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HEALTH CENTRE

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Scientific Research Monitoring on COVID-19

16 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.)

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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)



Today's Highlights

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

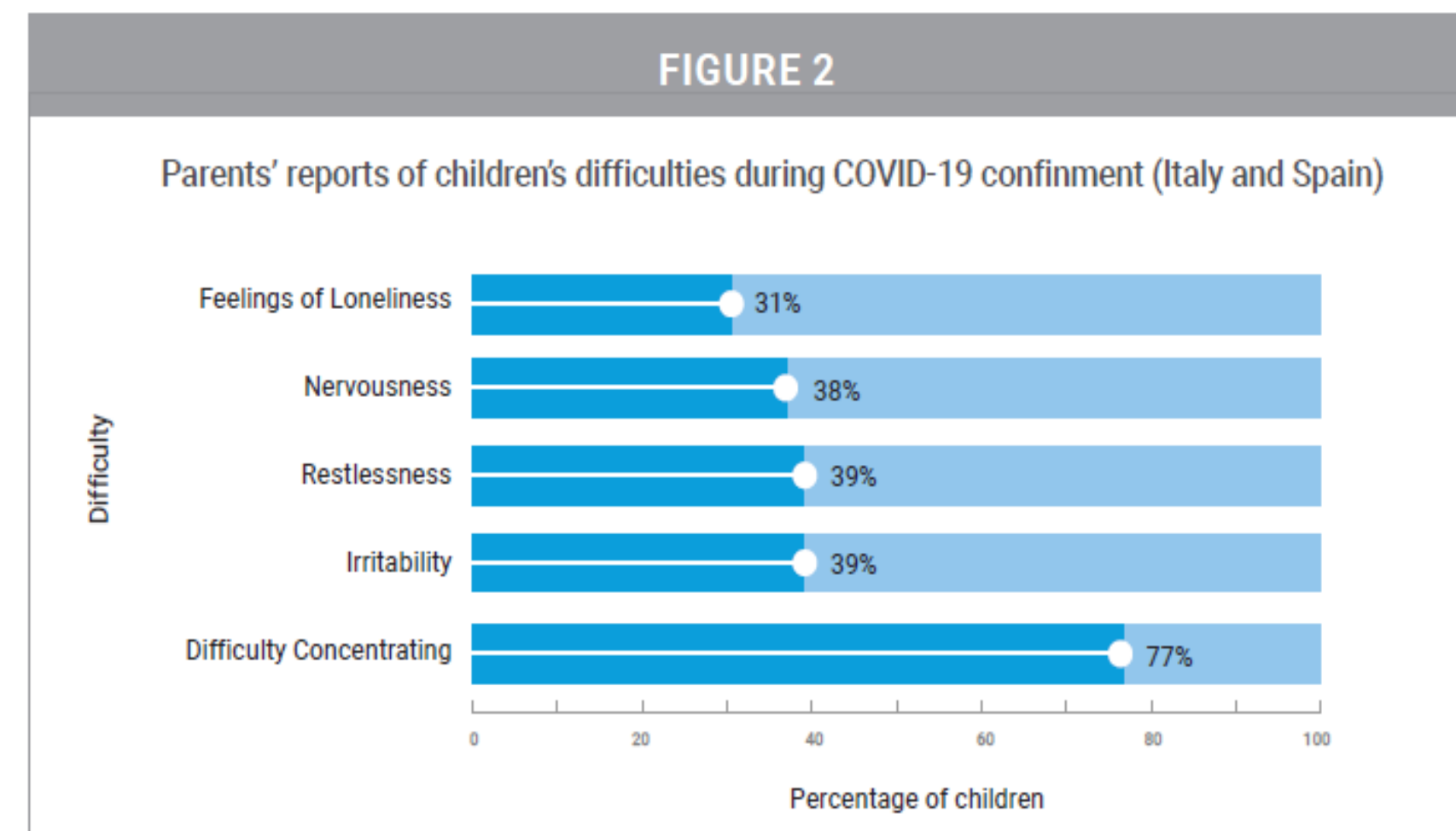
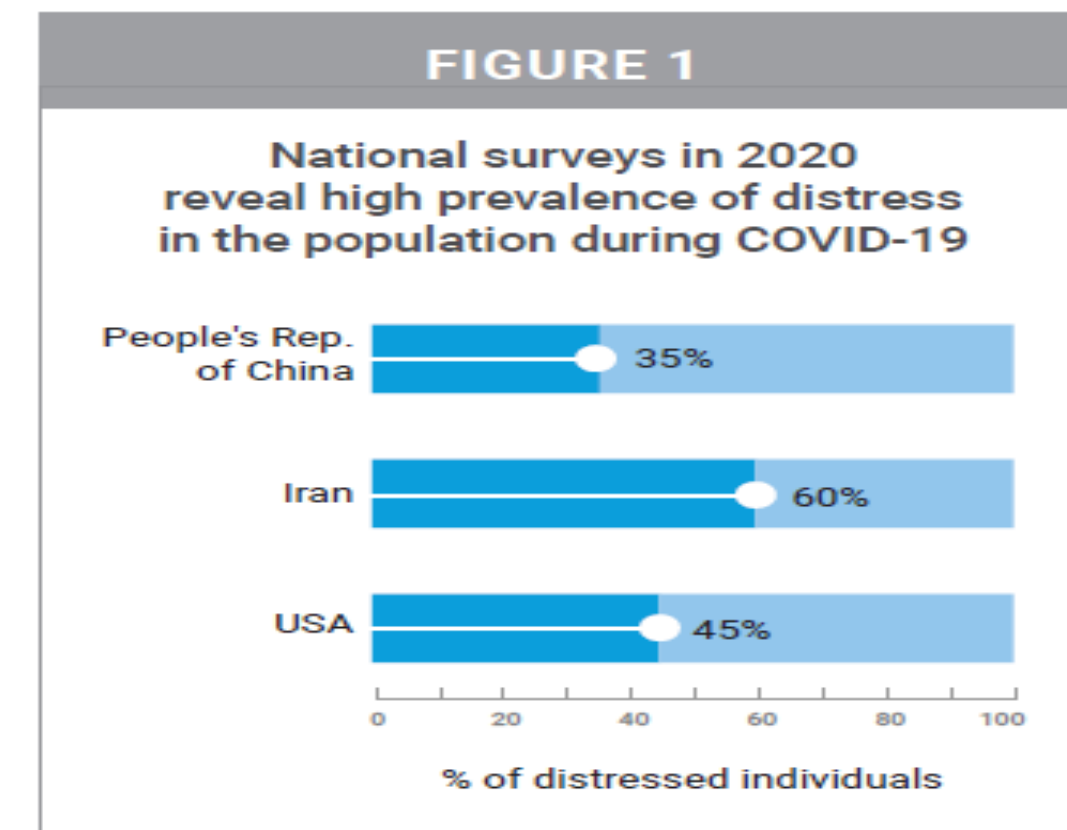
Scientific Research

- Clinical features and transmission:** a cohort study suggests that the SARS.CO2V infection might represent one of the triggers of Kawasaki disease. Kawasaki disease incidence have increase up to 30 fold in Italian city during the COVID19 era.
- Treatment:** the American cardiology association issued a statement of return of athletes and highly active people to play after acquiring COVID19 infection. The statement stated that 2 weeks of no exercise after resolving of symptoms or having positive test (in asymptomatic) is recommended. Assessment by medical team for return is required if patient have mild or sever symptoms after completing the two weeks.
- Vaccine:** a cohort study on patients aged 35 to 41 years, BCG vaccination in childhood was associated with a similar rate of positive test results for SARS-CoV-2 compared with no vaccination and no difference in severity.



WHO daily report 15 May 2020

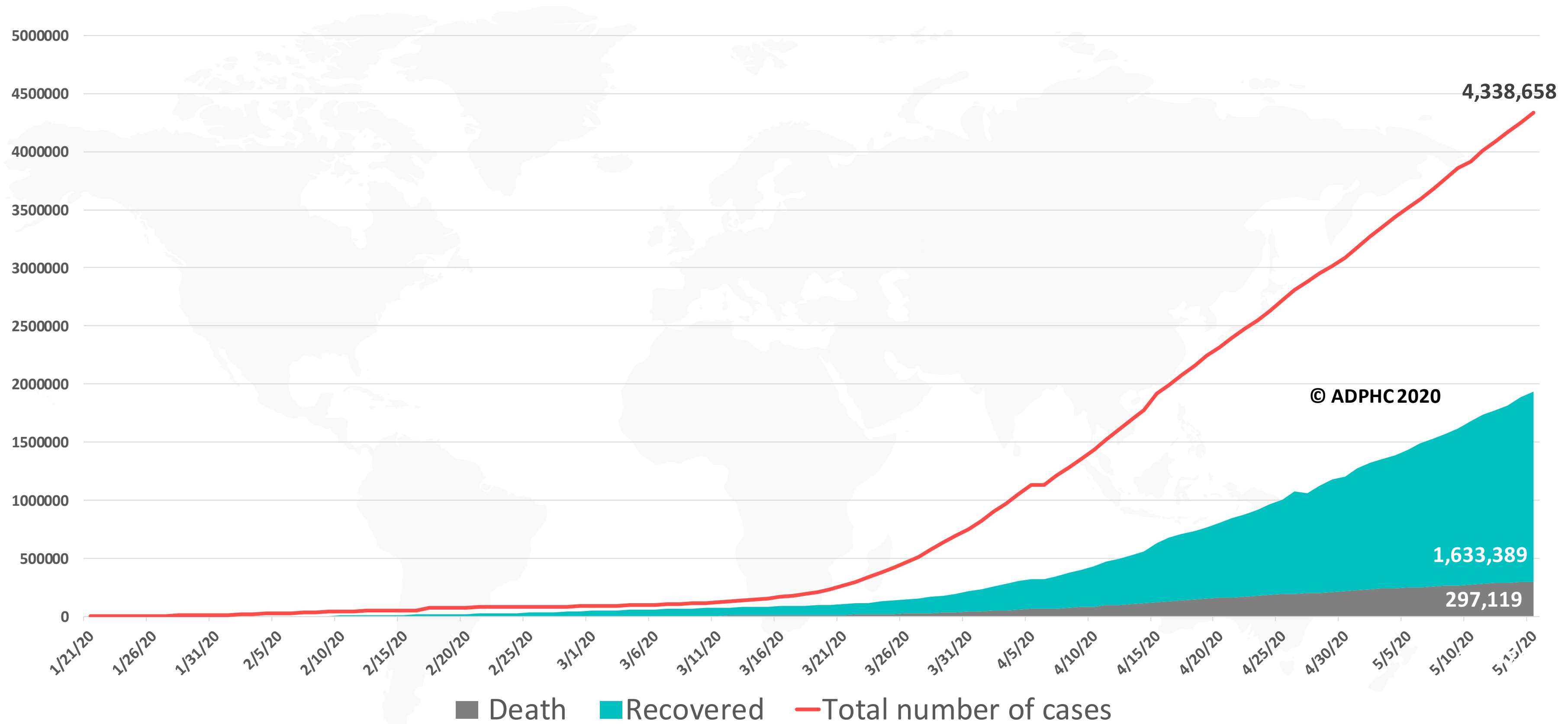
- A UN policy brief on COVID-19 and mental health warns that substantial investment is needed to avert a mental health crisis. Reports already indicate an increase in symptoms of depression and anxiety in several countries.
- WHO highlight on its continued collaboration with the aviation and tourism sectors.
 - WHO has supported the development of ICAO Temporary Guidance on Implementing a **Public Health Corridor (PHC)** to protect flight crew undertaking cargo operations during the COVID-19 pandemic.
 - The PHC concept has been developed using a risk-based approach and safety management principles for safe operations related to crew, aircraft, airport facilities and passengers.
 - similar guidance is under development for repatriation and scheduled passenger flights.



Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to May 15, 2020)

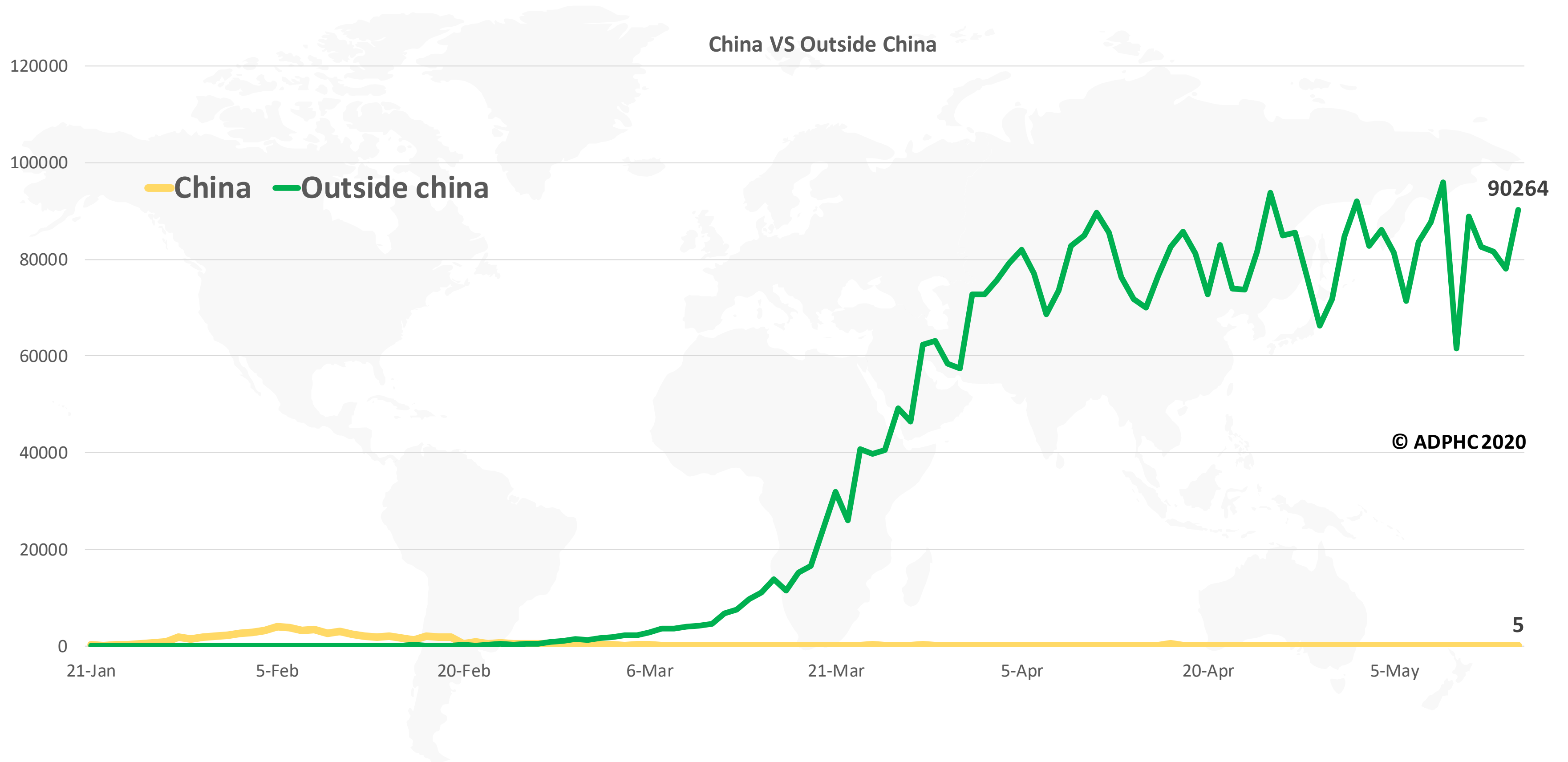


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to May 15, 2020).



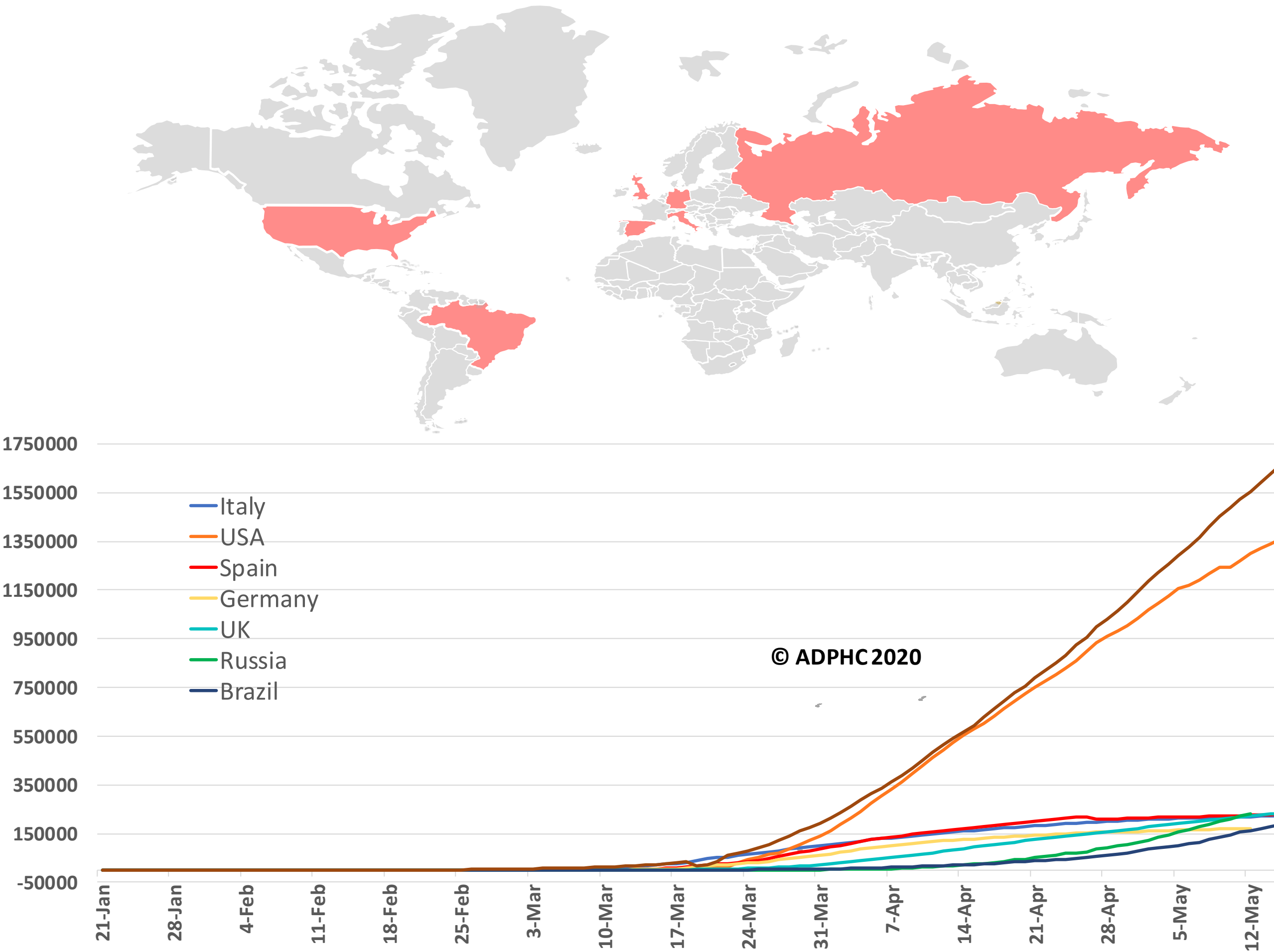
Line graph published by Abu Dhabi Public Health Center 2020.

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

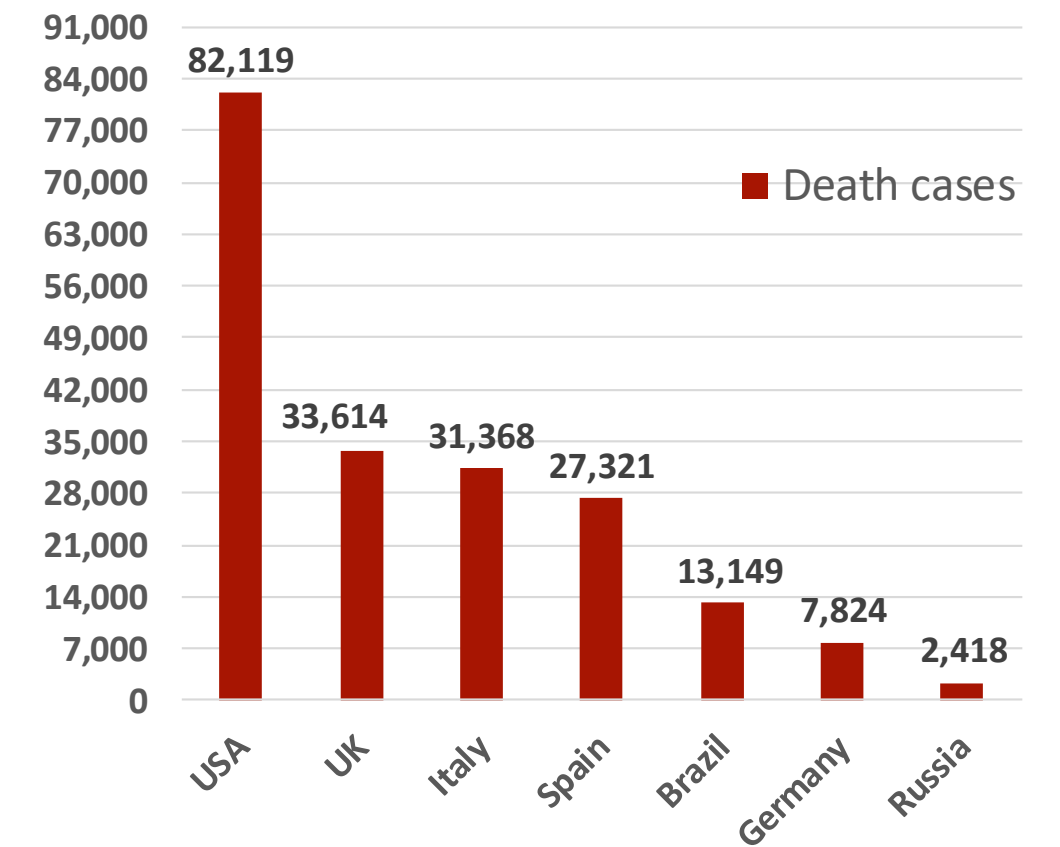
Epidemiology



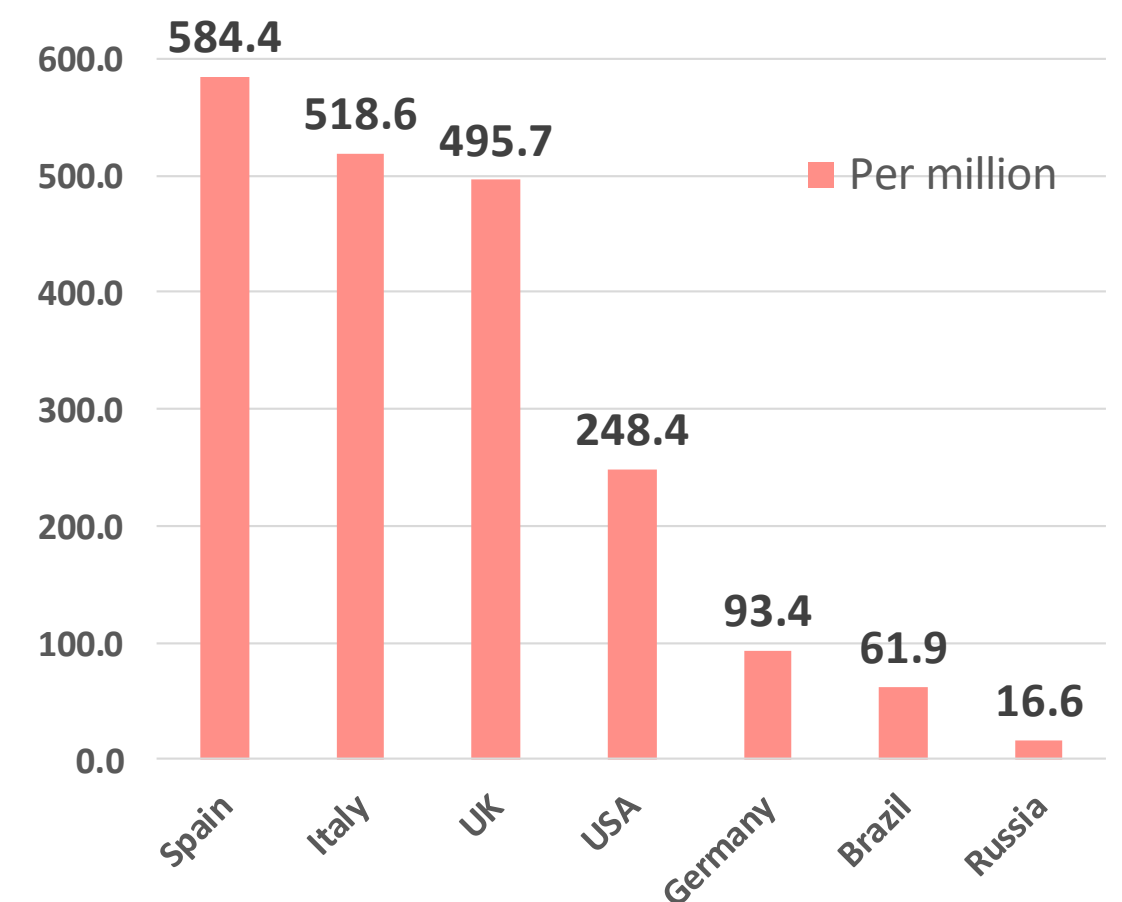
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to May 15, 2020).



TOTAL DEATHS



DEATHS PER MILLION

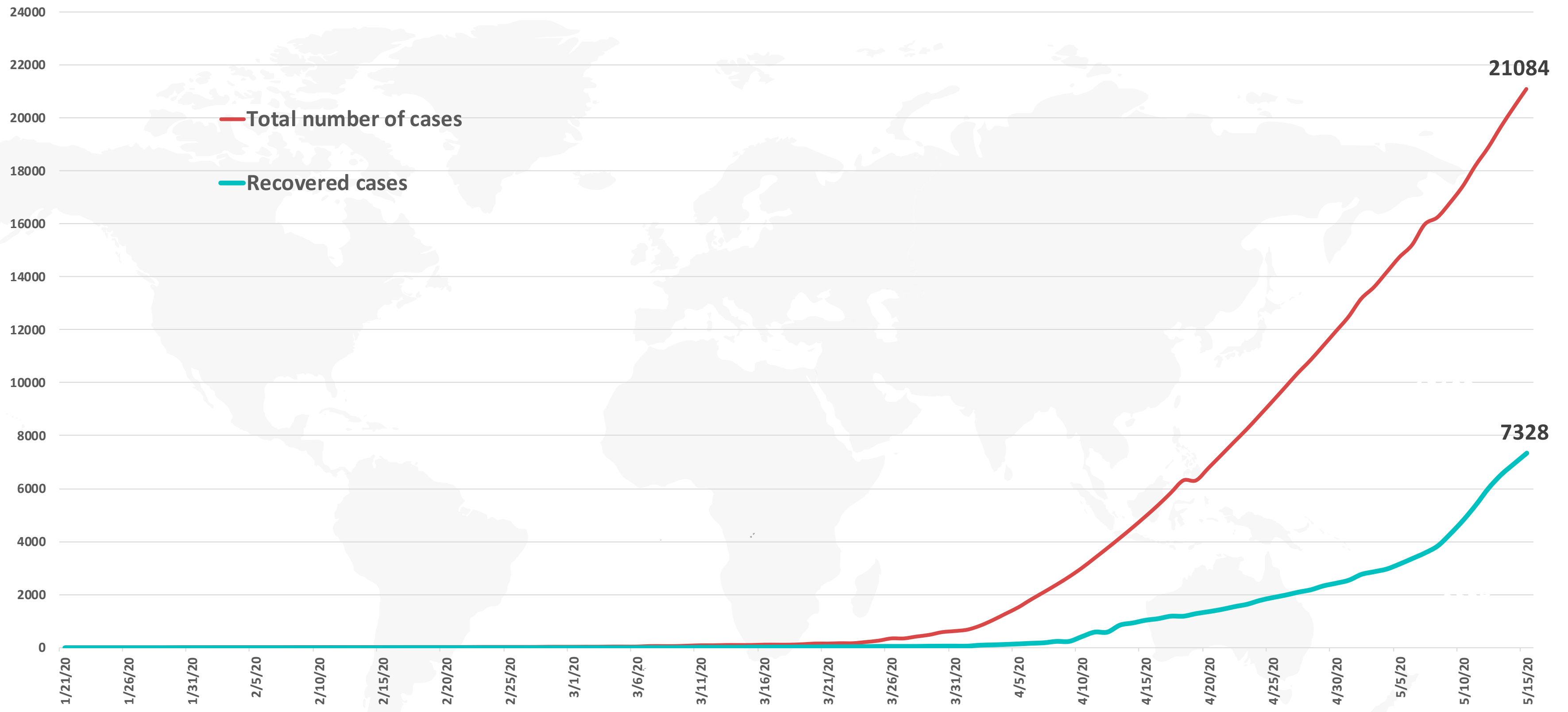


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



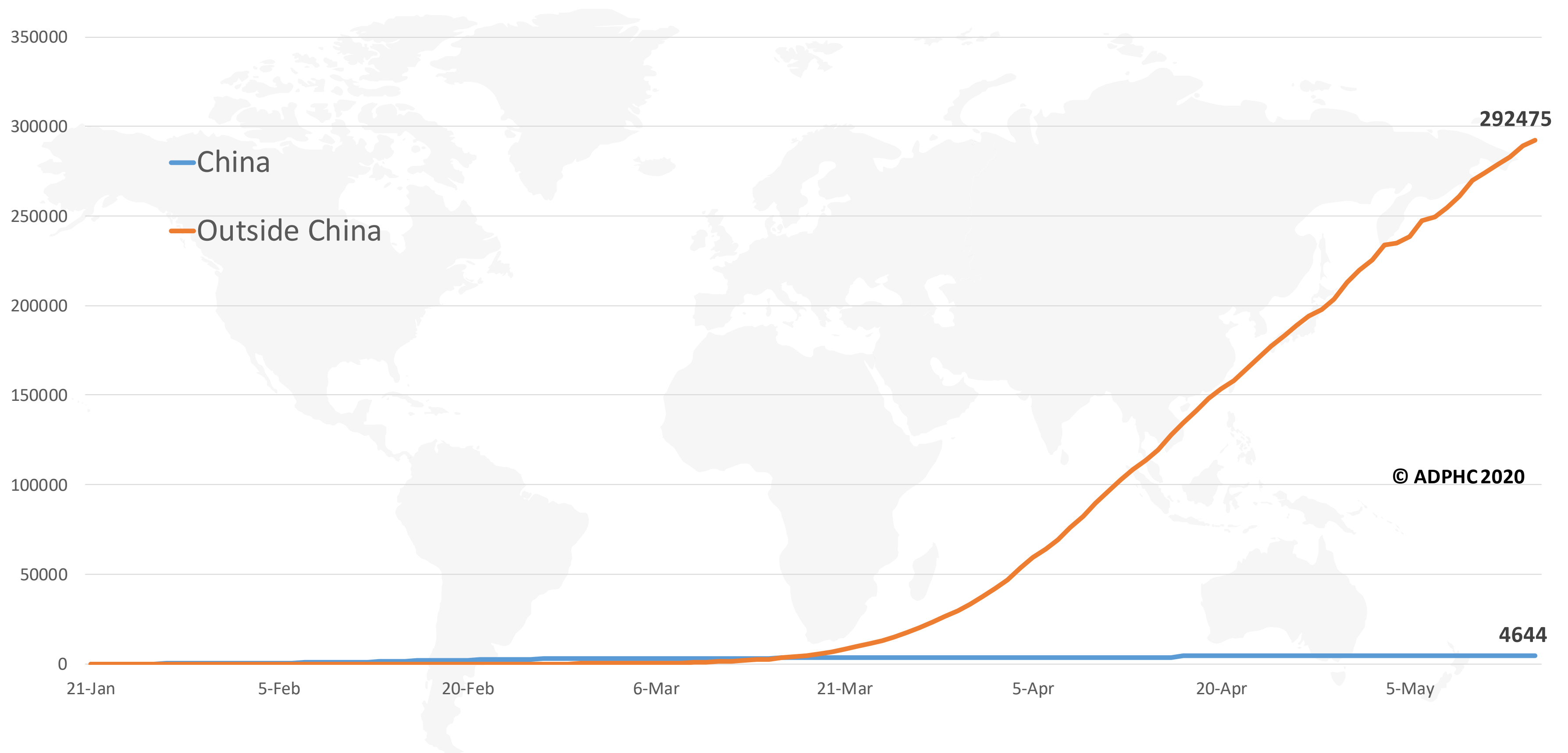
Line graph published by Abu Dhabi Public Health Center 2020.

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 15, 2020).



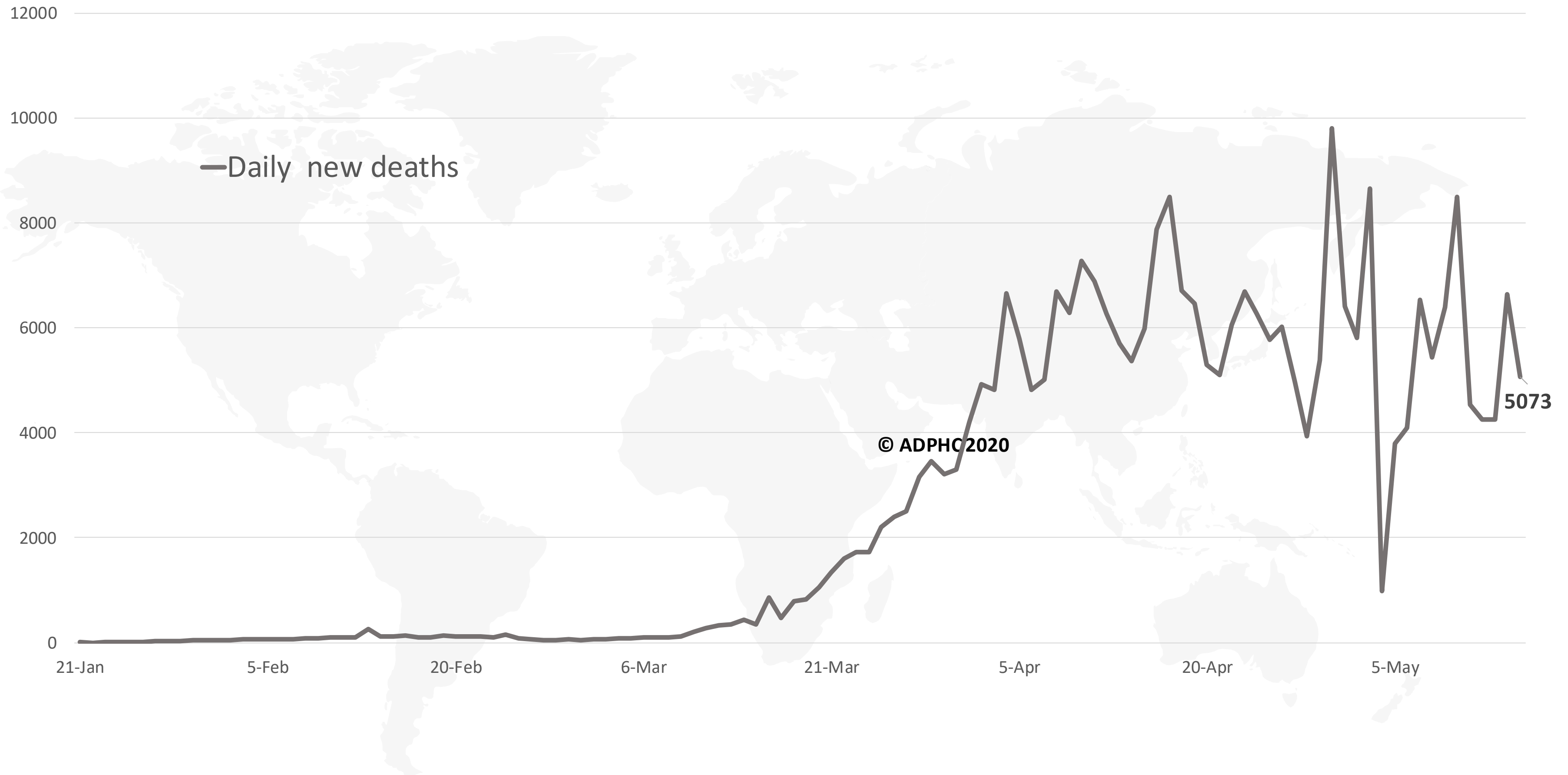
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Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 6: Global daily new deaths due to COVID-19 (January 22 to May 15, 2020).



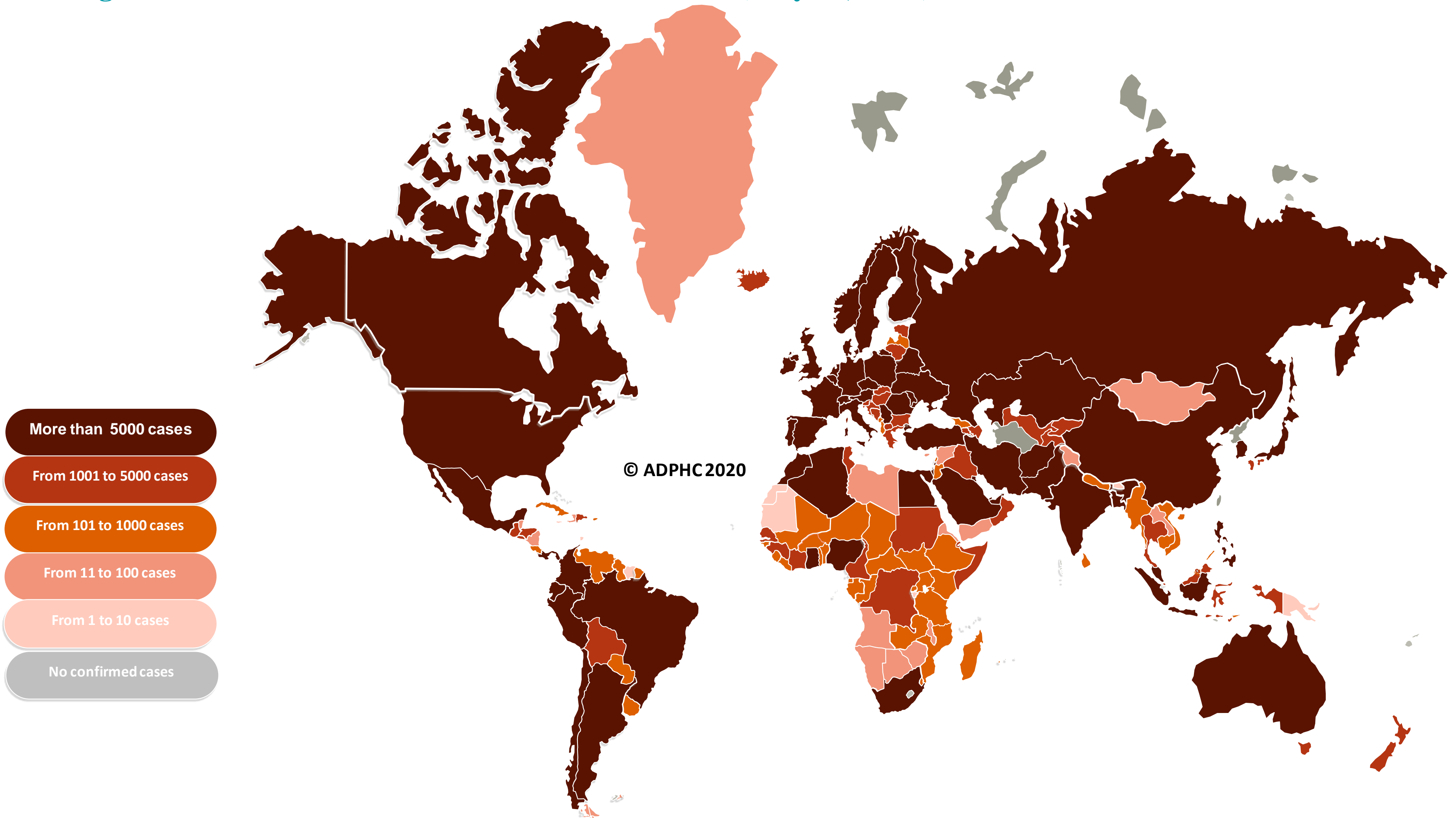
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 7a : Global distribution of COVID-19 cases (May 15, 2020).

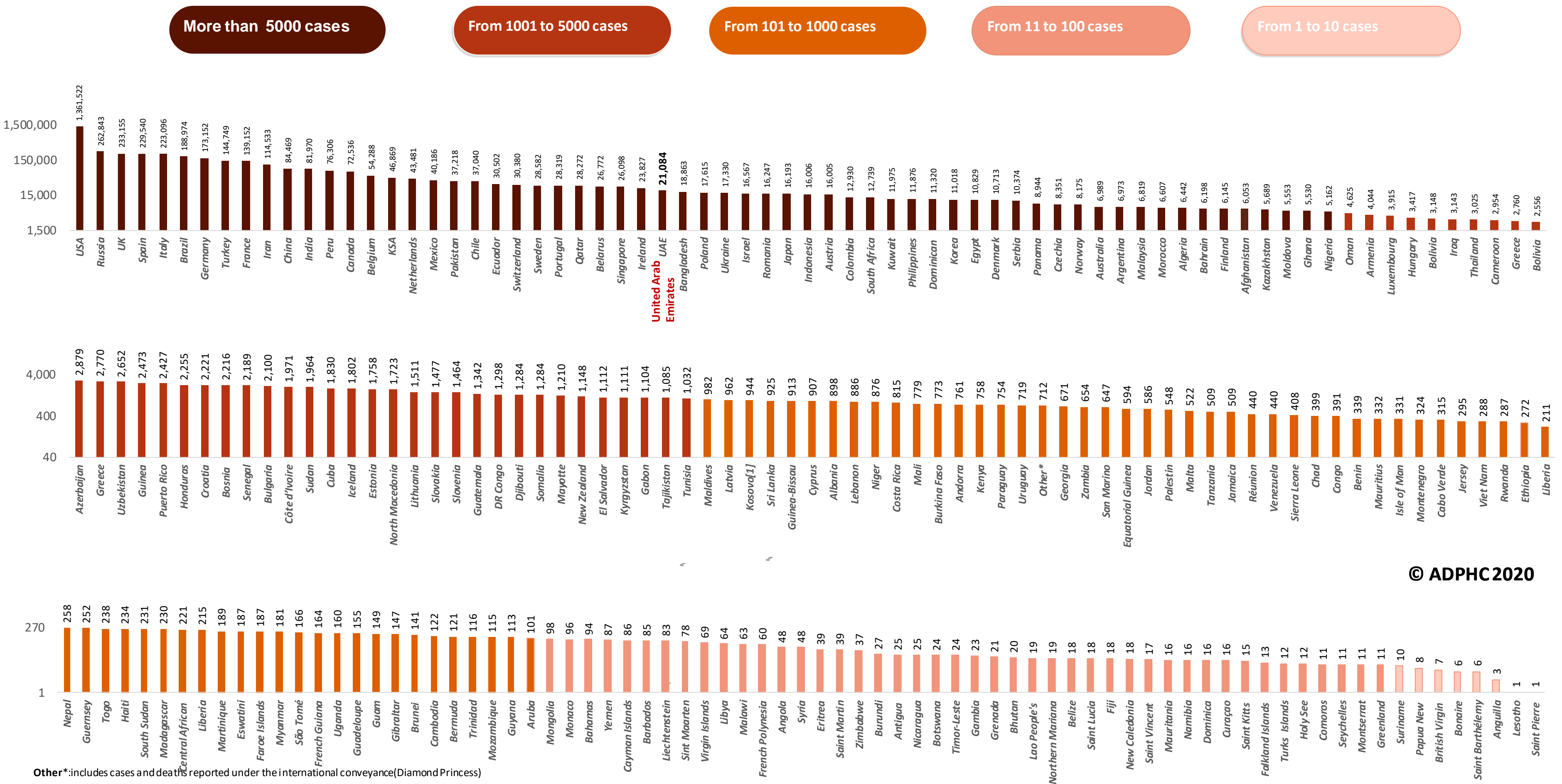


Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases May 15, 2020)



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Map chart published by Abu Dhabi Public Health Center 2020.

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

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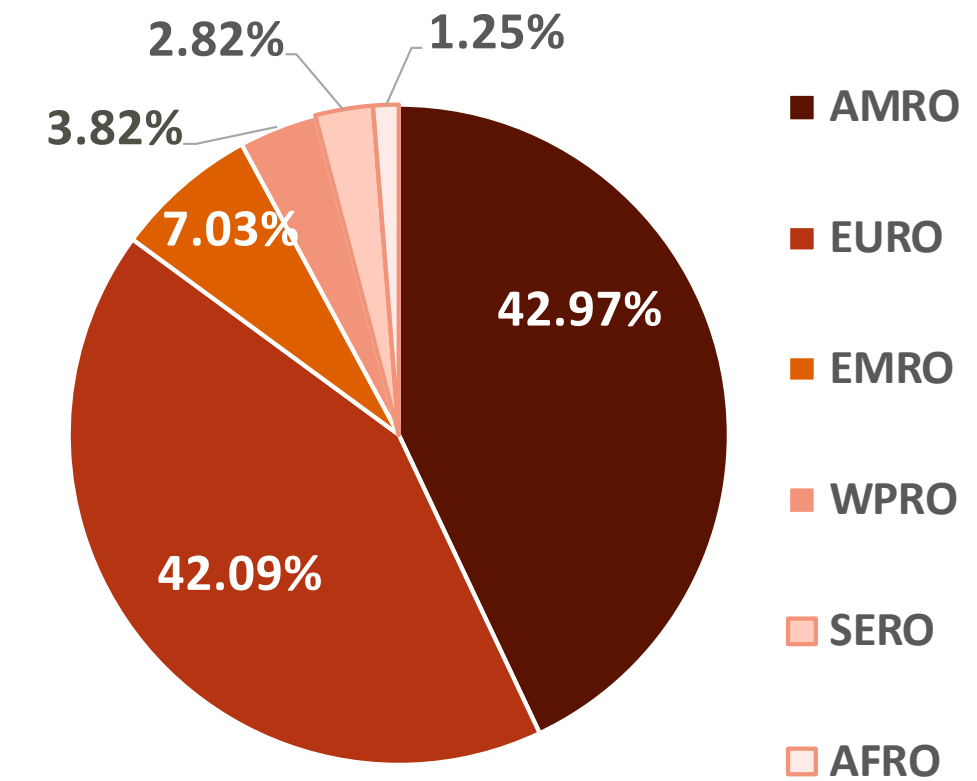
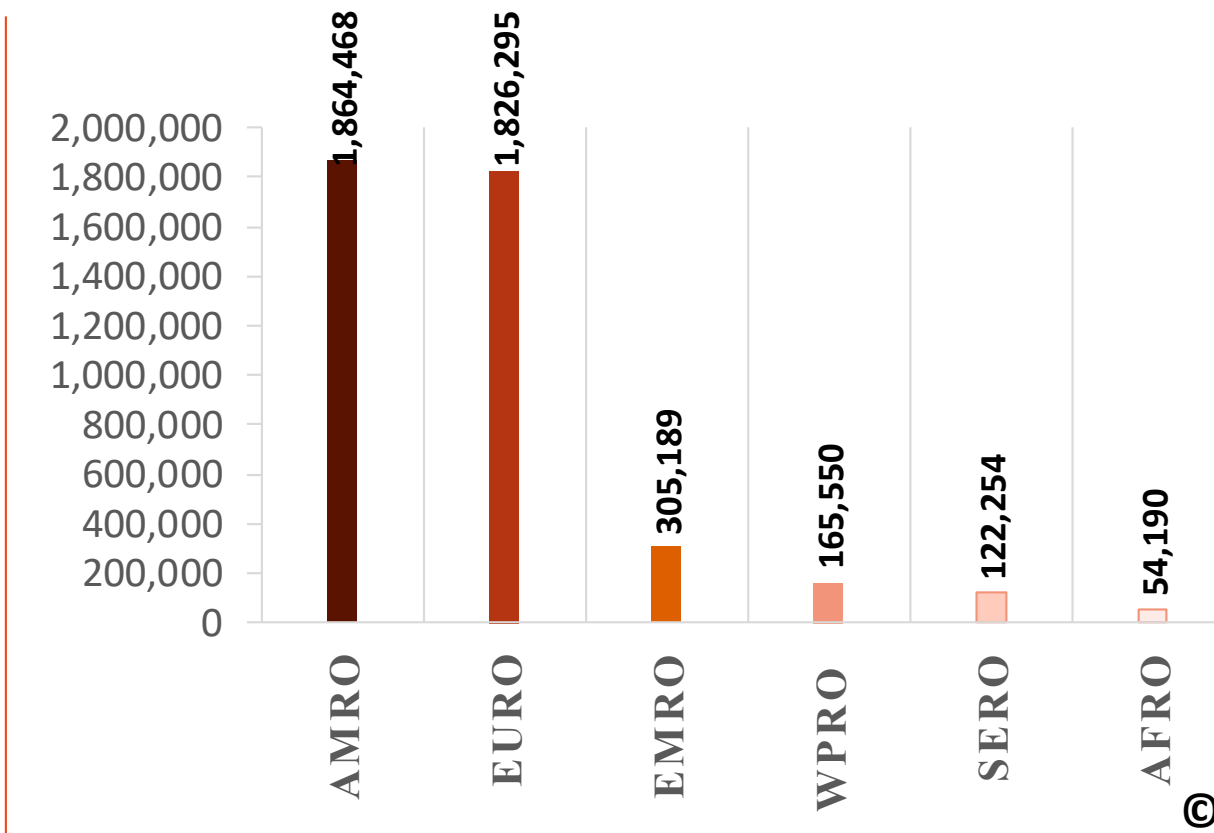
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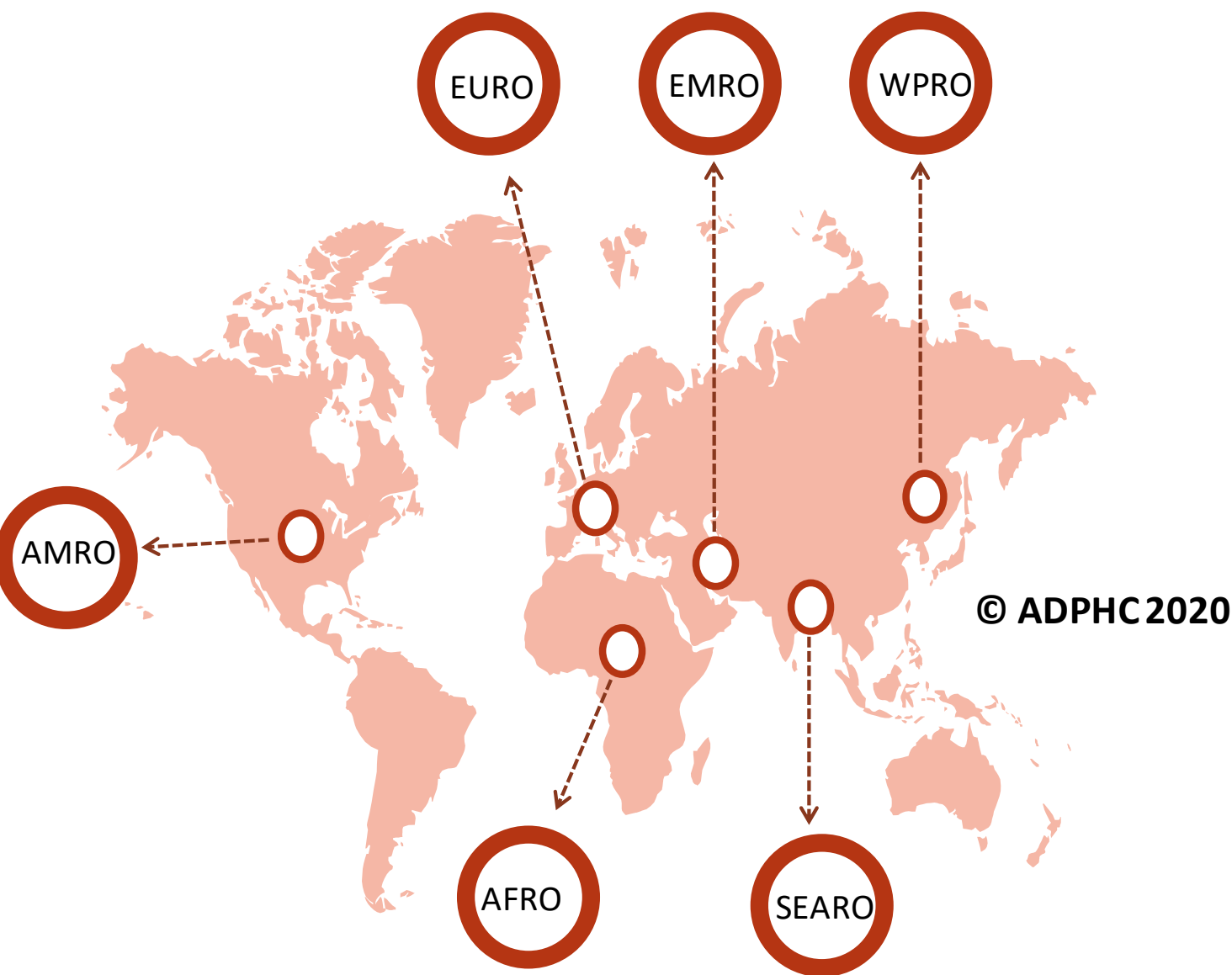
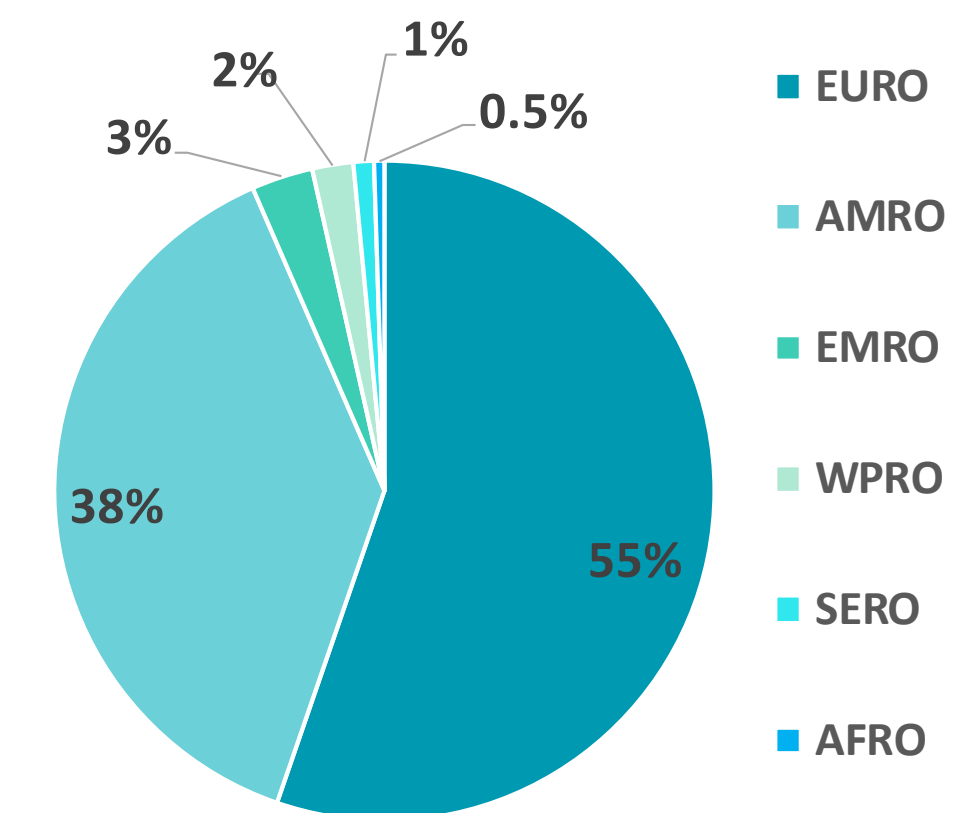
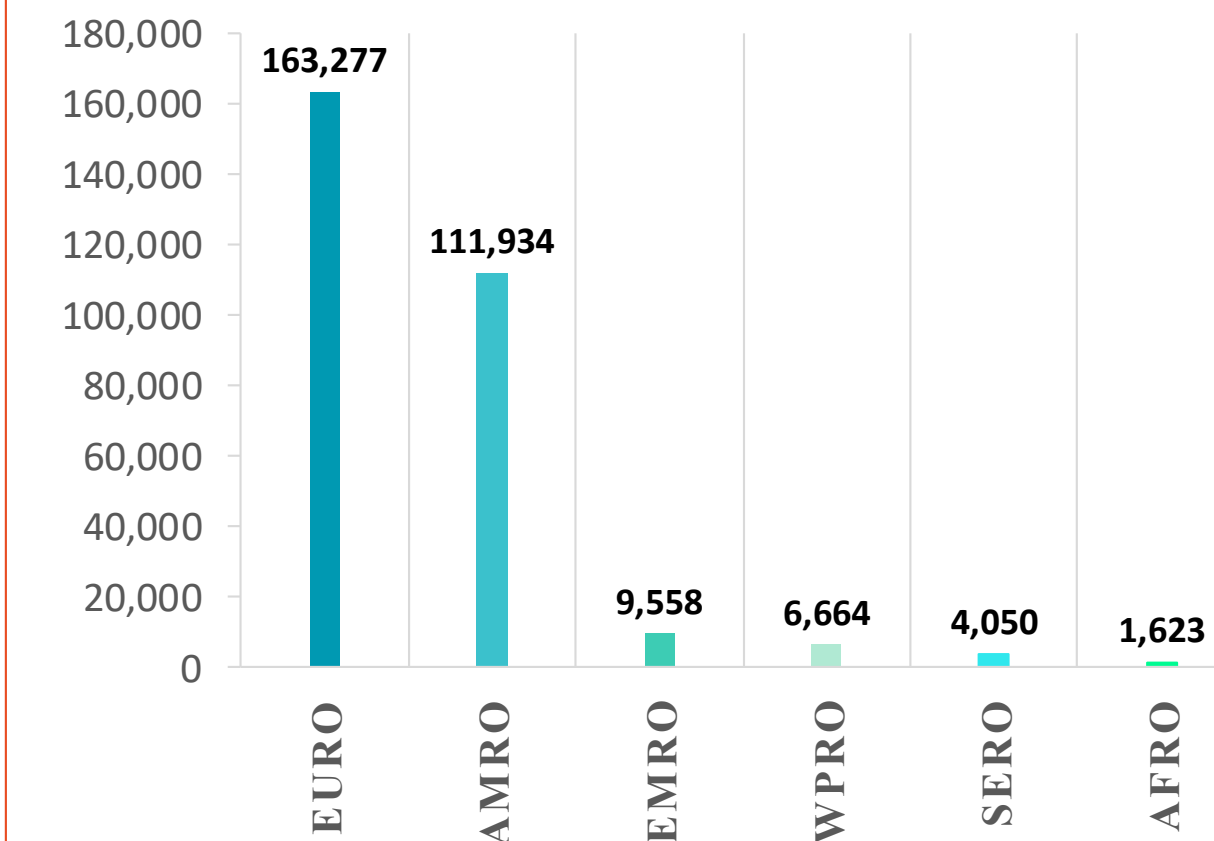


Figure 8: illustrate the Global distribution of COVID19 cases per region (May 15 2020)

INFECTED



DEATH



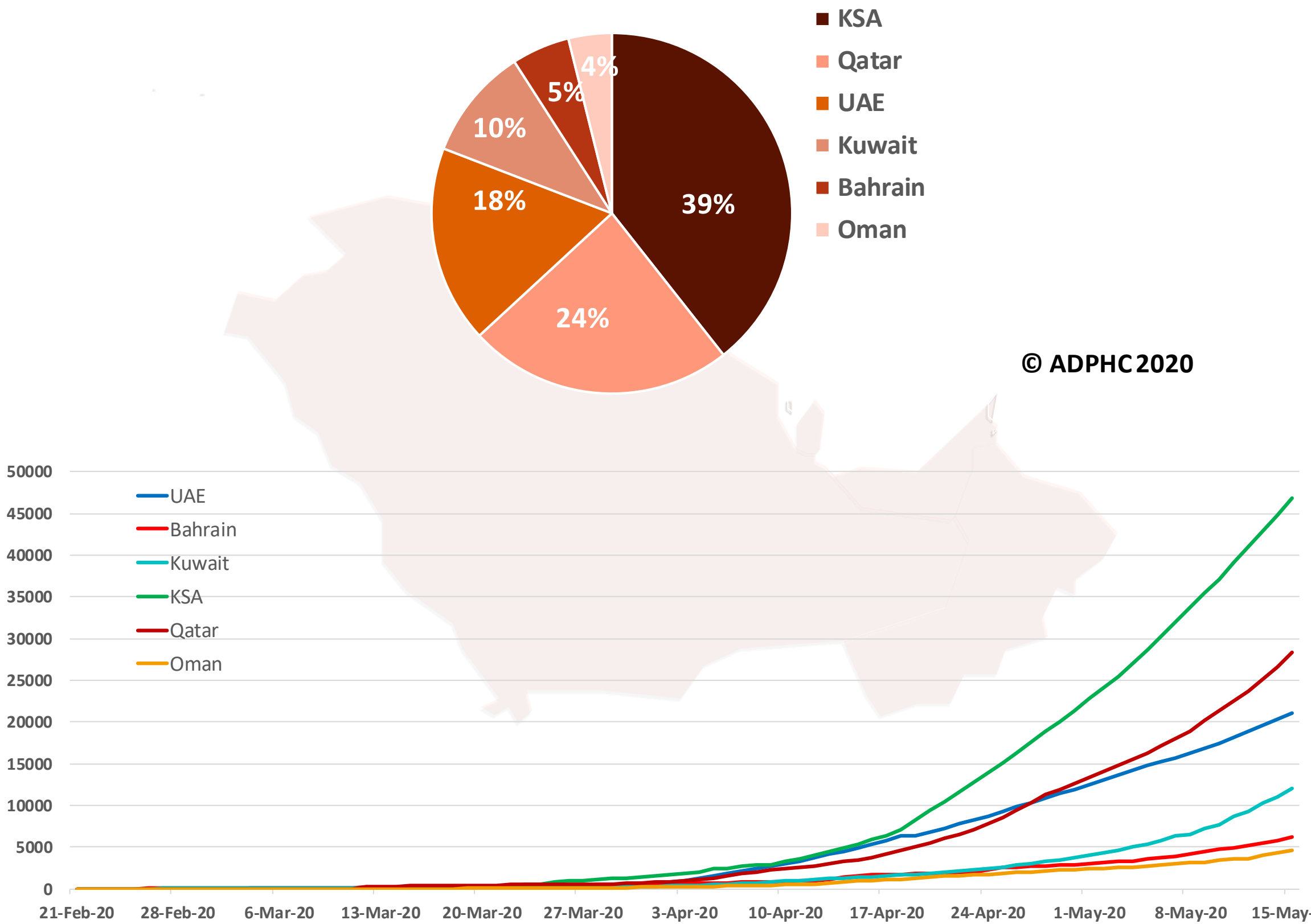
Map chart published by Abu Dhabi Public Health Center 2020.

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

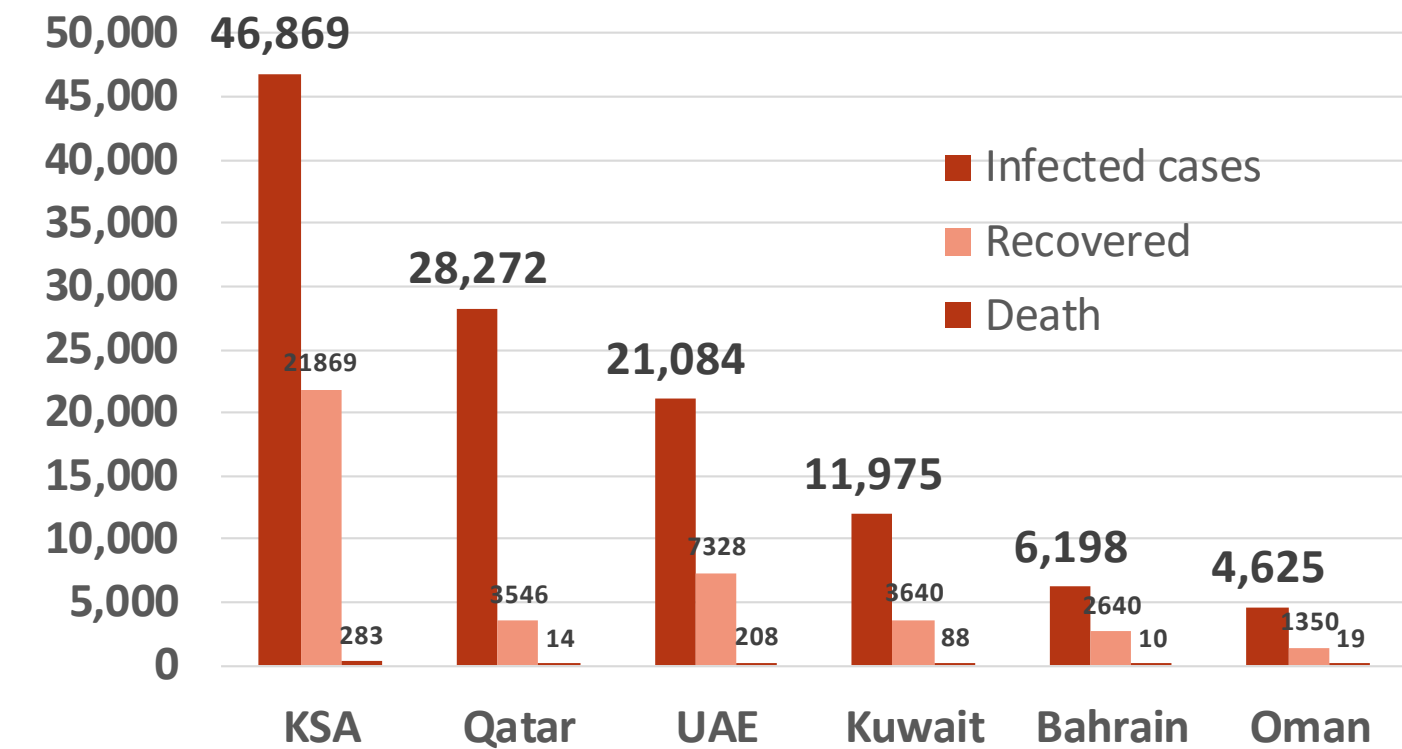


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (May 15, 2020)

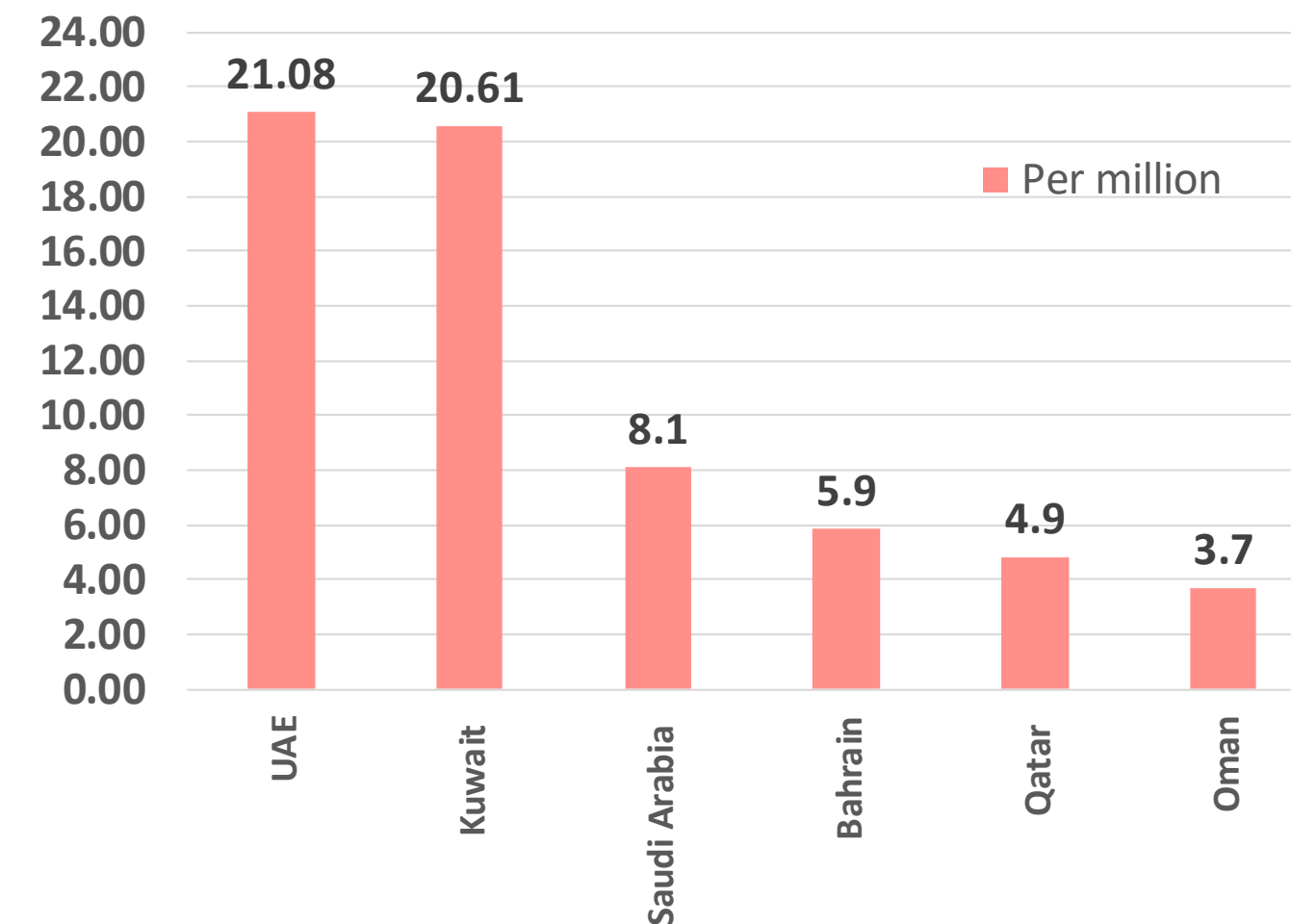
TOTAL NUMBER OF INFECTED CASES



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/)

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Treatment

Article 1: A Game Plan for the Resumption of Sport and Exercise After Coronavirus Disease 2019 (COVID-19) Infection

Published: May 13, 2020 in the [JAMA](#)

Summary:

Members of the American College of Cardiology's Sports & Exercise Cardiology Council, with input from national leaders in sports cardiology, provide a consensus expert opinion clinical framework on return to play in the era of COVID-19. The guideline is subjected to change once new evidence is available. The guideline have been created for highly active patients and athletes after studies found that cardiac abnormalities are affecting nearly 20% of hospitalized covid19 patients.

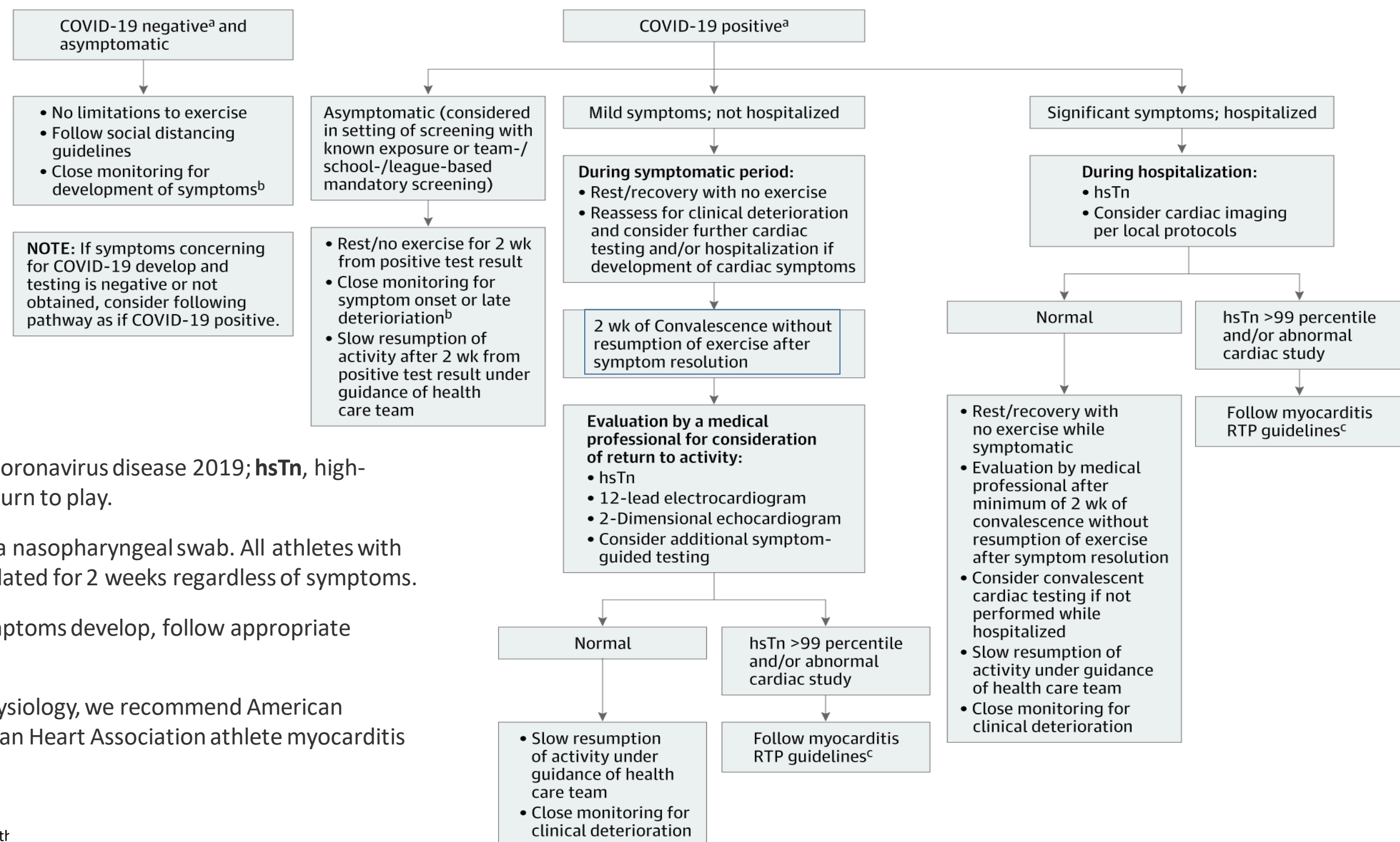


Figure1: COVID-19 indicates coronavirus disease 2019; **hsTn**, high-sensitivity troponin I; **RTP**, return to play.

^a Typical testing obtained via a nasopharyngeal swab. All athletes with positive testing should be isolated for 2 weeks regardless of symptoms.

^b If clinical and/or cardiac symptoms develop, follow appropriate clinical pathway.

^c Given lack of clean pathophysiology, we recommend American College of Cardiology/American Heart Association athlete myocarditis guidelines.



Article2: An outbreak of severe Kawasaki-like disease at the Italian epicentre of the SARS-CoV-2 epidemic: an observational cohort study

Published: March 13, 2020 in [the lancet](#)

Summary:

A cohort study in Italian Bergamo province comparing two group of cases developed Kawasaki disease before and during the COVID19 pandemic.

Group 1 comprised 19 patients diagnosed over 5 years (Jan 1, 2015, and Feb 17) , whereas group 2 included ten patients diagnosed over 1 month with Kawaski disease (Feb 18 and April 20, 2020).

Kawasaki disease is acute and usually self-limiting disease causing inflammation of the body vessels, which almost exclusively affects children. In the acute phase of the disease, patients with Kawasaki disease might have low blood pressure , a condition known as Kawasaki disease shock syndrome (KDSS) or macrophage activation syndrome (MAS) which is another complication of Kawasaki disease. Also this disease might affect the vessels of the heart that require immediate intervention to prevent long term complication

Findings:

- Eight of ten were positive for IgG or IgM, or both.
- Mean age (3.0 vs 7.5 years).
- Cardiac involvement (two of 19 vs six of ten),
- KDSS (zero of 19 vs five of ten) & MAS (zero of 19 vs five of ten),
- Increase of 30 fold in the incidence of the kawaski disease in group 2 (COVID19 epidemic) compared to group1(5 years ago) .

Conclusion:

Children diagnosed after the SARS-CoV-2 epidemic began to show evidence of immune response to the virus. They were older, had a higher rate of cardiac involvement, and features of MAS.

A similar outbreak of Kawasaki-like disease is expected in countries involved in the SARS-CoV-2 epidemic.

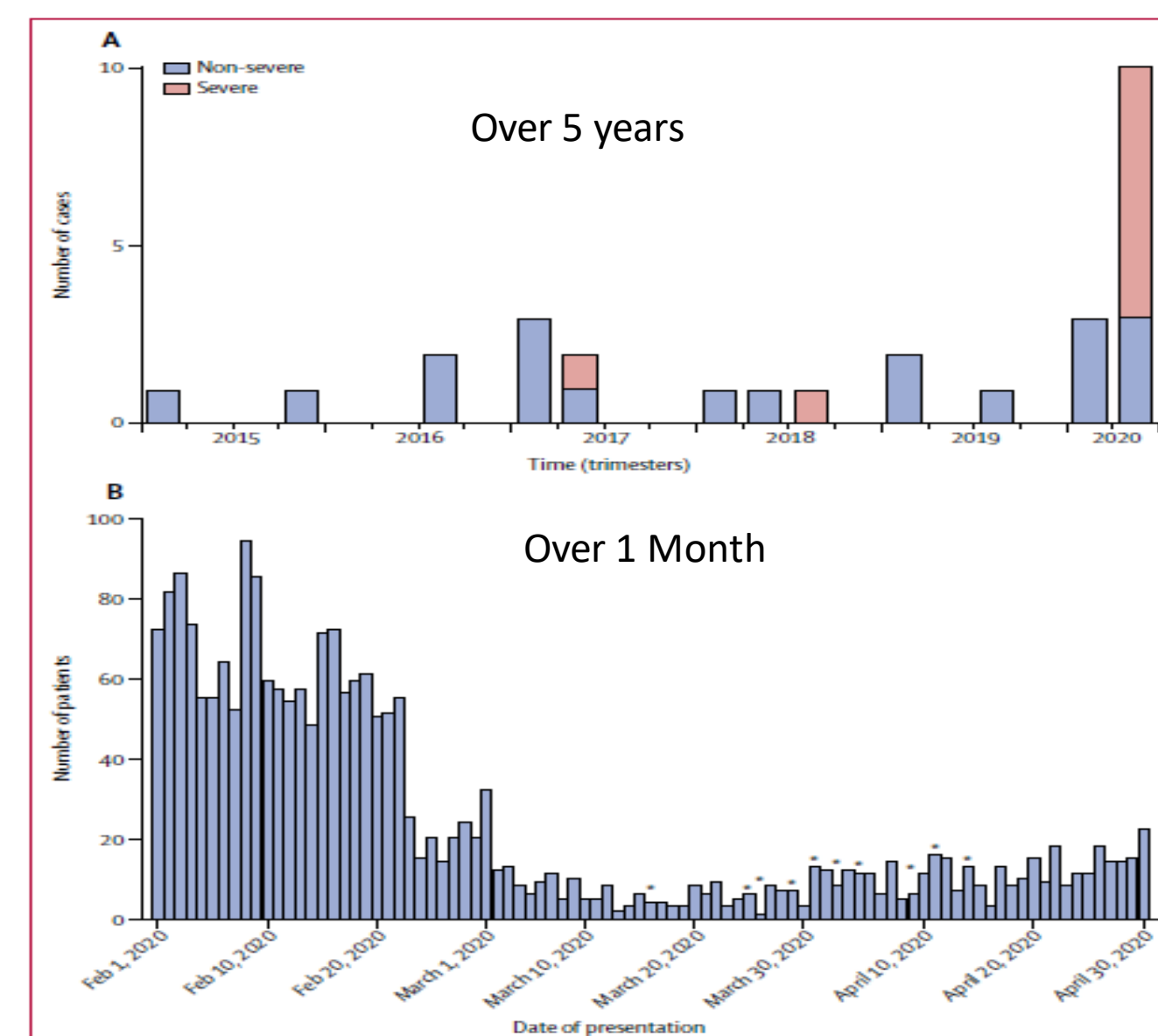


Figure: Incidence of Kawasaki disease in the study period and in the past 5 years

Diagnosis



Article 2: Cont.,

Table 1 : group 2 characteristic

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
Date of onset	March 17, 2020	March 27, 2020	March 28, 2020	April 3, 2020	April 3, 2020	April 4, 2020	April 6, 2020	April 10, 2020	April 11, 2020	April 14, 2020
Age, years	8.2	7.0	2.9	7.7	7.5	16.0	5.0	9.2	5.5	5.5
Sex	Male	Male	Female	Female	Female	Male	Male	Male	Male	Male
Type of Kawasaki disease	Incomplete	Incomplete	Classic	Incomplete	Incomplete	Classic	Classic	Incomplete	Classic	Classic
ALT ≥100 U/L	No (32)	No (79)	No (46)	No (82)	No (78)	Yes (733)	No (41)	No (63)	No (20)	No (20)
MAS ¹⁸	..	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Ferritin >684 ng/mL	..	Yes (1183)	Yes (893)	Yes (1972)	Yes (3213)	Yes (2027)	No (199)	No (449)	No (307)	No (341)
Platelets ≤181 × 10 ⁹ per L	Yes (119)	Yes (121)	Yes (66)	Yes (142)	Yes (113)	Yes (121)	Yes (138)	No (192)	Yes (151)	Yes (142)
AST >48 IU/L	No (30)	Yes (120)	Yes (63)	Yes (174)	Yes (89)	Yes (237)	Yes (50)	Yes (51)	No (29)	No (30)
Triglycerides ≥156 mg/dL	-	Yes (434)	Yes (367)	Yes (263)	Yes (198)	..	Yes (161)	Yes (200)	Yes (171)	No (121)
Fibrinogen ≤360 mg/dL	No (465)	No (599)	No (506)	No (924)	No (759)	Yes (313)	No (637)	No (759)	No (759)	No (489)
KDSS ¹⁴	No	No	No	Yes	Yes	Yes	No	Yes	No	Yes
Hypotension	No	No	No	Yes	Yes	Yes	No	Yes	No	Yes
SBP ≤20% basal	No	No	No	No	No	No	No	No	No	No
Peripheral hypoperfusion	No	No	No	Yes	Yes	No	No	Yes	No	Yes
Nasal swab for respiratory pathogens	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
Nasal swab for SARS-CoV-2	Negative	Positive	Negative	Negative	Positive	Negative	Negative	Negative	Negative	Negative
Serology for SARS-CoV-2 (IgG, IgM)	Negative negative	Positive, negative	Positive, negative	Positive, positive	Positive, positive	Negative, negative*	Positive, negative	Positive, negative	Positive, positive	Positive, negative
Serology (days from onset)	30	18	16	11	11	10	8	7	4	6
Contact with suspected or confirmed case	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes
Caregiver nasal swab for SARS-CoV-2	..	Positive	Negative	Negative	Negative	Negative	Positive	Negative	Negative	Positive

Table 2 : comparison between the two groups

	Group 1	Group 2	p value
Time of presentation	Until February, 2020	March-April, 2020	NA
Number of patients	19	10	NA
Age at onset, years	3.0 (2.5)	7.5 (3.5)	0.00035
Incidence	0.3 per month	10 per month	<0.00001
Sex	NA	NA	0.13
Female	12	3	NA
Male	7	7	NA
Incomplete Kawasaki disease	6/19 (31%)	5/10 (50%)	0.43
MAS ¹⁸	0/10 (0%)	5/10 (50%)	0.021
KDSS ¹⁴	0/10 (0%)	5/10 (50%)	0.021
Abnormal echocardiography	2/19 (10%)	6/10 (60%)	0.0089
Adjunctive steroid treatment	4/19 (16%)	8/10 (80%)	0.0045
Inotropes treatment	0/19 (0%)	2/10 (20%)	0.11
Response to treatment	19/19 (100%)	10/10 (100%)	1



Article 3 : SARS-CoV-2 Rates in BCG-Vaccinated and Unvaccinated Young Adults

Published: May 13, 2020 in the [JAMA](#)

Summary:

Although the BCG vaccine is given to protect against tuberculosis, it has nonspecific beneficial effects such as protection against other infectious diseases and enhancing immunogenicity of influenza vaccine

A comparison of infection rates with COVID-19 disease was conducted in 2 similar populations with differing BCG status: individuals born during the 3 years before and 3 years after cessation of the universal BCG vaccine program. The BCG vaccine was routinely administered to all newborns in Israel as part of the national immunization program between 1955 and 1982. Since 1982, the vaccine has been administered only to immigrants from countries with high prevalence of tuberculosis.

This cohort study was done in Israel (March 1 and April 5, 2020) included 2 groups. First those with COVID-19 born from 1979 to 1981 (mean age 40yrs, received BCG vaccine) and those born from 1983 to 1985 (mean age 35 yrs mean age 35 yrs, unvaccinated with BCG).

Findings:

1- out of 72,060 result of tested reviewed, 3064 were from the first group (vaccinated) , 361 (11.7%) were positive.

2- in second group (unvaccinated) 2869 , a 299 (10.4%) were positive.

3-There was no statistically significant difference in the proportion of positive test results in both groups; difference, 1.3%; 95% CI, $P = .09$)

4-There was 1 case of severe disease (mechanical ventilation or intensive care unit admission) in each group, and no deaths were reported .



Article 3: Summary:

Table 1 : comparison between the two groups

	Birth year		Difference (95% CI)	P value
	1979-1981 (BCG vaccinated)	1983-1985 (BCG unvaccinated)		
Total population	297 340	301 600		
Immigrants in total population, No. (%) ^a	14 569 (4.9)	13 873 (4.6)		
No. of tests	3064	2869		
Proportion of population tested, %	1.02	0.96		
Men tested, No. (%)	1509 (49.2)	1458 (50.8)		.29
Positive results				
No. (%)	361 (11.7)	299 (10.4)	1.3 (-0.3 to 2.9)	.09
No. per 100 000 population in age group ^b	121	100	21 (-10 to 50)	.15
Men with positive result, No. (%)	181 (50)	152 (51)		.87
No. with severe disease	1	1		

Conclusion:

In this cohort patient aged 35 to 41 years, BCG vaccination in childhood was associated with a similar rate of positive test results for SARS-CoV-2 compared with no vaccination. **Because of the small number of severe cases, no conclusion about the association between BCG status and severity of disease can be reached.** The main limitation is the inclusion of populations who were not born in Israel, with unknown vaccination status. Finally, **this study does not support the idea that BCG vaccination in childhood has a protective effect against COVID-19 in adulthood.**