SCIENTIFIC RESEARCH MONITORING ON COVID-19

22 NOVEMBER 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19 (ISSUE 293)

ABU DHABI PUBLIC HEALTH CENTRE

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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Research
Update

Statistics

Articles
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 (1/2)

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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Public Health Response

Provision of Holistic Care After Severe COVID-19 Pneumonia: Anticipating Clinical Need and Managing Resources

Epidemiology

Seroprevalence of Sars-Cov-2 in Slums Versus Non-Slums in Mumbai, India

Epidemiology

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The Need for More and Better Testing for COVID-19

Public Health Response

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Diagnosis

Assessment of Sars-Cov-2 RNA Test Results Among Patients who Recovered from COVID-19 with Prior Negative Results

Diagnosis

Challenges in Testing for SARS-CoV-2 Among Patients who Recovered from COVID-19

RESEARCH UPDATES (2/2)

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Mental Health

The Prevalence of Psychological Consequences of COVID-19: A Systematic Review and Meta-Analysis of Observational Studies

Treatment

Therapy for Early COVID-19 A Critical Need

Public Health Response

A 7-Point Action Agenda to End the COVID-19 Pandemic for President-Elect Biden

Treatment

Effect of Hydroxychloroquine on Clinical Status at 14 Days in Hospitalized Patients with COVID-19: A Randomized Clinical Trial

Epidemiology

Risk of Severe COVID-19 among Workers and Their Household Members

Epidemiology

Association Between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada

Clinical Features

Characteristics and Outcomes of Neonatal SARS-CoV-2 Infection in the UK: A Prospective National Cohort Study Using Active Surveillance

Epidemiology

SARS-CoV-2 Sero-Prevalence and Transmission Risk Factors Among High-Risk Close Contacts: A Retrospective Cohort Study

EPIDEMIOLOGY

FROM 21 JAN TO 22 NOV 2020

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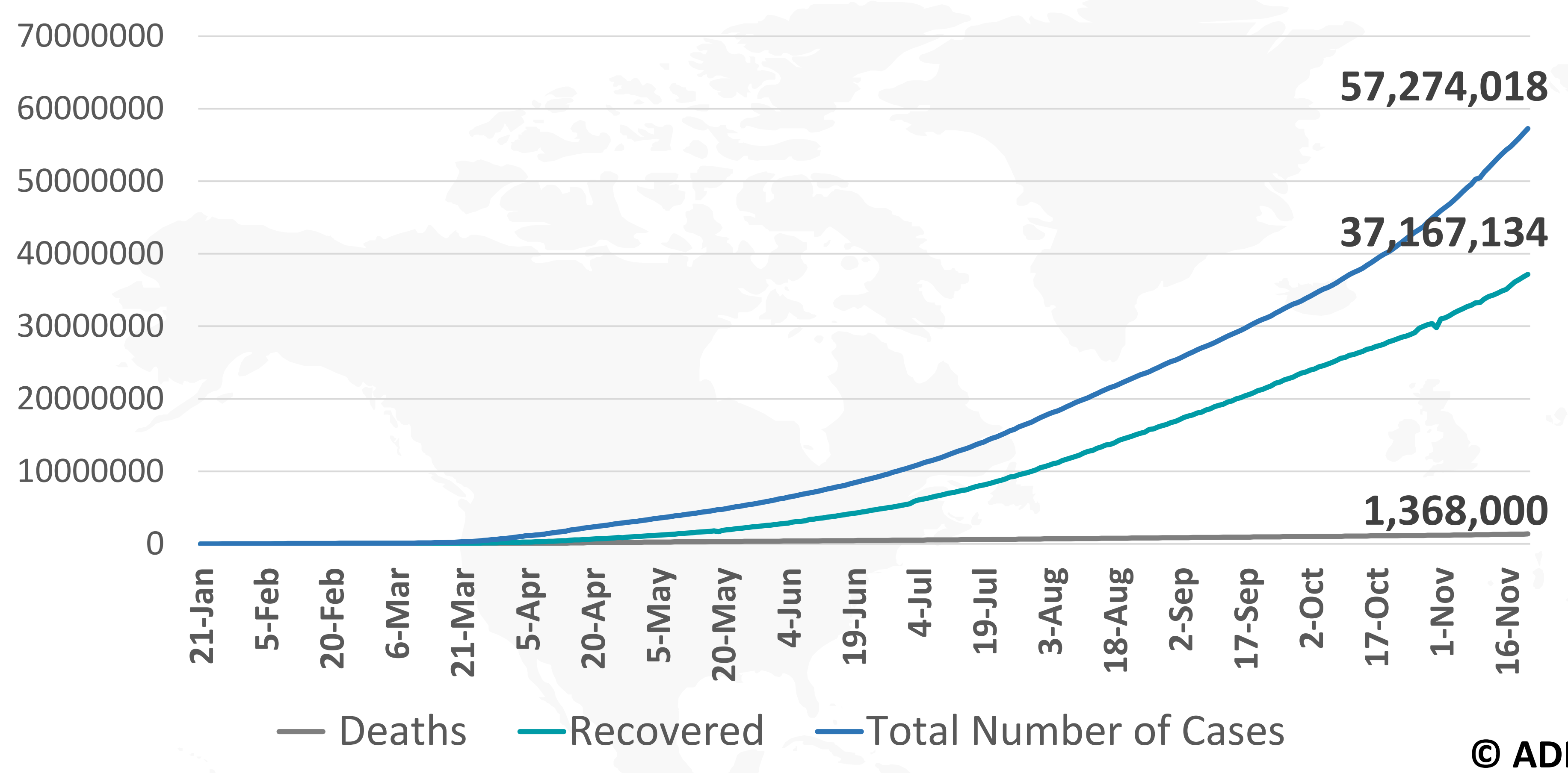
Figure 1: Total Number of Infected, Recovered, and Death Cases



Note: the number of recovered cases in 31th October recorrected from 30 million to 29 million in Johns Hopkins website

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

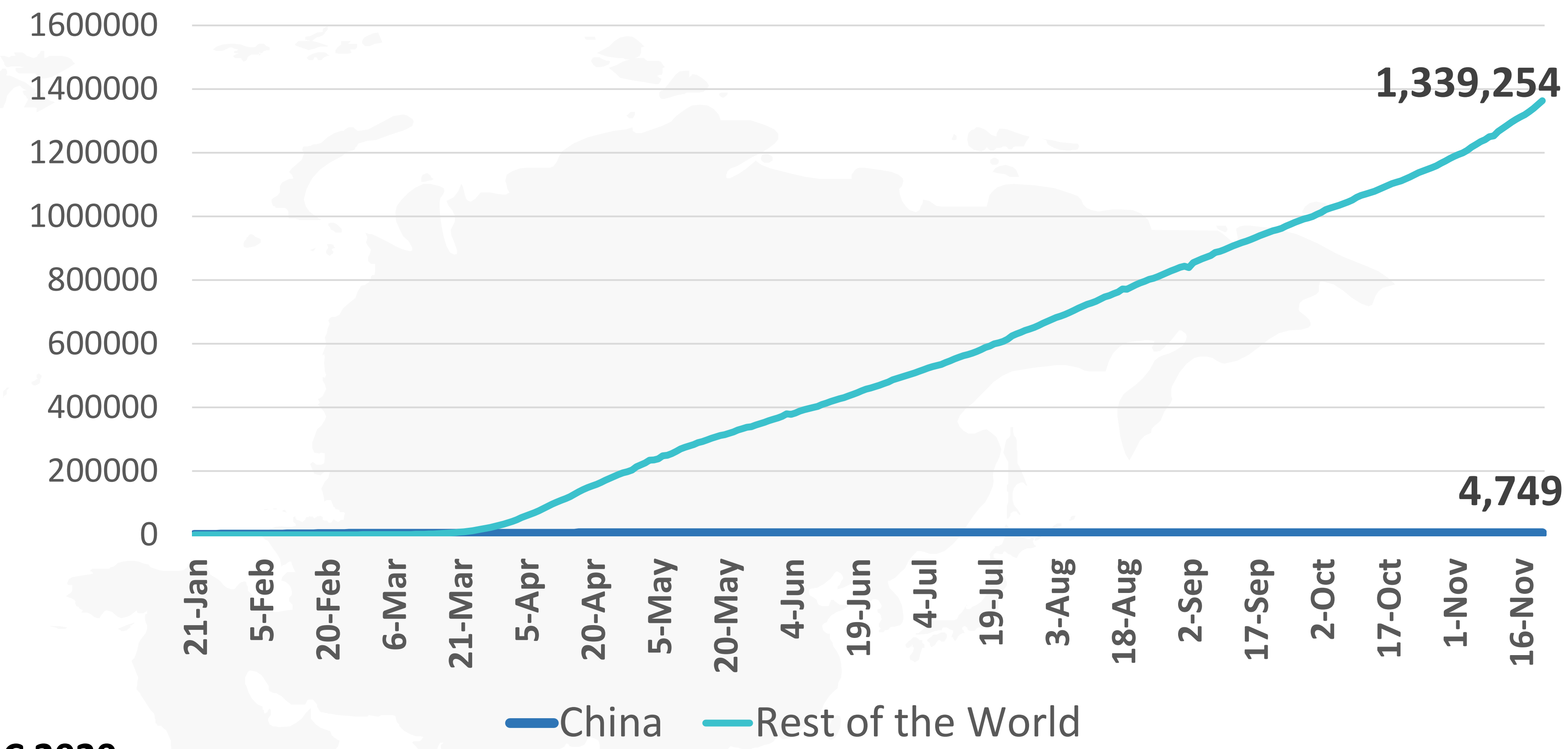


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

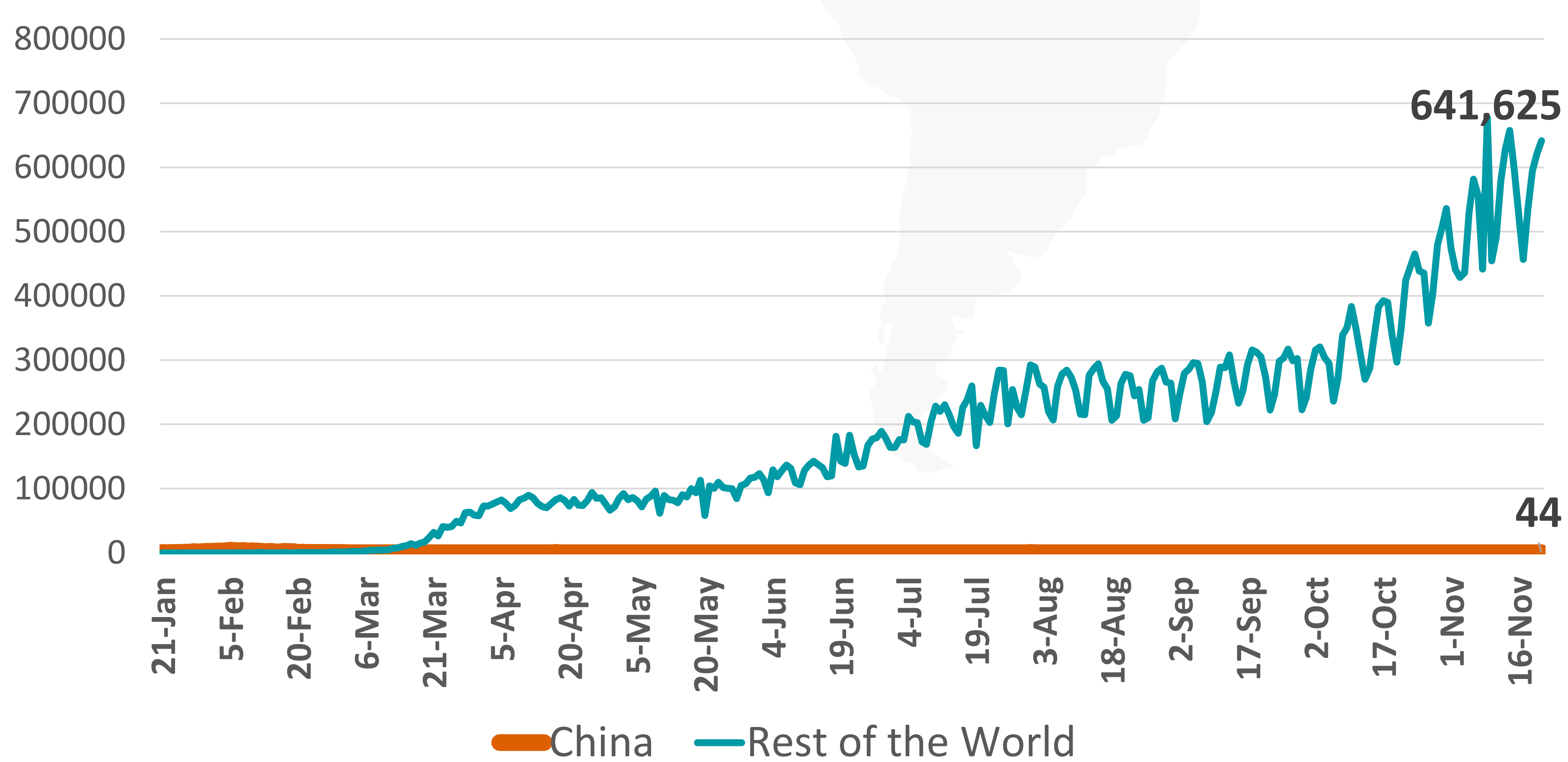
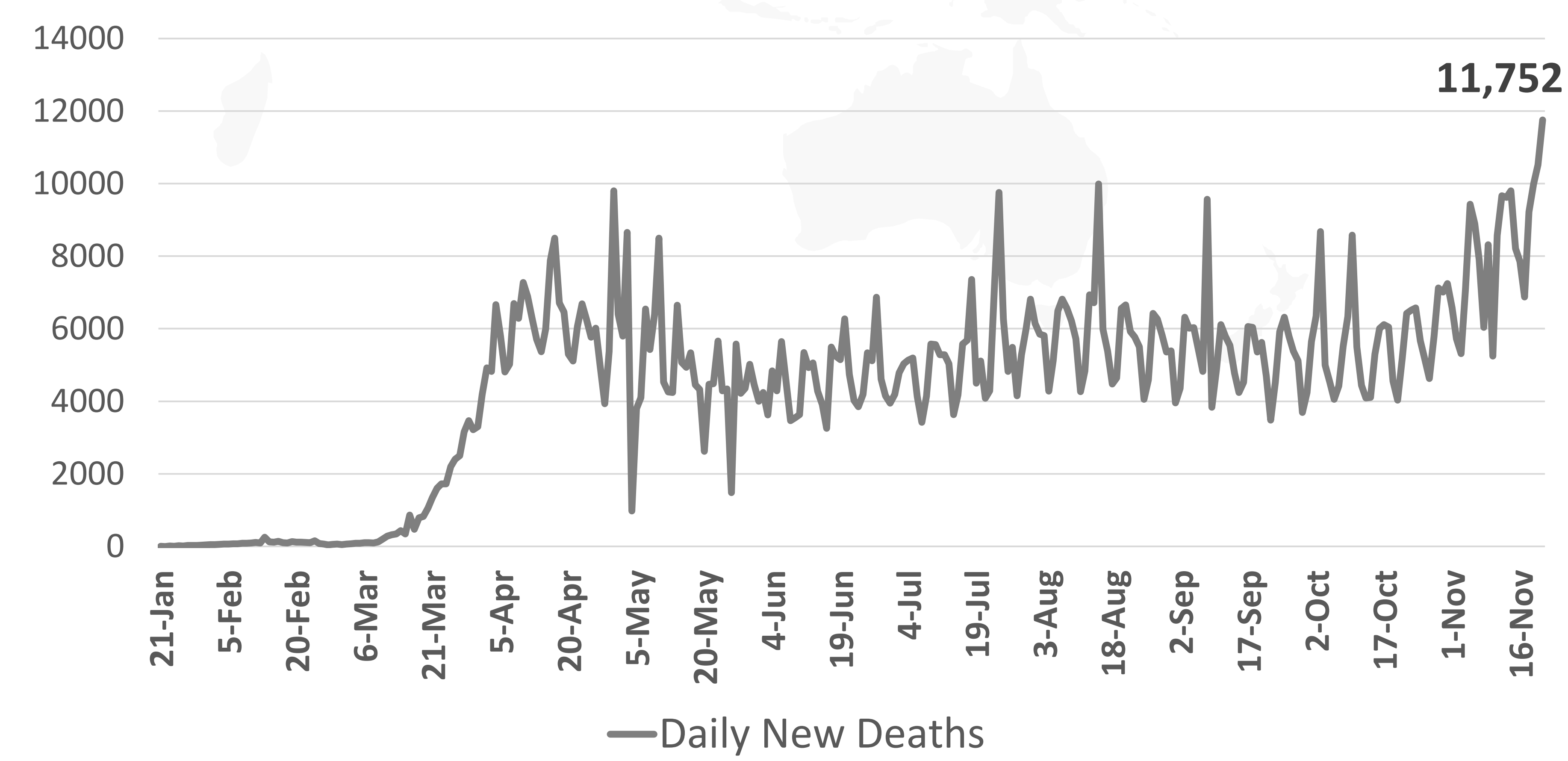


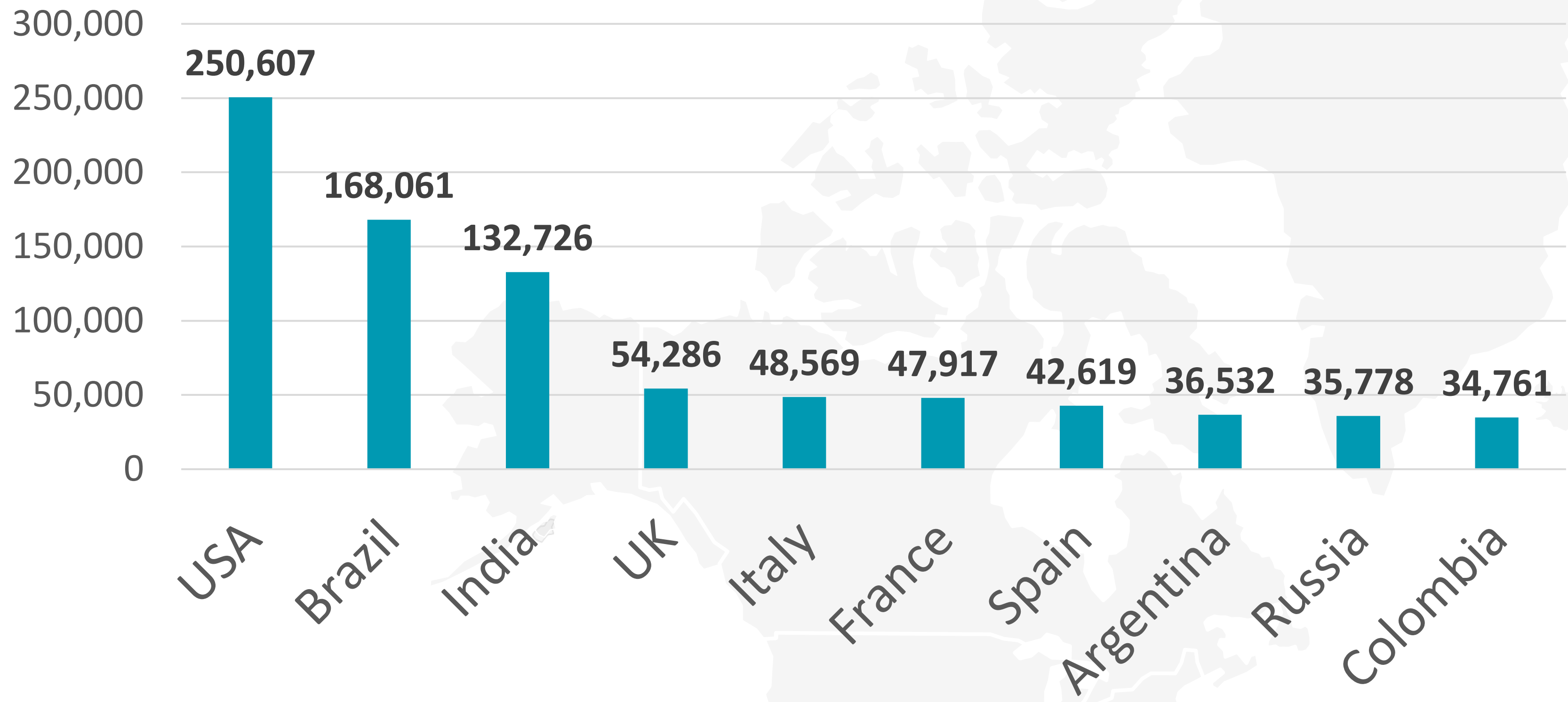
Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)



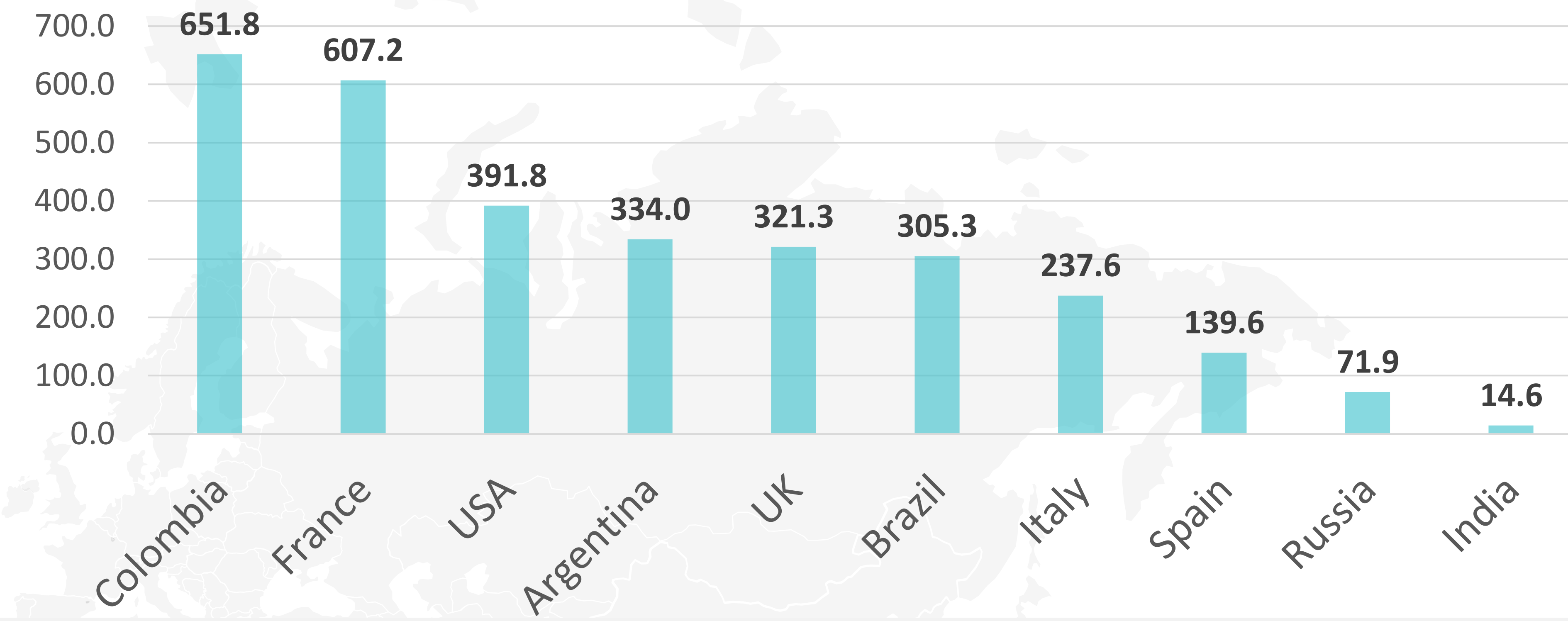
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: John Hopkins, WHO

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

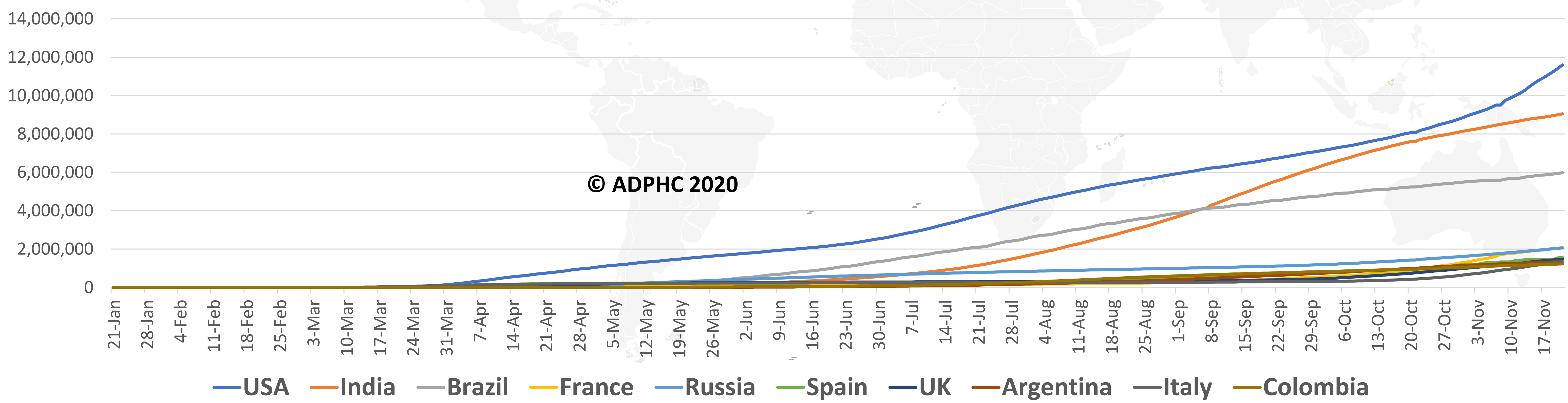
TOTAL DEATHS



DEATHS PER MILLION



TOTAL INFECTED CASES



USA	11,597,979
India	9,050,597
Brazil	5,981,767
Russia	2,071,499
France	2,064,748
Spain	1,556,730
UK	1,473,512
Argentina	1,349,434
Italy	1,345,767
Colombia	1,225,490

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

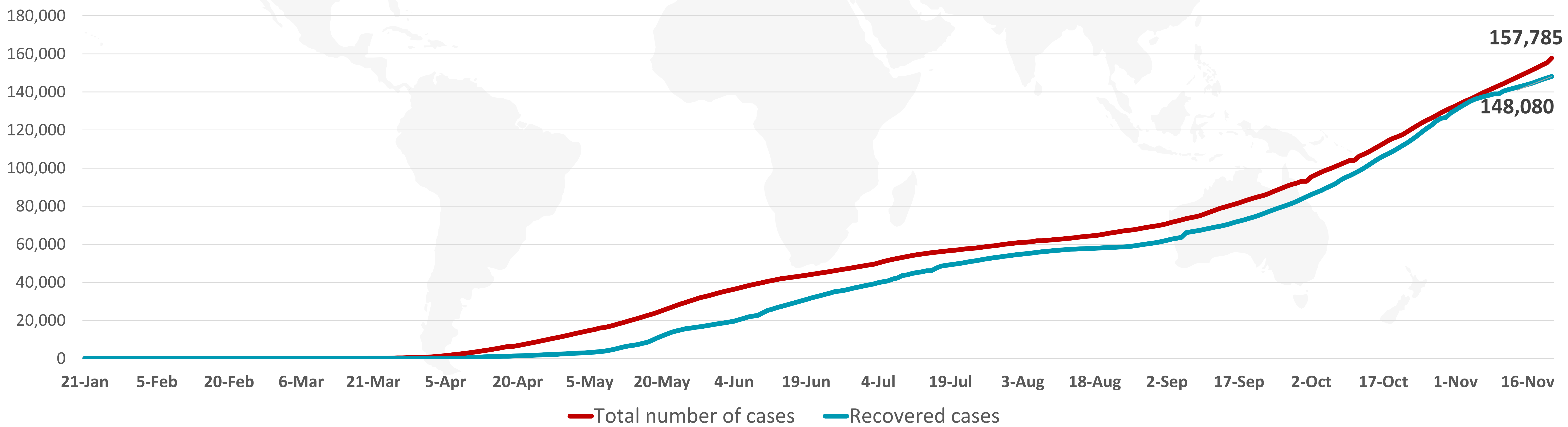
Daily Tests
116,441.7 Average Tests
1,177.3 per 100k population
1.1% Positive Rate

Daily Cases
1,235.7 Average Cases
12.5 per 100k population

Daily Recovered
788.4 Average Recovered
8.0 per 100k population

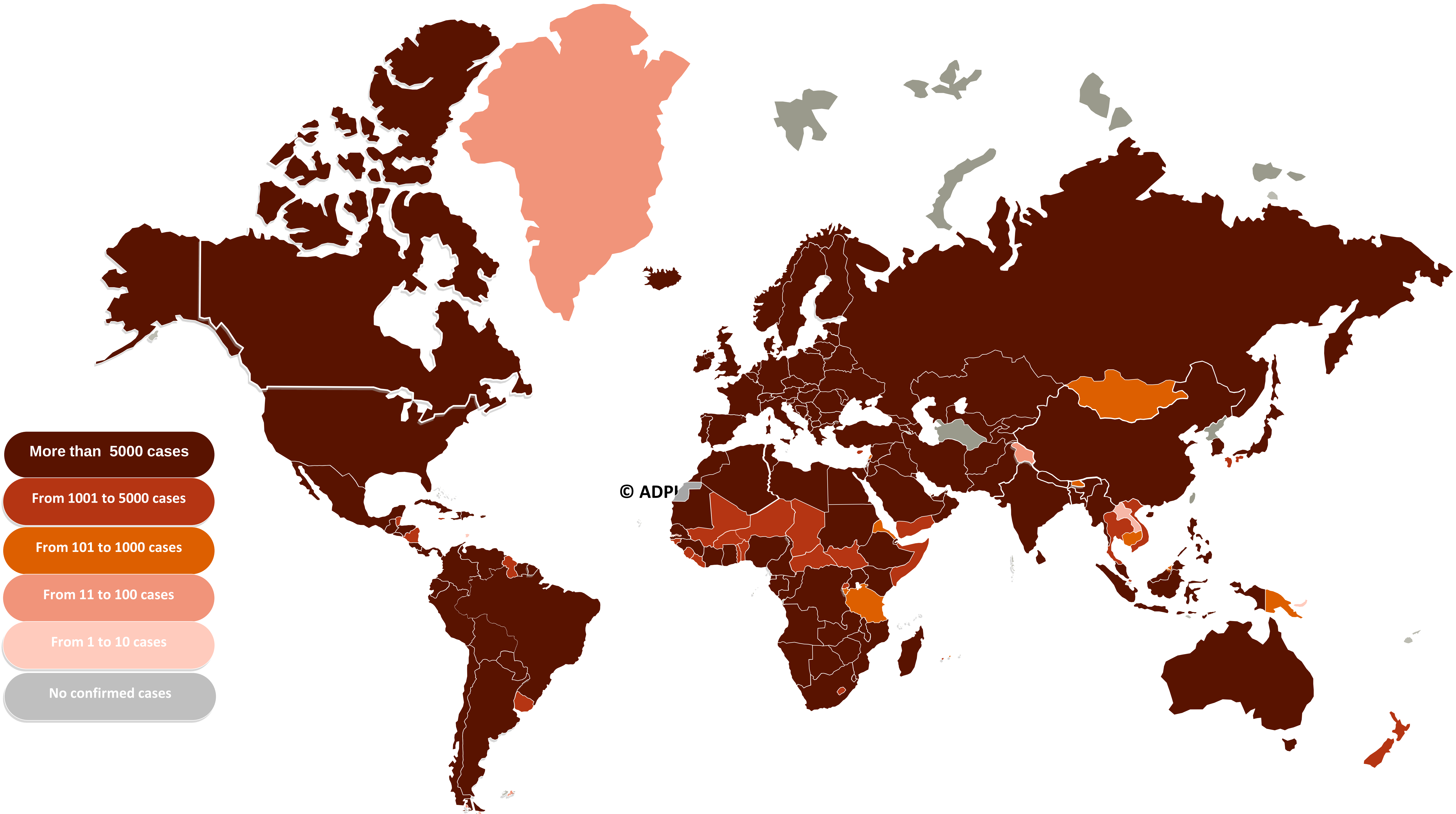
Daily Deaths
2.9 Average Deaths
0.0 per 100k population
0.2% Case Fatality Rate

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, John Hopkins

Figure 7A : Global Distribution of COVID-19 Cases



EPIDEMIOLOGY

Date: 22 NOV 2020

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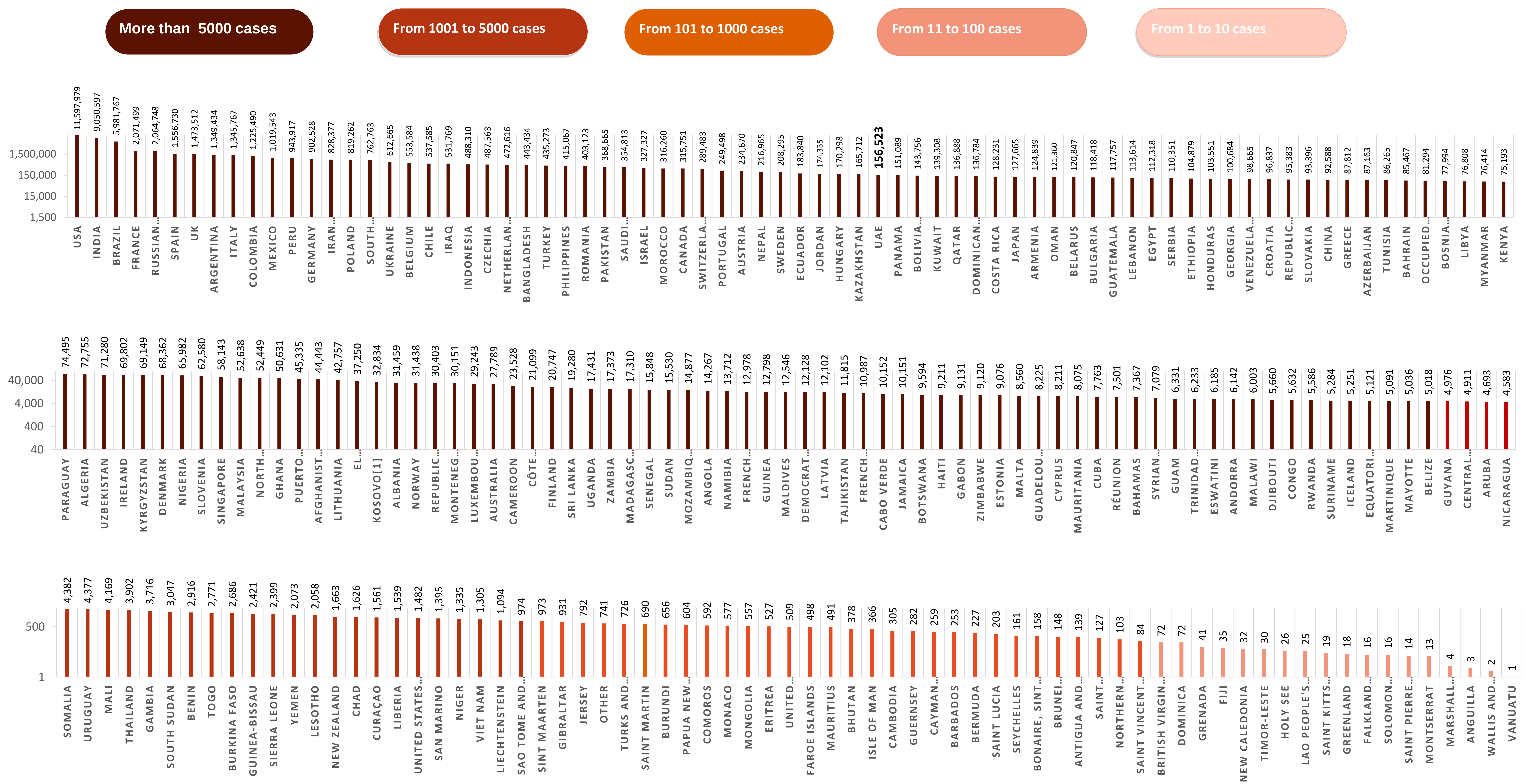
Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases



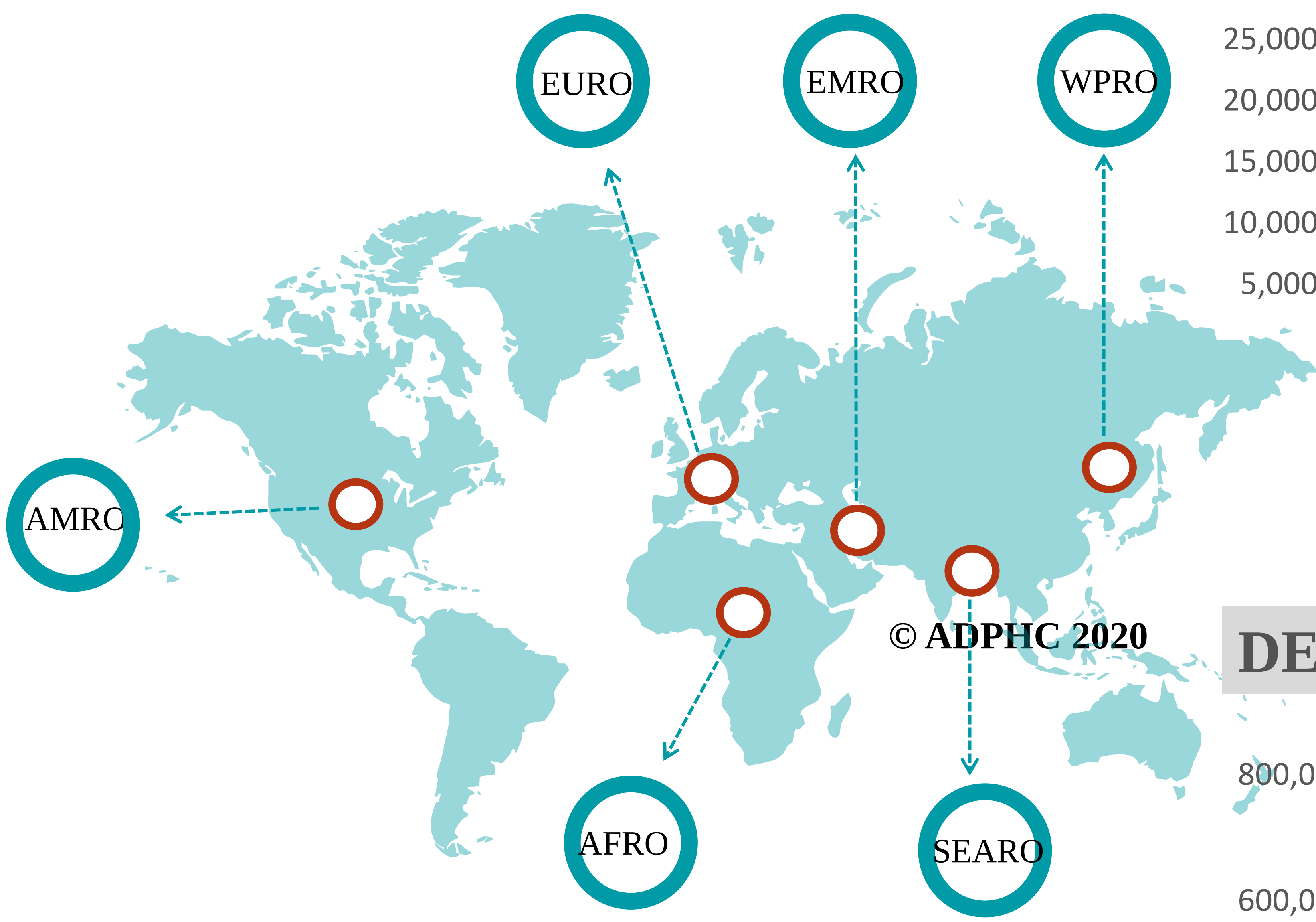
Other*:includes cases and deaths reported under the international conveyance(Diamond Princess)

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

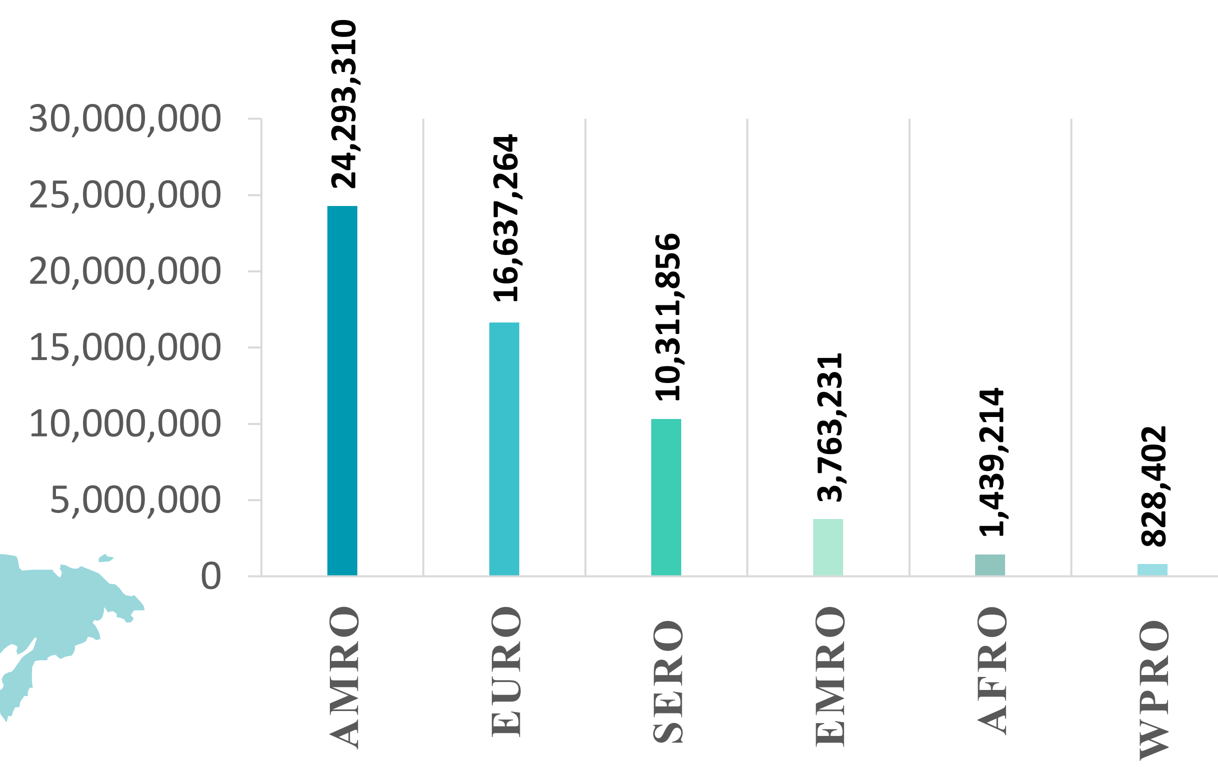
EPIDEMIOLOGY

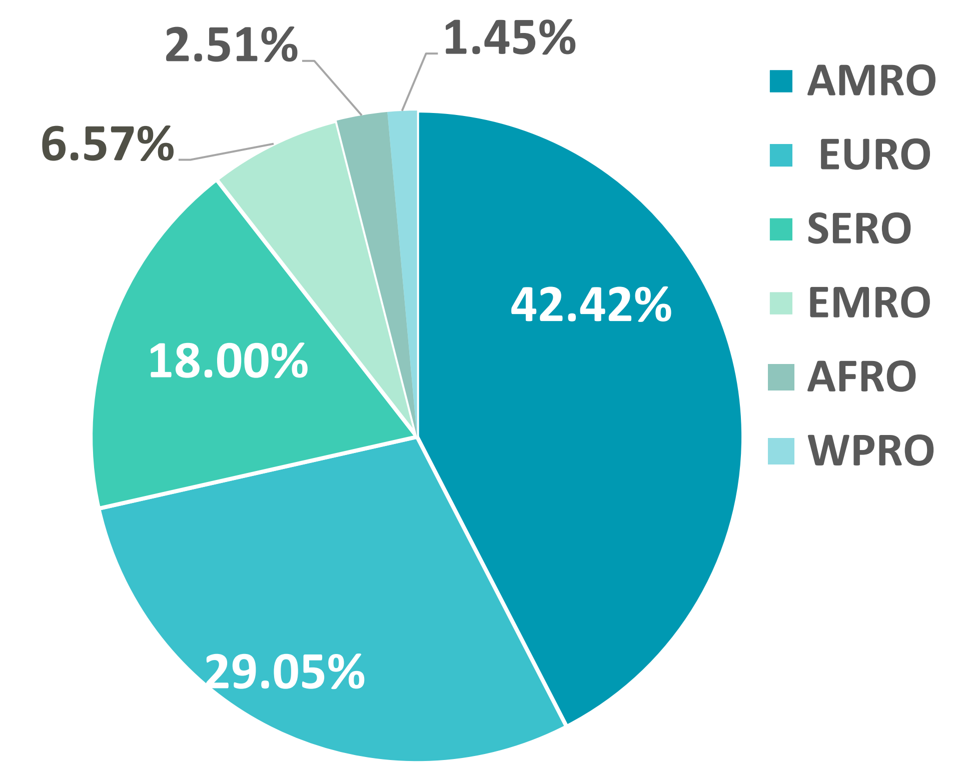
Date: 22 NOV 2020

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

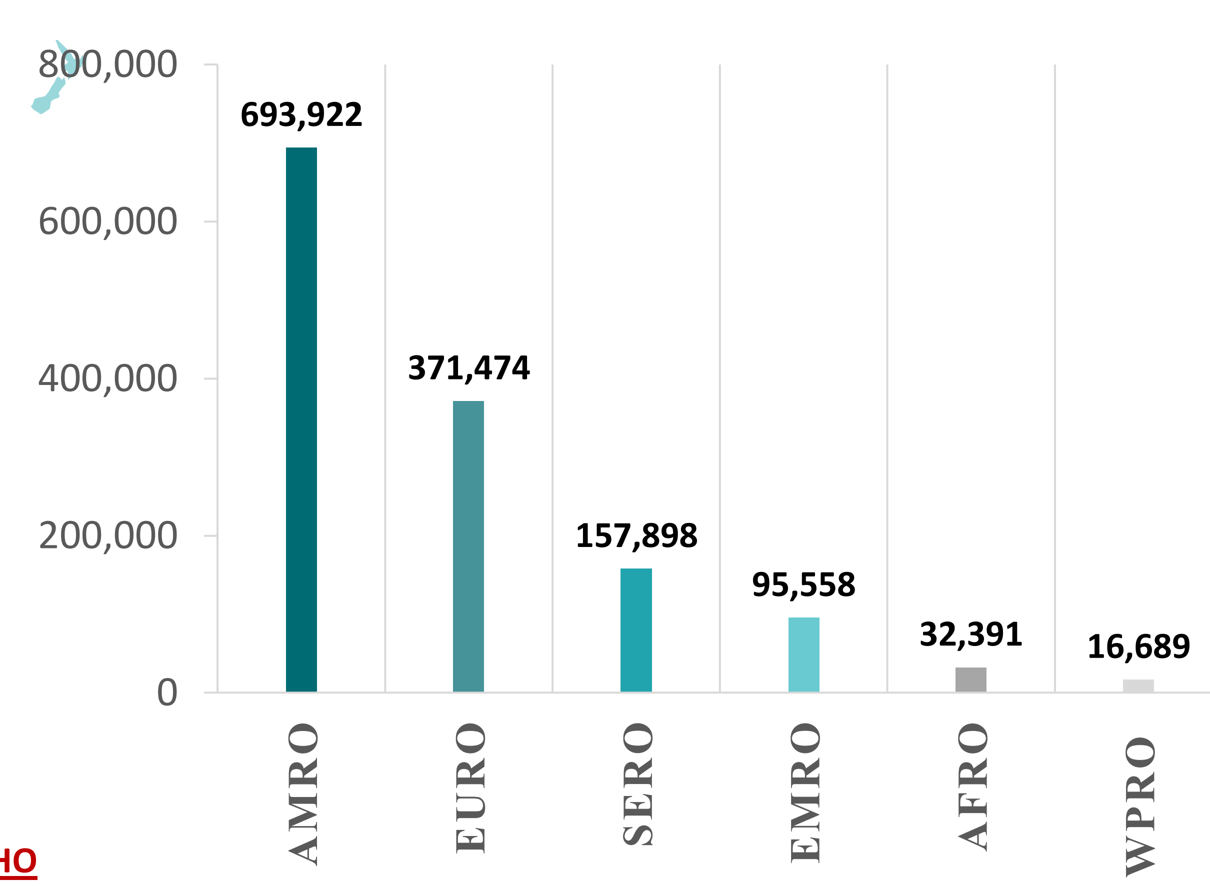


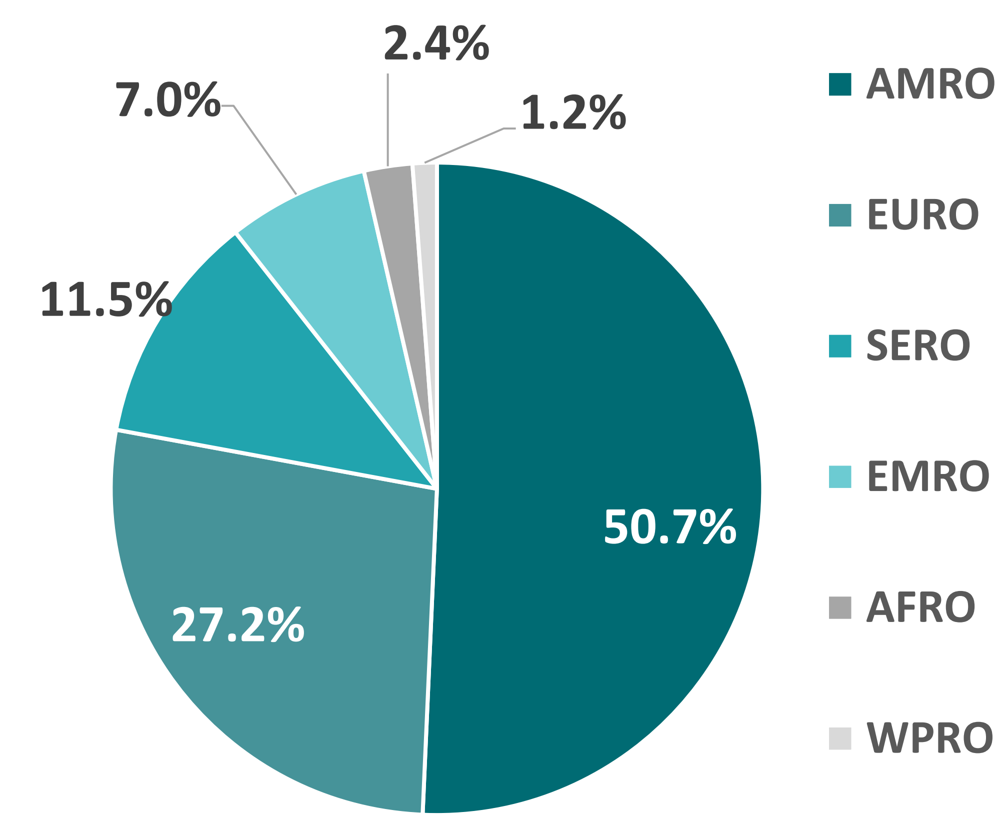
INFECTED





DEATHS

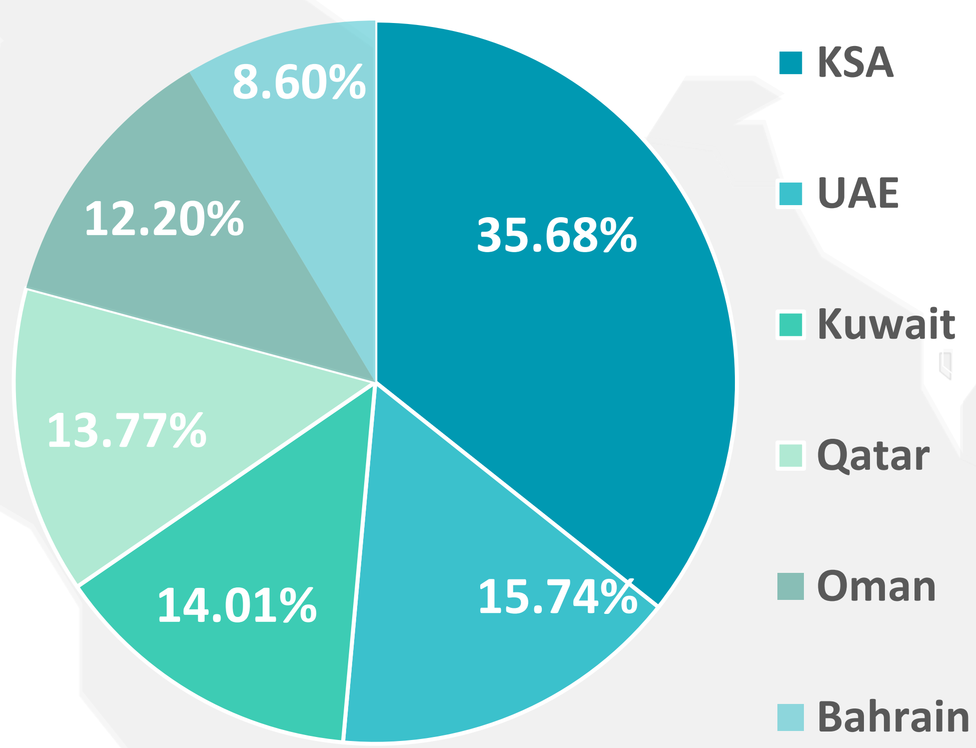




Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

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

TOTAL NUMBER OF INFECTED CASES



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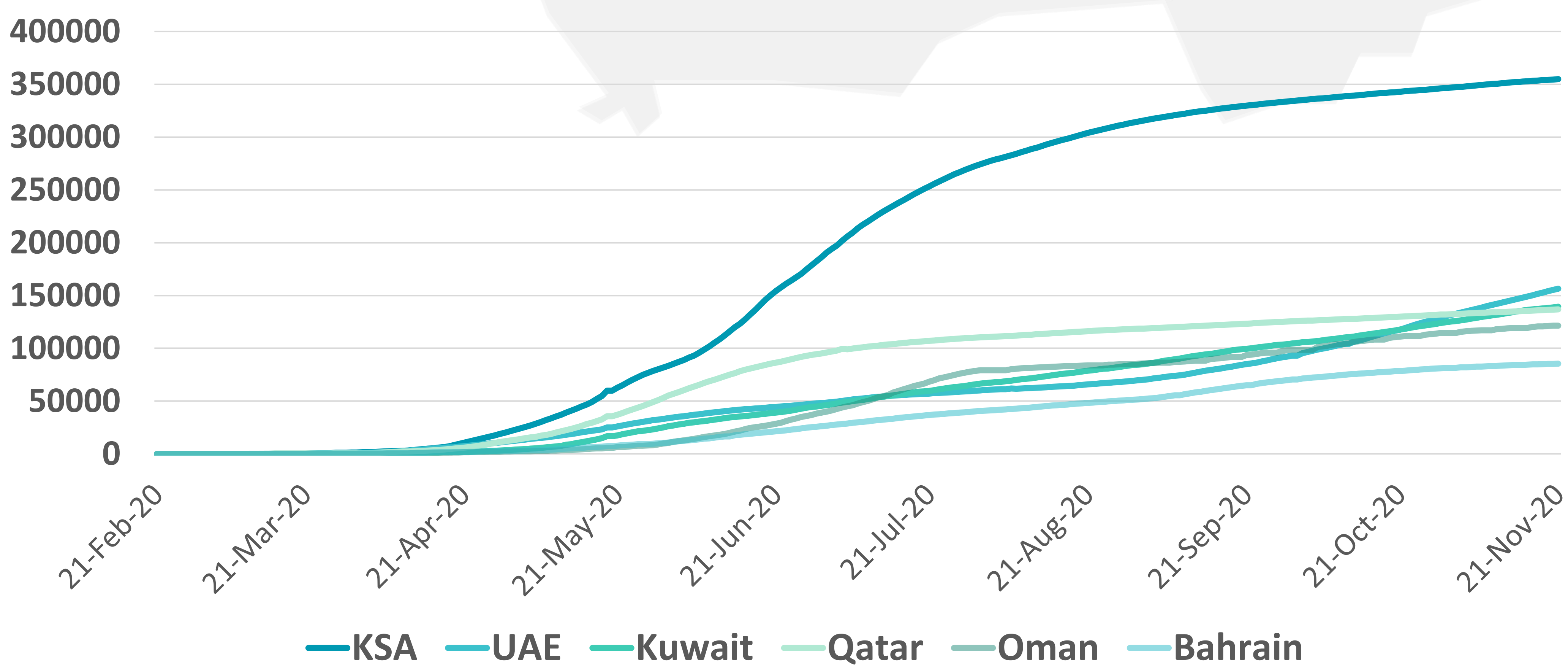
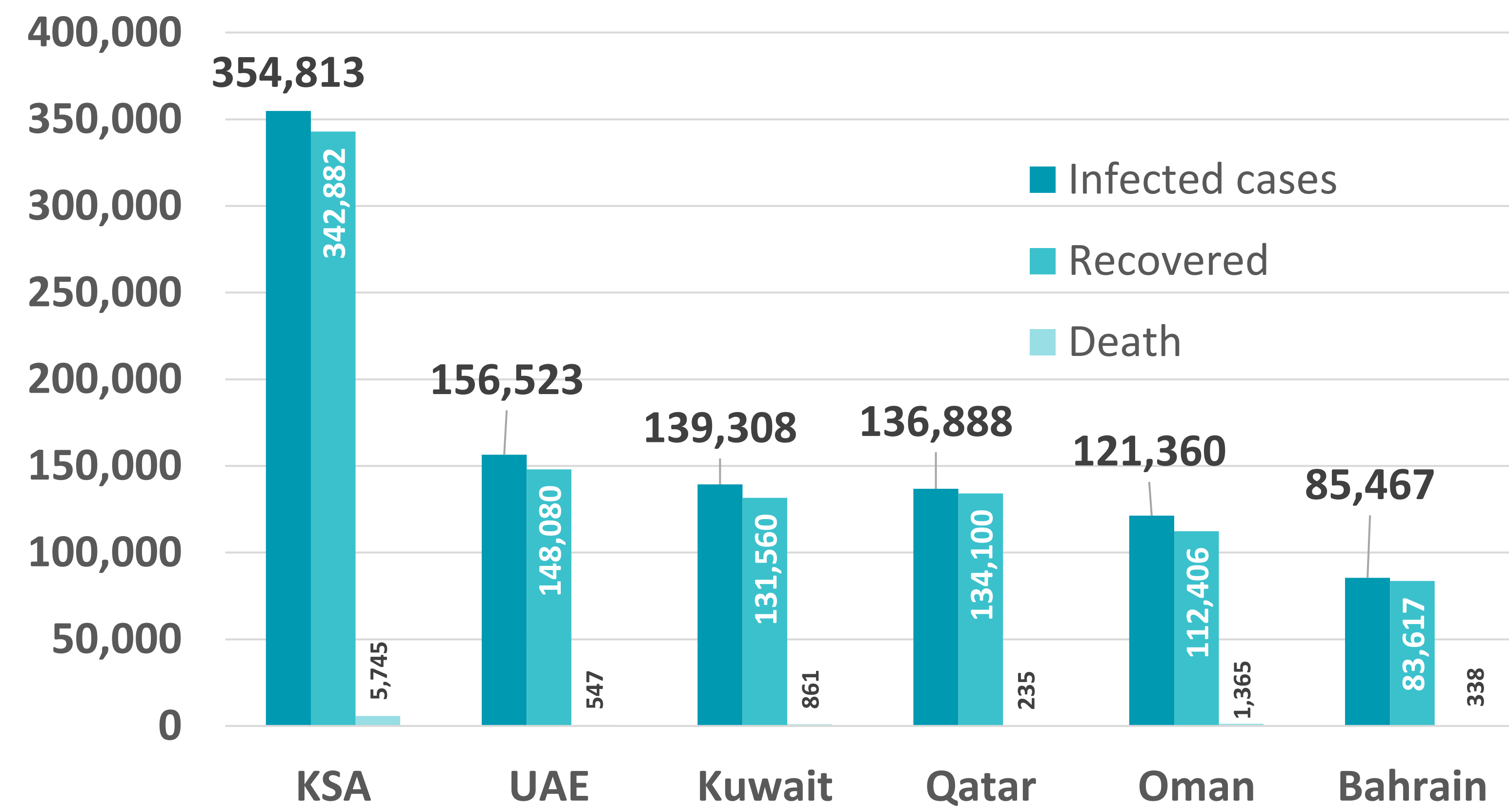
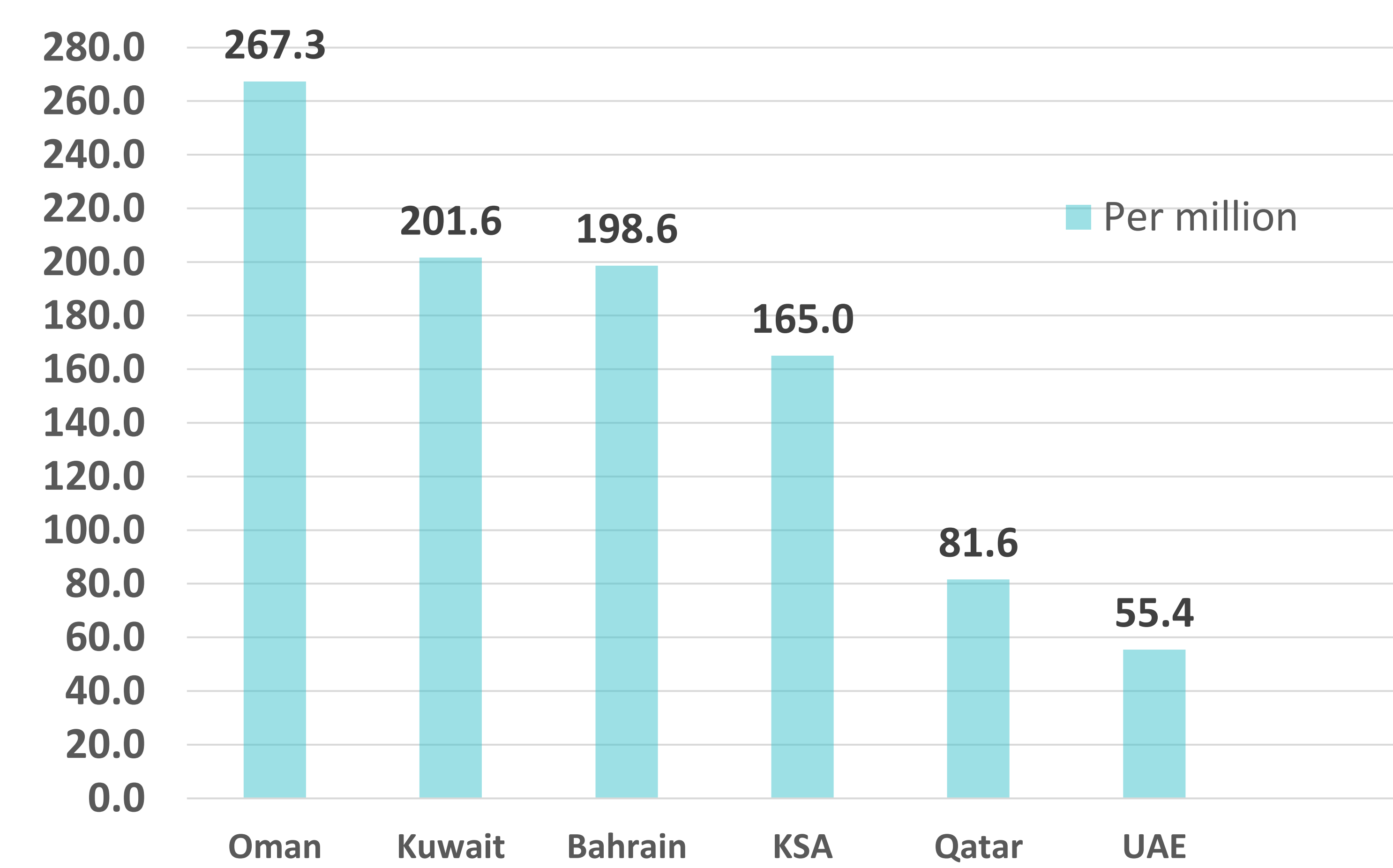


TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



DEATHS PER MILLION



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

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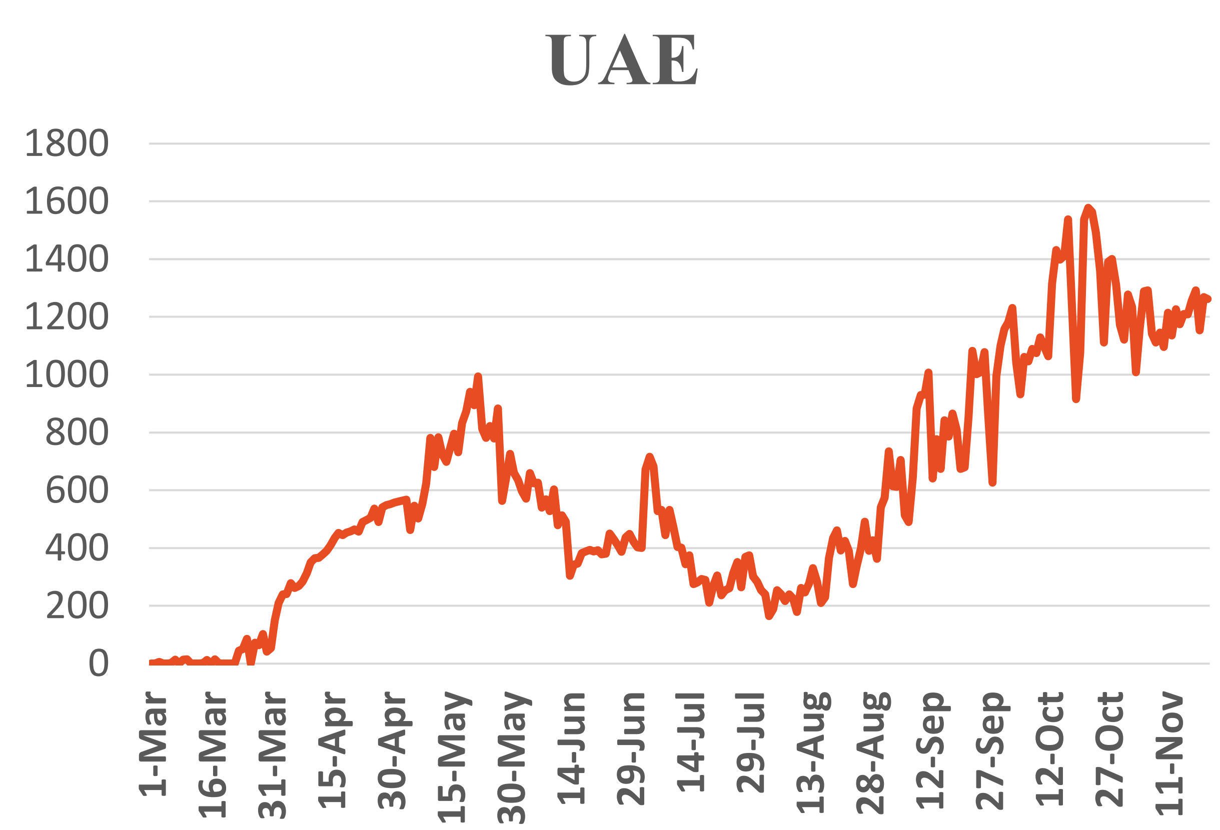
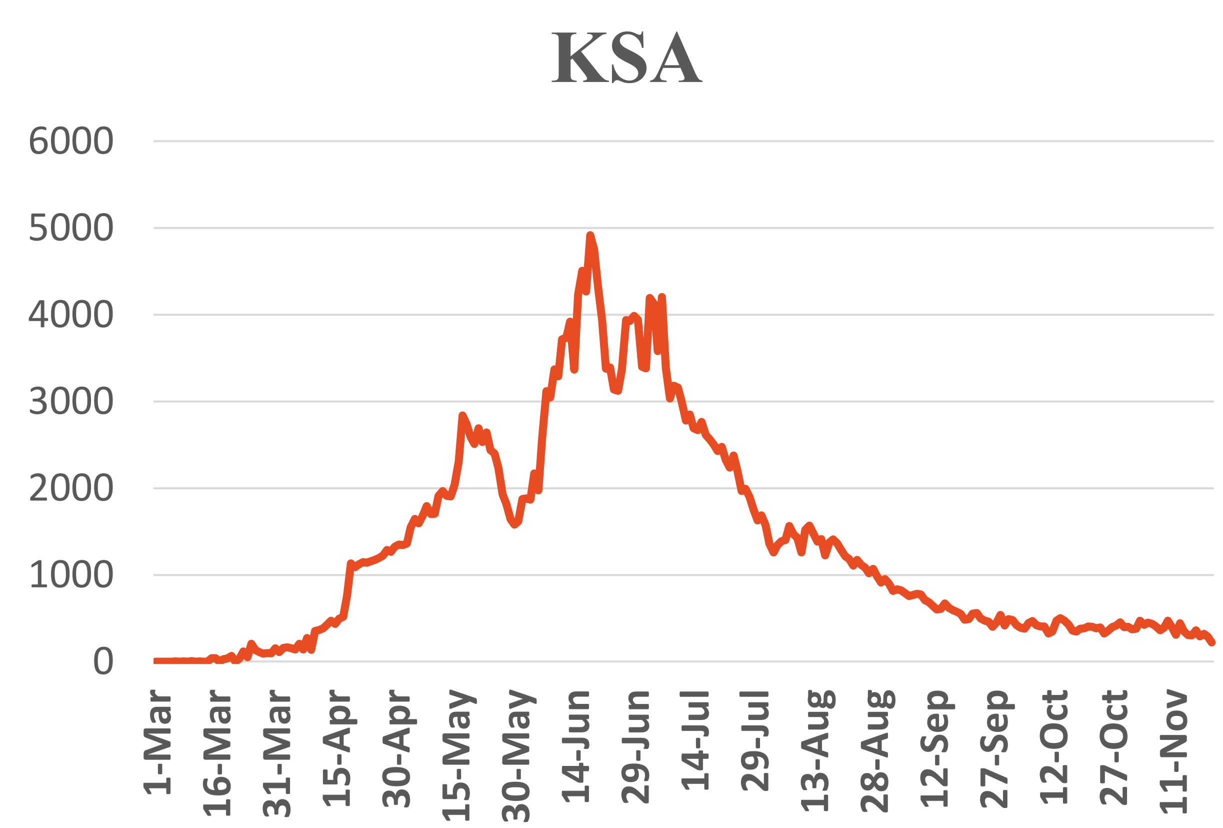
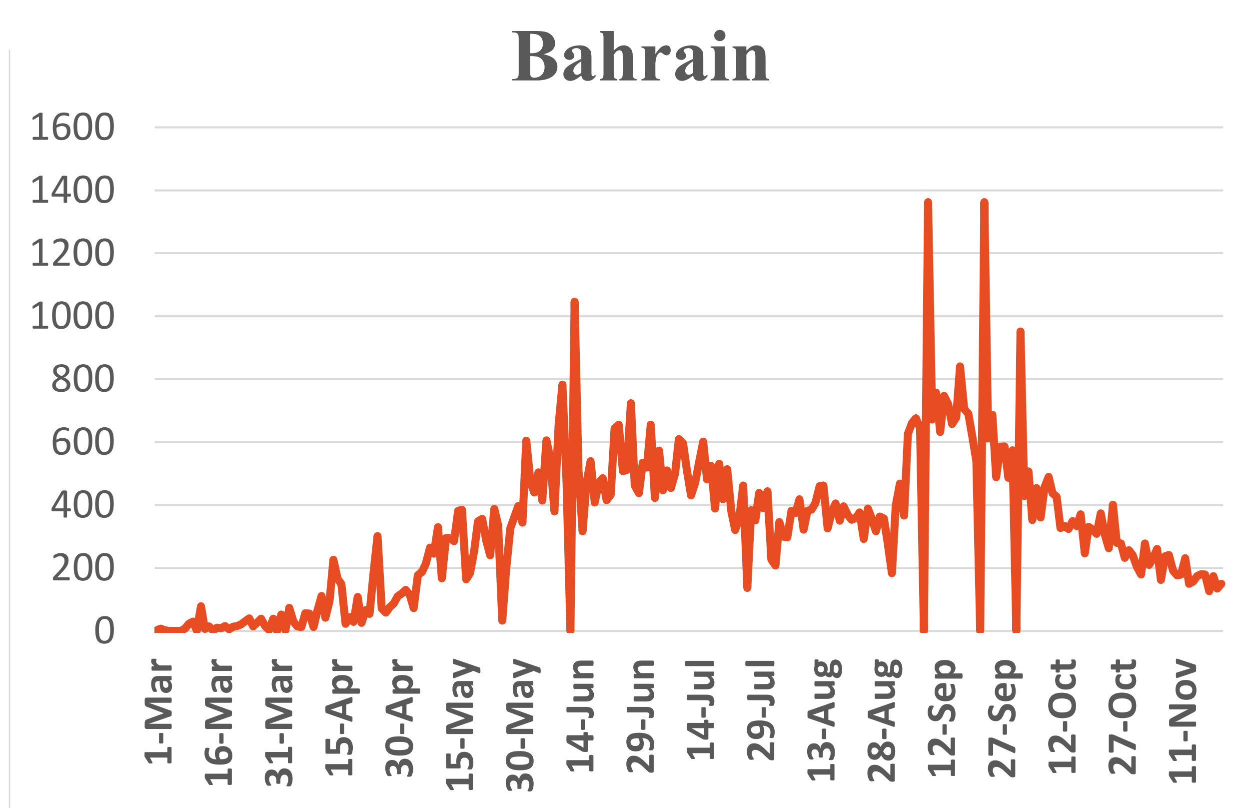
Figure 10: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries



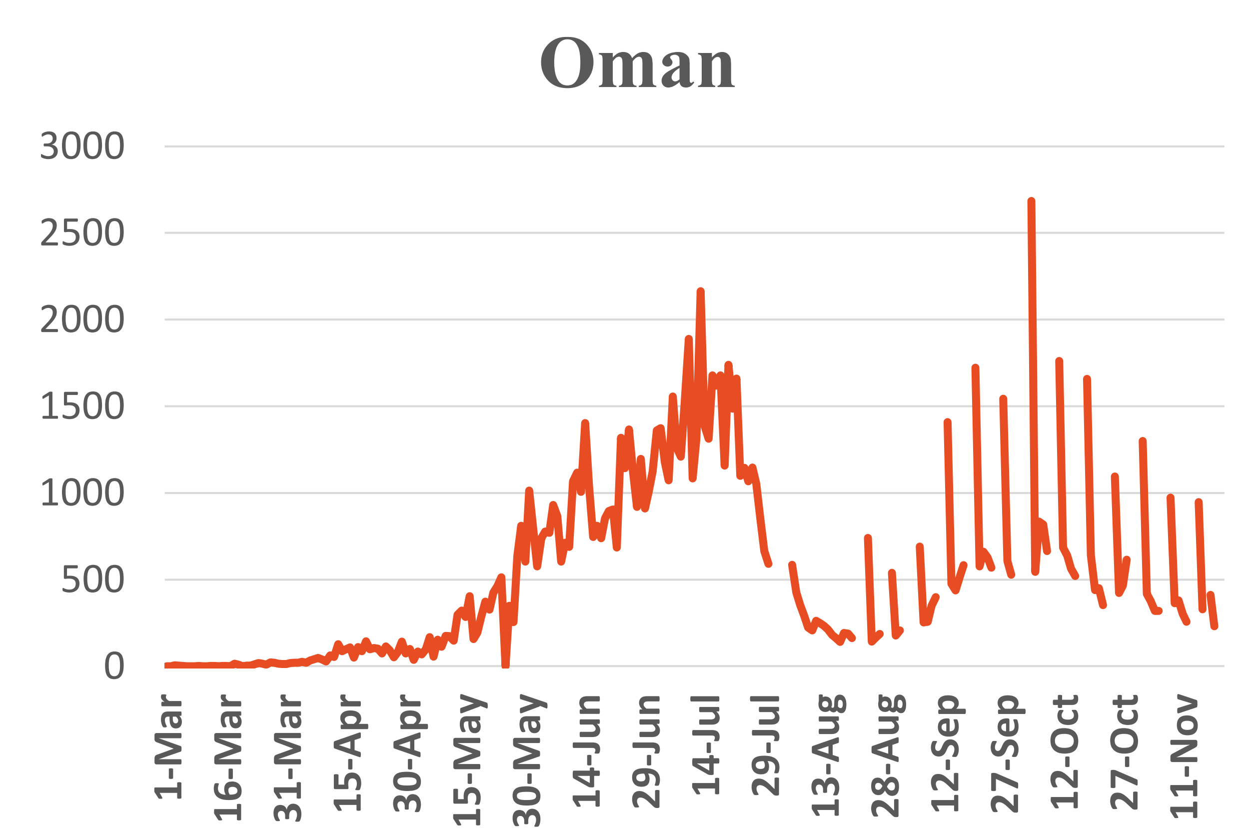
Source : National Emergency Crisis and Disaster Management Authority



Source : KSA ministry of health



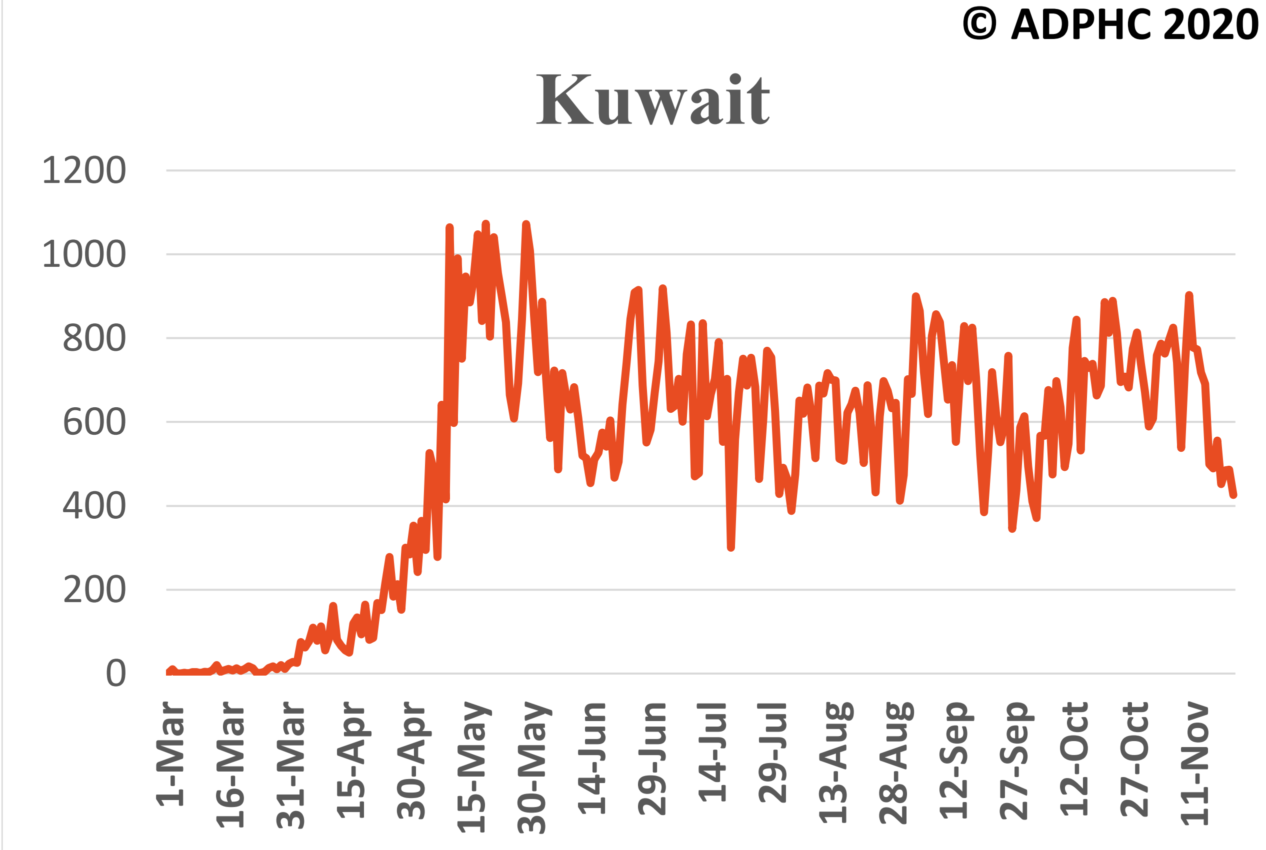
Source :WHO



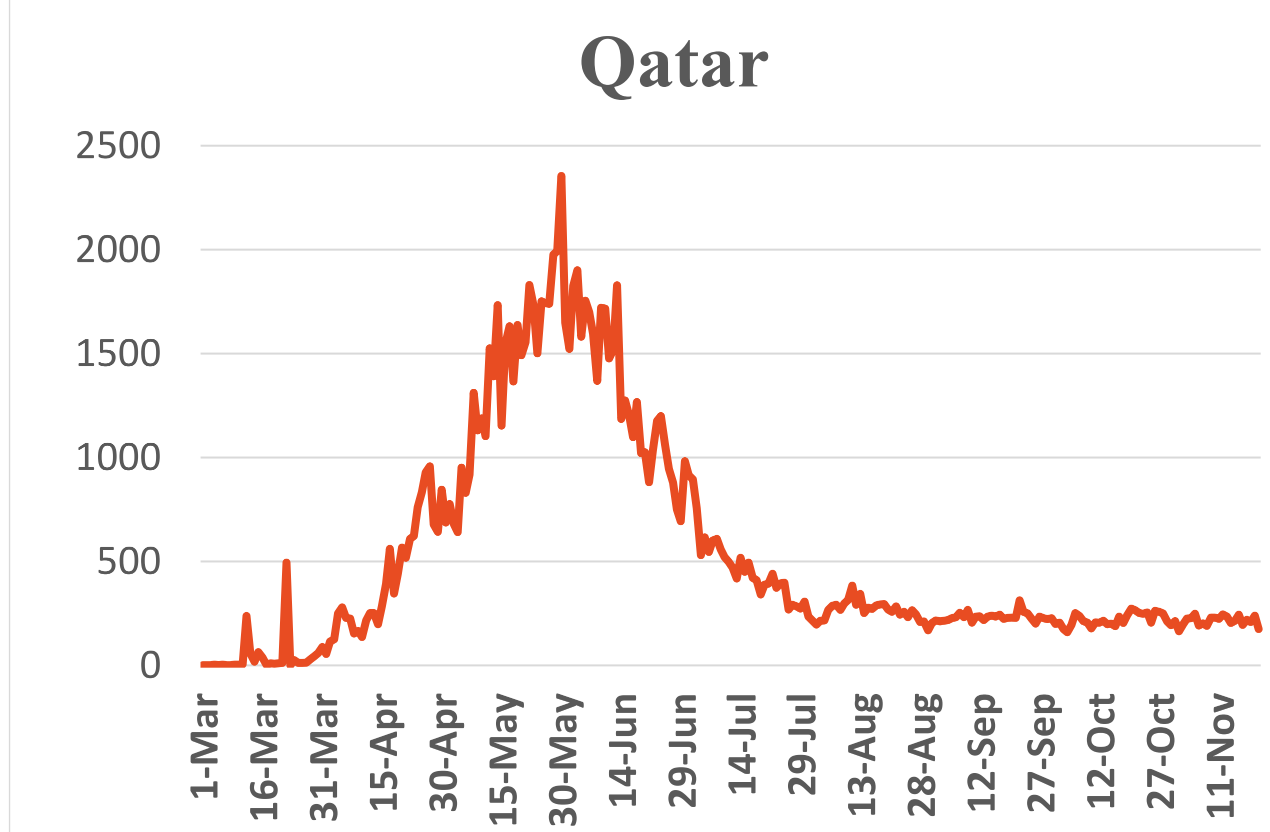
Source :Oman ministry of health

*No announced statistic data from 31 JUL to 4 AUG, 21,23,28,30 AUG 2, 4- 5,11,12,18,19,25 ,26,30 SEP,1,2,9,10,16,17,23,24,30,21 OCT, 6,7,13,22 NOV

*No announced statistic data on weekends and official holidays.



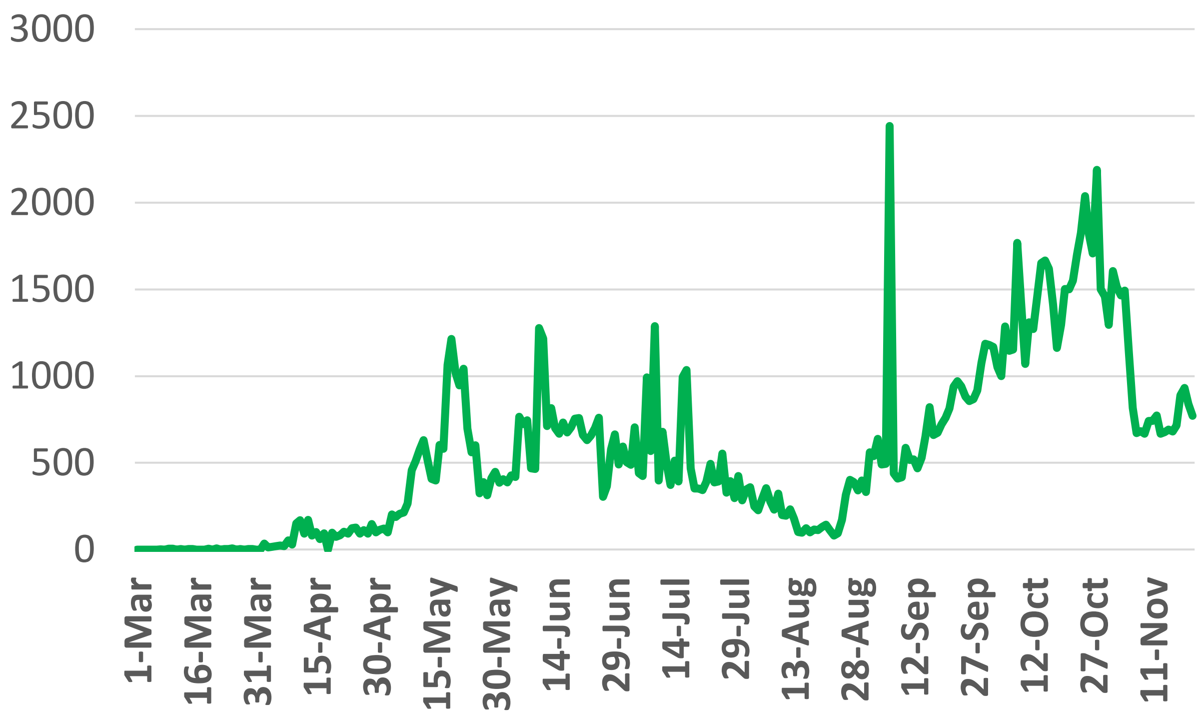
Source : Kuwait ministry of health



Source : Qatar ministry of health

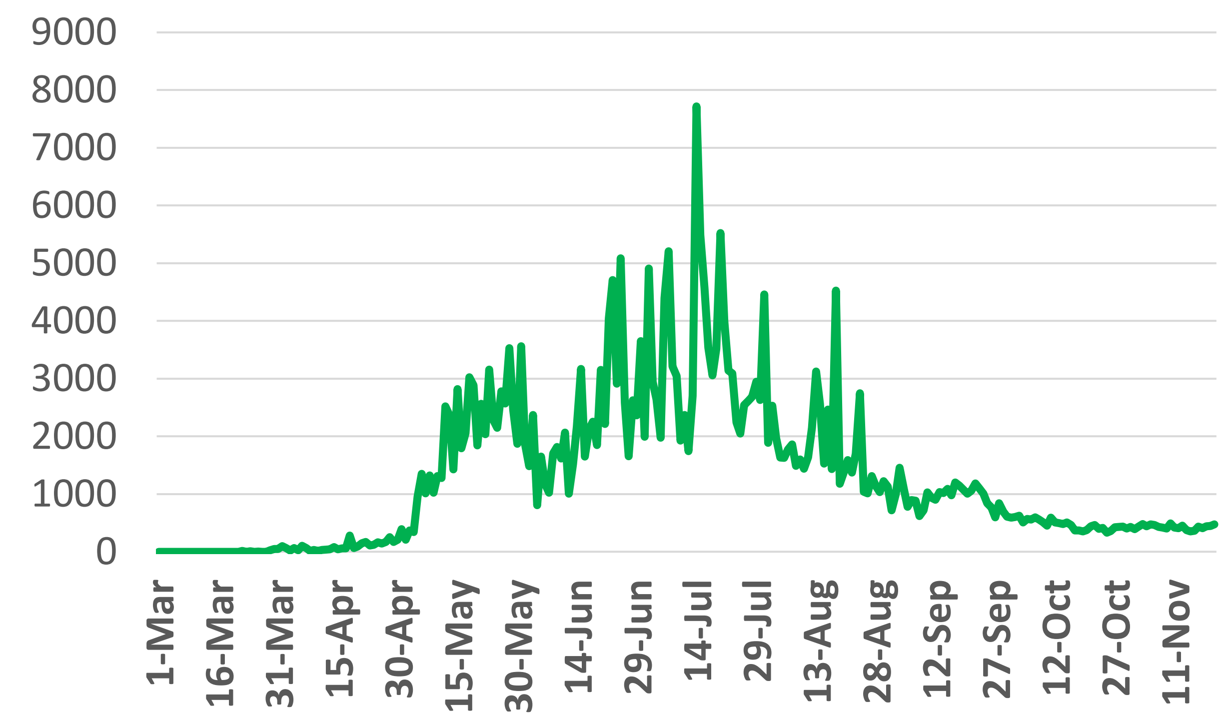
Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries

UAE



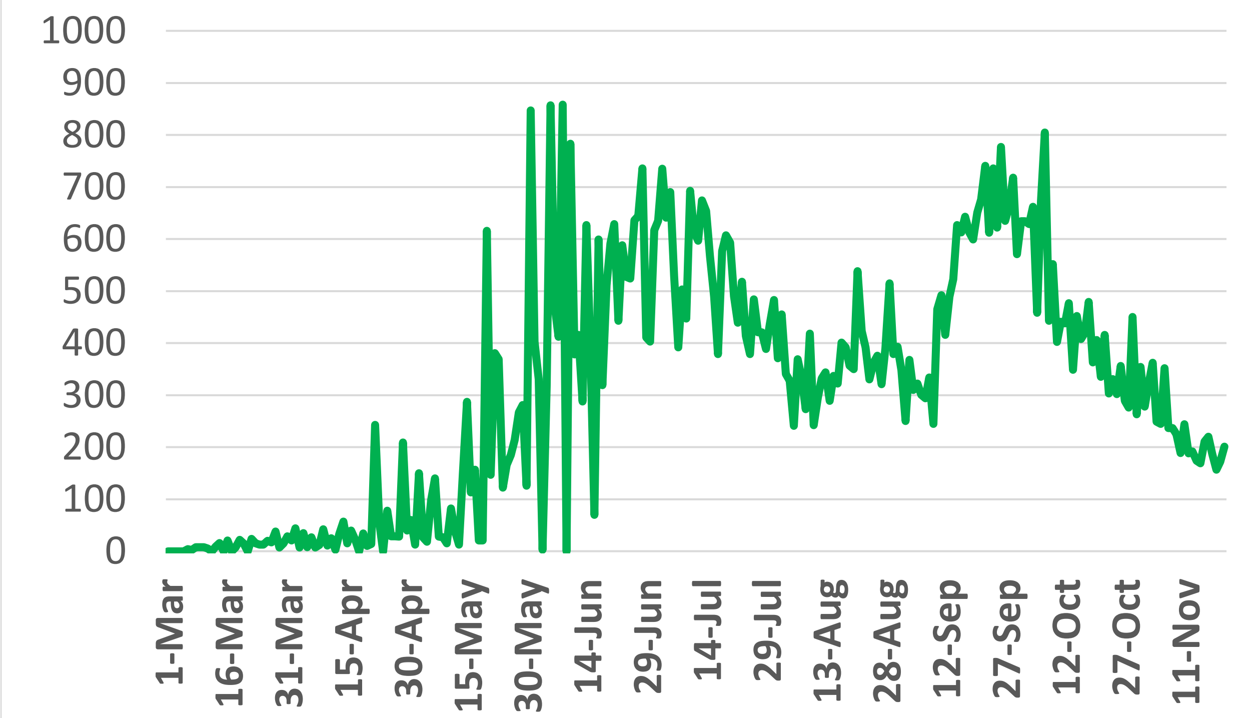
Source : National Emergency Crisis and Disaster Management Authority

KSA



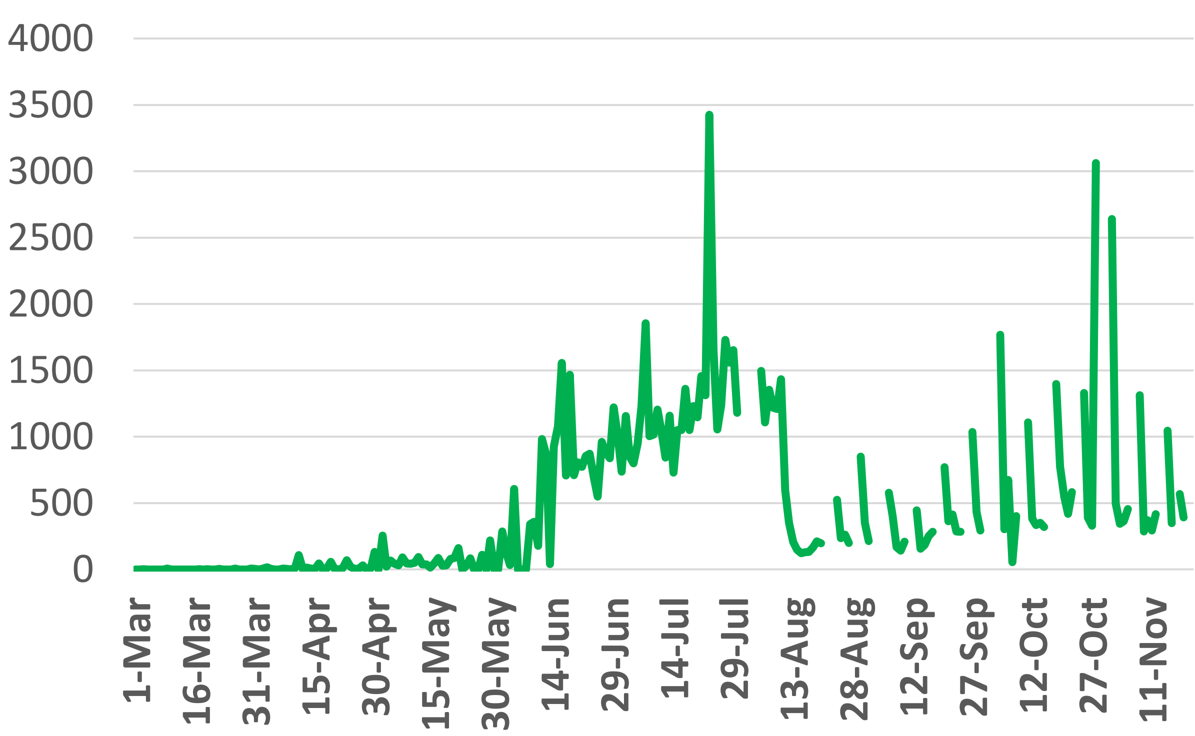
Source : KSA ministry of health

Bahrain



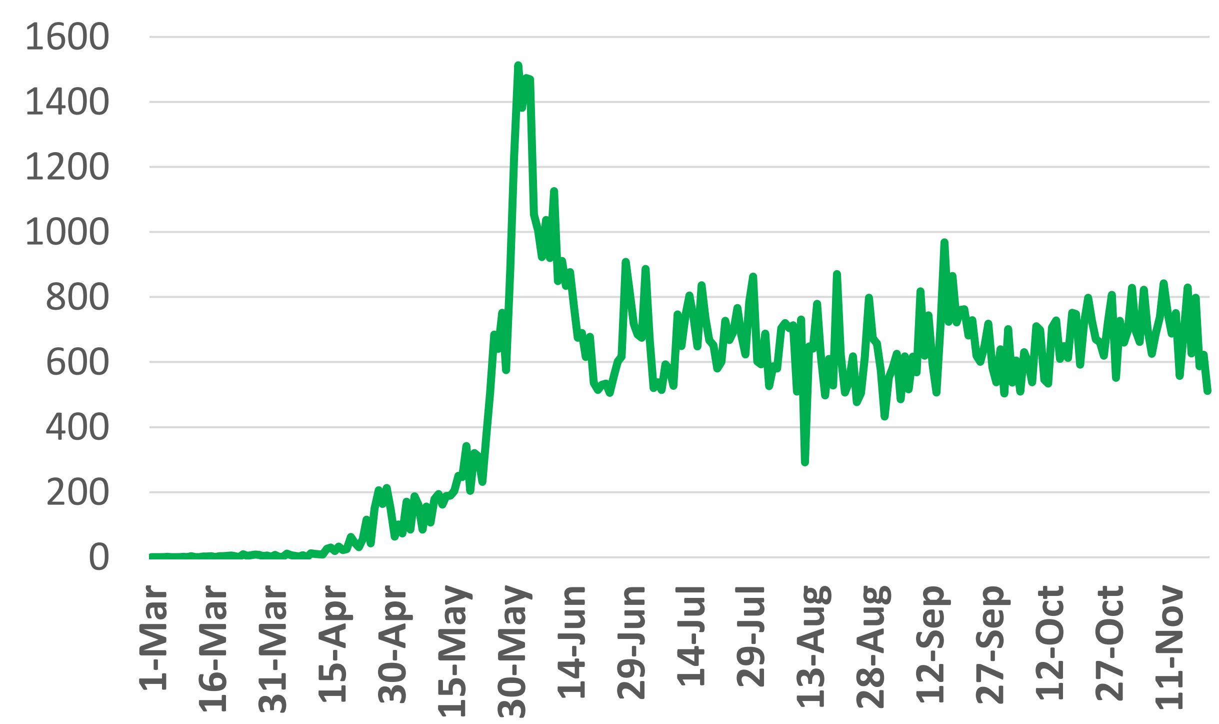
Source : Bahrain ministry of health

Oman



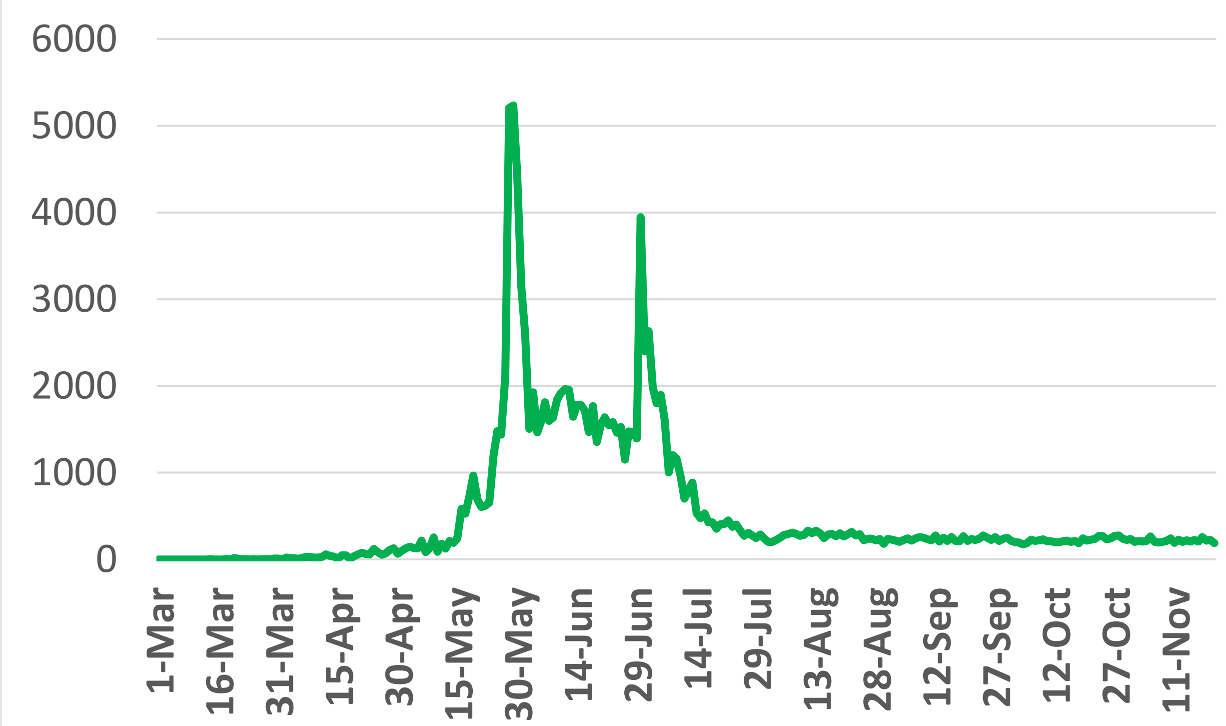
Source :Oman ministry of health

Kuwait



Source : Kuwait ministry of health

QATAR



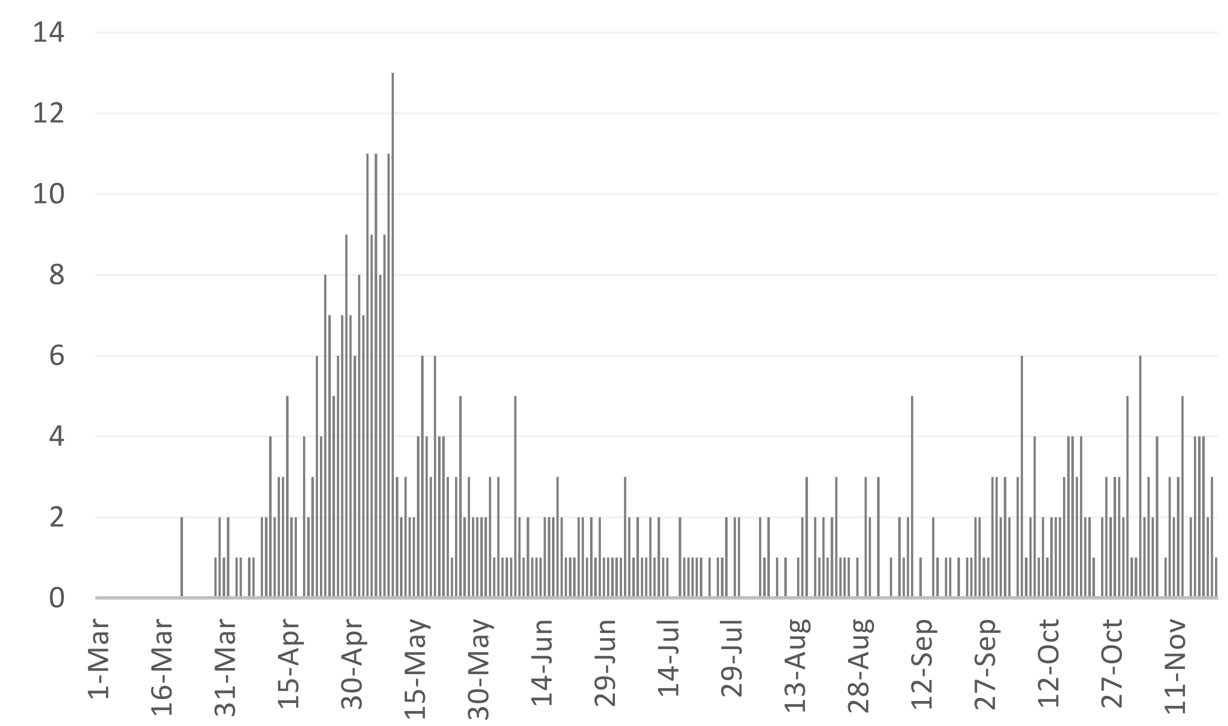
Source : Qatar ministry of health

*No announced statistic data from 31 JUL 4 AUG, 21,23,28,30 AUG 2, 4، 5,11,12,18,19,25 ,26,30 SEP,1,2,9,10,16,17,23,24,30,21 OCT, 6,7,13,22 NOV

*No announced statistic data on weekends and official holidays.

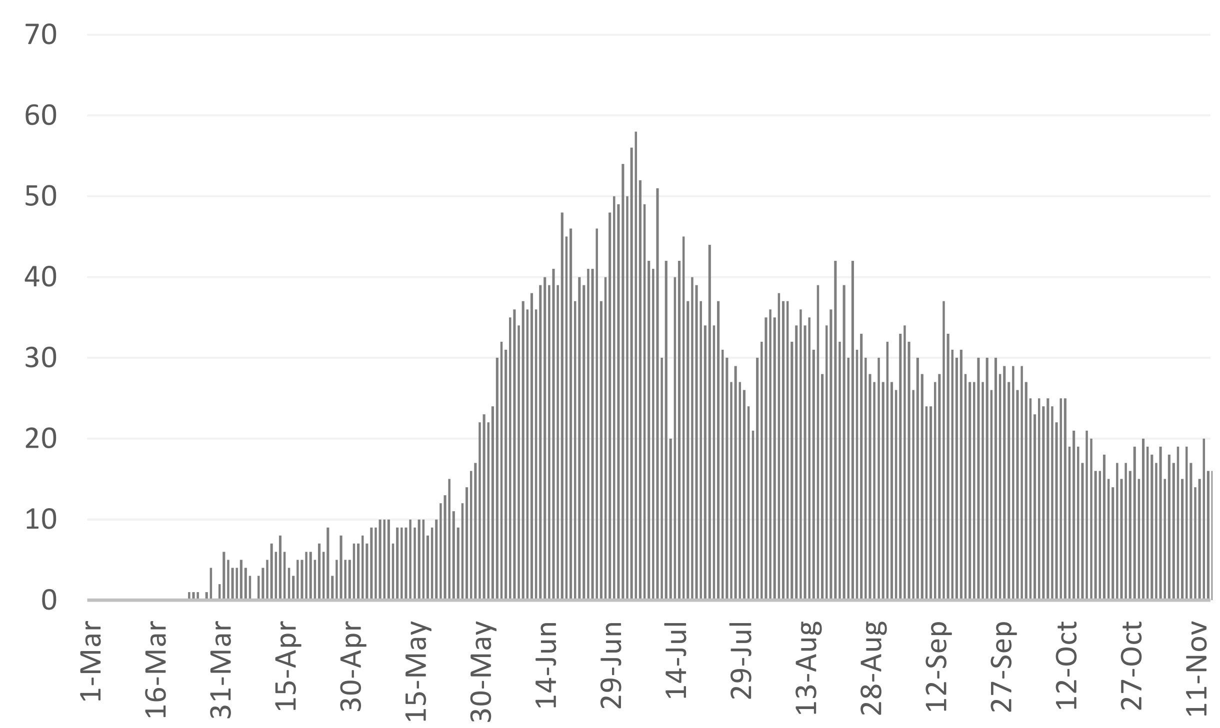
Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

UAE



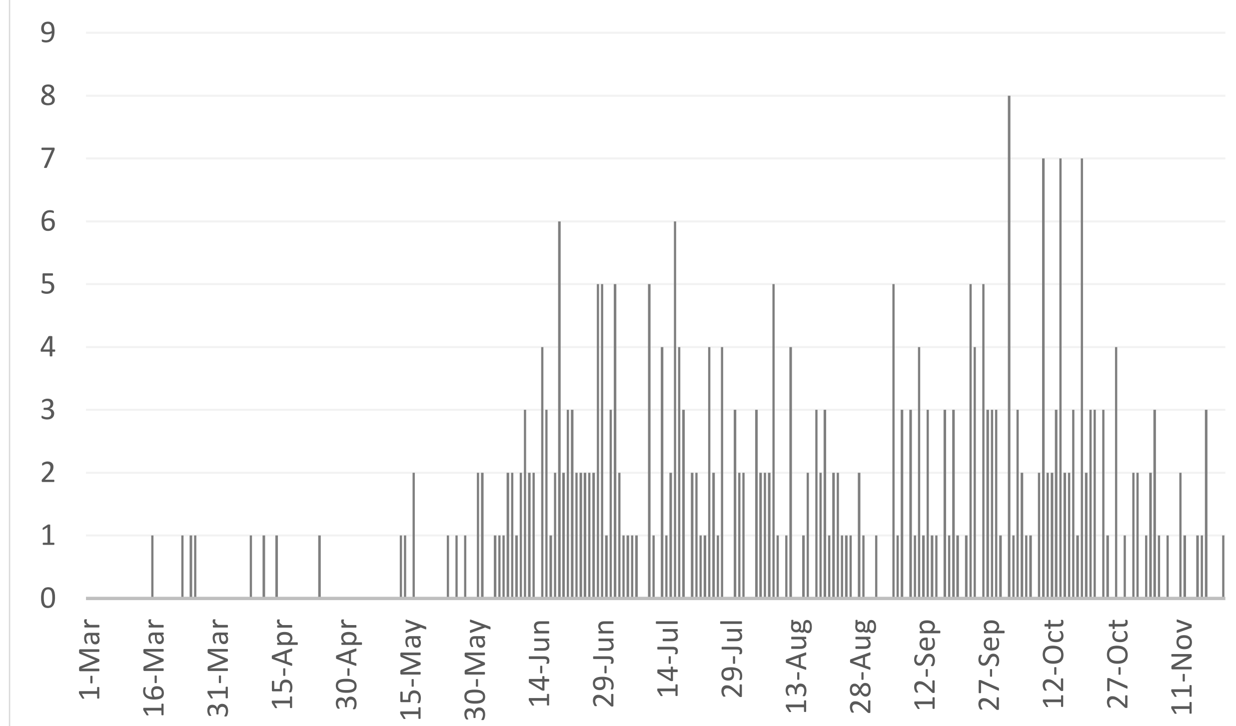
Source : National Emergency Crisis and Disaster Management Authority

KSA



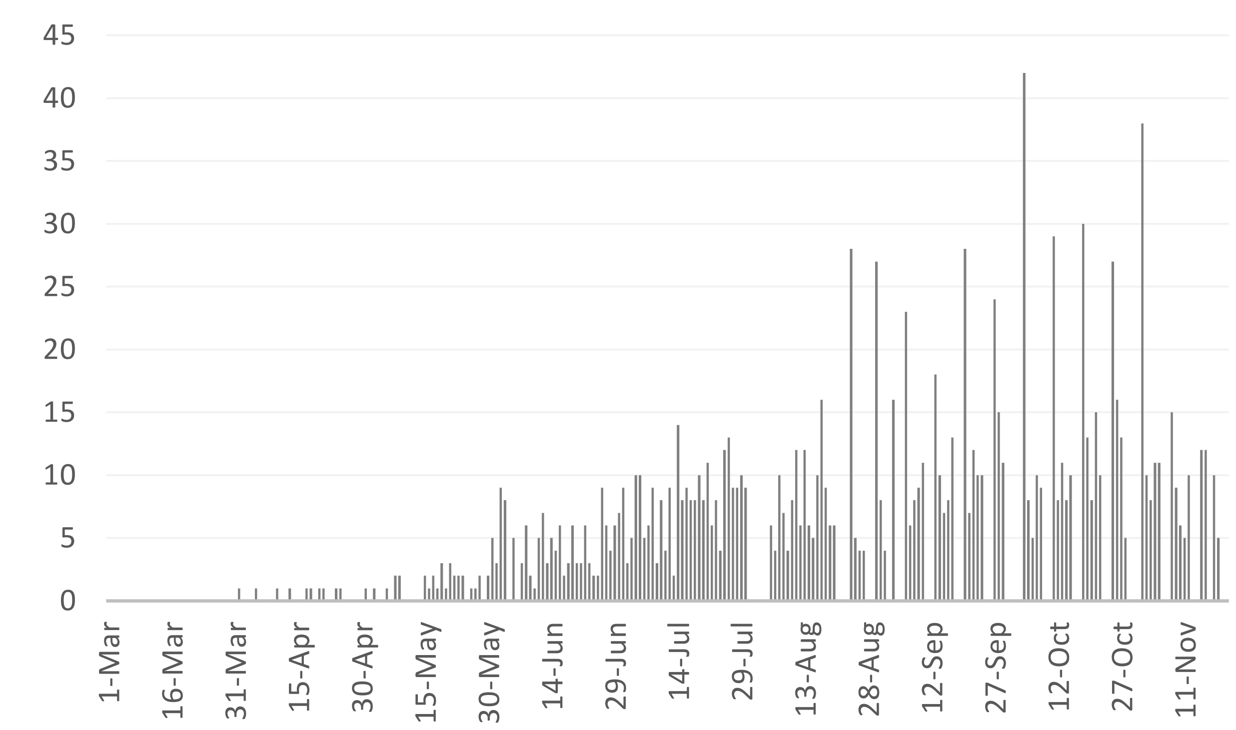
Source : KSA ministry of health

Bahrain



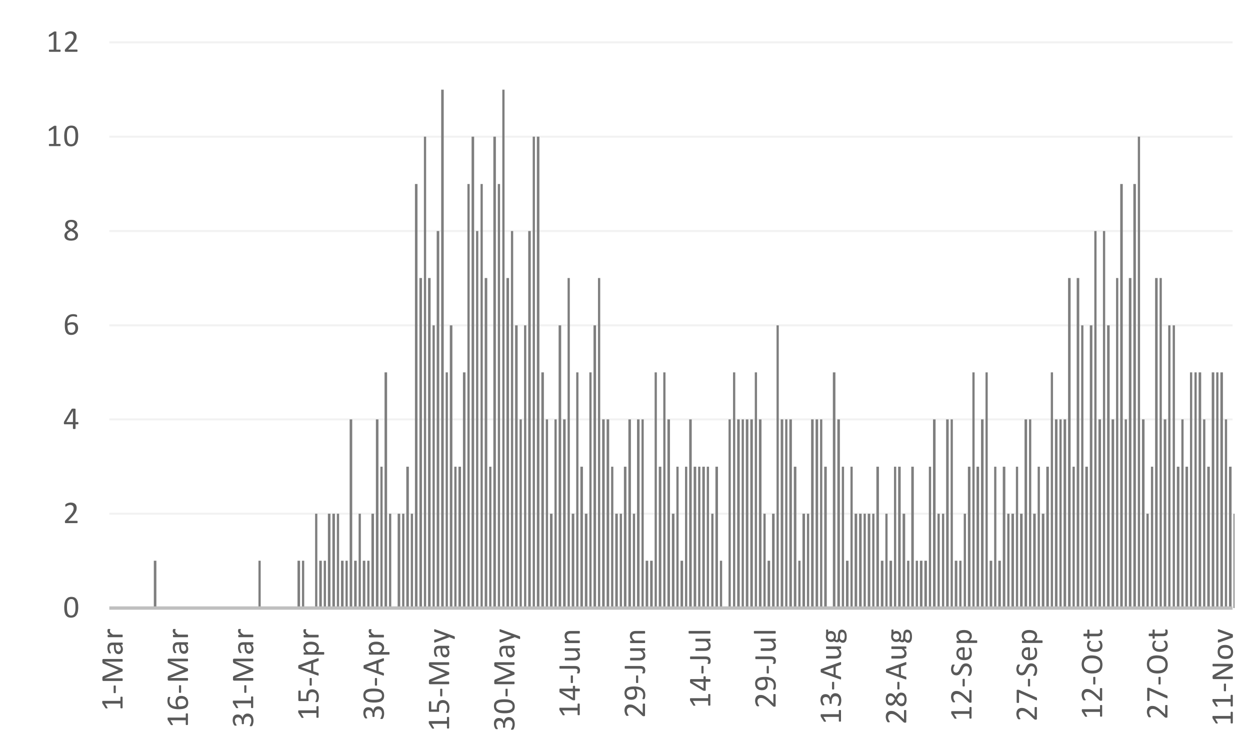
Source :WHO

Oman



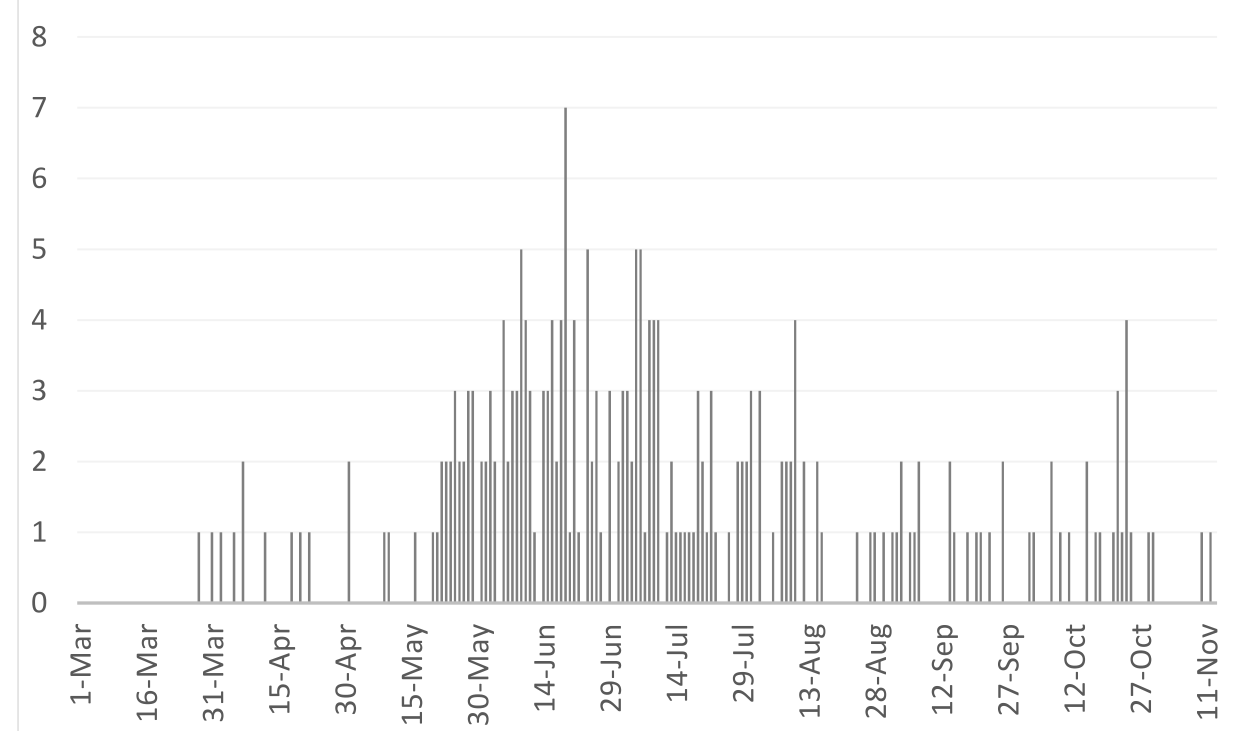
Source :Oman ministry of health

Kuwait



Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

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*No announced statistic data on weekends and official holidays.

Article 1

Published

Provision of Holistic Care After Severe COVID-19 Pneumonia: Anticipating Clinical Need and Managing Resources

November 13, 2020, THE LANCET

- Extrapulmonary manifestations of acute COVID-19 require prompt follow up to identify potential complications including pulmonary hypertension, chronic kidney disease, and heart failure. However, several obstacles must be overcome to deliver this:
  - The extent of clinical outcome has not yet been defined. Therefore, designing a clinical service is challenging;
  - The backlog created by temporary cessation of outpatient services challenges already stretched resources;
  - Potential aerosolisation of respiratory droplets limits several diagnostic and therapeutic resources;
  - The multisystem involvement of the disease requires the integration of cross-speciality and allied health care activity within a service that is adaptable to patient need.

- Post COVID-19 clinics have been developed at the height of the pandemic without additional funding; therefore, patient selection and rationalization of clinical assessments were the keys. According to British Thoracic Society guidelines, patients hospitalized with severe COVID-19 pneumonia shall be invited to attend a face to face appointments 4-6 weeks after discharge.

- Despite the impact of COVID-19, there was an opportunity to strengthen clinical and academic multidisciplinary relationships, and develop a new clinical service that is practical, simple to deliver, and facilitates the holistic assessment of the physical and psychological outcome of severe COVID-19 pneumonia. With sustained rises in confirmed cases, **increasing interest and involvement of funding organizations and health care management, and the emergence of long term data, the services are modified to deliver evidence-based post-COVID-19 care.**

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Article 2

Published

Seroprevalence of Sars-Cov-2 in Slums Versus Non-Slums in Mumbai, India

November 13, 2020, THE LANCET

- In India, a total of 8,870 individuals (≥12 years), were tested from both slum and non-slum communities across three wards. Data on household demographic characteristics were collected, followed by 5 ml of blood from participants via venepuncture. Samples were tested for IgG antibodies to the nucleocapsid via chemiluminescence using Abbott Diagnostics Architect test.

- Proportions of positive tests by age and gender in different sites show substantially higher proportions in slums than in non-slums. **The proportion of positive tests were higher among women than among men** (slums $p<0.001$; non-slums $p<0.001$). Although the proportion of positive tests among individuals aged >60 years were lower in non-slums (compared to age 12-24 years; $p<0.0223$), it was higher in slums (compared to age 25-39 years; $p<0.001$). Underlying IgG scores are higher, and the positive rate is more sensitive to the manufacturer's recommended cut-off in slums as compared to non-slums.

- In slums, the higher prevalence could be driven by population density, lower adherence to distancing measures, and poorer hygiene. This distinct variation in prevalence within wards also highlights the importance of geographic variation for epidemiological modelling and policy discussions of herd immunity.

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Article 3

Published

Ethnicity and Clinical Outcomes in COVID-19: A Systematic Review and Meta-Analysis

November 12, 2020, THE LANCET

- In the United Kingdom (UK), an academic librarian conducted a search of the databases MEDLINE, EMBASE, PROSPERO and Cochrane Library. Any articles published in English between December 1, 2019, and August 31, 2020, were searched. Peer-reviewed publications on MedRxiv during the same period were also reviewed. Studies with original clinical data on COVID-19 infection, intensive therapy unit (ITU) admission, or mortality disaggregated by ethnicity were included.

- A total of 18,728,893 patients from 50 papers were included in the meta-analyses. Over three quarters (77%) were White, Hispanic (8%), Asian (7%), Black (3%), other ethnic groups (3%), and Mixed (2%). Individuals of Black and Asian ethnicities had a higher risk of COVID-19 infection than White. This was consistent in both the main analysis [pooled adjusted risk ratio (RR) for Black - 2.02; 95% CI: 1.67-2.44; pooled adjusted RR for Asian - 1.50; 95% CI: 1.24-1.83] and sensitivity analyses examining peer-reviewed studies only [pooled adjusted RR for Black - 1.85; 95% CI: 1.46-2.35; pooled adjusted RR for Asian - 1.51; 95% CI: 1.22-1.88]. Asian may also be at higher risk of ITU admission [pooled adjusted RR - 1.97; 95% CI: 1.34-2.89] and death [pooled adjusted RR / hazard ratio (HR) - 1.22; 95% CI: 0.99-1.50].

- This is the first meta-analysis to report on the effect of ethnicity on clinical outcomes in patients with COVID-19. Increased risk of infection was found among Black and Asian ethnicities as compared to White. Asians may be at higher risk of ITU admission and death. Future studies should explore the reasons for the suggested association adjusting for the risk of infection. These findings are of critical public health importance and should inform policy on minimizing SARS-CoV-2 exposure in ethnic minority groups.

Continued

Table 3
Data syntheses for risk of SARS-CoV-2 infection by ethnic group.

	Studies	Pooled prevalence (95% CI)	I^2	Studies	Pooled unadjusted OR (95% CI)	I^2	Studies	Pooled RR (95% CI)	I^2
(1) Studies from pre-prints and peer-reviewed publications									
White	18	0.11 (0.11, 0.12)	99.9		Reference			Reference	
Asian	14	0.16 (0.14, 0.19)	99.6	14	**1.61 (1.23, 2.10)**	95.3	5	**1.50 (1.24, 1.83)**	67.3
Black	17	0.26 (0.20, 0.32)	99.9	17	**2.43 (1.93, 3.07)**	95.6	8	**2.02 (1.67, 2.44)**	84.2
Hispanic	8	0.19 (0.08, 0.30)	99.9	8	**2.58 (1.99, 3.35)**	94.5	3	**1.77 (1.39, 2.25)**	0
Mixed	1	0.33 (0.16, 0.56)	–	1	0.96 (0.36, 2.58)	–	0	–	–
Native American	2	0.03 (0.01, 0.04)	–	2	**0.44 (0.26, 0.74)**	0	1	0.64 (0.37, 1.11)	–
(2) Studies only from peer-reviews publications									
White	9	0.15 (0.11, 0.18)	99.8		Reference			Reference	
Asian	8	0.21 (0.14, 0.29)	99.0	8	**1.87 (1.42, 2.45)**	80.9	4	**1.51 (1.22, 1.88)**	74.8
Black	8	0.22 (0.17, 0.28)	96.5	8	**2.29 (1.60, 3.29)**	91.1	5	**1.85 (1.46, 2.35)**	84.2
Hispanic	2	0.08 (0.07, 0.09)	–	2	10.74 (0.14, 833.68)	94.8	0	–	–
Mixed	1	0.33 (0.16, 0.56)	–	1	0.96 (0.36, 2.58)	–	0	–	–
Native American	2	0.03 (0.01, 0.04)	–	2	**0.44 (0.26, 0.74)**	0	1	0.64 (0.37, 1.11)	–

Table 4
Data syntheses for risk of ITU admission amongst different ethnic groups.

	Studies	Pooled prevalence (95% CI)	I^2	Studies	Pooled unadjusted OR (95% CI)	I^2	Studies	Pooled adjusted RR (95% CI)	I^2
(1) Studies considering hospitalised populations only or reporting a subgroup analysis for hospitalised patients only									
White	14	0.28 (0.21, 0.34)	97.5		Reference			Reference	
Asian	7	0.27 (0.19, 0.35)	75.0	7	**1.97 (1.25, 3.09)**	70.1	2	**1.97 (1.34, 2.89)**	0
Black	15	0.33 (0.26, 0.41)	97.0	14	**1.28 (1.06, 1.56)**	62.8	4	1.10 (0.83, 1.44)	54.4
Hispanic	9	0.33 (0.22, 0.44)	95.9	9	1.06 (0.77, 1.44)	68.7	3	1.16 (0.86, 1.56)	52.0
Mixed	1	0.19 (0.14, 0.26)	–	1	1.99 (1.26, 3.16)	–	1	1.48 (0.98, 2.24)	–
(2) Studies considering inpatient/outpatient populations									
White	7	0.10 (0.07, 0.14)	98.2		Reference			Reference	
Asian	3	0.05 (0.00, 0.11)	0.0	3	0.96 (0.41, 2.21)	75.8	0	–	–
Black	7	0.19 (0.10, 0.28)	99.1	7	**2.08 (1.39, 3.13)**	89.3	3	**1.90 (1.38, 2.61)**	52.7
Hispanic	4	0.09 (0.02, 0.17)	95.0	4	1.10 (0.84, 1.45)	29.3	1	**3.04 (1.47, 6.28)**	–
Native American	0	–	–	1	1.65 (0.08, 34.79)	–	0	–	–
(3) Excluding studies from (1) which were not from peer-reviewed publications									
White	7	0.33 (0.22, 0.43)	96.9		Reference			Reference	
Asian	4	0.34 (0.12, 0.56)	84.1	4	1.31 (0.84, 2.05)	23.6	0	–	–
Black	8	0.33 (0.23, 0.43)	96.4	7	1.04 (0.90, 1.20)	7.0	2	1.00 (0.88, 1.13)	0
Hispanic	6	0.30 (0.18, 0.43)	96.8	6	0.89 (0.69, 1.14)	53.6	2	1.09 (0.83, 1.43)	55.7

Article 4

Published

November 5, 2020, THE LANCET

High Prevalence of Sars-Cov-2 Antibodies in Care Homes Affected by COVID-19: Prospective Cohort Study, England

- In England, six care homes were identified reporting a suspected outbreak of COVID-19 to Public Health England (PHE) during April 10-13, 2020. In the initial investigation, nasal swabs were taken for SARS-CoV-2 RT-PCR for residents and staff working at the care homes (n=518) during that period. Follow-up investigation involved a repeat nasal swab and a blood sample from all participants five weeks after the initial RT-PCR testing.

- Of those residents and staff (n=518) involved in the initial care home outbreak investigation, 76.1% consented for follow-up investigations and were tested using the virus lysate antibody assay. Almost all RT-PCR positive residents and staff were seropositive, whether symptomatic or asymptomatic. Symptomatic but RT-PCR negative individuals also had high seropositivity rates **[residents (85.2%) and staff (85.7%)]** as did asymptomatic RT-PCR negative **[residents (67.0%) and staff (66.4%)]**. Neutralizing antibody (89.4%) was detected seropositive individuals and was not associated with age or symptoms. Ten residents [10/79 retested (12.7%)] remained RT-PCR positive, but with higher RT-PCR cycle threshold values; 7/10 had serological testing, and all were seropositive. New infections were detected in three residents and one staff.

- SARS-CoV-2 seropositivity rates in the care homes affected by COVID-19 were far higher than any healthcare setting such as hospitals, possibly because of the intensity and duration of exposure to the virus within the care home setting. Surveillance is on-going to determine if SARS-CoV-2 antibodies protect against reinfection and, if so, the duration of protection.

MENTAL HEALTH

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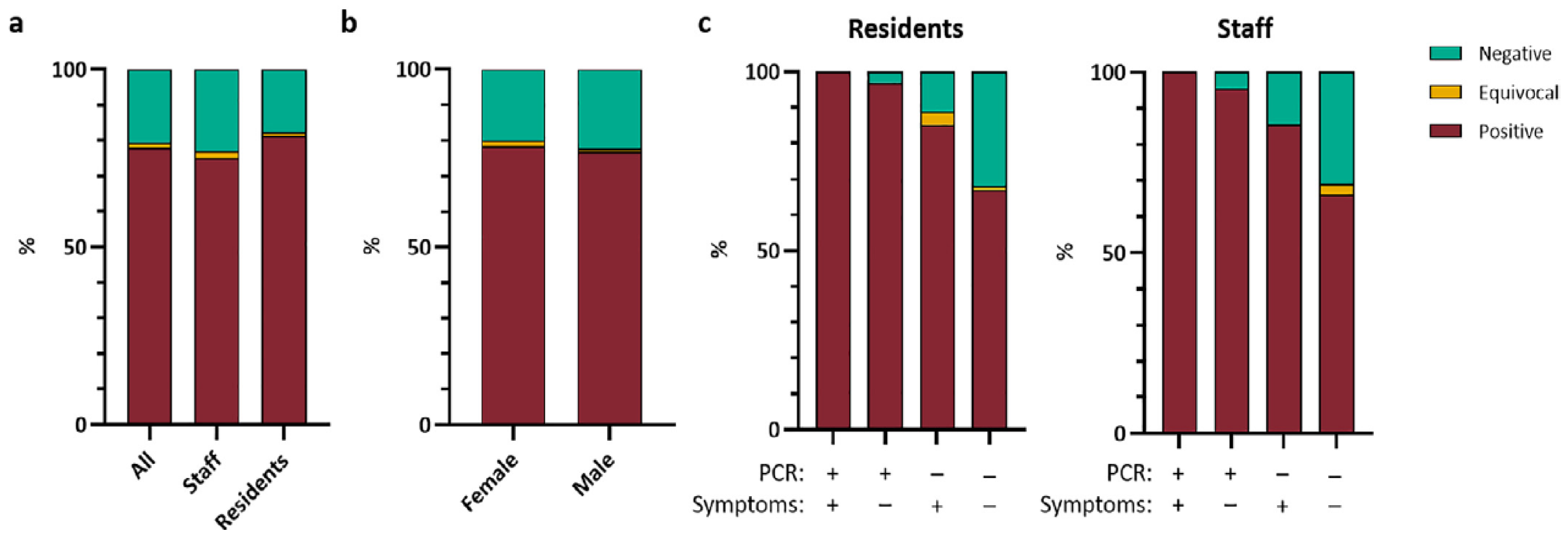

Article 5

Published

November 13, 2020, JAMA

The Need for More and Better Testing for COVID-19

- Testing for COVID-19 is required to identify as many individuals who are transmitting infection as quickly as possible so that they can be isolated and their contacts can be identified and quarantined. Antigen tests can quickly identify many individuals with the infectious virus, including asymptomatic individuals, could limit the spread of infection and help prevent large outbreaks. Although less sensitive than RT-PCR tests, the previous report suggested that antigen tests can be used to diagnose individuals with the infectious virus during symptomatic COVID-19 infection.

- Broad use of testing needs widely accepted testing procedures. Easily obtained specimens such as nasal swabs and salivary sample are important for a broad testing strategy to work in the clinical as well as in the community settings. Access to testing is challenging specifically for individuals without health insurance coverage for expenses. As more tests are produced at scale, the optimized use case for each test must consider workflow, turnaround time, central reporting of test results, and accuracy of the report.

- It is important to consider testing less of a prevention strategy than a mitigation strategy. Testing in the absence of other prevention strategies is unable to prevent outbreaks. Even the tests become faster with higher sensitivity and specificity, social distancing, wearing a mask, personal hygiene, and avoidance of large indoor and outdoor gatherings must remain central to any public health strategy.

Article 6

Published

Outcomes of Contact Tracing in San Francisco, California - Test and Trace During Shelter-in-Place

November 02, 2020, JAMA

Background

- In absence of an effective vaccine, **an estimated 75% of infected contacts need to be quarantined to contain COVID-19**.
- Tracing and quarantine of infected contacts could help to re-open the economic activity.

Methodology

- Between April 13 and June 08 2020, close contacts of confirmed COVID-19 cases were identified and tested.

Conclusion

- Among 791 cases interviewed, 404 (51.1%) identified a contact not previously diagnosed with COVID-19, 356 (45.0%) had at least 1 contact notified, 206 (26.0%) had at least 1 contact tested, and 72 (9.1%) had at least 1 contact test positive for COVID-19.
- Of people residing in a household with at least 5 persons, 10.7% named a contact who was newly diagnosed with COVID-19.
- Among 1214 contacts traced, 1017 (83.8%) were successfully notified, 457 (37.6%) were tested, and 120 (9.9%) were newly diagnosed with COVID-19.
- The secondary attack rate (calculated as the percentage of contacts who tested newly positive for COVID-19) was higher among household compared with **non-household contacts (111 of 983 [11.3%] and 9 of 231 [3.9%],** respectively; P < .001).
- The median (IQR) time from the case's symptoms to contact notification was 6 (4-9) days.
- The median (IQR) time from the case's symptoms to contact testing 6 (4-10) days.

Public Health Message

- Approximately, 90% of secondary cases were household contacts.
- Although the majority of people with COVID-19 were interviewed within 1 day of test result, the 5-day delay between case symptom onset and positive test result raises concern regarding the timeliness of tracing in preventing onward transmission.

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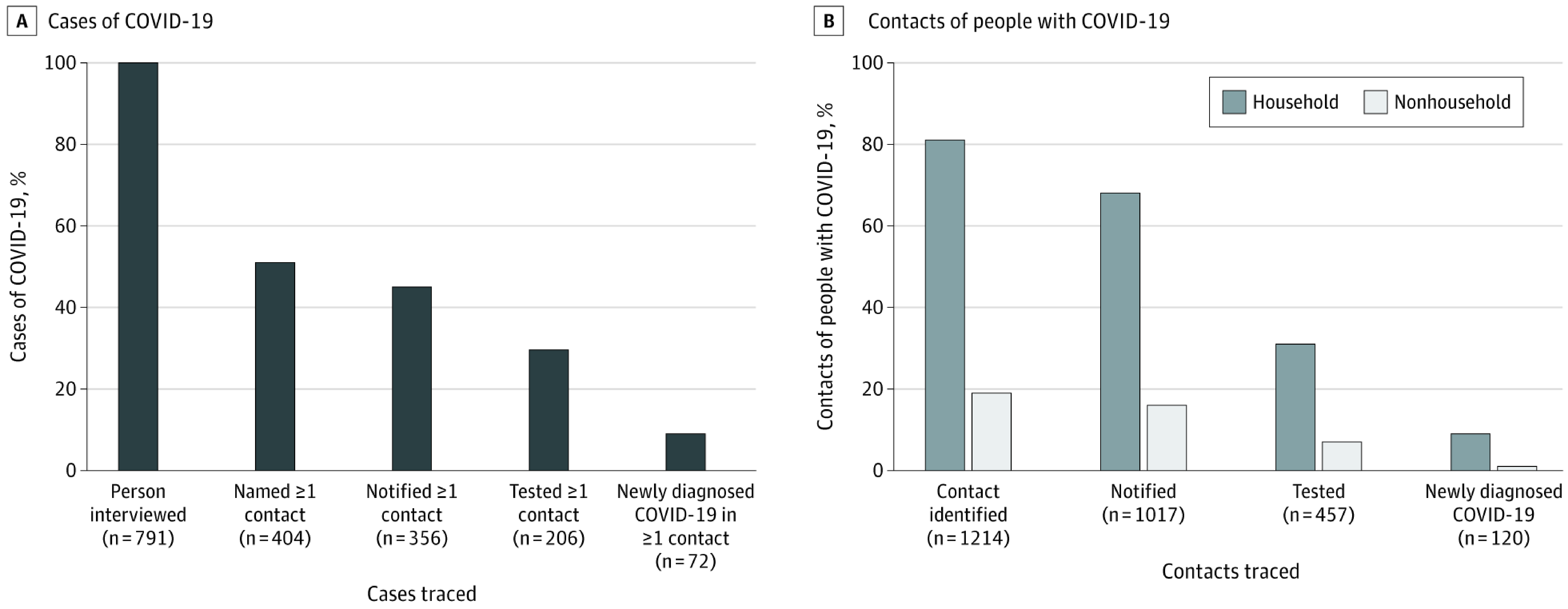

Figure. Contact Tracing Outcomes of 791 People With COVID-19 and Their 1214 Contacts, San Francisco, California, May 5 to June 8, 2020.
Percentages are shown for people with coronavirus disease 2019 (COVID-19) (A) and their contacts (B) at selected stages of contact tracing implementation.

Article 7

Published

Estimation of US Children's Educational Attainment and Years of Life Lost Associated with Primary School Closures During the Coronavirus Disease 2019 Pandemic

November 12, 2020, JAMA

- This decision analytical model consisted of an analysis of publicly available data such as data for 2020 from the United States (US) Centers for Disease Control and Prevention (CDC), the US Social Security Administration, and the US Census Bureau. This analytical model estimated the association between school closures and reduced educational attainment and the association between reduced educational attainment and life expectancy.

- It was estimated, that approximately 24.2 million children (5-11 years) attended public schools that were closed for a median 54.0 days during the pandemic. These losses in education were associated with a mean loss of life of 0.31 [95% CI: 0.10-0.65] years for boys and 0.21 [95% CI: 0.06-0.46) for girls. These estimated losses in life due to missed education summed to a median estimate of 5.53 million [95% CI: 1.88-10.80] years of life lost (YLL).

- The CDC reported a total of 88,241 US deaths from COVID-19 through May 30, 2020, with an estimate 1.50 million [95% CI: 1.23-1.85 million] YLL. It was estimated, that had primary schools remained open and, in doing so, permitted the pandemic to spread, a total of 2.97 million [95% CI: 1.88-4.30 million] YLL, with 1.47 million [95% CI: 0.45-2.59 million] YLL associated with schools remaining open. When comparing the distribution of probable YLL under both 'schools open' and 'schools closed' conditions, it was estimated a 98.1% probability that YLL would be greater under school closure than had schools remained open.

- These findings suggest that the attempt to save lives by closing schools may not have resulted in net savings when considering the potential harms associated with this intervention. Future decisions in terms of school closures during the pandemic should consider the association between educational disruption and decreased expected lifespan and give greater weight to the potential outcomes of school closure on children's health.

Article 8

Published

Assessment of Sars-Cov-2 RNA Test Results Among Patients who Recovered from COVID-19 with Prior Negative Results

November 12, 2020, JAMA

- In Italy, 176 recovered patients with COVID-19 who were admitted to a post-acute outpatient service for follow up (between April 21 and June 18, 2020) were included in this study. Nasal/oropharyngeal swab samples from patients were analyzed for total (genomic) and replicative (subgenomic) SARS-CoV-2 RNA using RT-PCR assays. Serological testing was carried out for SARS-CoV-2 IgG / IgA detection.

- 18.2% (32/176) tested positive for total SARS-CoV-2 RNA with viral loads ranging from 1.6 x 101 to 1.3 x 104 SARS-CoV-2 RNA copies per ml. 3.1% (1/32) had replicative SARS-CoV-2 RNA. Samples from the 32 patients at the time of COVID-19 diagnosis were also tested and had replicative SARS-CoV-2 RNA. All but one patient had a positive serology result against SARS-CoV-2. The patient who tested serologically negative was not the one with a positive test result for replicative SARS-CoV-2 RNA.

- These findings suggest that many patients who recovered from COVID-19 may still be positive for SARS-CoV-2 RNA, but only a few may carry a replicating SARS-CoV-2 in the respiratory tract. Further research is required to verify if such patients can transmit the virus.

Article 9

Published

Challenges in Testing for SARS-CoV-2 Among Patients Who Recovered From COVID-19

November 12, 2020, JAMA

This paper reported the comments on Liotti et al. (2020) article.

- Liotti and colleagues (2020) reported that 176 patients had recovered from COVID-19. Of those, 32 (18.2%) had a positive PCR test result for SARSCoV-2 RNA. One of the 32 patients (3.1%) had evidence of RNA capable of replication. This study cannot solve the challenge of interpreting positive PCR results among recovered patients; however, the data help to better understand the scope of the problem.

- Repeated PCR testing should not be done within 90 days following infection to avoid unnecessary quarantine for patients who have recovered from COVID-19. However, the issue is about the patients who are symptomatic and have positive results on repeated PCR tests. Reinfection with SARS-CoV-2 has been documented although it is rare. Until laboratories have the capability to test for the reproductive capacity of the virus, interpretation of the epidemiologic significance of positive PCR results among recovered patients will remain challenging.

Article 10

The Prevalence of Psychological Consequences of COVID-19: A Systematic Review and Meta-Analysis of Observational Studies

Published November 12, 2020, Journal of Health Psychology

Authors Teresa Arora (Zayed University), Ian Grey (Lebanon), Linda Östlundh (UAEU), Kin Bong Hubert Lam (Oxford UK), Omar M Omar (Birmingham UK) and Danilo Arnone (UAEU)

- This paper examines the outcomes of authorities-driven lockdowns, prohibition of gatherings, social distancing and self-isolation.
- Staying at home could lead to psychological consequences. The authors of this article (from the UAE) conducted a systematic review and a meta-analysis to examine the overall prevalence of psychological health outcomes during COVID-19.
- The authors included human studies, original research, and at least one psychological outcome since the pandemic. The primary psychological outcomes for inclusion were anxiety, depression, post-traumatic stress disorder (PTSD), and stress. The secondary outcomes were anger, panic, frustration, fear, worry, suicidal ideation, self-harm, irritability, distress, disturbances of circadian rhythms and/or sleep.
- The pooled prevalence of primary psychological outcomes was 26% (95%CI: 21–32). Pooled prevalence for symptoms of PTSD was 33% (0–86), anxiety 28% (21–36), stress 27% (14–43), and depression 22% (13–33). Of note, the prevalence of psychological outcomes was similar in healthcare workers and in the general population (34% [24–44] and 33% [27–40] respectively
- High prevalence supports the importance of ensuring adequate provision of resources for mental health.

MENTAL HEALTH

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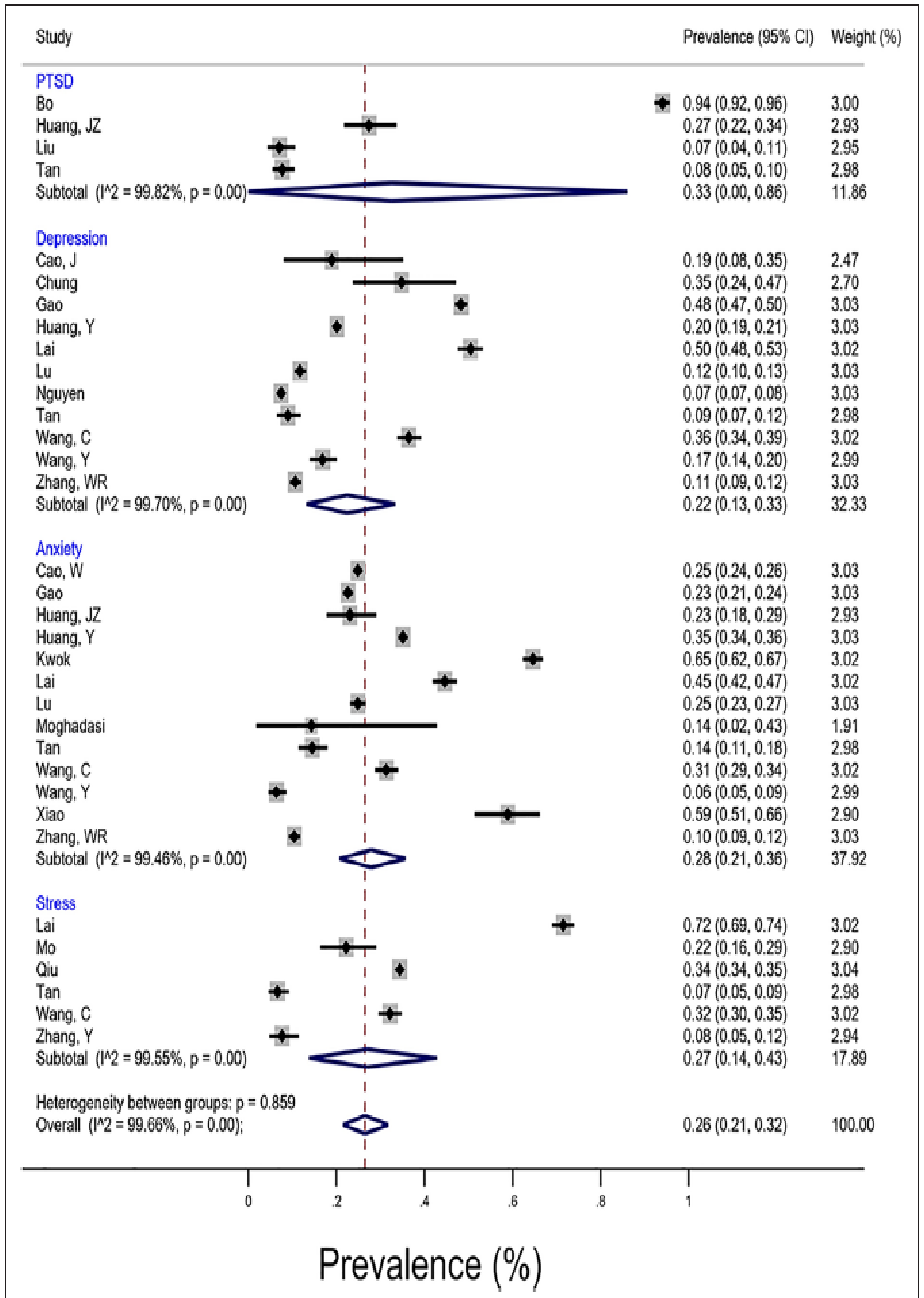

Table 1. Number of studies according to psychological outcomes and stratified by population type.

	Population type		
	Healthcare workers	COVID-19 cases	General population
Anxiety	7	0	6
PTSD	2	1	1
Stress/distress	3	0	3
Depression	6	1	4
Anger	1	0	0
Fear	3	0	1
Worry	1	0	3
Sleep quality/insomnia	4	0	3
Mixed	1	0	1

Article 11

Therapy for Early COVID-19 A Critical Need

Published November 11, 2020, JAMA

- While treatment options for critically ill patients requiring hospitalization are available, with corticosteroids emerging as the treatment of choice, interventions that can be administered in the early stage of infection to prevent long term complications are needed. Yet, there is a significant absence of treatments proven to be effective for patients with early infection.

- Effective treatments for people with mild to moderate disease have been more elusive. Remdesivir requires daily infusions and is not suitable for an ambulatory setting. Dexamethasone has not been tested in mild disease. Many drugs, including hydroxychloroquine, have failed to show efficacy in clinical trials; however, early uncontrolled studies reported a positive effect.

- Convalescent plasma, hyperimmune γ-globulin, and polyclonal antibody products are being tested among participants with mild to moderate disease. Furthermore, monoclonal antibodies are in development by several companies. Early phase clinical trials suggested that monoclonal antibodies may be effective in reducing viremia and improving clinical outcomes among patients with early COVID-19.

- Continued research is needed to refine current treatment candidates and develop new drugs that can be used without complex manoeuvres. Effective treatments that require infusion may be the first approved for clinical use and will have a significant public health impact. However, for the greatest benefit, treatments will need to be administered easily and made available widely at low cost.

Article 12

Published

A 7-Point Action Agenda to End the COVID-19 Pandemic for President-Elect Biden

November 12, 2020, JAMA

In the United States (US), President-elect Joseph Biden has an opportunity to reset the response to COVID-19; however, it is unrealistic to expect a sharp turnaround. Here is a 7-point action agenda for the new administration.

- President should partner with governors (of the states) to develop a national COVID-19 plan such as wearing a face mask, physical distancing, limiting gatherings, and safely reopening schools and businesses.
- All government health messaging needs to be science-based, reinforcing the Centers for Disease Control and Prevention (CDC) guidelines. Congress should fund the CDC and state and tribal health departments; appoint qualified, and apolitical leaders.
- Building human resources to test and trace is a key component of ending the pandemic and ensuring critical capacities for future outbreaks.
- Health care providers care for the sick and placing themselves at risk. There is a moral duty to protect them from infection, yet there has been a shortage of personal protective equipment (PPE).
- There are eleven COVID-19 vaccine candidates are in phase 3 clinical trials at present. The vaccine campaign should build a comprehensive vaccine infrastructure, including human resources and vaccine education from trusted sources.
- People of color have experienced infections and age-adjusted death rates at four-fold higher compared with non-Hispanic whites. Equity begins with collecting disaggregated data to identify those left behind, followed by well-targeted strategies to reduce health disparities.
- President should cancel the notice of withdrawal from the World Health Organization (WHO). The US should also join the majority of countries in supporting the COVID-19 Vaccines Global Access Facility to guarantee fair and equitable access for low-income countries.

Article 13

Published

November 9, 2020, JAMA

Effect of Hydroxychloroquine on Clinical Status at 14 Days in Hospitalized Patients with COVID-19: A Randomized Clinical Trial

- In the United States (US), a randomized, blinded, placebo-controlled trial was conducted (from April 2 to June 19, 2020) with adult (≥18 years) hospitalized patients (n=479) with COVID-19.

- Patients were randomly assigned into two groups - hydroxychloroquine [400 mg twice daily for 2 doses, then 200 mg twice daily for 8 doses] (n = 242) and placebo (n = 237). The primary outcome was clinical status 14 days after randomization as assessed with a seven category ordinal scale ranging from 'death' [1] to 'discharged and no limitation in activities' [7].

- Clinical status on the ordinal outcome scale at 14 days did not significantly differ between the hydroxychloroquine and placebo groups [median interquartile range (IQR) score, 6 (4-7) vs. 6 (4-7)]; [adjusted odds ratio (aOR) - 1.02; 95% CI: 0.73-1.42]. None of the 12 secondary outcomes were significantly different between groups. At 28 days after randomization, 10.4% in the hydroxychloroquine group and 10.6% in the placebo group had died [absolute difference, -0.2%; 95% CI: -5.7% to 5.3%]; [aOR - 1.07; 95% CI: 0.54 - 2.09].

- The distribution of the day 14 clinical status score was not significantly different for patients randomized to receive hydroxychloroquine compared with placebo [aOR - 1.02]. These findings do not support the use of hydroxychloroquine for the treatment of COVID-19 among hospitalized adults..

TREATMENT

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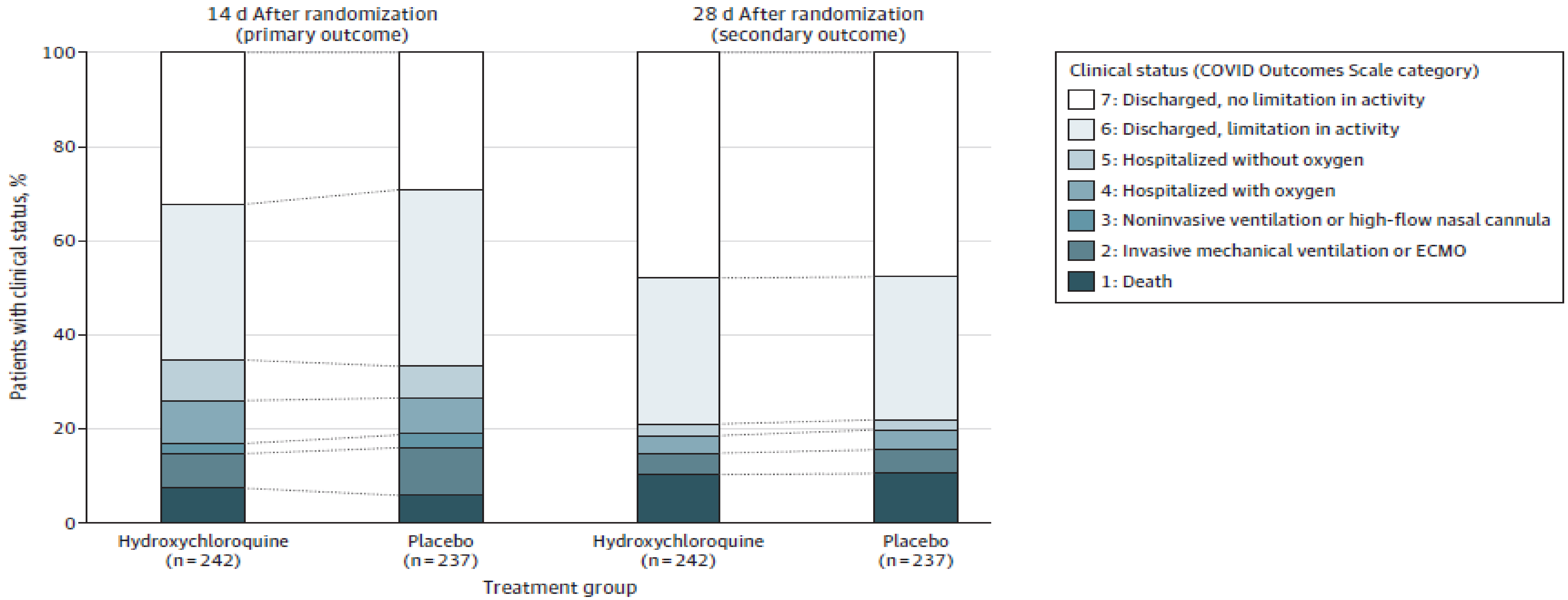
Figure 2. Clinical Status on the Coronavirus Disease (COVID) Outcomes Scale 14 Days and 28 Days After Randomization



Clinical status (COVID Outcomes Scale category)	14 d After randomization, No. (%)		28 d After randomization, No. (%)	
	Hydroxychloroquine (n = 242)	Placebo (n = 237)	Hydroxychloroquine (n = 242)	Placebo (n = 237)
7: Discharged, no limitation in activity	78 (32.3)	69 (29.1)	116 (47.9)	113 (47.7)
6: Discharged, limitation in activity	80 (33.1)	89 (37.6)	75 (31.0)	72 (30.4)
5: Hospitalized without oxygen	21 (8.7)	16 (6.8)	6 (2.5)	5 (2.1)
4: Hospitalized with oxygen	22 (9.1)	18 (7.6)	9 (3.7)	10 (4.2)
3: Noninvasive ventilation or high-flow nasal cannula	5 (2.1)	7 (3.0)	0	0
2: Invasive mechanical ventilation or ECMO	18 (7.4)	24 (10.1)	11 (4.5)	12 (5.1)
1: Death	18 (7.4)	14 (5.9)	25 (10.3)	25 (10.5)

ECMO indicates extracorporeal membrane oxygenation. There was no significant difference between the hydroxychloroquine group and placebo group in the overall distribution of scores at 14 days (adjusted odds ratio, 1.02 [95% CI, 0.73-1.42]) or 28 days (adjusted odds ratio, 0.97 [95% CI, 0.69-1.38]).

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Article 14

Risk of Severe COVID-19 Among Workers and Their Household Members

Published November 9, 2020, JAMA

- In this study, de-identified data (n=100,064) from the United States (US) Medical Expenditure Panel Survey (MEPS) [2014-2017] was utilized. Following the Centers for Disease Control and Prevention (CDC) guidelines, persons at increased risk of severe illness had obesity, age ≥ 65 years, or any of the following treated conditions such as diabetes, emphysema or other chronic obstructive pulmonary disease (COPD), kidney disease, cancer, or coronary heart disease. To implement the CDC's broader guidelines for the possibility of being at increased risk, a second variable was created that included current smoking, treated asthma, or treated hypertension. These definitions were implemented in MEPS by combining data that were self-reported by each adult with data reported for each adult by a single-family respondent.

- Nearly three quarter (71.5%; 112.4 million) of the total workers were essential, and 31.2 million worked at home (WAH). Using the main CDC guidelines, among all adults, 49.7% (123.2 million of 248.0 million) were at increased risk of severe COVID-19. 41.0% (46.1 million) and 54.4% (61.1 million) of the essential workers (112.4 million) met the main, and broader CDC increased-risk guidelines, respectively. Of the increased risk of adults (123.2 million), 27.7% (34.1 million) held essential jobs and could not WAH. Incorporating other household members, 46.1% (56.7 million) increased-risk adults either lived with or were themselves essential employees who could not WAH. Using the broader CDC definition increased this total to 74.3 million.

- Policy makers seeking to make efficient and equitable decisions about reopening the economy and about vaccine distribution should consider the health risks not only of workers, but also of those with whom they live.

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Table 1. Weighted Prevalence of Adults Meeting Main and Broader CDC Definitions for Increased Risk of Severe COVID-19 Illness, by Employment Characteristics[a]

	Unweighted No.	Population, millions (95% CI)	% (95% CI)[b] Meets main CDC guidelines for increased risk of severe COVID-19	% (95% CI)[b] Meets broader CDC guidelines for increased risk of severe COVID-19
All adults	100 064	248.0 (239.0-257.0)	49.7 (48.9-50.4)	61.0 (60.1-61.9)
Nonworkers	40 192	90.8 (87.0-94.5)	67.4 (66.5-68.3)	75.8 (74.9-76.7)
Workers	59 872	157.3 (151.0-163.5)	39.4 (38.6-40.3)[c]	52.4 (51.5-53.4)[c]
Essential workers	42 437	112.4 (107.8-116.9)	41.0 (40.0-42.0)[c]	54.4 (53.4-55.4)[c]
Health	6470	17.0 (15.9-18.0)	41.7 (39.6-43.9)[d]	54.4 (52.4-56.4)[c]
Food	3354	7.0 (6.4-7.7)	42.3 (39.0-45.7)[e]	56.6 (53.2-60.0)[c]
Other, cannot WAH	22 611	57.2 (54.7-59.6)	42.0 (40.8-43.2)[c]	56.5 (55.3-57.6)[c]
Other, can WAH	10 002	31.2 (29.5-33.0)	38.6 (37.0-40.2)	50.0 (48.4-51.7)[d]
Nonessential workers	17 435	44.9 (42.7-47.0)	35.4 (34.0-36.8)	47.6 (46.1-49.1)
Cannot WAH	10 185	23.0 (21.9-24.1)	33.6 (31.9-35.2)[c]	48.0 (46.1-49.8)
Can WAH	7250	21.9 (20.5-23.3)	37.3 (35.5-39.1)	47.1 (45.3-49.0)

Table 2. Adults by Risk Type Who Were or Who Lived With Essential Employees Unable to Work at Home (WAH)[a]

	Unweighted No.	Population, millions (95% CI)	Adults who were essential workers unable to WAH, % (95% CI)	Adults who lived with or who were essential workers unable to WAH, % (95% CI)	Adults who lived with or who were essential workers unable to WAH, Millions, No. (95% CI)
All adults	100 064	248.0 (239.0-257.0)	32.7 (32.1-33.4)	54.4 (53.5-55.3)	134.9 (129.4-140.5)
Adults meeting main CDC definition of increased risk of severe COVID-19	49 806	123.2 (118.3-128.0)	27.7 (26.8-28.5)	46.1 (44.9-47.3)	56.7 (54.1-59.4)
Adults meeting broader CDC definition of increased risk of severe COVID-19	60 529	151.3 (145.5-157.0)	30.0 (29.3-30.9)	49.1 (48.0-50.2)	74.3 (71.0-77.6)

Abbreviations: CDC, Centers for Disease Control and Prevention; COVID-19, coronavirus disease 2019.

[a] Authors' calculations using 2014-2017 Medical Expenditure Panel Survey (N = 100 064). All estimates computed using survey weights, with survey-adjusted CIs in parentheses. See notes to Table 1 for the definition of essential workers.

Article 15

Published

Association Between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada

November 9, 2020, JAMA

- In Canada, a population-based retrospective cohort study was conducted (between March 29 and May 20, 2020) with 78,607 residents across 618 nursing homes. Data used for this study were obtained from the Ontario Ministries of Health and Long-Term Care as part of the province's Emergency Modeling Table and were derived from four sources. The primary outcomes were the cumulative incidence of confirmed COVID-19 cases per 100 nursing home residents and COVID-19 associated deaths per 100 nursing home residents.

- Of those residents, 5,218 (6.6%) developed COVID-19 infection and 1,452 (1.8%) died. Fifty percent homes had a high crowding index (≥2). Incidence in high crowding index homes was 9.7% vs. 4.5% in low crowding index homes (p<0.001), and the mortality was 2.7% vs. 1.3% (p<0.001). The crowding index remained associated with an increased incidence of infection [Relative Risk (RR)-1.73; 95% CI: 1.10-2.72] and mortality [RR- 1.69; 95% CI: 0.99-2.87] after adjustment for regional, nursing home, and resident covariates. A propensity score analysis provided similar conclusions for infection [RR-2.09; 95% CI: 1.30-3.38] and mortality [RR-1.83; 95% CI: 1.09-3.08].

- These results indicated that crowding is common, and shared bedrooms and bathrooms in nursing homes are associated with larger and deadlier COVID-19 outbreaks.

Article 16

Published

Characteristics and Outcomes of Neonatal SARS-CoV-2 Infection in the UK: A Prospective National Cohort Study Using Active Surveillance

November 09, 2020, THE LANCET

This study describes the incidence, characteristics, transmission, and outcomes of SARS-CoV-2 infection in neonates who received inpatient hospital care in the UK.

Methodology

- Prospective UK population-based cohort study of babies with confirmed SARS-CoV-2 infection in the first 28 days of life who received inpatient care between March 1 and April 30, 2020.
- Infected babies were identified through active national surveillance via the British Paediatric Surveillance Unit, with linkage to national testing, paediatric intensive care audit, and obstetric surveillance data.
- Outcomes included incidence (per 10 000 live births) of confirmed SARS-CoV-2 infection and severe disease, proportions of babies with suspected vertically and nosocomial acquired infection, and clinical outcomes.

	Cases (n=66)
Immediate family or close contacts with signs or symptoms of COVID-19	
Yes	34 (52%)
No	20 (30%)
Unsure	12 (18%)
Mother confirmed to have SARS-CoV-2 infection at birth	17 (26%)
Baby separated from mother immediately after birth	7 (11%)
Not admitted to neonatal care unit	4 (6%)
Admitted to neonatal care unit	3 (5%)
Baby not separated from mother	8 (12%)
Separation status not known	2 (3%)
Possible vertically acquired infection*	2 (3%)
Suspected nosocomially acquired infection†	8 (12%)

Data are n (%). Categories overlap and the potential source of transmission was not known or reported in some cases. SARS-CoV-2=severe acute respiratory syndrome coronavirus 2. *SARS-CoV-2 isolated from a sample taken from infant within 12 h of birth where mother was positive. †Not born to a mother with confirmed SARS-CoV-2 infection.

Table 2: Transmission of SARS-CoV-2 to neonates

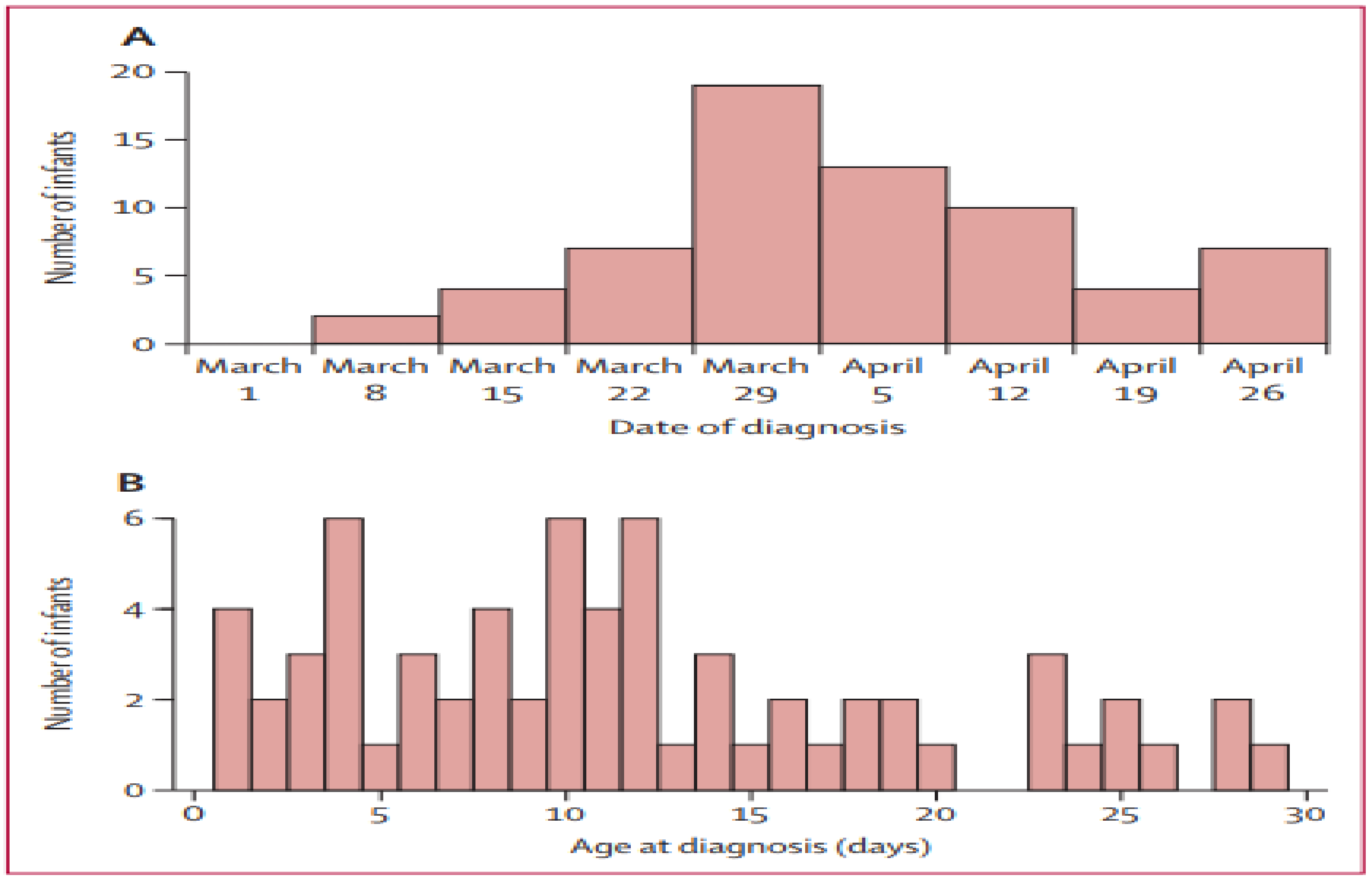

Figure 2: Date of diagnosis (A) and age at diagnosis (B) of babies diagnosed with severe acute respiratory syndrome coronavirus 2 infection from March to April, 2020 (n=66)

CLINICAL FEATURES

Continued

Results

- There were 66 babies with confirmed SARS-CoV-2 infection (incidence 5·6 per 10000 live births), of whom 28 (42%) had severe neonatal SARS-CoV-2 infection (incidence 2·4 per 10000 live births).
- 16 (24%) of these babies were born preterm.
- 17 (26%) babies were born to mothers with known perinatal SARS-CoV-2 infection
- Two (3%) had a possible vertically acquired infection.
- Eight (12%) babies had suspected nosocomially acquired infection.
- As of July 28, 2020, 58 (88%) babies had been discharged home, seven (11%) were still admitted, and one (2%) had died of a cause unrelated to SARS-CoV-2 infection.

Interpretation

- Neonatal SARS-CoV-2 infection is uncommon in babies admitted to hospital.
- Infection with neonatal admission following birth to a mother with perinatal SARS-CoV-2 infection was unlikely
- Possible vertical transmission rare
- Supports guidance to avoid separation of mother and baby.
- High proportion of babies from Black, Asian, or minority ethnic groups requires investigation.

	Cases	Incidence of SARS-CoV-2 infection per 10 000 livebirths
Total	66	5·6 (4·3–7·1)
Gestational age at birth, weeks		
≥37	48 (73%)	4·9 (3·6–6·5)
32 to <37	14 (21%)	18·4 (9·8–31·4)
28 to <32	1 (2%)	12·1 (0·3–67·0)
<28	1 (2%)	20·2 (0·5–112·5)
Missing data	2 (3%)	..
Ethnicity		
White	36 (55%)	4·6 (3·2–6·4)
Asian or Asian British	14 (21%)	15·2 (8·3–25·5)
Black, African, Caribbean, or Black British	8 (12%)	18·0 (7·8–35·5)
Mixed or other	7 (11%)	5·6 (2·2–11·5)
Missing data	1 (2%)	..
Severe disease*	28 (42%)	2·4 (1·6–3·4)†

Data are n (%) or incidence (95% CI). SARS-CoV-2=severe acute respiratory syndrome coronavirus 2. *Cases meeting at least two of following: (1) any of hyperthermia (>37·5°C), apnoea, cough, tachypnoea, respiratory distress or recession, supplemental oxygen requirement, poor feeding or vomiting, or diarrhoea; (2) any of low white blood cell count, low lymphocyte count, or raised C-reactive protein concentration; and (3) abnormal chest x-ray.[4] †Incidence of severe disease per 10 000 livebirths in the population.

Table 1: **Incidence of SARS-CoV-2 infection in March and April, 2020**

Article 17

Published

SARS-CoV-2 Seroprevalence and Transmission Risk Factors Among High-Risk Close Contacts: A Retrospective Cohort Study

November 02, 2020, THE LANCET

In Singapore, extensive contact tracing by the Ministry of Health for every diagnosed COVID-19 case, and legally enforced quarantine and intensive health surveillance of close contacts provided a rare opportunity to determine asymptomatic attack rates and SARS-CoV-2 transmission risk factors among community close contacts of patients with COVID-19.

Methodology

- This retrospective cohort study involved all close contacts of confirmed COVID-19 cases in Singapore, identified between Jan 23 and April 3, 2020.
- Household contacts were defined as individuals who shared a residence with the index COVID-19 case.
- Non-household close contacts were defined as those who had contact for at least 30 min within 2 metres of the index case.
- All patients with COVID-19 in Singapore received inpatient treatment, with access restricted to health-care staff.
- All close contacts were quarantined for 14 days with thrice-daily symptom monitoring via telephone.
- Symptomatic contacts underwent PCR testing for SARS-CoV-2.
- Secondary clinical attack rates were derived from the prevalence of PCR-confirmed SARS-CoV-2 among close contacts.

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Results

- There were identified 7770 close contacts linked to 1114 PCR-confirmed index cases.
  - (1863 household contacts, 2319 work contacts and 3588 social contacts)
- Symptom-based PCR testing detected 188 COVID-19 cases, and 7582 close contacts completed quarantine without a positive SARS-CoV-2 PCR test.
- Among 7518 (96·8%) of the 7770 close contacts with complete data, the secondary clinical attack rate was:
  - 5·9% (95% CI 4·9–7·1) for 1779 household contacts,
  - 1·3% (0·9–1·9) for 2231 work contacts, and
  - 1·3% (1·0–1·7) for 3508 social contacts.
- Bayesian analysis of serology and symptom data obtained from 1150 close contacts (524 household contacts, 207 work contacts, and 419 social contacts) estimated that a symptom-based PCR-testing strategy missed 62% of COVID-19 diagnoses, and 36% of individuals with SARS-CoV-2 infection were asymptomatic.
- Sharing a bedroom (multivariable odds ratio [OR] 5·38 [95% CI 1·82–15·84]; p=0·0023) and being spoken to by an index case for 30 min or longer (7·86 [3·86–16·02]; p<0·0001) were associated with SARS-CoV-2 transmission among household contacts.
- Among non-household contacts, exposure to more than one case (multivariable OR 3·92 [95% CI 2·07–7·40], p<0·0001), being spoken to by an index case for 30 min or longer (2·67 [1·21–5·88]; p=0·015) and sharing a vehicle with an index case (3·07 [1·55–6·08]; p=0·0013) were associated with SARS-CoV-2 transmission.
- Among both household and non-household contacts, indirect contact, meal sharing, and lavatory co-usage were not independently associated with SARS-CoV-2 transmission.

Interpretation

- Targeted community measures should include physical distancing and minimizing verbal interactions.
- Testing of all household contacts, including asymptomatic individuals, is warranted.

THANK YOU

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