



Scientific Research Monitoring on COVID-19

31 May 2020

For accessing the full series of published scientific reports please visit the following link:
<https://www.doh.gov.ae/ar/covid-19/Healthcare-Professionals/Scientific-Publication>

Summary on COVID19



SARS-COV2 virus

- The virus have been sequenced and found to be similar to MERS-CoV and SARS-CoV. Research revealed that the virus originated in a bat reservoir.
- New designation for the disease and the virus: COVID-19 and SARS-COV2.
- Two strain have been identified for SARS-COV2 (L type (more aggressive) and S type .and 3 cluster groups.

Transmission

- Transmission from human to human has been confirmed. Incubation period ranges from 5 days and can reach up to 14 days.
- Suggested human-to-human transmission occurs through droplets, contact and fomites, similar to Severe Acute Respiratory Syndrome (SARS).

Clinical features and outcome

- Non-specific and the disease presentation can range from no symptoms (asymptomatic) to severe pneumonia and death.
- Highest risk for severe disease and death include people aged over 60 years and those with underlying conditions
- Pregnant women infected with SARS-COV2 may experience symptoms similar to those of non-pregnant adults. No evidence suggests transmission from mother to newborn if infected late in pregnancy.

Therapies and vaccination

- Efforts currently in developing therapies for this virus focus on previously known medications and vaccination for MERS-CoV and SARS-CoV. In addition to other type of medication.
- Also more therapies are currently under investigation including immunomodulatory, antimalarial and others.
- Vaccination are under clinical trial stage in many countries around the world.

Summary on COVID19 (Cont.)

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة



COVID19 in figure

- 80% of laboratory confirmed patients have had mild to moderate disease
- 13.8% have severe disease.
- 6.1% are critical
- Children account for 2.4% of all reported cases.(less than 19 years) data from china



Todays' Highlights

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

Scientific Research

- **Transmission:** a study on nursing home residing found that that adherence to staff screening, visitor exclusion, strict hygiene and social distancing strategies may be effective in preventing widespread transmission in senior independent/assisted living communities.
- **Treatment:** a double blinded randomized controlled trial on Remdesivir showed moderate positive results.
- **Treatment:** Anakinra is a potential candidate for cytokine storm complication in COVID19.
- **Public Health Response:** article mention that it is time for new Payment model for home care.



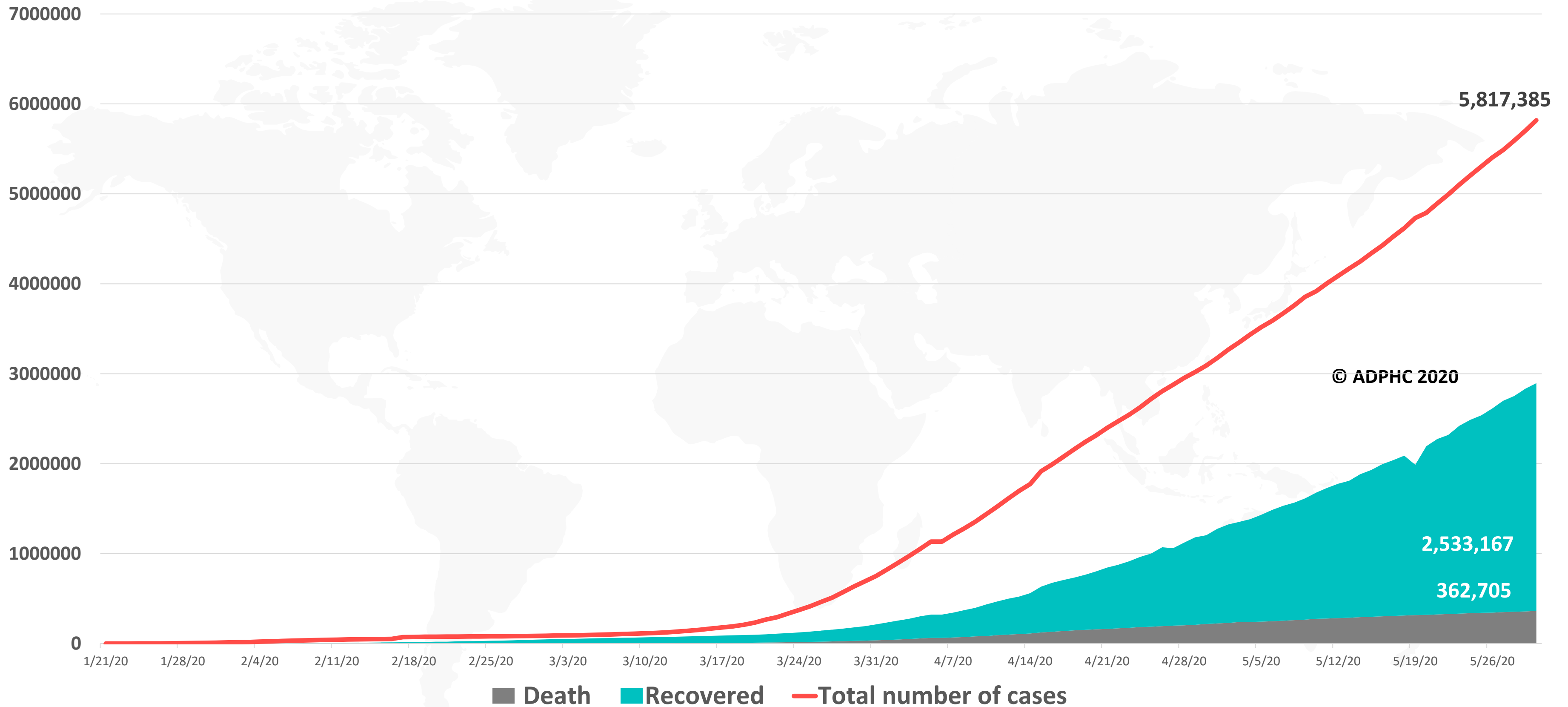
WHO Daily Report 30 May 2020

- WHO has published key planning recommendations for mass gatherings in the context of the current COVID-19 outbreak. The document provides guidance on containing risks of COVID-19 transmission associated with mass gathering events.
- The UN and WHO have urged governments around the world to take the mental health consequences of the pandemic seriously, and ensure widespread availability of mental health support. WHO discusses this in a recently released article and has published guidelines for communities and a [children's book](#).
- An article released by WHO Regional Office for Europe introduces recently published technical guidance on preventing and managing the COVID-19 pandemic across long-term care services.
- WHO has released a framework for decision-making that proposes a step-wise approach to the assessment of the relative risks and benefits of conducting mass vaccination campaigns in the context of COVID-19.
 - The framework proposes a five steps approach, each accompanied by a set of principles and criteria to consider during the decision-making process: Step 1: Assess the potential impact of the VPD/HID outbreak using key epidemiological criteria.
 - Step 2: Assess the potential benefits of a mass vaccination campaign and the country capacity to implement it safely and effectively.
 - Step 3: Consider the potential risk of increased COVID-19 transmission associated with the mass vaccination campaign.
 - Step 4: Determine the most appropriate actions considering the COVID-19 epidemiological situation.
 - Step 5: If a decision is made to proceed with a mass vaccination campaign, implement best practice.

Epidemiology



Figure 1: Total number of infected, recovered , and death cases (January 21st to May 30, 2020)

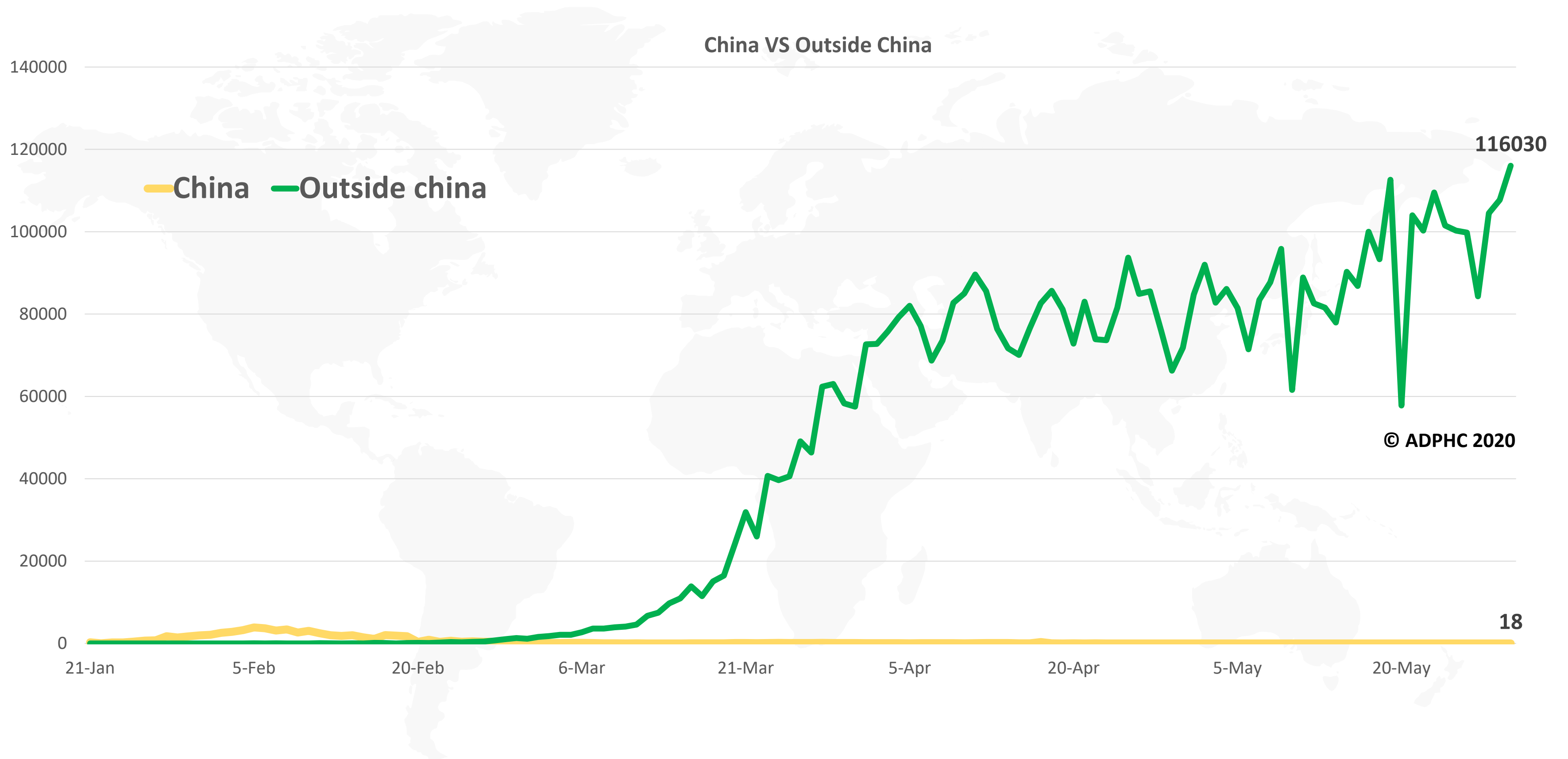


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to May 30, 2020).



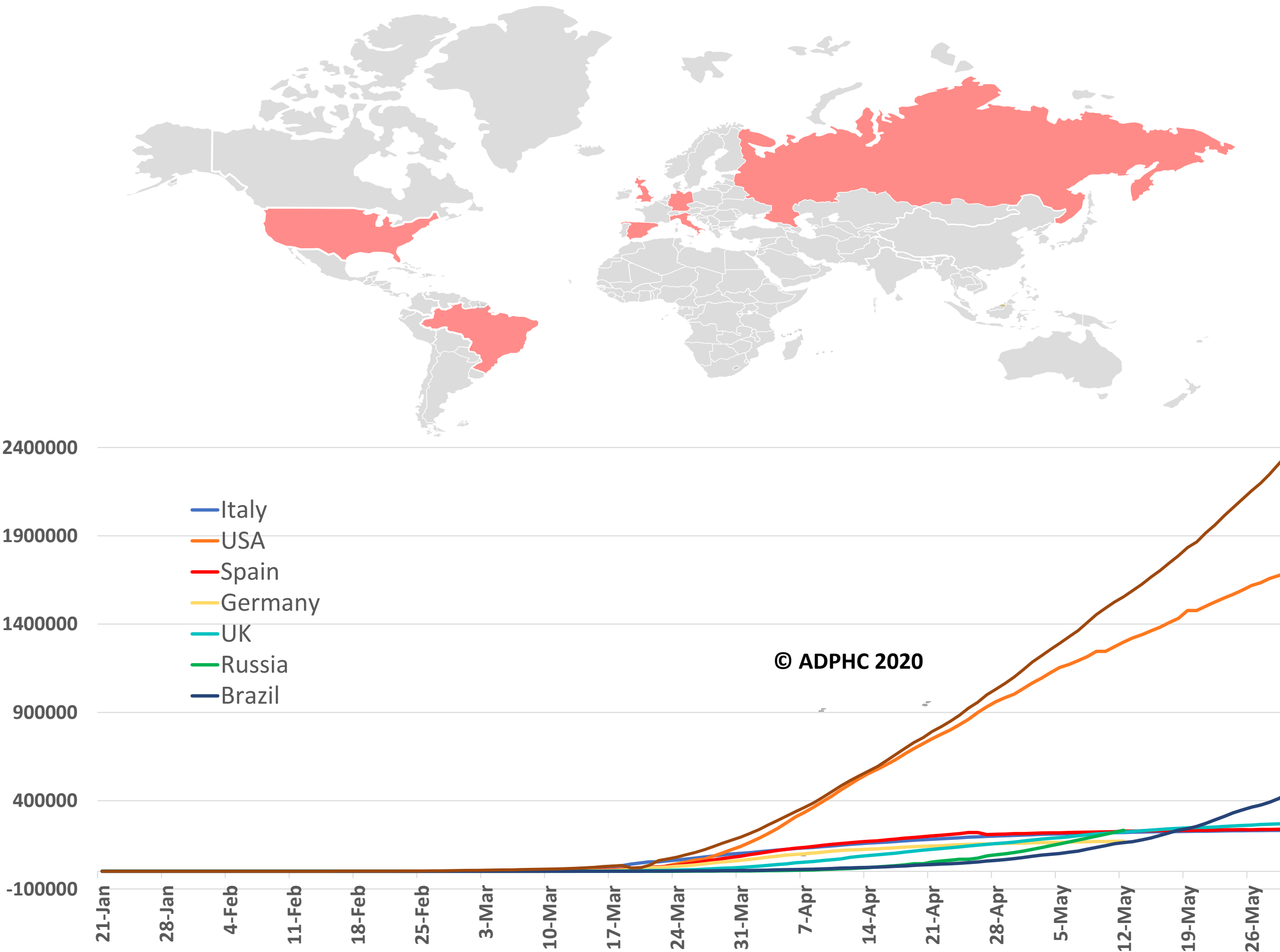
Line graph published by Abu Dhabi Public Health Center 2020.

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

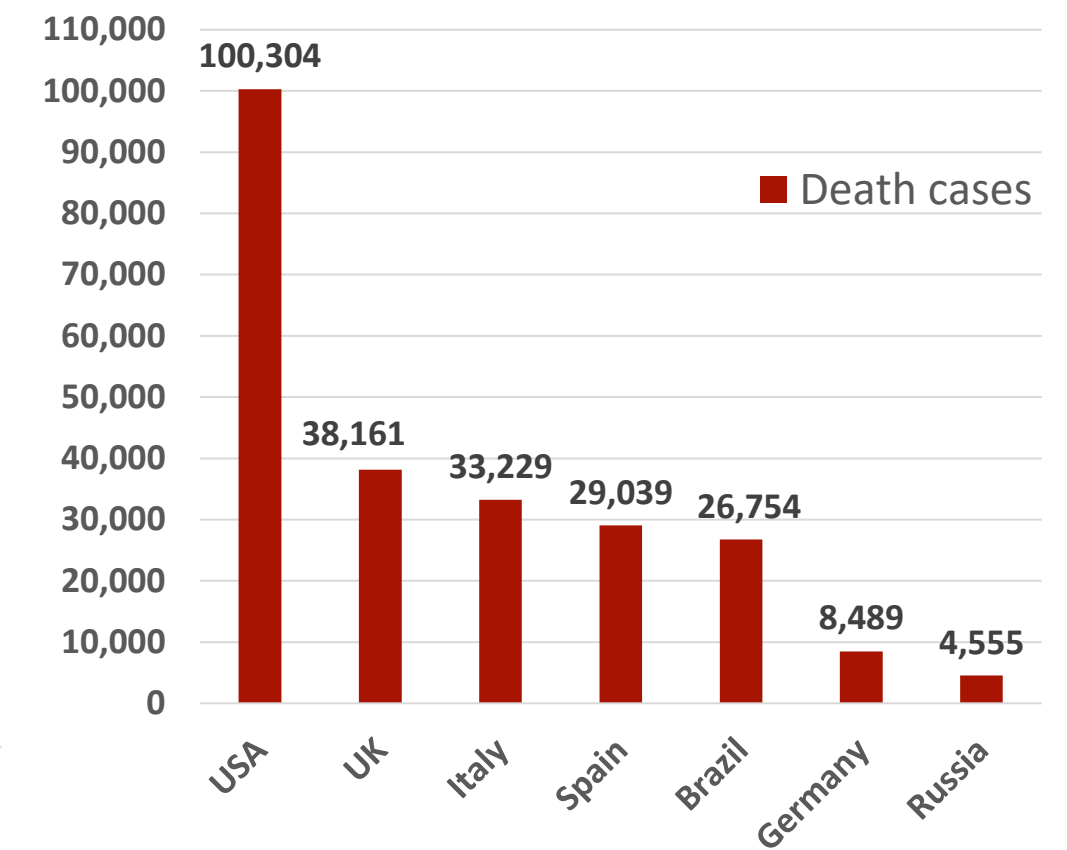
Epidemiology



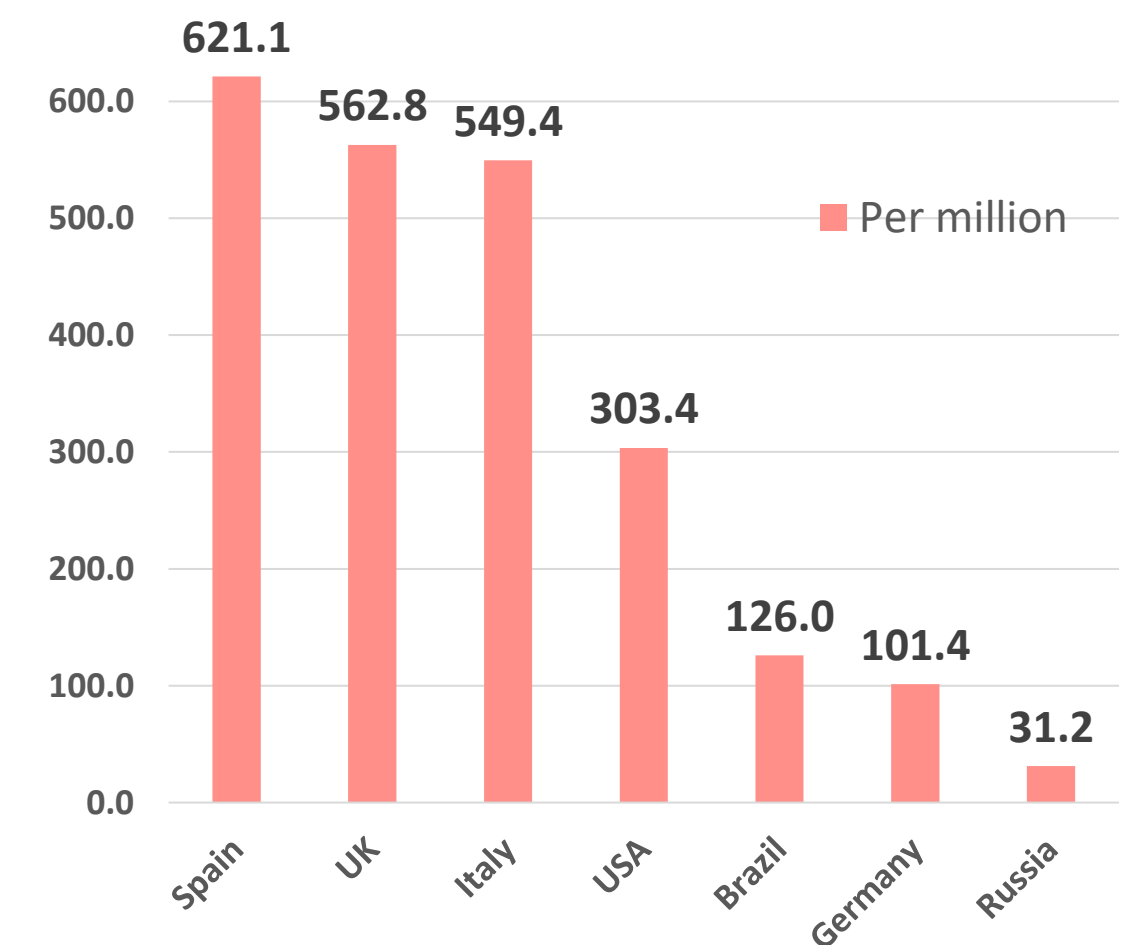
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to May 30, 2020).



TOTAL DEATHS



DEATHS PER MILLION

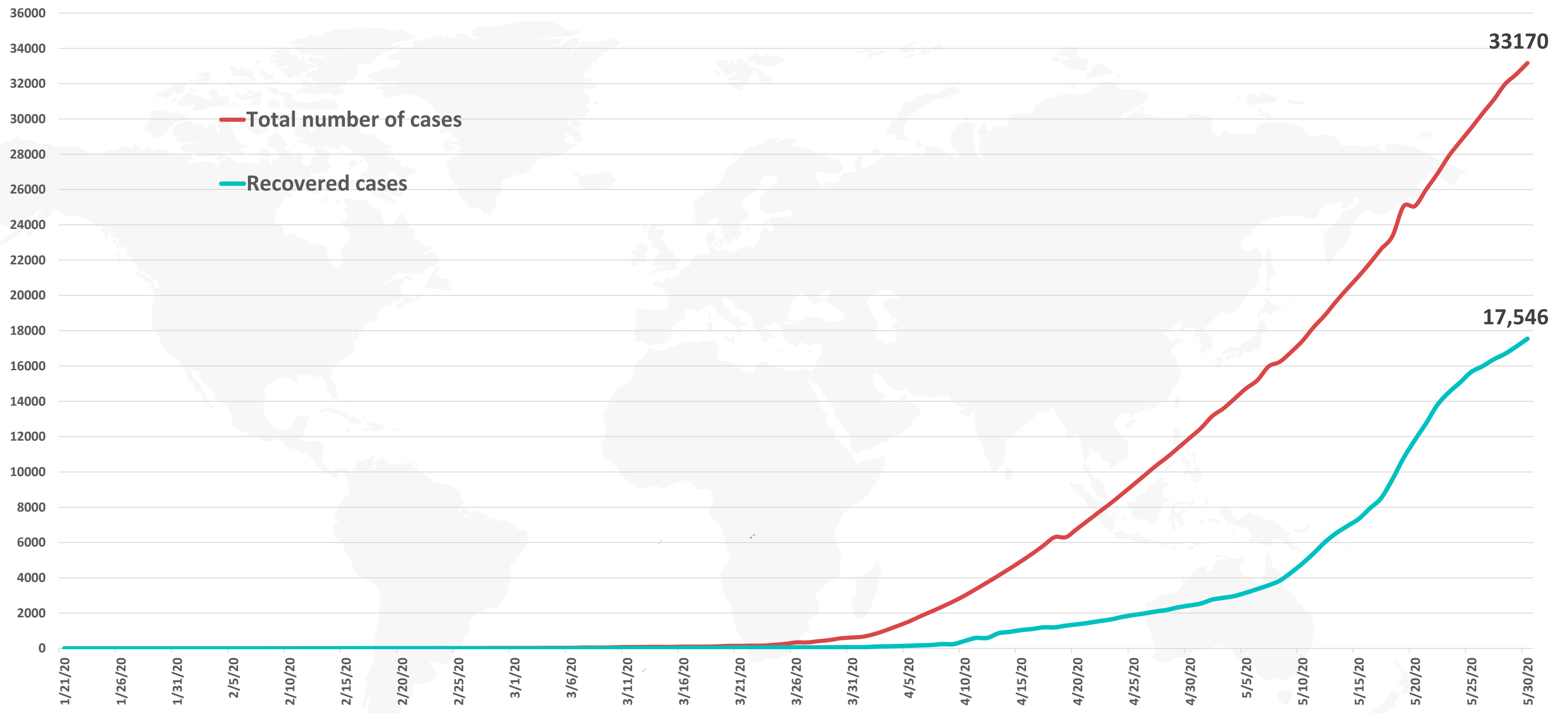


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



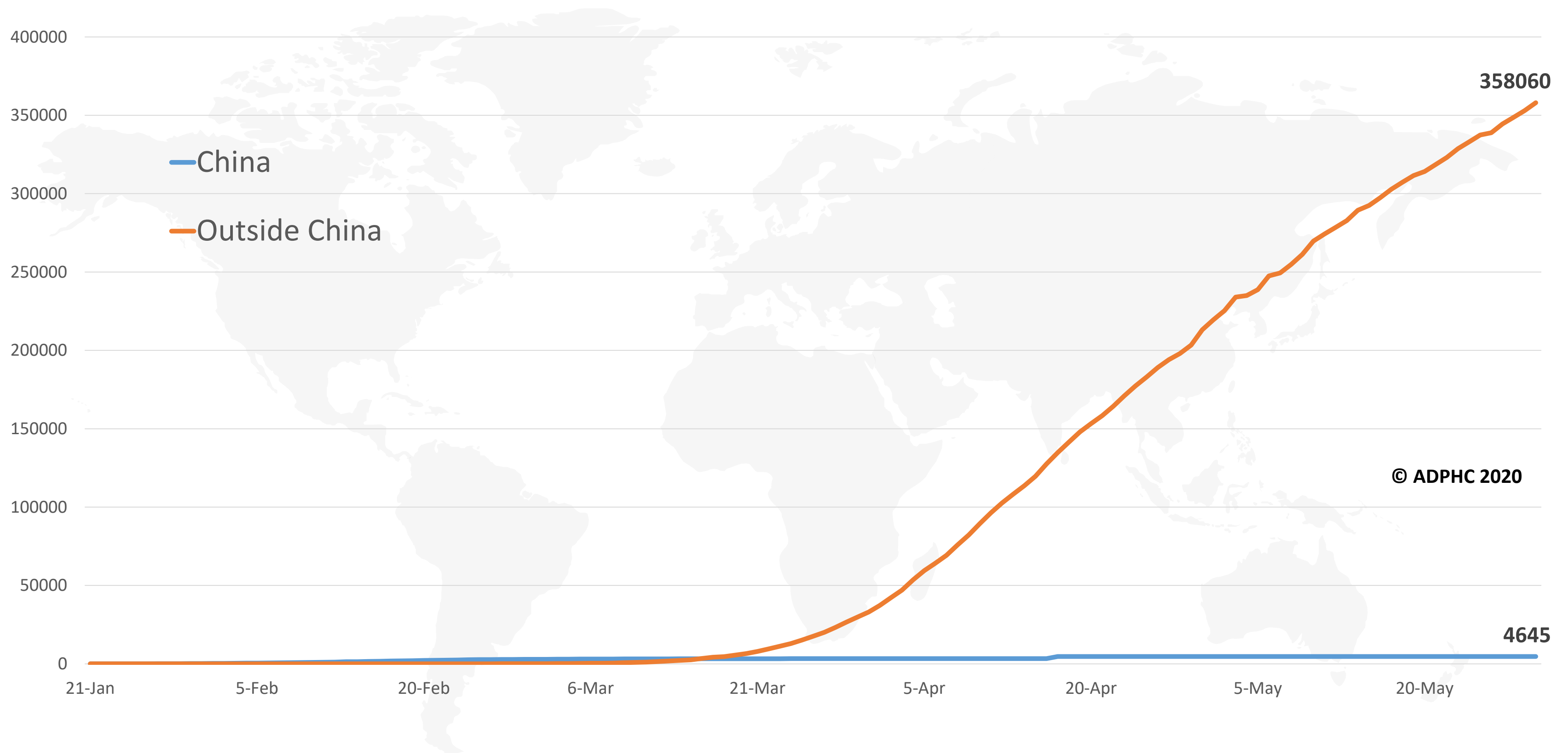
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 22 to May 30, 2020).



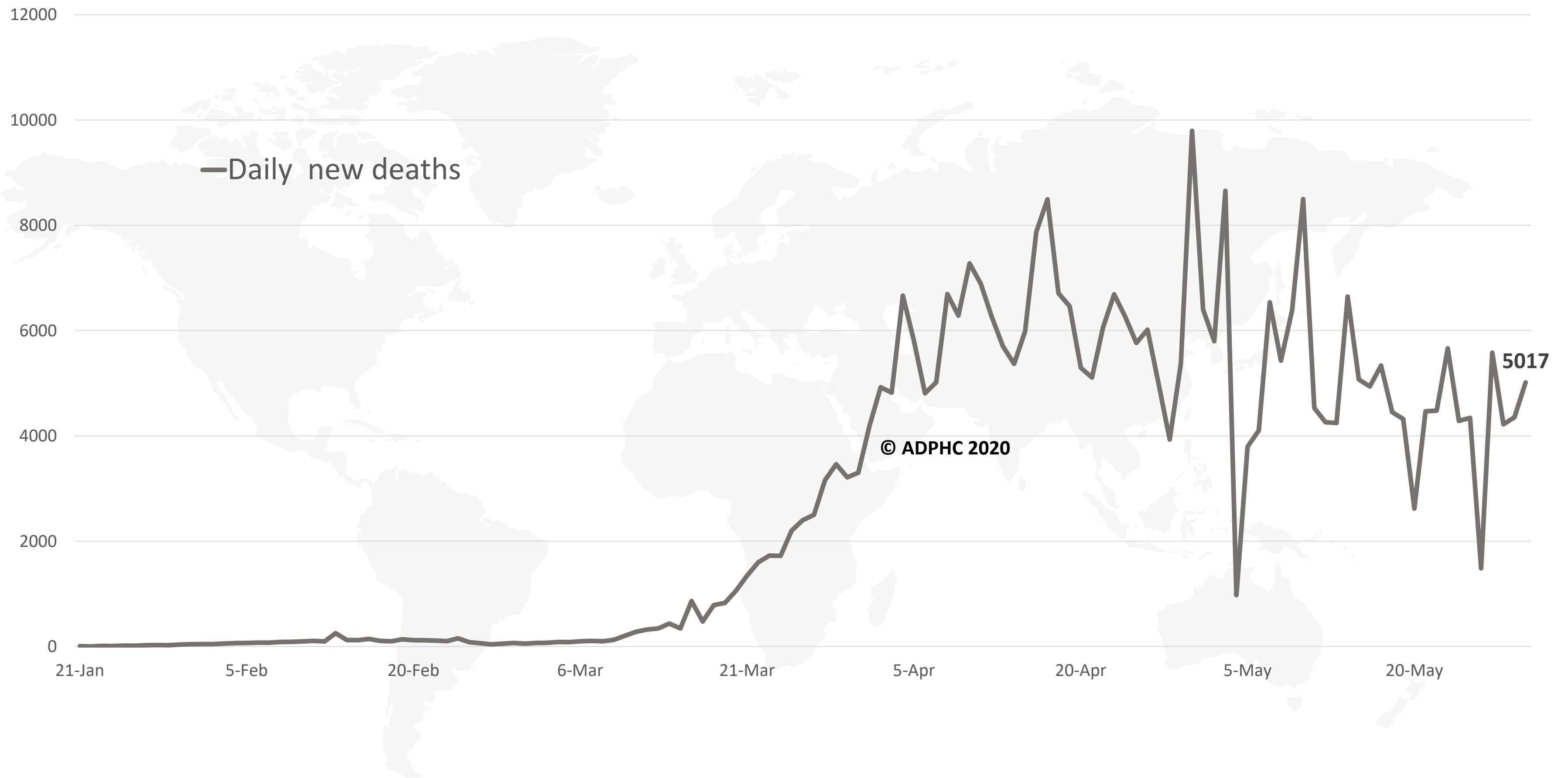
© ADPHC 2020

Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 6: Global daily new deaths due to COVID-19 (January 22 to May 30, 2020).



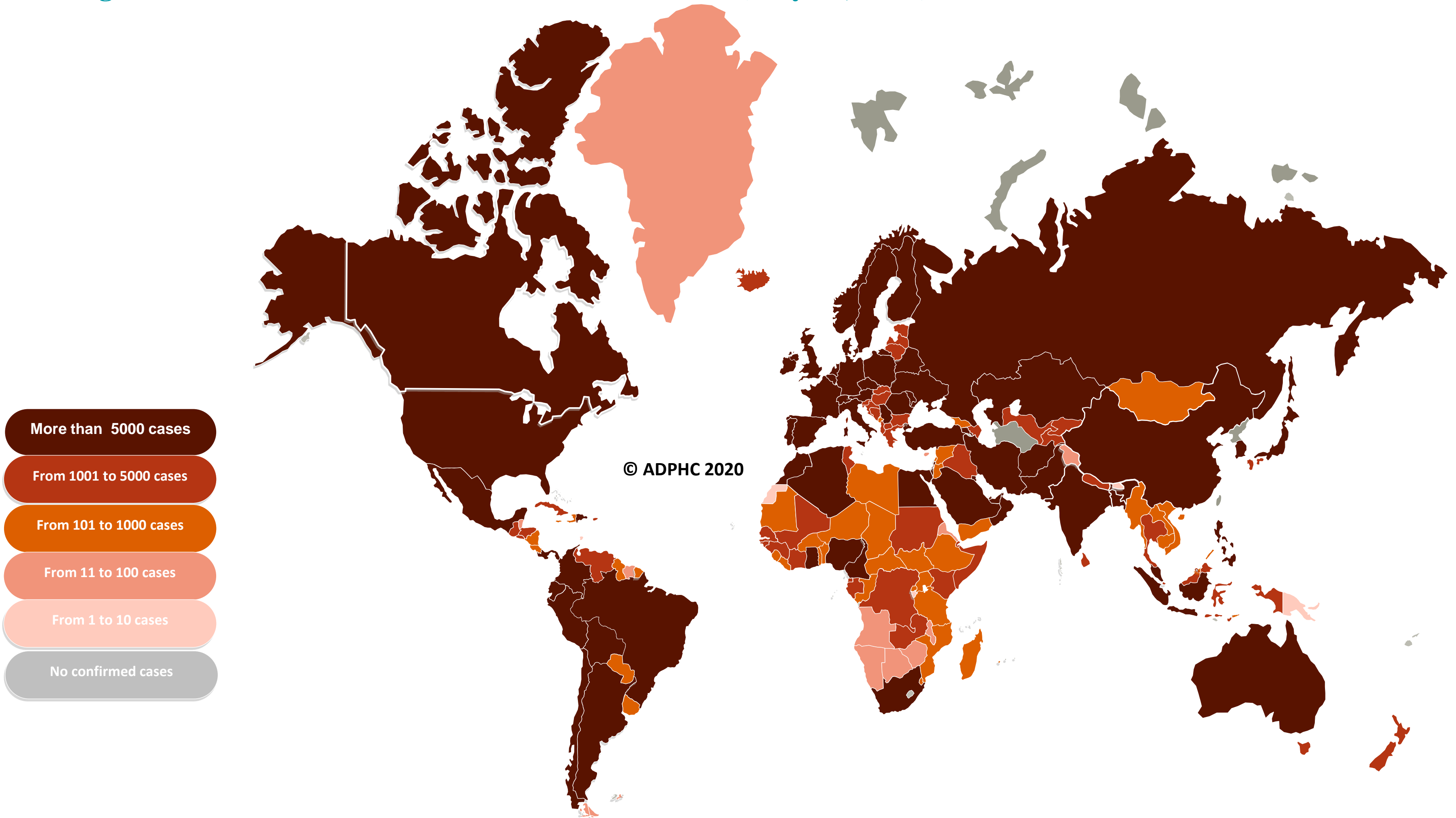
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



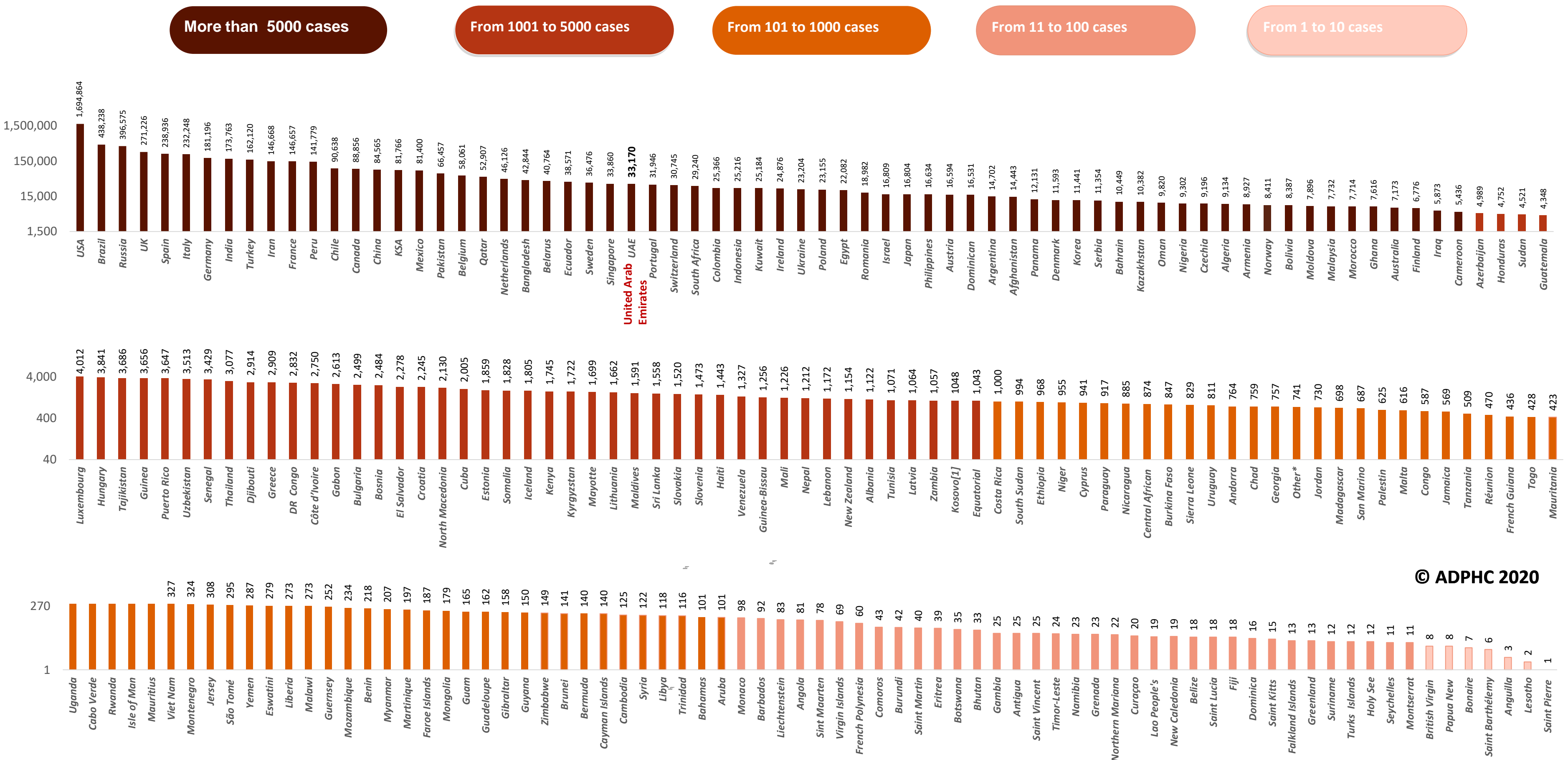
Figure 7a : Global distribution of COVID-19 cases (May 30, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases (May 30, 2020)



© ADPHC 2020

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

Map chart published by Abu Dhabi Public Health Center 2020.

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

© ADPHC 2020

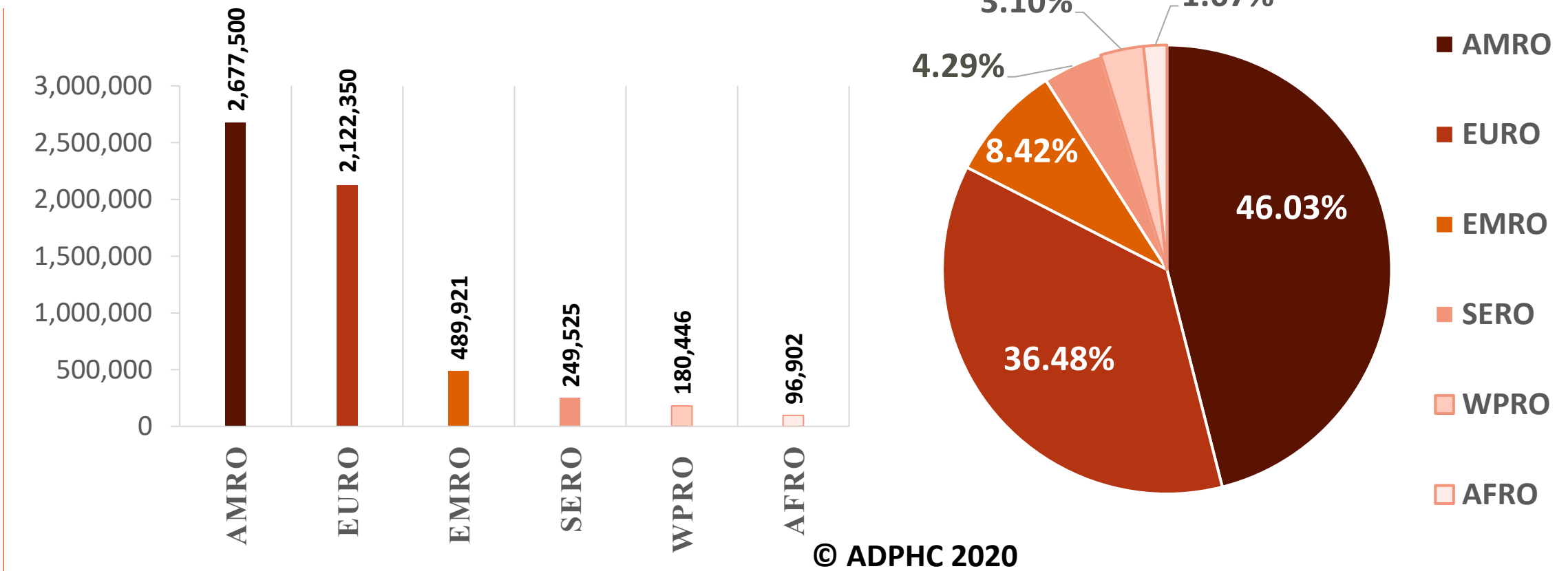
This document was developed by Abu Dhabi Public Health Center - ADPHC. The document is and shall remain the property of ADPHC and may only be used for the purposes for which it was intended. Unauthorized use or reproduction of this document is prohibited.

مركز أبوظبي للصحة العامة 2020 © هذه الوثيقة مملوكة لمركز أبوظبي للصحة العامة، ولا يجوز استخدامها لغير الأغراض المخصصة لها. ويحظر استخدام أو إعادة إنتاج هذه الوثيقة بدون إذن

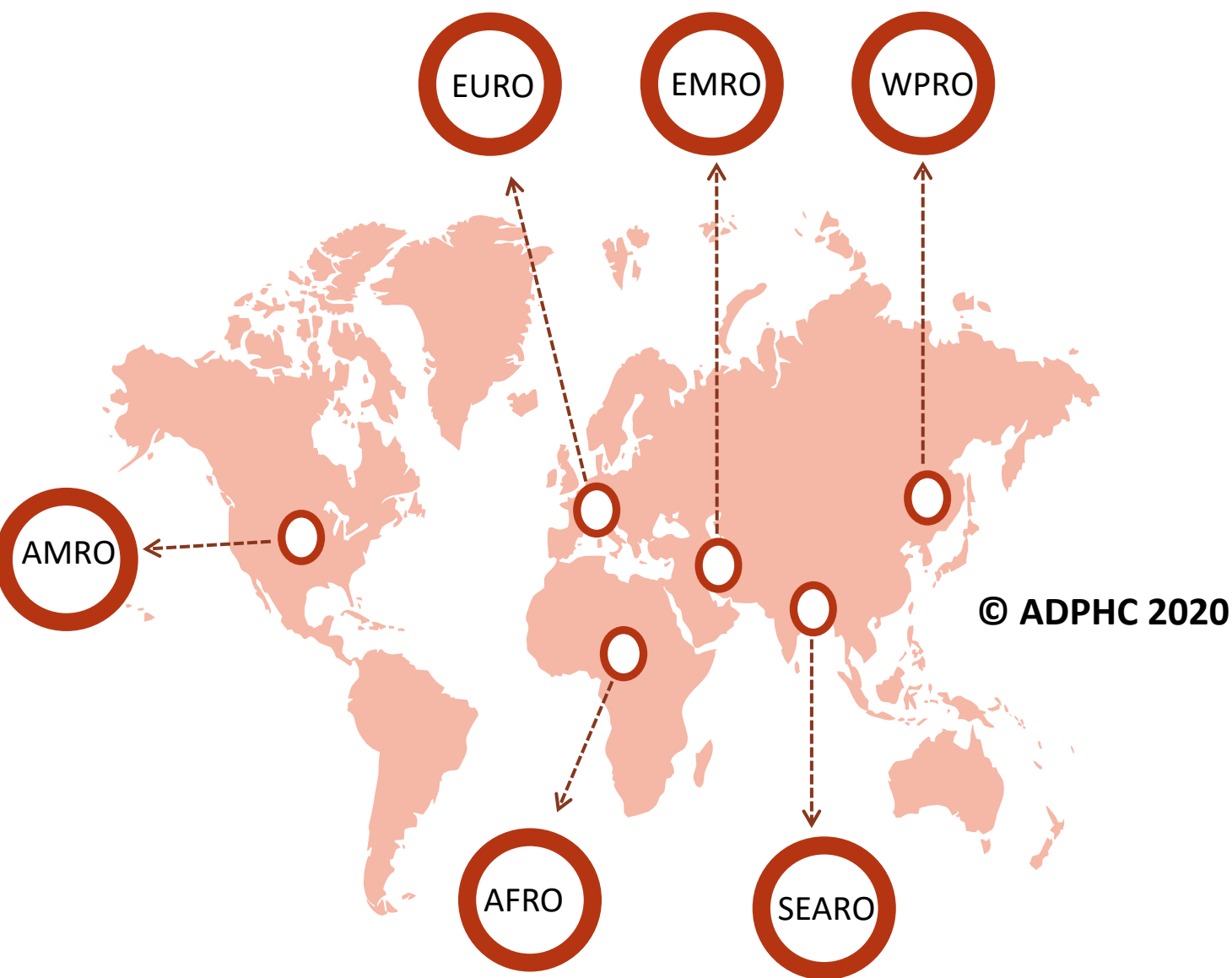
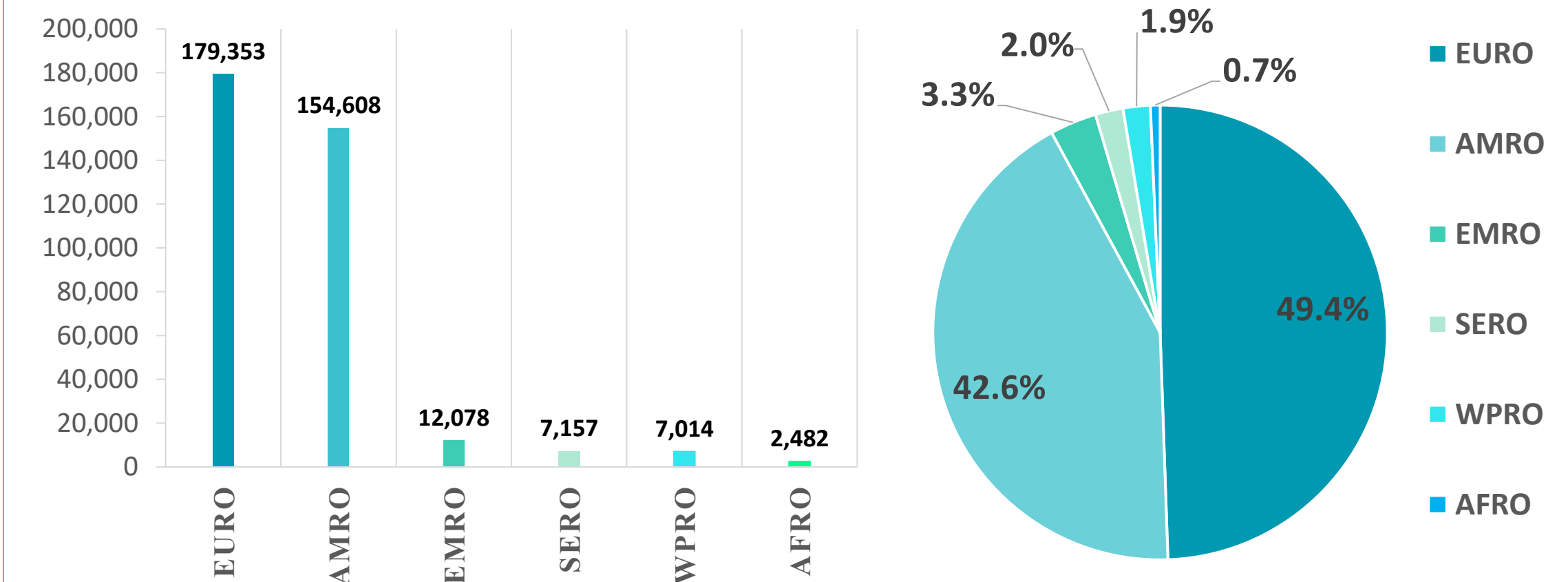


Figure 8: illustrate the Global distribution of COVID19 cases per region (May 30, 2020)

INFECTED



DEATH



Map chart published by Abu Dhabi Public Health Center 2020.

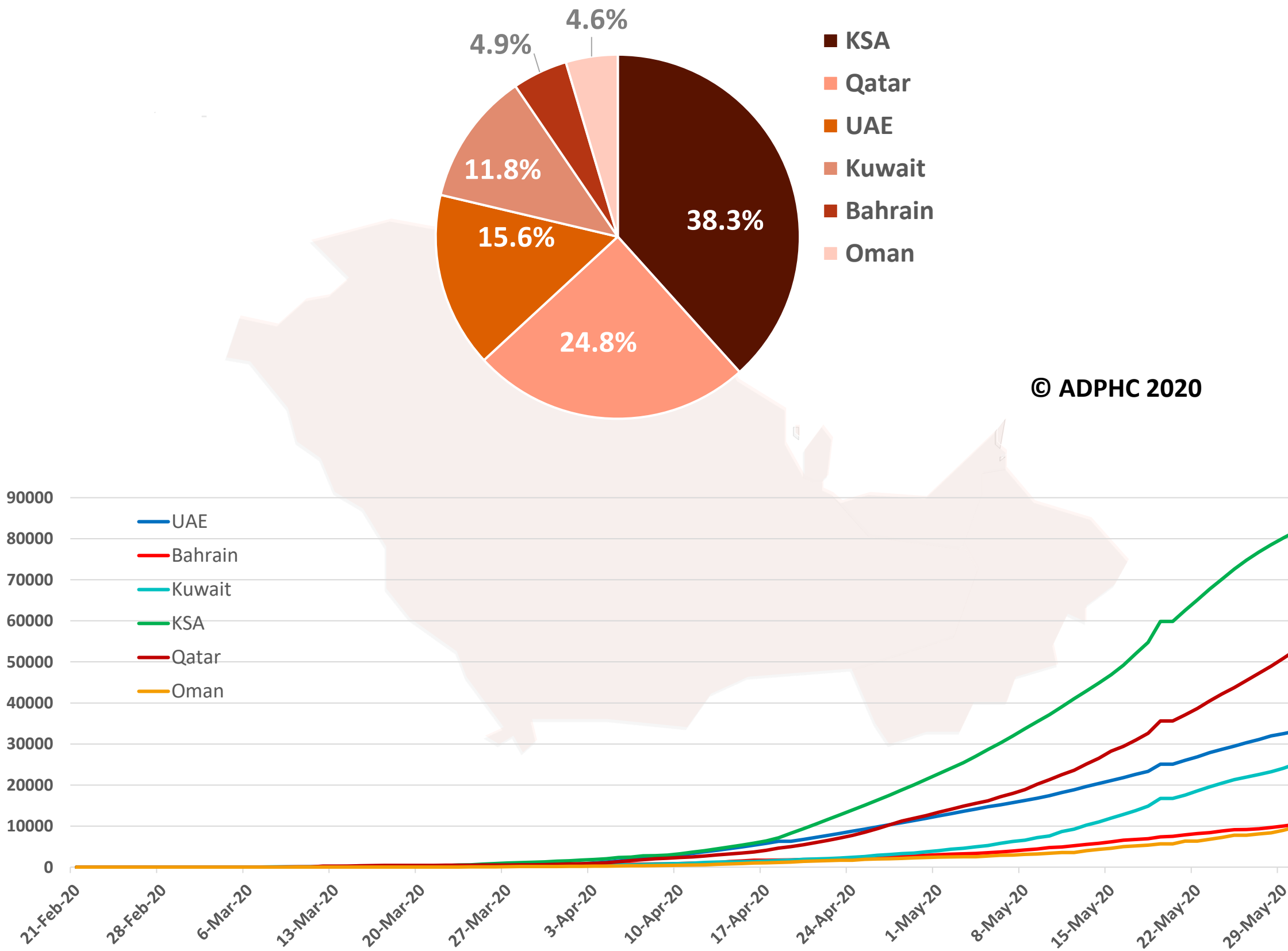
Data resources: [WHO](https://www.who.int/)

Epidemiology

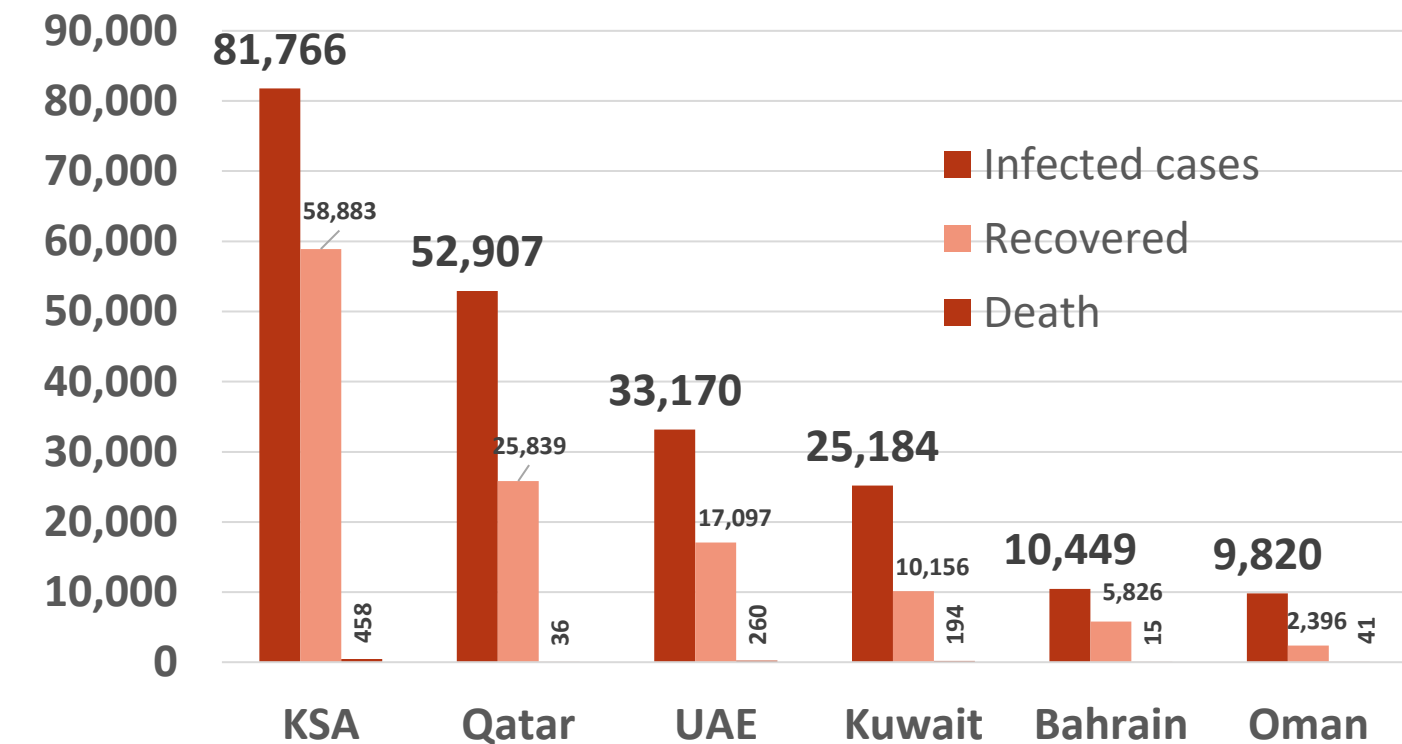


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (May 30, 2020)

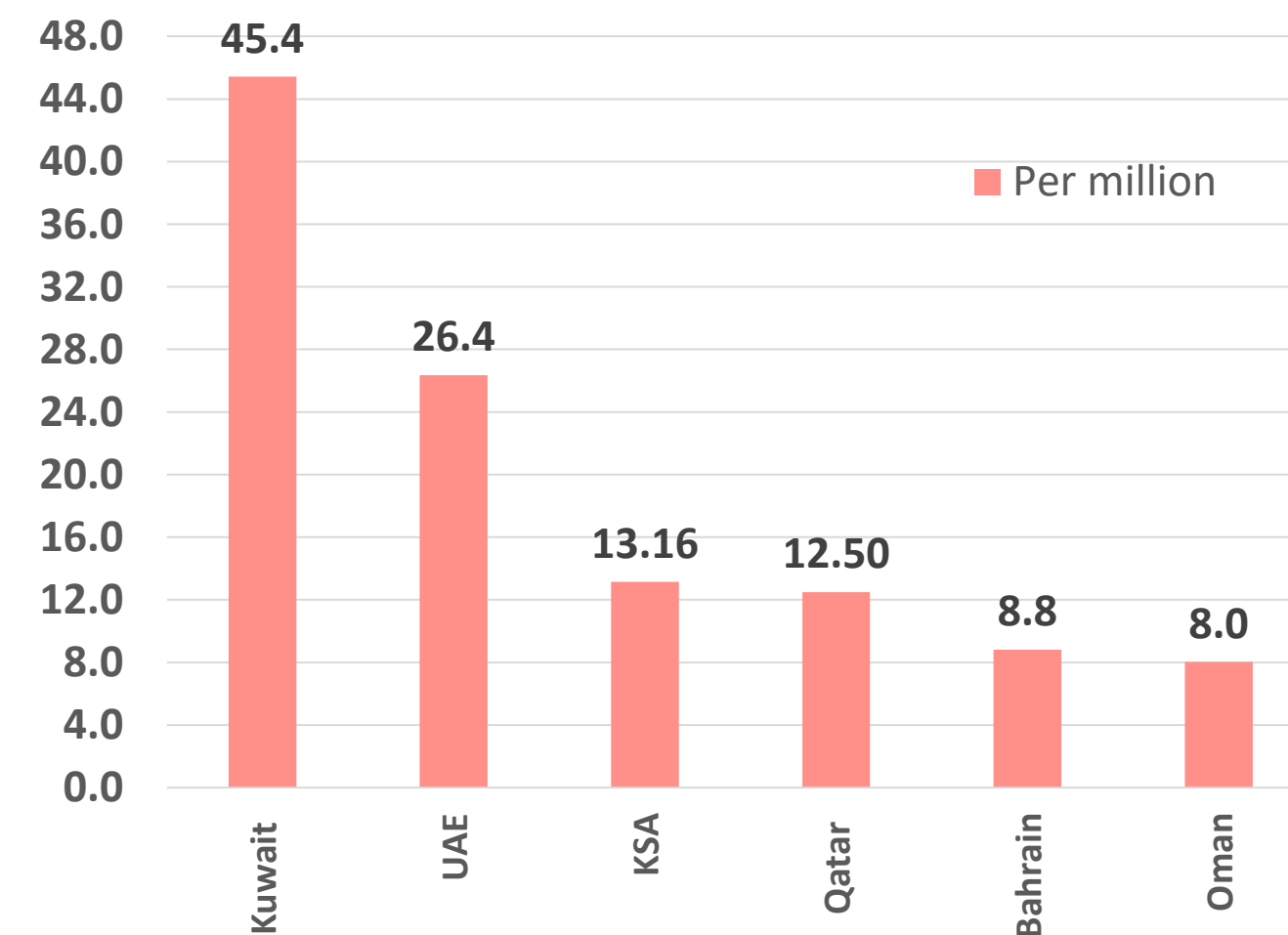
TOTAL NUMBER OF INFECTED CASES



Total number of infected, recovered and Deaths



Death per million



charts published by Abu Dhabi Public Health Center 2020.

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

© ADPHC 2020

This document was developed by Abu Dhabi Public Health Center - ADPHC. The document is and shall remain the property of ADPHC and may only be used for the purposes for which it was intended. Unauthorized use or reproduction of this document is prohibited.

مركز أبوظبي للصحة العامة 2020 © هذه الوثيقة مملوكة لمركز أبوظبي للصحة العامة، ولا يجوز استخدامها لغير الأغراض المخصصة لها. ويحظر استخدام أو إعادة إنتاج هذه الوثيقة بدون إذن



Transmission

Article 1 : Outbreak Investigation of COVID-19 Among Residents and Staff of an Independent and Assisted Living Community for Older Adults in Seattle, Washington

Published: 21 May 2020 in the [JAMA](#)

Summary:

Summarized by Subject matter expert

This article examined the Covid-19 virus spread after implementation of control measures in a ‘senior home’ where seniors (mean age 86 years) and staff (mean age 40 years) were tested for Covid-19 after they were exposed to Covid-19 positive residents.

How the Study was Done?

- In a senior home where residents and staff shared the communal dining, library, and activity areas.
- After 2 residents were tested positive, control measures such as social isolation (residents stay in their rooms, no visitors allowed), disinfection of frequently touched surfaces, daily staff screening and temperature monitoring were implemented.
- Information about symptoms such as fever, cough, malaise, diarrhea, and sore throat were collected through questionnaire.
- Nasopharyngeal swabs were collected and RT-PCR was used for virus detection.

What this Study Found?

- Covid-19 was detected in **2 out of 62 staff members**, both showed the symptoms of Covid-19.
- Covid-19 was detected in **3 out of 80 residents**, and they did not show any symptoms of Covid-19.

- On day 7, one additional resident was tested positive for Covid-19, again without any symptoms.
- All positive residents showed normal state of health at day 21.

Public Health Message

- The asymptomatic detection of virus in older adults present a challenge in protecting residents and staff.
- The low prevalence of SARS-CoV-2 detection observed on 2 separate dates, despite exposure to persons with known Covid-19, demonstrates a hopeful message: that adherence to staff screening, visitor exclusion, strict hygiene and social distancing strategies may be effective in preventing widespread transmission in senior independent/assisted living communities.



Article 2 : Remdesivir for the Treatment of Covid-19 — Preliminary Report

Published: May 22, 2020 The [NEJM](#)

Summary:

This is a double-blind, randomized trial in adults hospitalized with Covid-19 with evidence of lower respiratory tract involvement from 21 Feb-19 April 2020. 1063 Patients were randomly assigned to receive either remdesivir or placebo. 538 assigned to Remdesivir and 521 to placebo have post-Baseline data available. Patients monitored up to 29 days. **Primary outcome:** 1-Patients in the remdesivir group had a **shorter time to recovery** than patients in the placebo group (median, 11 days, as compared with 15 days)

Table 1. Demographic and Clinical Characteristics at Baseline.*

Characteristic	All (N=1063)	Remdesivir (N=541)	Placebo (N=522)
Age — yr	58.9±15.0	58.6±14.6	59.2±15.4
Male sex — no. (%)	684 (64.3)	352 (65.1)	332 (63.6)
Race or ethnic group — no. (%)†			
American Indian or Alaska Native	7 (0.7)	4 (0.7)	3 (0.6)
Asian	134 (12.6)	77 (14.2)	57 (10.9)
Black or African American	219 (20.6)	108 (20.0)	111 (21.3)
White	565 (53.2)	279 (51.6)	286 (54.8)
Hispanic or Latino — no. (%)	249 (23.4)	132 (24.4)	117 (22.4)
Median time (IQR) from symptom onset to randomization — days‡	9 (6–12)	9 (6–12)	9 (7–13)
No. of coexisting conditions — no. /total no. (%)‡			
None	193/920 (21.0)	91/467 (19.5)	102/453 (22.5)
One	248/920 (27.0)	131/467 (28.1)	117/453 (25.8)
Two or more	479/920 (52.1)	245/467 (52.5)	234/453 (51.7)
Coexisting conditions — no./total no. (%)			
Hypertension	460/928 (49.6)	231/469 (49.3)	229/459 (49.9)
Obesity	342/925 (37.0)	177/469 (37.7)	165/456 (36.2)
Type 2 diabetes	275/927 (29.7)	144/470 (30.6)	131/457 (28.7)
Score on ordinal scale — no. (%)			
4. Hospitalized, not requiring supplemental oxygen, requiring ongoing medical care (Covid-19–related or otherwise)	127 (11.9)	67 (12.4)	60 (11.5)
5. Hospitalized, requiring supplemental oxygen	421 (39.6)	222 (41.0)	199 (38.1)
6. Hospitalized, receiving noninvasive ventilation or high-flow oxygen devices	197 (18.5)	98 (18.1)	99 (19.0)
7. Hospitalized, receiving invasive mechanical ventilation or ECMO	272 (25.6)	125 (23.1)	147 (28.2)
Baseline score missing	46 (4.3)	29 (5.4)	17 (3.3)

Treatment (2/3)



Article 2: Cont.,

2-Patients who underwent randomization during the **first 10 days** after the onset of symptoms had a rate ratio for recovery of **1.28** (95% CI, 664 patients), whereas patients who underwent randomization more than 10 days after the onset of symptoms had a rate ratio for recovery of **1.38** (95% CI, 380 patients).

3-For clinical status outcome:

- Among patients with a baseline **ordinal score of 5** (421 patients, hospitalized, requiring any supplemental oxygen), the rate ratio for recovery was **1.47** (95% CI)” this is the most **benefited group from treatment**”;
- among patients with a **baseline score of 4** (127 patients, hospitalized, not requiring supplemental oxygen but requiring ongoing medical care) and;
- Those with a **baseline score of 6** (197 patients, hospitalized, requiring noninvasive ventilation or use of high-flow oxygen devices), the rate ratio estimates for recovery were **1.38** (95% CI) and **1.20** (95% CI), respectively.
- For those receiving **mechanical ventilation or ECMO** at enrollment (**baseline ordinal scores of 7**; 272 patients), the rate ratio for recovery was **0.95** (95% CI).

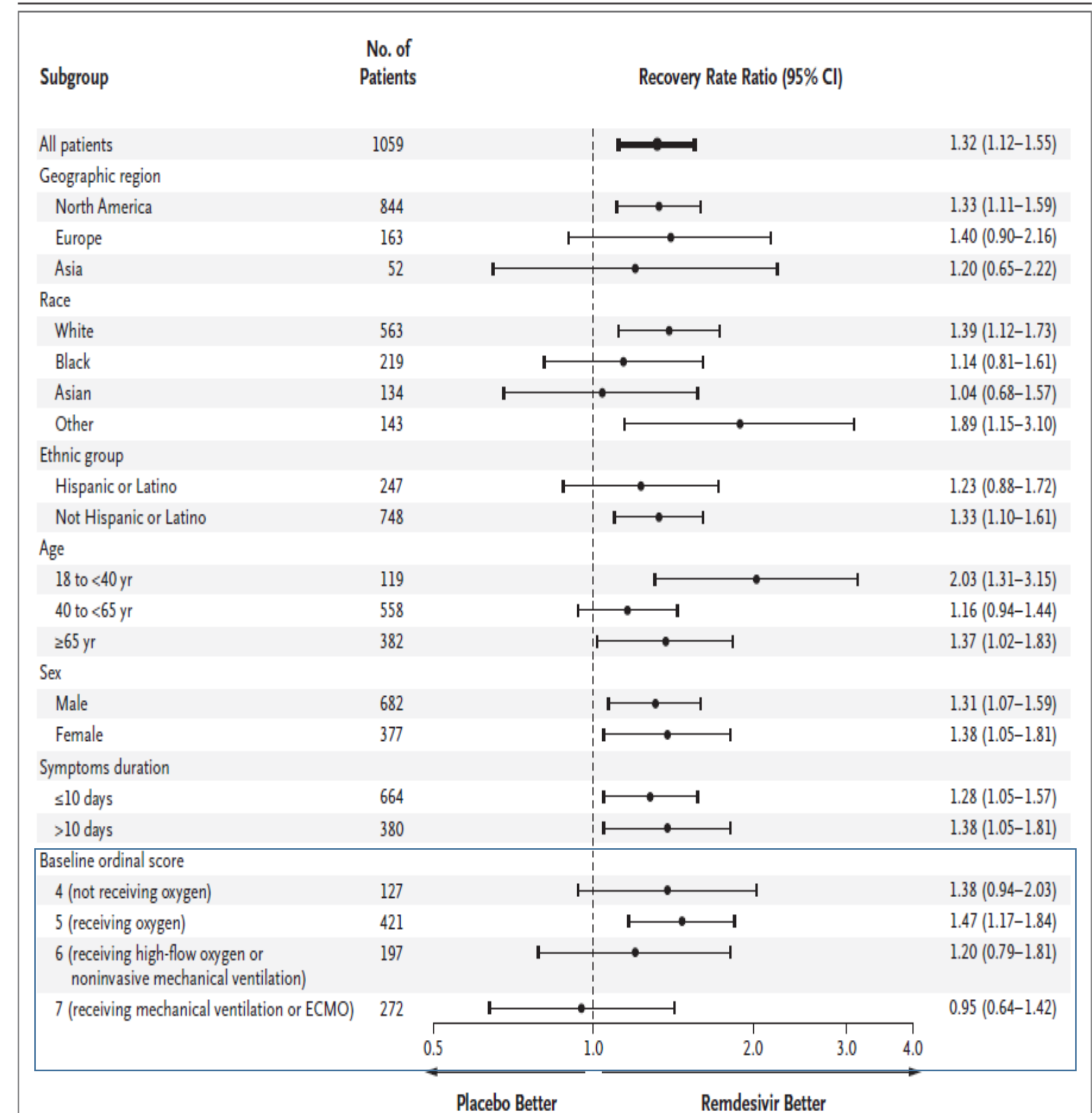


Figure 3. Time to Recovery According to Subgroup.

The widths of the confidence intervals have not been adjusted for multiplicity and therefore cannot be used to infer treatment effects. Race and ethnic group were reported by the patients.



Treatment (3/3)

Article 2: Cont., Summary:

Secondary outcome:

- estimates of mortality rate by 14 days were 7.1% with remdesivir and 11.9% with placebo. Mortality was numerically lower in the remdesivir group than in the placebo group, **but the difference was not significant**. estimates of mortality by 28 days are not reported in this preliminary analysis.

Safety outcome: Serious adverse events were reported for (21.1%) the Remdesivir group in (27.0%) of the placebo group.

The incidence of adverse events **was not found to be significantly different between the two groups**

CONCLUSIONS Remdesivir was **superior to placebo in shortening the time to recovery in adults hospitalized with Covid-19 and evidence of lower respiratory tract infection that requires oxygen support. given high mortality despite the use of remdesivir, it is clear that treatment with an antiviral drug alone is not likely to be sufficient.** Future strategies should evaluate antiviral agents in combination with other therapeutic approaches or combinations of antiviral agents to continue to improve patient outcomes in Covid-19.



Article 3: Anakinra in COVID-19: important considerations for clinical trials

Published: May 21, 2020 in [the Lancet](#).

Summary:

- Anakinra is a drug for Rheumatoid arthritis is expected to be a promising drugs to treated covid19 patient with cytokine storm.
- The Drug inhibits the pro-inflammatory cytokines **interleukin (IL)-1 α and IL-1 β** and has been used with some success to treat macrophage activation syndrome caused by various inflammatory conditions.
- Anakinra is **an immunosuppressive drug that carries the theoretical risk of harm in the wrong patient group** by potentially targeting beneficial inflammation; however, positive effects might also be missed if the correct patient group is not ascertained.
- **The challenge of using this drug in COVID19 patient is that is should be used in the correct patients . Correct patient are who have Cytokine storm. Cytokine storm is not easily identified is , therefore, Diagnostic criteria in this patient group are poorly developed and there is no consensus.**
- Although serum **ferritin and IL-6 concentrations are highly specific to hyper-inflammation** and have been shown to be associated with a need for ventilation in patients with COVID-19 **they are not routinely measured in the clinical setting.**
- **The author suggest a pragmatic approach to patient selection** based on identifying patients with **progressive disease and evidence of increasing inflammation.**
- Currently Trial on anakinra are currently ongoing in 2 in Greece(n2), 1 US (1) , 3 France (3), 1 Belgium(1) , 1 Italy (1), UK (1) and global (1).

Public Health Response:



Article 4: Innovation in Home Care (Time for a New Payment Model)

Published: May 21,2020 in [the JAMA.](#)

Summary:

- The new payment model would motivate both health care providers and organizations to deliver services to benefit the patient considering the cost and alternative uses of the resource. If the health system is paid only when physicians take care of patients in the office, the physicians are unlikely to enroll them in unreimbursed home based services.
- The payment model would meet patients where they are. System designers should view provision of care in the site that will be most efficient in improving health in developing care delivery innovations. **Insurers only paying for in person visits as a way of verifying that care was actually provided should become a thing of the past.**
- Preventive and treatment services should be valued equally. The payment model should be designed to motivate health care providers and organizations to assess if **care improves health at a reasonable price as opposed to saving money in the short term.** Analytics should be used to identify patients who are at higher future risk to guide interventions that proactively lower the risk.
- The new payment model should support customization. **The idea of precision medicine should not apply for using an individual's genotypes to influence the choice of cancer treatments. Given the diversity of patient clinical and social needs, preferences, and effectiveness of different interventions in different people, health systems need to continuously adjust what is offered to whom.**
- Creating a payment model that encourages innovation in personalized home care is a necessary step for payers that would facilitate realization of the promise of home based care in **providing lower cost high quality approaches.** Adoption of new clinical models in COVID-19 must be accompanied by payment models that will **create sustainability.**