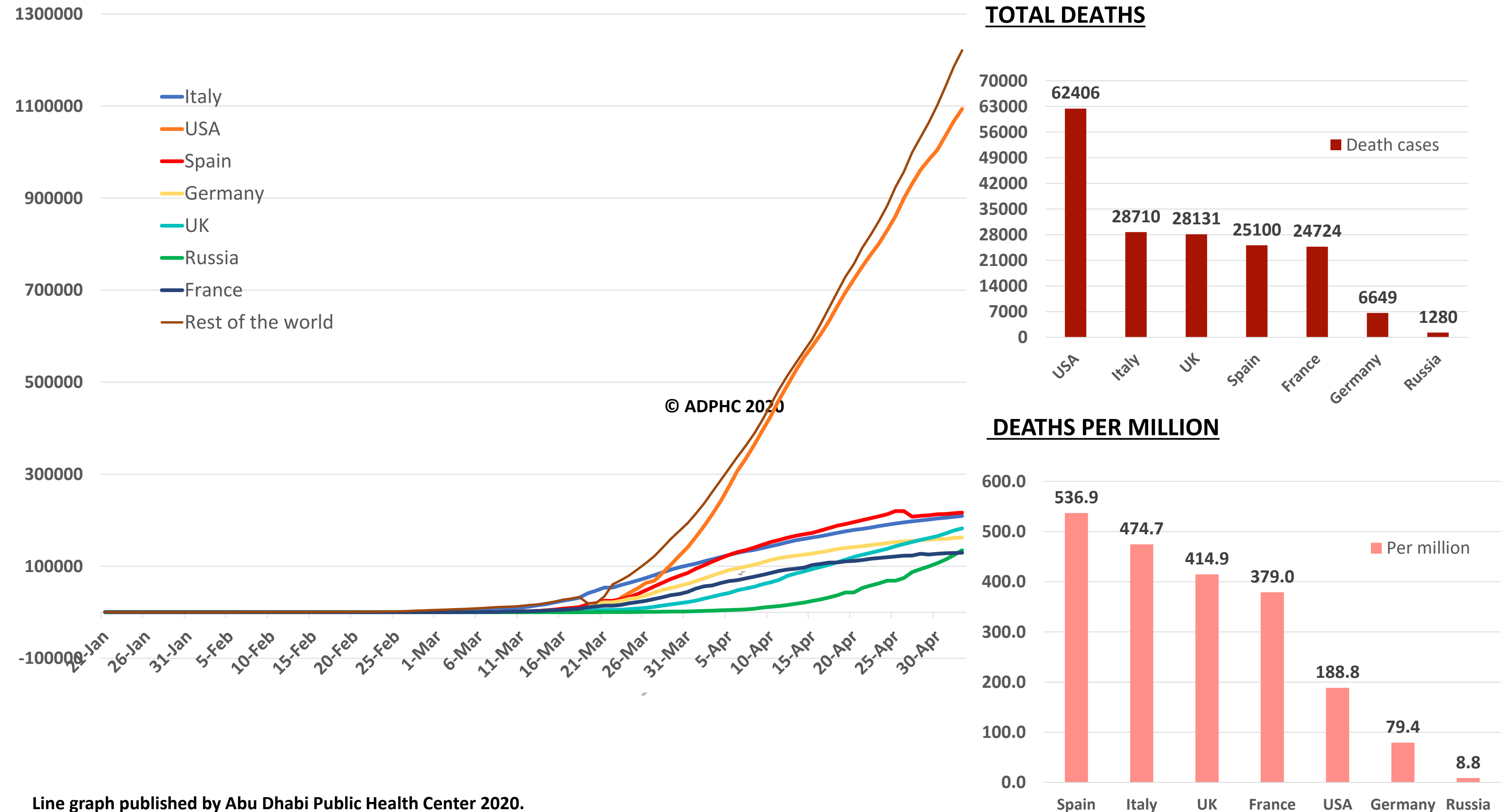
Line graph published by Abu Dhabi Public Health Center 2020.

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 3, 2020).



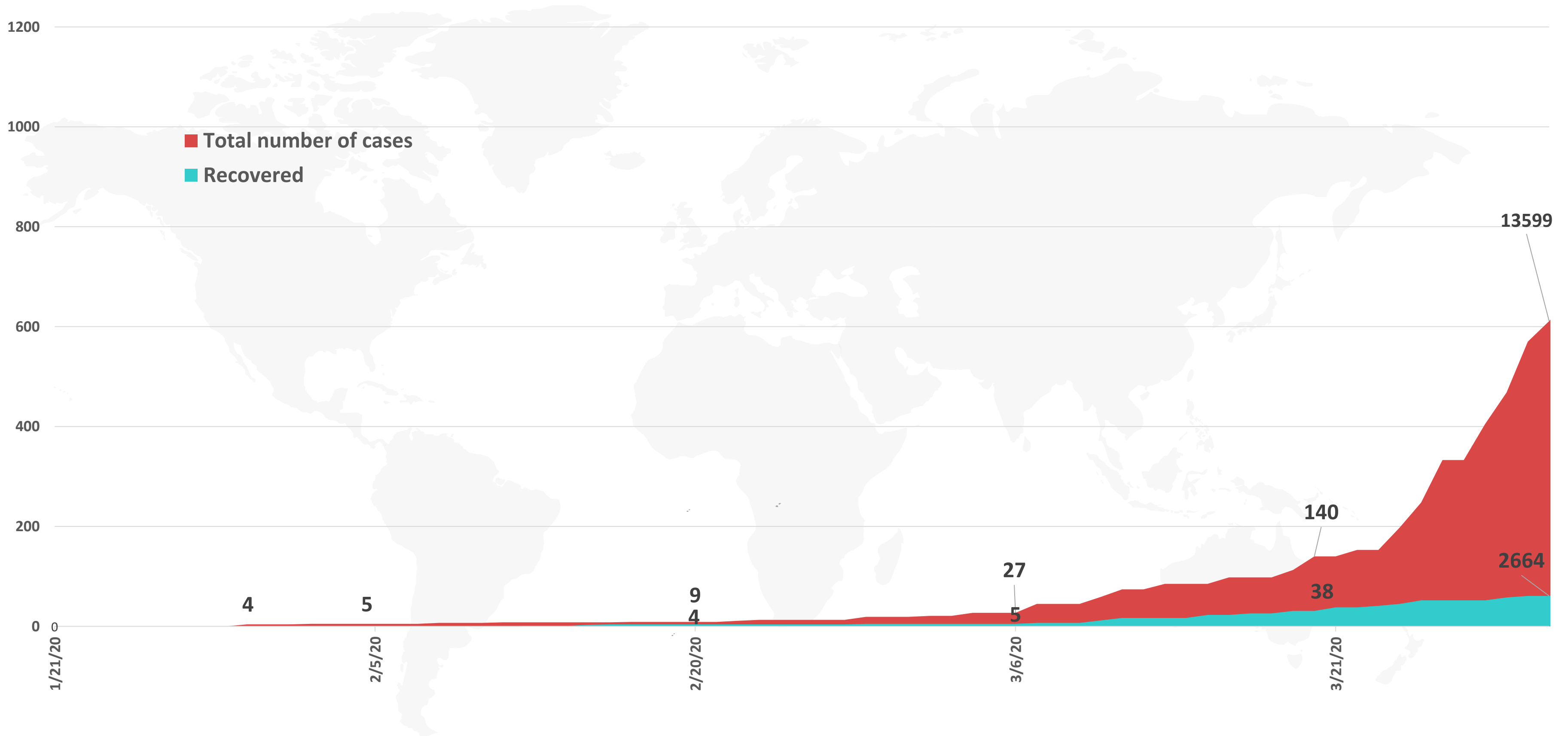
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



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



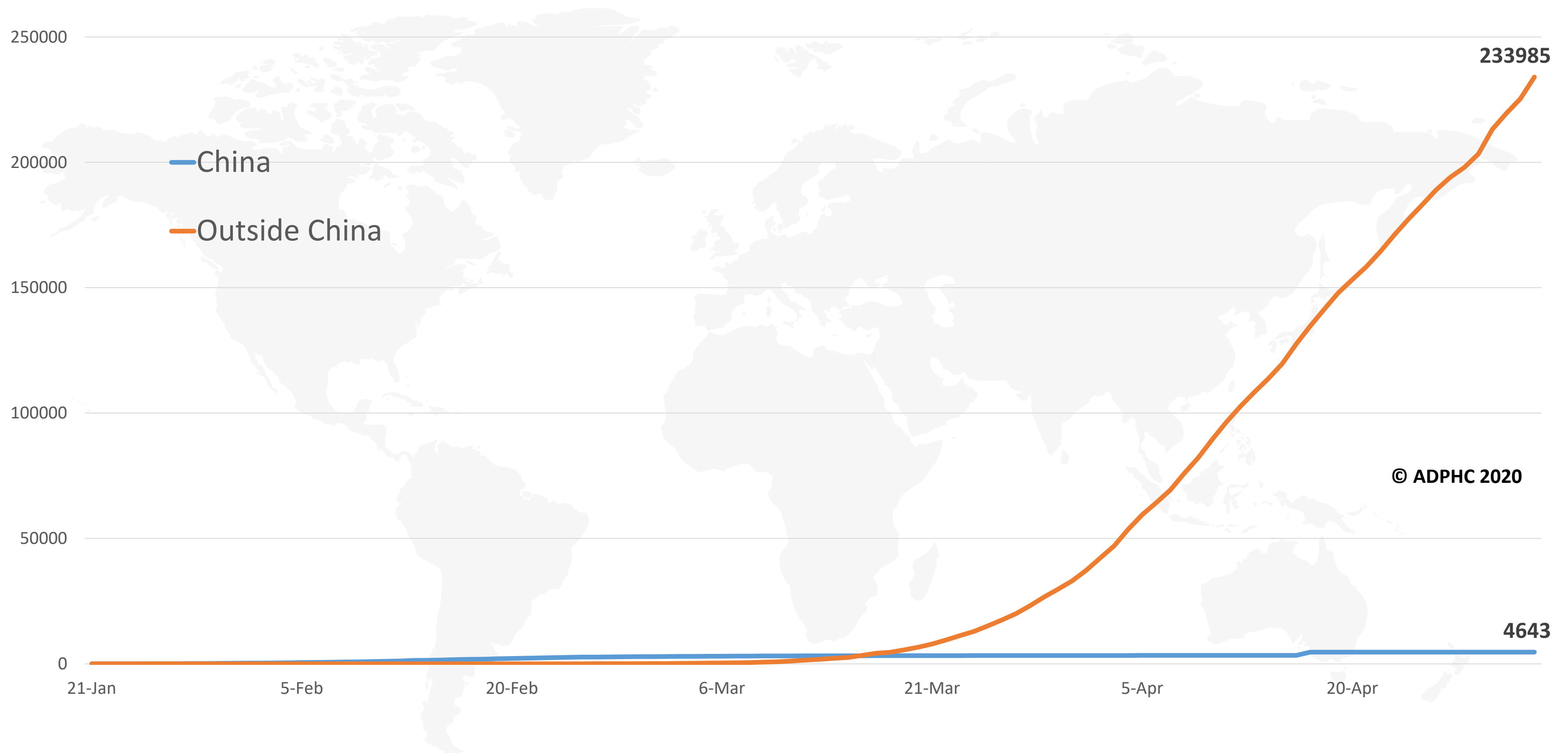
Line graph published by Abu Dhabi Public Health Center 2020.

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 3, 2020).



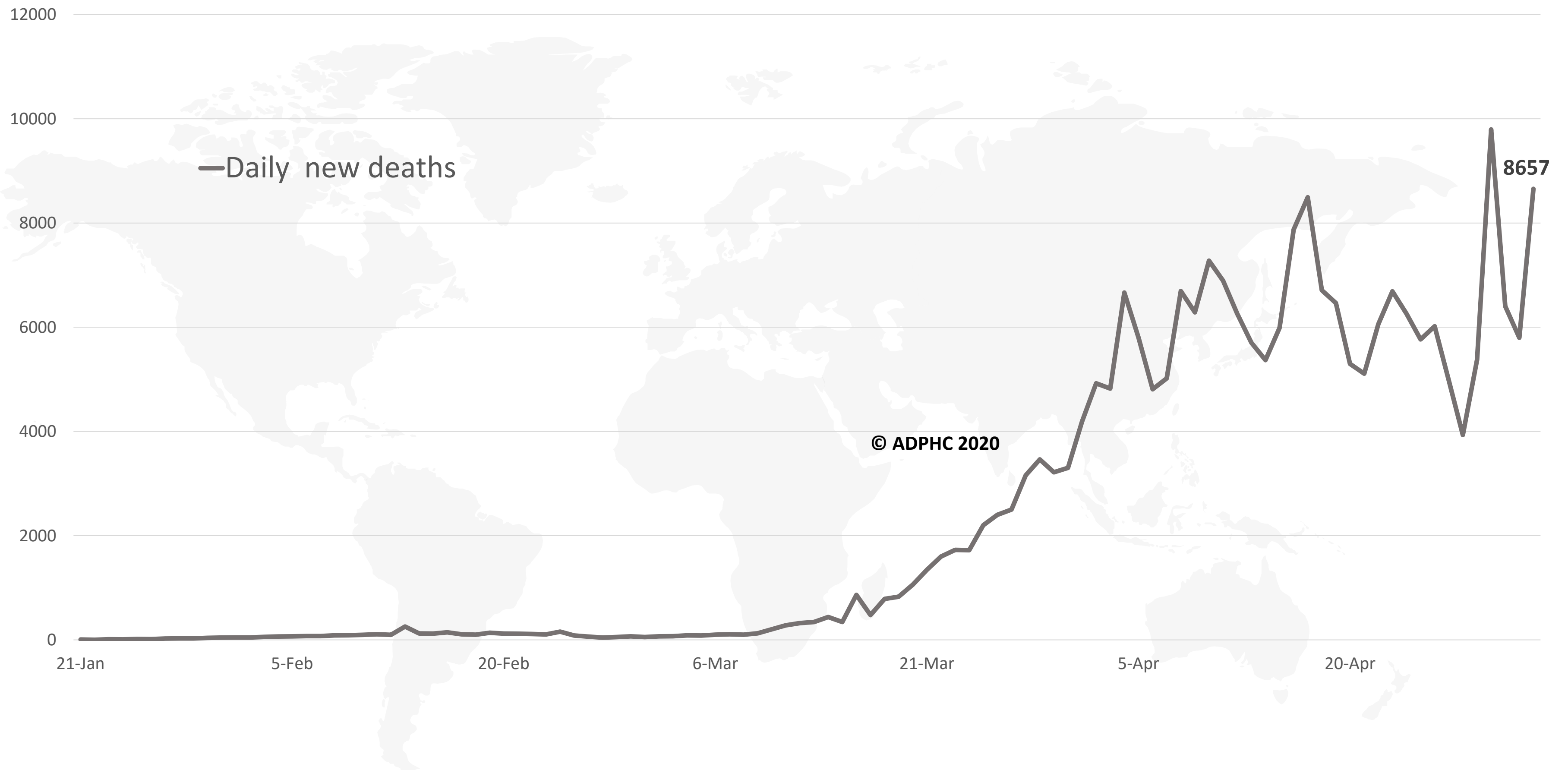
© ADPHC 2020

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 3, 2020).



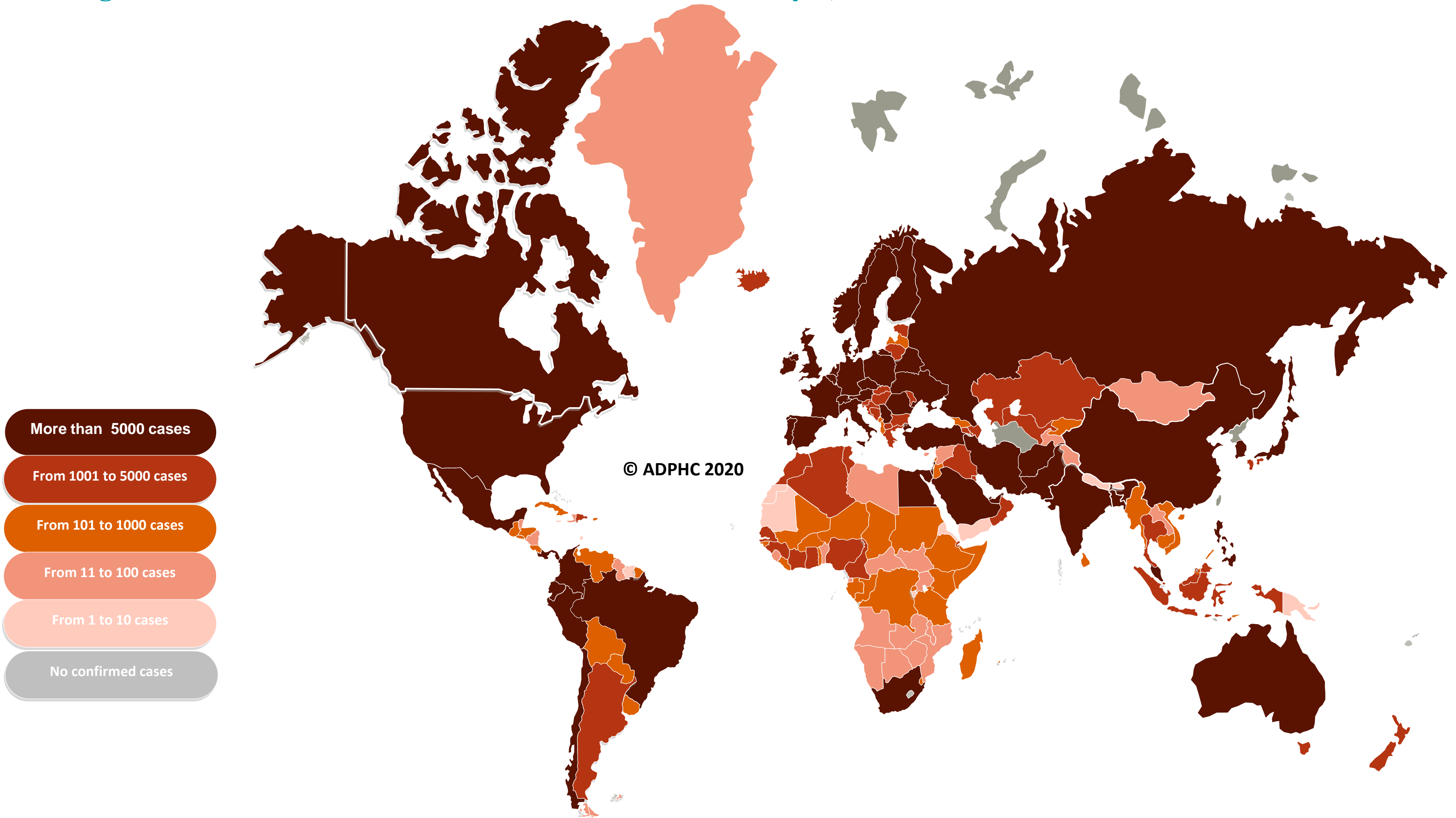
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

Epidemiology



Figure 7a : Global distribution of COVID-19 cases (May 3, 2020).

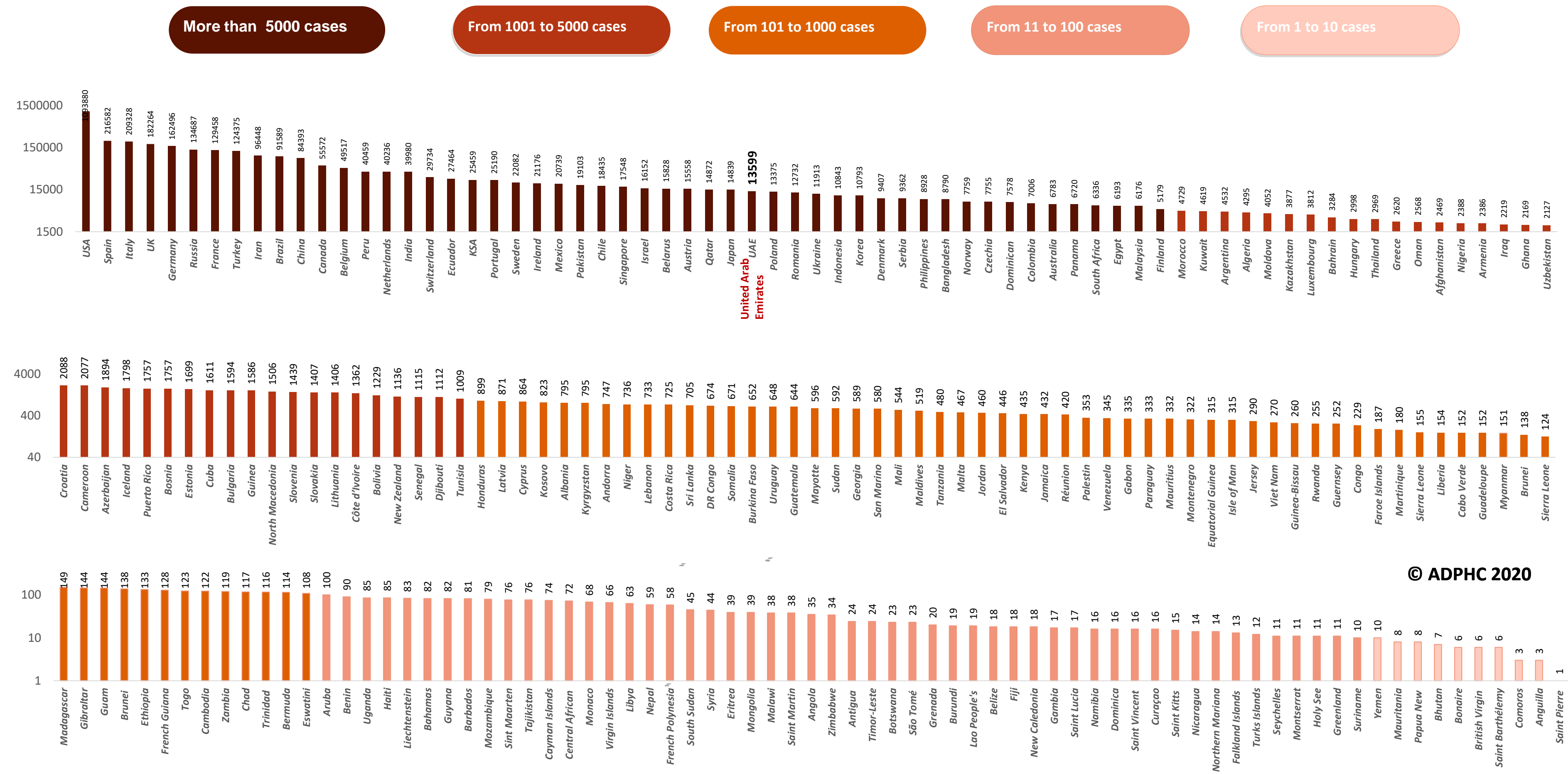


Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases May 3, 2020)



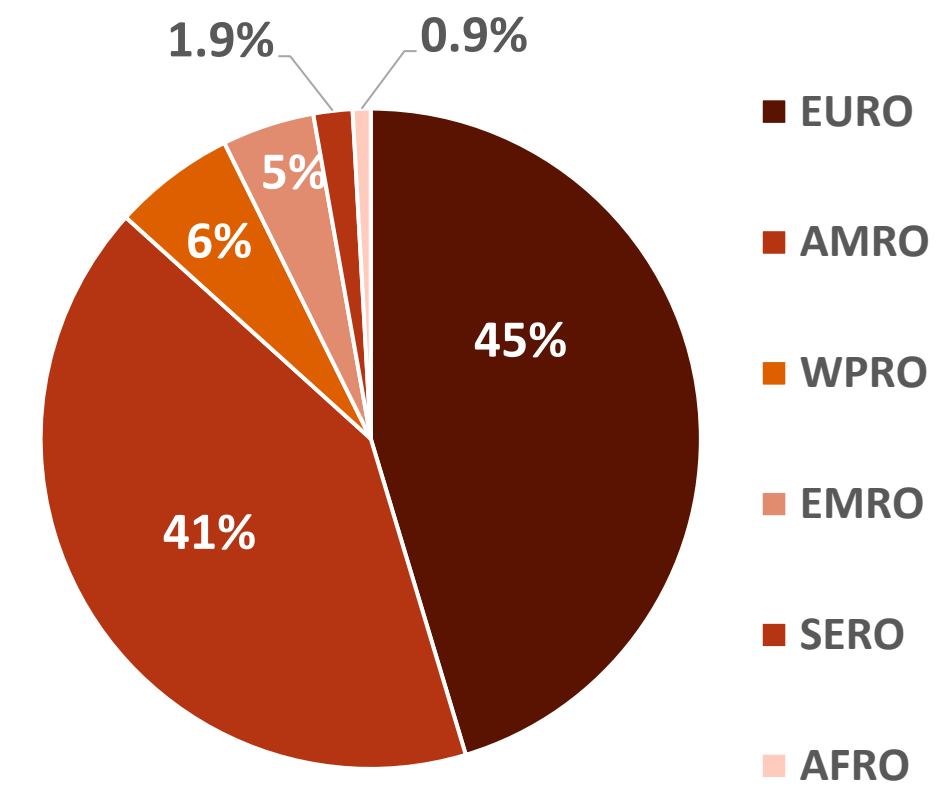
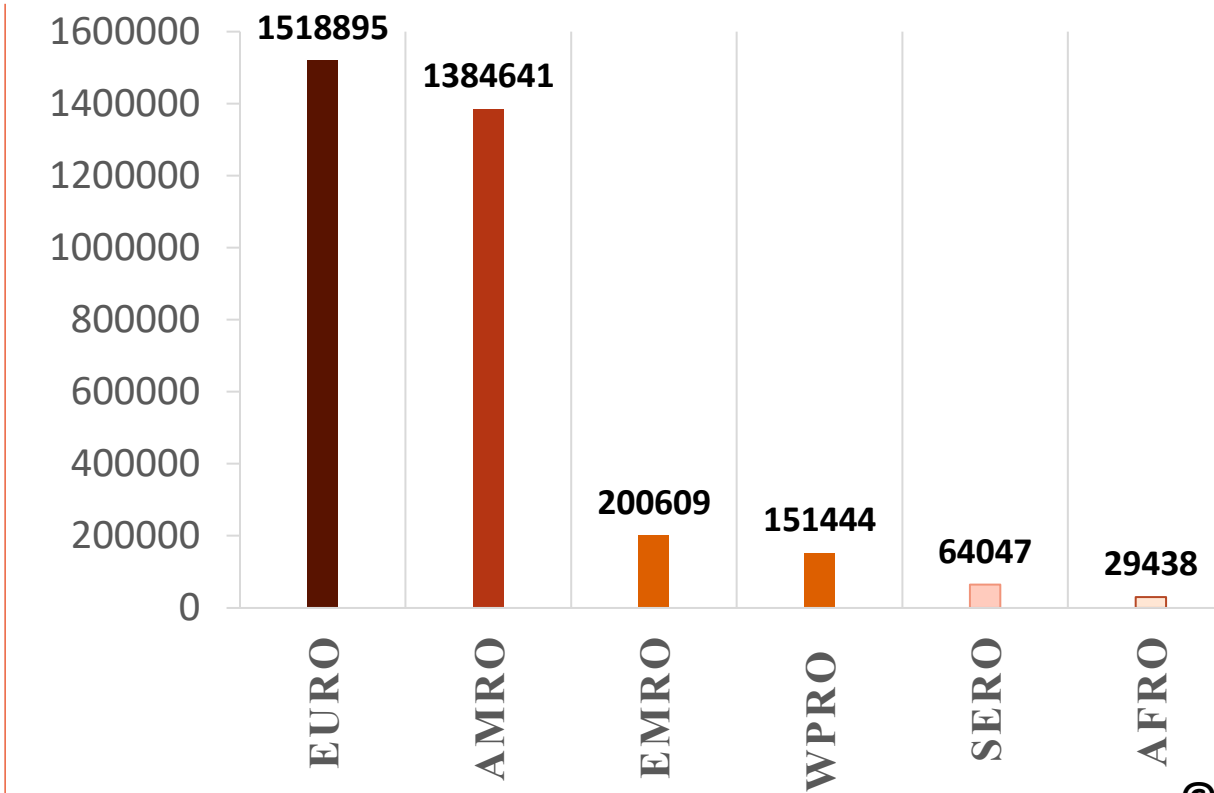
Map chart published by Abu Dhabi Public Health Center 2020.

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



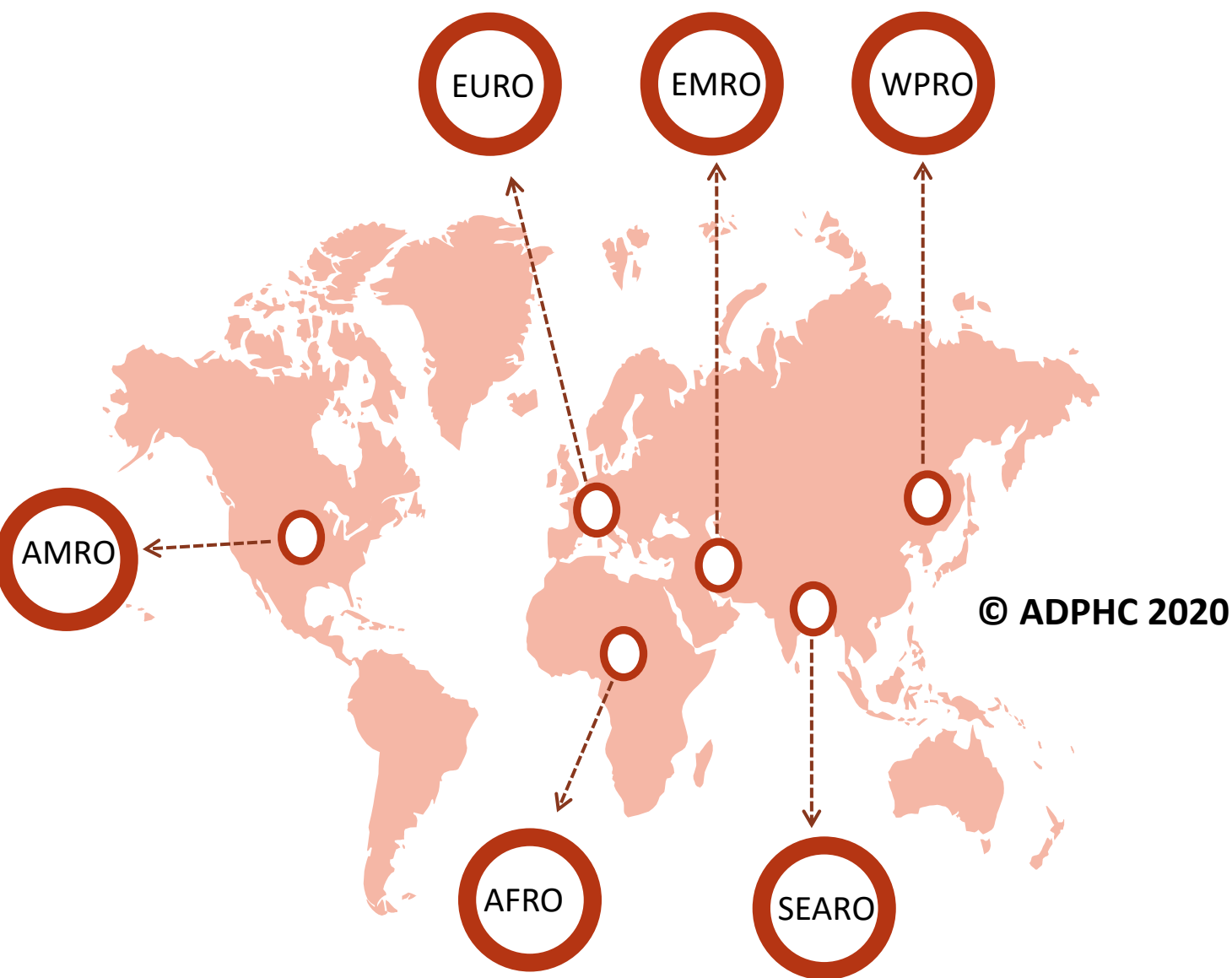
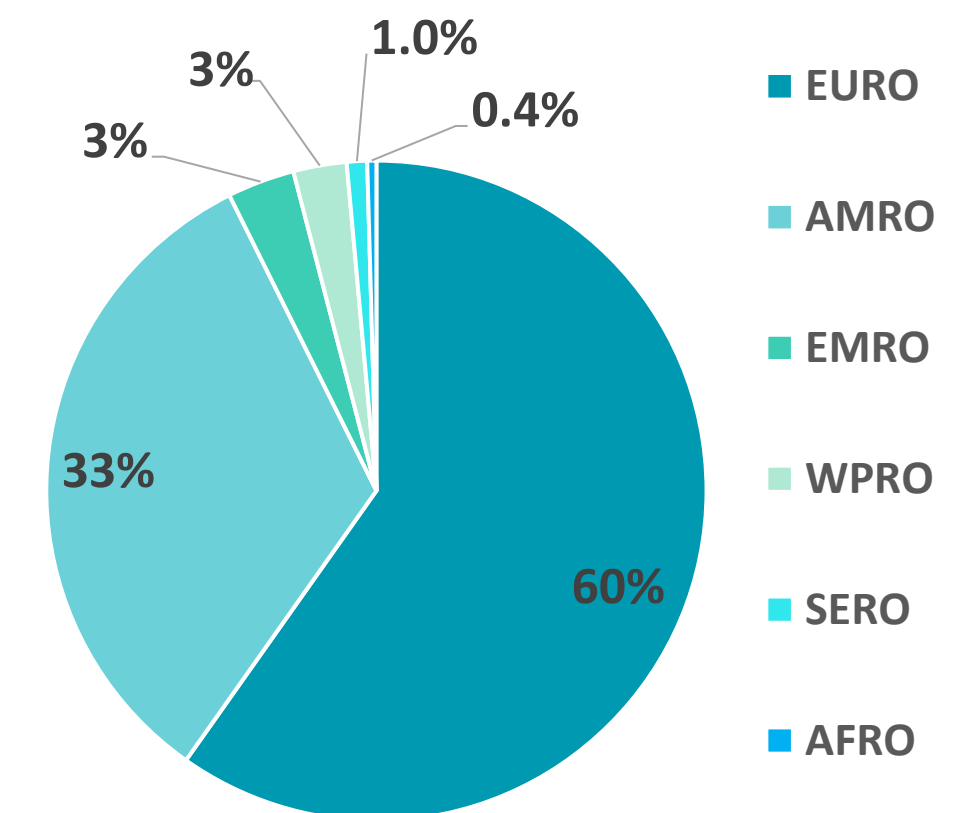
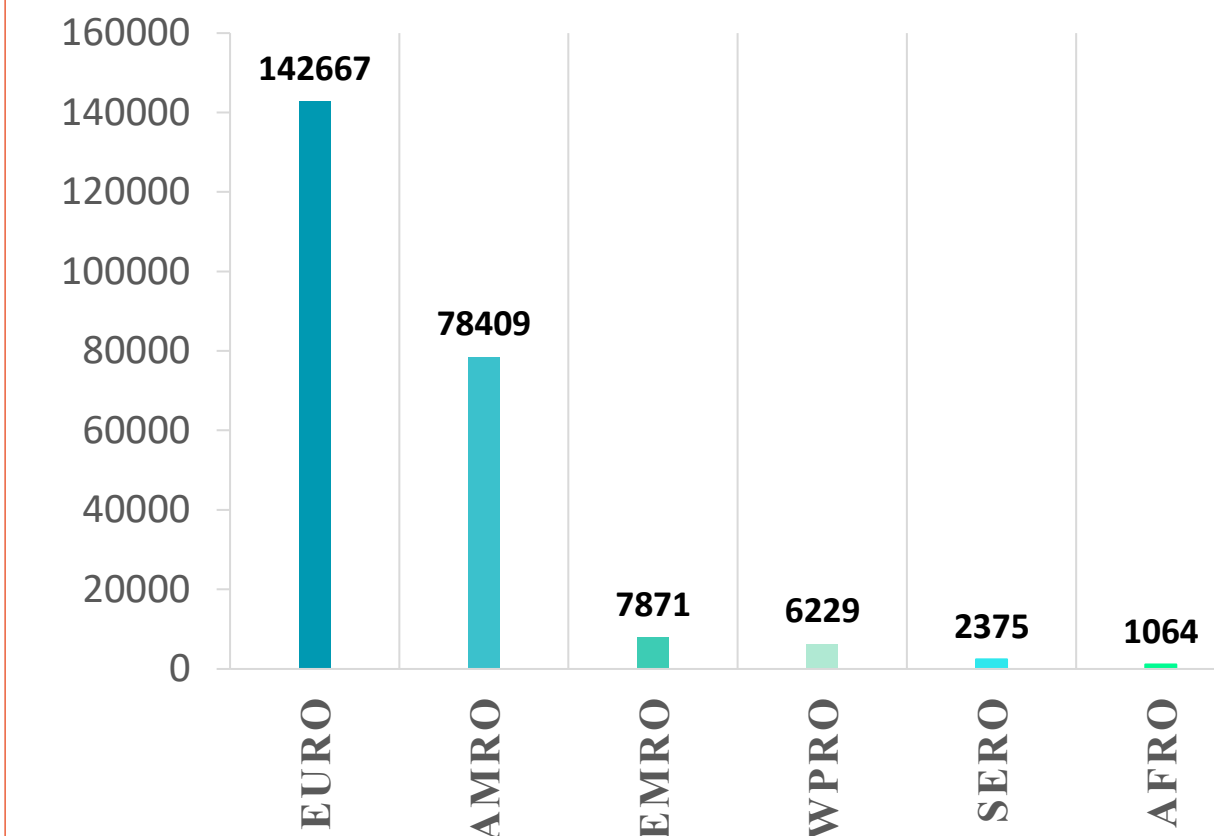
Figure 8: illustrate the Global distribution of COVID19 cases per region (May 3, 2020)

INFECTED



© ADPHC 2020

DEATH



© ADPHC 2020

Map chart published by Abu Dhabi Public Health Center 2020.

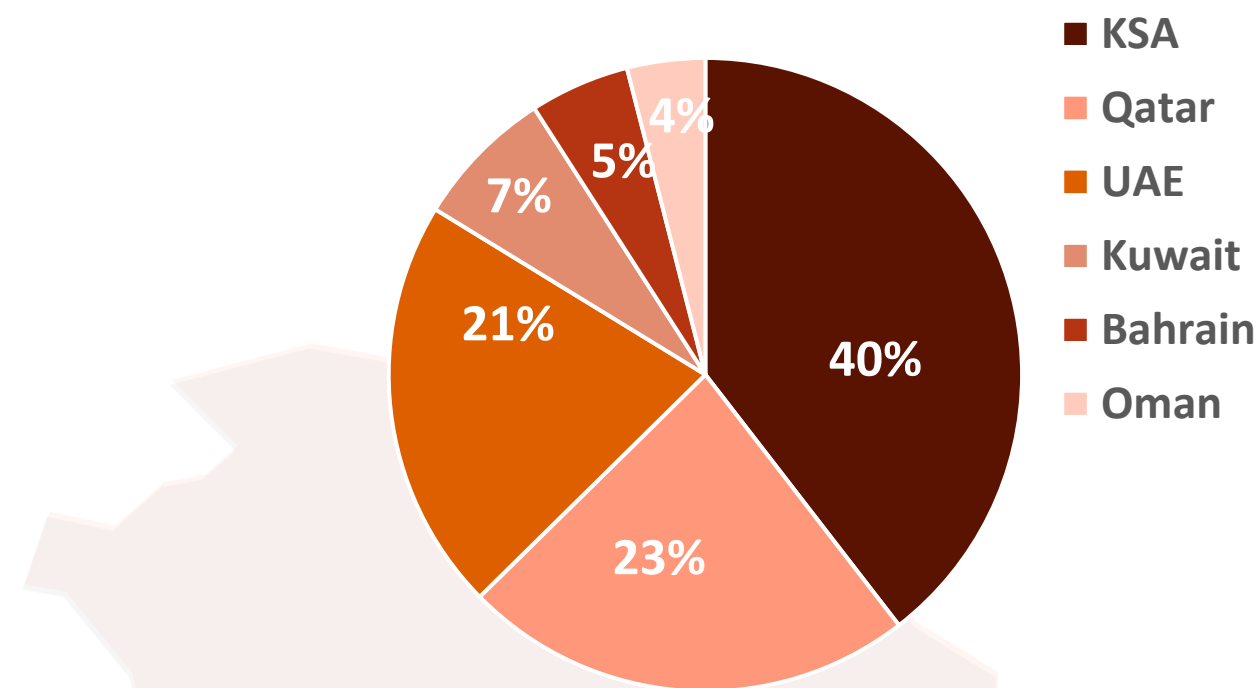
Data resources: [WHO](http://www.who.int)

Epidemiology

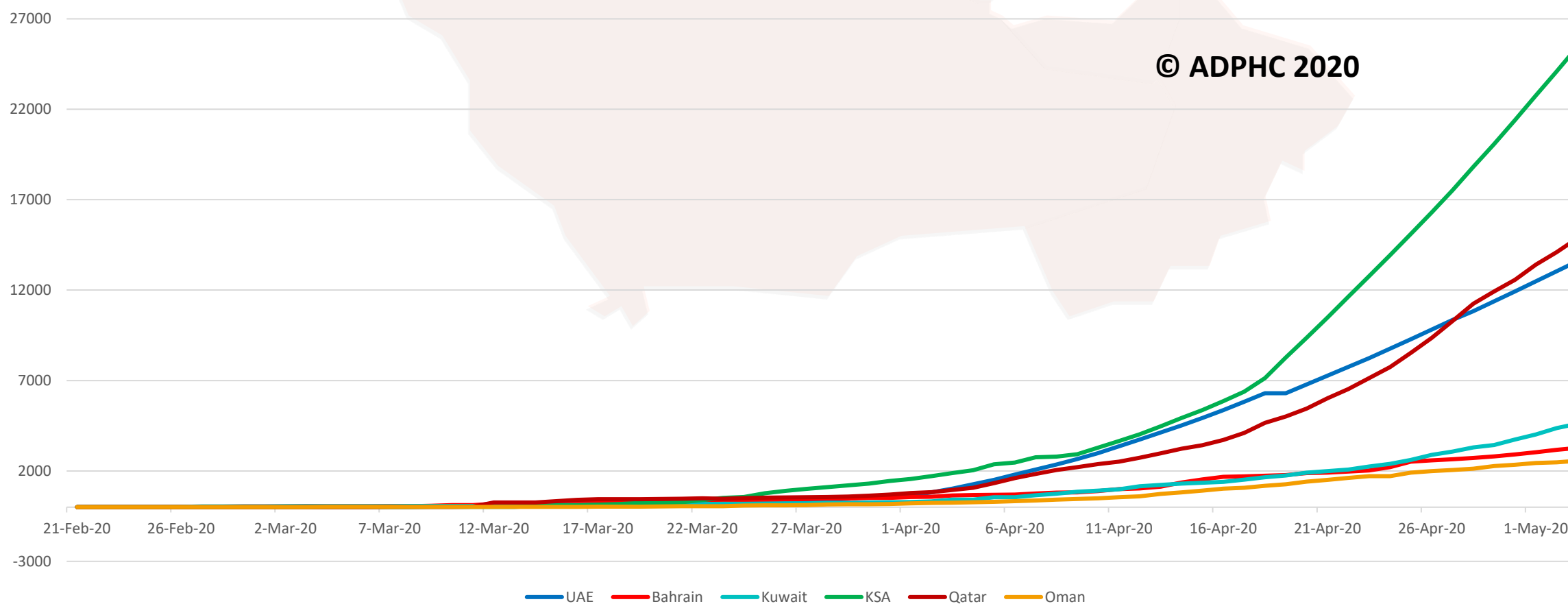
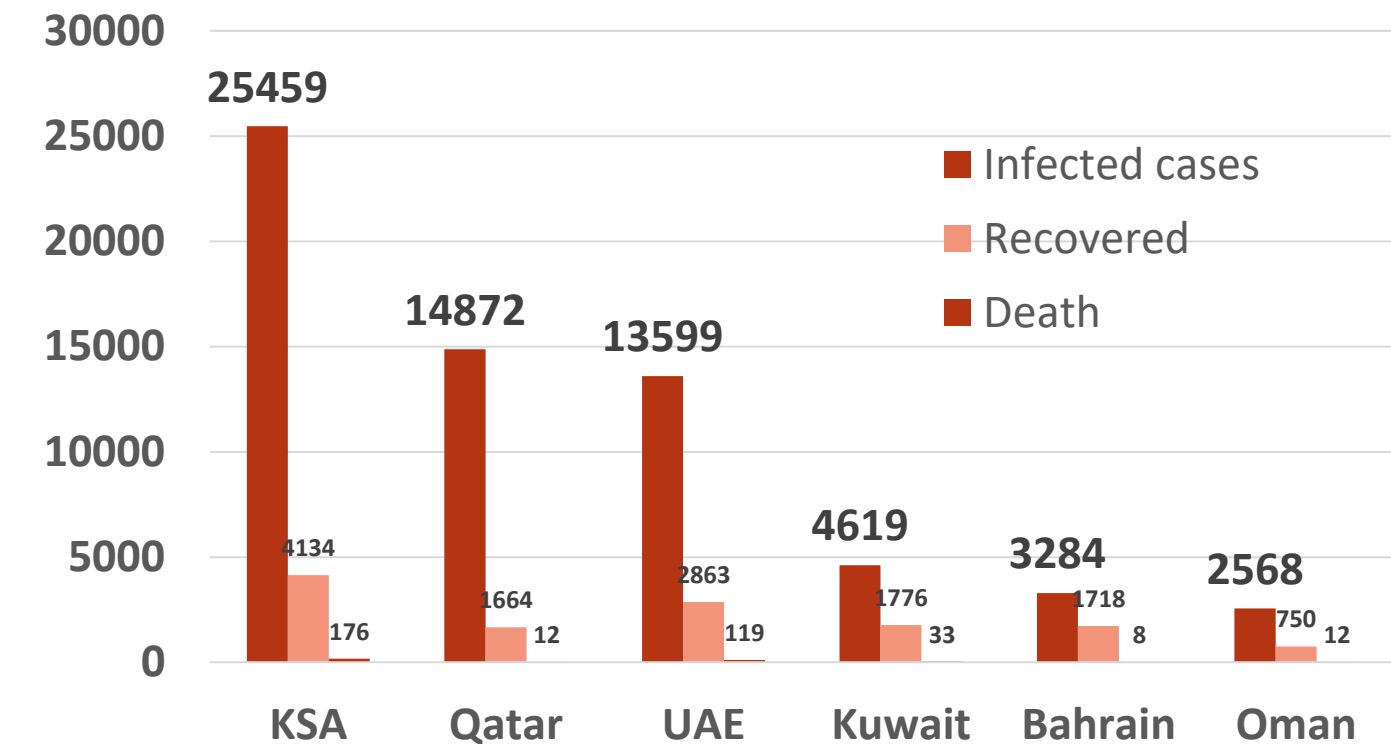


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (May 3, 2020)

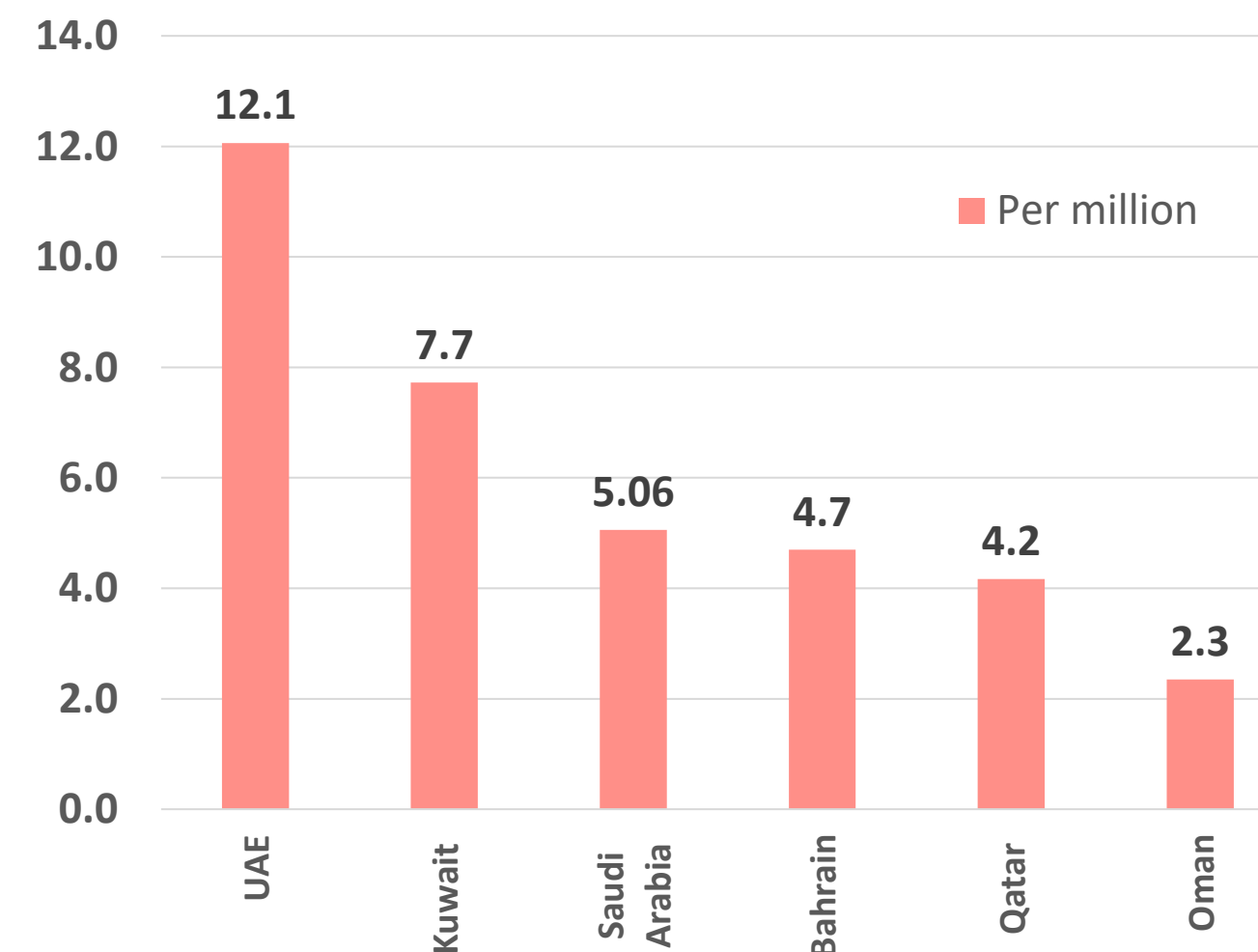
TOTAL NUMBER OF INFECTED CASES



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



Public Health Response :

Article 1: Hospital-at-Home to Support COVID-19 Surge - Time to Bring Down the Walls?

Published: May 1, 2020 in [the JAMA](#)

Summary:

- In hospital-at-home care, patients would receive 24/7 nursing care through a virtual and in person visits and be seen by a physician everyday until they could be shifted back to self care or care from a family member. This care could be an option for patients with COVID-19 specifically those who are considered to be lower risk or who have been monitored for a period of time in a traditional setting.
- Cochrane review (2016) evaluated the effectiveness and cost of hospital-at-home care found no difference in six month mortality, transferred or readmitted to a hospital, higher satisfaction with health care, and lower costs. Other randomized controlled trial reported that patients hospitalized at home were less sedentary and had lower rates of readmission.
- The benefits of the hospital-at-home care during COVID-19 pandemic include a) this care is a more patient centered solution that might be more or less feasible given shifts in workforce availability; b) hospitals may carry the substantial risk of transmission and patients and their caregivers who are not infected may be safer at home; c) through advanced technology such as remote monitoring, doctors can manage patients more efficiently with less personal protective equipment especially when there is a shortage.
- The Centers for Medicare and Medicaid Services announced permitting nonhospital buildings to be used for patient care and quarantine temporarily, allowing physician owned hospitals to increase the number of licensed beds and enabling hospitals to bill for services provided outside the hospitals.

COUNTRY Profile New Zealand (1/3)



How New Zealand flattened the curve?

1-Geographically isolated



- The isolated location of new Zealand makes the government have more control over the borders.
- Nearest neighbor is over 1,200 miles of water away.

2-Massive testing



- Due to the low population density in the country , new Zealand was able to screening a large sum of the population (From 22 Jan to 30 April total test was around 139898 test).

3- Limited public transportation



- Due to the Tore up of its tram system in the 1950s, New Zealand is considered one of the world's lowest rates of public transit ridership. Therefore , it reduced the possibility of transmission through this method.

Resource: [link](#)

COUNTRY Profile New Zealand (2/3)



The government have issues a 4-level alerts system specifies measures to be taken against COVID-19 at each level are the following:

Alert Level 4 (lockdown)



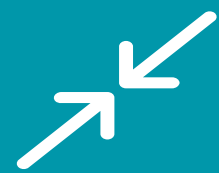
- People instructed to stay at home
- Educational facilities closed
- Travel is severely limited
- All gathering cancelled
- Businesses closed , except essential services

Alert Level 3 (Restrict)



- Physical distancing of **two meters** outside home
- Schools can safely open, but will have limited capacity
- Gatherings of up to 10 people are allowed
- Healthcare services use virtual, non-contact consultations where possible.
- Inter-regional travel is highly limited

Alert Level 2 (Reduce)



- Physical distancing of **1 meter** outside the home
- Schools and Early Childhood Education centers open, with distance learning available
- Gatherings of up to 100 people indoors and 500 outdoors allowed
- Health services operate as normally as possible.
- People advised to avoid non-essential inter-regional travel.

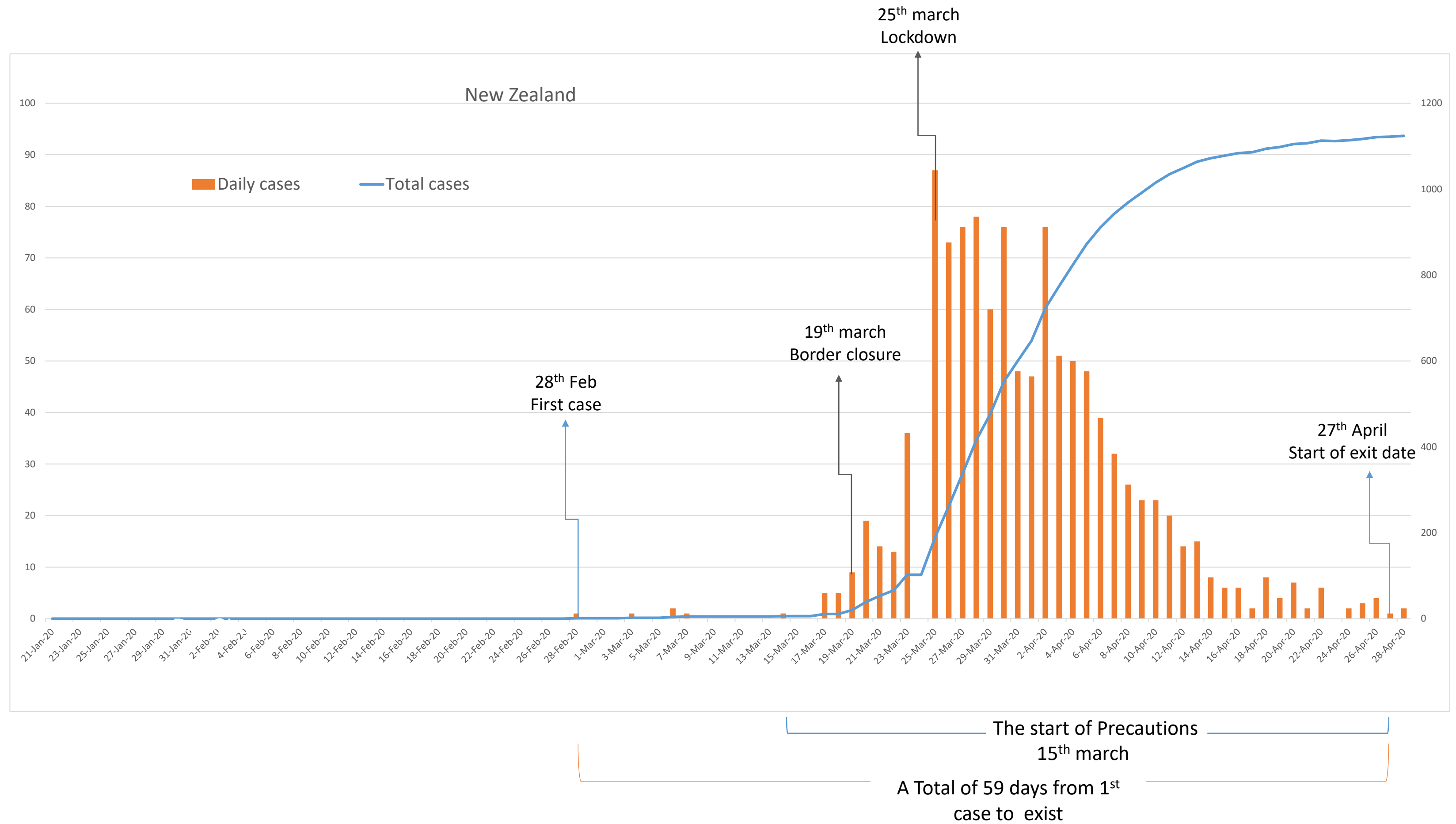
Alert Level 1 (Prepare)



- Border entry measures to minimize risk of importing COVID-19 cases.
- Schools and workplaces open, and must operate safely.
- Physical distancing encouraged.
- No restrictions on gatherings and on domestic transport.

Resource: covid19.govt.nz, [Link](#)

COUNTRY Profile New Zealand (3/3)





Article 2: Assessment of QT Intervals in a Case Series of Patients With Coronavirus Disease 2019 (COVID-19) Infection Treated With Hydroxychloroquine Alone or in Combination With Azithromycin in an Intensive Care Unit

Published: May 1, 2020 in [JAMA](#)

Summary:

Studies showed benefit of hydroxychloroquine alone or in combination with azithromycin in mild to moderate COVID-19. Both are known to induce **QT prolongation** which can promote life-threatening **ventricular arrhythmias** particularly in patients expose to electrolyte imbalance and/or drugs leading to an increased risk of QT prolongation. Due to safety concern this study was conducted including **40** COVID-19 patients in ICU. Hydroxychloroquine was given to **18** patients without azithromycin and **22** received both together. Other taken treatments favoring QT prolongation was listed such as amiodarone, ciprofloxacin, propofol and ondansetrone. ECG was recorded daily for monitoring with lab test. QTc cutoff value of 500 milliseconds (high risk of ventricular arrhythmia or change by 50 msc).

Findings:

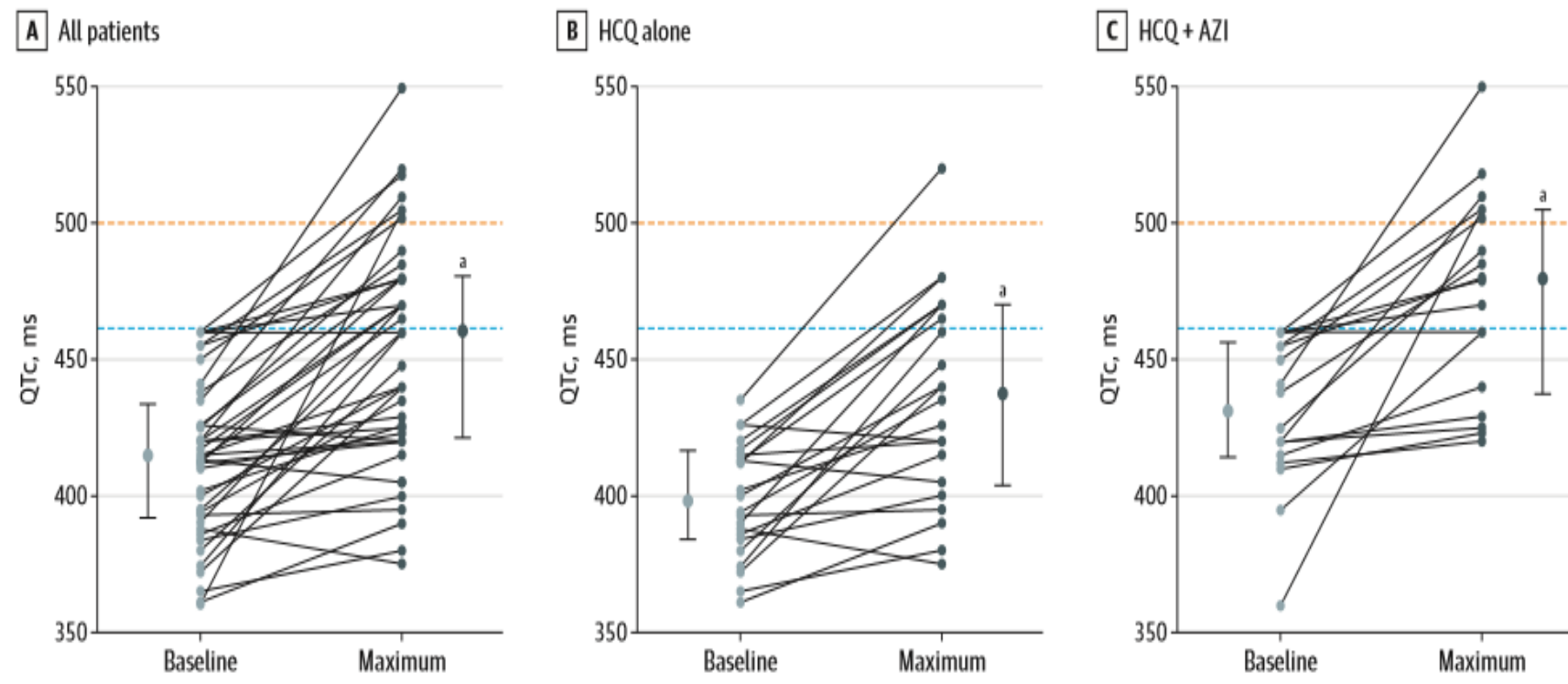
- **37 patient** showed an increase in QTc in general, **Figure1**.
- **10 with $\Delta QTc > 60$ milliseconds and 7 with $QTc \geq 500$ milliseconds** was seen **6 of 18** in patients treated with hydroxychloroquine and azithromycin , **1 of 22** of those treated with hydroxychloroquine alone ($P = .03$) and **20** patients on other treatments.
- **No ventricular arrhythmia, including torsades de pointes, was recorded.**
- The antiviral treatment ceased before completion for 7 patients following ECG abnormalities and in 10 for acute renal failure
- Close monitoring led to an interruption of these drugs for 17 patients and may have averted further complications

Treatment



Article 2 : Cont., Summary:

Figure. Individual Baseline and Maximal Corrected QT Interval Values in Patients With Coronavirus Disease 2019 (COVID-19) Treated With Hydroxychloroquine and Azithromycin



Individual baseline (pretreatment) and maximal corrected (QTc) interval values are shown for 40 critically ill patients with COVID-19 treated with hydroxychloroquine alone (22 [55.0%]) or in association (18 [45.0%]) with azithromycin. Median and interquartile range values of QTc before and after the start of hydroxychloroquine/azithromycin. Horizontal blue and orange dashed

lines represent the upper normal value of the QTc interval (460 milliseconds) and the QTc cutoff value of 500 milliseconds (high risk of ventricular arrhythmia).

^a $p < .01$.

Conclusion:

- QTc intervals increased in more than 90% of patients raises concerns about the widespread use of hydroxychloroquine, with or without azithromycin, to treat COVID-19 in settings where patients cannot be adequately monitored.

Table. Patient Characteristics According to QT Interval Prolongation After Beginning Antiviral Therapy

Variable	No. (%)			P value
	Total (N = 40)	QTc \geq 500 ms or Δ QTc $>$ 60 ms (n = 14)	QTc $<$ 500 ms and Δ QTc \leq 60 ms (n = 26)	
Demographic characteristics				
Age, median (IQR), y	68 (58-74)	71 (66-75)	66 (56-73)	.35
Women, No. (%)	8 (20)	4 (29)	4 (15)	.42
BMI, median (IQR)	28 (25-33)	32 (27-34)	28 (25-31)	.09
Comorbidities				
Diabetes	16 (40)	8 (57)	8 (30)	.18
Hypertension	23 (57.5)	10 (71.4)	13 (48)	.32
Structural heart disease	8 (20)	4 (28.6)	4 (15.4)	.42
Usual treatments favoring prolonged QT	3 (8)	1 (7)	2 (8)	.62
Treatments favoring prolonged QT in ICU				
Hydroxychloroquine alone	22 (55)	7 (50)	15 (58)	.33
Hydroxychloroquine and azithromycin	18 (45)	7 (50)	11 (42)	.33
Other ^a	20 (50)	8 (57)	12 (46)	.51
Electrocardiograms				
Sinus rhythm	40 (100)	14 (100)	26 (100)	$>$.99
Baseline heart rate, median (IQR), bpm	78 (72-90)	82 (75-89)	77 (70-89)	.76
QTc before start of antivirals, median (IQR), ms	414 (392-428)	416 (383-440)	415 (401-425)	.88
Δ QTc, median (IQR), ms	35 (10-66)	81 (70-86)	16 (6-29)	$<$.001
Maximum QTc, median (IQR), ms	454 (420-480)	500 (470-520)	428 (417-448)	$<$.001
Delay before longest QTc, median (IQR), d	3 (2-5)	5 (2-5)	3 (2-4)	.13
Serum potassium $<$ 3.5 mEq/L	11 (28)	5 (36)	6 (23)	.47
Organ support				
Invasive mechanical ventilation	30 (75)	12 (86)	18 (67)	.68
Vasoactive drugs	25 (63)	12 (86)	13 (48)	.04
Renal replacement therapy	7 (18)	2 (14)	5 (19)	.70
SAPS II score, median (IQR), points	35 (26-48)	46 (35-61)	34 (26-37)	.04