

IHME's latest COVID-19 forecasts indicate that the World Health Organization (WHO) Eastern Mediterranean Regional Office (EMRO) countries will reach nearly 172,000 deaths by January 1, 2021. If mask wearing in public increases to 95%, there will be about 97,000 deaths and nearly 81,000 lives could be saved.

Methodology notes

In this update, we have revised our calculation of the infection-fatality rate (IFR), the number of deaths per infection by age. We previously used deaths compared to reported cases and used the location with the lowest reported case-fatality rate to approximate the IFR. Now we are using deaths compared to seroprevalence data by age from 41 locations. Preface Figure 1a compares the new directly measured IFR to our previous version. The key difference is that the IFR has a J-shape: IFR declines over the first 10 years of life and then increases steadily with age. The J-shape means that a newborn has the same risk of death if infected as a 25-year-old. Preface Figure 1b shows the number of infections per death by age (the inverse). Because the IFR based on the seroprevalence data is lower at younger ages than previously estimated, this implies more infections have occurred based on the number of deaths observed at these younger ages. The revised IFR will influence long-term forecasts as the percentage of the population in each state that has been infected is higher, bringing each state closer in the long term to herd immunity.

Current situation

- COVID-19 transmission as captured by reported cases has started to trend up again (Figure 1), while deaths remained steady for the last two weeks at around 350 deaths a day. Deaths were declining since early July but seem to have leveled now and possibly could go up due to the rise in cases (Figure 2a).
- Examination of effective R (the number of new infections caused by each infection) on August 20, based on the combined analysis of data on cases, hospitalizations, and deaths, suggests that transmission is increasing in four countries: Egypt, Lebanon, Palestine, and Somalia (Figure 3).
- The percentage of the population infected with COVID-19 is still very low, with the highest rates observed in Iran, Iraq, Oman, Saudi Arabia, and Kuwait (Figure 4).
- The fraction of infections being detected has risen just a little during the epidemic, with the fraction of infections detected and reported as confirmed cases less than 7.5%. This rate has not improved in the past month (Figure 5).
- Countries with daily death rates over 1 per million are Iraq, Iran, Lebanon, and Oman (Figure 6).

Drivers of transmission trends (mobility, mask use, testing, and seasonality)

- Social distancing mandates have stayed relatively constant over the last week, with Lebanon starting a two-week partial lockdown. Somalia is the only country with no mandates (Table 2 and Figure 7).
- Mobility measured by app use on smartphones, including Android and Apple iOS, has increased since early April, with a slight decline around the two major Islamic holidays (Figure 8a). Mobility is now about 15% less than the baseline in January. It remained stable over the past two weeks. However, we expect the relaxation of mandates in the region will tend to increase mobility through September. The lowest levels of mobility are currently seen in UAE and Saudi Arabia (Figure 8b). A caution about our estimate of mobility is that due to the use of smart devices we may have overestimated the decline in mobility, as wealthier people are more likely to reduce their mobility.
- Despite mask mandates in EMRO, mask use has declined to less than 40% (Figure 9a). The highest mask use is in the Gulf countries, but it is less than 30% in Afghanistan, Yemen, Palestine, Sudan, Egypt, Libya, and Tunisia (Figure 9b).
- COVID-19 testing rates have leveled in the region but are still below 45 per 100,000 (Figure 10a). The highest rates of testing are now in UAE (Figure 10b).

Projections

- Our estimate of cumulative deaths for EMRO has increased to 171,958 deaths by January 1, 2020. This is an increase from 148,476 deaths by December 1, 2020, from our August 27 update.
- As of today, there have been about 52,000 COVID-19 deaths in the region, and our estimates suggest 120,000 deaths from now until January 1 (Figure 12). We expect that the daily death rate will start increasing in the coming week and will reach 2,500 deaths per day by January 1 (Figure 13).
- These forecasts assume that countries will on average reimpose a package of social distancing mandates when the daily death rate reaches 8 per million. Our current projections show that several countries will reimpose mandates by January 1: Iraq, Palestine, and Morocco in November, and Iran, Syria, UAE, Saudi Arabia, Oman, Libya, and Tunisia in December (Figure 15).
- If mask use were increased to 95%, the level observed in Singapore and several countries in Latin America, the projected number of deaths would be 97,061 deaths and about 80,897 lives could be saved. This is about a 65% reduction in the number of deaths expected between now and January 1 (Figures 12 and 13).
- By the week of January 1, COVID-19 is expected to be the fifth-leading cause of death in EMRO (Table 3).

EMRO-specific notes

- A caution for EMRO: since many of the countries have unrest or wars, the chance of under-reporting of cases due to lack of testing and deaths due to poor vital registration is very high. Our current estimates do not include excess mortality.
- Some countries in the region have reported very few deaths, and numbers have peaked and are declining (Iran, Pakistan, Saudi Arabia, and Egypt). In addition to the under-reporting issue, it is possible that previous coronavirus infections are resulting in immunity to COVID-19, contact networks are smaller than in the west, or super-spreaders have been removed from the pool (i.e., death or immunity of the key “connector” in a community such as store employees, etc.).

COVID-19 Results Briefing: the Eastern Mediterranean Region

Institute for Health Metrics and Evaluation (IHME)

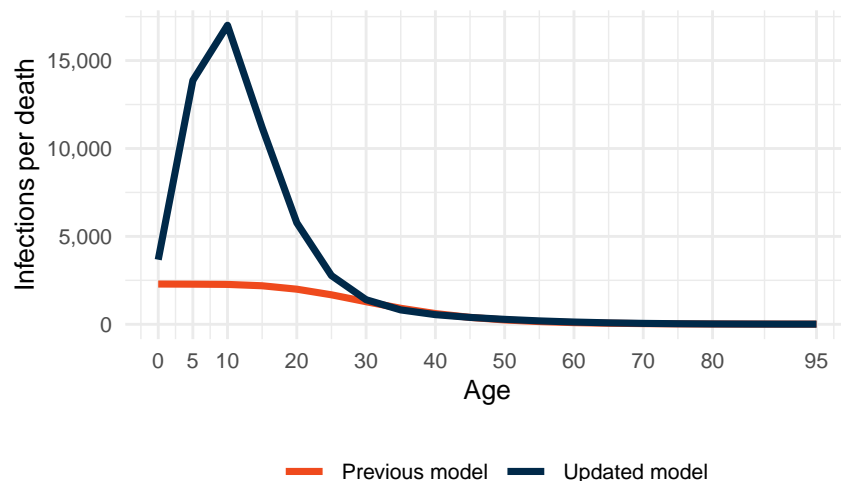
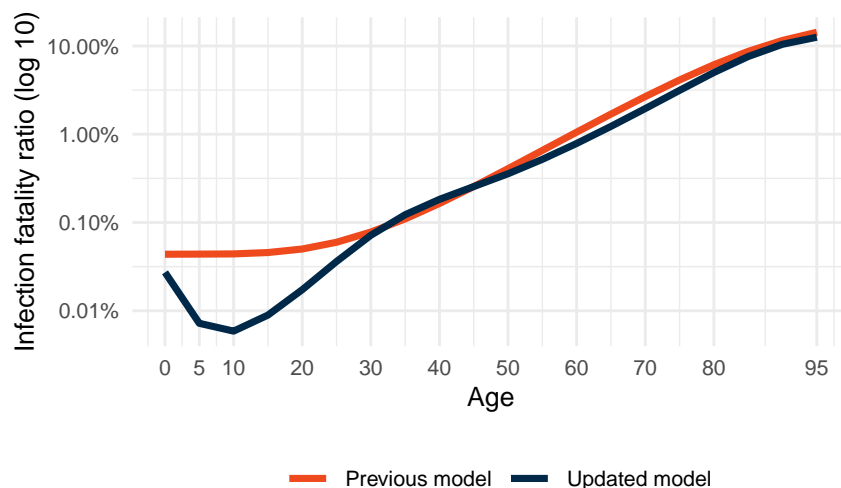
September 03, 2020

This briefing contains summary information on the latest projections from the IHME model on COVID-19 in the Eastern Mediterranean Region.

Updates on September 03, 2020

Starting this week, we are reporting our projections up to January 1, 2021. Updates to the model this week include additional data on deaths, cases, and updates on covariates. Since our model two weeks ago, we have been using an updated infection to fatality ratio (IFR) that substantially affects the number of estimated infections in our model, particularly in younger age groups. The Preface Figure shows the age pattern as previously used and the new age pattern. This curve is a global pattern and affects all locations.

Preface Figure.



Current situation

Figure 1. Reported daily COVID-19 cases

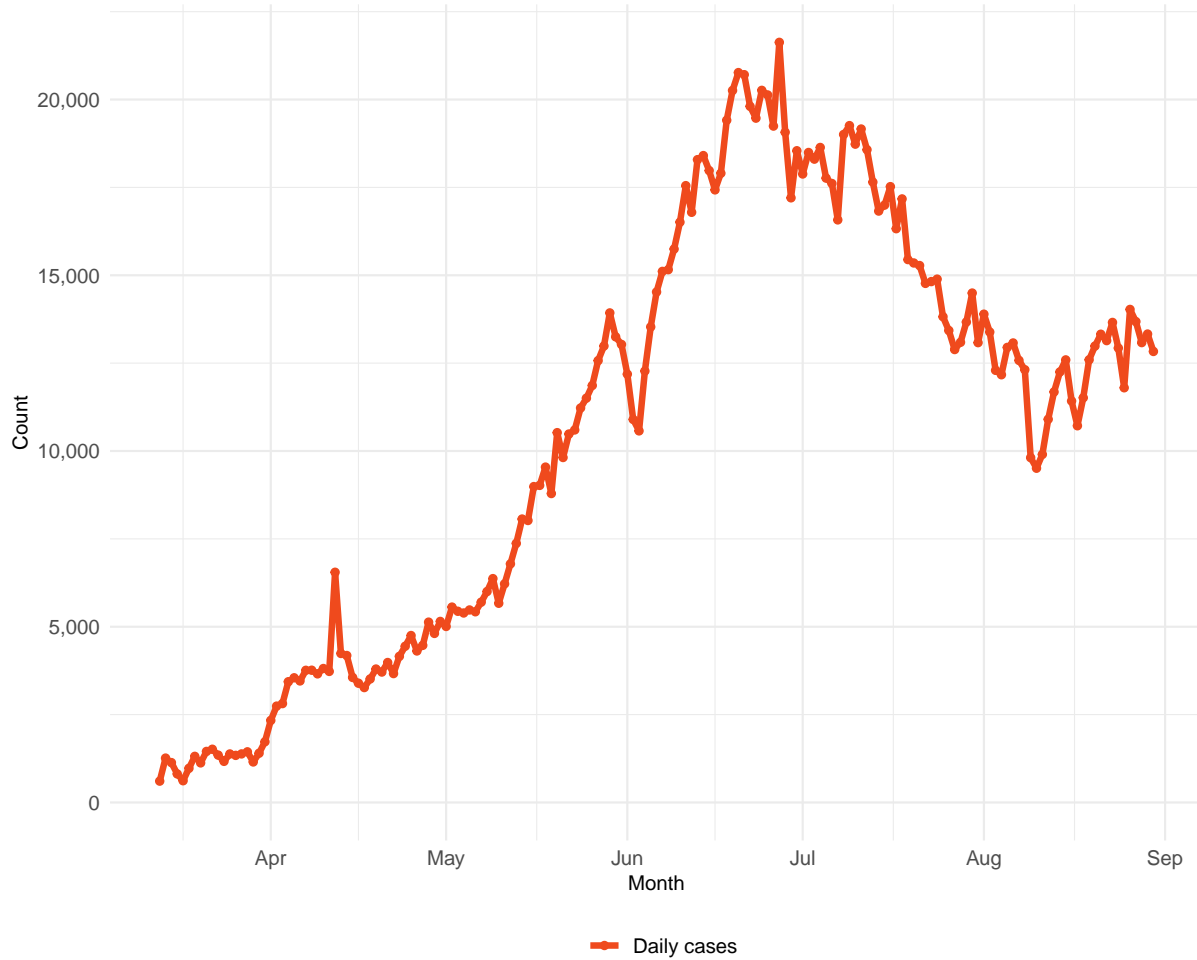


Table 1. Ranking of COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Ischemic heart disease	15,912	1
Neonatal disorders	7,028	2
Stroke	6,729	3
Lower respiratory infections	3,385	4
Road injuries	2,935	5
Cirrhosis and other chronic liver diseases	2,806	6
Chronic kidney disease	2,501	7
Diabetes mellitus	2,403	8
Diarrheal diseases	2,386	9
Chronic obstructive pulmonary disease	2,315	10
COVID-19	2,278	11

Figure 2a. Reported daily COVID-19 deaths and smoothed trend estimate

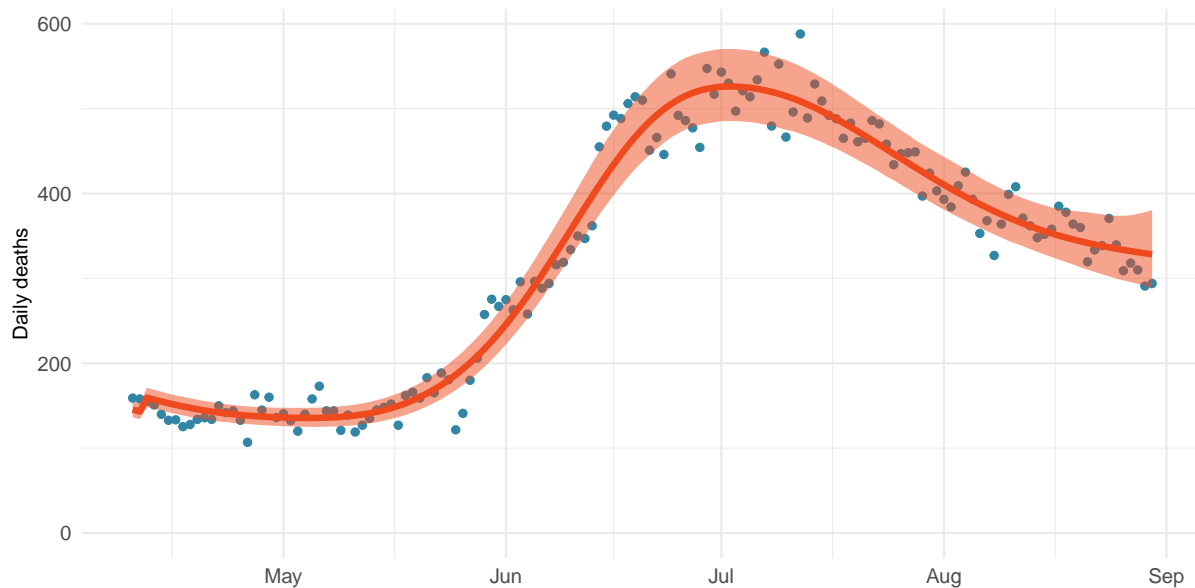


Figure 2b. Estimated cumulative deaths by age group

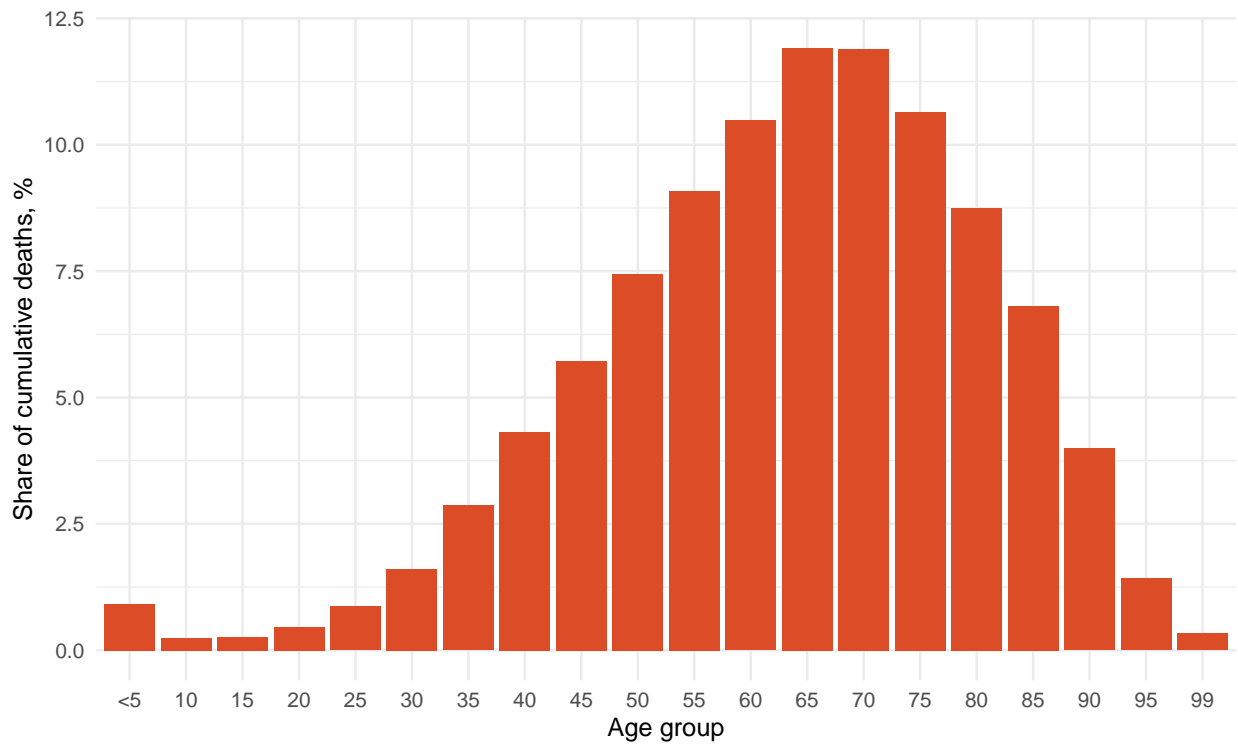


Figure 3. Mean effective R on August 20, 2020. The estimate of effective R is based on the combined analysis of deaths, case reporting and hospitalizations where available. Current reported cases reflect infections 11-13 days prior so estimates of effective R can only be made for the recent past. Effective R less than 1 means that transmission should decline all other things being held the same.

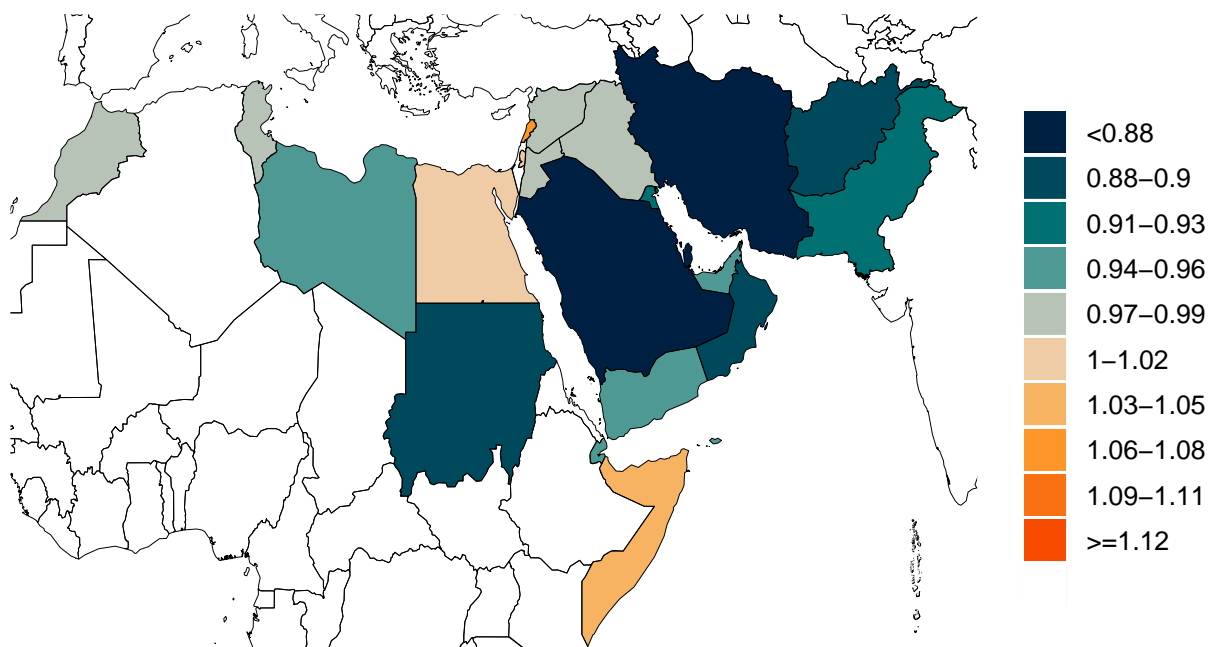


Figure 4. Estimated percent infected with COVID-19 on August 31, 2020

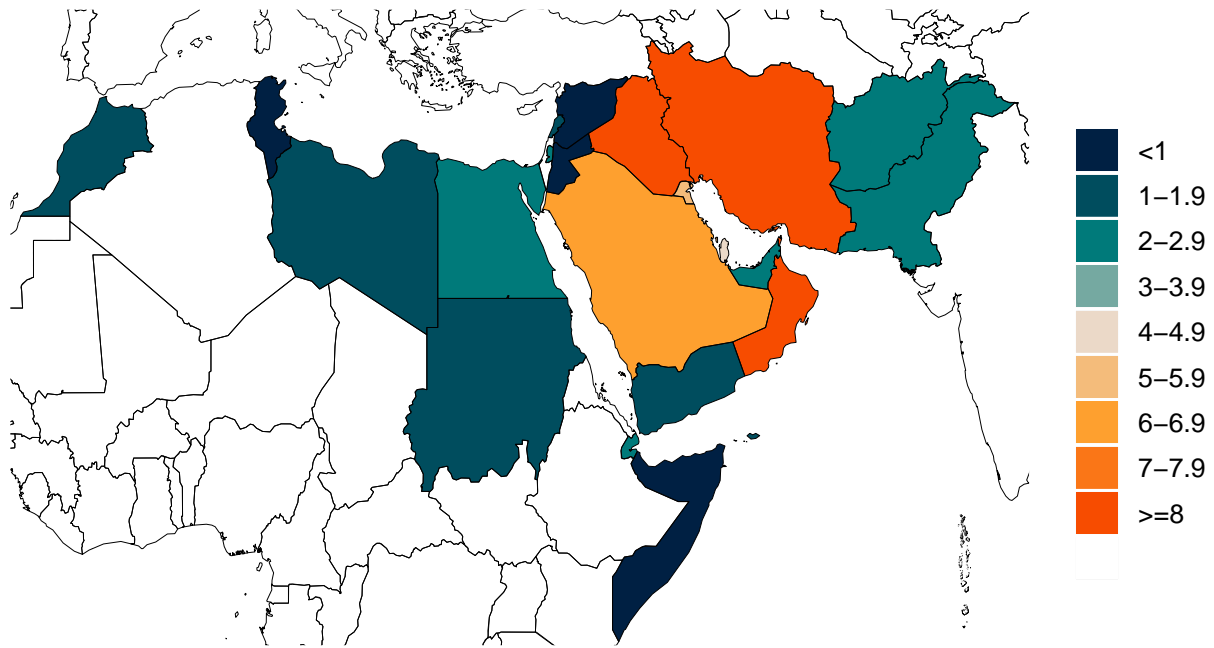


Figure 5. Percent of COVID-19 infections detected. This is estimated as the ratio of reported COVID-19 cases to estimated COVID-19 infections based on the SEIR model.

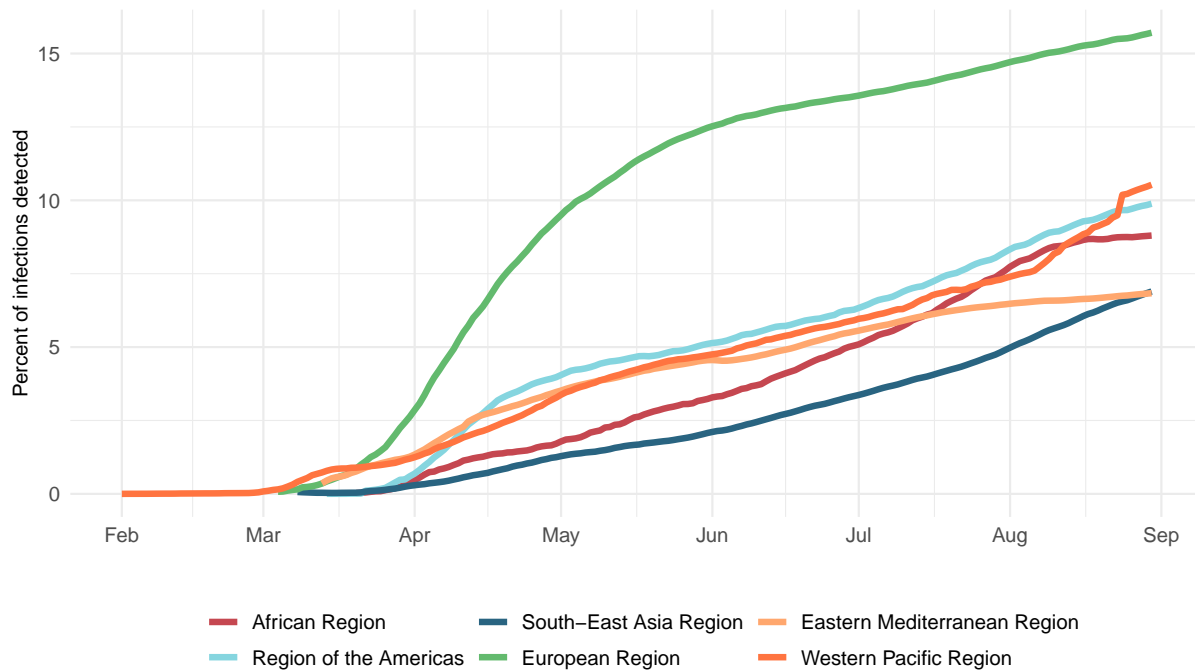
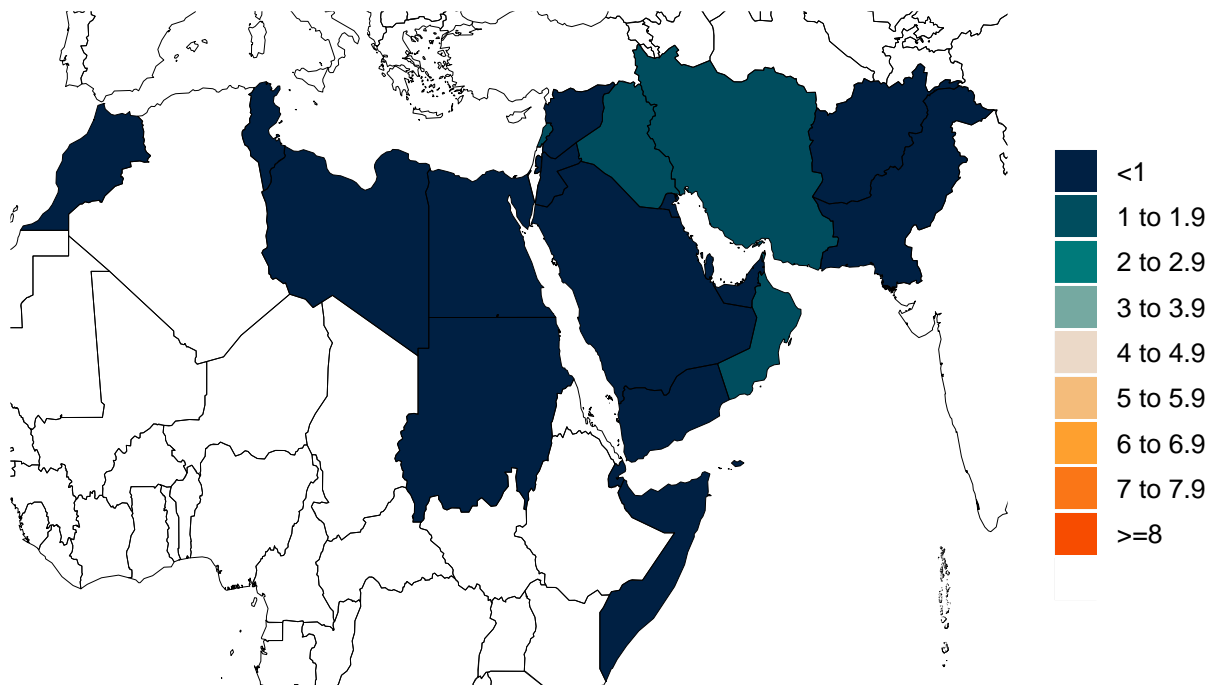


Figure 6. Daily COVID-19 death rate per 1 million on August 31, 2020



Critical drivers

Table 2. Current mandate implementation


Figure 7. Total number of mandates

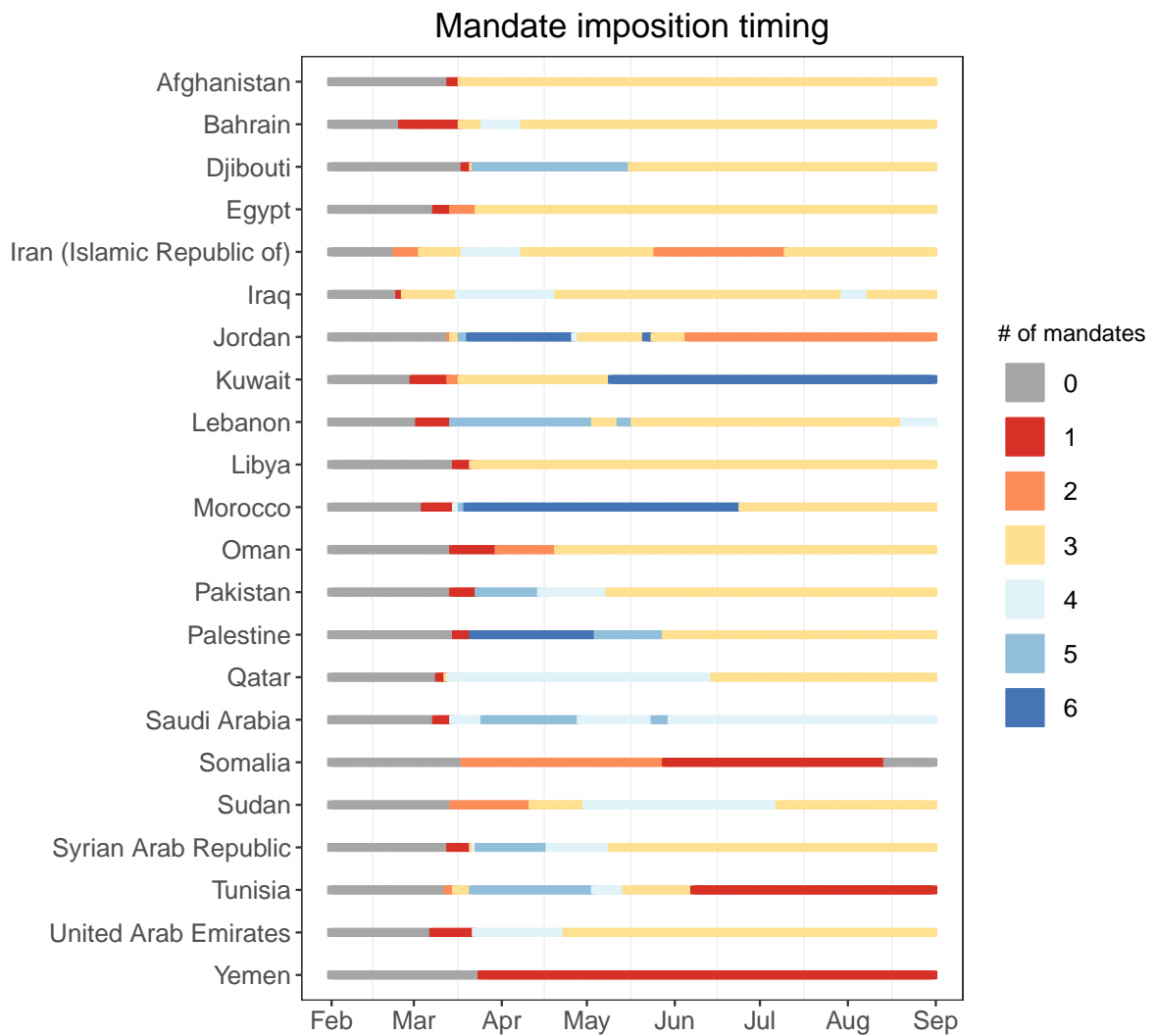


Figure 8a. Trend in mobility as measured through smartphone app use compared to January 2020 baseline

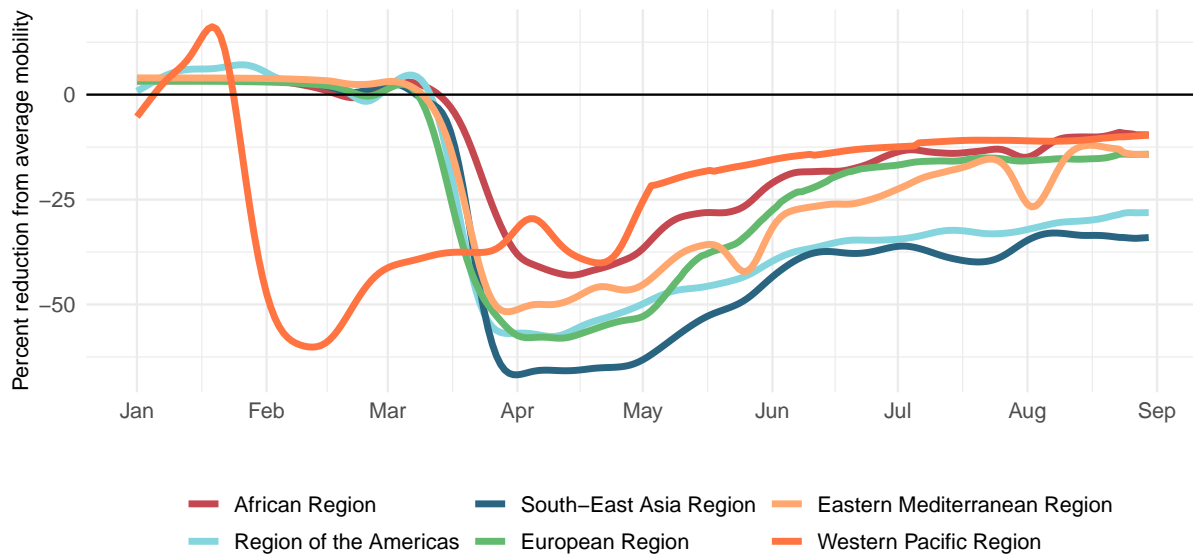


Figure 8b. Mobility level as measured through smartphone app use compared to January 2020 baseline (percent)

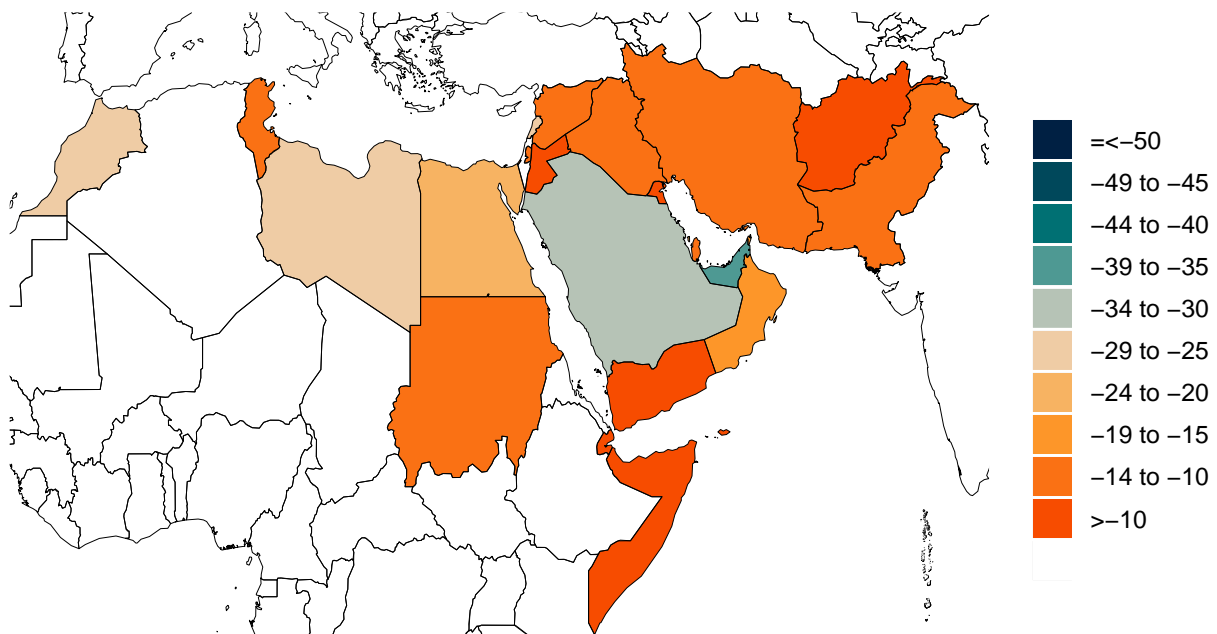


Figure 9a. Trend in the proportion of the population reporting always wearing a mask when leaving home

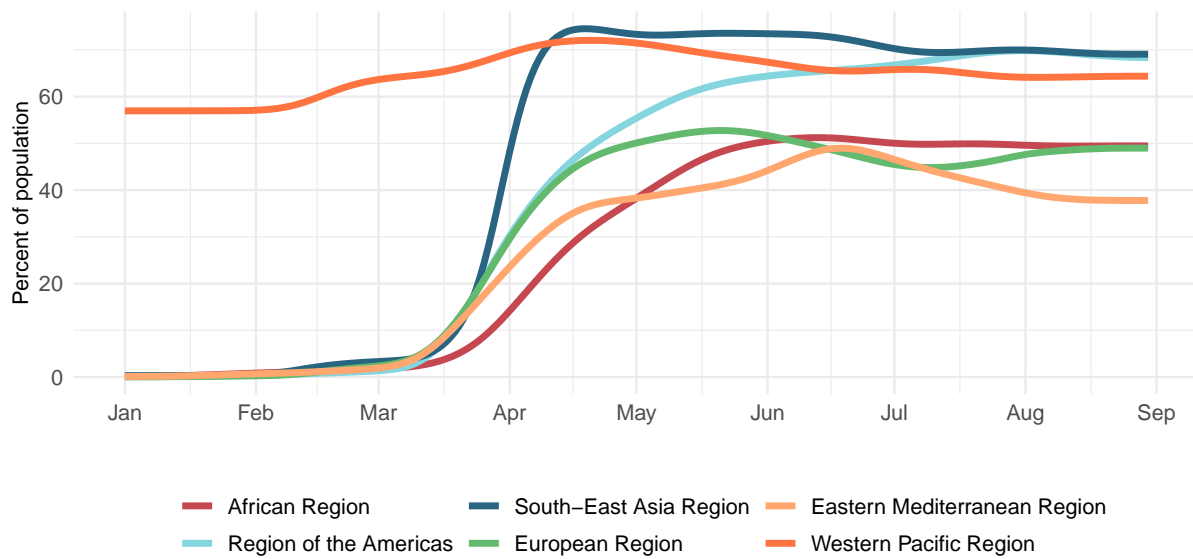


Figure 9b. Proportion of the population reporting always wearing a mask when leaving home on August 31, 2020

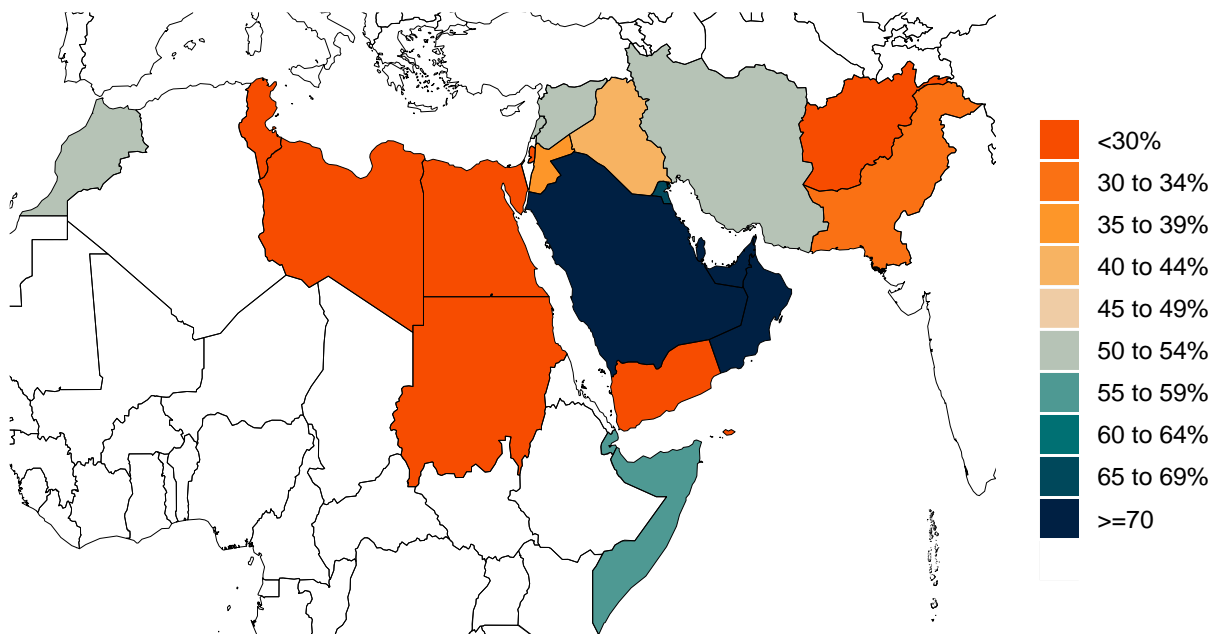


Figure 10a. Trend in COVID-19 diagnostic tests per 100,000 people

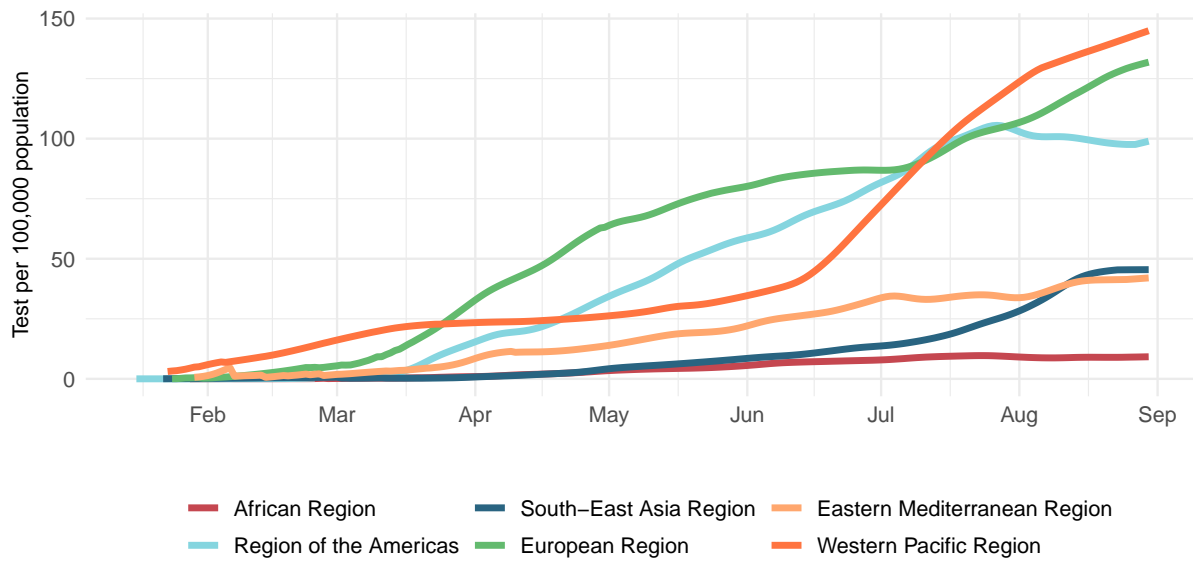


Figure 10b. COVID-19 diagnostic tests per 100,000 people on August 27, 2020

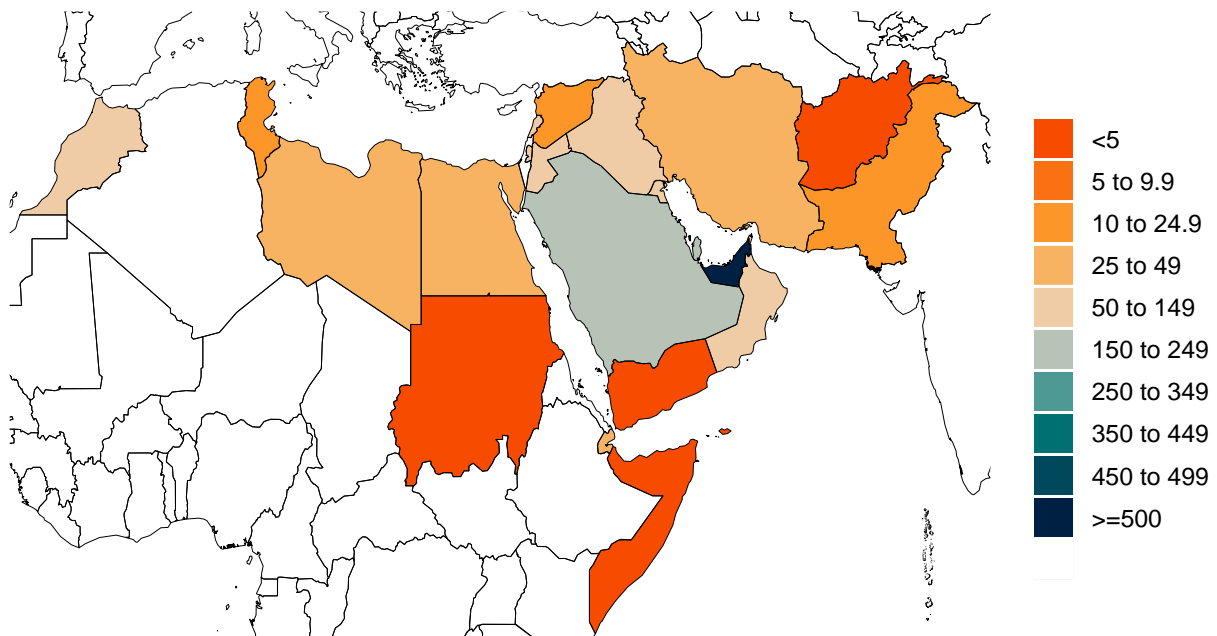
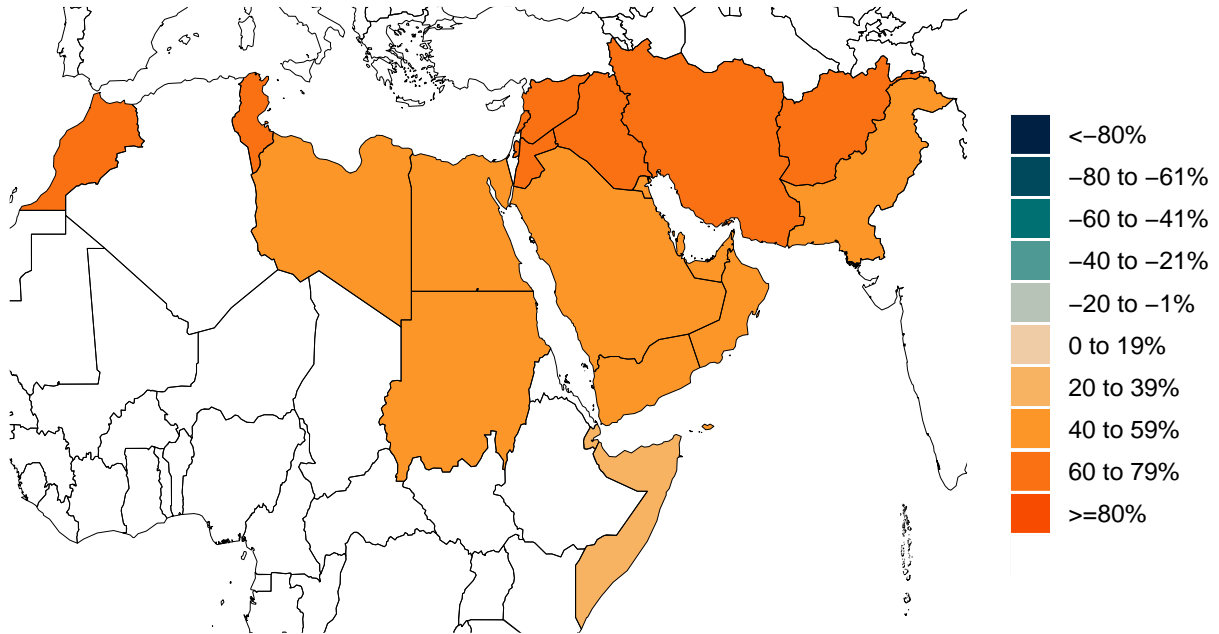


Figure 11. Increase in the risk of death due to pneumonia on February 1 compared to August 1



Projections and scenarios

Figure 12. Cumulative COVID-19 deaths until January 01, 2021 for three scenarios. The reference scenario is our forecast of what we think is most likely to happen. The mandate easing scenario is what would happen if governments continue to ease social distancing mandates. The universal mask mandate scenario is what would happen if mask use increased immediately to 95%.

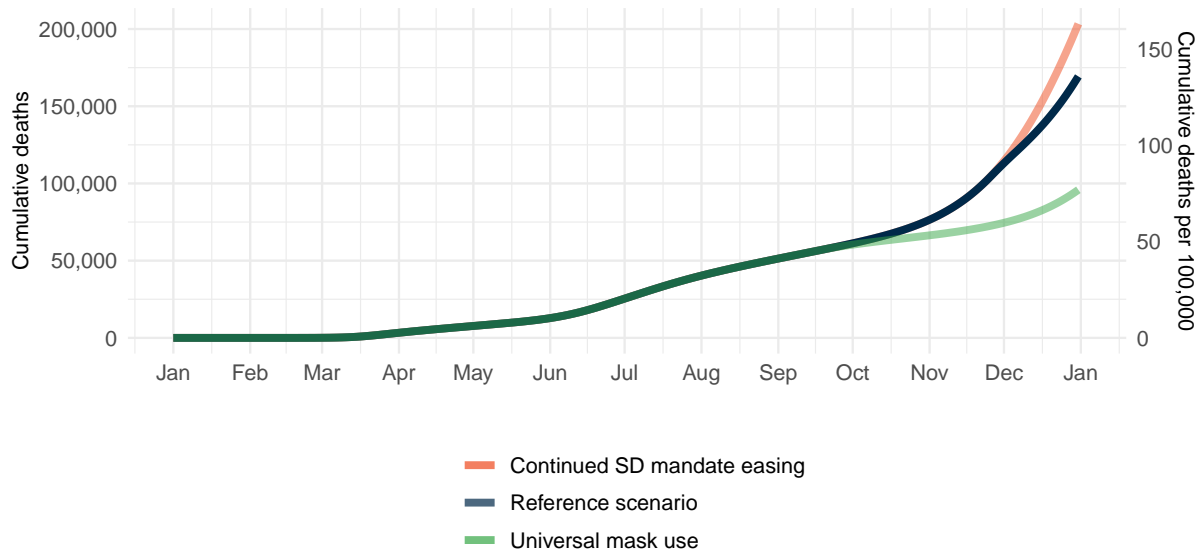


Fig 13. Daily COVID-19 deaths until January 01, 2021 for three scenarios. The reference scenario is our forecast of what we think is most likely to happen. The mandate easing scenario is what would happen if governments continue to ease social distancing mandates. The universal mask mandate scenario is what would happen if mask use increased immediately to 95%.

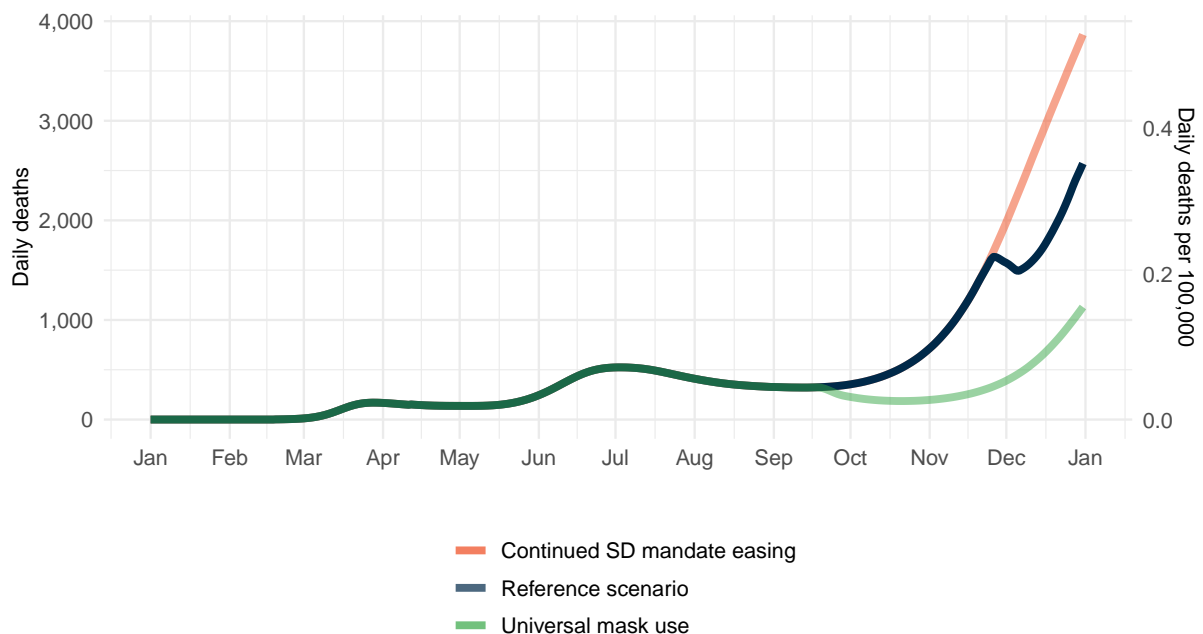


Fig 14. Daily COVID-19 infections until January 01, 2021 for three scenarios. The reference scenario is our forecast of what we think is most likely to happen. The mandate easing scenario is what would happen if governments continue to ease social distancing mandates. The universal mask mandate scenario is what would happen if mask use increased immediately to 95%.

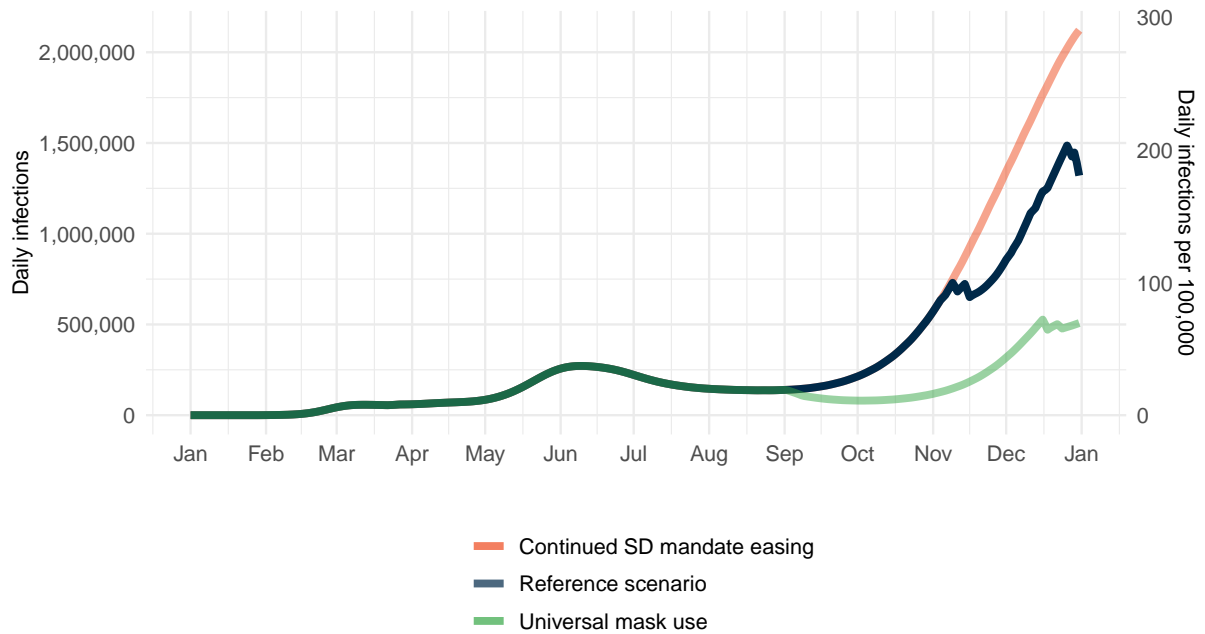


Fig 15. Month of assumed mandate re-implementation. (Month when daily death rate passes 8 per million, when model assumes mandates will be re-imposed.)

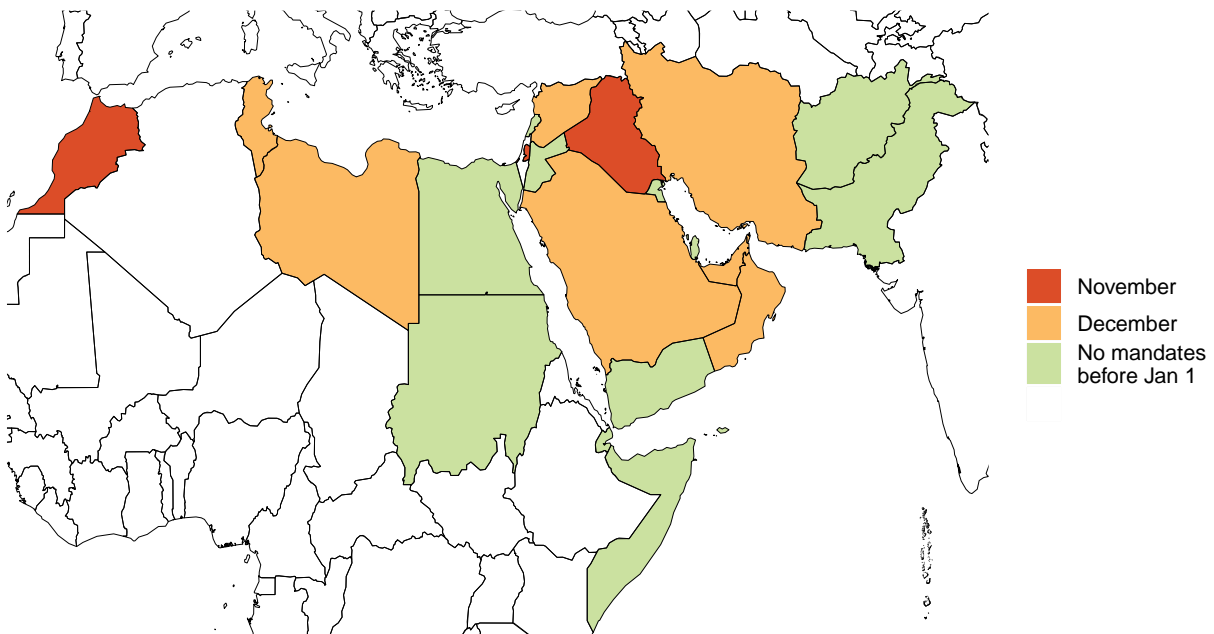


Figure 16. Forecasted percent infected with COVID-19 on January 01, 2021

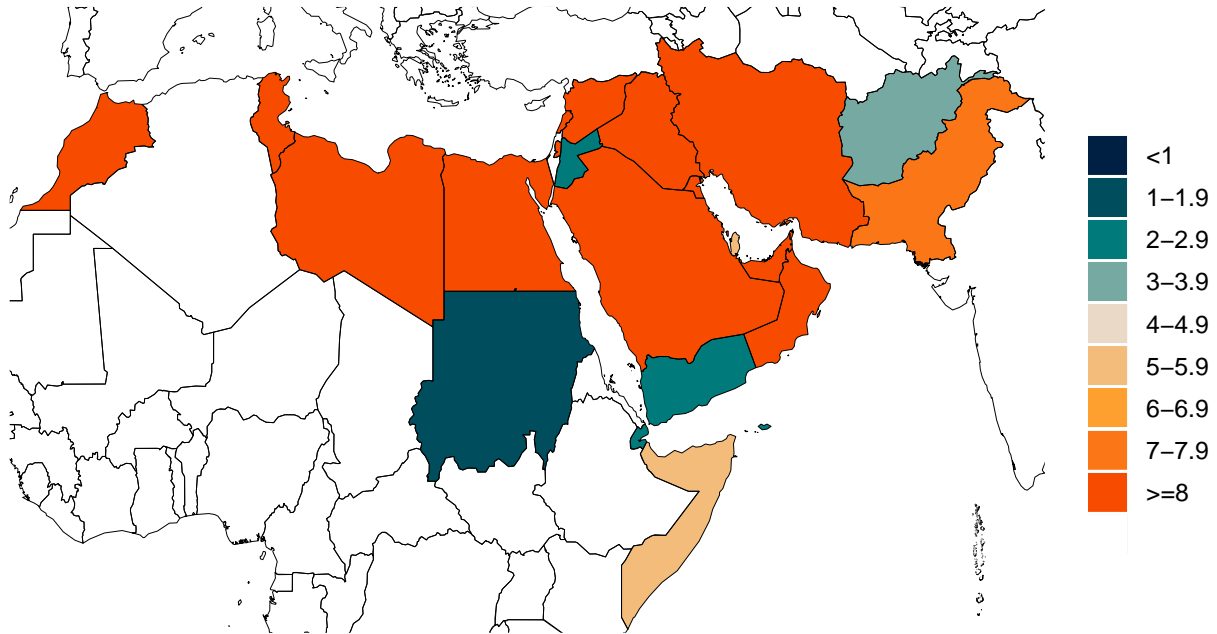


Figure 17. Daily COVID-19 deaths per million forecasted on January 01, 2021 in the reference scenario

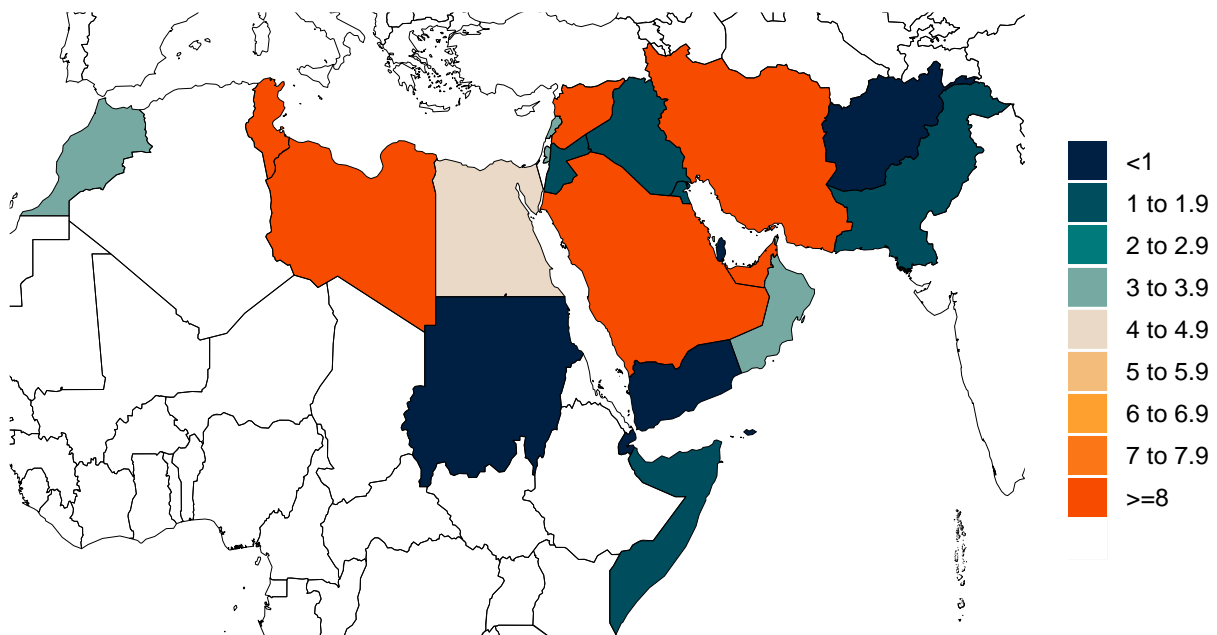


Table 3. Ranking of COVID-19 among the leading causes of mortality in the full year 2020.

Cause name	Annual deaths	Ranking
Ischemic heart disease	827,419	1
Neonatal disorders	365,459	2
Stroke	349,902	3
Lower respiratory infections	176,015	4
COVID-19	171,958	5
Road injuries	152,634	6
Cirrhosis and other chronic liver diseases	145,929	7
Chronic kidney disease	130,058	8
Diabetes mellitus	124,976	9
Diarrheal diseases	124,048	10

Mask data source: Premise; Facebook Global symptom survey (This research is based on survey results from University of Maryland Social Data Science Center); Kaiser Family Foundation; YouGov COVID-19 Behaviour Tracker survey

A note of thanks:

We would like to extend a special thanks to the Pan American Health Organization (PAHO) for key data sources; our partners and collaborators in Argentina, Brazil, Bolivia, Chile, Colombia, Cuba, the Dominican Republic, Ecuador, Egypt, Honduras, Israel, Japan, Malaysia, Mexico, Moldova, Panama, Peru, the Philippines, Russia, Serbia, South Korea, Turkey, and Ukraine for their support and expert advice; and to the tireless data collection and collation efforts of individuals and institutions throughout the world.

In addition, we wish to express our gratitude for efforts to collect social distancing policy information in Latin America to University of Miami Institute for Advanced Study of the Americas (Felicia Knaul, Michael Touchton), with data published here: <http://observcovid.miami.edu/>; Fundación Mexicana para la Salud (Héctor Arreola-Ornelas) with support from the GDS Services International: Tómatelo a Pecho A.C.; and Centro de Investigaciones en Ciencias de la Salud, Universidad Anáhuac (Héctor Arreola-Ornelas); Lab on Research, Ethics, Aging and Community-Health at Tufts University (REACH Lab) and the University of Miami Institute for Advanced Study of the Americas (Thalia Porteny).

Further, IHME is grateful to the Microsoft AI for Health program for their support in hosting our COVID-19 data visualizations on the Azure Cloud. We would like to also extend a warm thank you to the many others who have made our COVID-19 estimation efforts possible.