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HEALTH CENTRE

SCIENTIFIC RESEARCH MONITORING ON COVID-19

22 OCTOBER 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19 (ISSUE 533)

مركز أبوظبي للصحة العامة
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
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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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Vaccine

Safety and immunogenicity of an Inactivated SARS-CoV-2 Vaccine, BBIBP-CorV: A Randomized, Double-Blind, Placebo-Controlled, Phase 1/2 Trial

Vaccine

Safety and Immunogenicity of Two RNA-Based Covid-19 Vaccine Candidates

EPIDEMIOLOGY

FROM 21 JAN TO 21 OCT PT 2020

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

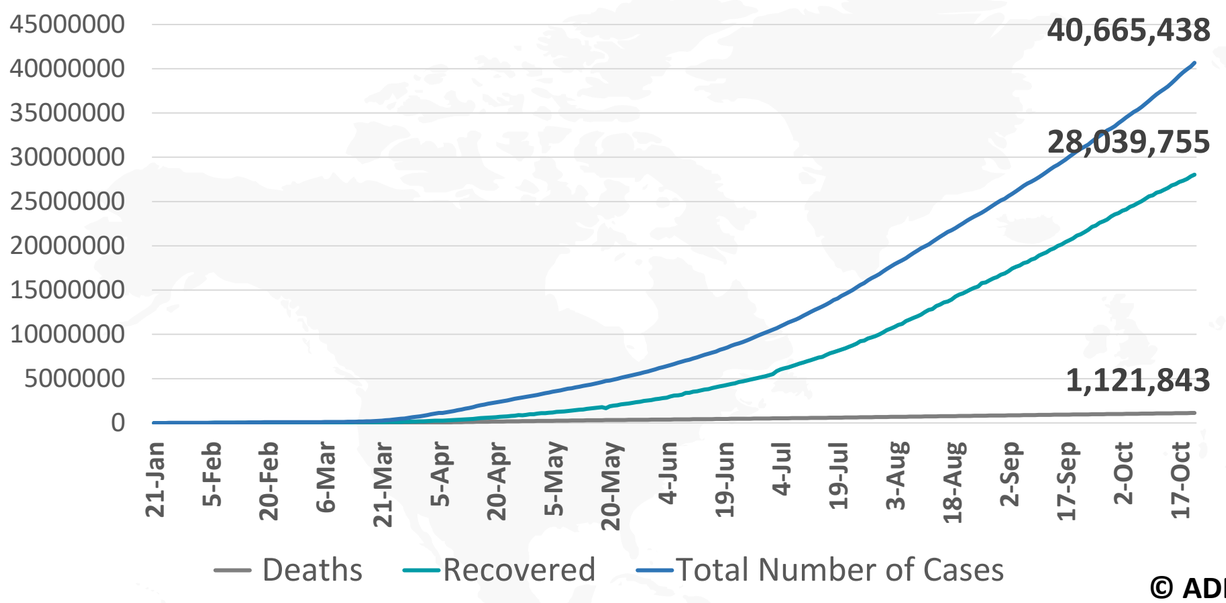


Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)

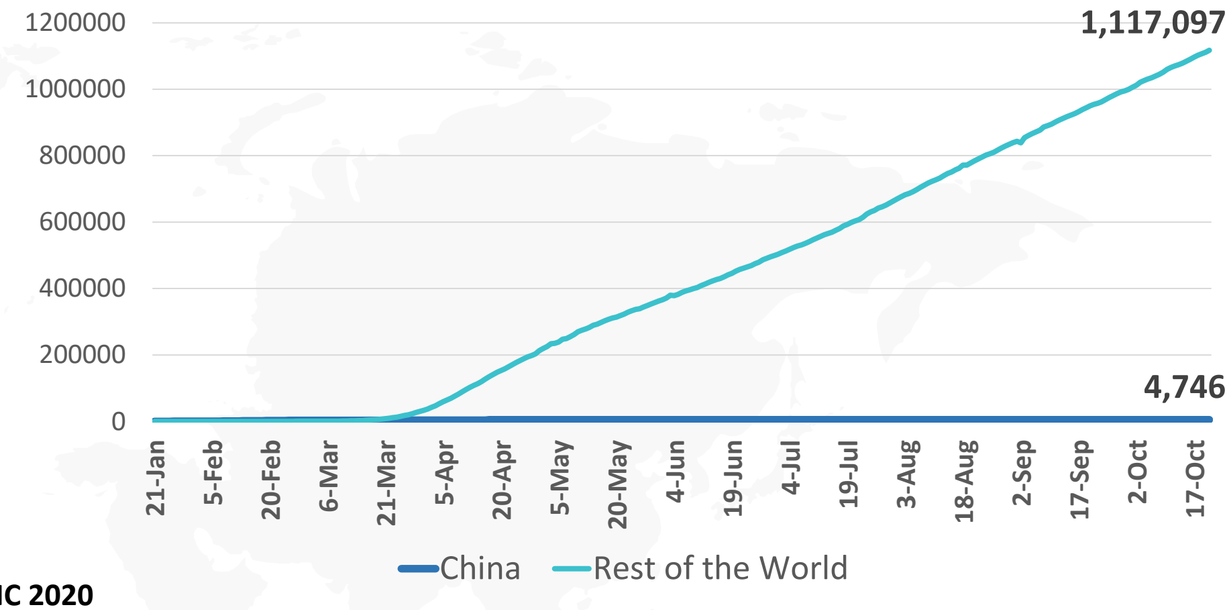


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

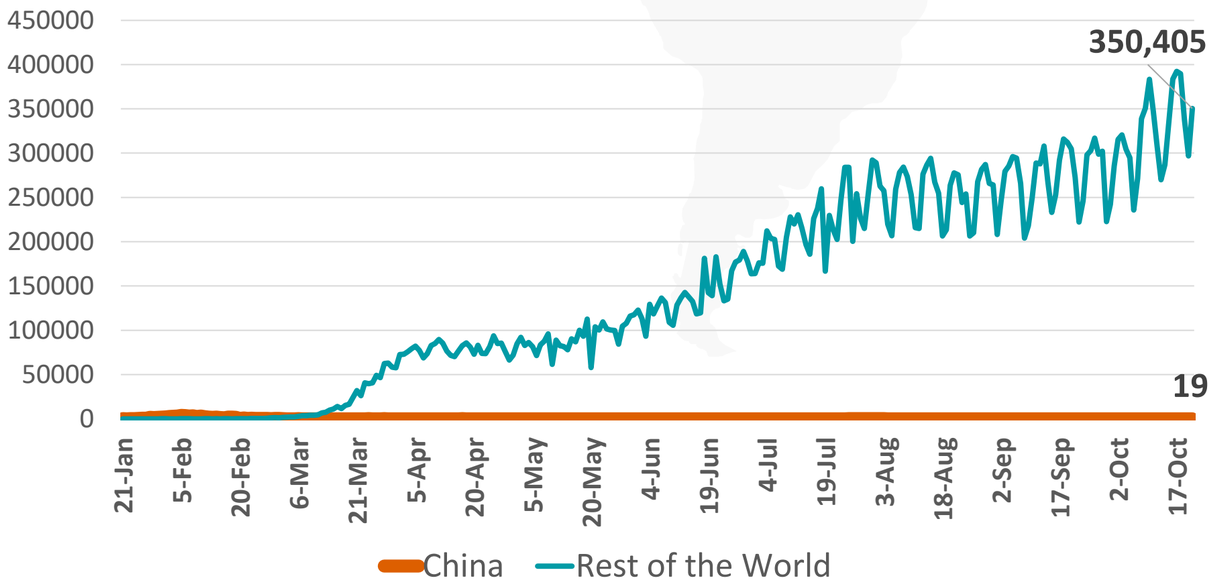
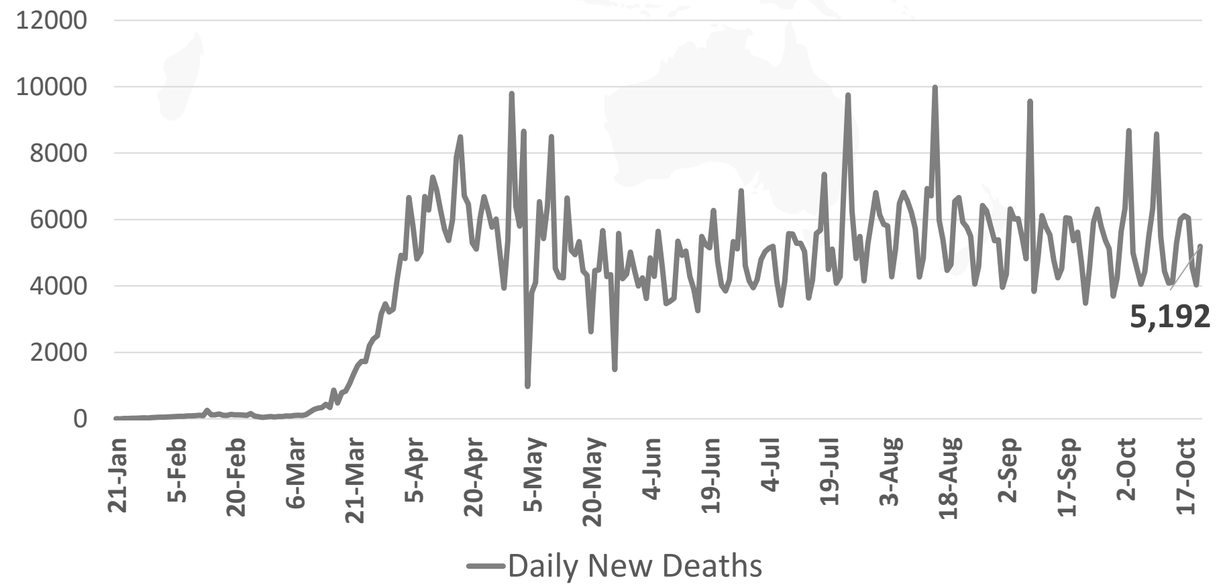


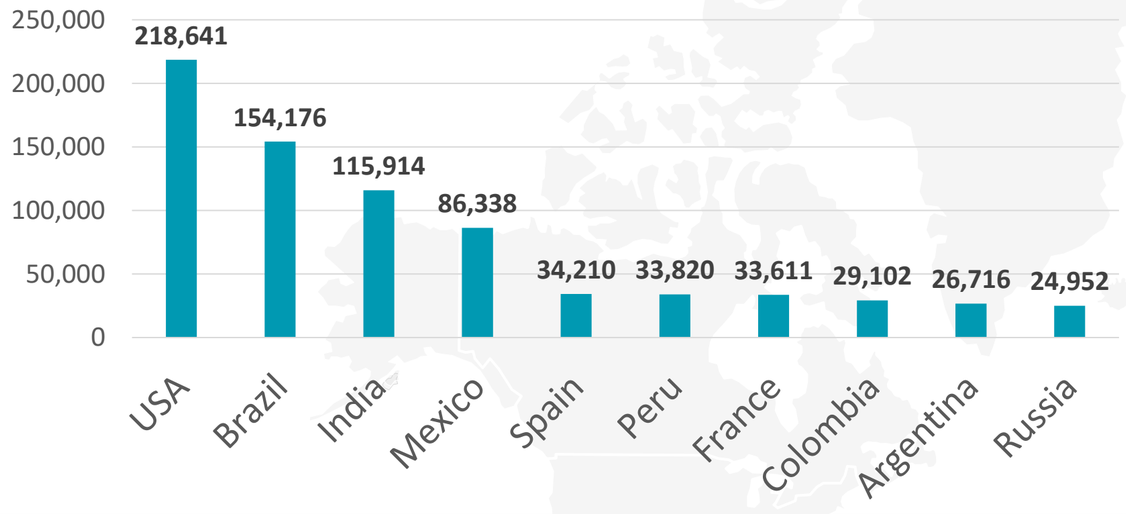
Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)



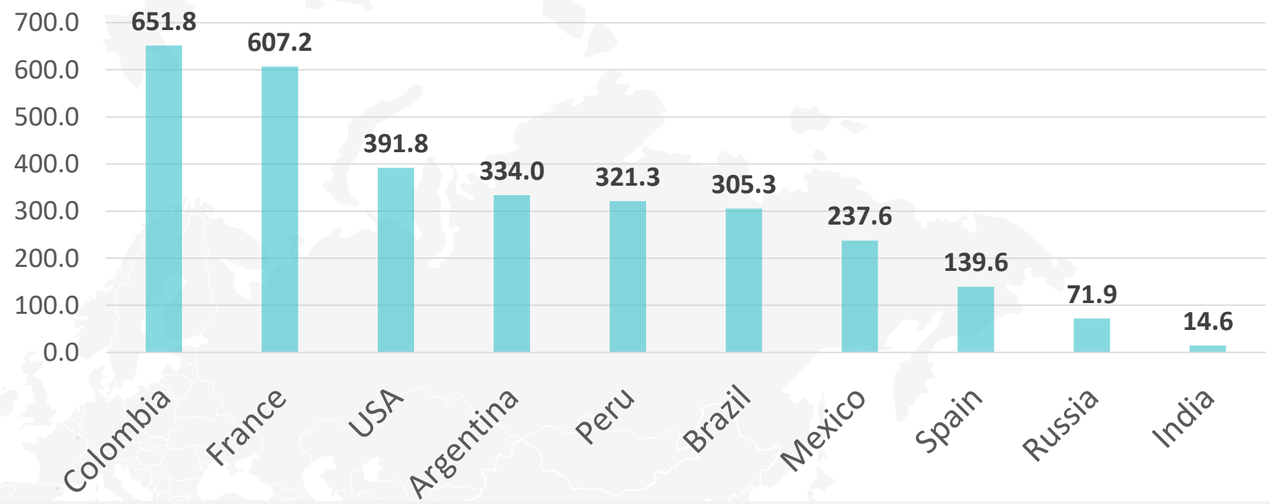
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: John Hopkins, WHO

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

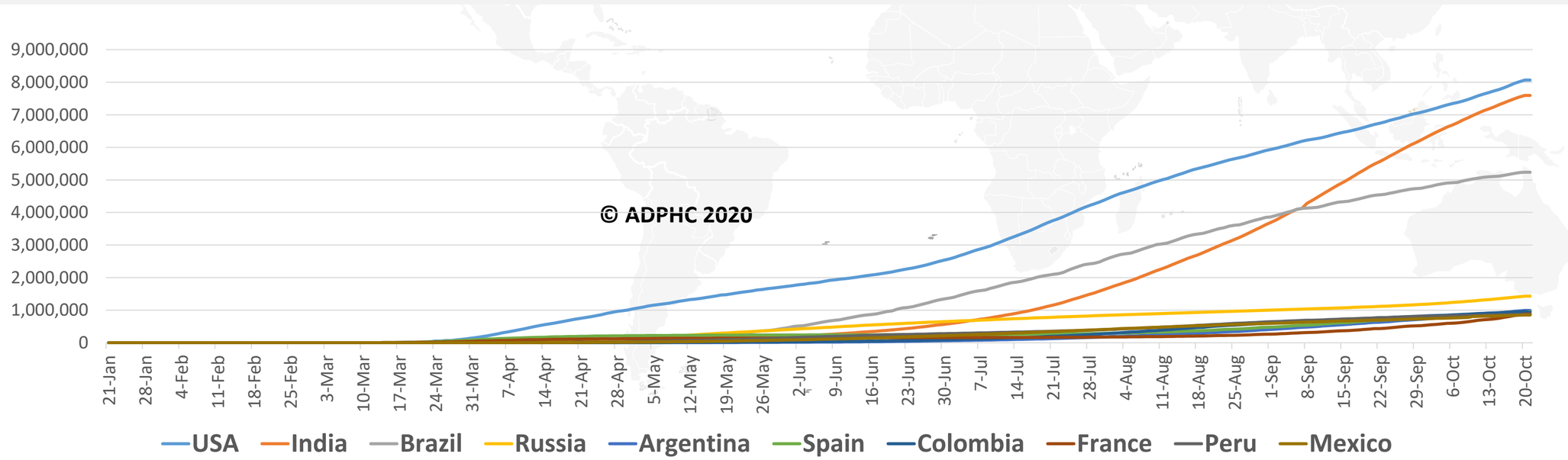
TOTAL DEATHS



DEATHS PER MILLION



TOTAL INFECTED CASES



USA	8,065,615
India	7,597,063
Brazil	5,235,344
Russia	1,431,635
Argentina	989,680
Spain	959,572
Colombia	936,560
France	880,922
Peru	868,675
Mexico	851,227

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

EPIDEMIOLOGY

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

Daily Tests

110,243.4 Average Tests

1,114.7 per 100k population

1.2% Positive Rate

Daily Cases

1,299.0 Average Cases

13.1 per 100k population

Daily Recovered

1,450.7 Average Recovered

14.7 per 100k population

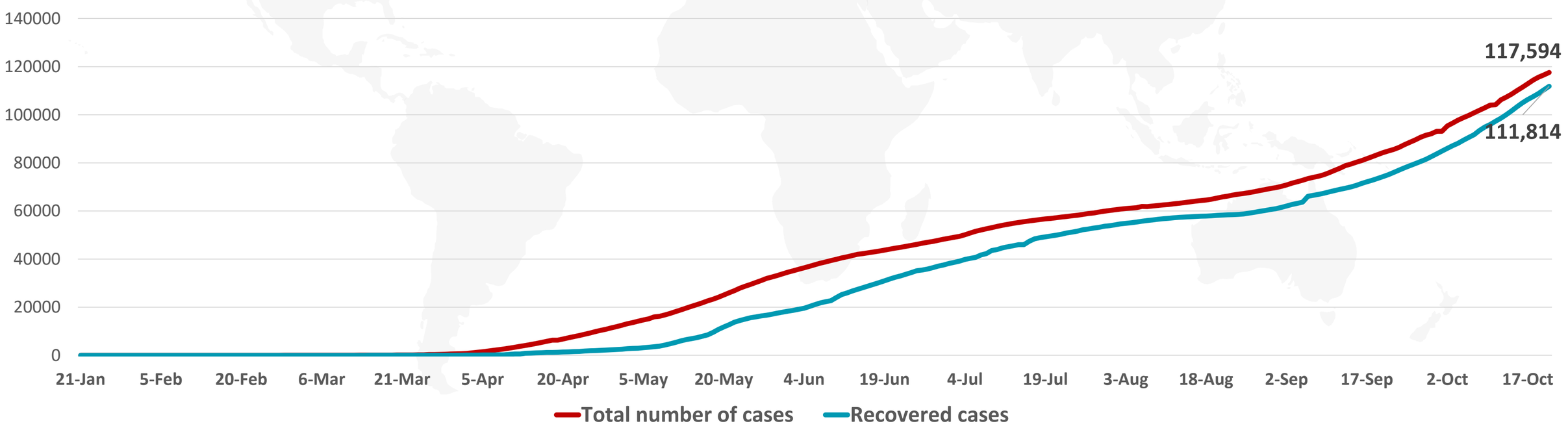
Daily Deaths

3.1 Average Deaths

0.0 per 100k population

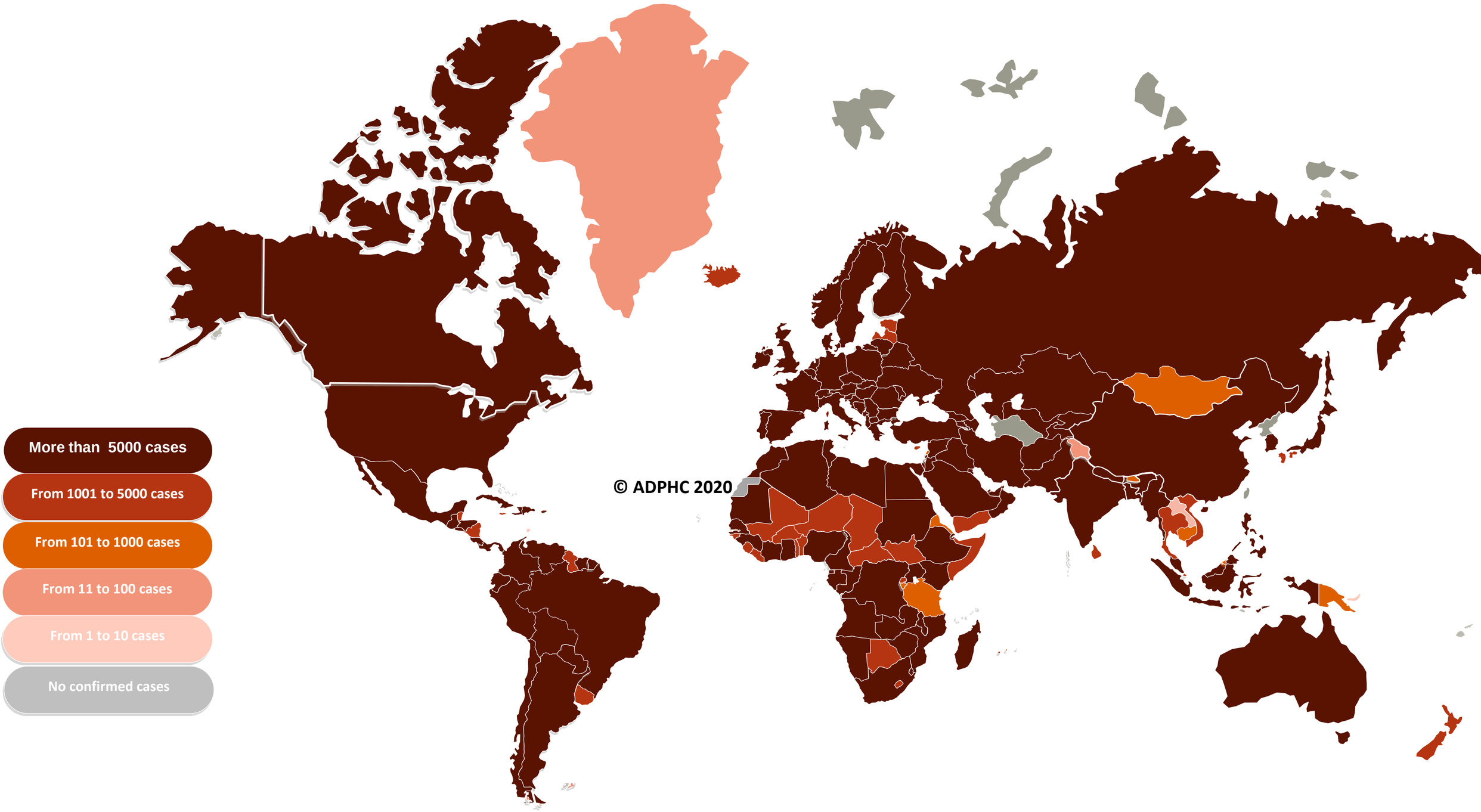
0.2% Case Fatality Rate

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



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

EPIDEMIOLOGY

Date: 21 OCT 2020

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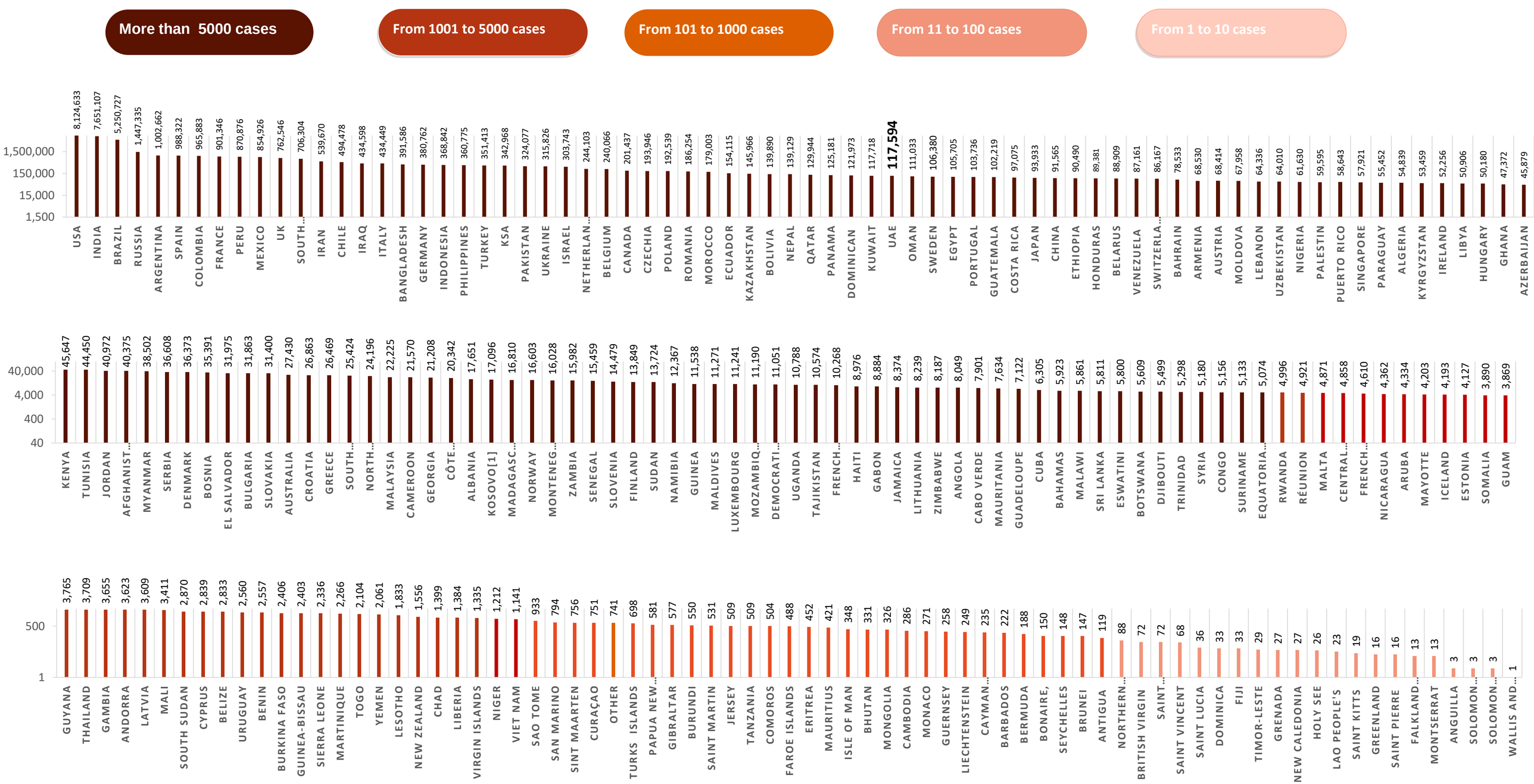
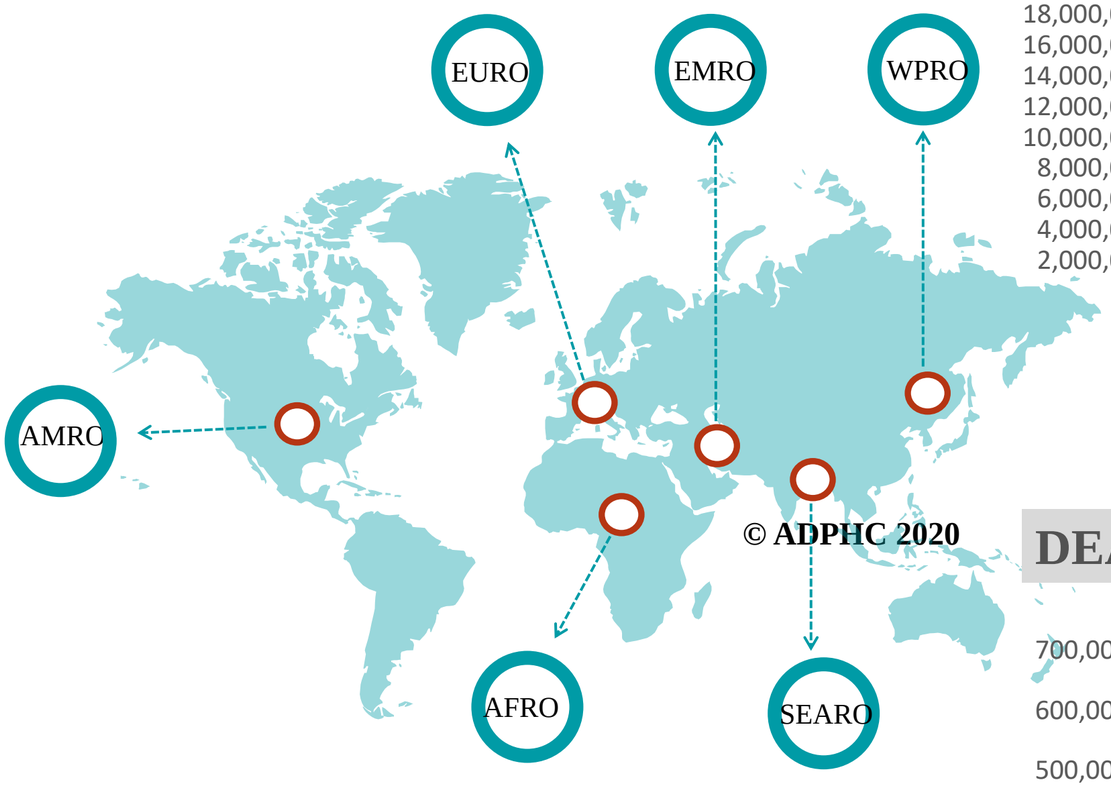
Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases



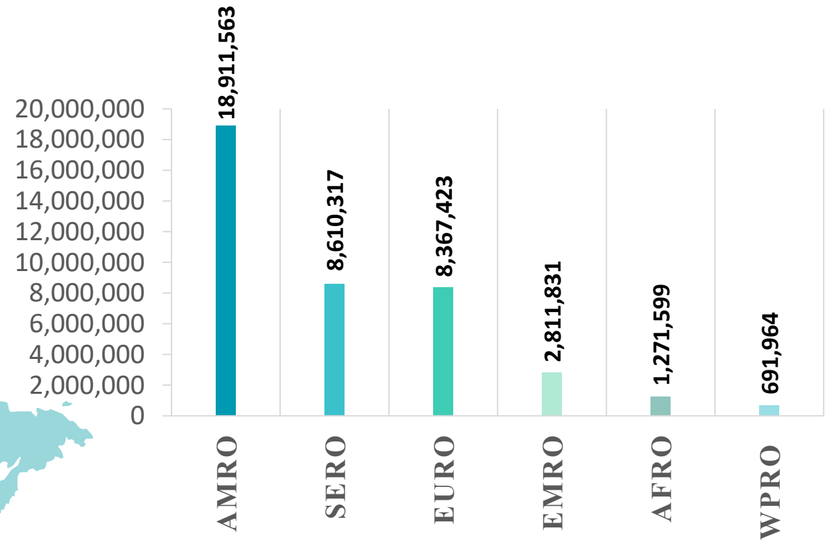
Other*:includes cases and deaths reported under the international conveyance(Diamond Princess)

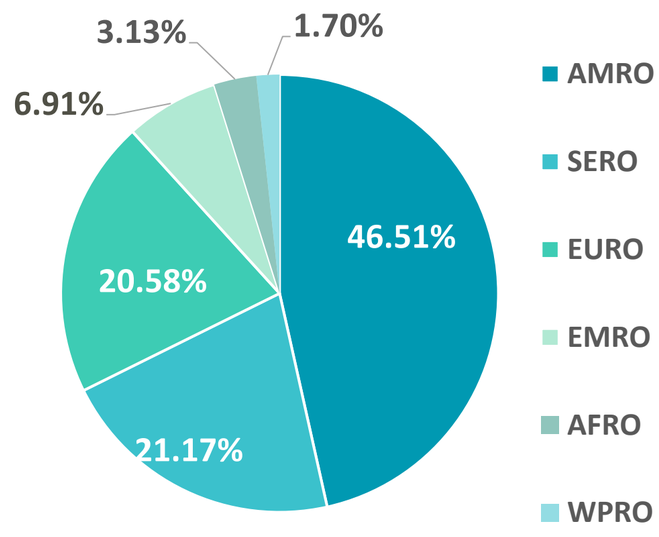
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: WHO

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

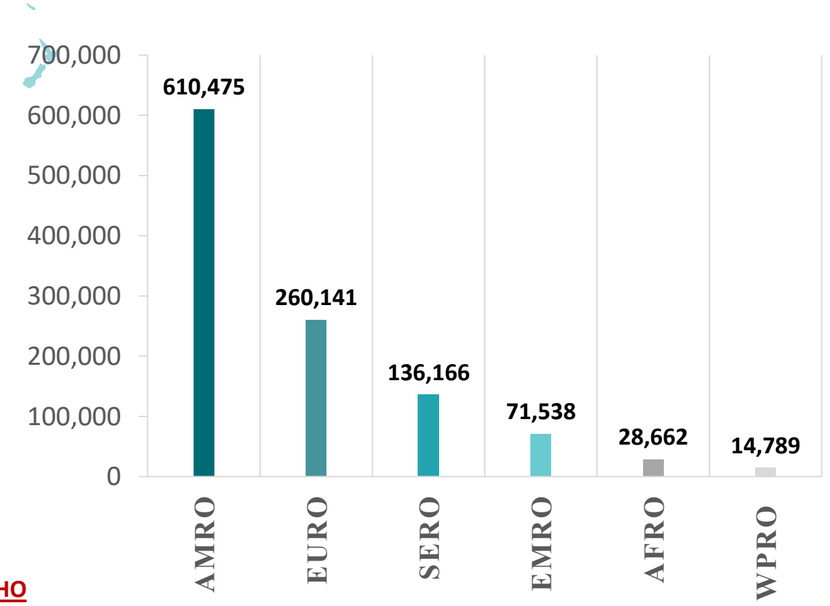


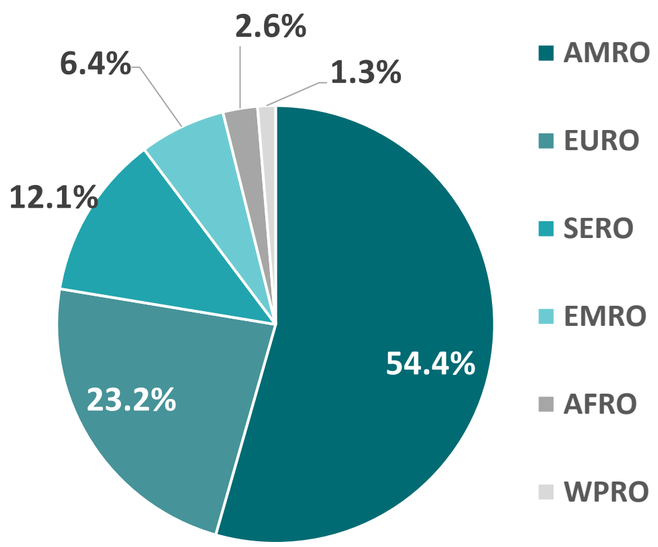
INFECTED





DEATHS





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

EPIDEMIOLOGY

Date: 21 OCT 2020

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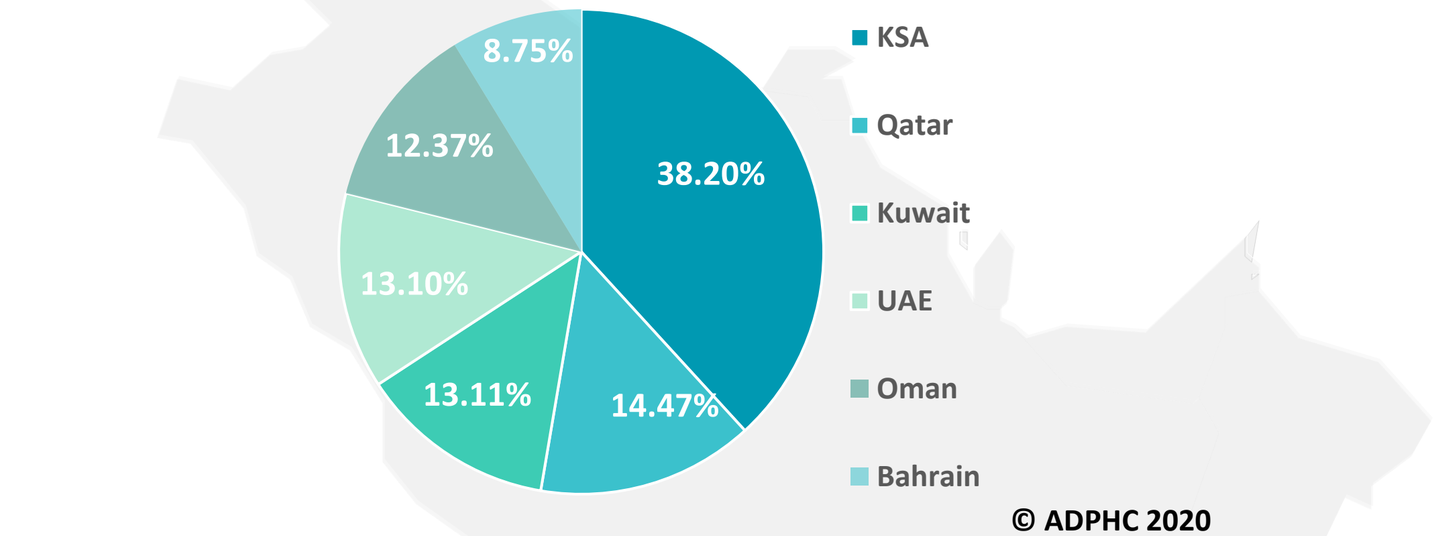
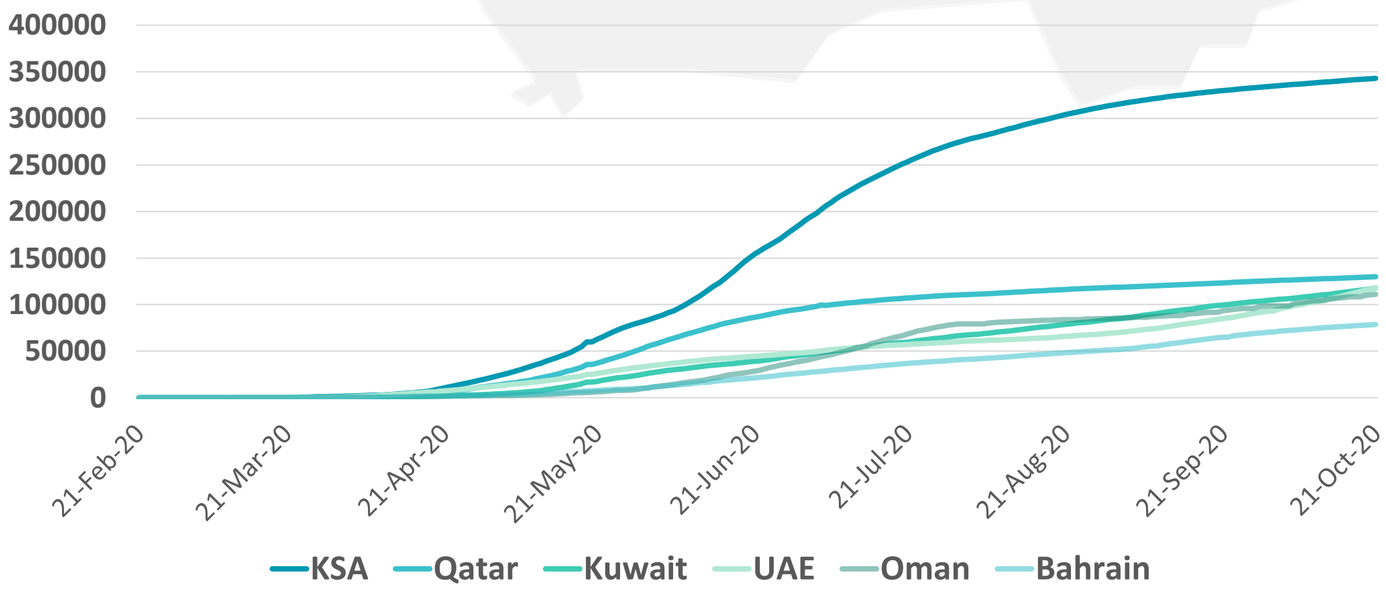
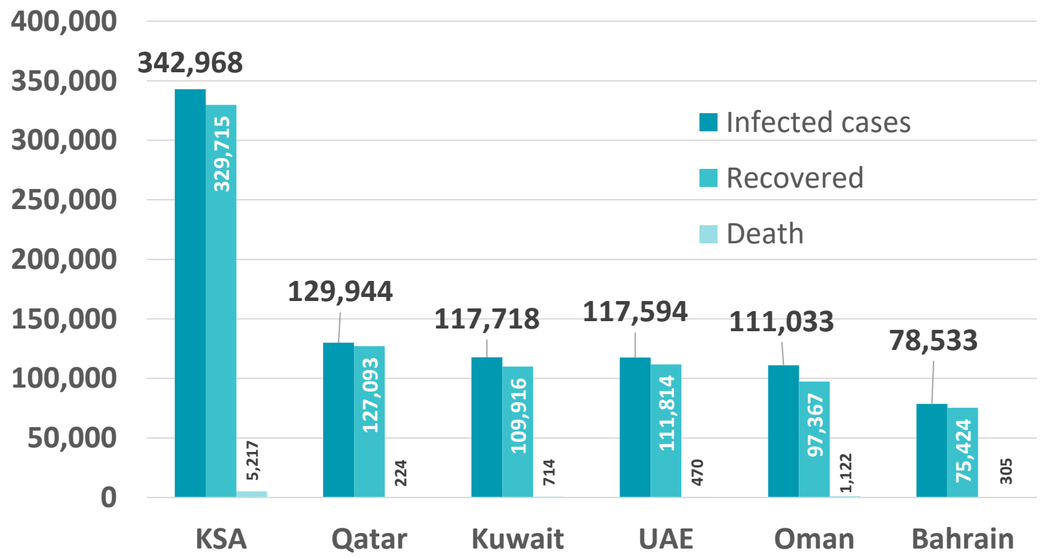
Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

TOTAL NUMBER OF INFECTED CASES

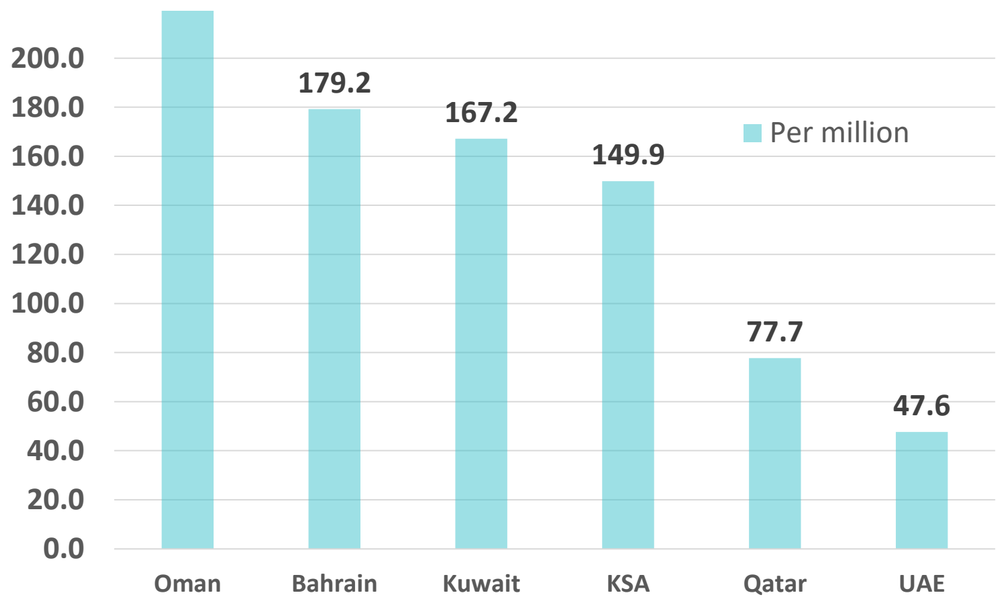




TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



DEATHS PER MILLION



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

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

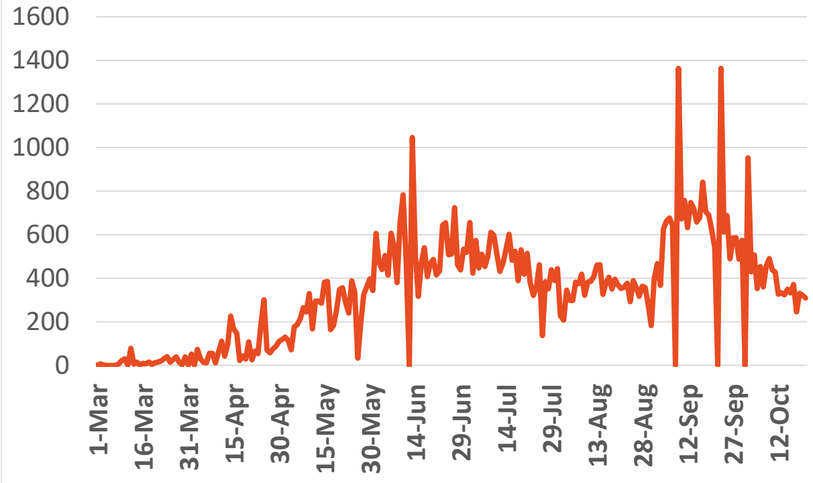
UAE

Source : National Emergency Crisis and Disaster Management Authority

KSA

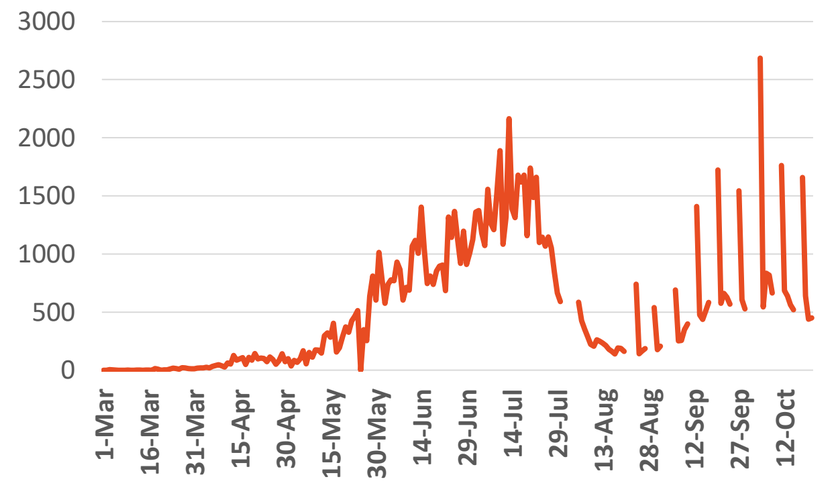
Source : KSA ministry of health

Bahrain



Source :WHO

Oman

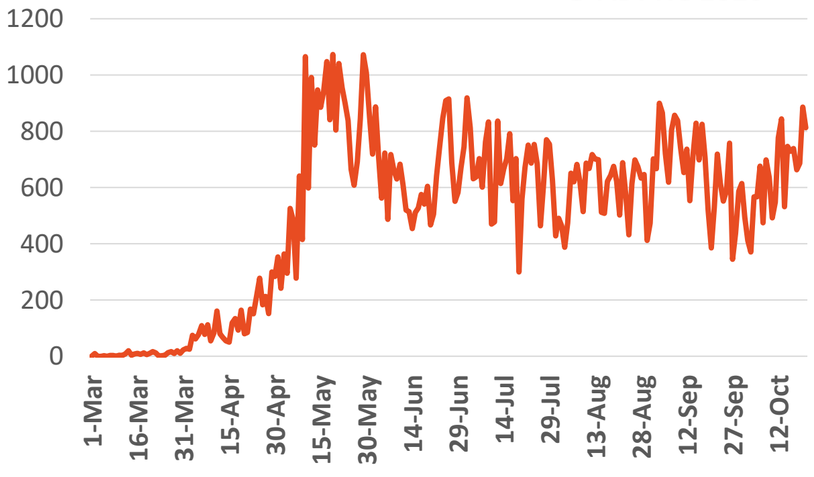


Source :Oman ministry of health

*No announced statistic data from 31 July to 4 August, 21,23,28,30 August 2, 4، 5,11,12,18,19,25 ,26,30 September,1,2,9,10,16 &17 October

*No announced statistic data on weekends and official holidays.

Kuwait



Source : Kuwait ministry of health

Qatar

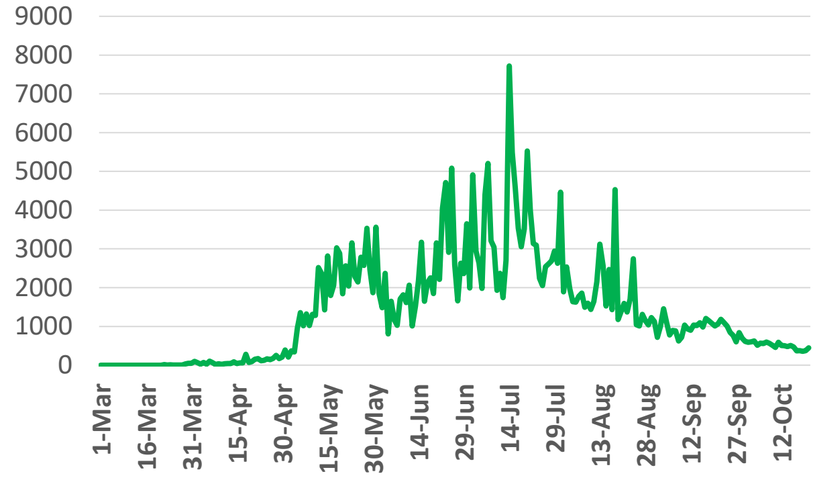
Source : Qatar ministry of health

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

UAE

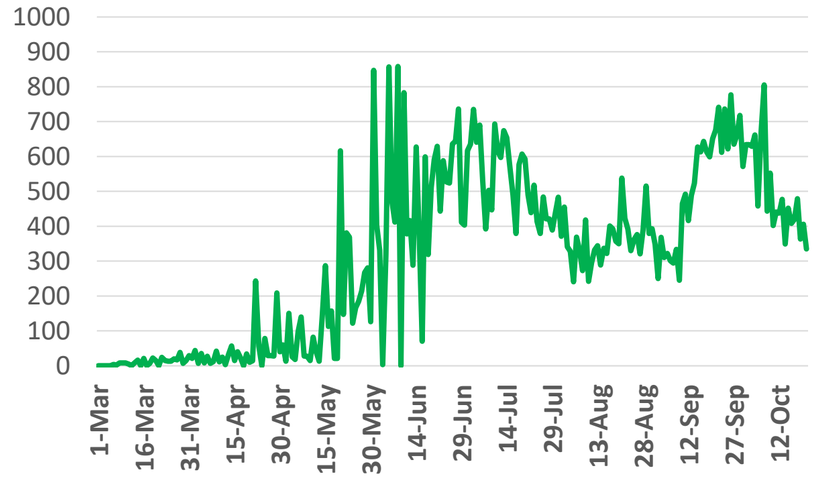
Source : National Emergency Crisis and Disaster Management Authority

KSA



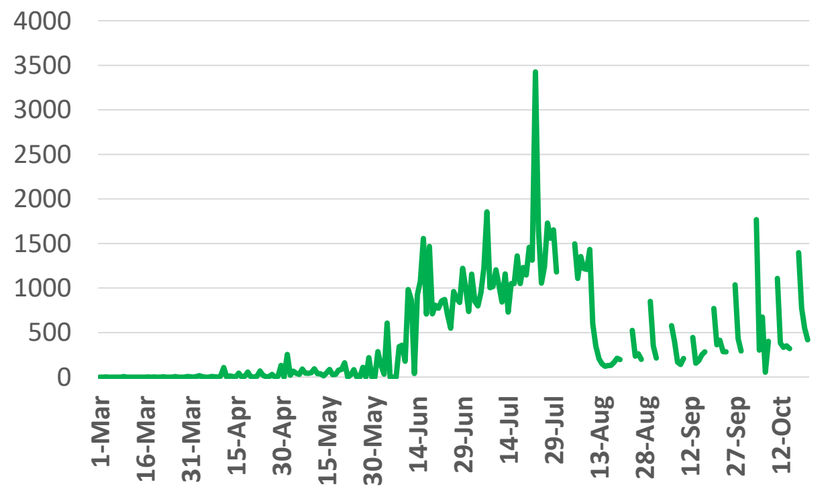
Source : KSA ministry of health

Bahrain



Source : Bahrain ministry of health

Oman



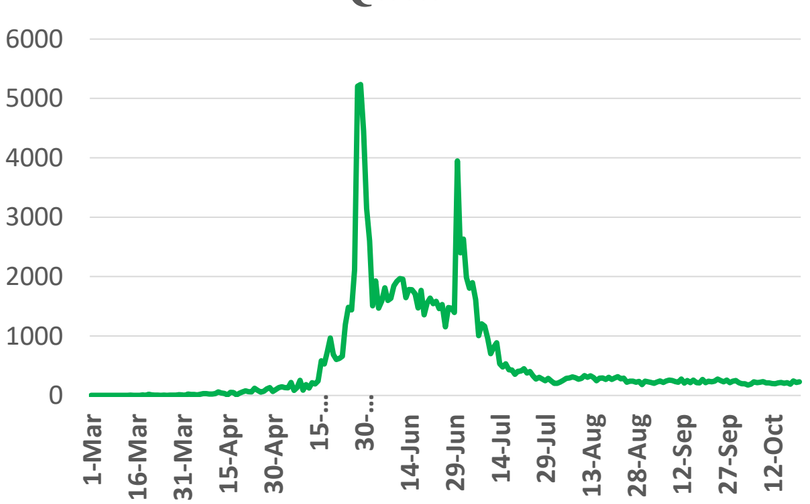
Source :Oman ministry of health

*No announced statistic data from 31 July to 4 August, 21,23,28,30 August 2, 4، 5,11,12,18,19,25 ,26,30 September, 1,2,9,10,16 &17 October
*No announced statistic data on weekends and official holidays.

Kuwait

Source : Kuwait ministry of health

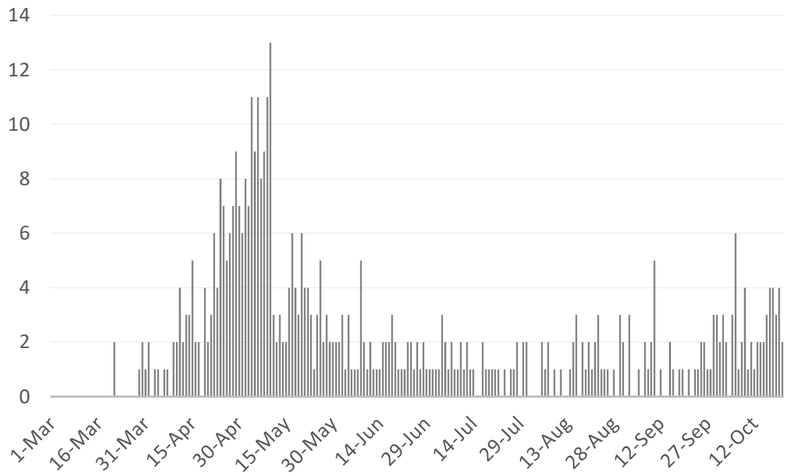
Qatar



Source : Qatar ministry of health

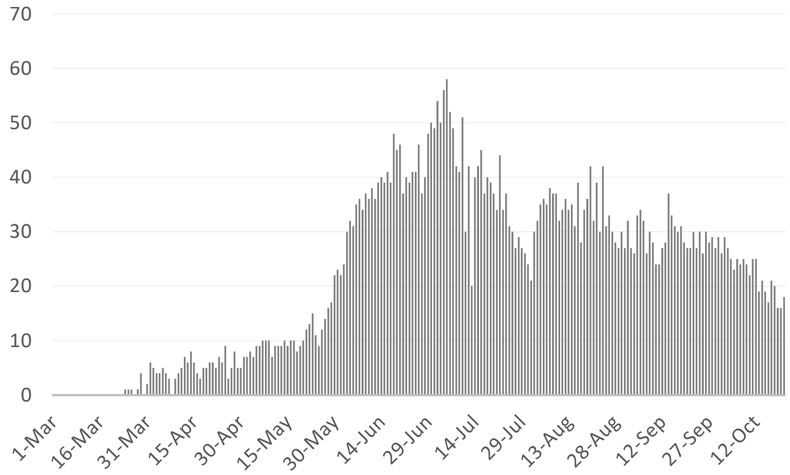
Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

UAE



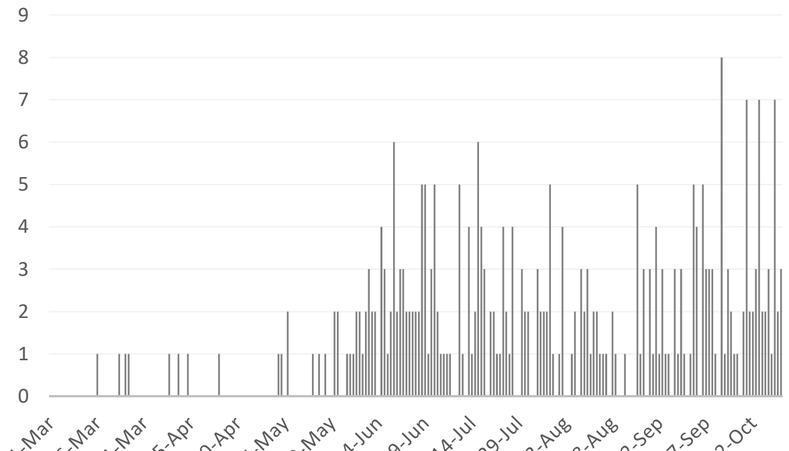
Source : National Emergency Crisis and Disaster Management Authority

KSA



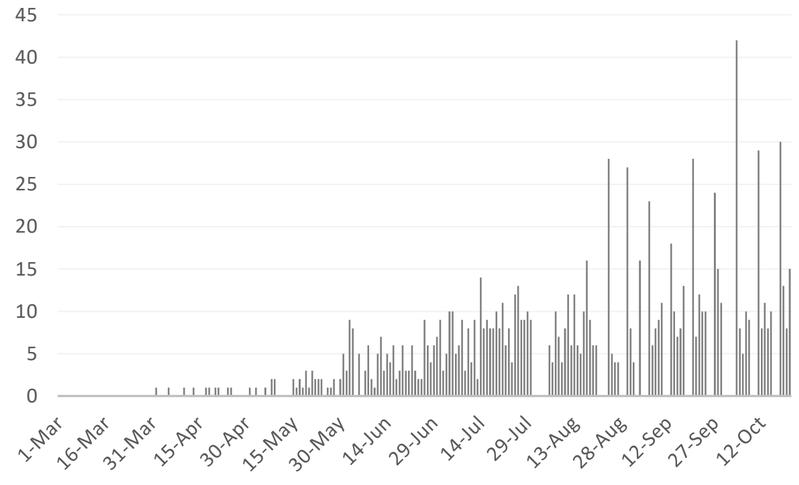
Source : KSA ministry of health

Bahrain



Source :WHO

Oman

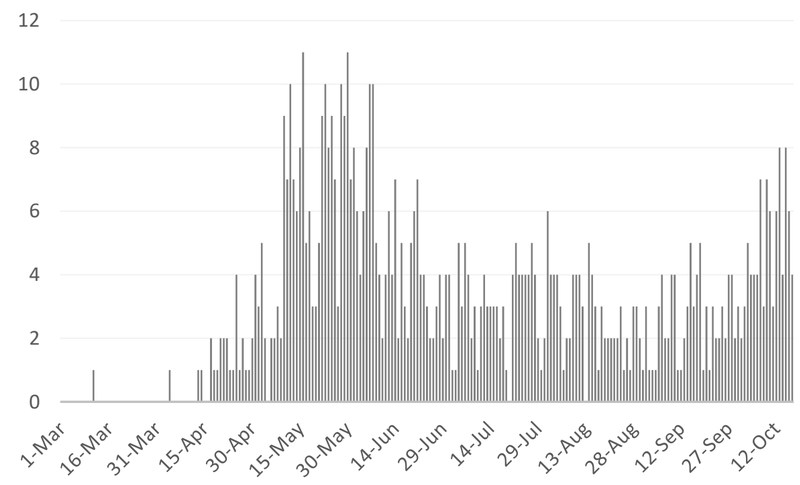


Source :Oman ministry of health

*No announced statistic data from 31 July to 4 August, 21,23,28,30 August 2, 4، 5,11,12,18,19,25 ,26,30 September, 1,2,9,10,16 &17 October

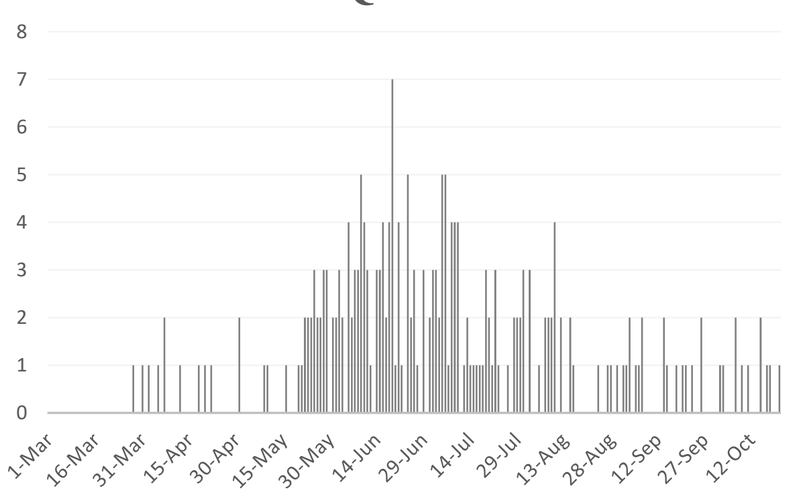
*No announced statistic data on weekends and official holidays.

Kuwait



Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

VACCINE

Article 1

Published October 15, 2020 THE LANCET

Safety and Immunogenicity of an Inactivated SARS-CoV-2 Vaccine, BBIBP-CorV: A Randomized, Double-Blind, Placebo-Controlled, Phase 1/2 Trial

- According to WHO's draft landscape of COVID-19 candidate vaccines, 42 candidate vaccines are in clinical evaluation, and 151 candidate vaccines are in preclinical evaluation. This study aimed to assess the safety and immunogenicity of an inactivated SARS-CoV-2 vaccine candidate, BBIBP-CorV, in humans. From Beijing Institute of Biological Products.

- This randomized, double-blind, placebo-controlled, phase 1/2 trial was conducted in China. In phase 1, healthy people aged 18–80 years, who were negative for serum-specific IgM/IgG antibodies against SARS-CoV-2 at the time of screening were randomly assigned to receive vaccine or placebo. The vaccine was given in two-dose schedule of 2 μg, 4 μg, or 8 μg on days 0 and 28.

- In phase 2, healthy adults were randomly assigned (1:1:1:1) to receive vaccine or placebo on a single-dose schedule of 8 μg on day 0 or a two-dose schedule of 4 μg on days 0 and 14, 0 and 21, or 0 and 28. § The investigators reported that in phase 1, 192 participants were enrolled (mean age 53.7 years). At least one adverse reaction was reported within the first 7 days of inoculation in 42 (29%) of 144 vaccine recipients. The most common systematic adverse reaction was fever [4%]. All adverse reactions were mild or moderate in severity with no serious adverse event reported within 28 days post-vaccination. Neutralizing antibody geometric mean titres were higher at day 42 in the group aged 18–59 years than the group aged 60 years and older.

- In phase 2, 448 participants were enrolled (mean age 41.7 years). At least one adverse reaction within the first 7 days was reported in 76 (23%) of 336 vaccine recipients. The most common systematic adverse reaction was fever (one [1%]. The vaccine-elicited neutralising antibody titres on day 28 were significantly greater in the 4 μg days 0 and 14, days, and days 0 and 28 (218·0, 181·8–261·3) schedules than the 8 μg day 0 schedule.

- The authors concluded that the inactivated SARS-CoV-2 vaccine is safe and well-tolerated at all tested. Humoral responses against SARS-CoV-2 were induced in all vaccine recipients on day 42. Two-dose immunization with 4 μg vaccine achieved higher neutralising antibody titres than single 8 μg dose.

VACCINE

Continued

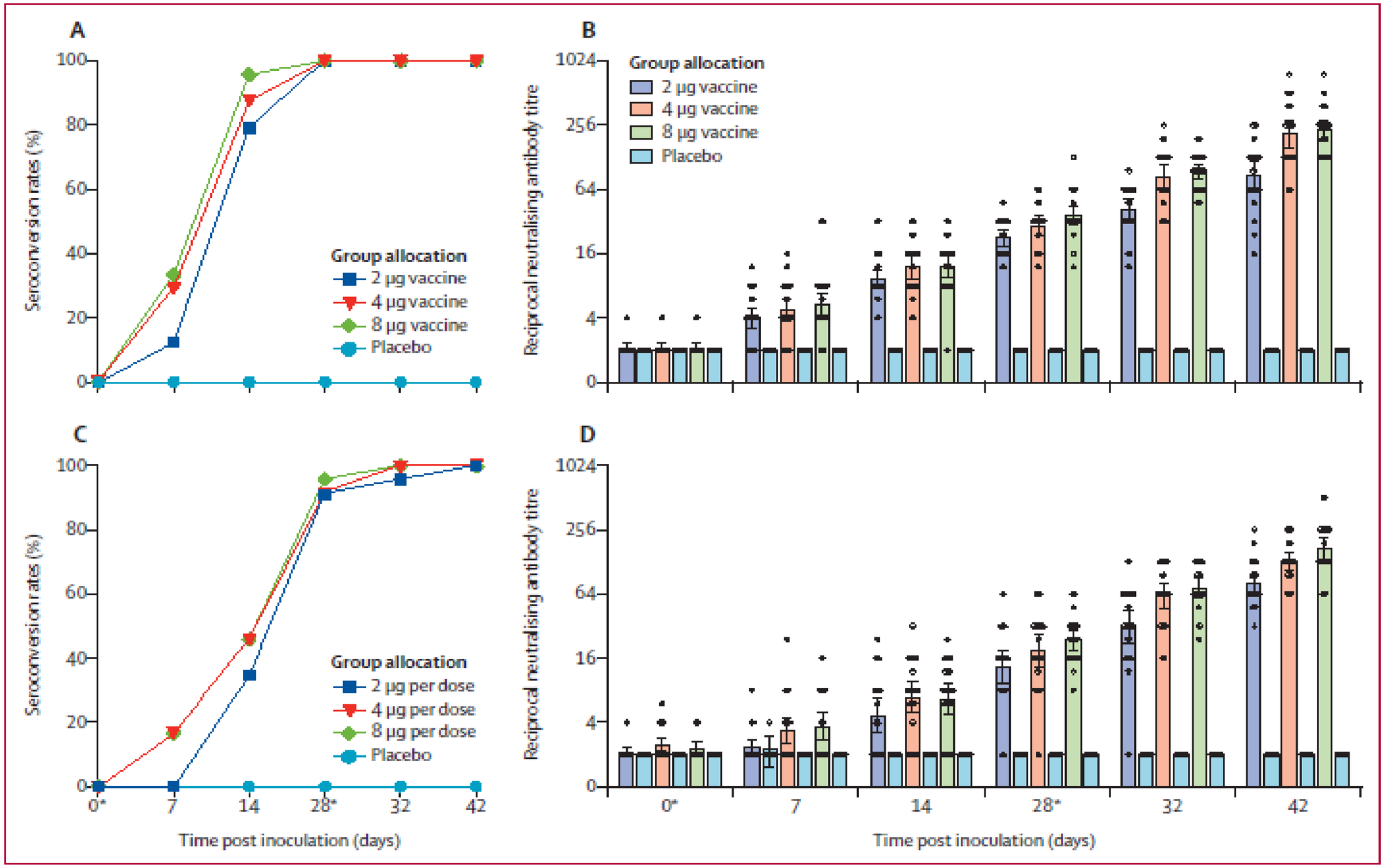


Figure 2: Seroconversion ratios and neutralising antibody titres for and 60 years and older

Article 3

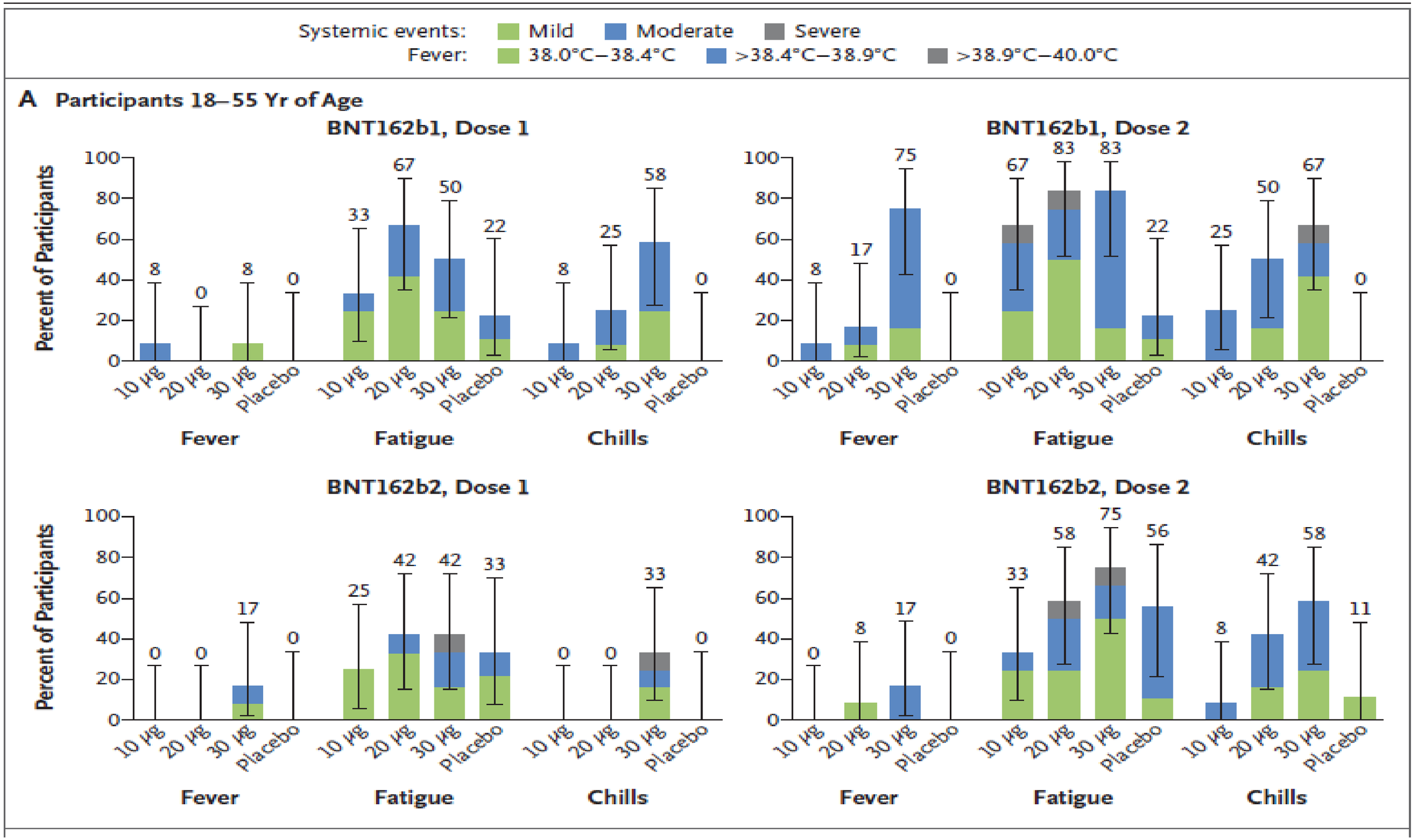
Published October 14, 2020 NEJM

Safety and Immunogenicity of Two RNA-Based Covid-19 Vaccine Candidates

- Two lipid nanoparticle–formulated, nucleoside-modified RNA (modRNA) vaccine candidates against SARS-CoV-2 were evaluated in the phase 1 portion of the trial in the United States. One of these candidates, BNT162b1, encodes the SARS-CoV-2 receptor–binding domain, trimerized by the addition of a T4 fibritin foldon domain to increase its immunogenicity through the multivalent display. The other candidate, BNT162b2, encodes the SARS-CoV-2 full-length spike, modified by two proline mutations to lock it in the prefusion conformation and more closely mimic the intact virus with which the elicited virus-neutralizing antibodies must interact.
- In this placebo-controlled, observer-blinded, dose-escalation, phase 1 trial, conducted in the United States, the investigators randomly assigned healthy adults 18 to 55 years of age and those 65 to 85 years of age to receive either placebo or one of two lipid nanoparticle–formulated described above. The primary outcome was safety, and immunogenicity was a secondary outcome. Trial groups were defined according to vaccine candidate, age of the participants, and vaccine dose level (10 μg, 20 μg, 30 μg, and 100 μg). In all groups but one, participants received two doses, with a 21-day interval between doses; in one group (100 μg of BNT162b1), participants received one dose.
- A total of 195 participants underwent randomization. In each of 13 groups of 15 participants, 12 participants received the vaccine and 3 received placebo. BNT162b2 was associated with a lower incidence and severity of systemic reactions than BNT162b1, particularly in older adults. In both younger and older adults, the two vaccine candidates elicited similar dose-dependent SARS-CoV-2–neutralizing geometric mean titers, which were similar to or higher than the geometric mean titer of a panel of SARS-CoV-2 convalescent serum samples.
- The investigators concluded that the safety and immunogenicity data from this study confirmed the earlier findings regarding BNT162b1 and also support the selection of BNT162b2 for advancement to phase 2–3 safety and efficacy evaluation.

VACCINE

Continued



THANK YOU

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