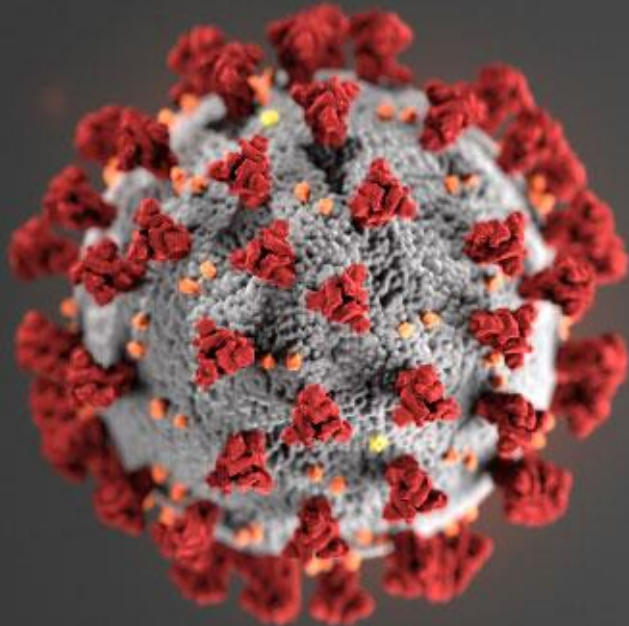


SARS-Cov-2 Report

José Luis Pires

20 October 2020



Contents

SARS-Cov-2

- [Symptoms of COVID-19, Flu and Cold](#)
- [Confirmed cases by Country](#)
- [Deaths by Country](#)
- [Total confirmed Covid-19 cases and deaths per million people](#)
- [Daily new confirmed Covid-19 cases and deaths per million people](#)
- [Number of COVID-19 cases reported weekly by WHO region](#)
- **Portugal**
 - [Cases, Deaths and Projections](#) – per week
- **Ireland**
 - [Cases, Deaths and Projections](#) – per week
- **New Jersey/US**
 - [Cases, Deaths and Projections](#) – per week
- [Recent News](#)

Symptoms of:

- COVID-19
- Cold
- Flu

COVID-19: IDENTIFYING THE SYMPTOMS

Coronavirus
(COVID-19)

SYMPTOMS	COVID-19	COLD	FLU
	Symptoms range from mild to severe	Gradual onset of symptoms	Abrupt onset of symptoms
Fever 	Common	Rare	Common
Cough 	Common	Common	Common
Sore Throat 	Sometimes	Common	Common
Shortness of Breath 	Sometimes	No	No
Fatigue 	Sometimes	Sometimes	Common
Aches & Pains 	Sometimes	No	Common
Headaches 	Sometimes	Common	Common
Runny or Stuffy Nose 	Sometimes	Common	Sometimes
Diarrhea 	Rare	No	Sometimes, especially for children
Sneezing 	No	Common	No

Adapted from material produced by WHO, Centers for Disease Control and Prevention.

THE RELATIVE SIZE OF PARTICLES

From the COVID-19 pandemic to the U.S. West Coast wildfires, some of the biggest threats now are also the most microscopic.

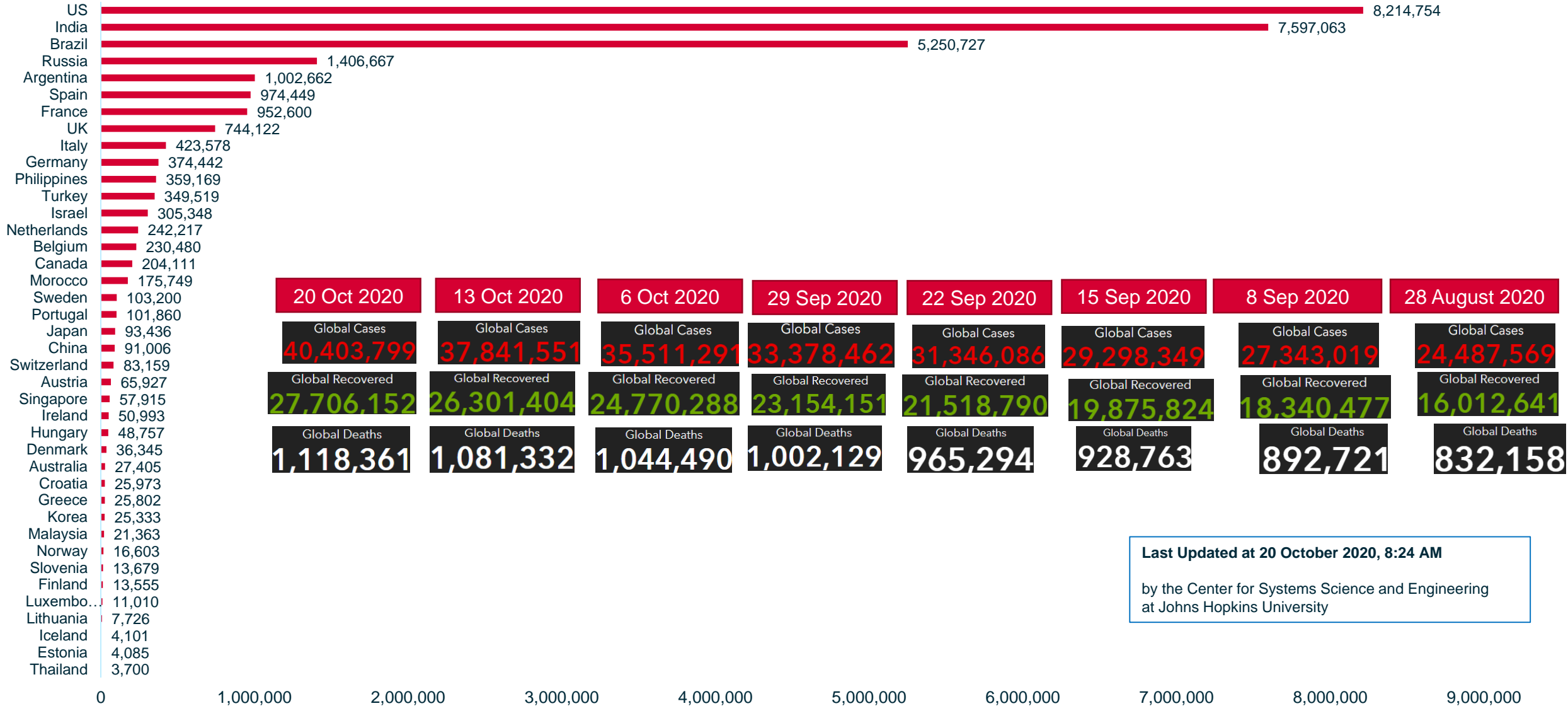
A particle needs to be 10 microns (μm) or less before it can be inhaled into your respiratory tract. But just how small are these specks?

Here's a look at the relative sizes of some familiar particles \blacktriangleright



Coronavirus (SARS-CoV-2 / Covid-19) – Confirmed cases by country

Note: Selected Countries, sorted by # of cases

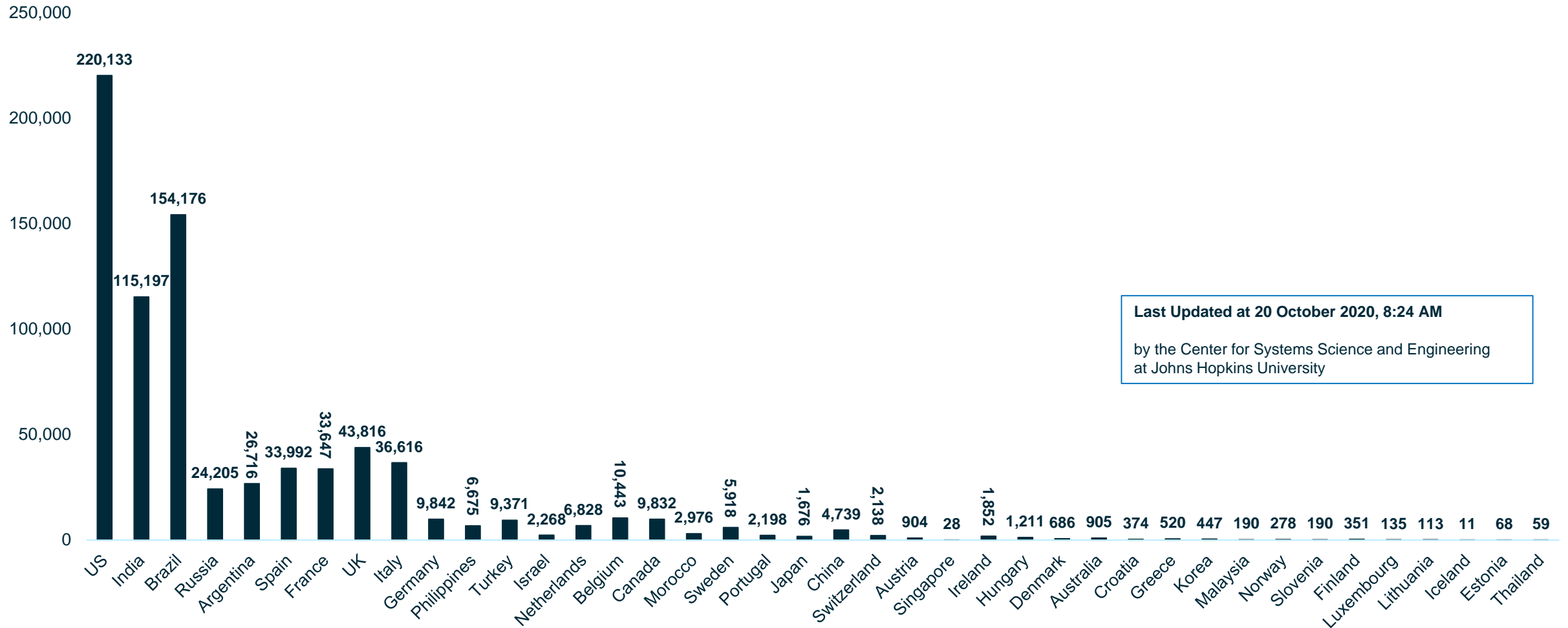


Last Updated at 20 October 2020, 8:24 AM
 by the Center for Systems Science and Engineering
 at Johns Hopkins University

Source: <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Coronavirus (SARS-CoV-2 / Covid-19) – Deaths by Country

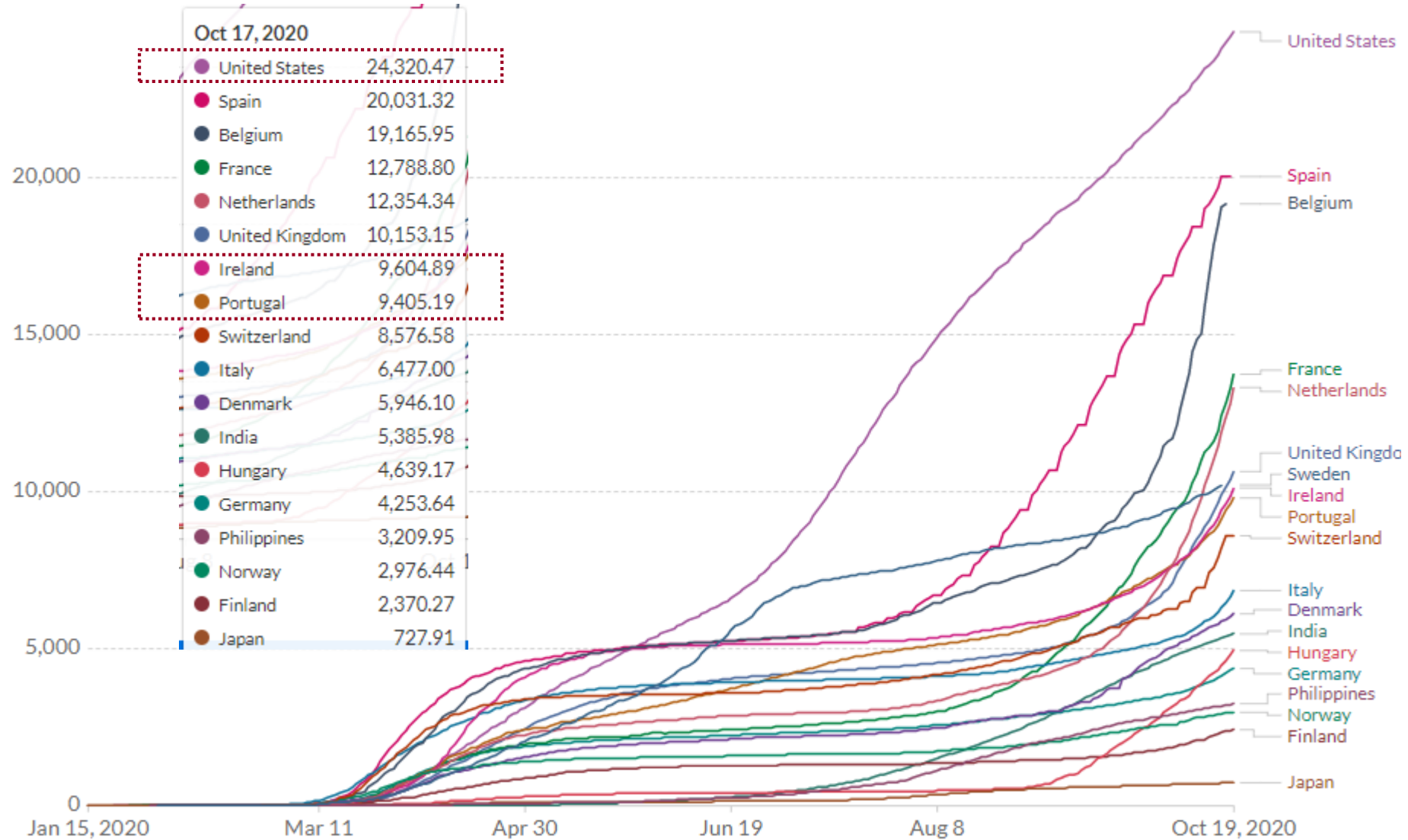
Note: Selected Countries, sorted by # of cases



Last Updated at 20 October 2020, 8:24 AM
by the Center for Systems Science and Engineering
at Johns Hopkins University

Source: <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Total confirmed Covid-19 cases per million people

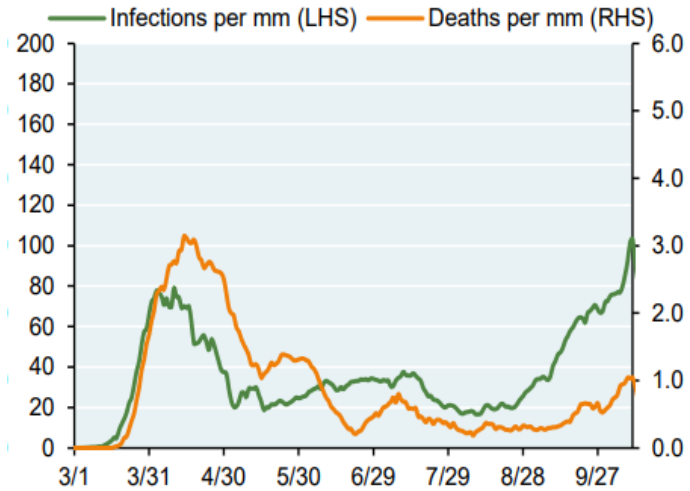


Source: European CDC - Situation Update Worldwide - Last updated 19 October, 10:35 (London time)

Daily infections vs mortality per million

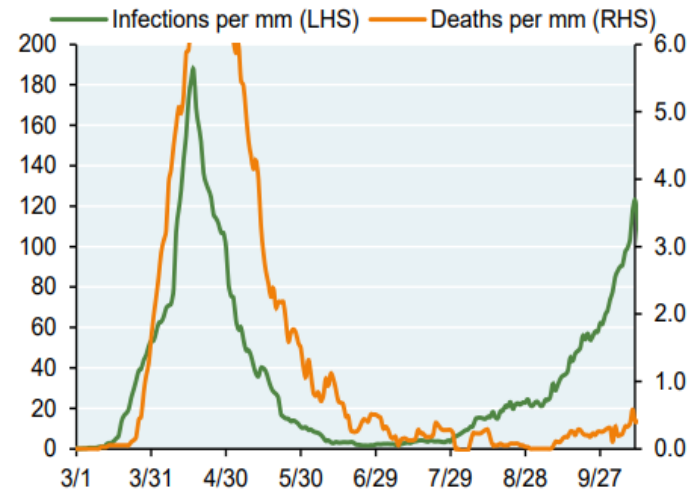
11 OCT 2020

Portugal daily infections vs mortality



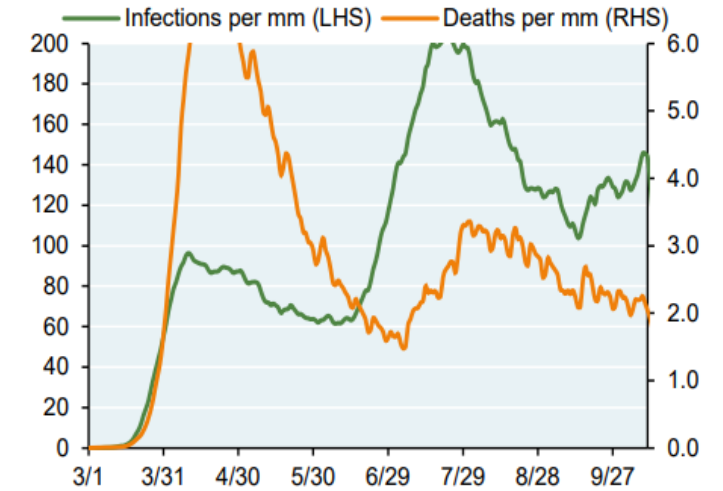
Source: JHU, JPMAM. 10/11/2020. 7 day averages.

Ireland daily infections vs mortality



Source: JHU, JPMAM. 10/11/2020. 7 day averages.

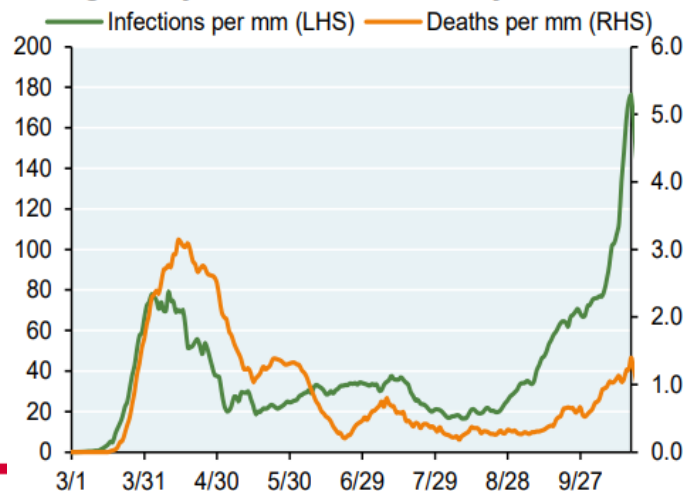
US daily infections vs mortality



Source: JHU, JPMAM. 10/11/2020. 7 day averages.

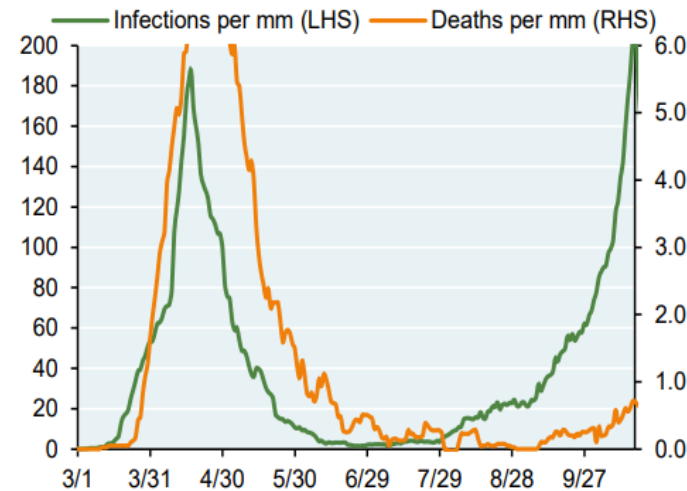
18 OCT 2020

Portugal daily infections vs mortality



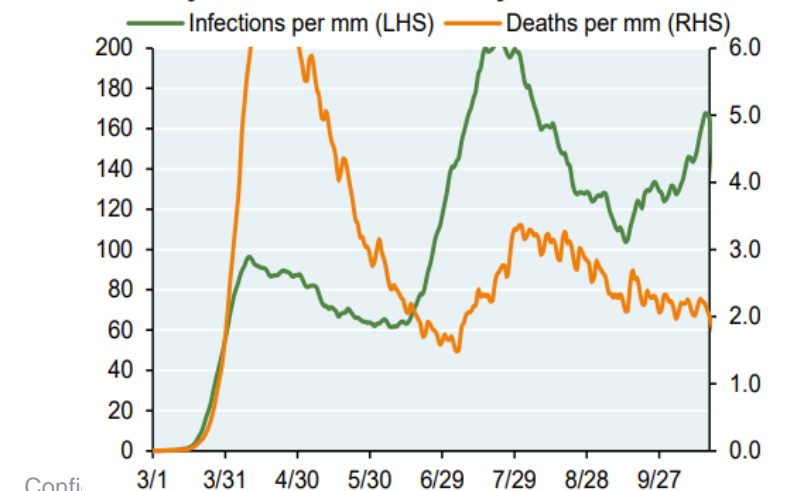
Source: JHU, JPMAM. 10/18/2020. 7 day averages.

Ireland daily infections vs mortality



Source: JHU, JPMAM. 10/18/2020. 7 day averages.

US daily infections vs mortality



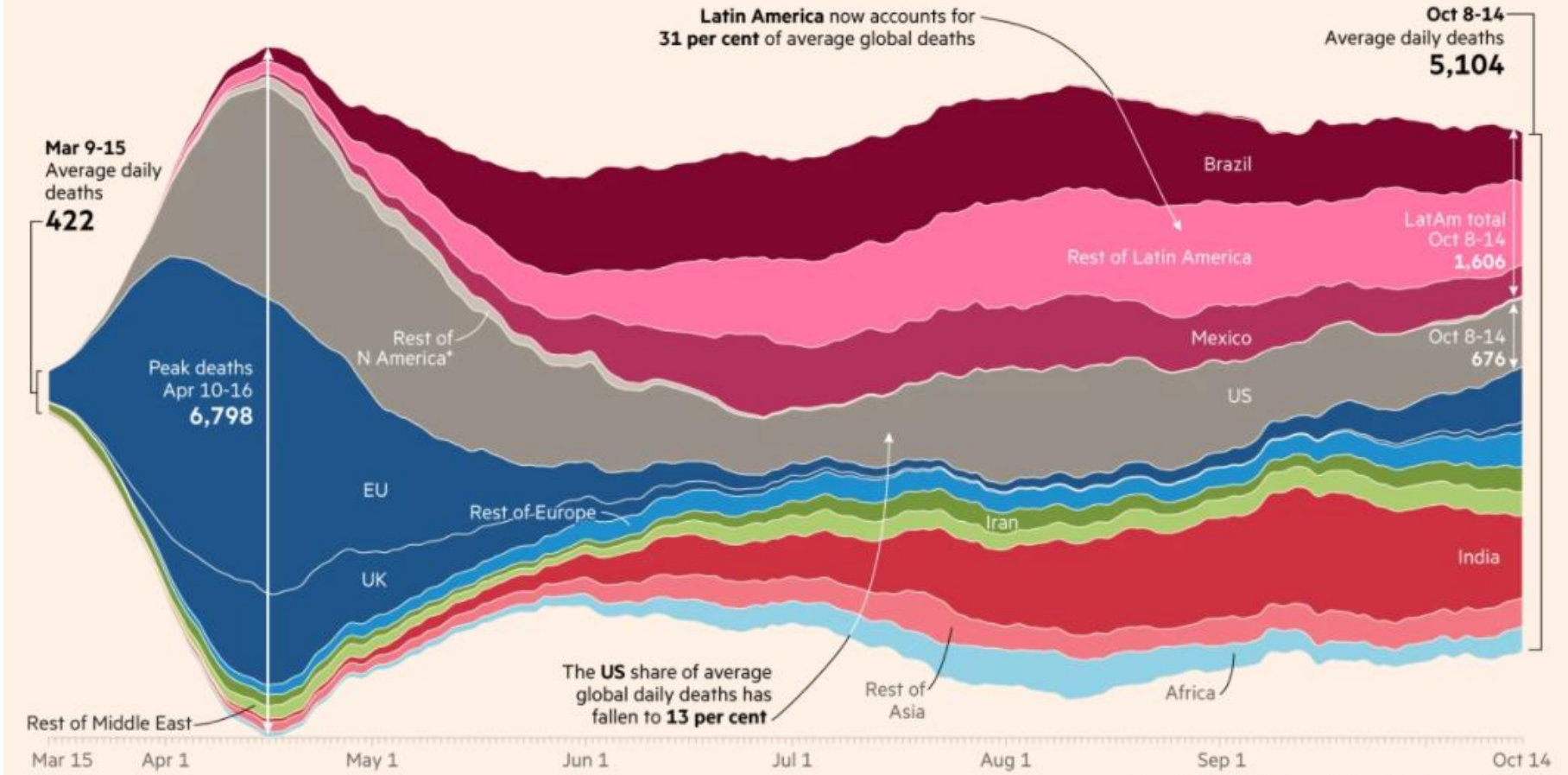
Conf

Source: JHU, JPMAM. 10/18/2020. 7 day averages.

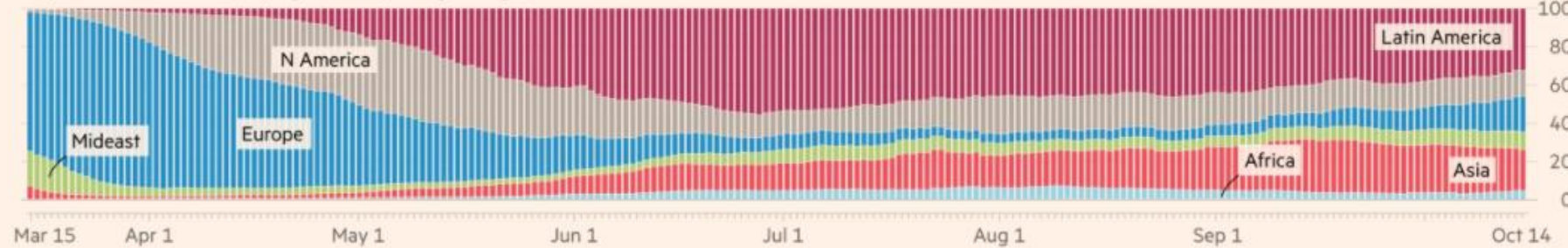
Daily deaths of patients diagnosed with coronavirus (7-day average)

India's death toll surges as the Americas continue to struggle with Covid-19

Daily deaths of patients diagnosed with coronavirus (7-day rolling average)



Daily confirmed deaths (% by region, 7-day rolling average)



FT graphic: Steven Bernard / @sdbernard

Source: FT analysis of data from the ECDC, the Covid Tracking Project, UK government Covid-19 dashboard and the Spanish Ministry of Health
© FT

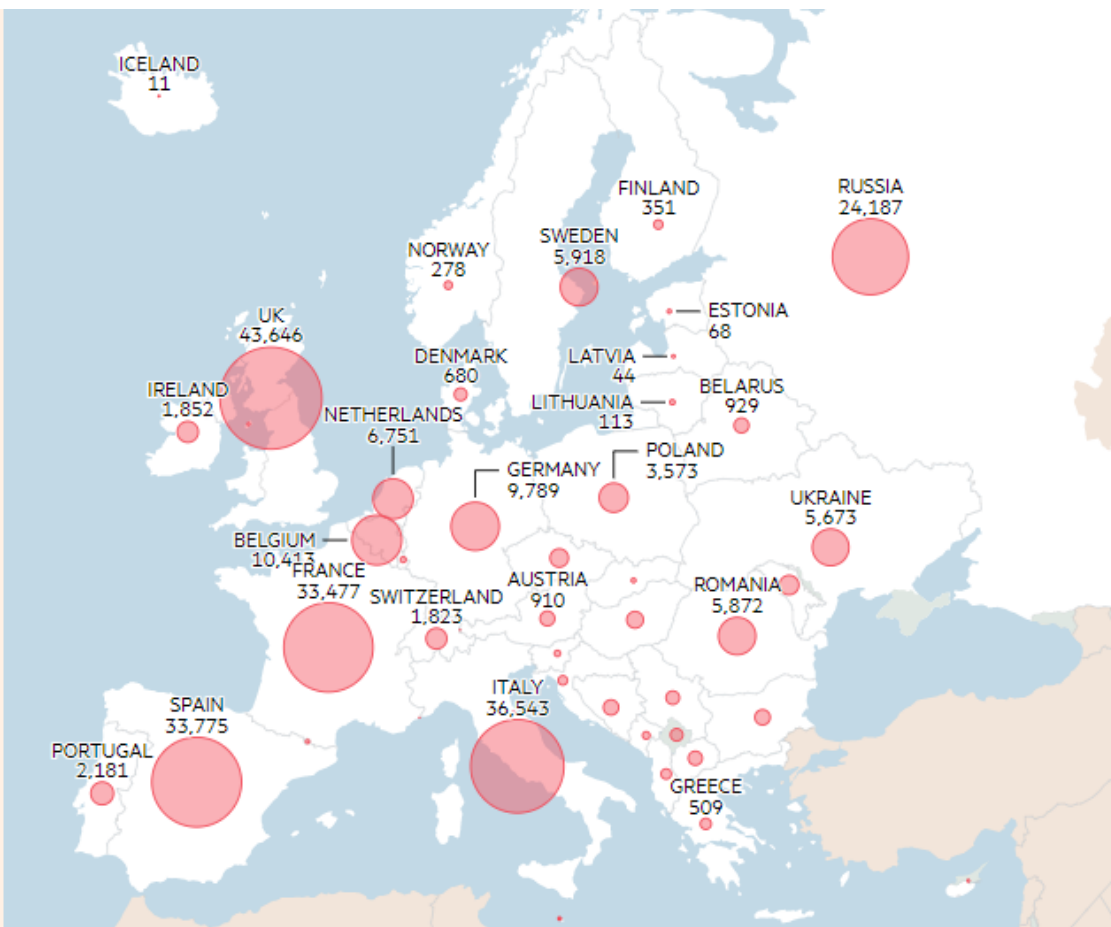
Source: <https://www.ft.com/content/a26fb7e-48f8-11ea-aeb3-955839e06441>



October 2020

Total deaths as of 4.40pm October 19

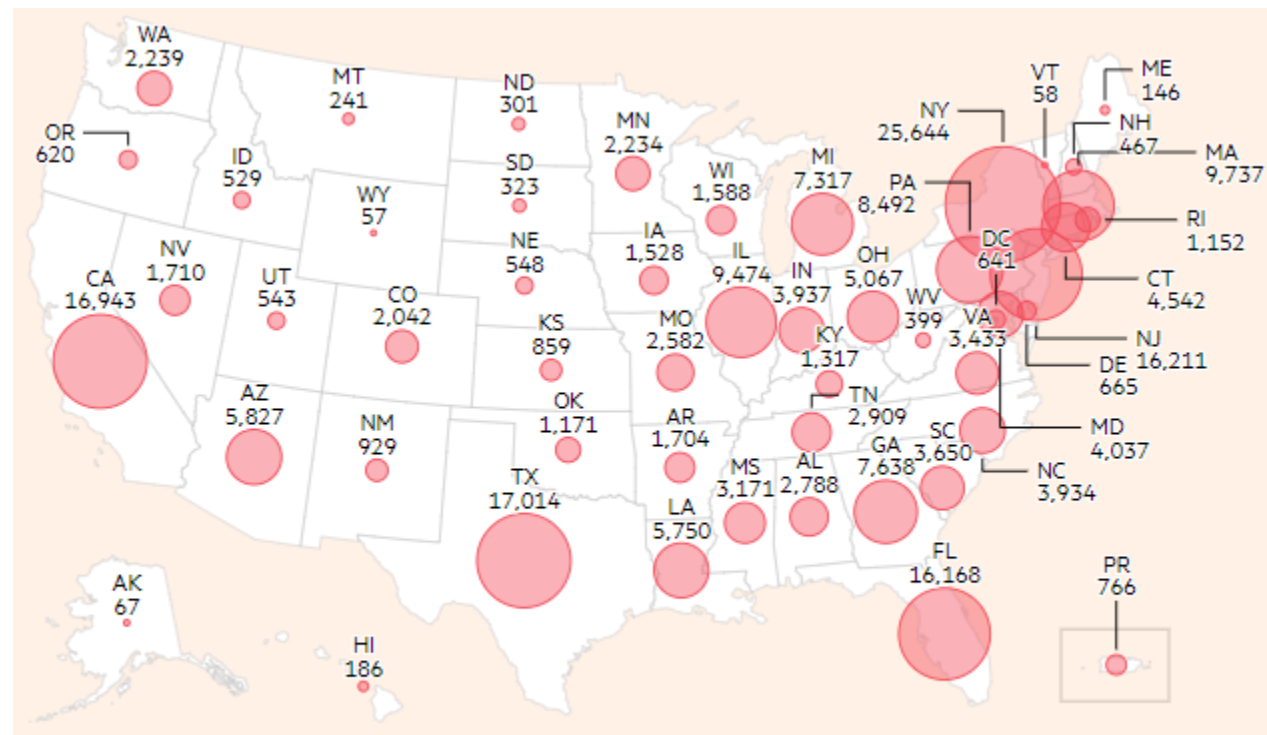
Europe



Graphic: Steven Bernard and Cale Tilford
Sources: ECDC; Covid Tracking Project; FT research
© FT

Crimea is annexed by Russia but this is not recognised by the international community

US

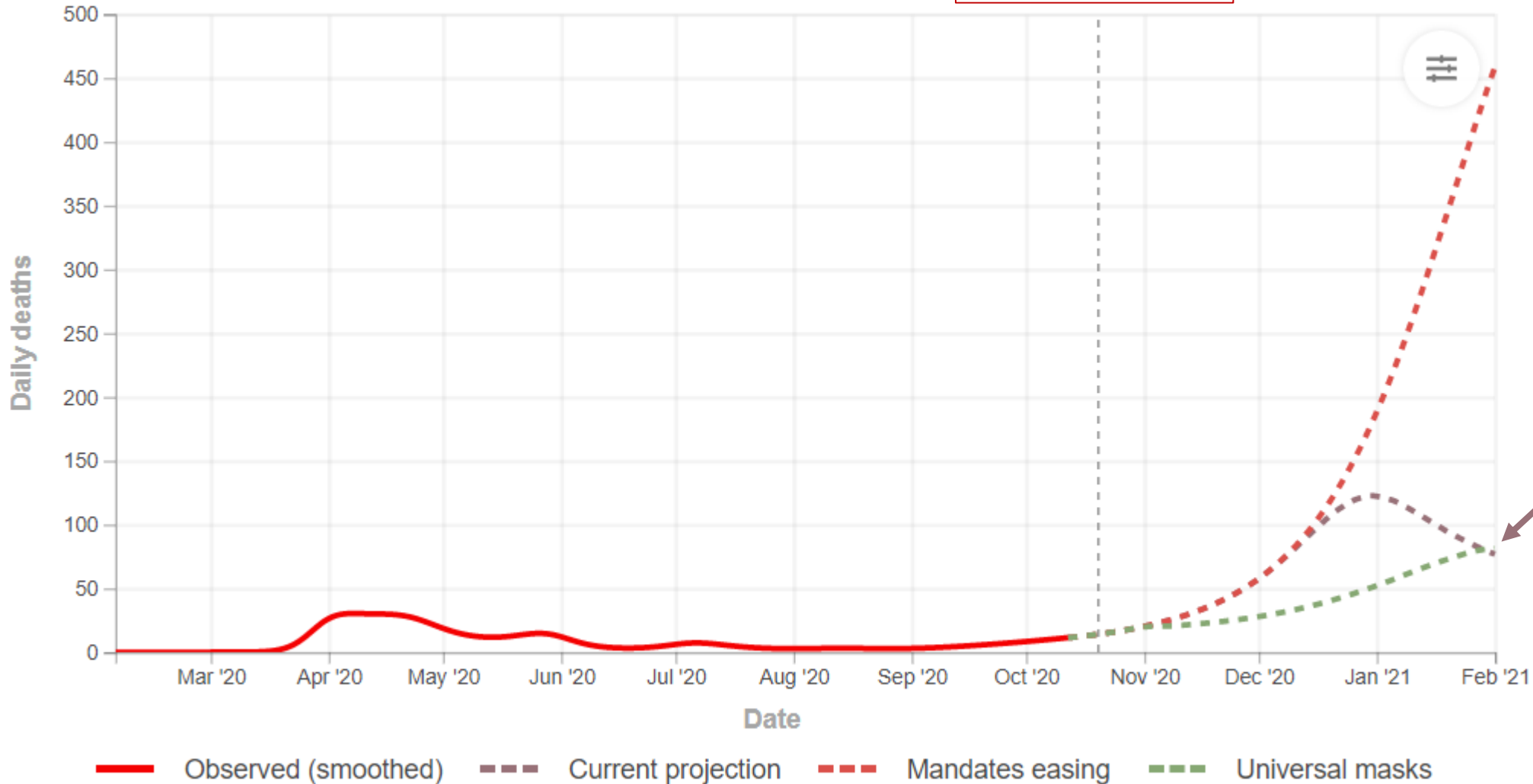


Graphic: Steven Bernard and Cale Tilford
Sources: Covid Tracking Project
© FT

Portugal

Covid-19 Projections – Portugal – Daily Deaths

Today: 19 Oct 2020
17 deaths



Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Projection Daily Deaths

1 February 2021
Projected: 77

Projections in:

• 18 September: 132		Jan 2021
• 24 September: 106		
• 2 October: 172		
• 9 October: 91		Feb 2021
• 15 October: 77		

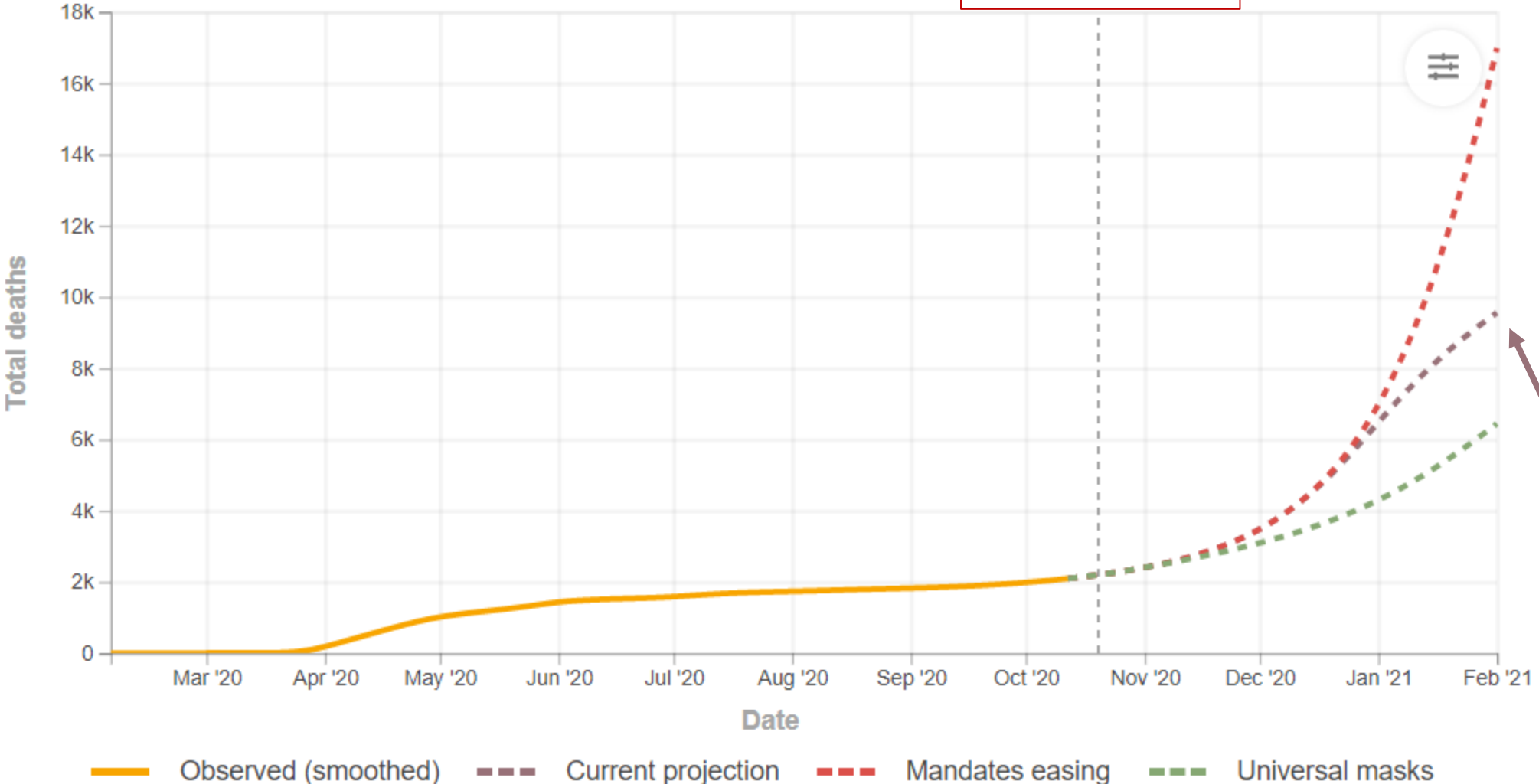
Covid-19 Projections – Portugal – Total Deaths

Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Today: 19 Oct 2020
2,198 deaths



Projection Total Deaths

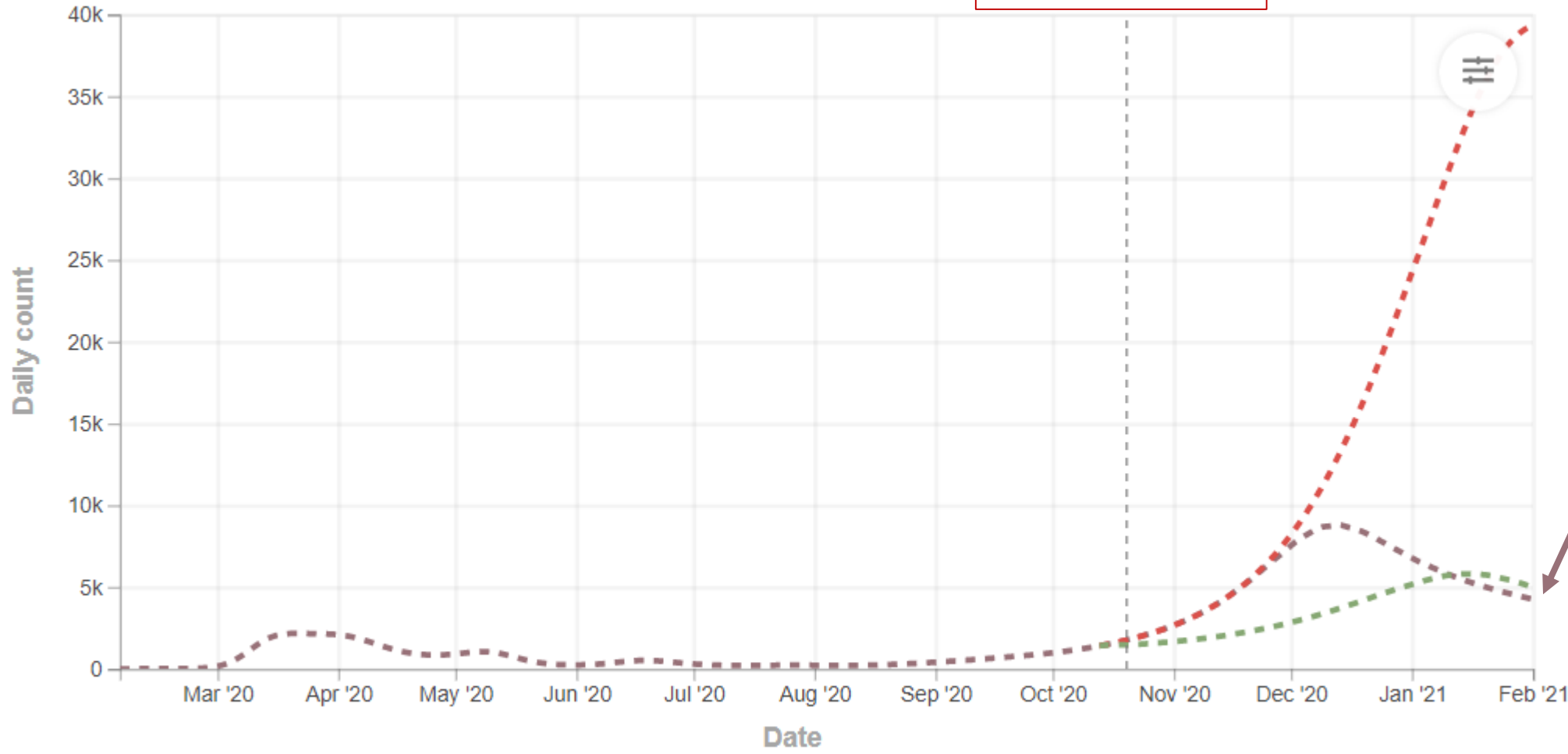
**1 February 2021
Projected: 9,555**

Projections in:

• 18 September:	8,698	Jan 2021
• 24 September:	11,352	
• 2 October:	8,386	
• 9 October:	7,067	Feb 2021
• 15 October:	9,555	

Covid-19 Projections – Portugal – Daily Infections

Today: 19 Oct 2020
1,949 infections



--- Current projection --- Mandates easing --- Universal masks

Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

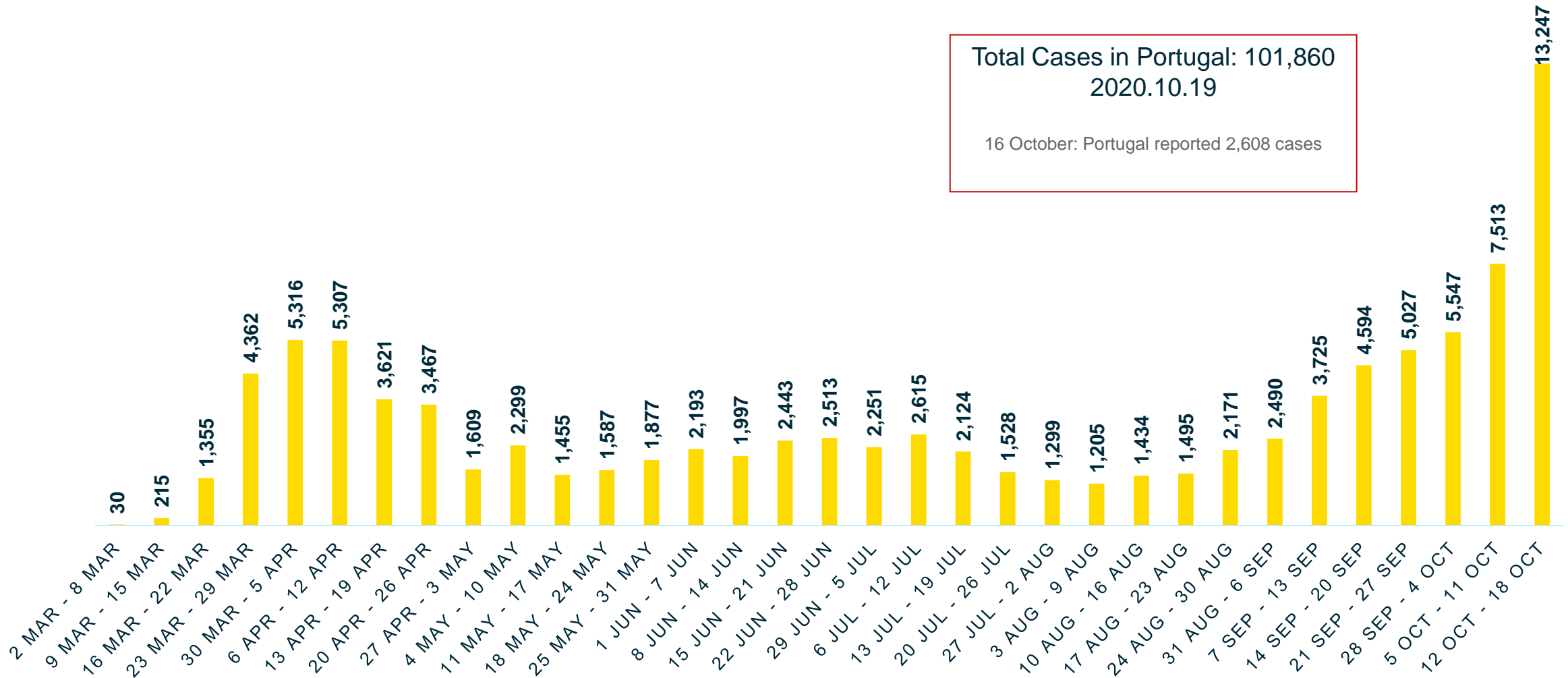
Projection Daily Infections

1 February 2021
Projected: 4,247

- Projections in:**
- 18 September: 5,478
 - 24 September: 6,292
 - 2 October: 9,498
- Jan 2021
- 9 October: 4,994
 - 15 October: 4,247
- Feb 2021

Source: Institute for Health Metrics and Evaluation / University of Washington - <https://covid19.healthdata.org/portugal?view=daily-deaths&tab=trend>

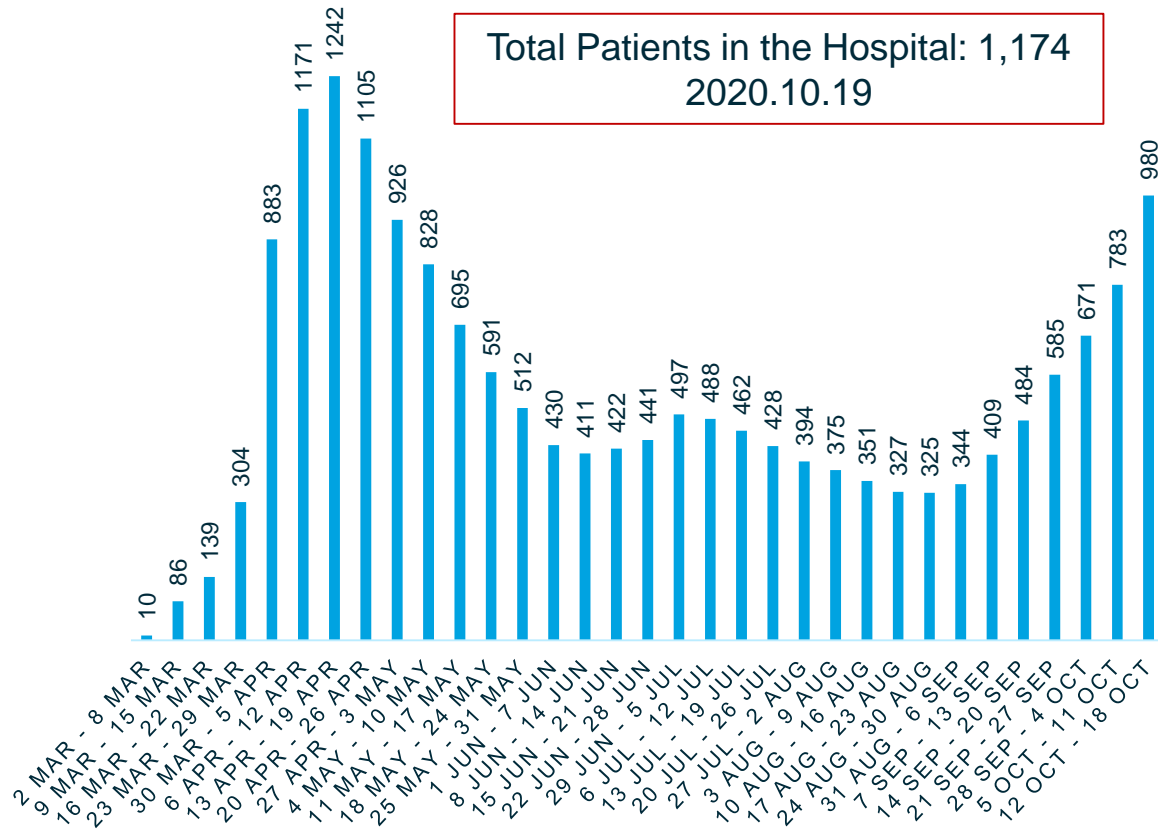
Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – New cases per week



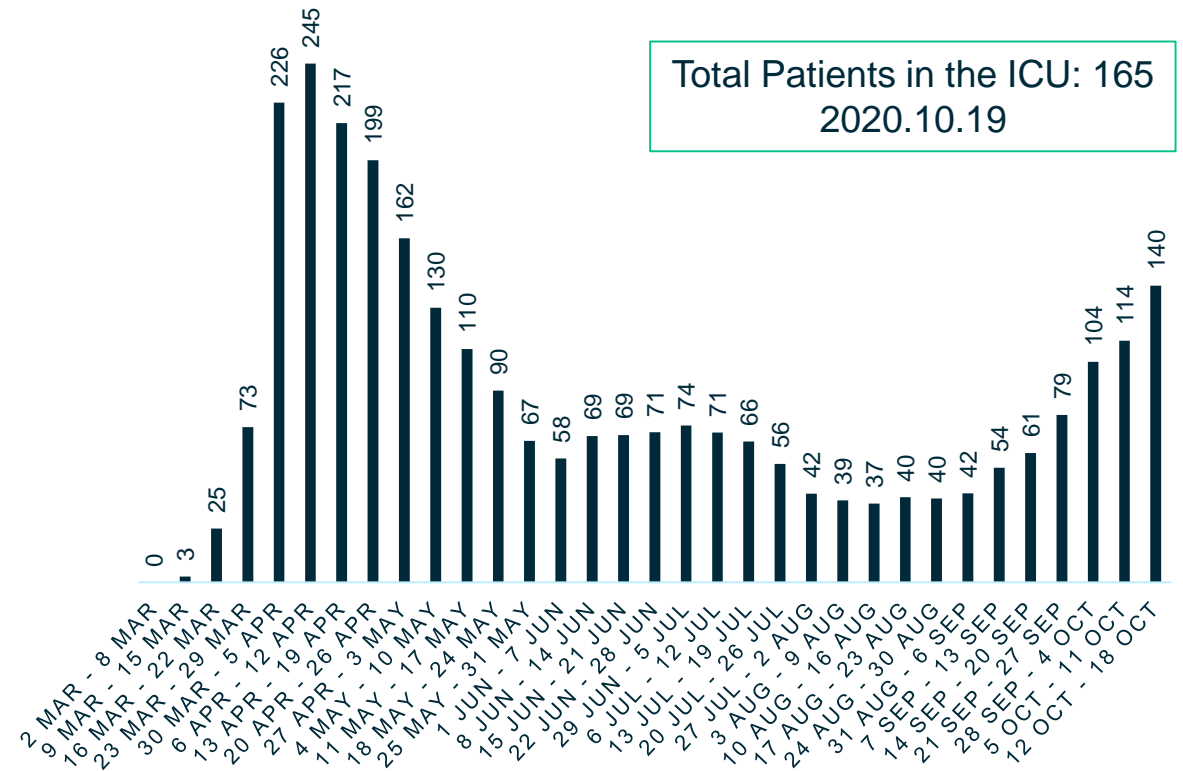
Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – Hospital stable/ICU per week

■ Average # of Patients stable in the Hospital per week

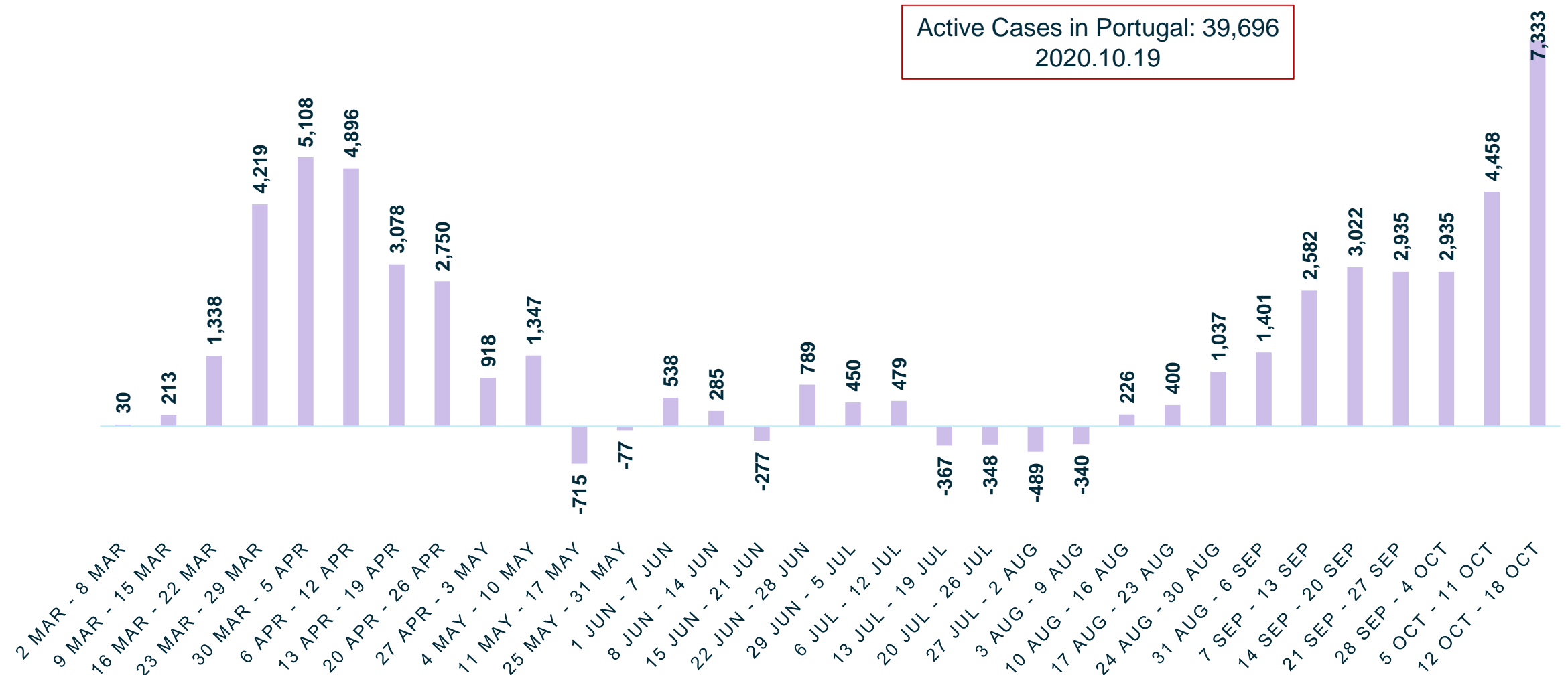


■ Average # of Patients in the ICU per week



Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

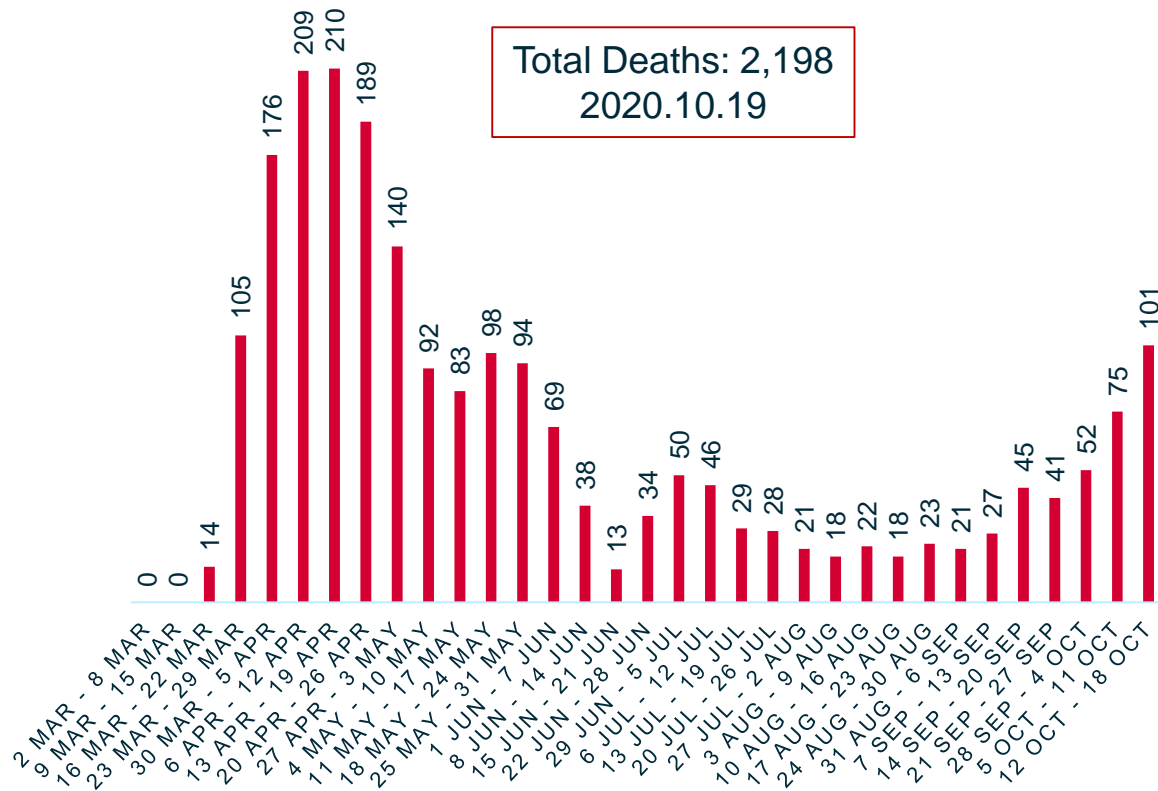
Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – New Active cases per week



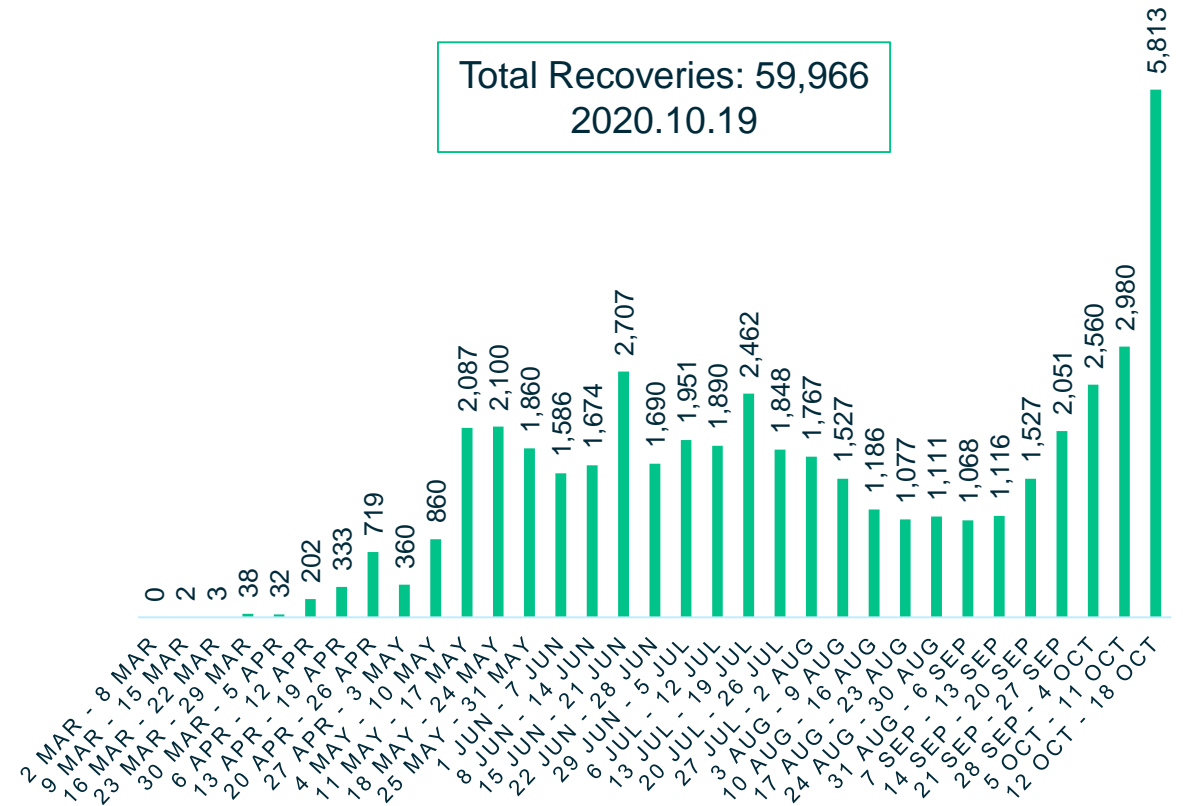
Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – New deaths/recoveries per week

■ # of deaths per week



■ # of recoveries per week



Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

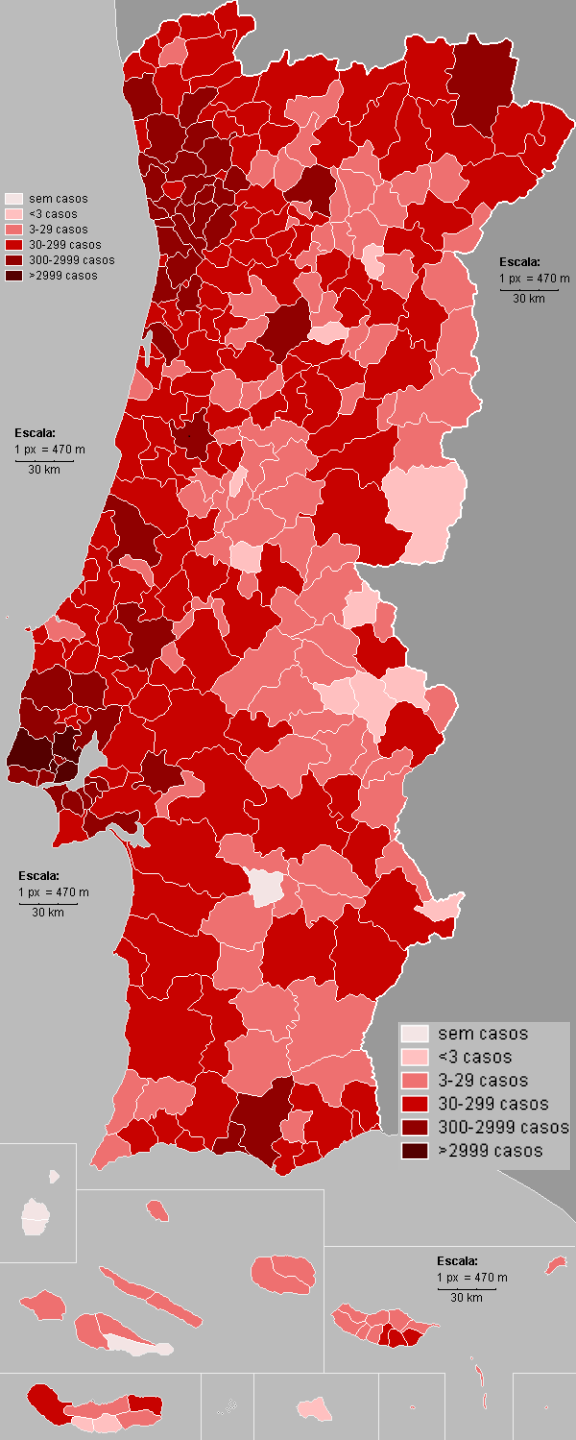


SITUAÇÃO EPIDEMIOLÓGICA EM PORTUGAL

Coronavirus (SARS-CoV-2 / COVID 19)

Portugal

19 October 2020



TOTAL DE CASOS E VARIAÇÃO

39 696 | + 966

ATIVOS

59 966 | + 966

RECUPERADOS

2 198 | + 17

ÓBITOS

55 425 | + 574

CONTACTOS EM VIGILÂNCIA

101 860 | +1 949

CONFIRMADOS

TOTAL DE CASOS, DE ÓBITOS E VARIAÇÃO POR REGIÃO

Açores

325 | + 7

15 | -

40 436 | + 987

971 | + 12

Madeira

334 | + 6

0 | -

8 347 | + 133

279 | + 2

48 161 | + 749

884 | + 3

2 026 | + 35

27 | -

2 231 | + 32

22 | -

Legenda

CASOS CONFIRMADOS

ÓBITOS

DISTRIBUIÇÃO DOS CASOS EM INTERNAMENTO

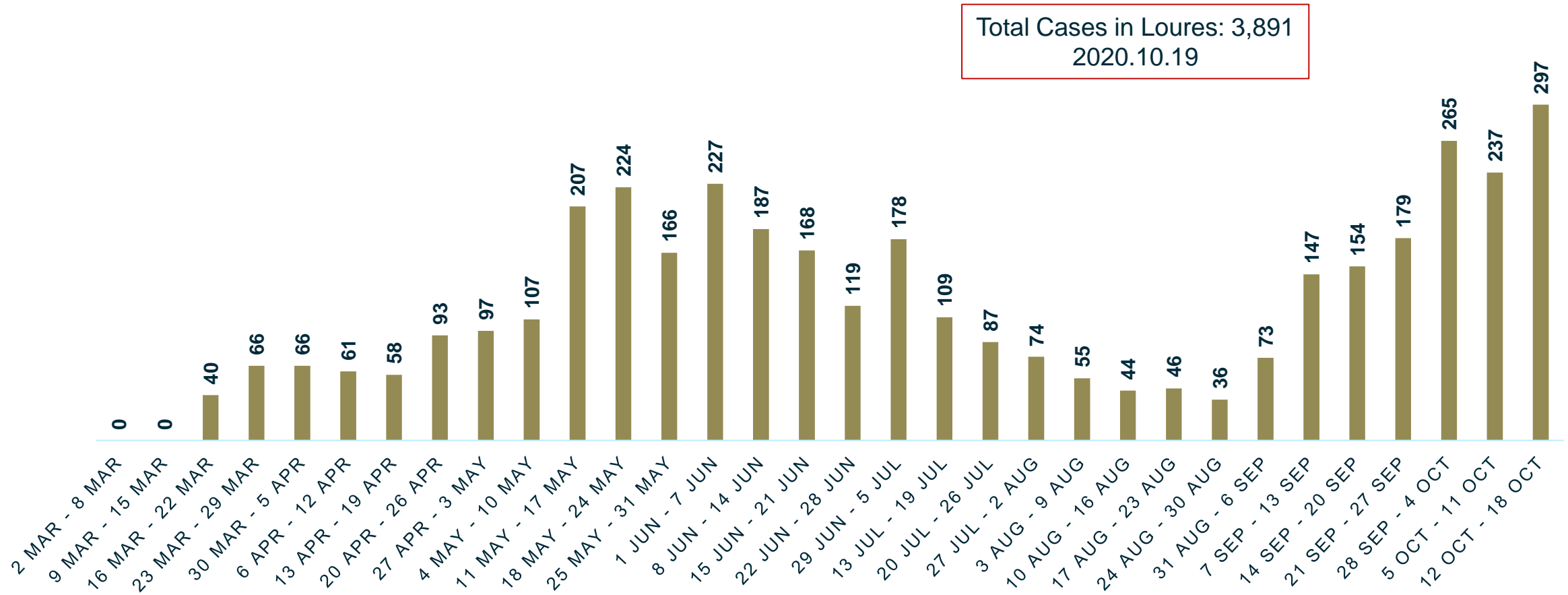
1 174 | + 88

INTERNAMENTO

165 | + 10

INTERNAMENTO
EM UCI

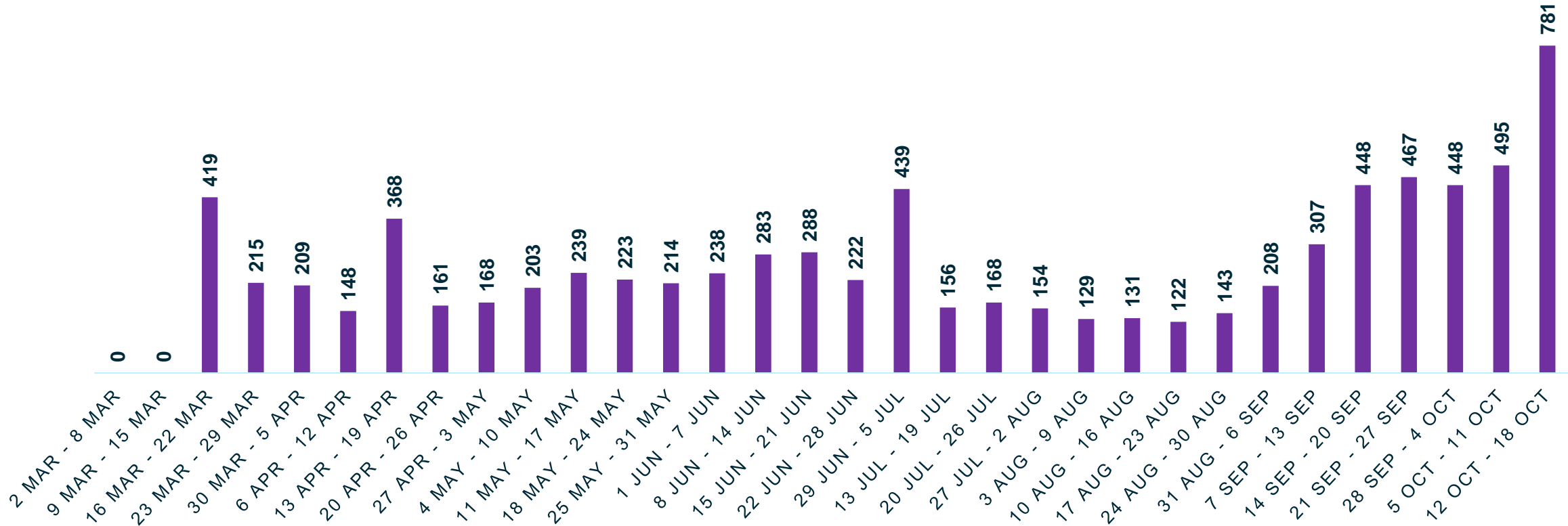
Coronavirus (SARS-CoV-2 / COVID 19) – Loures - New cases per week



Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

Coronavirus (SARS-CoV-2 / COVID 19) – **Lisbon** - New cases per week

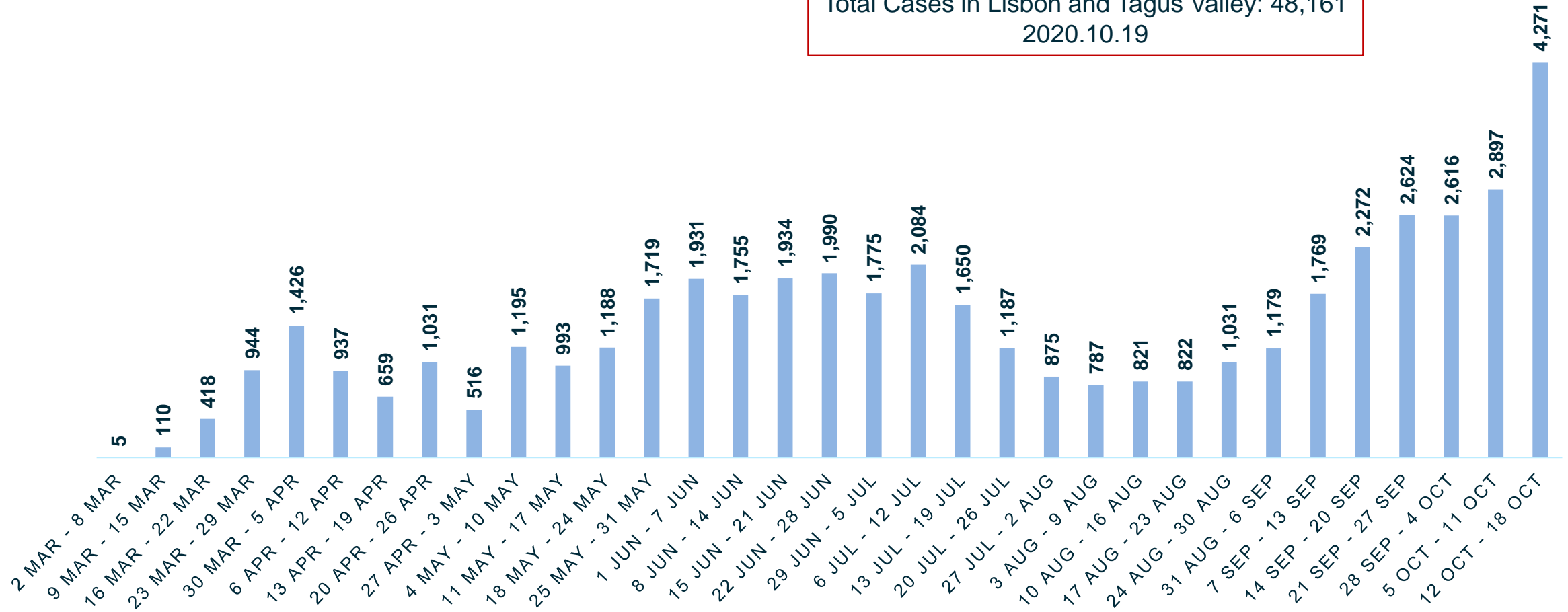
Total Cases in Lisbon: 8,241
2020.10.19



Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

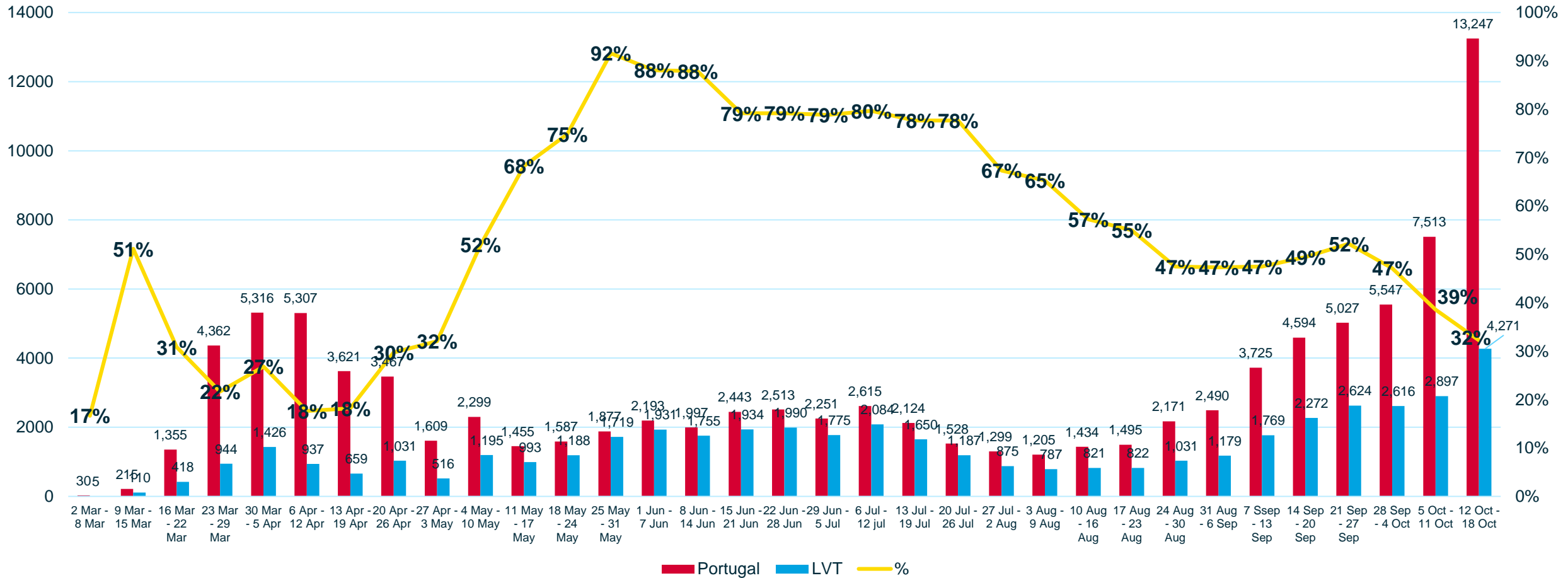
Coronavirus (SARS-CoV-2 / COVID 19) – Lisbon and Tagus Valley - New cases per week

Total Cases in Lisbon and Tagus Valley: 48,161
2020.10.19



Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

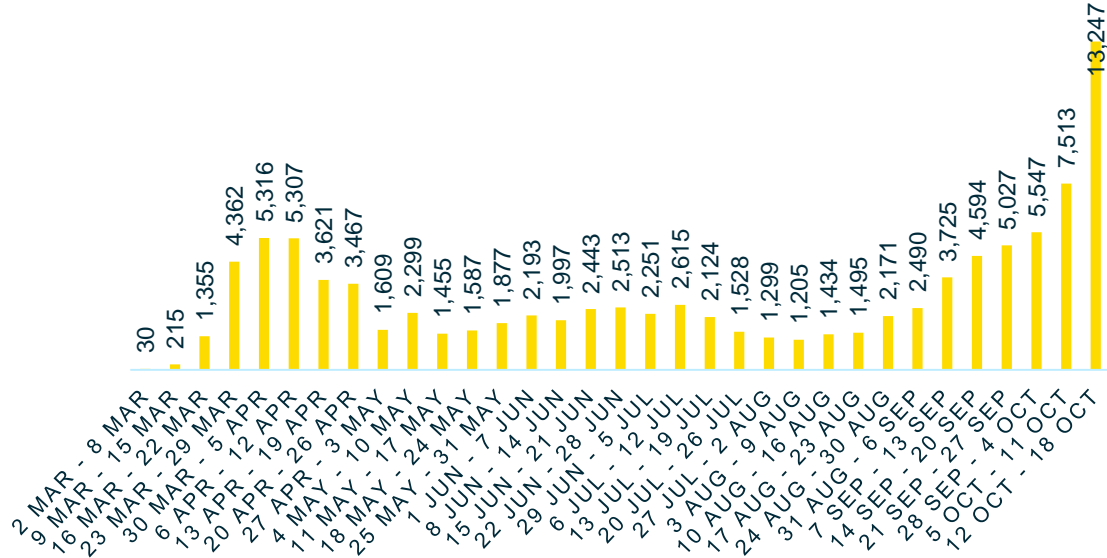
Coronavirus (SARS-CoV-2 / COVID 19) – % of new cases in Lisbon and Tagus Valley - New cases per week



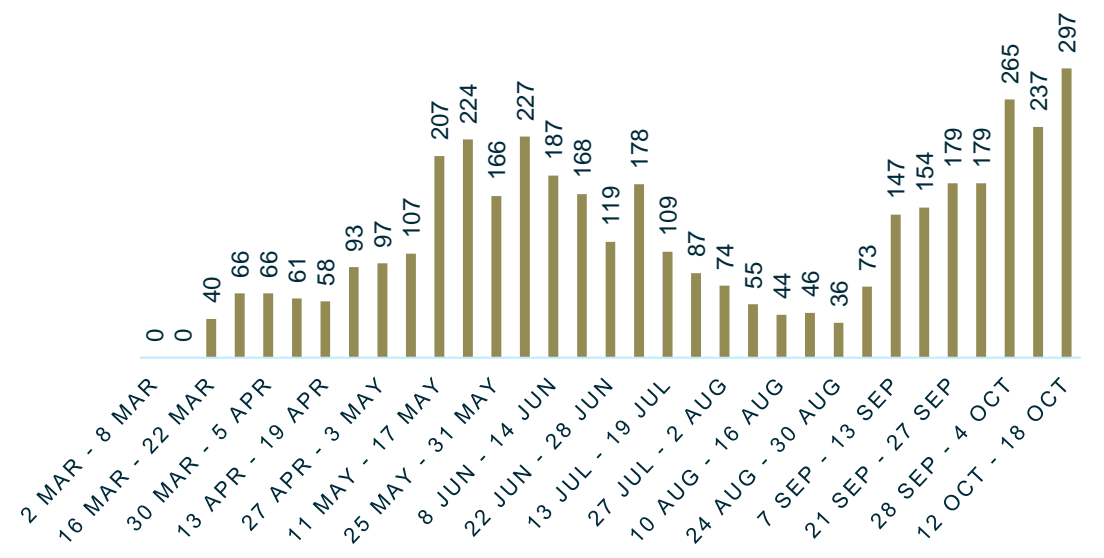
Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

SARS-CoV-2 / COVID 19 - New cases per week

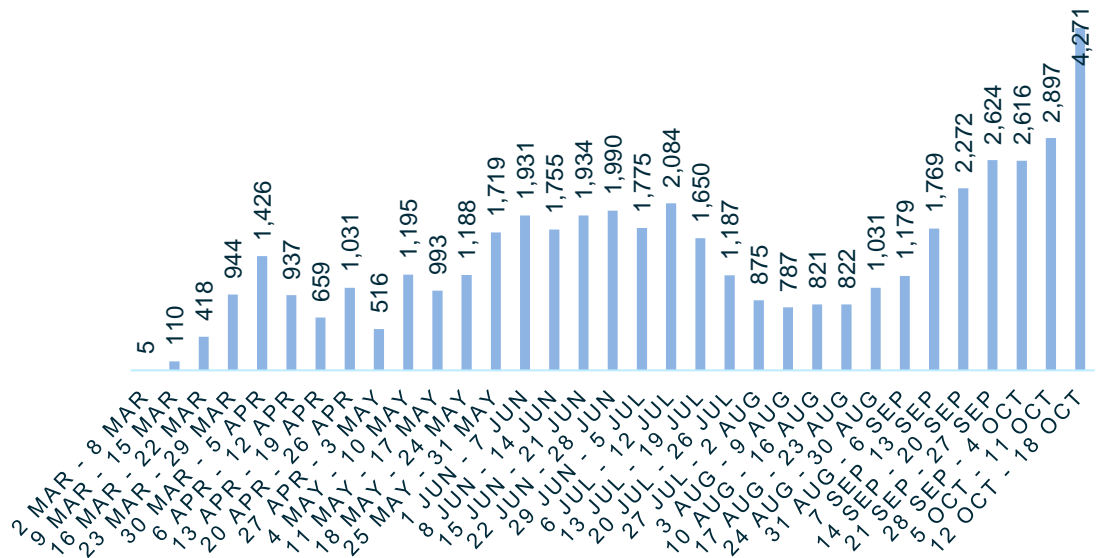
Portugal



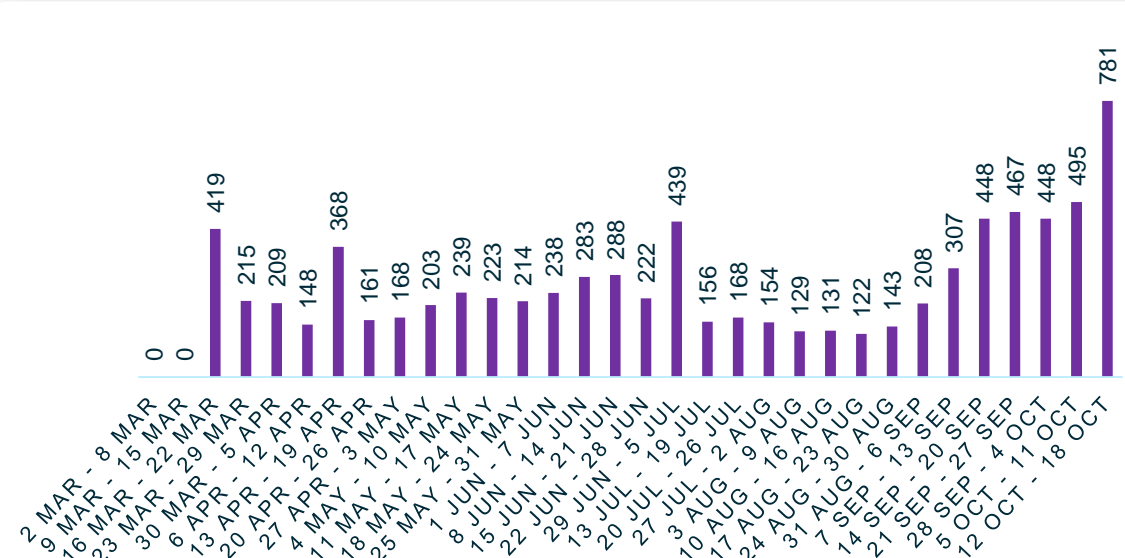
Loures



Lisbon and Tagus Valley



Lisbon



Ireland

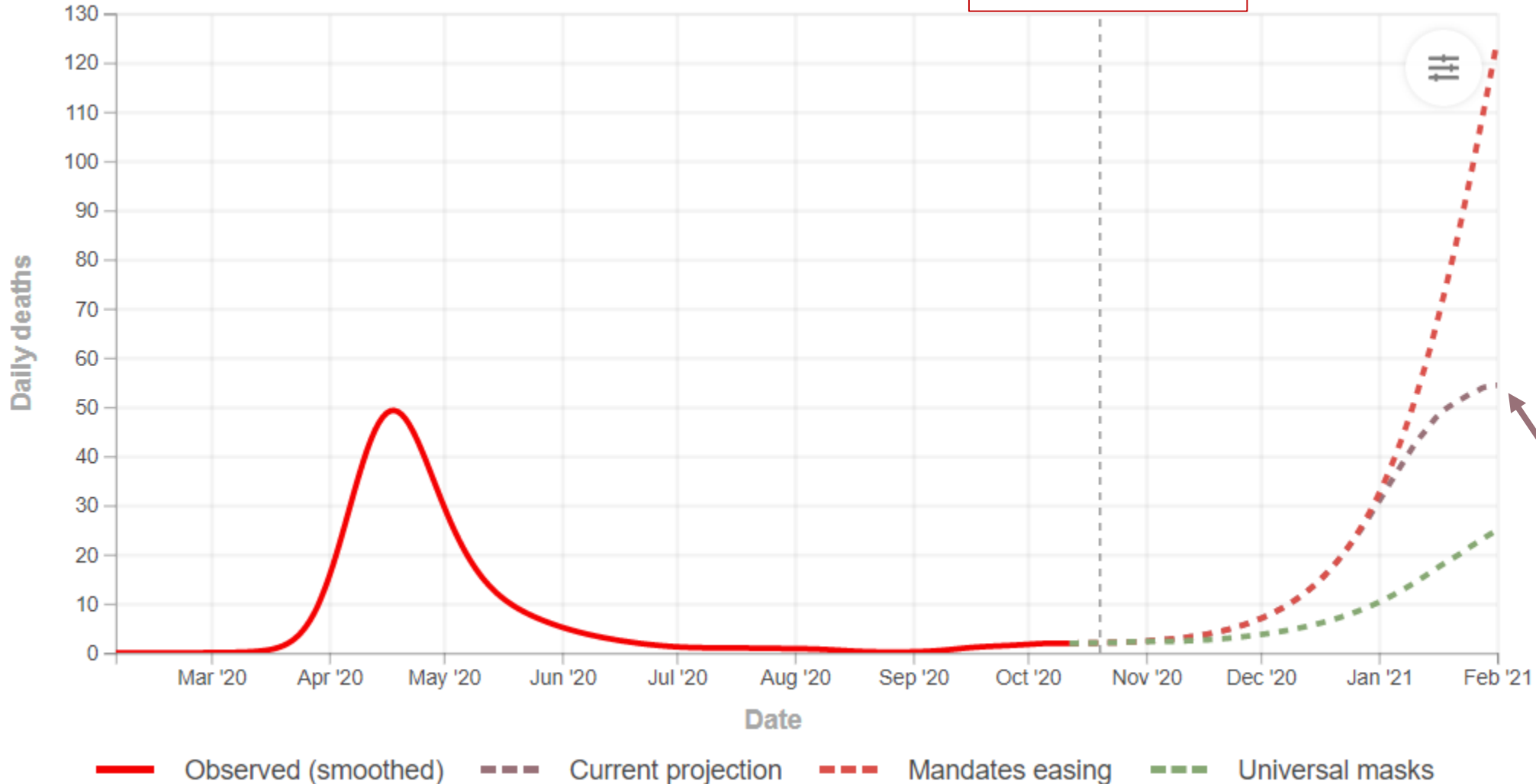
Covid-19 Projections – Ireland – Daily Deaths

Today: 19 Oct 2020
0 deaths

Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).



Projection Daily Deaths

**1 February 2021
Projected: 54**

Projections in:

- 9 October: 73
- 15 October: 54

Feb 2021

Source: Institute for Health Metrics and Evaluation / University of Washington - <https://covid19.healthdata.org/portugal?view=daily-deaths&tab=trend>

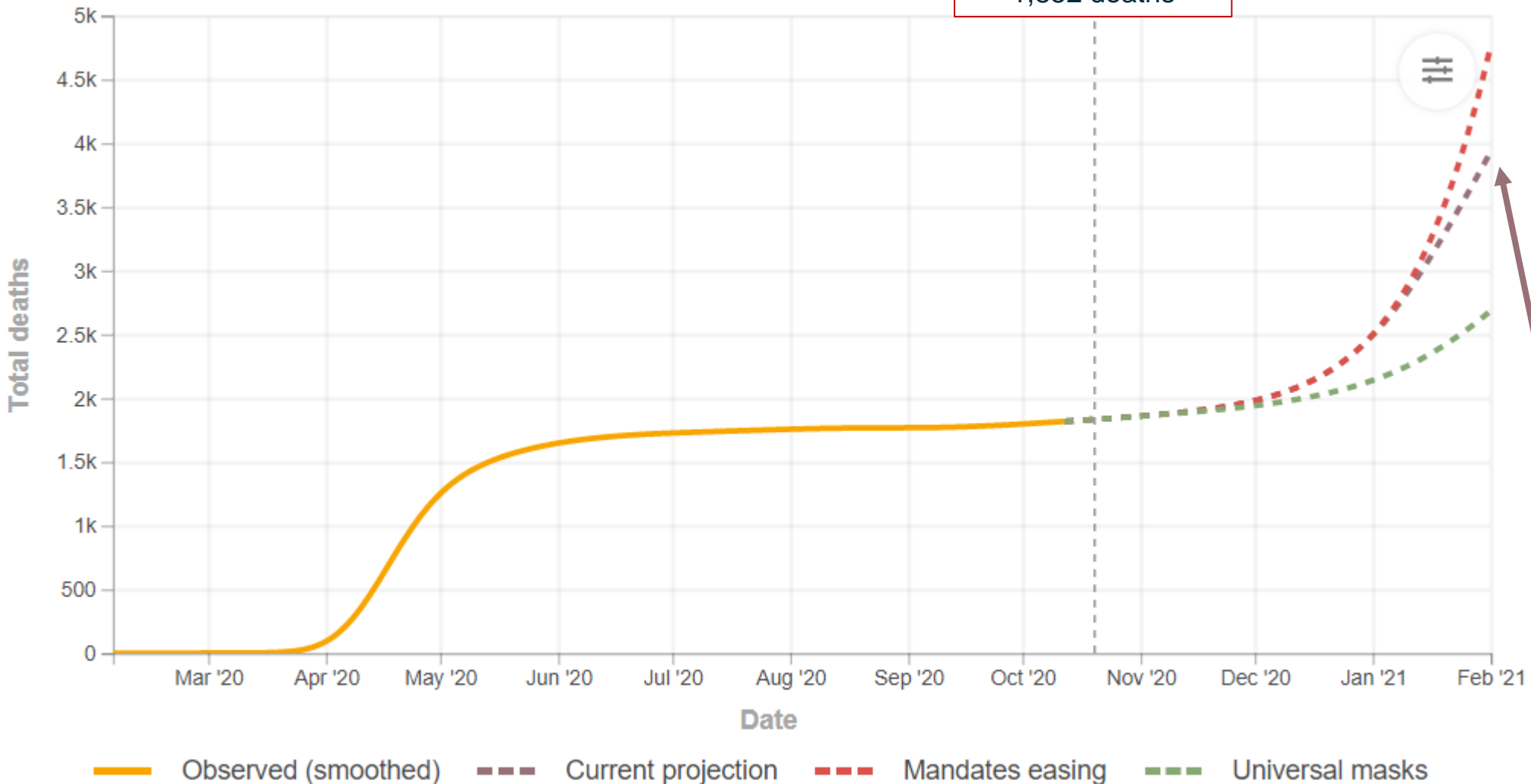
Covid-19 Projections – Ireland – Total Deaths

Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Today: 19 Oct 2020
1,852 deaths



Projection Total Deaths

1 February 2021
Projected: 3,931

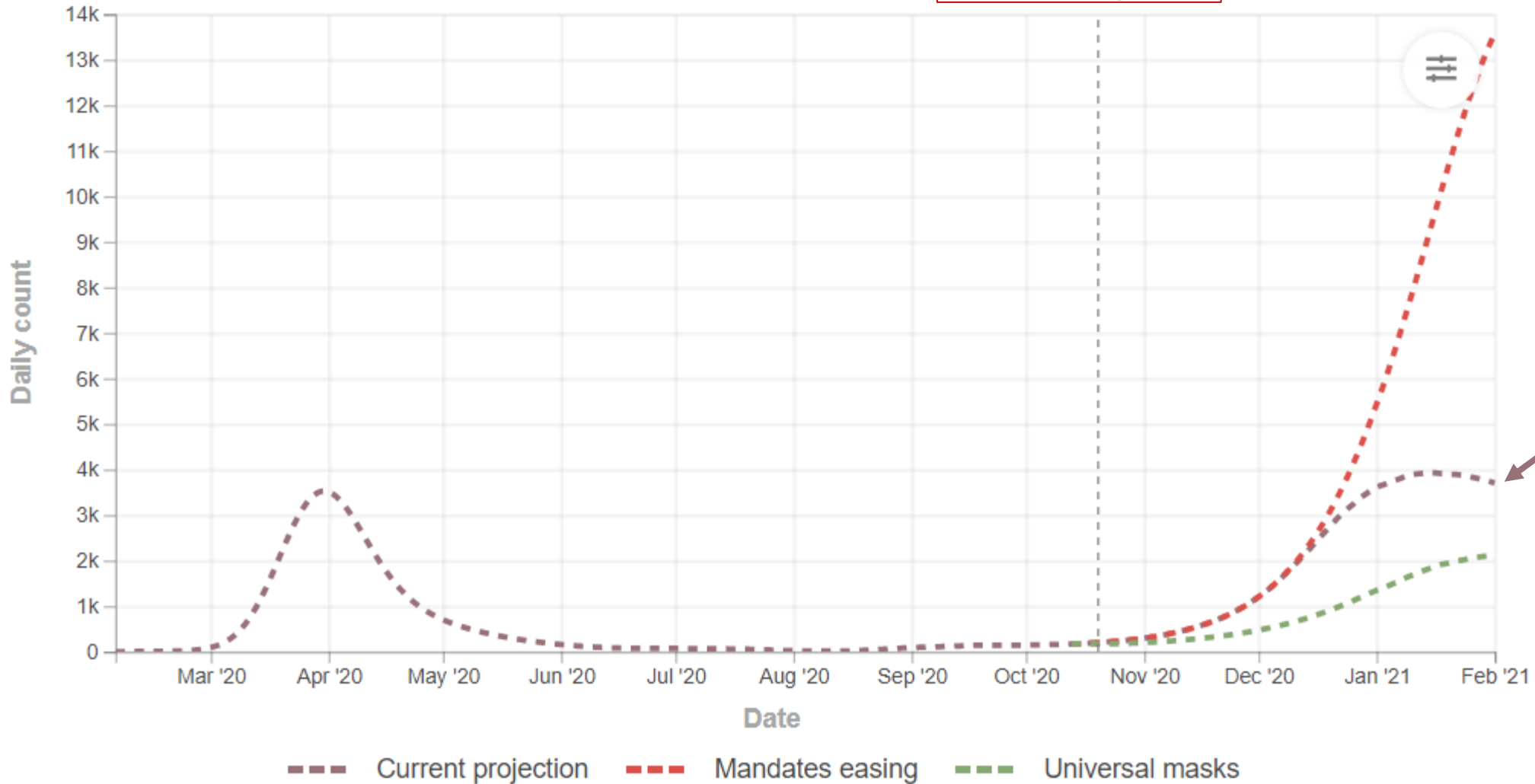
Projections in:

- 9 October: 5,064
- 15 October: 3,931

Feb 2021

Covid-19 Projections – Ireland – Daily Infections

Today: 19 Oct 2020
1,031 infections



Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Projection Daily Infections

1 February 2021
Projected: 3,701

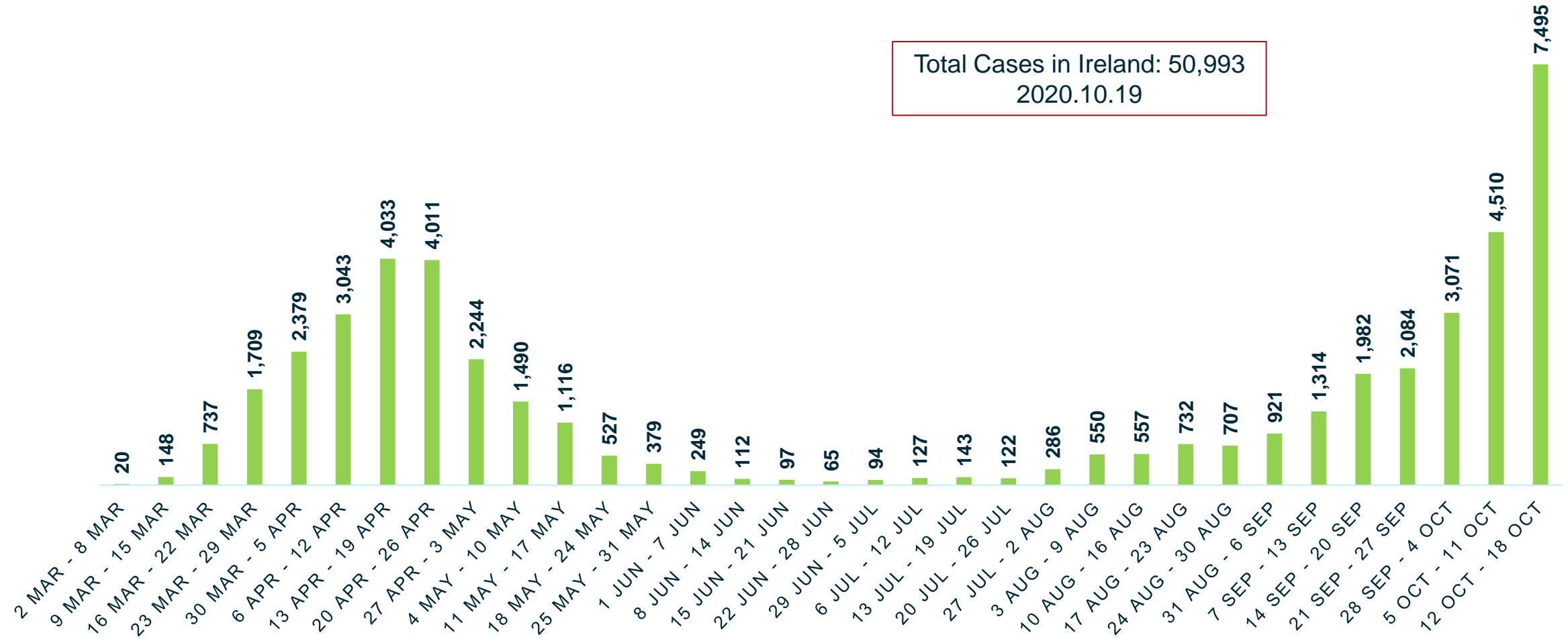
Projections in:

- 9 October: 4,923
- 15 October: 3,701

Feb 2021

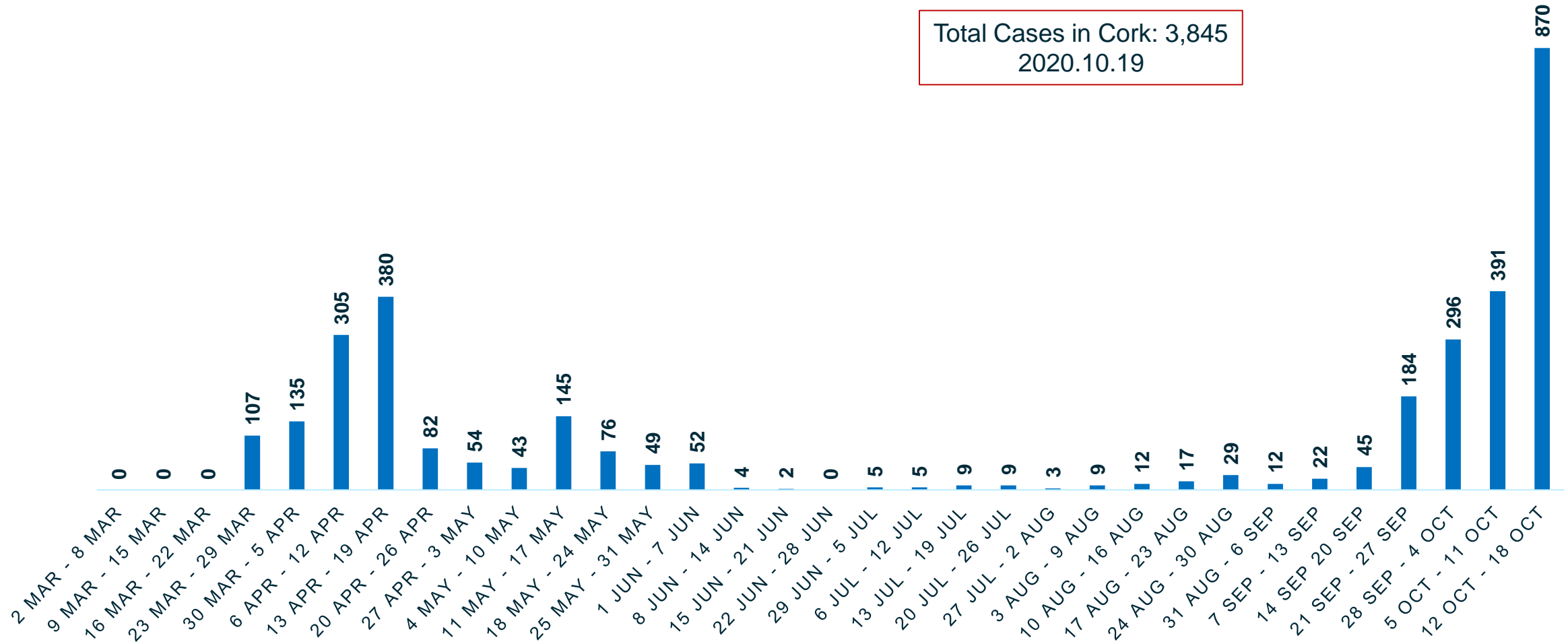
Source: Institute for Health Metrics and Evaluation / University of Washington - <https://covid19.healthdata.org/portugal?view=daily-deaths&tab=trend>

Coronavirus (SARS-CoV-2 / COVID 19) – Ireland - New cases per week



Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

Coronavirus (SARS-CoV-2 / COVID 19) – **Cork** - New cases per week

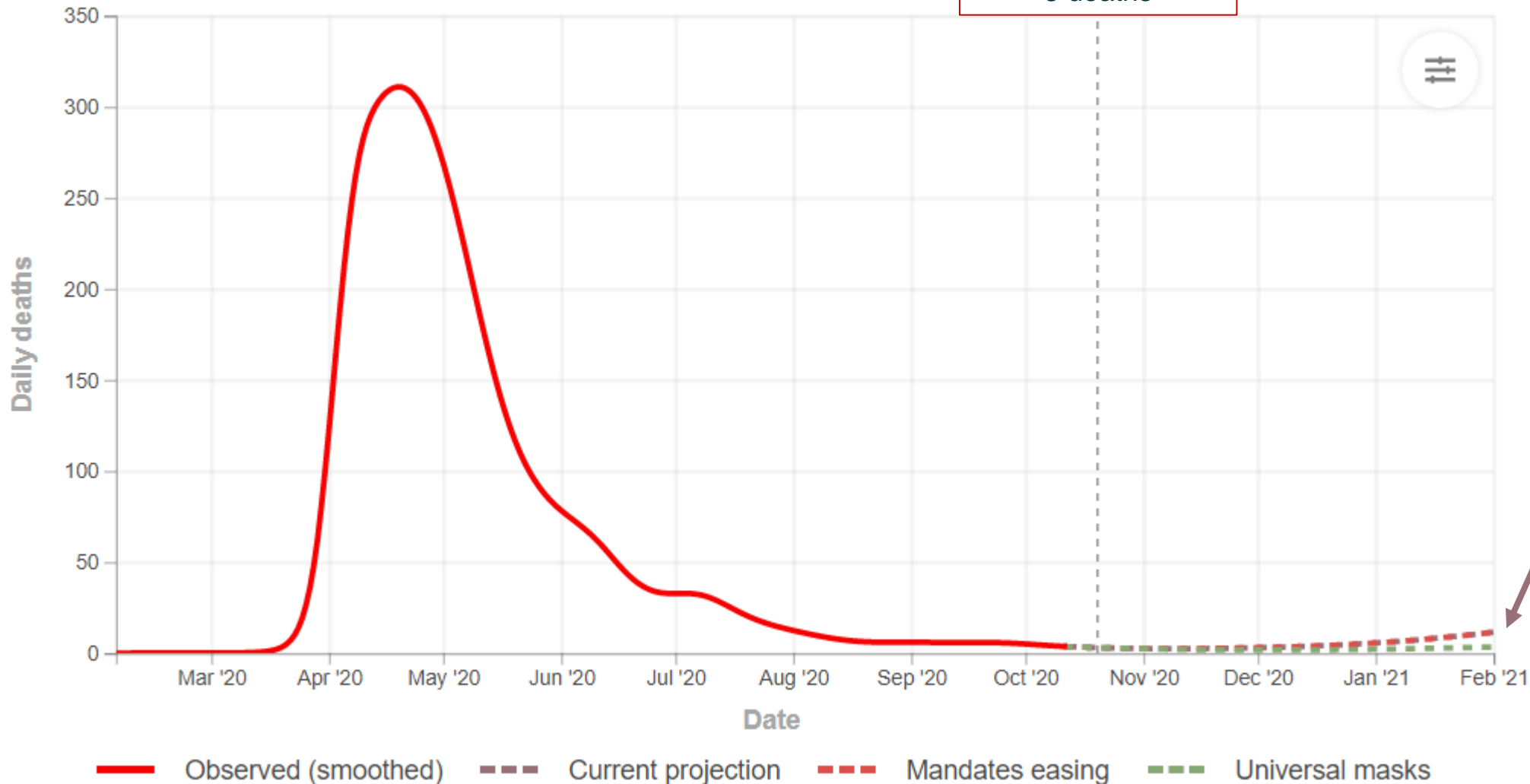


Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

New Jersey

Covid-19 Projections – New Jersey – Daily Deaths

Today: 19 Oct 2020
3 deaths



Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Projection Daily Deaths

1 February 2021
Projected: 11

Projections in:

- 9 October: 54
- 15 October: 11

Feb 2021

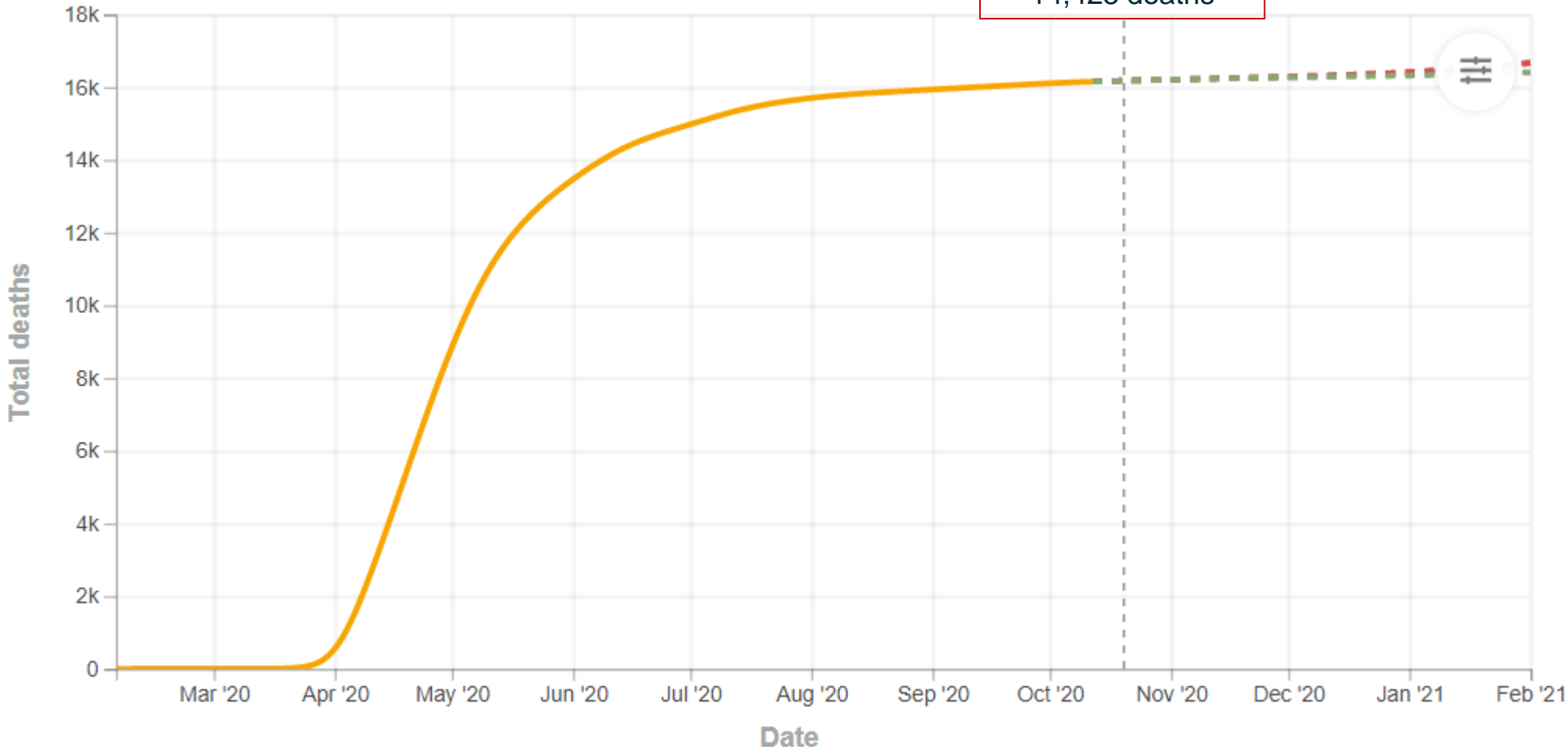
Covid-19 Projections – New Jersey – Total Deaths

Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Today: 19 Oct 2020
14,425 deaths



Projection Total Deaths

1 February 2021
Projected: 16,670

- Projections in:
- 9 October: 18,722
 - 15 October: 16,670
- Feb 2021

— Observed (smoothed) - - - Current projection - - - Mandates easing - - - Universal masks

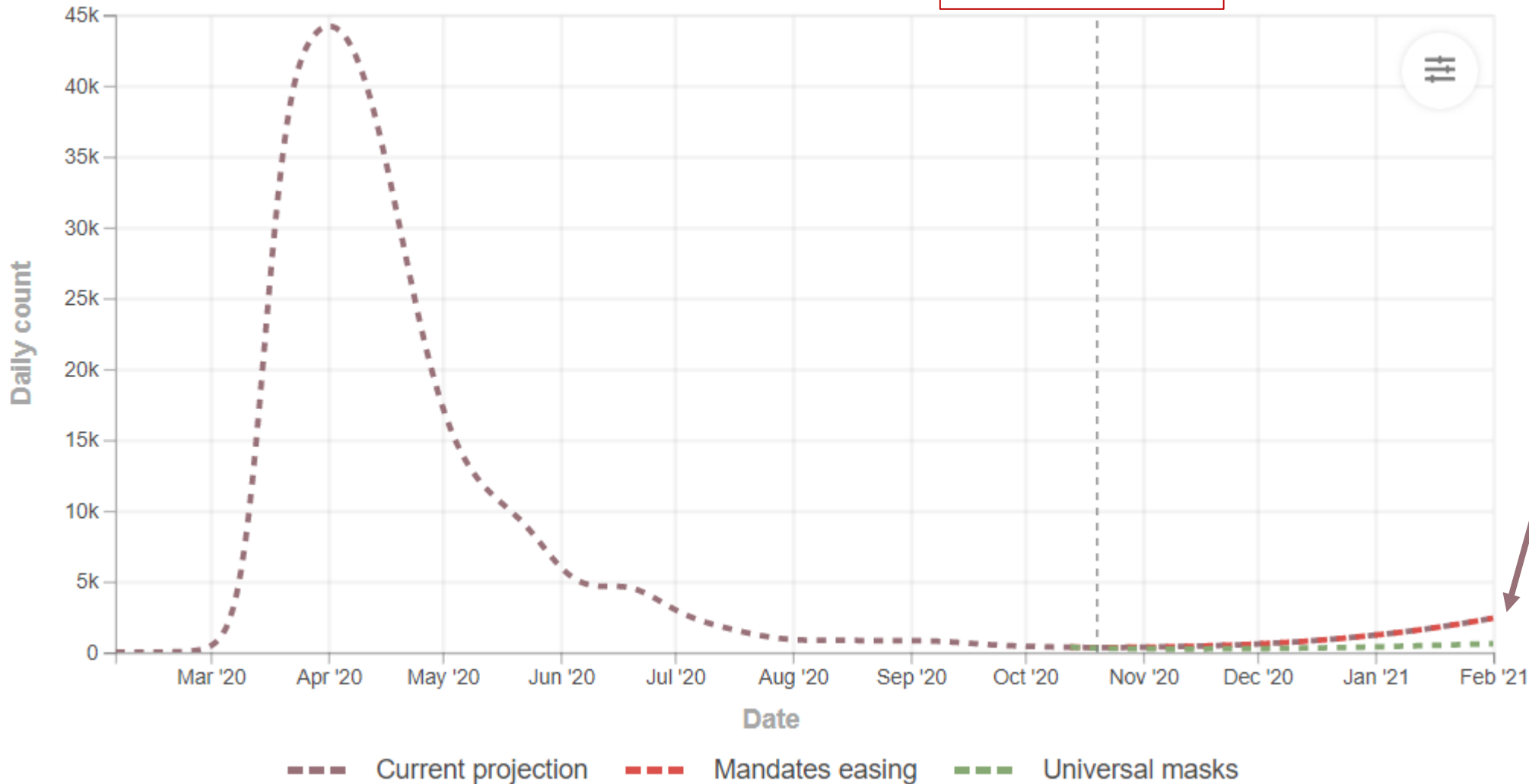
Covid-19 Projections – New Jersey – Daily Infections

Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

Mandates easing : Continued easing of social distancing mandates, and mandates are not re-imposed.

Universal masks : 95% mask usage in public in every location, reaching levels seen in Singapore. Mandates are re-imposed for 6 weeks if daily deaths reach 8 per million (0.8 per 100k).

Today: 19 Oct 2020
1,192 infections



Projection Daily Infections

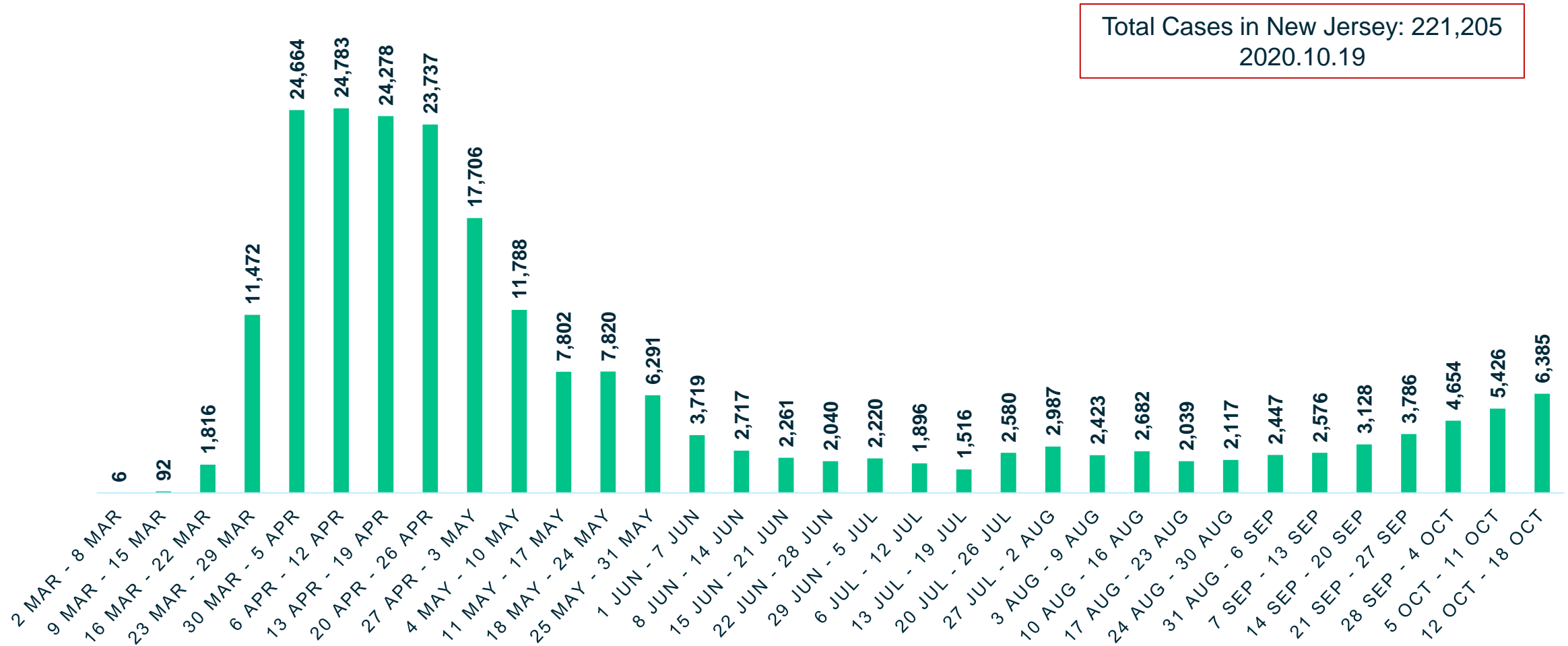
1 February 2021
Projected: 2,412

Projections in:

- 9 October: 7,588
- 15 October: 2,412

Feb 2021

Coronavirus (SARS-CoV-2 / COVID 19) – New Jersey - New cases per week

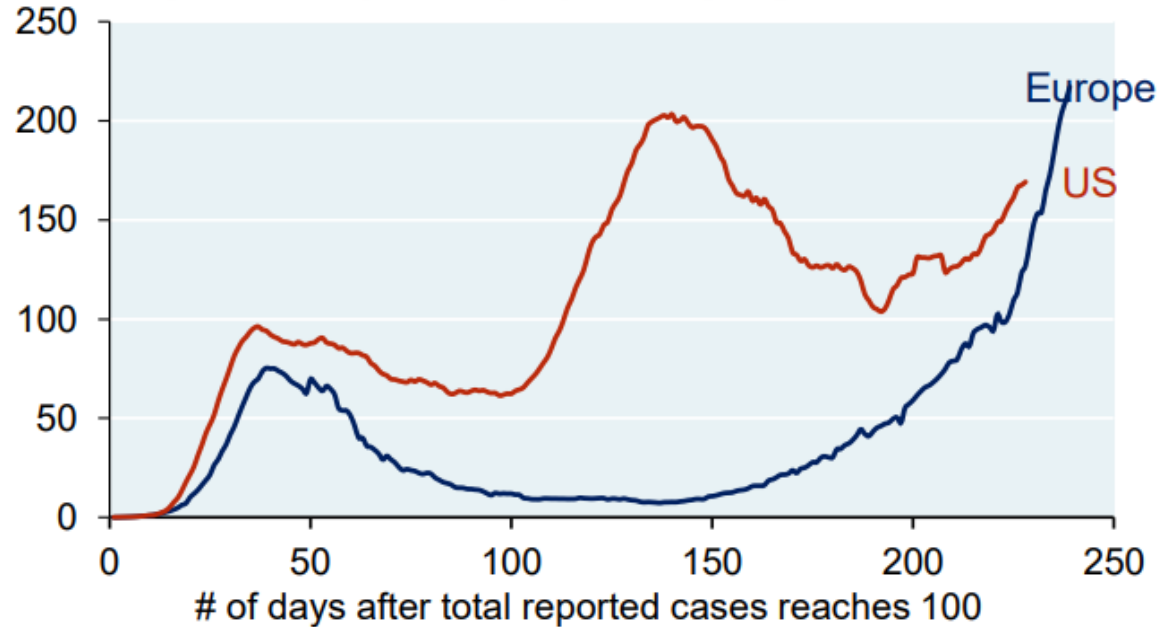


Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

US vs Europe infections and mortality

US vs Europe infections

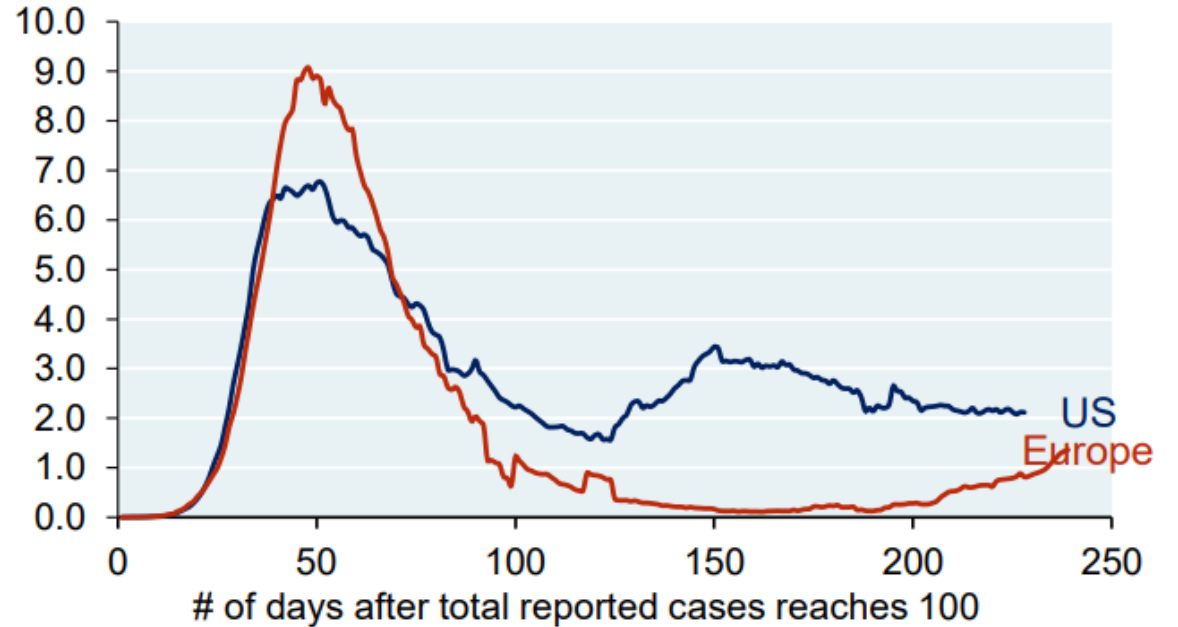
New daily infections per mm people, 7 day avg



Source: Johns Hopkins University, IMF, JPMAM. October 18, 2020

US vs Europe mortality

Daily deaths per mm people, 7 day avg



Source: Johns Hopkins University, IMF, JPMAM. October 18, 2020

Recent News

The latest coronavirus updates and developments impacting the global pharmaceutical supply chain...

• 20 October

- Global coronavirus infections have passed 40.4 million cases, reaching 40,403,799. The global coronavirus death toll is 1,118,361 according to researchers at Johns Hopkins University.
- US Covid-19 infections exceed 8.2 million, meanwhile, the US coronavirus death toll is 220,133 according to researchers at Johns Hopkins University.
- Europe's death toll has passed 250,000 according to an AFP tally based on official sources.
- China has reported 19 new coronavirus cases for 19 October, up from 13 cases a day earlier, the health commission said on Tuesday. All of the new infections were imported. China also reported 24 new asymptomatic patients, compared with 33 a day earlier.
- Moderna CEO Stéphane Bancel said the US government could authorize emergency use of its Covid-19 vaccine in December if it gets positive interim results in November from a large clinical trial, Wall Street Journal reported. He added that if results from the study take longer to get, authorization may not occur until early next year.
- Ireland has announced a return to coronavirus lockdown. The prime minister, Micheal Martin, issued a nationwide "stay at home" order, but insisted schools would stay open. Measures coming into effect for six weeks from midnight on Wednesday will see all non-essential retail businesses close and bars and restaurants limited to takeaway or delivery service only. "Everyone in the country is being asked to stay at home," Martin said in a televised national address.

• 19 October

- Pfizer plans to submit Covid-19 vaccine for FDA approval in late November. In an open letter, the CEO and chairman of Pfizer Albert Bourla has laid out the company's timeline for submitting its Covid-19 vaccine candidate to the US Food and Drug Administration for approval or emergency use authorisation. Pfizer's Covid-19 vaccine candidate relies on mRNA technology and is being developed alongside German BioNTech. The vaccine is currently being studied in a global Phase II/III study.

• 16 October

- Portugal reported the biggest daily increase in cases since the start of the outbreak. There were 2,608 new infections in a day, bringing the total is now 101,860.
- Tough measures are to be introduced in Portugal from Thursday as the country reported a new record in cases. Gatherings will be limited to five people. Weddings and baptisms can be attended by a maximum of 50, but university parties will be banned. Fines for businesses which do not comply with the rules will be doubled from an upper limit of 5,000 to 10,000 euros.
- More than half of countries in the EU, plus the UK, were on Thursday labelled red in a new map issued by the bloc's disease control agency aimed at guiding decisions on travel restrictions. The map was issued after EU member states decided on Tuesday to coordinate their approach to travel restrictions on other countries in response to Covid-19 outbreaks.
- The World Health Organisation's six-month SOLIDARITY trial of Covid-19 therapeutics has provided convincing evidence on the effectiveness of repurposed drugs to treat Covid-19. Results from the trial revealed that remdesivir, lopinavir/ritonavir, hydroxychloroquine, and interferon had limited effect on the short-term mortality or in-hospital course of Covid-19 patients. The study was conducted across more than 30 countries to evaluate the effects of the drugs on mortality, duration of hospital stay and ventilation requirements.

The latest coronavirus updates and developments impacting the global pharmaceutical supply chain... (cont.)

- **13 October**

- Johnson & Johnson has announced the temporary pause of further dosing in all its vaccine candidate clinical trials for Covid-19 after one of the study participants reported an unexplained illness. The ENSEMBLE trial's independent Data Safety Monitoring Board (DSMB) and the company's internal clinical and safety physicians are currently reviewing and evaluating the participant's illness.

- **12 October**

- AstraZeneca has received an investment of approximately \$486m from the US Government to develop and supply its long-acting antibody (LAAB) cocktail, AZD7442, for Covid-19 treatment. The company intends to supply up to 100,000 doses of the therapy beginning towards the end of 2020. In the coming weeks, AZD7442 will progress into two Phase III trials in a total of over 6,000 subjects enrolled at sites across the US and other countries.
- UK researchers are conducting a clinical trial to test the Bacillus Calmette-Guérin (BCG) vaccine, which is currently used to protect babies from tuberculosis, for its ability to protect against Covid-19. The UK arm of the large-scale, global study is being led by the University of Exeter. Named BRACE, the trial will involve more than 10,000 healthcare staff and care home workers across the UK, Australia, the Netherlands, Spain, and Brazil.
- Gilead Sciences has reported final results from the Phase III ACTT-1 clinical trial, where its experimental antiviral Veklury (remdesivir) demonstrated consistent, clinically meaningful improvements when compared to placebo, in hospitalised adults with mild-moderate or severe Covid-19. Data showed that treatment with the drug led to a faster time to recovery.

- **8 October**

- Eli Lilly has submitted an application to the US Food and Drug Administration (FDA) seeking emergency use authorisation (EUA) for LY-CoV555 monotherapy for treating higher-risk patients with mild-to-moderate Covid-19. The company also plans to submit an EUA application to the FDA for a combination therapy of LY-CoV555 and LY-CoV016 in November this year.
- US-based biotechnology company Moderna may seek an emergency use authorisation (EUA) from the US Food and Drug Administration (FDA) for its Covid-19 vaccine candidate after 25 November. With the EUA, the FDA can authorise the use of unapproved medical products or treatments during public health emergencies.

The latest coronavirus updates and developments impacting the global pharmaceutical supply chain... (cont.)

• 6 October

- The FDA said it has worked to make clear to Covid-19 vaccine developers what standards would have to be met to authorize use of shots. One such path is an emergency-use authorization, or EUA, a fast-track procedure that relies on less safety and efficacy data than a full approval.
- NVIDIA is creating a supercomputer named Cambridge-1 to enable artificial intelligence (AI)-based research on Covid-19, as well as other healthcare areas. Claimed to be the UK's most powerful supercomputer, Cambridge-1 will be initially leveraged by GlaxoSmithKline, AstraZeneca, Guy's and St Thomas' NHS Foundation Trust, King's College London and Oxford Nanopore Technologies for pharmaceutical research.

• 1 October

- European regulators are set to start an accelerated review of a Covid-19 vaccine front-runner from the University of Oxford and AstraZeneca Plc. Trials were halted earlier this month due to concerns about a trial participant who fell ill. However Reuters also reported that the US Food and Drug Administration had widened its investigation of the incident that led to the trial halt. US authorities have yet to approve the restart of the trial there.
- Pfizer and BioNTech have started enrolling participants into a Phase III clinical trial of their Covid-19 vaccine candidate in South Africa. Designed to assess the safety and efficacy of the vaccine candidate, the trial will involve nearly 800 subjects at four sites across Gauteng, Limpopo and the Western Cape. The South African Health Products Regulatory Authority (Sahpra) granted approval for the trial on 22 September 2020.

• 30 September

- World Bank president David Malpass has said that the bank is seeking board approval for a \$12bn Covid-19 vaccine financing plan to ensure enough vaccine doses are available for poor and developing countries. In an exclusive interview with Reuters, Malpass added that the plan is to help these countries obtain and distribute vaccines early to healthcare and other essential workers, as well as boost manufacturing worldwide.
- Moderna has reported data from the second interim analysis of Phase I clinical trial of its Covid-19 vaccine candidate, mRNA-1273, which was found to be generally well-tolerated at 25µg and 100µg dose levels in participants aged 56-70 and above 71 years. Immune responses were found to be dose-dependent, with the 100µg dose demonstrating higher binding and neutralising antibody titres.

The latest coronavirus updates and developments impacting the global pharmaceutical supply chain... (cont.)

- **29 September**

- The FDA has placed partial clinical hold on Inovio Pharmaceuticals' planned Phase II/III clinical trial of its potential Covid-19 vaccine, INO-4800. The regulator asked the company to provide more information on the trial, including details about the use of CELLECTRA 2000 delivery device. Inovio would respond to FDA's queries in October, after which the agency will have up to 30 days to decide whether the trial may proceed.

- **28 September**

- Ireland recorded 430 new infections on Sunday, the most in five months, with Dublin accounting for around half the cases.
- Industrial companies in China registered profits for the fourth straight month in August although the growth is lower than that of 2020.
- Despite the growth, the recovery of China from the impact of the Covid-19 pandemic remains uneven, with industrial production growing by 5.6% in August compared to the previously year.
- Johnson & Johnson (J&J) subsidiary Janssen has reported positive interim data from an ongoing Phase I/IIa clinical trial of a potential Covid-19 vaccine, JNJ-78436735. According to the results, a single dose of the vaccine candidate showed a strong neutralising antibody response in almost all participants aged 18 years and above.

- **25 September**

- The virus is continuing to mutate throughout the course of the pandemic, according to new research, with experts believing it is probably becoming more contagious. The study did not find that mutations of the virus had made it more lethal or changed its effects.
- Ireland's government moved to tighten restrictions in a second county and signalled more limits may follow. Travel to and from Donegal in the north-west of the country will be limited, while restaurants will be restricted to outdoor service only. That mirrors restrictions placed on Dublin six days ago.
- US-based biotechnology firm Novavax has started the first Phase III clinical trial of its potential Covid-19 vaccine, NVX-CoV2373, in the UK. Performed with the UK Government's Vaccines Taskforce, the trial will investigate the safety, efficacy and immunogenicity of NVX-CoV2373. The study is designed to recruit up to 10,000 participants aged 18 to 84 years, with and without relevant comorbidities, over the coming four to six weeks.
- The US FDA is yet to provide authorisation for AstraZeneca to resume its Covid-19 vaccine trial in the country, nearly three weeks following a pause over safety concerns. The US regulators are still investigating an illness in one of the trial participants, even after the clinical programme restarted in the UK and other countries, according to Reuters.

- **23 September**

- Fujifilm Toyama Chemical has reported that the Phase III clinical trial of Avigan (favipiravir) has met its primary endpoint of time to negative conversion of detectable SARS-CoV 2 viral RNA in the RT-PCR assays, and to relief of symptoms, in Covid-19 patients with non-severe pneumonia in Japan. Based on the positive data, the company plans to seek approval for the drug to treat Covid-19, expanding its current indication for influenza patients.

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