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للصحة العامة
ABU DHABI PUBLIC
HEALTH CENTRE

SCIENTIFIC RESEARCH MONITORING ON COVID-19

23 AUGUST 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19 (ISSUE 203)

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Abu Dhabi Public Health Center (ADPHC) is gathering the latest scientific research updates and trends on coronavirus disease (COVID-19) in a daily report. The report provides summaries on breakthrough or updated research on COVID-19 to allow health care professionals and public health professionals get easy and fast access to information.

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Summary

Note : All articles presented in this report represent the authors' views and not necessarily represents Abu Dhabi Public Health Center views or directions. Due the nature of daily posting , some minor language errors are expected.
For further inquiries you may communicate with us as PHP@adphc.gov.ae

RESEARCH UPDATES

The views and opinions expressed in this report are those of the authors and do not reflect the official policy or position of the Abu Dhabi Public Health Center (ADPHC).

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Effect of Remdesivir vs Standard Care on Clinical Status at 11Days in Patients With Moderate COVID-19

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Public Health Response

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Public Health Response

COVID-19 is an Opportunity for Reform in Dentistry

Public Health Response

COVID-19 Mass Testing Programmes Should be Modelled on Successful Screening Programmes

EPIDEMIOLOGY

FROM 21 JAN TO 22 AUG 2020

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Figure 1: Total Number of Infected, Recovered, and Death Cases

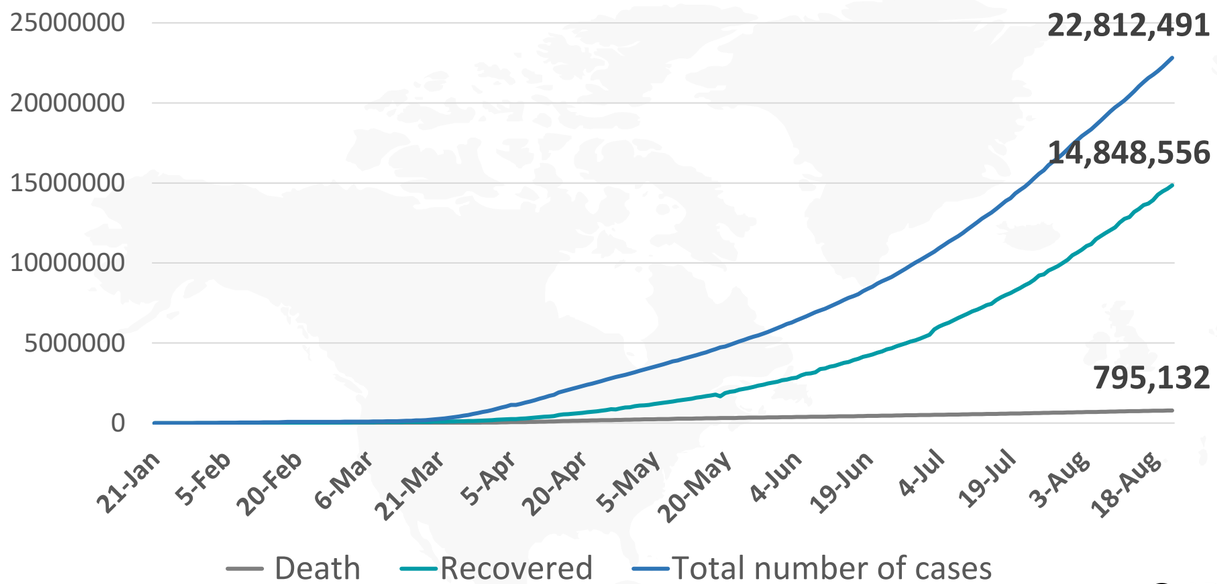


Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)

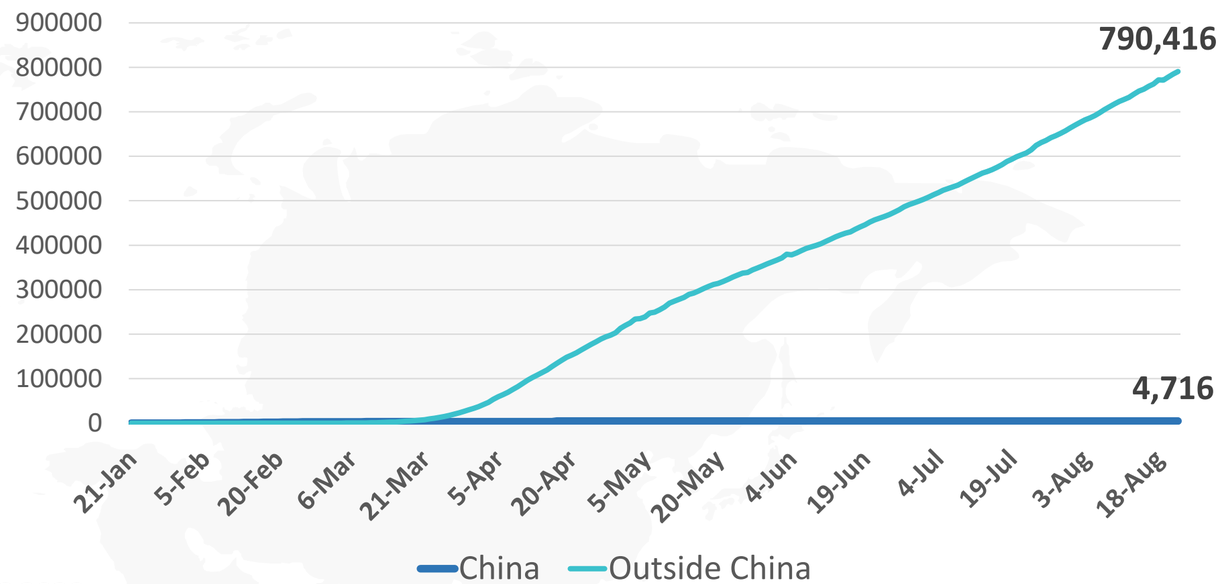


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

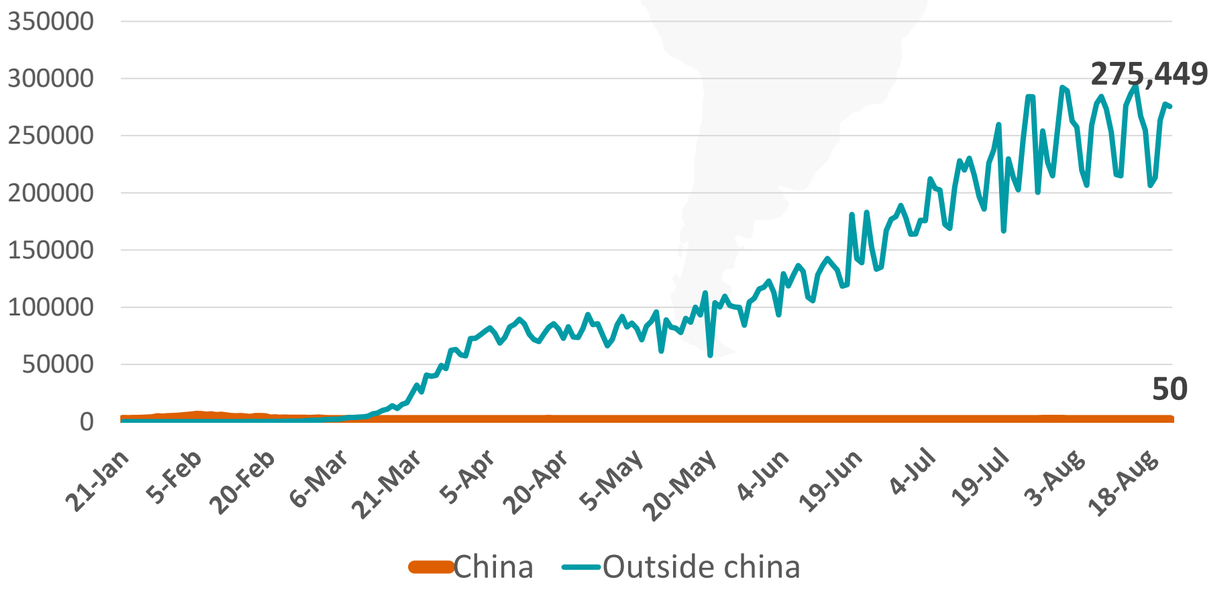
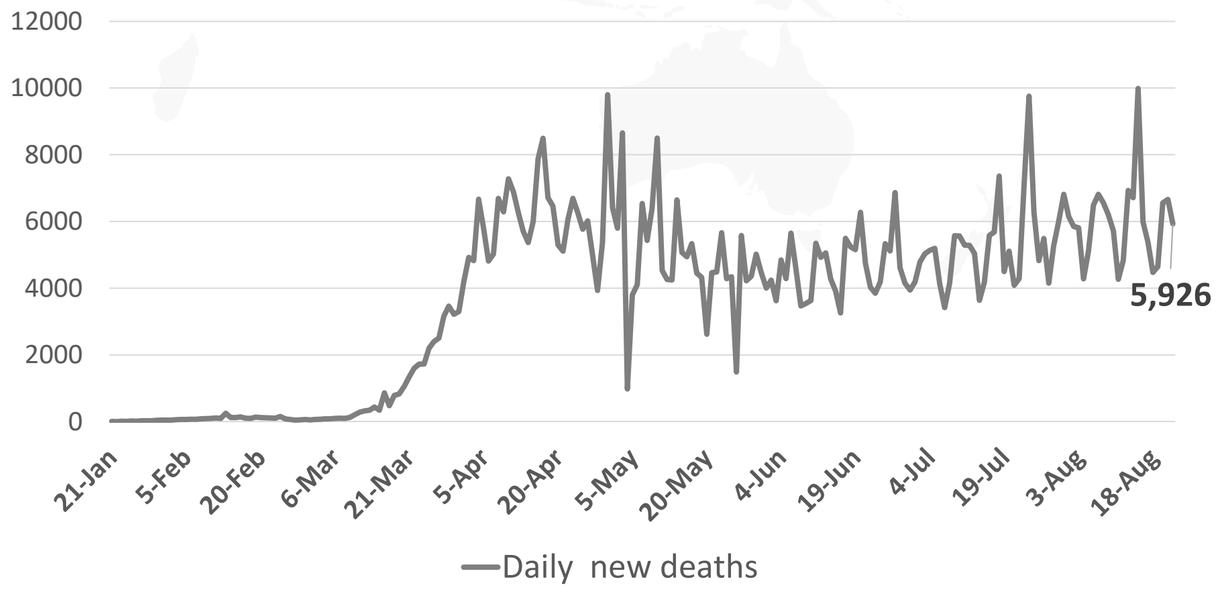


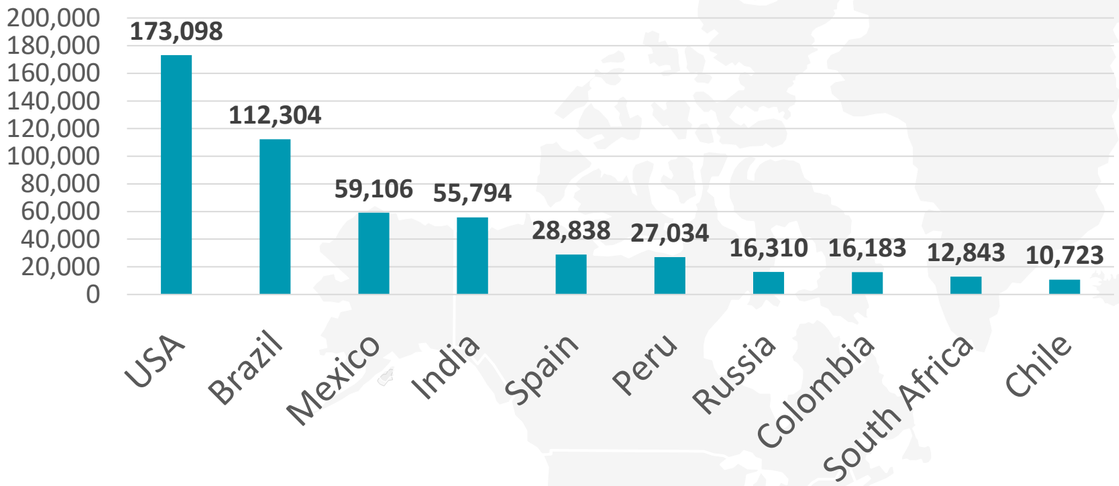
Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)



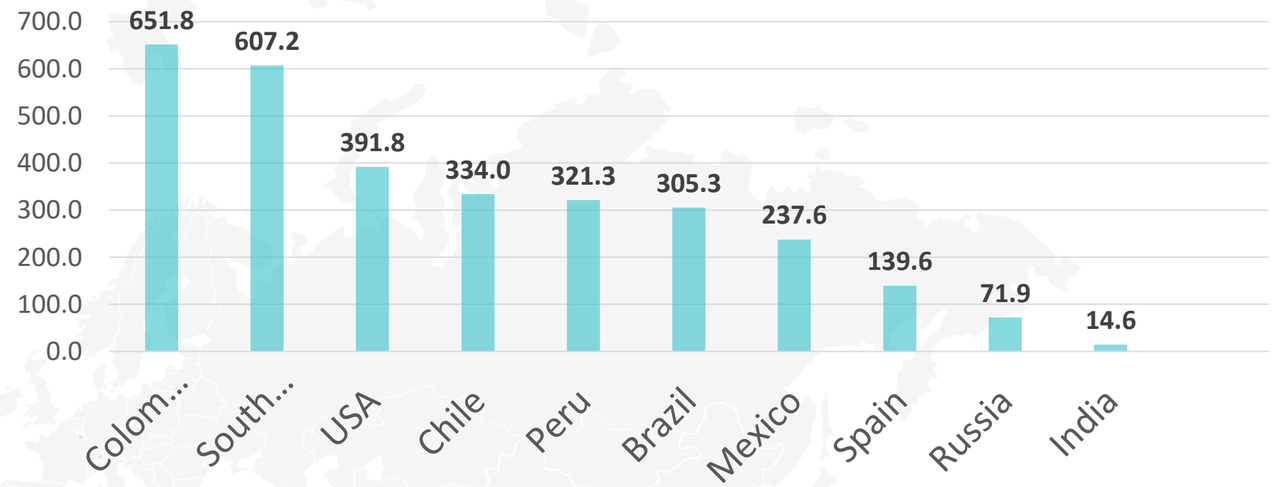
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19

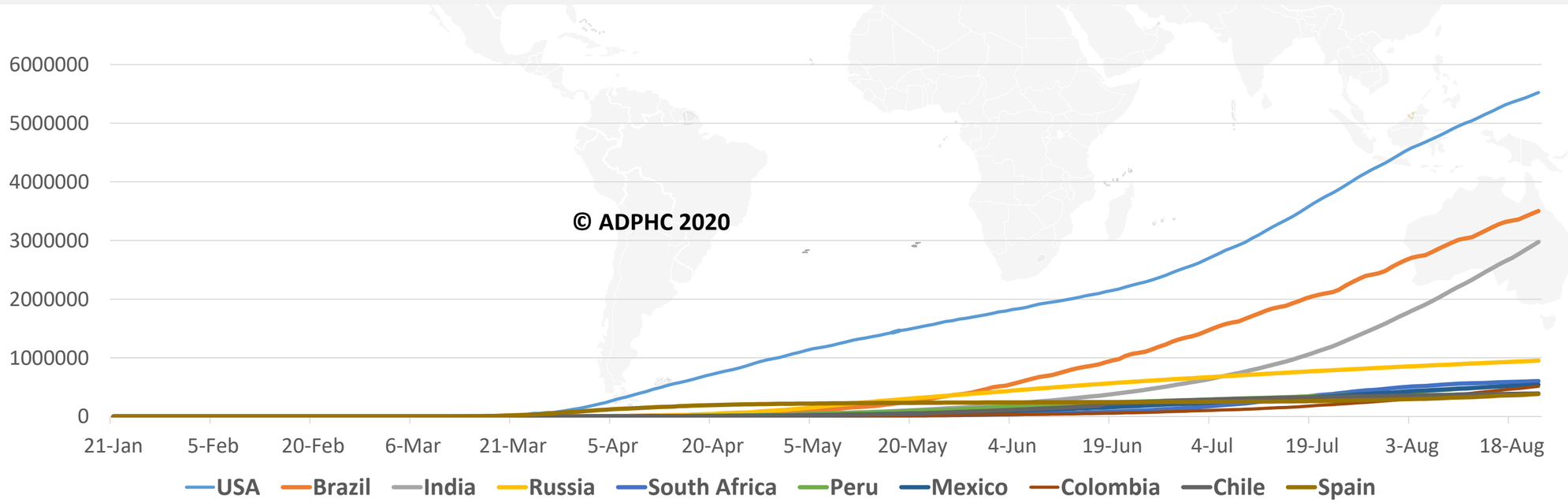
TOTAL DEATHS



DEATHS PER MILLION



TOTAL INFECTED CASES



USA	5,521,257
Brazil	3,501,975
India	2,975,701
Russia	951,897
South Africa	603,338
Peru	567,059
Mexico	543,806
Colombia	513,719
Chile	393,769
Spain	393769

Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

EPIDEMIOLOGY

FROM 21 JAN TO 22 AUG 2020

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Figure 6: COVID-19 Status in the UAE (Federal Competitiveness and Statistics Authority Dashboard)

Daily Tests

70,406.6 Average Tests

711.9 per 100k population

0.5% Positive Rate

Daily Cases

359.3 Average Cases

3.6 per 100k population

Daily Recovered

119.6 Average Recovered

1.2 per 100k population

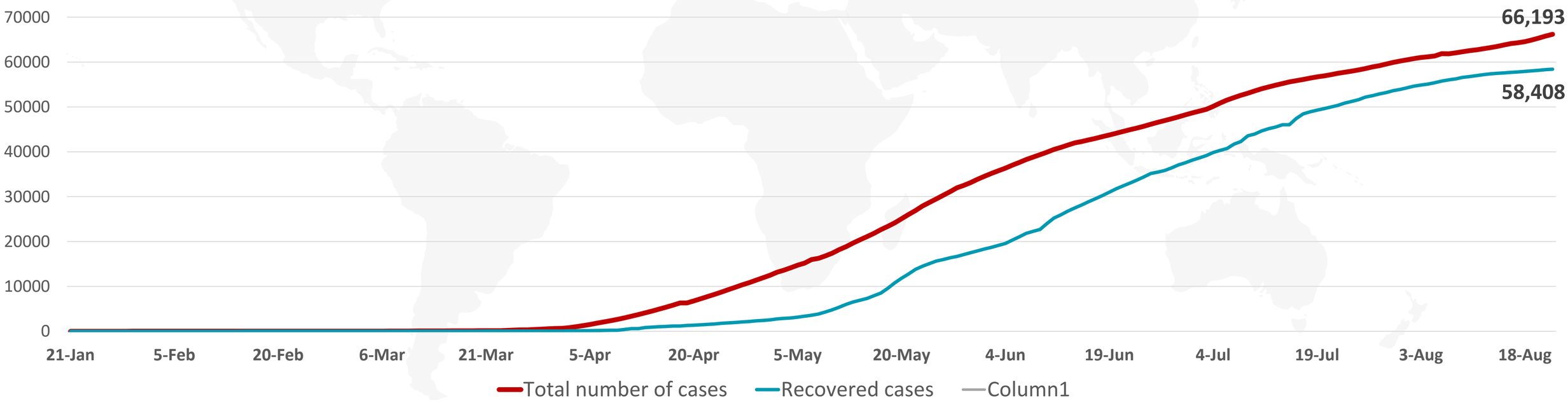
Daily Deaths

1.6 Average Deaths

0.0 per 100k population

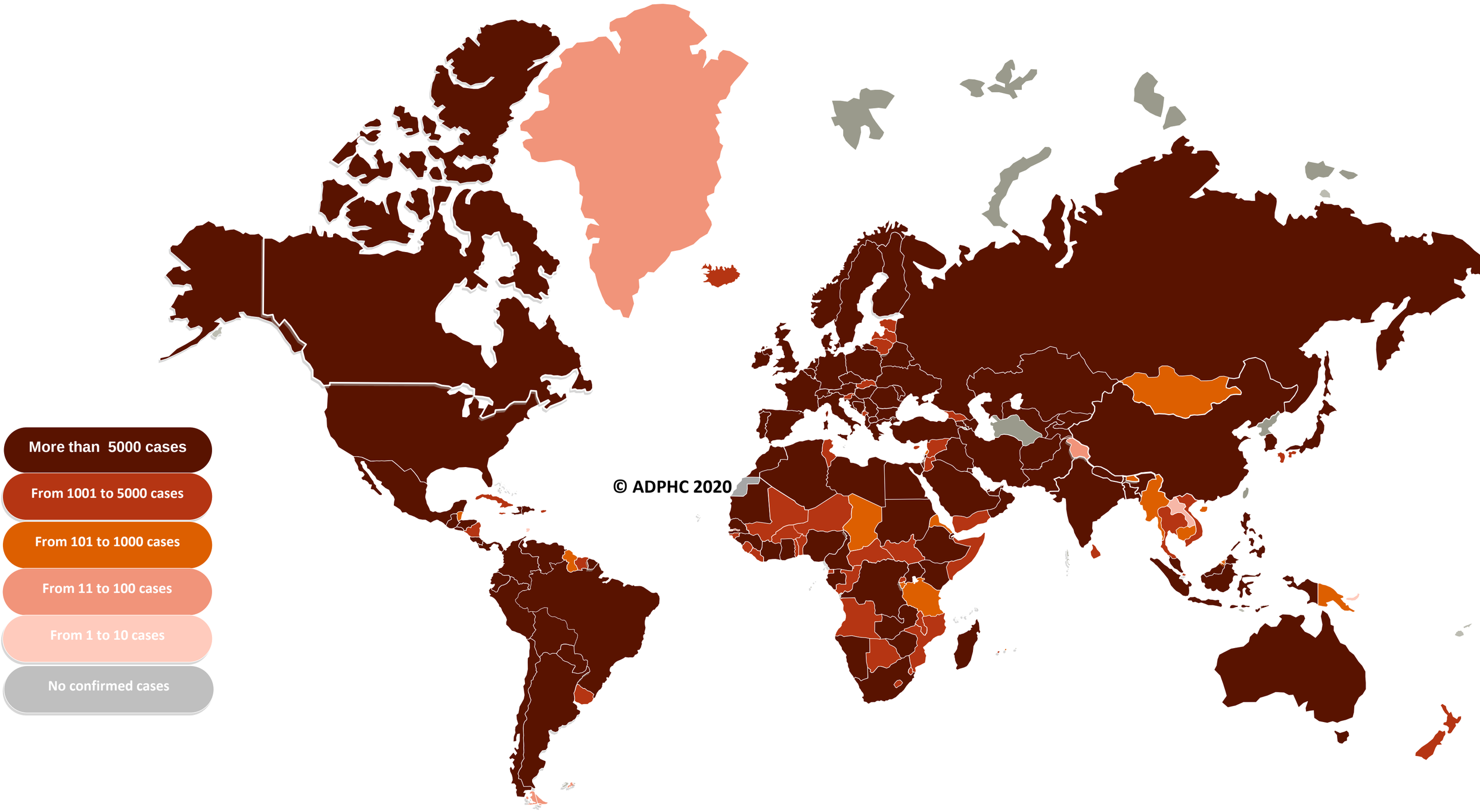
0.4% Case Fatality Rate

TOTAL NUMBER OF INFECTED AND RECOVERED CASES DUE TO COVID-19 REPORTED BY THE UAE



Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: FCSA, WHO,

Figure 7A : Global Distribution of COVID-19 Cases



Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

EPIDEMIOLOGY

Date: 22 AUG 2020

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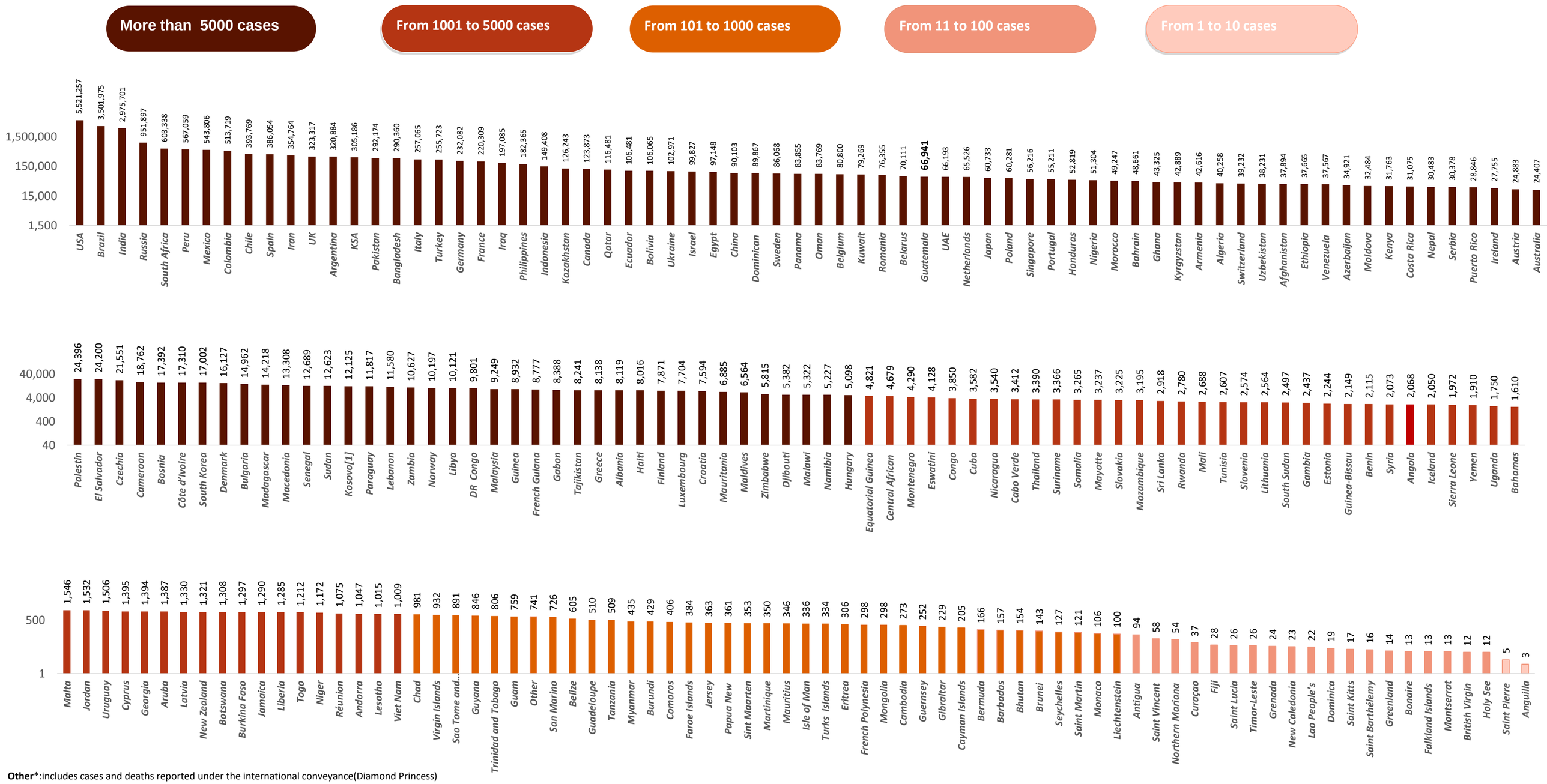
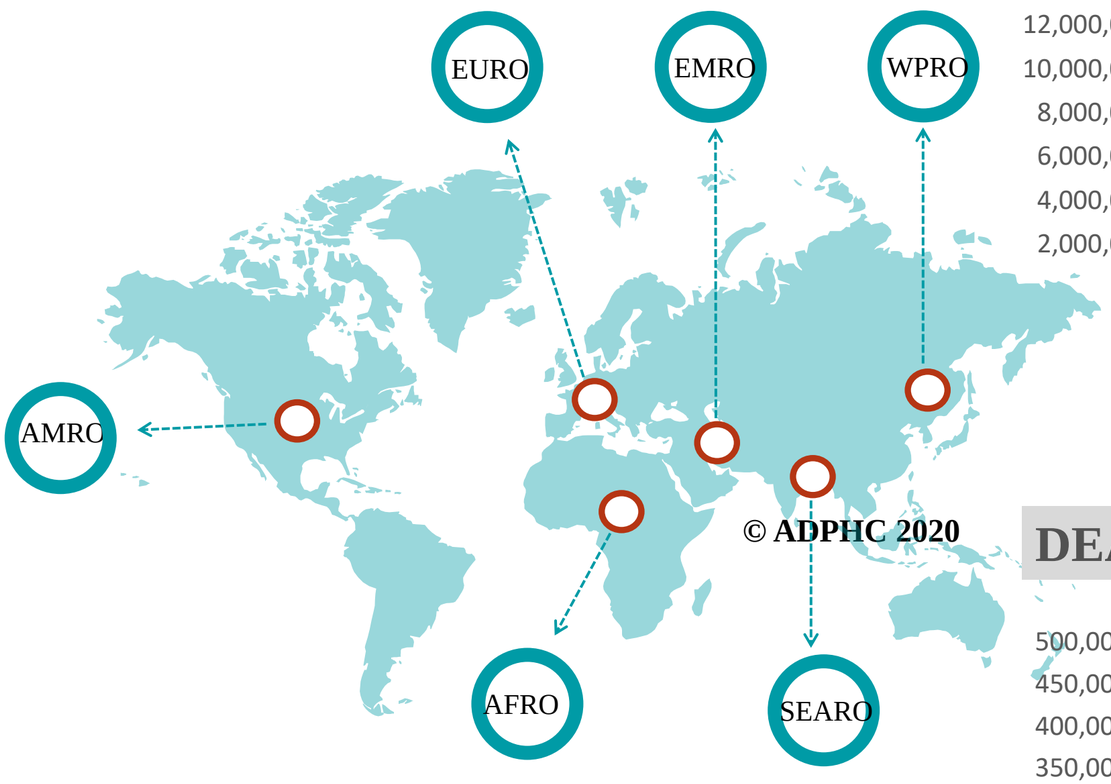
Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases



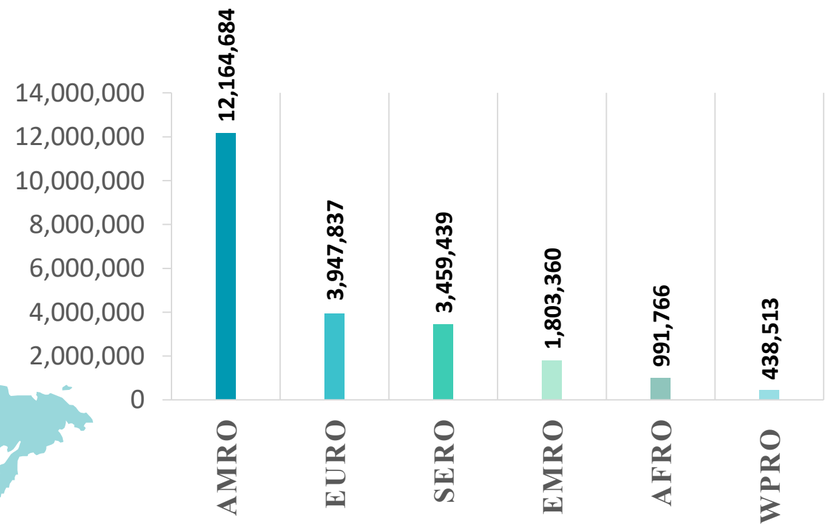
Other*:includes cases and deaths reported under the international conveyance(Diamond Princess)

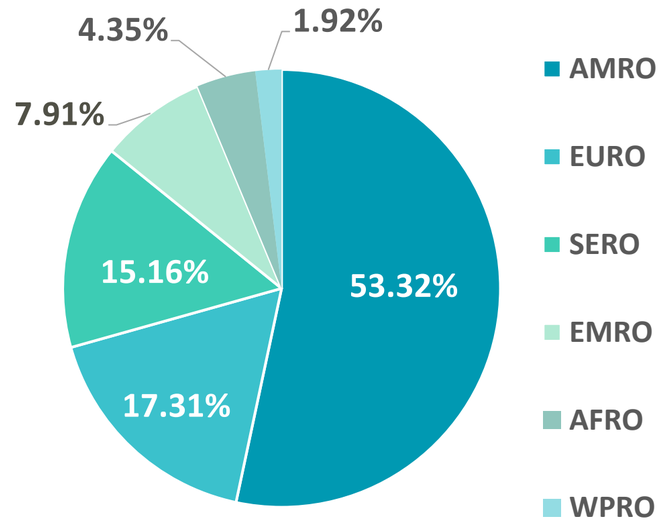
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

Figure 8: Global Distribution of COVID-19 Cases per Region

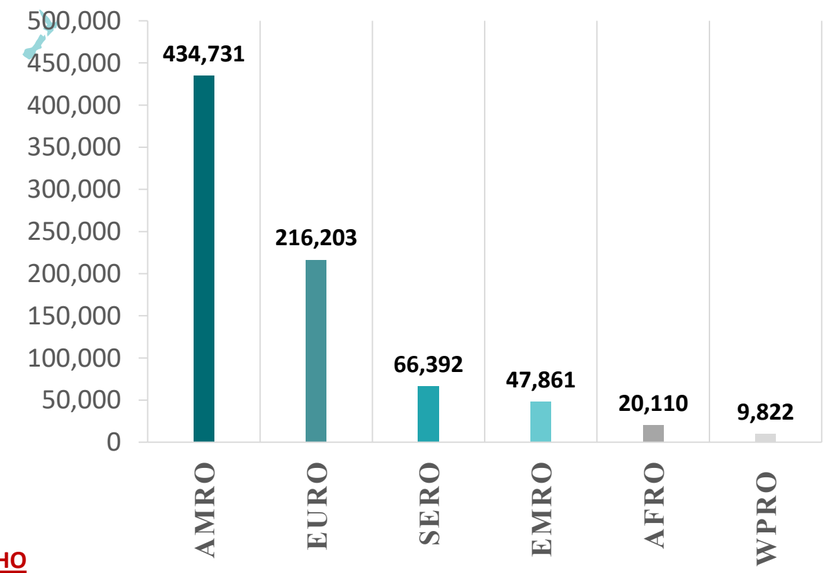


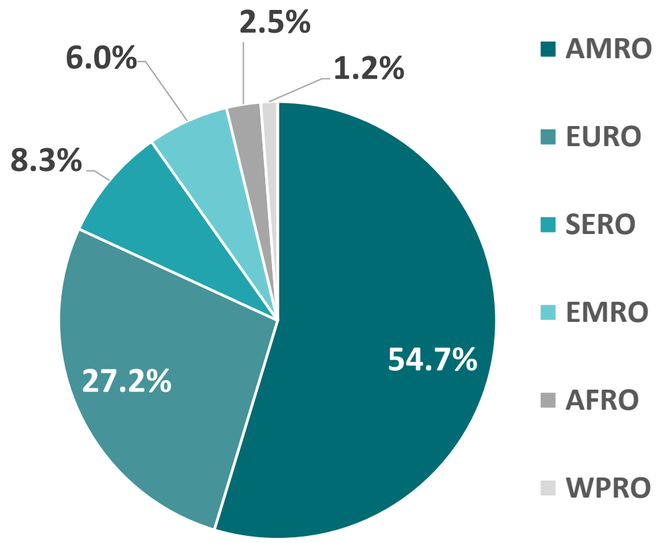
INFECTED





DEATHS

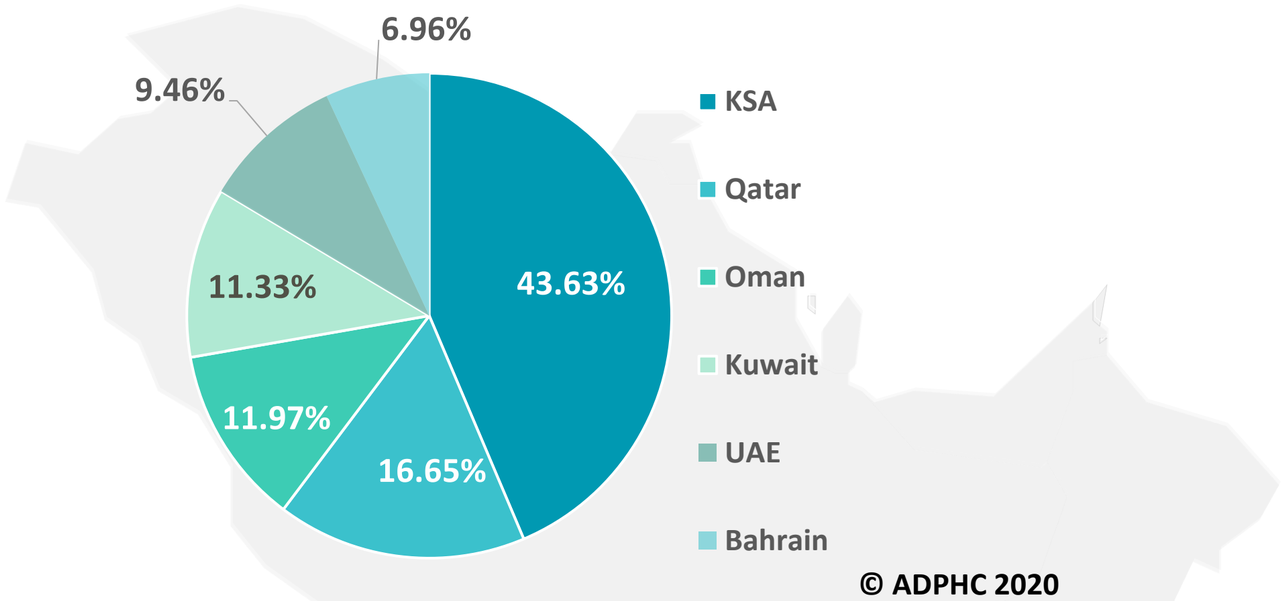


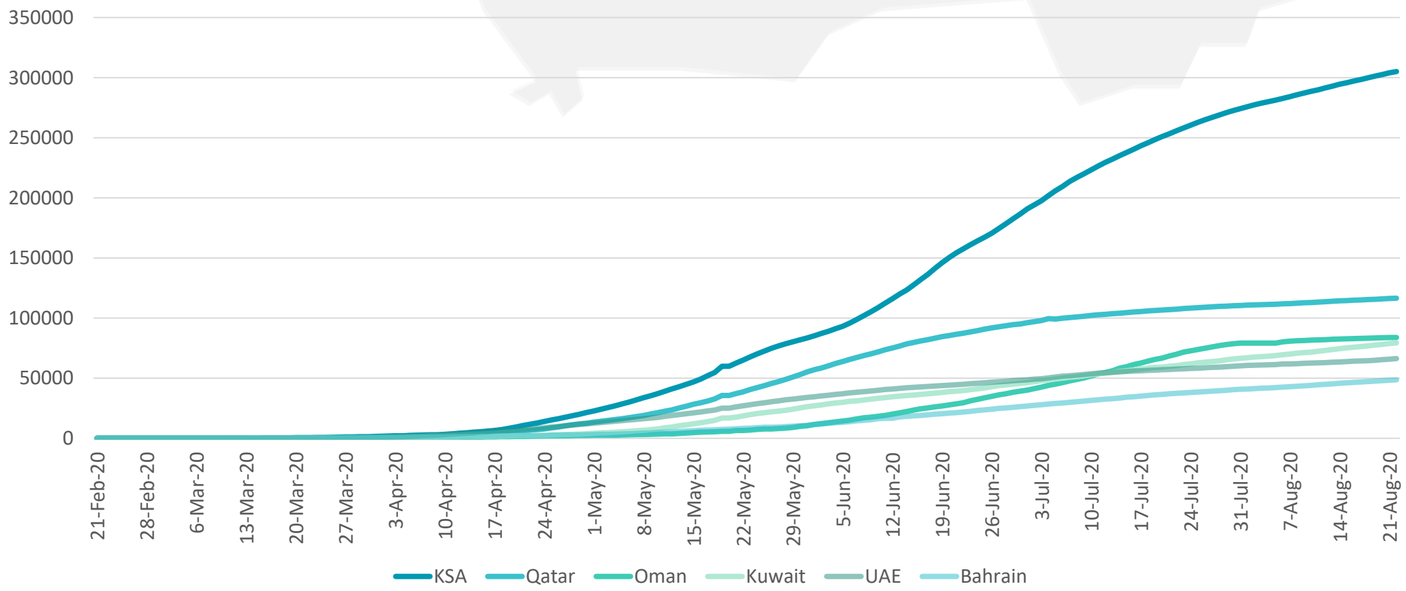


Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

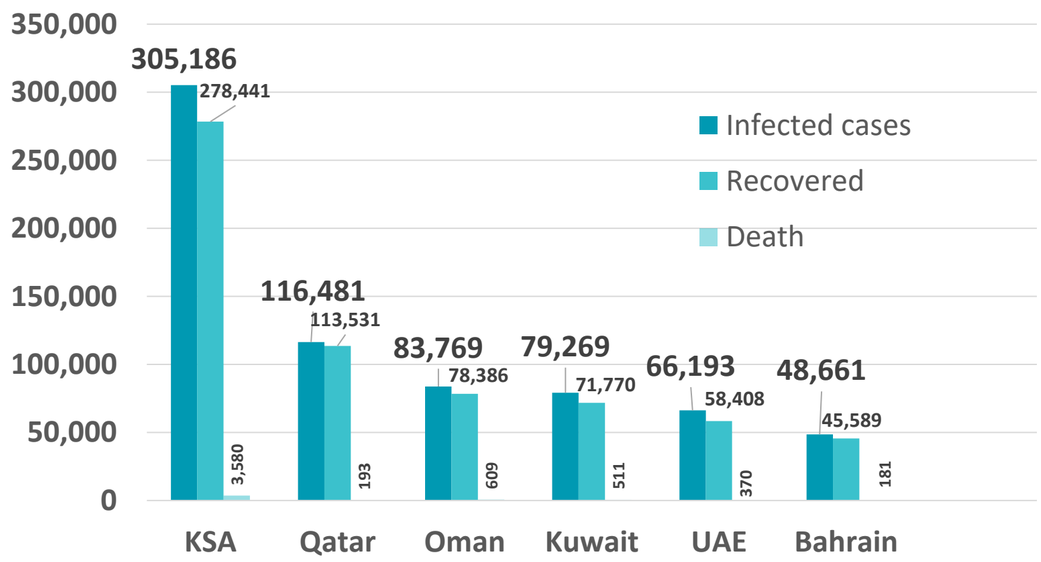
Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

TOTAL NUMBER OF INFECTED CASES

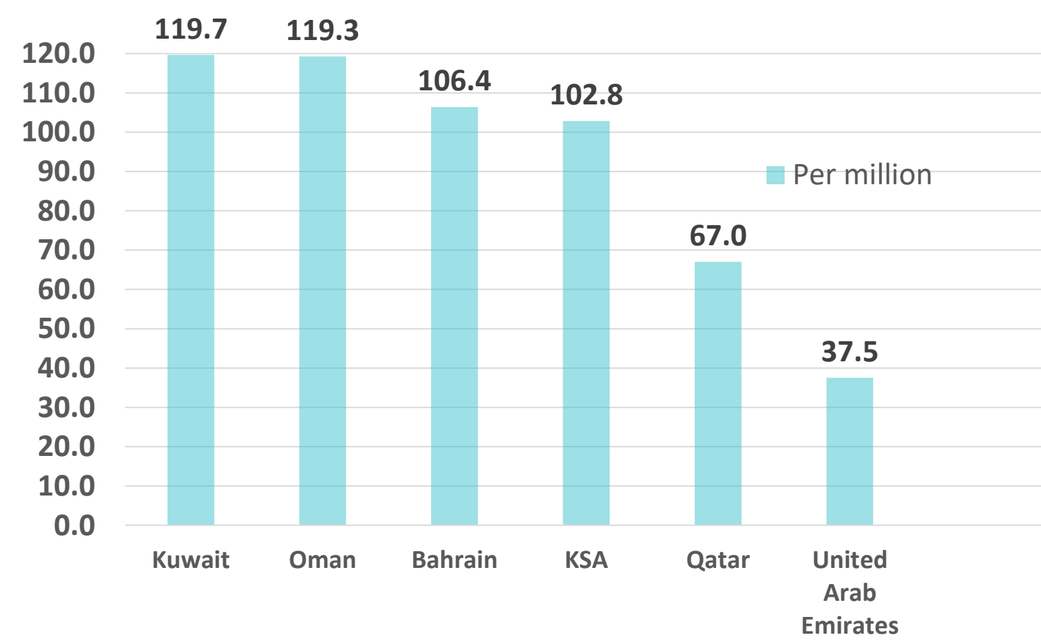




TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



DEATHS PER MILLION



Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

Figure 10: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries

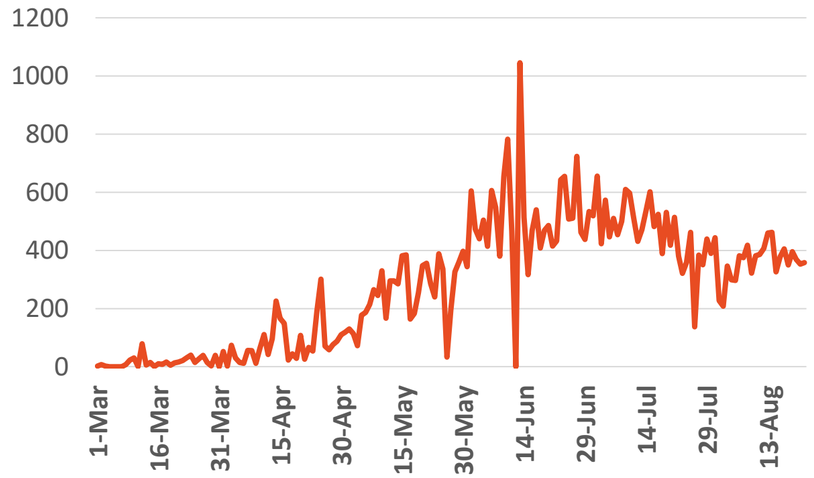
UAE

Source : National Emergency Crisis and Disaster Management Authority

KSA

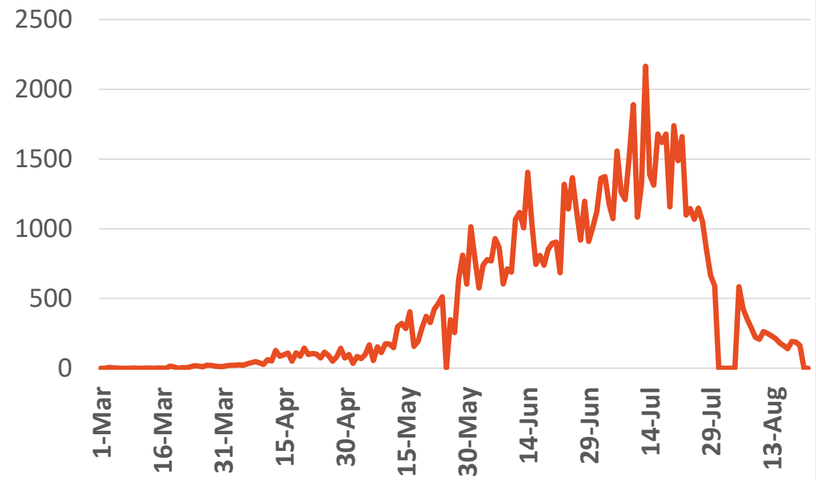
Source : KSA ministry of health

Bahrain



Source :WHO

Oman

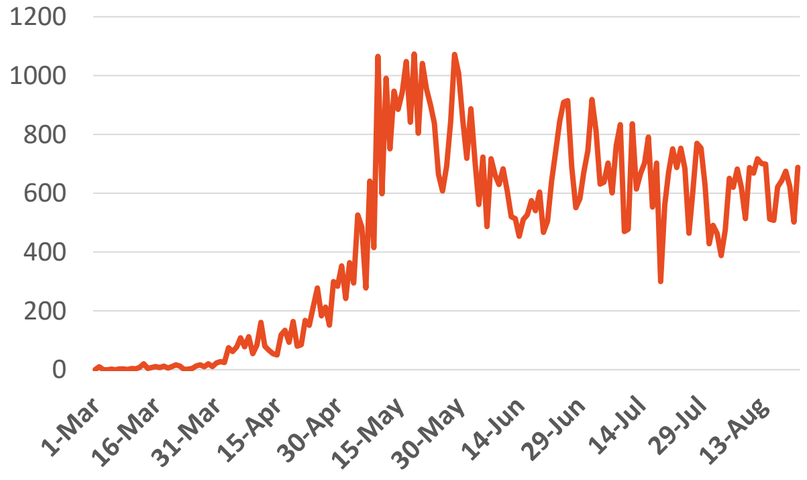


Source :Oman ministry of health

*No announced statistic data from 31 July to 4 August & from 21 to 23 August

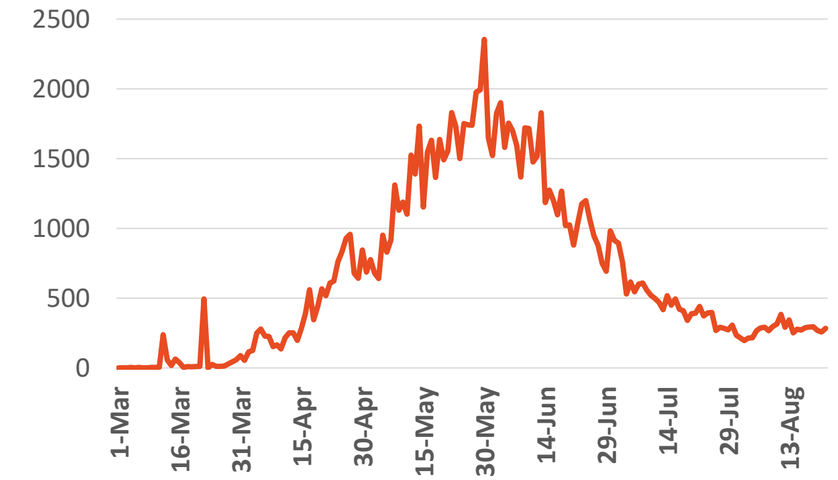
*No announced statistic data on official holidays.

Kuwait



Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

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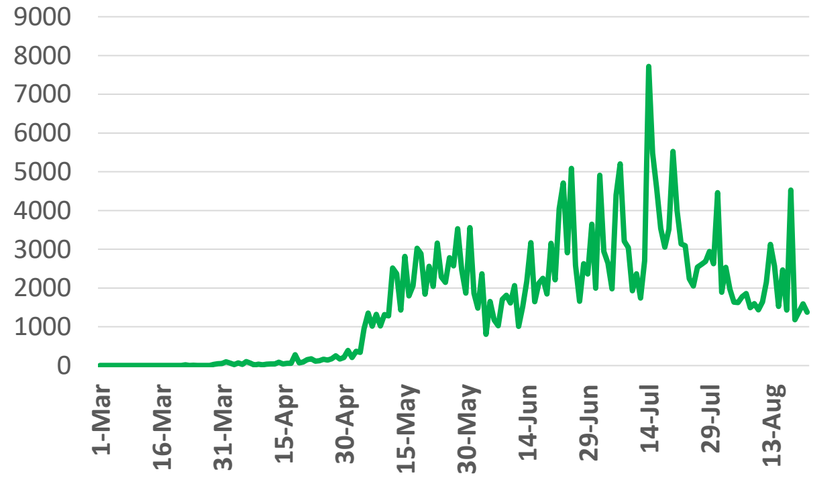
Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries

UAE

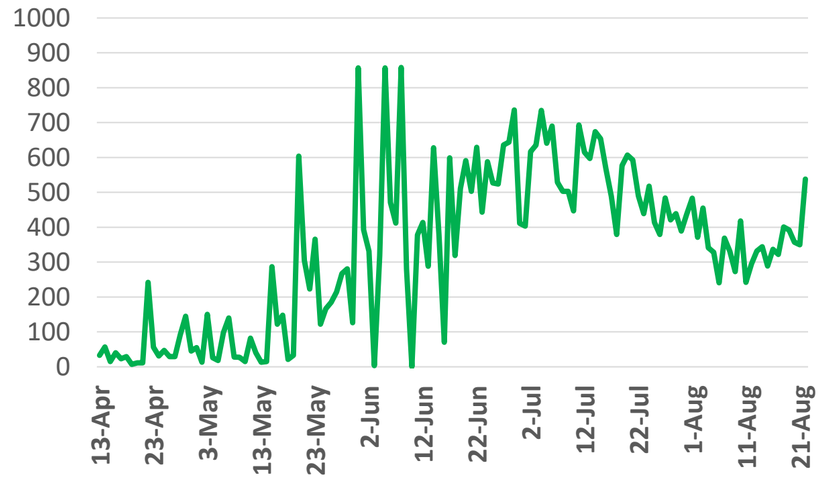
Source : National Emergency Crisis and Disaster Management Authority

KSA



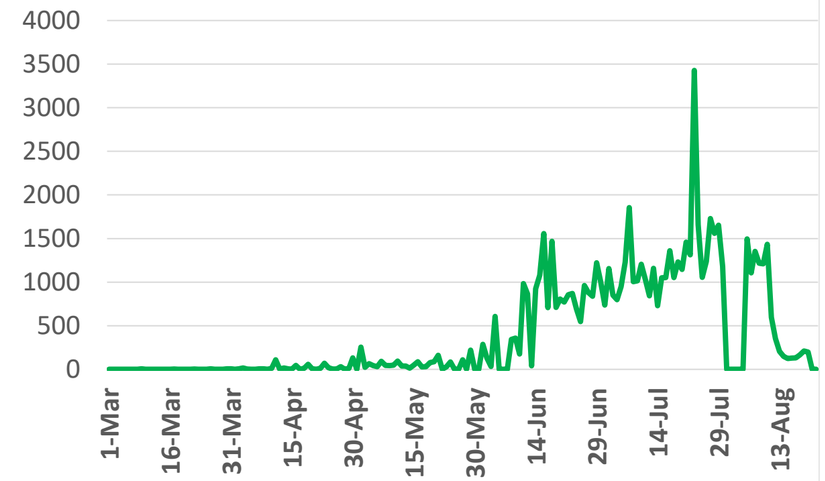
Source : KSA ministry of health

Bahrain



Source : GCCStat

Oman



Source :Oman ministry of health

*No announced statistic data from 31 July to 4 August & from 21 to 23 August

*No announced statistic data on official holidays.

Kuwait

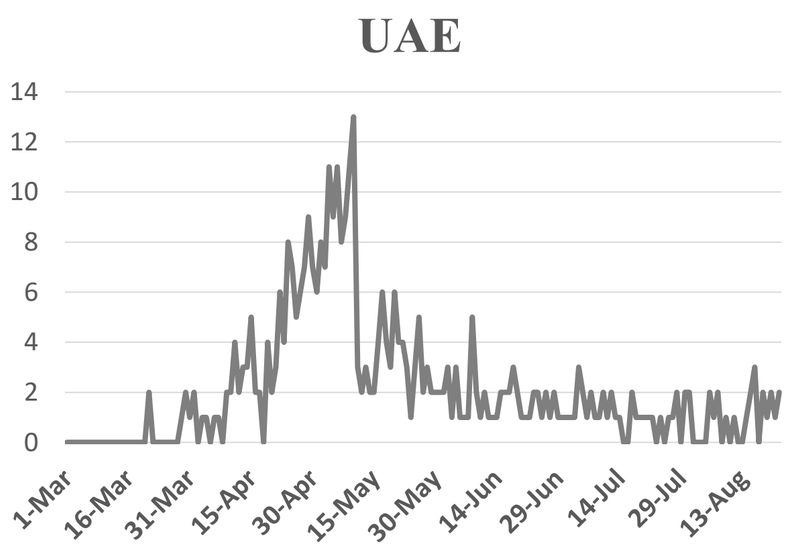
Source : Kuwait ministry of health

Qatar

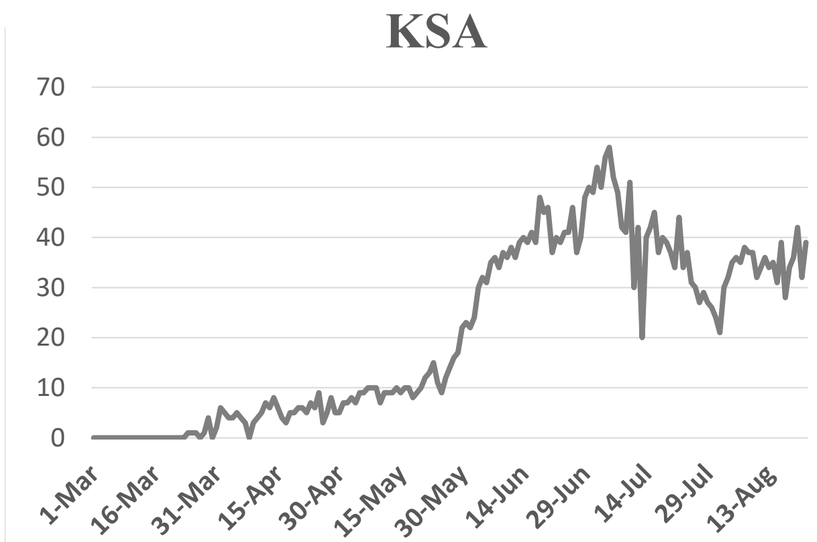
Source : Qatar ministry of health

Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

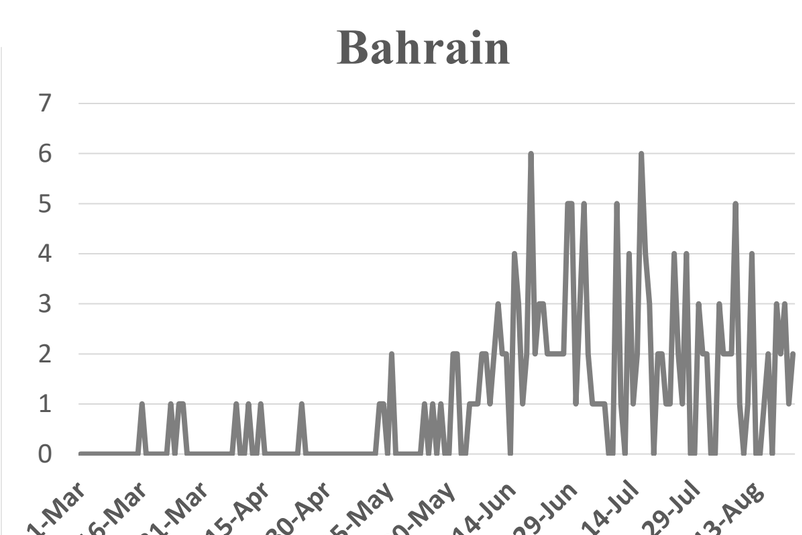
Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries



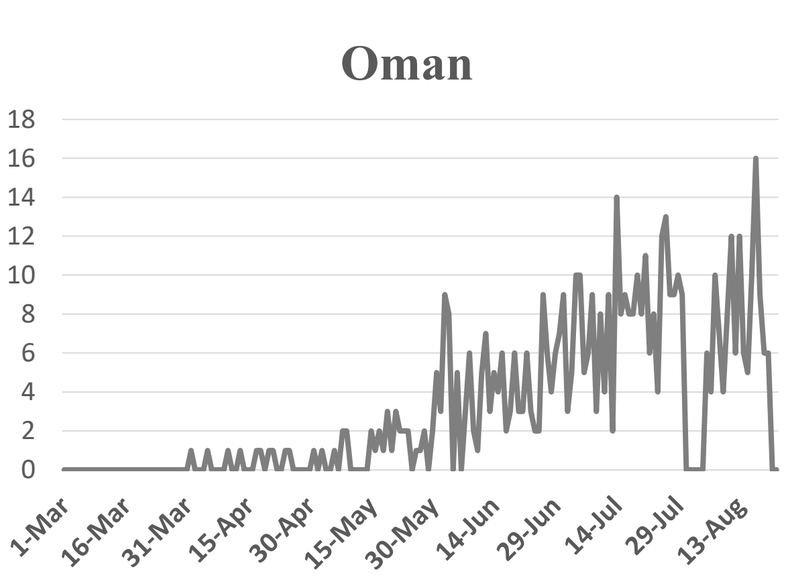
Source : National Emergency Crisis and Disaster Management Authority



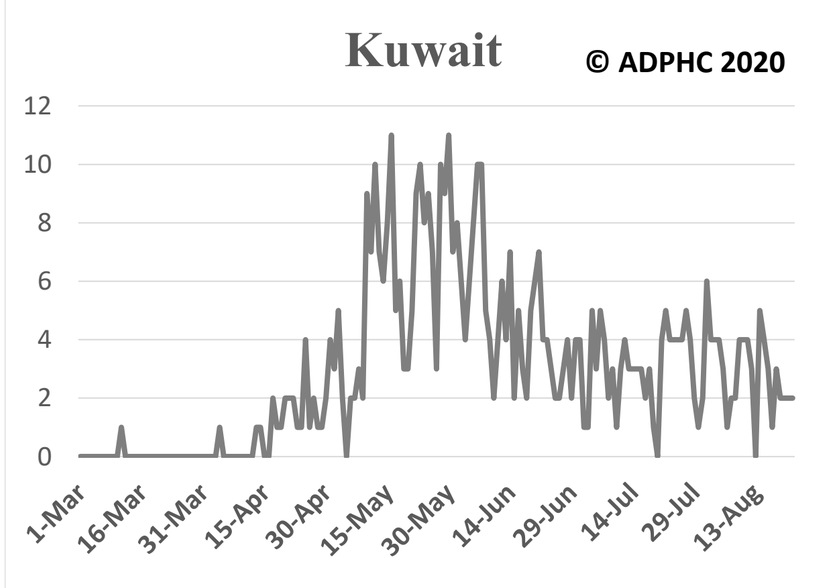
Source : KSA ministry of health



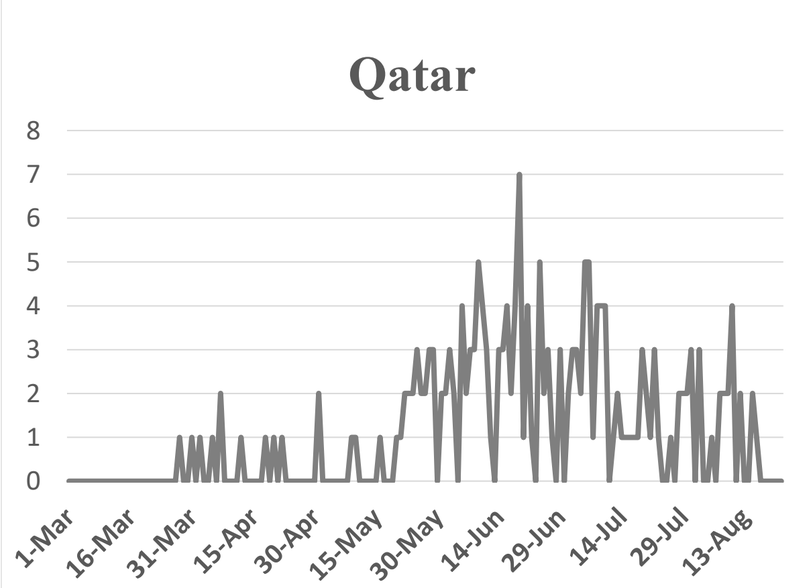
Source :WHO



Source :Oman ministry of health



Source : Kuwait ministry of health



Source : Qatar ministry of health

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*No announced statistic data on official holidays.

Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

TREATMENT

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Article 1

Published 21 August 2020 JAMA

Effect of Remdesivir vs Standard Care on Clinical Status at 11 Days in Patients With Moderate COVID-19

- A randomized, open-label trial of hospitalized SARAS COV2 patients with moderate disease aims to compare the efficacy of remdesivir (5-day course, 10-day course vs standards of care in a ratio 1:1:1).
- Study periods: cases were enrolled from March 15 through April 18, 2020, at 105 hospitals in the United States, Europe, and Asia. The date of the final follow-up was May 20, 2020.
- The primary endpoint was the clinical status on day 11 on a 7-point ordinal scale ranging from death (category 1) to discharged (category 7).

Findings

- Among 596 randomized patients, 584 began the study and received remdesivir or continued standard care (median age, 57 years; [39%] women, and 533 (91%).
- Median length of treatment was 5-days for patients in the 5-day remdesivir group and 6-days for patients in the 10-day remdesivir group.

Table 1. Demographics and Baseline Disease Characteristics

Characteristics	10-Day remdesivir (n = 193)	5-Day remdesivir (n = 191)	Standard care (n = 200)
Age, median (IQR), y	56 (45-66)	58 (48-66)	57 (45-66)
Sex, No. (%)			
Male	118 (61)	114 (60)	125 (63)
Female	75 (39)	77 (40)	75 (38)
Race, No./total (%)			
White	107/188 (57)	109/186 (59)	112/193 (58)
Black	37/188 (20)	35/186 (19)	27/193 (14)
Asian	31/188 (16)	34/186 (18)	37/193 (19)
Other[a]	13/188 (7)	8/186 (4)	17/193 (9)
Hispanic or Latino ethnicity, No./total (%)[b]	42/186 (23)	25/187 (13)	34/186 (18)
Body mass index, median (IQR)[c]	28 (25-32)	27 (24-30)	27 (24-31)
Day 1 clinical status on 7-point scale, No. (%)			
3: Hospitalized, requiring noninvasive ventilation or high-flow oxygen	1 (1)	2 (1)	2 (1)
4: Hospitalized, requiring low-flow supplemental oxygen	23 (12)	29 (15)	36 (18)
5: Hospitalized, not requiring supplemental oxygen but requiring ongoing medical care	163 (84)	160 (84)	160 (80)
6: Hospitalized, not requiring supplemental oxygen or ongoing medical care[d]	6 (3)	0	2 (1)
Coexisting conditions, No. (%)			
Cardiovascular disease	111 (58)	111 (58)	107 (54)
Hypertension	85 (44)	82 (43)	81 (41)
Diabetes	85 (44)	71 (37)	76 (38)
Asthma	31 (16)	22 (12)	28 (14)
Duration of hospitalization before first dose of remdesivir, median (IQR), d	2 (1-3)	2 (1-3)	2 (1-3)
Duration of symptoms before first dose of remdesivir, median (IQR), d	8 (5-11)	8 (5-11)	9 (6-11)
Concomitant medications, No. (%)[e]			
Steroids	29 (15)	33 (17)	38 (19)
Hydroxychloroquine/chloroquine	22 (11)	16 (8)	89 (45)
Lopinavir-ritonavir	11 (6)	10 (5)	43 (22)
Tocilizumab	1 (1)	1 (1)	10 (5)
Azithromycin	41 (21)	35 (18)	62 (31)

TREATMENT

Continued

- On day 11, patients in the 5-day remdesivir group had **statistically significantly higher odds of a better clinical status distribution than those receiving standard care** (P = .02).
- The clinical status distribution on day 11 between the 10-day remdesivir and standard care groups was not significantly different
- By day 28, 9 patients had died: 2 (1%) in the 5-day remdesivir group, 3 (2%) in the 10-day remdesivir group, and 4 (2%) in the standard care group.
- Adverse effects were more frequent among remdesivir-treated patients compared with standard care.

Table 2. Clinical Outcomes

Outcomes	10-Day remdesivir (n = 193)	5-Day remdesivir (n = 191)	Standard care (n = 200)
Day 11 clinical status on 7-point scale, No. (%)			
1: Death	2 (1)	0	4 (2)
2: Hospitalized, requiring invasive mechanical ventilation or extracorporeal membrane oxygenation	1 (1)	0	4 (2)
3: Hospitalized, requiring noninvasive ventilation or high-flow oxygen	0	5 (3)	7 (4)
4: Hospitalized, requiring low-flow supplemental oxygen	12 (6)	7 (4)	11 (6)
5: Hospitalized, not requiring supplemental oxygen but requiring ongoing medical care	44 (23)	38 (20)	46 (23)
6: Hospitalized, not requiring supplemental oxygen or medical care	9 (5)	7 (4)	8 (4)
7: Not hospitalized	125 (65)	134 (70)	120 (60)

Conclusions

Among patients with moderate COVID-19, those randomized to a 10-day course of remdesivir did not have a statistically significant difference in clinical status compared with standard care at 11 days after initiation of treatment. Patients randomized to a 5-day course of remdesivir had a statistically significant difference in clinical status compared with standard care, the results on 5-days course should be treated with caution as statistical significance might be clinically significant.

Article 2

Mask or No Mask for COVID-19: A Public Health and Market Study

Published 14 August 2020 PLOS ONE

This modelling study assessed the impact of wearing mask during COVID-19 pandemic.

Background

- In the absence of highly effective drugs, vaccines, and abundant medical resources, many measures are used to manage the infection rate and avoid exhausting limited hospital resources.
- Wearing masks are among the non-pharmaceutical intervention (NPI) measures that could be effectively implemented at a minimum cost and without dramatically disrupting social practices.

Methodology

- This study combines mathematical modelling and existing scientific evidence to evaluate the potential impact of the utilization of normal medical masks in public to combat the COVID-19 pandemic.
- Three key factors that contribute to the effectiveness of wearing a quality mask in reducing the transmission risk were considered, including the mask aerosol reduction rate, mask population coverage, and mask availability.
- Change in reproduction number and attack rate by mask-wearing was plotted under seven scenarios.

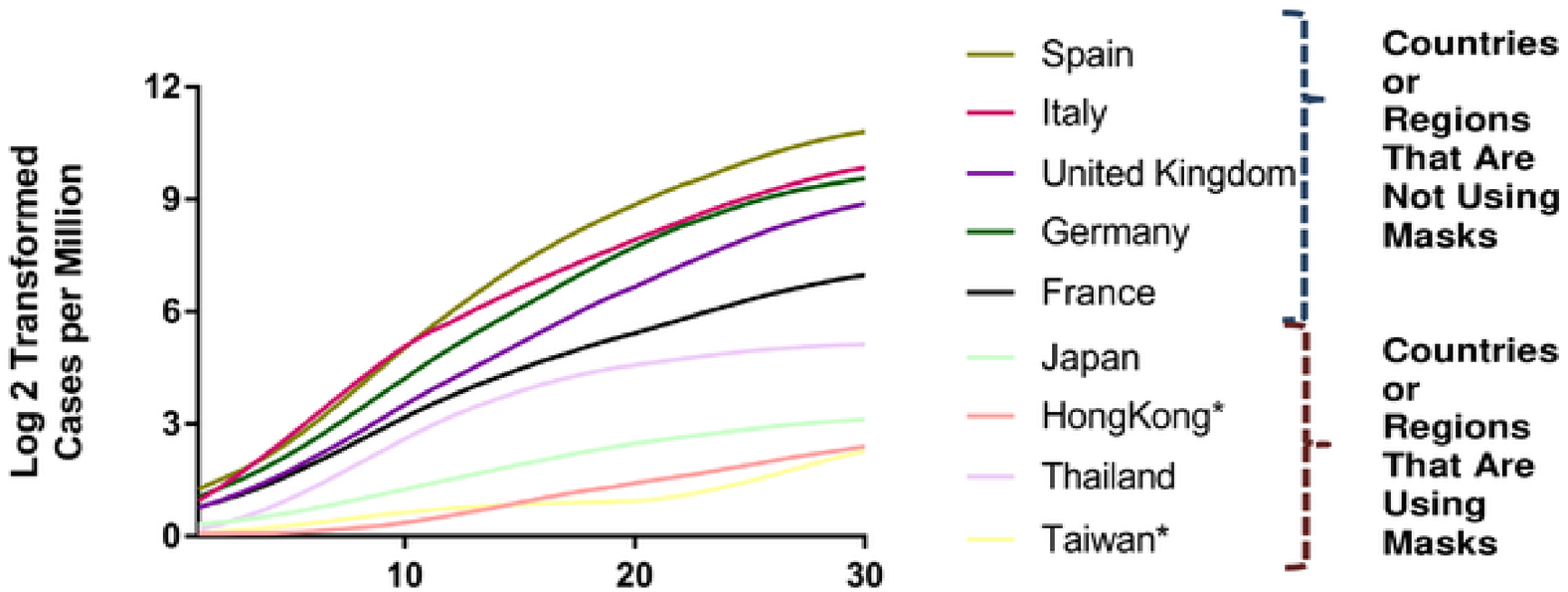
Conclusion

- Reproduction number decreases with mask availability in all of the scenarios. Specifically, when everyone is willing to wear a mask and when mask availability is close to 100%.
- Even a moderate level of mask coverage (54%) can help substantially reduce the reproduction number compared with low mask coverage (8%).Similar patterns of lowering of infection attack rate were observed with mask-wearing or mask availability.
- With intermediate values of mask coverage and availability (50% to 60%), the epidemic curve can be significantly flattened with an estimate of between 10 to 20 million people becoming infected.
- However, if only 8% of the population is willing to wear a mask and only 5% can obtain masks, there is little impact of masks on viral transmission intervention in a general population.
- When everyone wears a mask, the pandemic can be efficiently managed.

PUBLIC HEALTH RESPONSE

Continued

Fig. Confirmed cases in different countries.



Public Health Message

- Regardless of the debates in the medical community and the global mask production shortage, more countries and regions are moving forward with recommendations or mandates to wear masks in public.
- The percentage of people wearing a mask during a pandemic depends on several factors. First, culture plays a crucial role in determining mask coverage around the world. In East Asia, wearing a mask is common and has long been culturally acceptable.
- **Wearing a face mask can be effectively combined with social distancing to flatten the epidemic curve.**
- Timely implementations of wearing masks call for public awareness, a readily available market stockpile, and government advocacy and policies.
- **However, masks do not replace social distancing and other personal hygiene practices, such as hand washing.**
- The study provides a projection based only on currently available data and estimates potential probabilities. As such, the models used in this study warrants further validation studies.

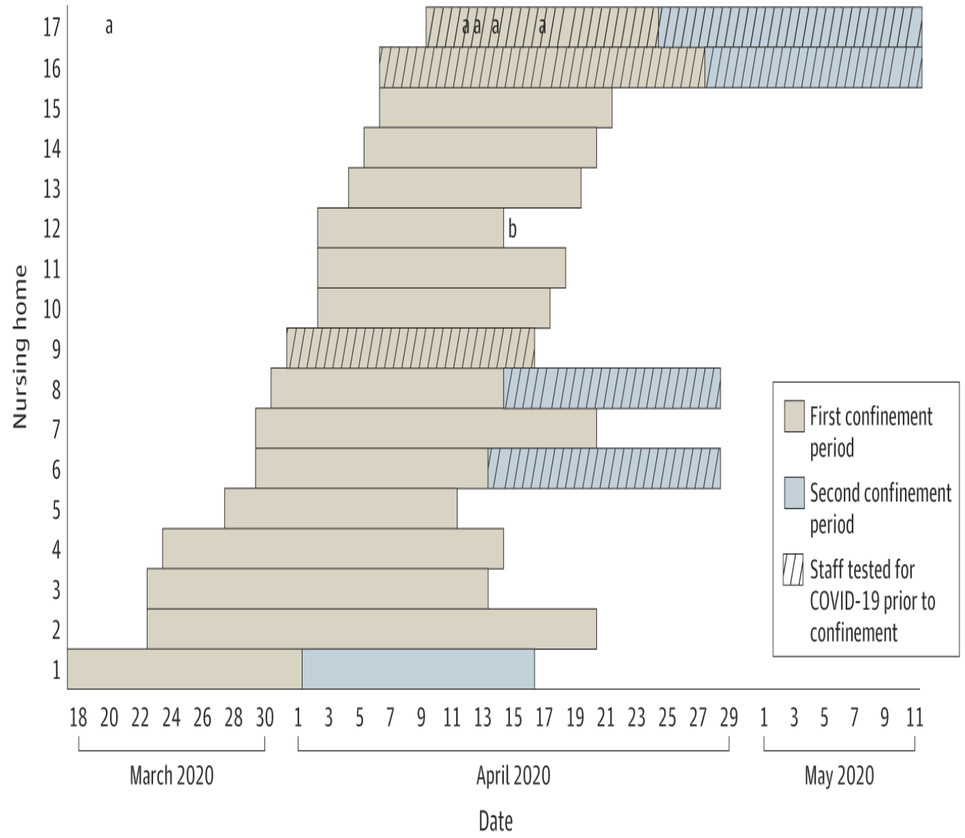
Article 3

Published

Coronavirus Disease 2019 Outcomes in French Nursing Homes That Implemented Staff Confinement With Residents

13 August 2020 JAMA

The findings of this French cohort study suggest that the initiative of staff members to confine themselves to nursing homes with residents was successful in protecting their facilities from an outbreak of COVID-19. These experiences, based on a strong voluntary investment of staff, including managers, cannot be presented as a generalizable model because of several barriers, such as low sustainability, labor law regulations, and consequences on staff family life. In the context of a pandemic threat, staff members free from COVID-19 cases that have decided to confine themselves to the nursing home should not be discouraged. Furthermore, screening for asymptomatic SARS-CoV-2 infections should be offered to staff members before they begin the confinement period with residents to promote better outcomes.



17 nursing home institution in France decided to adopt self-confinement to all staff in the nursing home. The above diagram shows Staff Confinement Periods With Residents in Each of the 17 Nursing Homes. COVID-19 testing was performed, via reverse PCR tests on nasal swabs.

a) The onset of a coronavirus disease 2019 case in the nursing home.
b) This facility terminated the self-confinement period early owing to an administrative injunction

PUBLIC HEALTH RESPONSE

Continued

Methodology

This retrospective cohort study was conducted in a French nursing home from March 1 to May 11, 2020. Participants included residents and staff members of the nursing homes where staff participated in voluntary self-confinement as well as those of the facilities for elderly people where staff did not practice self-confinement. Rates of COVID-19 cases and mortality in the cohort of nursing homes with self-confinement were compared with those derived from a population-based survey of nursing homes conducted by French health authorities.

Conclusion

- This study included 17 nursing homes in which 794 staff members confined themselves to the facility with their 1250 residents. The national survey included 9513 facilities with 385 290 staff members and 695 060 residents.
- Only one nursing home with staff who self-confined (5.8%) had cases of COVID-19 among residents, compared with 4599 facilities in the national survey (48.3%) ($P < .001$).
- Five residents (0.4%) in the nursing homes with staff who self-confined had confirmed COVID-19, compared with 30 569 residents (4.4%) with confirmed COVID-19 in the national survey ($P < .001$); no residents of facilities with self-confinement had possible COVID-19, compared with 31 799 residents (4.6%) with possible COVID-19 in the national survey ($P < .001$).
- Five residents (0.4%) in the nursing homes with staff who self-confined died of COVID-19, compared with 12 516 (1.8%) in the national survey (odds ratio, 0.22; 95% CI, 0.09-0.53; $P < .001$). Twelve staff members (1.6%) from the facilities with self-confinement had confirmed or possible COVID-19, compared with 29 463 staff members (7.6%) in the national survey ($P < .001$).

PUBLIC HEALTH RESPONSE

Article 4 COVID-19 is an Opportunity for Reform in Dentistry

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- The COVID-19 pandemic caused the closure of many dental clinics across the world hence limiting access to emergency dental care.

- Many dental personnel clinical duties have been redeployed to work in frontline health services.

- Aerosol generated procedures led to an increase in infections. Consequently, the current restriction of its use led to less invasive and more protective approach.

- This pandemic will worsen oral health inequalities. Therefore, political and professional leaders are required to make a radical reform of oral health-care systems. For example, stop delivering unnecessary, ineffective, and costly procedures and treatments. And priorities groups with a high need for dental care.

Article 5

Covid-19 Mass Testing Programmes Should be Modelled on Successful Screening Programmes

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- During COVID-19 pandemic, mass testing was initiated to find people with active infection who are asymptomatic/presymptomatic so that quarantine, and rapid finding and testing of close contacts can reduce the spread. Mass testing by unskilled staff, self-testing, and variable quality of testing produce missed cases. The predictive values of a programme of testing, relating to the ability to identify active infections in actual practice, are distinct from laboratory measures of test quality.

- The entire system of screening program should be well-coordinated, have quality assurance built-in for each element, and be backed by right information technology. The benefits are unlikely to be realized, and the outcomes will be harms from unwarranted intervention, confusion, mistrust, and diversion of laboratory and other resources away from more beneficial activities without a good system.

- Ethical standards require that participants be informed about the purpose, limitations, and uncertainties. Data for the programme requires careful analysis and presentation that means separating diagnostic from screening tests, indications for testing (e.g. employment, contacts of the known case), and using area-based denominators. Apparent spikes in cases caused by ascertainment bias could trigger unnecessary lockdowns due to inaccurate denominators.

- Mass testing requires clear purpose and policy based on best available evidence, uniform case definitions, and consistent testing standards nationwide. Systematic, coordinated delivery using the experience community connections, and knowledge of local primary care, public health, and laboratory services is essential. Testing needs to be accessible to the vulnerable and disadvantaged people, and those tested need to receive support, information, and advice from healthcare practitioners.

THANK YOU

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