

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة



Scientific Research Monitoring on COVID-19

5 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

- **UAE research:** a survey done in the UAE assessed the knowledge, practice and attitude of UAE population toward SARS-cov2 infection. Found that approx. 80% took the information on Covid19 from Social media, 18% have risk of depression, 92% respond that they followed the stay home measures.
- **Treatment:** The results of a large observational study in multiple countries did not confirm previous concerns regarding a potential harmful association of ACE inhibitors or ARBs with in-hospital death in this clinical context.
- **Transmission:** a study found that most transmission of COVID-19 occurred at the very early stage of the disease or even before the onset of symptoms

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

- [Effectiveness of convalescent plasma therapy in severe COVID-19 patients](#)
- [News Feature: Avoiding pitfalls in the pursuit of a COVID-19 vaccine](#)
- [Daily briefing: Convalescent serum — the antibody-laden blood of survivors — lines up as first-choice treatment for coronavirus](#)
- [Whose coronavirus strategy worked best? Scientists hunt most effective policies](#)



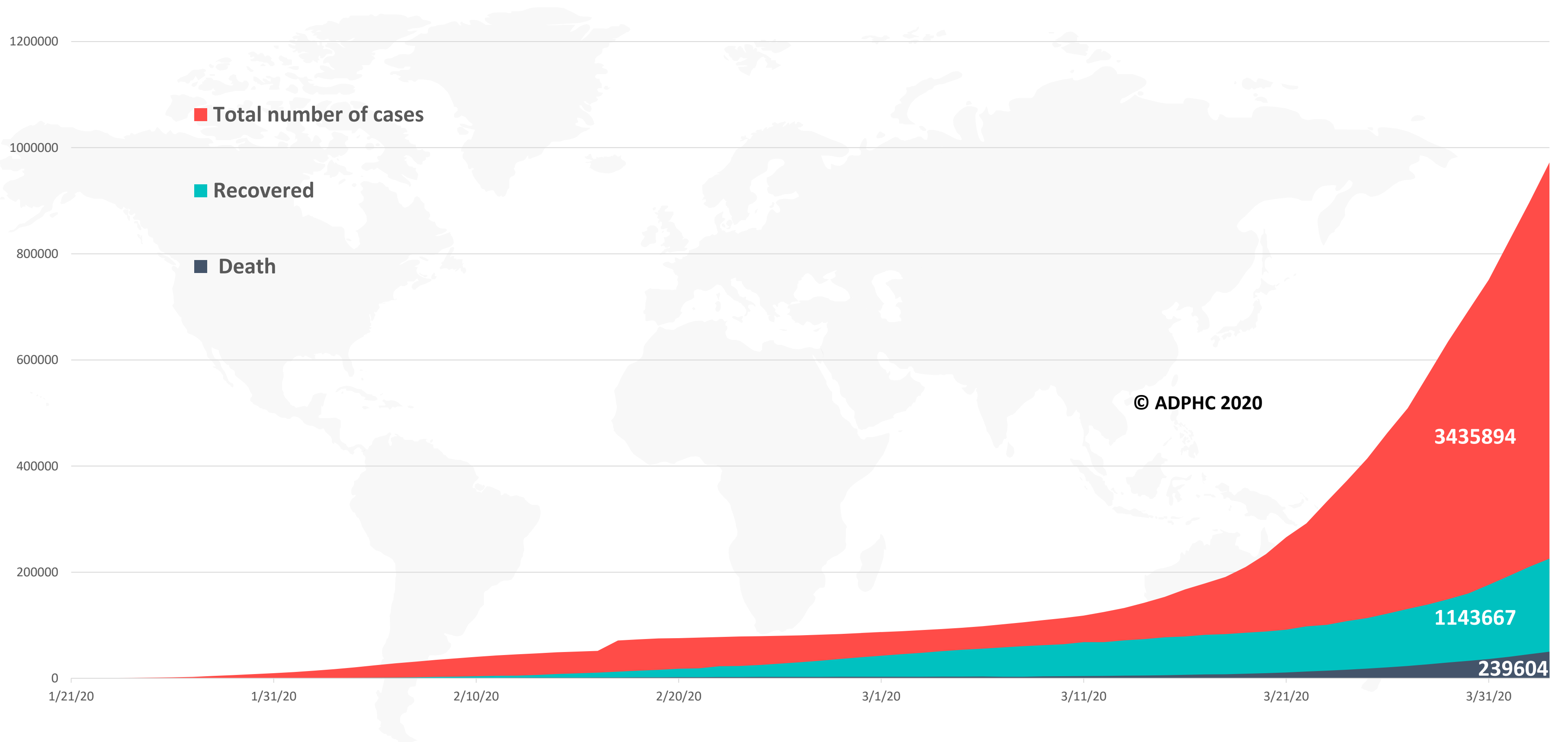
WHO daily report 4 May 2020

- WHO has delivered additional medicines to the Islamic Republic of Iran as part of the Solidarity Trial, a global effort to find an effective treatment for COVID-19.
- Polio disease surveillance teams are reaching into the most far-flung places of the globe to address the COVID-19 pandemic.

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to May 4, 2020)

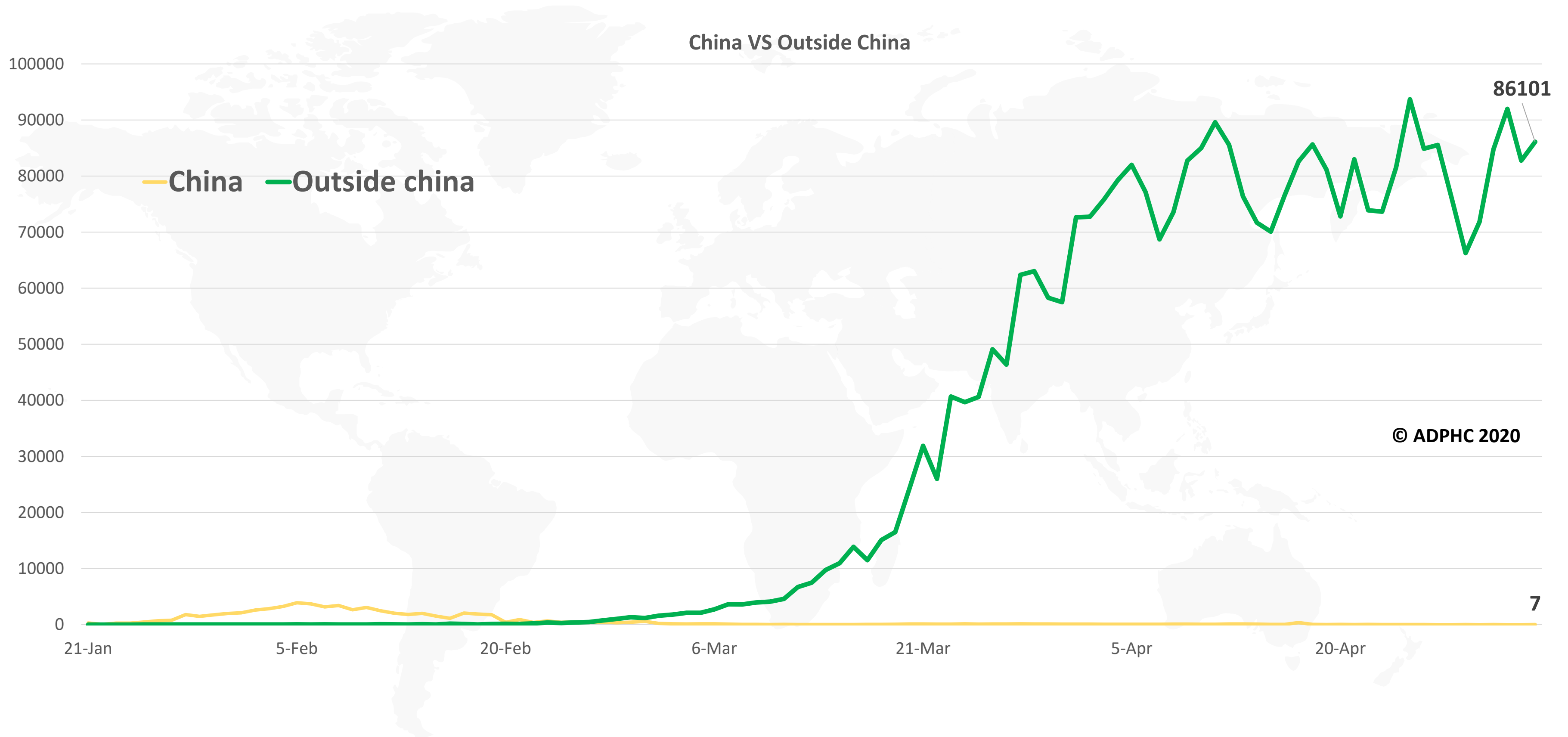


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to May 4, 2020).



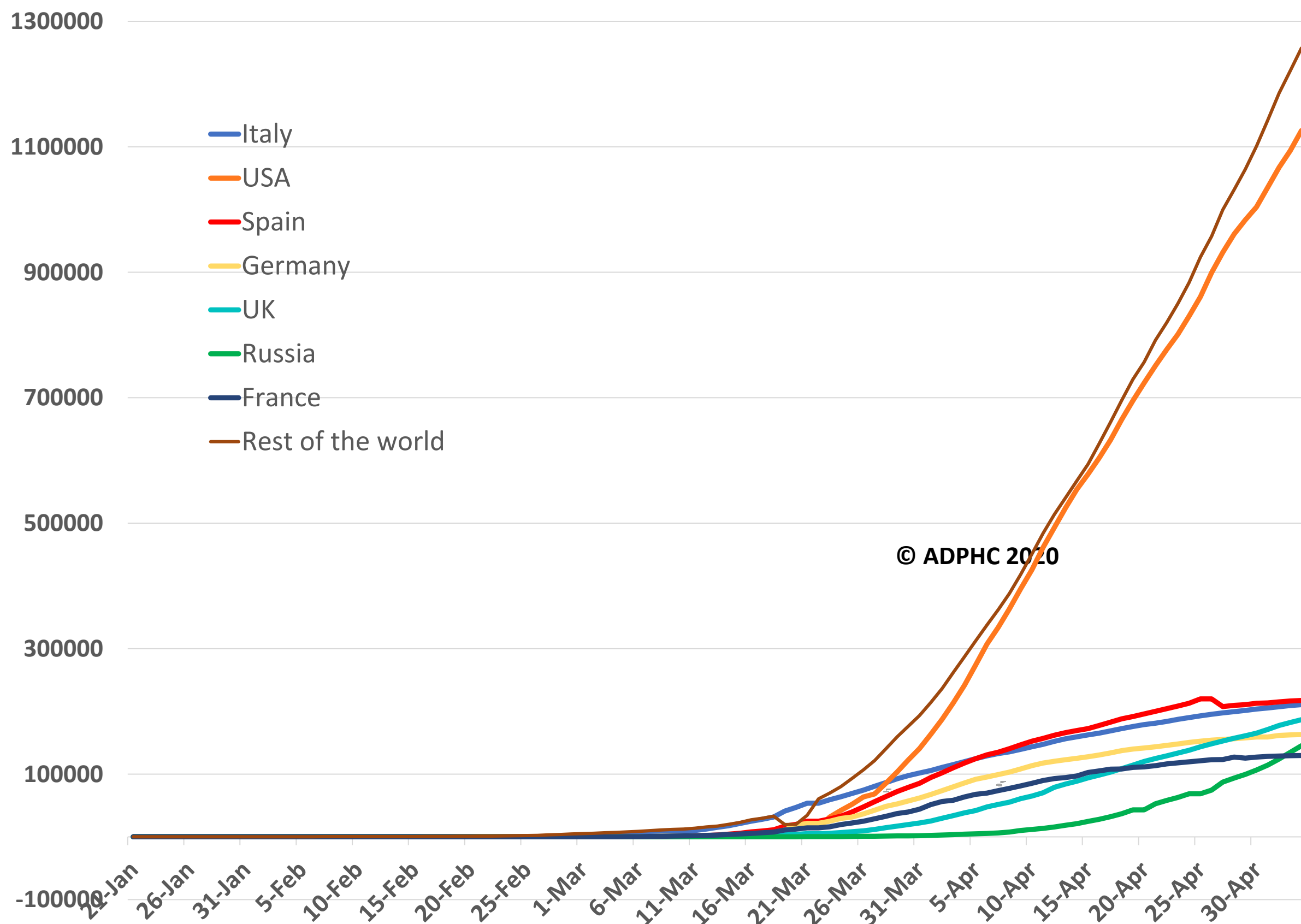
Line graph published by Abu Dhabi Public Health Center 2020.

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

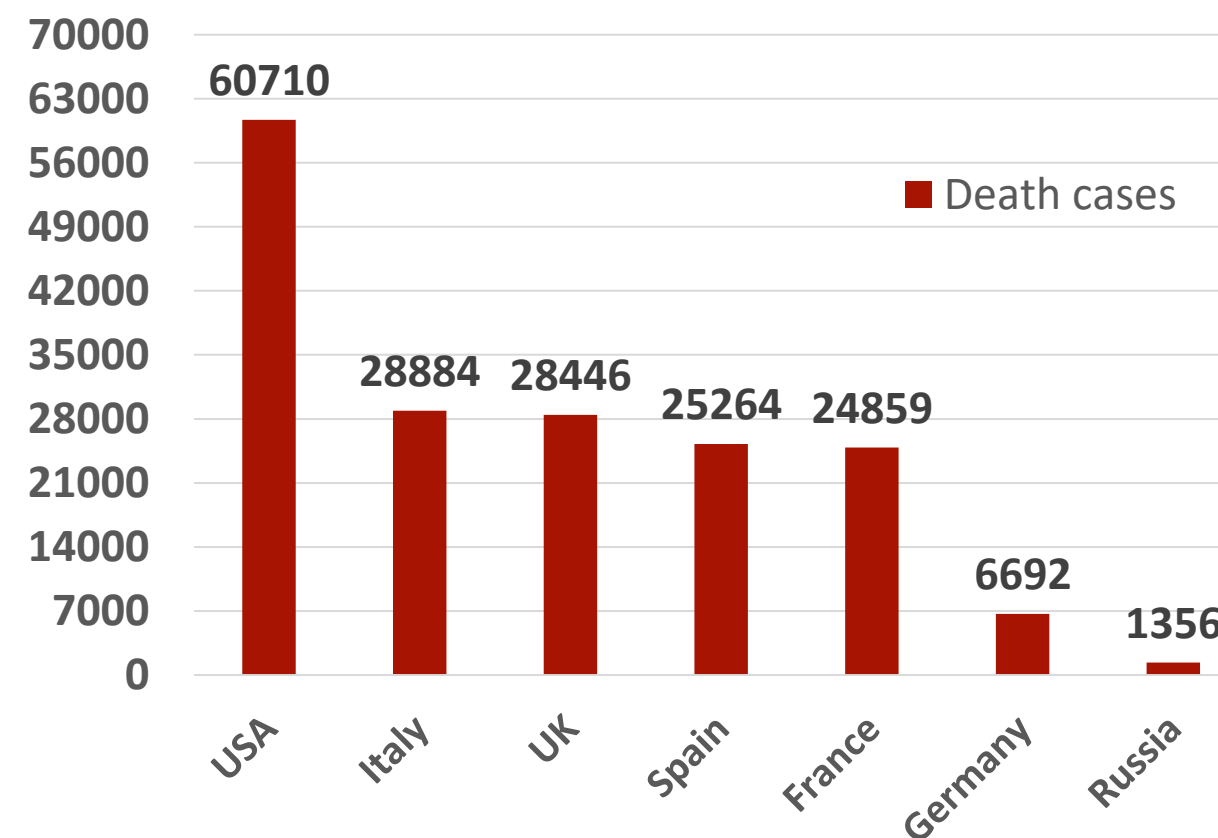
Epidemiology



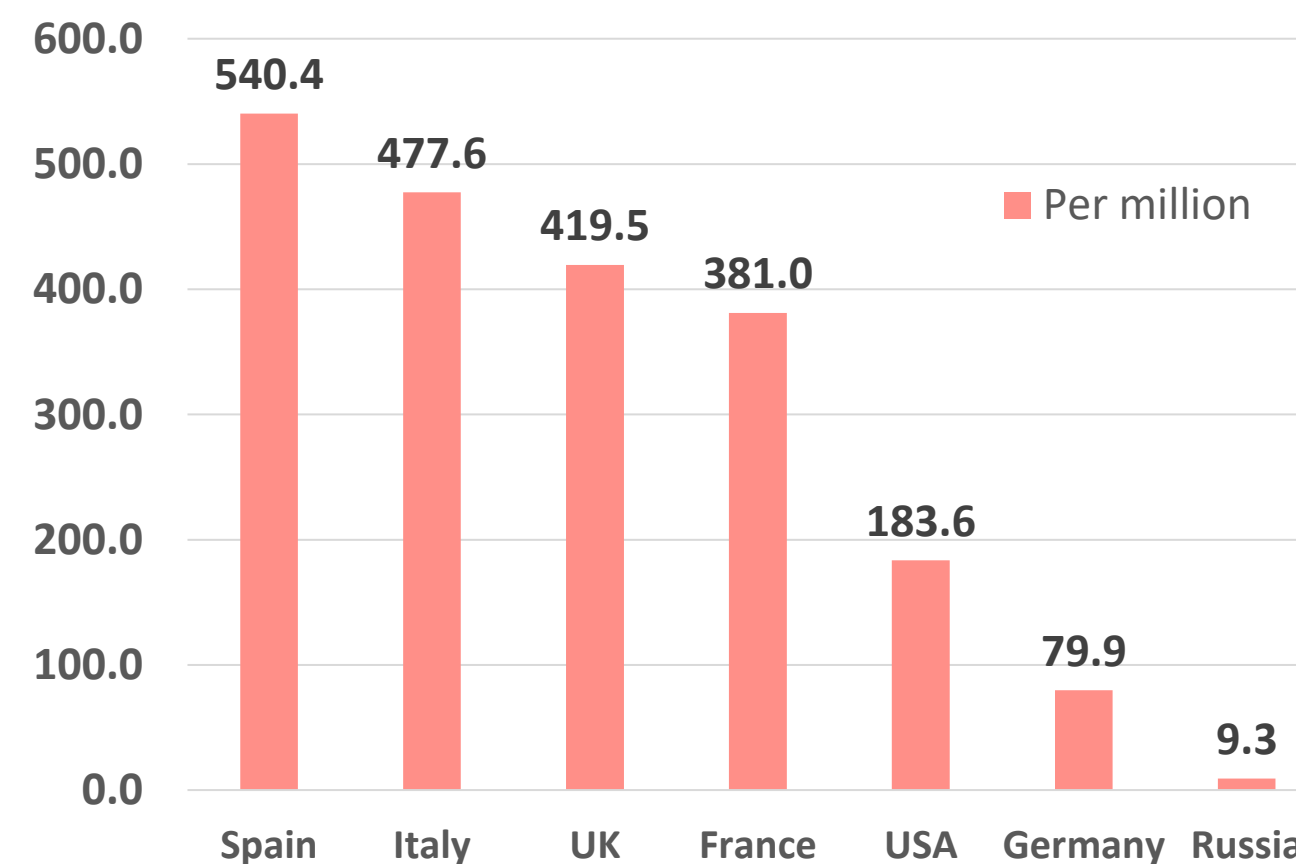
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to May 4, 2020).



TOTAL DEATHS



DEATHS PER MILLION



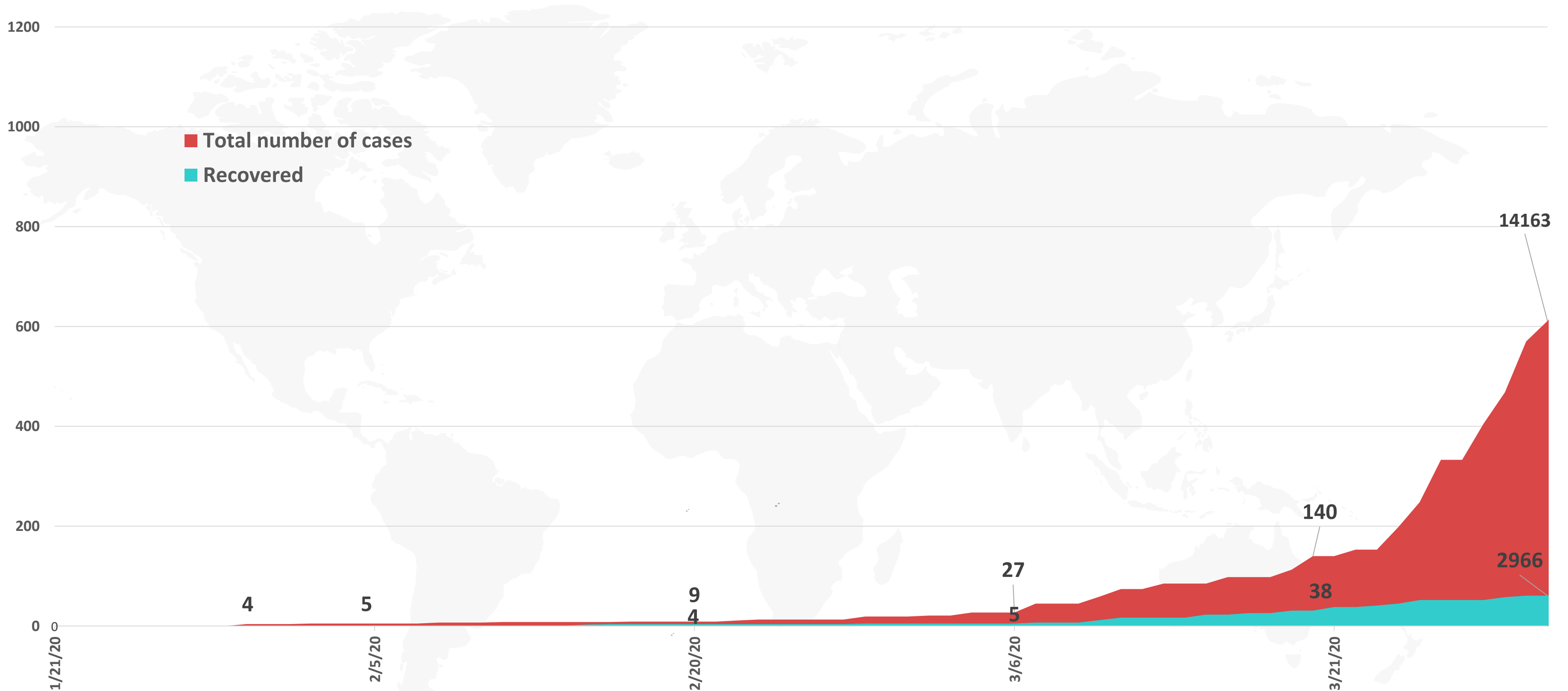
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



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



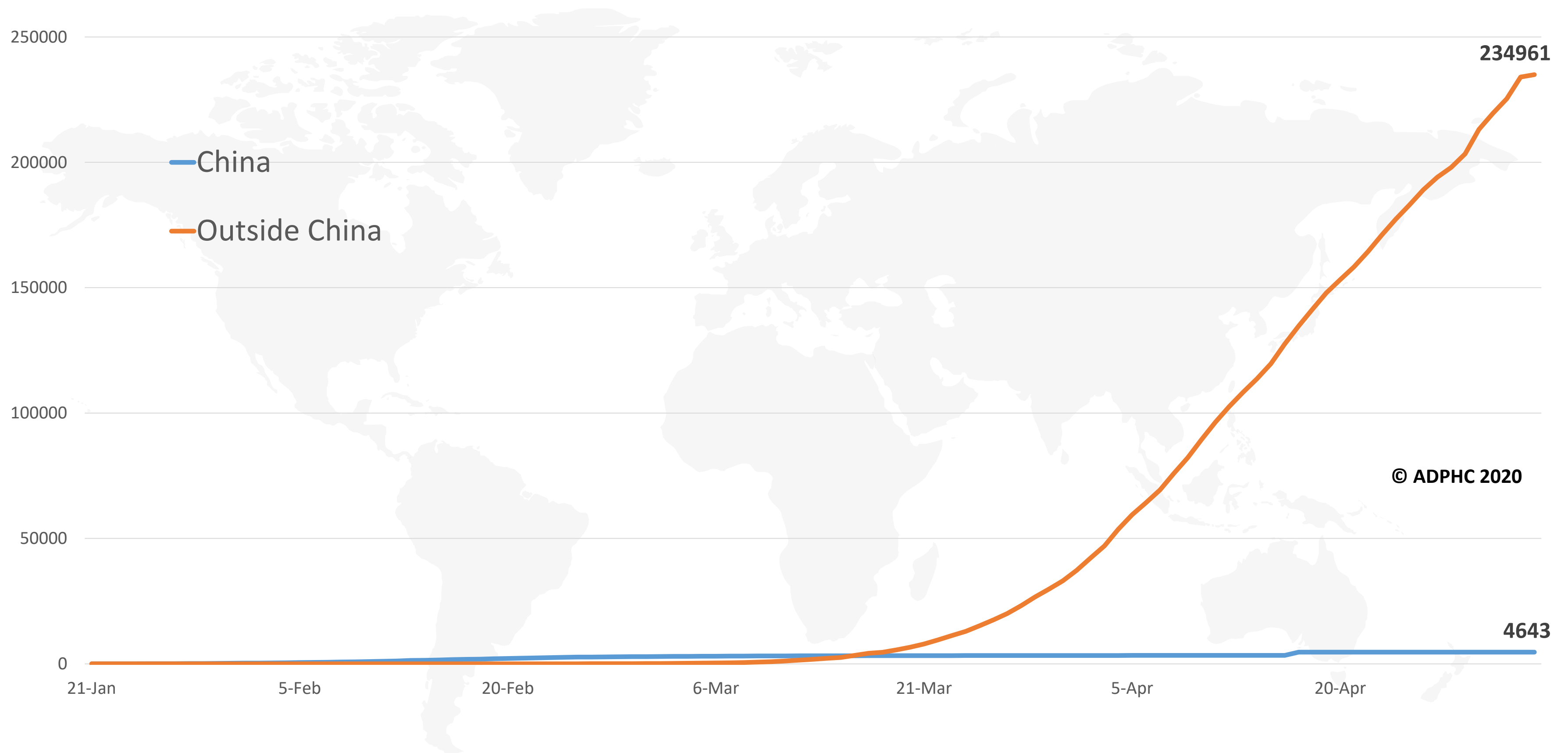
Line graph published by Abu Dhabi Public Health Center 2020.

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 4, 2020).



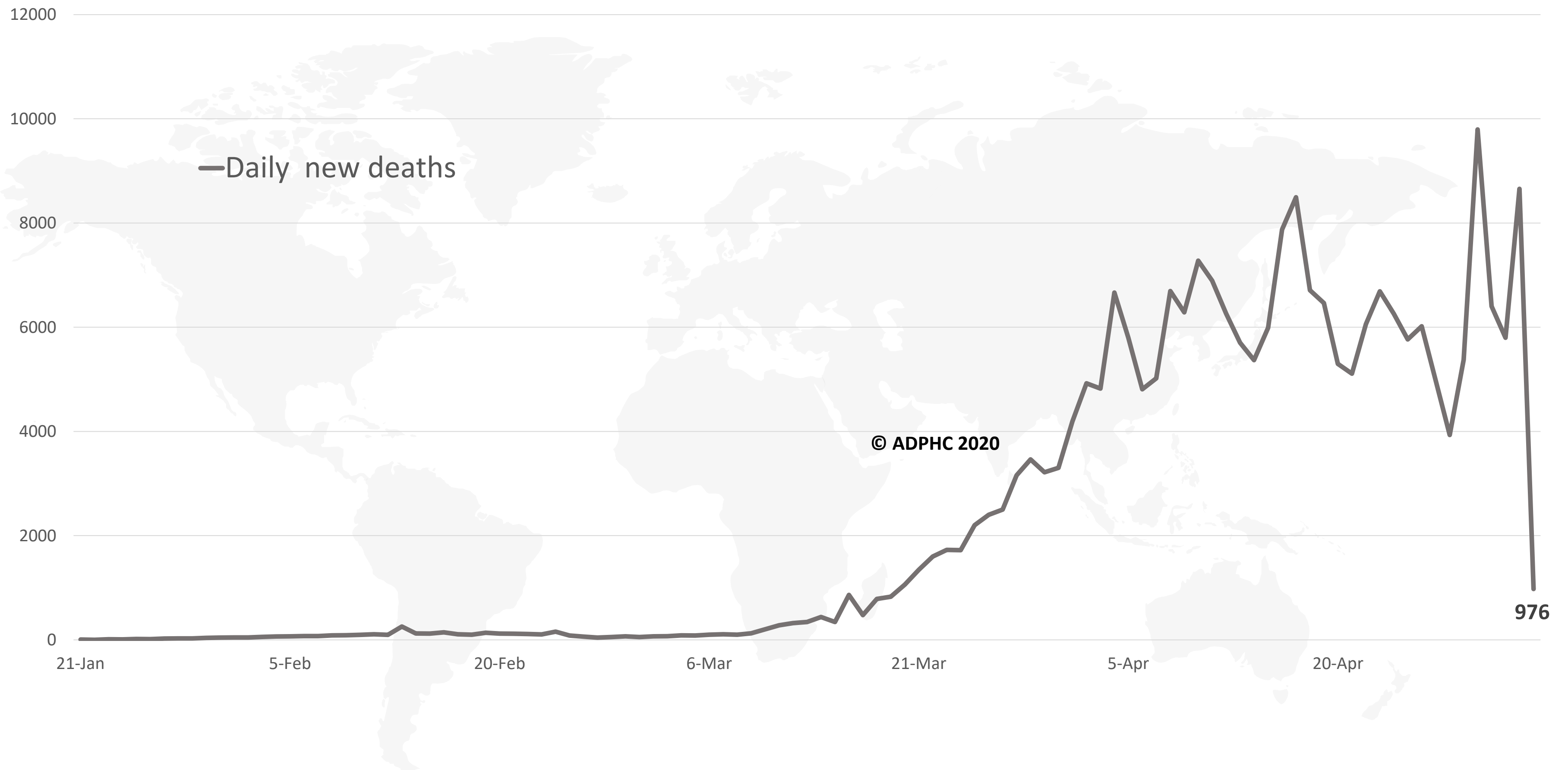
© ADPHC 2020

Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 6: Global daily new deaths due to COVID-19 (January 22 to May 4, 2020).



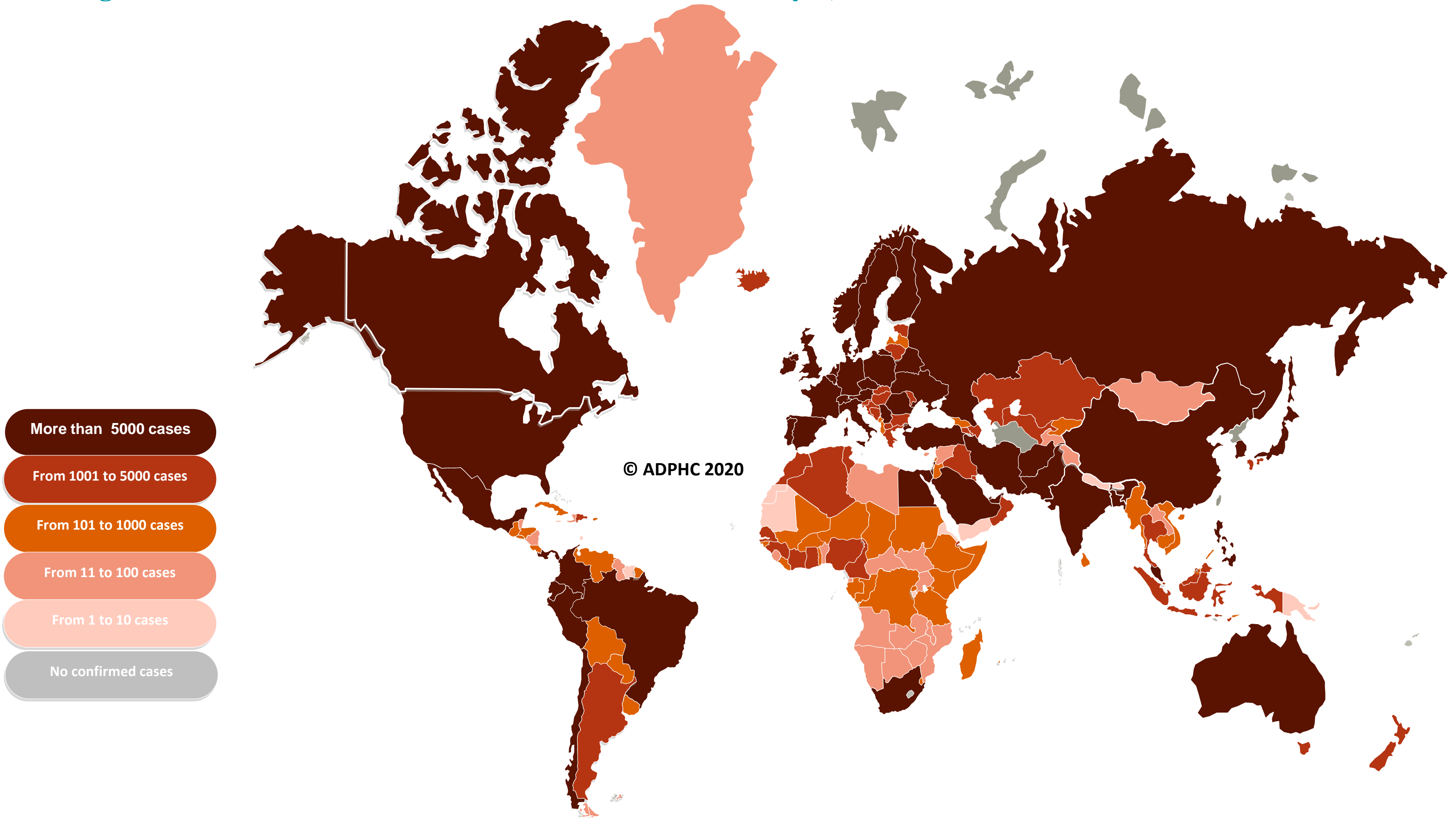
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



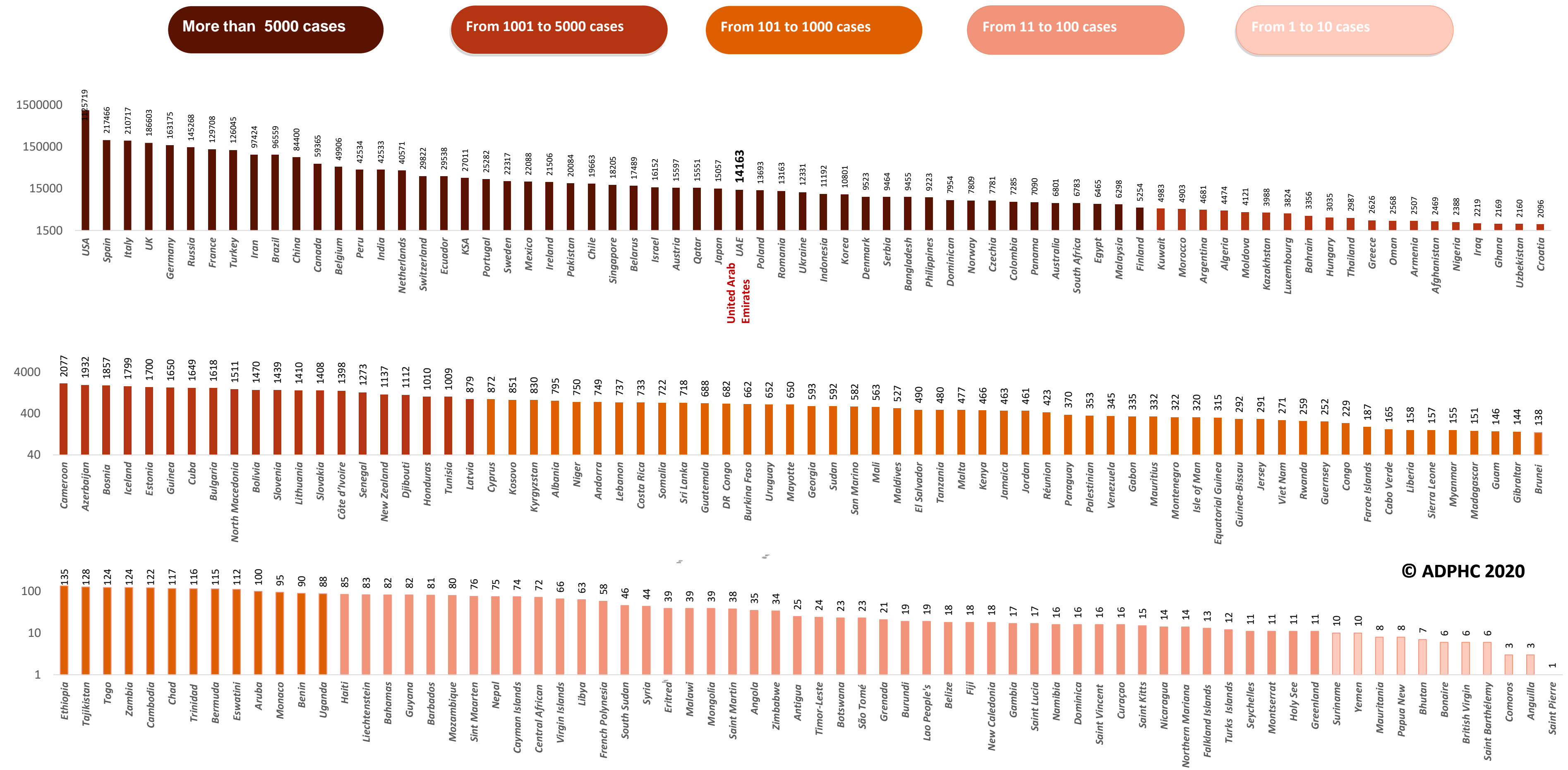
Figure 7a : Global distribution of COVID-19 cases (May 4, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases May 4, 2020)



© ADPHC 2020

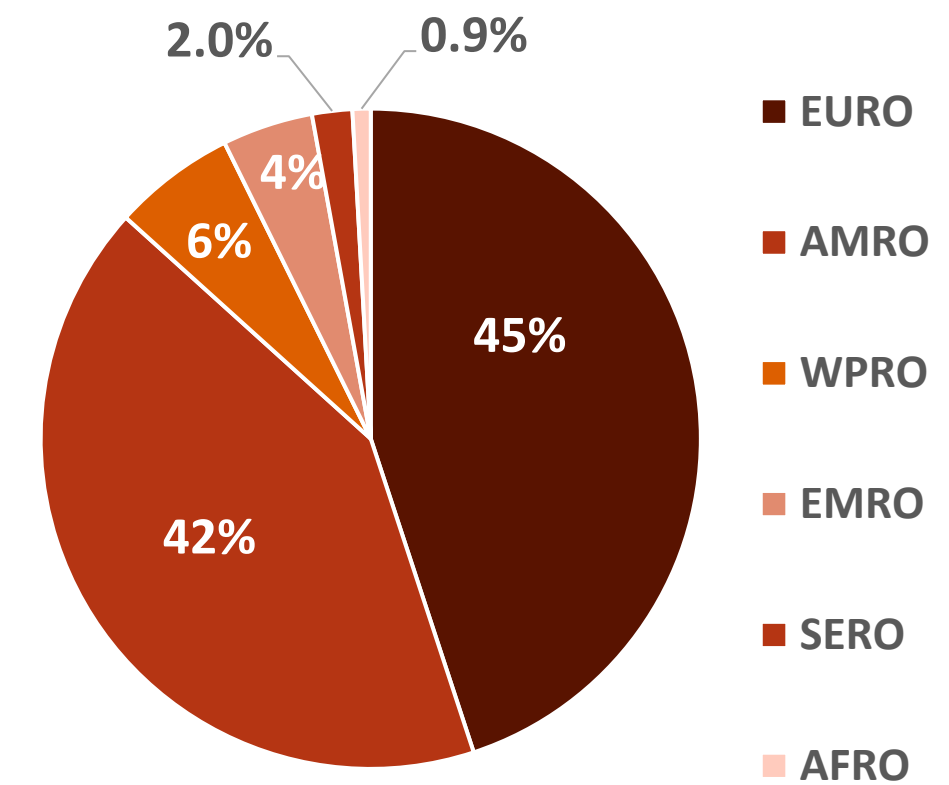
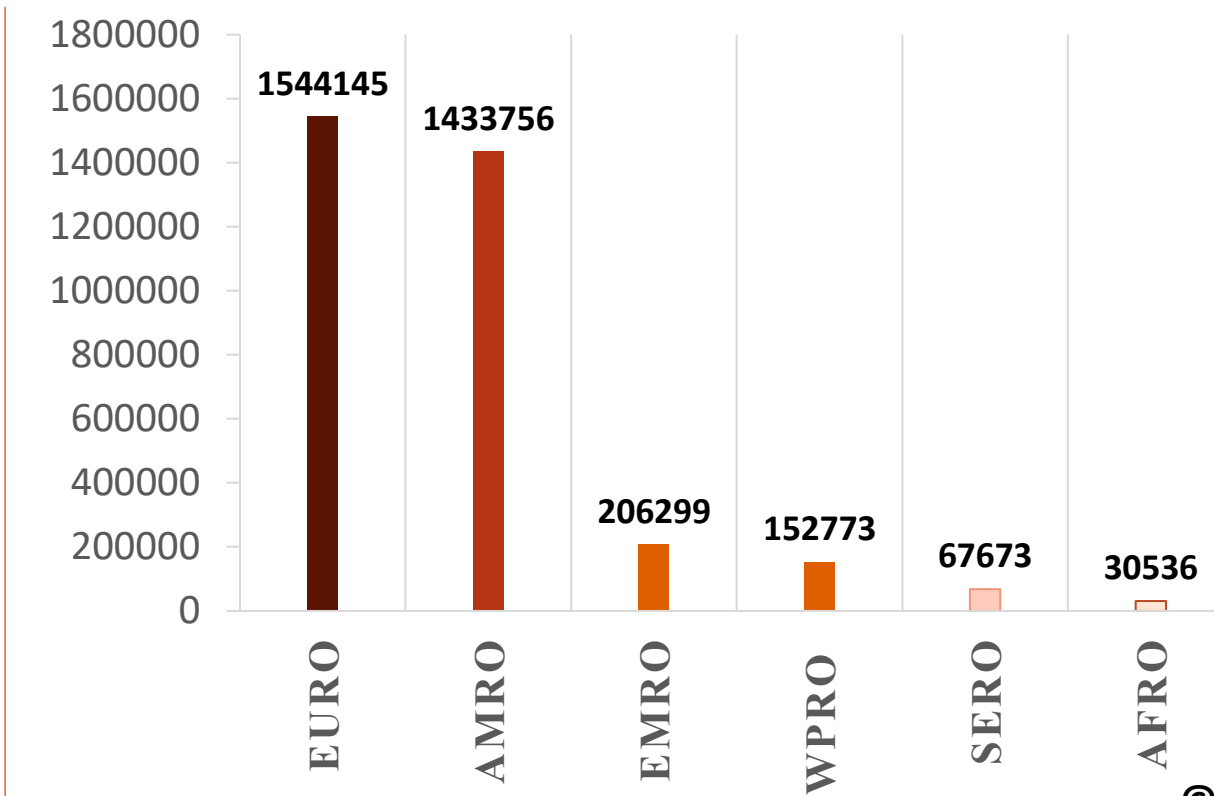
Map chart published by Abu Dhabi Public Health Center 2020.

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



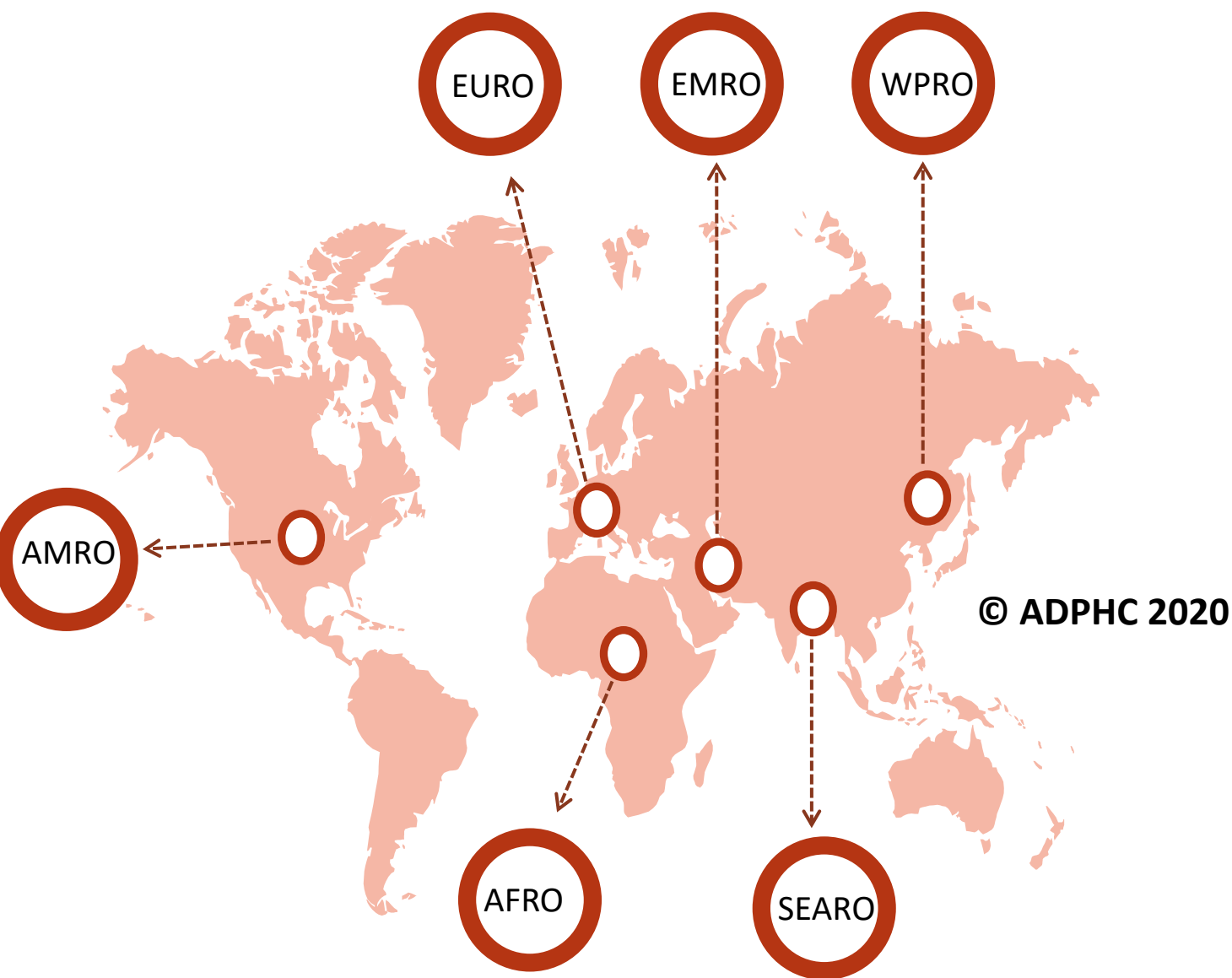
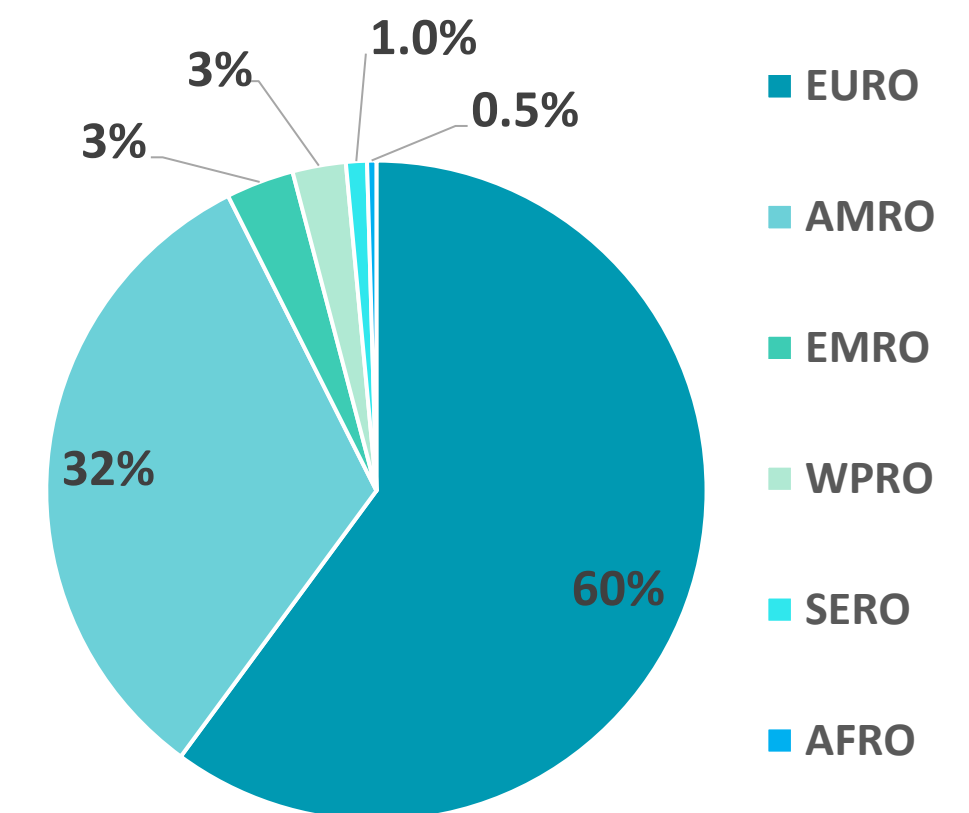
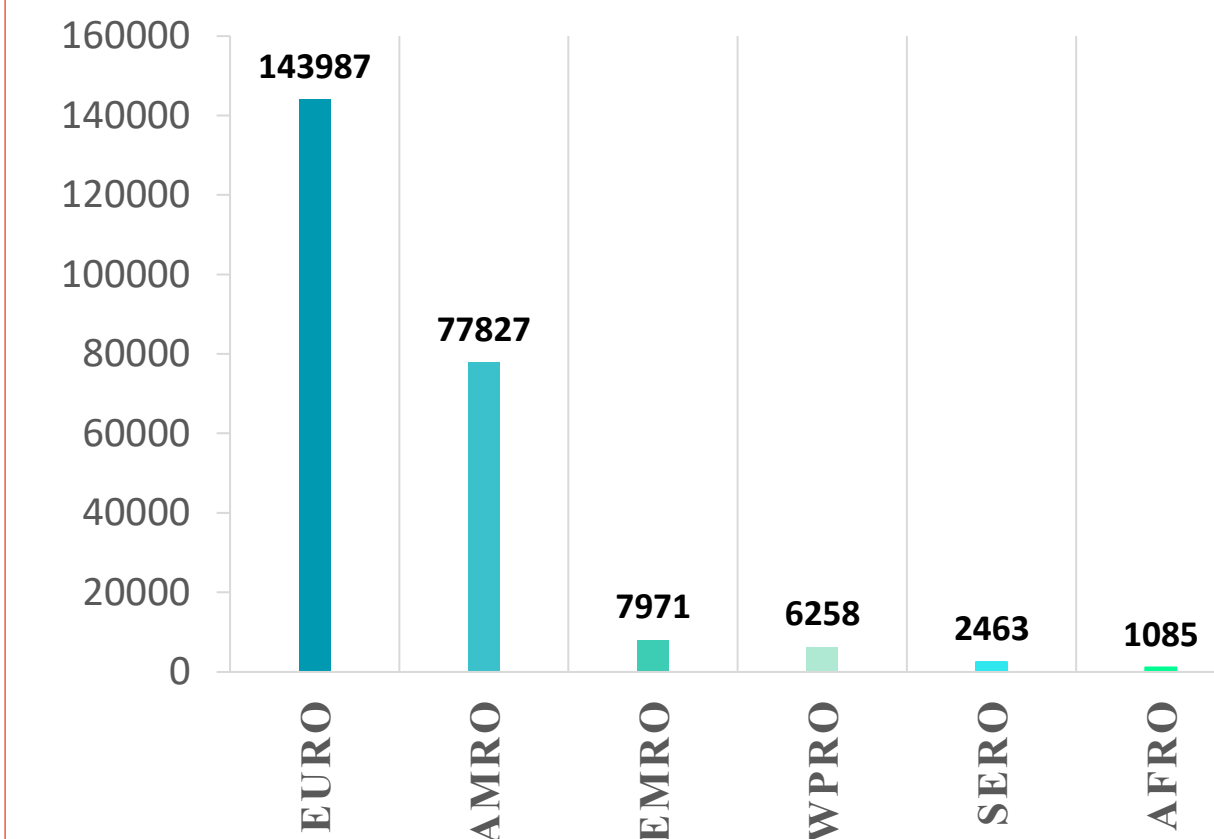
Figure 8: illustrate the Global distribution of COVID19 cases per region (May 4, 2020)

INFECTED



© ADPHC 2020

DEATH



© ADPHC 2020

Map chart published by Abu Dhabi Public Health Center 2020.

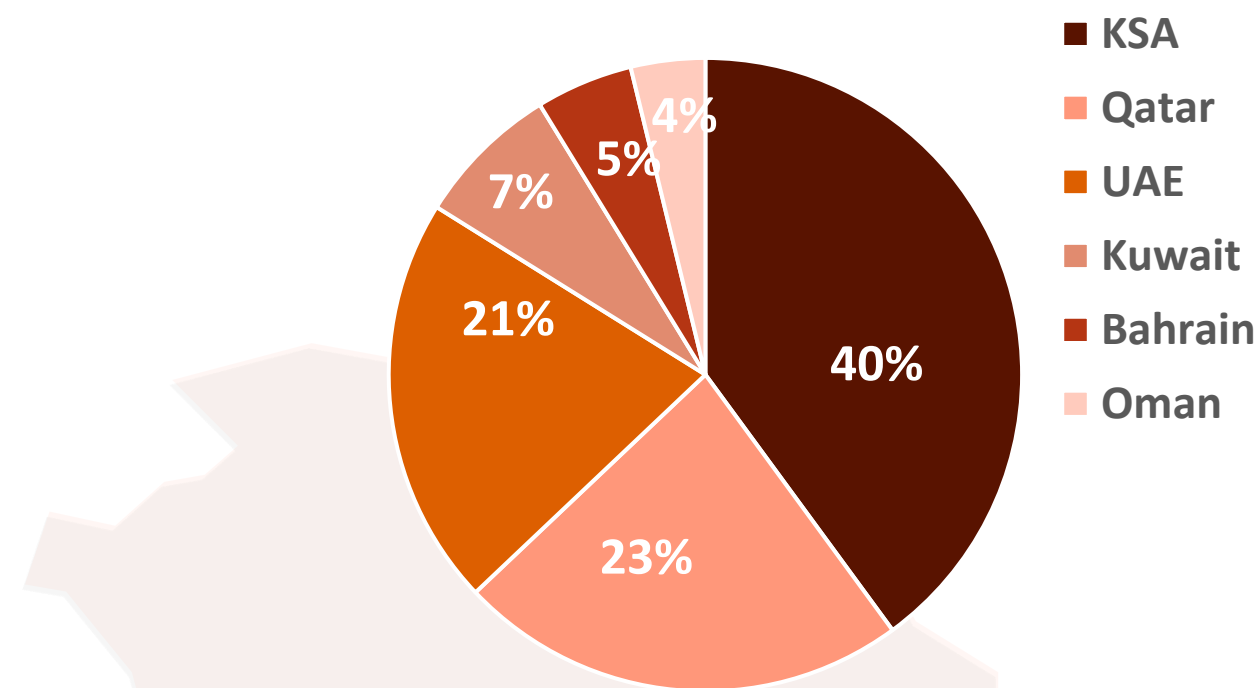
Data resources: [WHO](https://www.who.int/)

Epidemiology

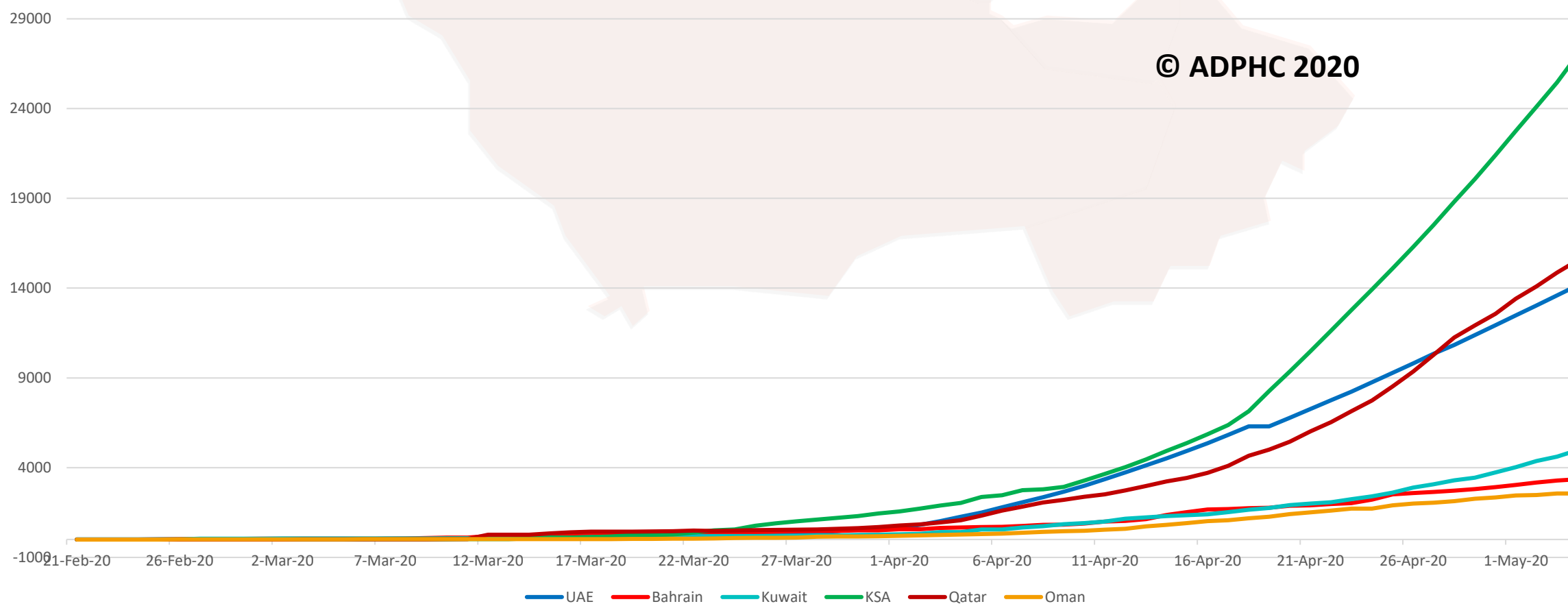
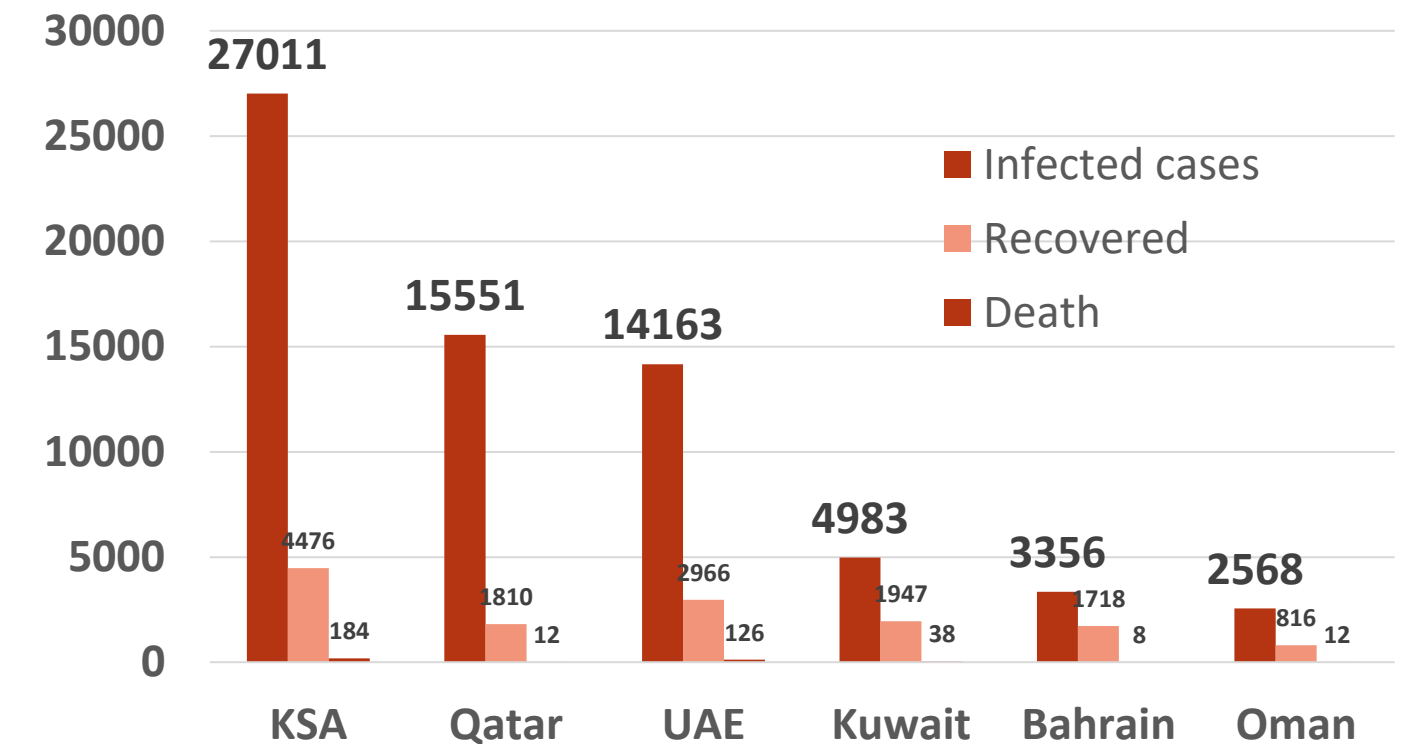


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (May 4, 2020)

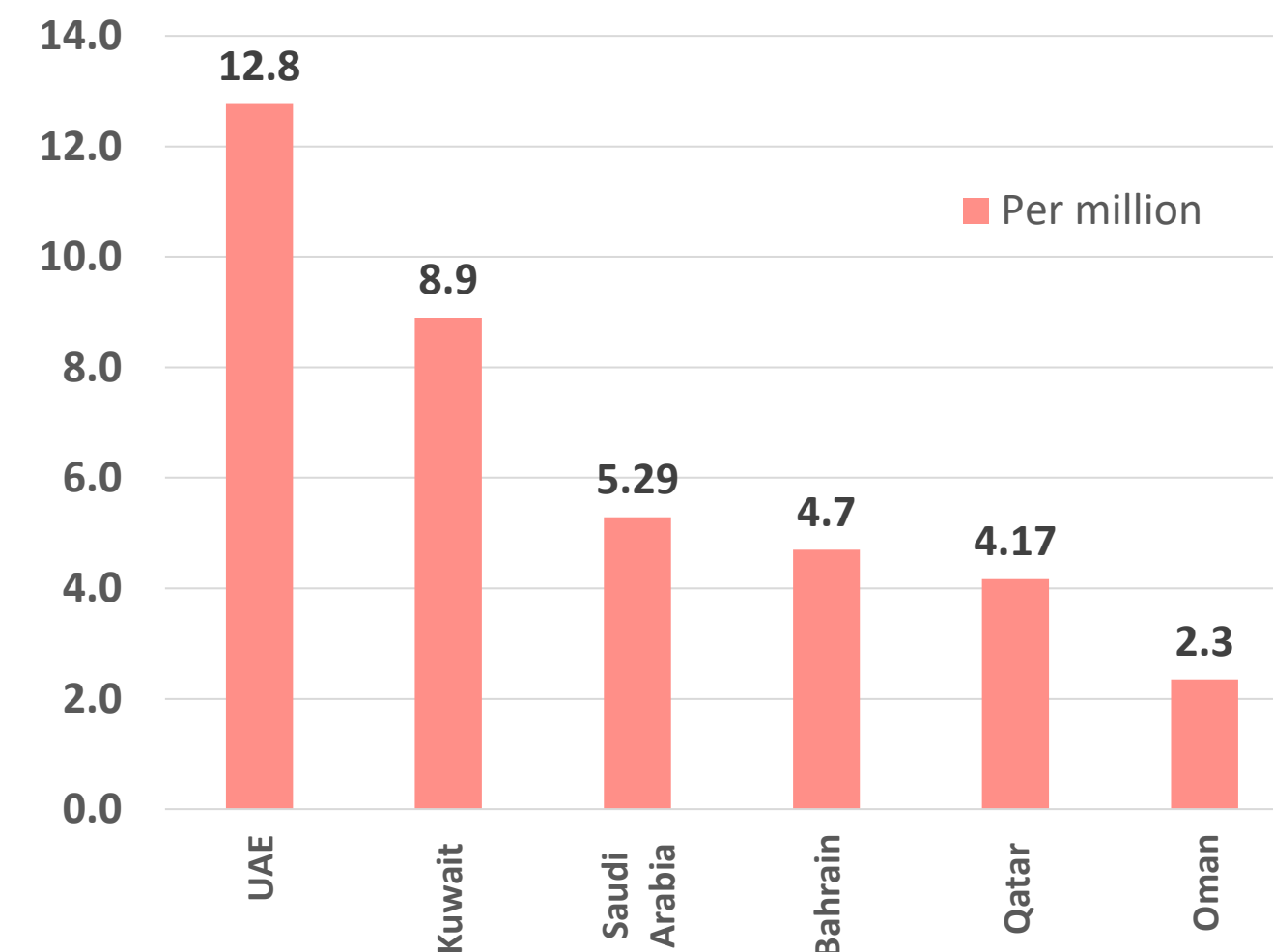
TOTAL NUMBER OF INFECTED CASES



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



UAE Research

Article 1: knowledge, attitude, and practices towards SARS-CoV-2 Infection among United Arab Emirates population. Cross sectional survey-based study.

Published: Under process

Authors: Hamdah AlRmaithi, AlJazia AlGhfli, Rqaya AlMadhani, Latifa AlKetbi

Affiliation: Academic Affairs, Ambulatory Healthcare Services, Abu Dhabi Healthcare Services.

This is a UAE based study aimed to explore the knowledge, attitude, and practices towards SARS-CoV-2 Infection among general adult population of UAE.

Methods:

A community-based, cross-sectional study using self-administered electronic questionnaire distributed to a total of 1867 participant from all UAE emirates between April 4 to 14, 2020. The questionnaire consisted of 5 parts; the demographics, Knowledge, Practice, Attitude, source and trust of information and PHQ2 depression screening.

Findings:

Demographics: Characteristics of the participants is in table (1).

Knowledge: 76.5% of the questions were answered correctly (13 out of 17). The mean SARS-COV-2 infection knowledge score was 11.5 (SD 2.5) and only 18.3% scored less than 10. The knowledge was better if the level of education was higher ($P < 0.01$), non UAE national ($P < 0.01$), a higher PHQ-2 score ($P < 0.01$), or have a positive contact history with SARS-COV-2 infected patient ($P < 0.01$). It was also noted that participants with **good knowledge had better practice score** as well ($P < 0.01$).

Table 1 : demographic data on the participant

Characteristics		Number	%
Nationality	UAE	1471	78.20%
	Non-UAE	411	21.80%
Gender	Male	360	19.30%
	Female	1510	80.70%
Emirates	Abu Dhabi	467	24.80%
	Dubai	144	7.70%
	Sharjah	133	7.10%
	Umm Al-Quwain	137	7.30%
	Ajman	113	6%
	Ras Al-Khaimah	93	4.90%
	Fujairah	65	3.50%
	Al Ain (AD)	730	38.80%
Age Group	20 and below	182	9.80%
	21-30	406	21.80%
	31-40	673	36.10%
	41-50	436	23.40%
	51-60	141	7.60%
	61-70	25	1.30%
Education	Less than high school	104	5.60%
	High school	348	18.60%
	Diploma	186	10%
	Bachelor's degree	1018	54.50%
	Master or higher	211	11.30%
Work	Government	814	44.50%
	Police and defences	45	2.50%
	Healthcare	181	9.90%
	Labourer	23	1.30%
	Business	29	1.60%
	Student	259	14.20%
	Un-employed	479	26.20%
Work duty	Healthcare or defences or police	226	12.30%
	Homebased jobs	1604	87.70%
Total		1882	100%



Article 1:

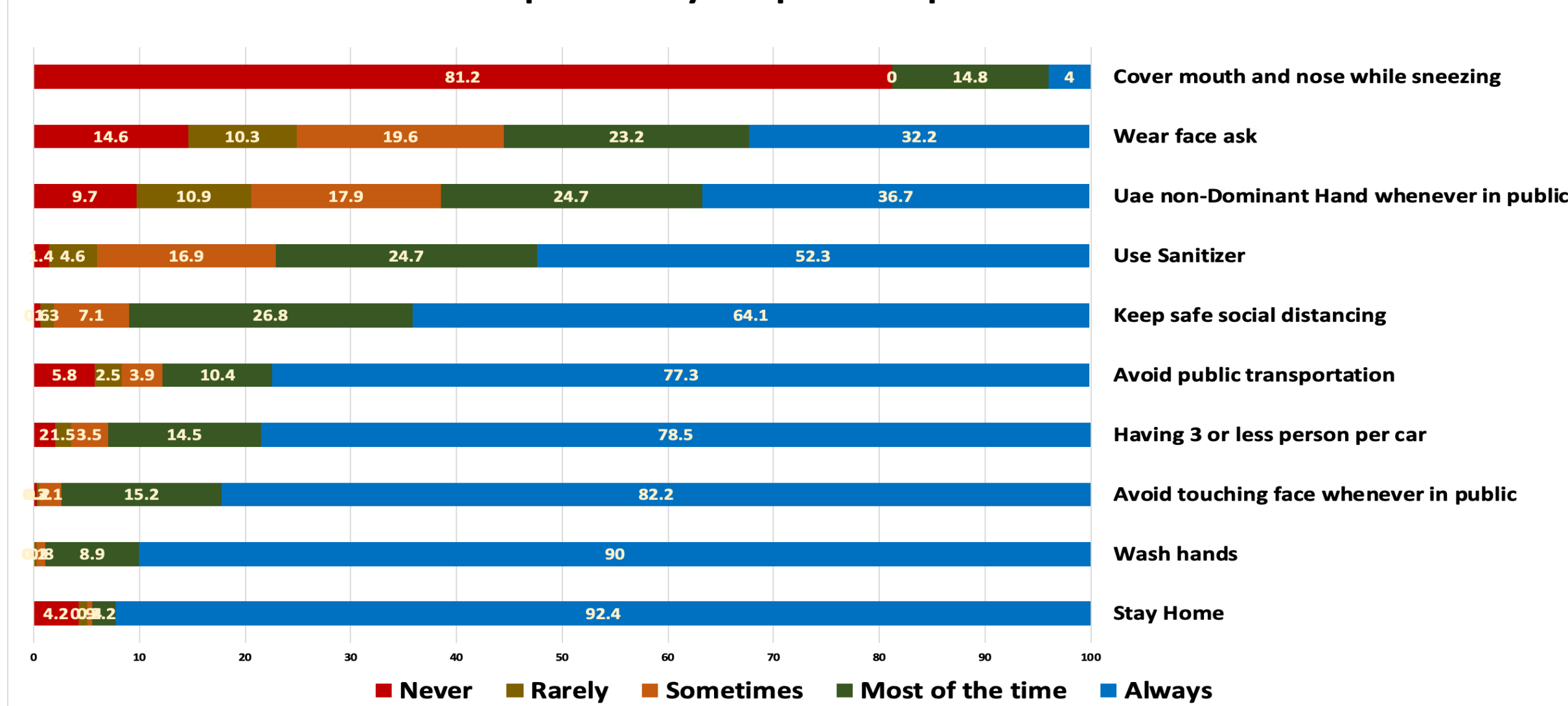
2-Practice: Two third of the respondents achieved **78.9%** in practice score (31 point out of 38) on best practice in preventing SARS-COV-2 infection. **Additionally, practice was significantly determined by level of education level (P<0.01).**

The most followed practices among respondents were **staying home (92.5%)**, rest in figure 2 . **Although staying home was reported by 92.5%**, nevertheless **28.5%** and **6.2%** respectively visited others or were being visited or did both.

3-Attitude:the majority of the respondents agreed that SARS-COV-2 infection will finally be successfully controlled (90.8%)

The study noticed that people who were more willing to take vaccine if available are those who wear masks (p value<0.05),younger age(p value <0.05) , non UAE national (p value <0.05), with better knowledge score(p value <0.05),and male gender(p value <0.05).

Adherence to best practice by the public to prevent COVID19 infection



4- Source and trust of COVID19 information:Social media was the source of information of 1545 (**82.1%**) of the participant. More participant are trusting doctors and healthcare providers as the source of information (56.7%).

5-Depression risk: Depression risk which was assessed using Patient Health Questionnaire-2 (PHQ-2), was significantly higher with male gender(P<0.01), non-Emirati nationality (P<0.01), lower knowledge score(P<0.01) and younger age(P<0.01). **Almost one in five (18.9%) have a depression risk which was assessed using PHQ-2.**

Conclusion: Knowledge and practices although satisfactory but with the size and impact of this pandemic lack of adherence even by a minority could be enough to prevent this pandemic from being contained. Recommendations from this study is to intensify awareness programs and interventions and increase good practice. **Mental health is an area worth further study and interventions.**



Treatment

Article 2 : Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19

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

This article is summarized by subject matter expert

Summary:

- This is a multinational observational study involving patients hospitalized with Covid-19, using data from the Surgical Outcomes Collaborative (Surgisphere), an international registry from 169 hospitals located in 11 countries in Asia, Europe and North America. Evaluation of the relationship of cardiovascular disease and drug therapy with in-hospital death among hospitalized patients with Covid-19 was done; these patients were admitted between December 20, 2019, and March 15, 2020, and were recorded in the Surgical Outcomes Collaborative registry as having either died in the hospital or survived to discharge as of March 28, 2020.
- Of the 8910 patients with Covid-19, a total of 515 died in the hospital (5.8%) and 8395 survived to discharge. The factors we found to be independently associated with an increased risk of in-hospital death were an age greater than 65 years, coronary artery disease, heart failure, cardiac arrhythmia, chronic obstructive pulmonary disease and current smoking. **No increased risk of in-hospital death was found to be associated with the use of ACE inhibitors or the use of angiotensin receptor blockers (ARBs). Table 1, 2 and Figure 1.**
- These results confirms previous reports of the independent relationship of older age, underlying cardiovascular disease (coronary artery disease, heart failure, and cardiac arrhythmias), current smoking, and COPD with death in Covid-19. This study also suggests that women are proportionately more likely than men to survive the infection. **Use of either ACE inhibitors or statins was associated with better survival.**



Article 2: Summary:

This article is summarized by subject matter expert

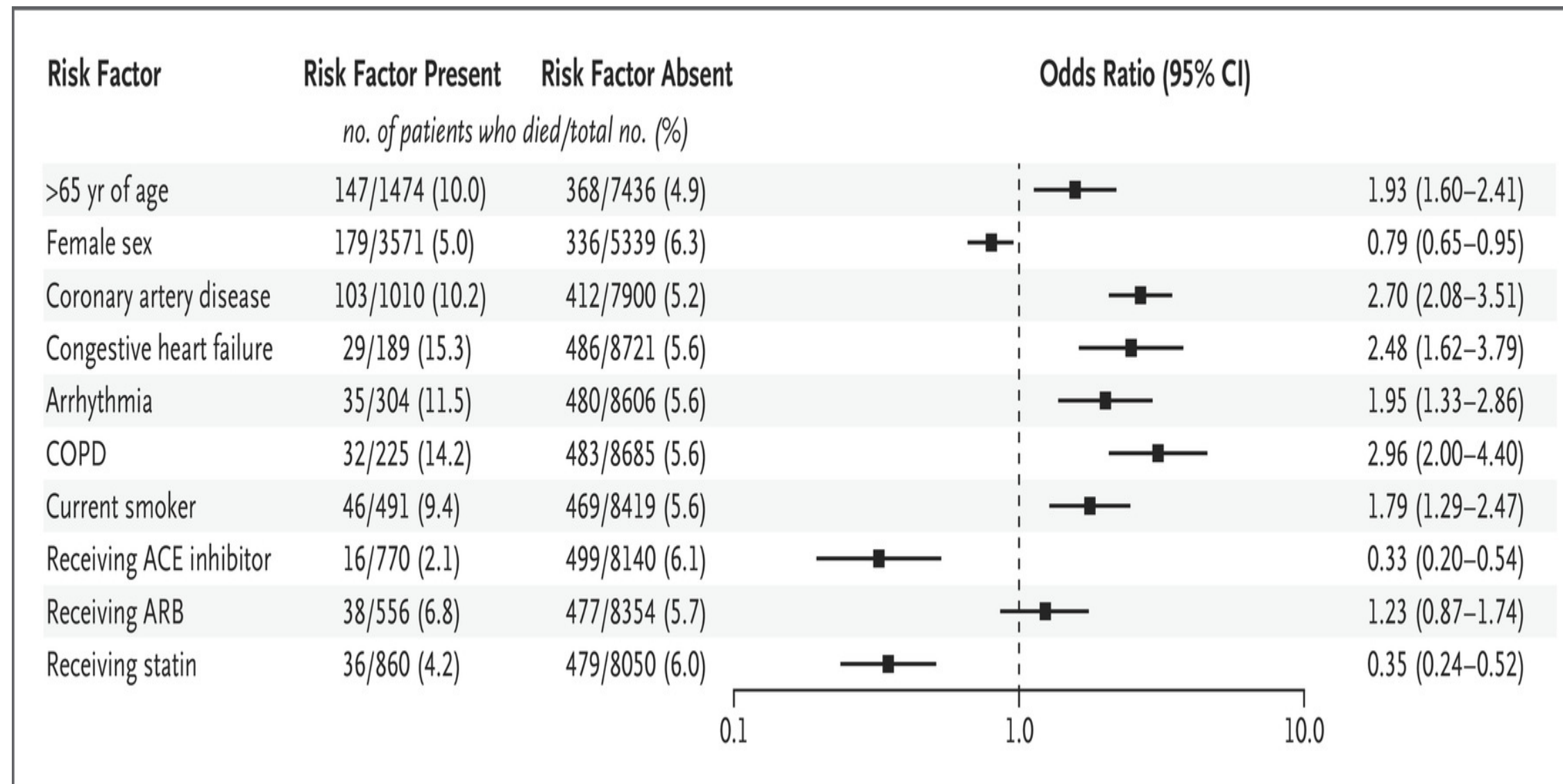


Table 2. Cardiovascular Drug Therapy at Hospitalization among Survivors and Nonsurvivors of Covid-19.*

Drug Class	Survivors (N=8395)	Nonsurvivors (N=515)	Difference (95% CI)
	<i>number (percent)</i>	<i>number (percent)</i>	<i>percentage points</i>
ACE inhibitor	754 (9.0)	16 (3.1)	5.9 (4.3 to 7.5)
ARB	518 (6.2)	38 (7.4)	-1.2 (-3.5 to 1.1)
Beta-blocker	497 (5.9)	28 (5.4)	0.5 (-1.6 to 2.6)
Antiplatelet	282 (3.4)	13 (2.5)	0.8 (-0.6 to 2.2)
Statin	824 (9.8)	36 (7.0)	2.8 (0.5 to 5.1)
Insulin	279 (3.3)	23 (4.5)	-1.2 (-3.0 to 0.7)
Other hypoglycemic agent	792 (9.4)	59 (11.5)	-2.1 (-4.9 to 0.8)

* The 95% confidence intervals have not been adjusted for multiple testing and should not be used to infer definitive effects. ACE denotes angiotensin-converting enzyme, and ARB angiotensin-receptor blocker.

Conclusion:

The study is observational study and did not exclude any confounding, so cause-and-effect between drug therapy and survival should not be inferred. **The results did not confirm previous concerns regarding a potential harmful association of ACE inhibitors or ARBs with in-hospital death in this clinical context.** Randomized controlled trials are recommended to evaluate the role of ACE inhibitors or ARBs before any conclusions could be reached.



Transmission :

Article 3 : Contact Tracing Assessment of COVID-19 Transmission Dynamics in Taiwan and Risk at Different Exposure Periods Before and After Symptom Onset

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

Summary

- The study discussed the transmission dynamics (transmissibility) of COVID-19 to close contacts and evaluated the transmission risk at different exposure window periods before and after symptom onset in Taiwan.
- The study measured the **secondary clinical attack rate** (*the ratio of symptomatic confirmed cases among the close contacts*) for different exposure time windows of the index cases and for different exposure settings (such as household, family, and health care) among 2761 close contacts of 100 confirmed (RT-PCR positive) COVID-19 patients.

Findings (Tables 1, 2)

- The overall secondary clinical attack rate was 0.7% (95% CI, 0.4%-1.0%).
- The attack rate was **higher** among contacts whose exposure to index cases started **within 5 days** of symptom onset (1.0% [95% CI, 0.6%-1.6%]) **compared with those who were exposed later** (0% ; 95% CI, 0%-0.4%).
- The attack rate among contacts with **exclusive presymptomatic exposures** was 0.7% [95% CI, 0.2%-2.4%]).
- The attack rate was **higher among household** (4.6% [95% CI, 2.3%-9.3%]) **and nonhousehold** (5.3% [95% CI, 2.1%-12.8%]) family contacts **than that in health care or other settings**.
- The **attack rates were higher among those aged 40 to 59 years** (1.1% [95% CI, 0.6%-2.1%]) and than those aged 60 years and older (0.9% [95% CI, 0.3%-2.6%]).

This article is summarize by subject matter expert

Table 1. Secondary Clinical Attack Rate for COVID-19

	No. of secondary cases (asymptomatic case)	No. of contacts	Secondary clinical attack rate, % (95% CI)	Risk ratio (95% CI)
Exposure setting				
Household	10 (3)	151	4.6 (2.3-9.3)	1 [Reference]
Nonhousehold family	5 (1)	76	5.3 (2.1-12.8)	1.14 (0.34-3.76)
Health care	6 (0)	698	0.9 (0.4-1.9)	0.19 (0.06-0.54)
Others ^a	1 (0)	1836	0.1 (0-0.3)	0.01 (0-0.09)
Time from onset to exposure, d^b				
<0	10 (3)	735	1.0 (0.5-2.0)	1 [Reference]
0-3	9 (1)	867	0.9 (0.5-1.8)	0.97 (0.35-2.66)
4-5	3 (0)	216	1.4 (0.5-4.0)	1.46 (0.38-5.59)
6-7	0	119	0 (0-3.1)	0
8-9	0	449	0 (0-0.9)	0
>9	0	284	0 (0-1.3)	0
Exclusively presymptomatic exposure^c				
No	20 (4)	2371	0.7 (0.4-1.1)	1 [Reference]
Yes	2 (0)	299	0.7 (0.2-2.4)	0.99 (0.23-4.29)
Age of close contacts, y				
0-19	1 (1)	281	0 (0-1.4)	0
20-39	8 (2)	1161	0.5 (0.2-1.1)	1 [Reference]
40-59	10 (1)	794	1.1 (0.6-2.1)	2.19 (0.78-6.14)
≥60	3 (0)	331	0.9 (0.3-2.6)	1.75 (0.44-6.97)
Source of index case				
Local	18 (3)	967	1.6 (1.0-2.5)	1 [Reference]
Imported	4 (1)	1794	0.2 (0.1-0.5)	0.11 (0.03-0.37)
Clinical severity of index case				
Asymptomatic	0	91	0 (0-4.1)	0
Mild illness	4 (0)	1097	0.4 (0.1-0.9)	1 [Reference]
Pneumonia				
Mild	5 (2)	761	0.4 (0.1-1.2)	1.08 (0.24-4.82)
Severe	7 (0)	511	1.4 (0.7-2.8)	3.76 (1.10-12.76)
ARDS/sepsis	6 (2)	275	1.5 (0.6-3.7)	3.99 (1.00-15.84)

Transmission



Article 3 : Cont.,

Summary

This article is summarize by subject matter expert

Table 2. Risk for Symptomatic COVID-19 Infection Among the 2761 Close Contacts, Simultaneously Stratified by Exposure Setting and Time From Symptom Onset of the Index Case to First Day of Exposure

First day of exposure, d	Household		Nonhousehold family		Health care		Others ^a	
	Case/contact, No.	Attack rate, % (95% CI) ^b	Case/contact, No.	Attack rate, % (95% CI) ^b	Case/contact, No.	Attack rate, % (95% CI) ^b	Case/contact, No.	Attack rate, % (95% CI) ^b
<0	4/100	4.0 (1.6-9.8)	1/10	10.0 (1.8-40.4)	2/236	0.8 (0.2-3.0)	0/389	0 (0-1.0)
0-3	2/39	5.1 (1.4-16.9)	3/15	20.0 (7.0-45.2)	3/150	2.0 (0.7-5.7)	0/663	0 (0-0.6)
4-5	1/6	16.7 (3.0-56.4)	0/6	0 (0-39.0)	1/38	2.6 (0.5-13.5)	1/166	0.6 (0.1-3.3)
6-7	0/4	0 (0-49.0)	0/10	0 (0-27.8)	0/17	0 (0-18.4)	0/88	0 (0-4.2)
8-9	0/2	0 (0-65.7)	0/3	0 (0-56.1)	0/110	0 (0-3.3)	0/334	0 (0-1.1)
>9	0/0	UC	0/24	0 (0-13.8)	0/146	0 (0-2.6)	0/114	0 (0-3.3)

Abbreviations: COVID-19, coronavirus disease 2019; UC, uncalculable.

^a Others include friends, airline crew members and passengers, and other casual contacts.

^b Secondary clinical attack rate.

Conclusion

- Findings of this study suggest that most **transmission of COVID-19 occurred at the very early stage of the disease or even before the onset of symptoms**
- High transmissibility of COVID-19 **before and immediately after symptom onset** suggests that **finding and isolating symptomatic patients alone may not suffice to contain the epidemic.**
- Testing and isolating pre-symptomatic patients would play a role in reducing viral circulation in the communities.**