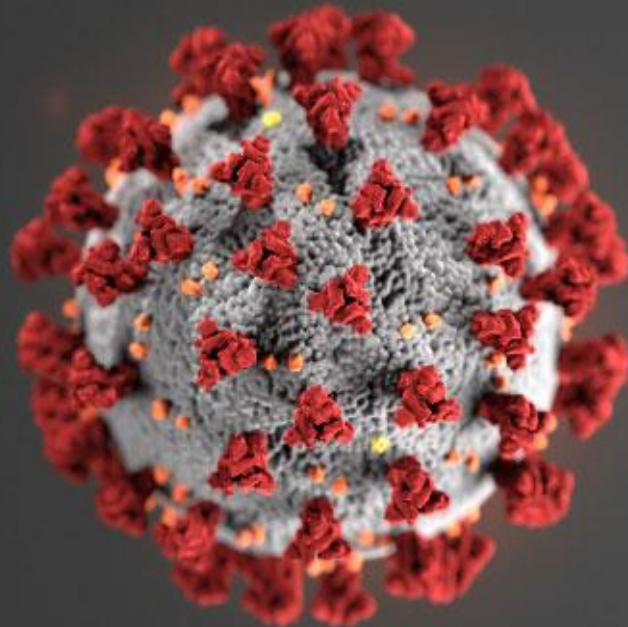


SARS-Cov-2 Report

José Luis Pires

22 September 2020



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SARS-Cov-2

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- [Daily new confirmed Covid-19 cases and deaths per million people](#)
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Symptoms of:

➤ COVID-19

➤ Cold

➤ Flu

COVID-19: IDENTIFYING THE SYMPTOMS

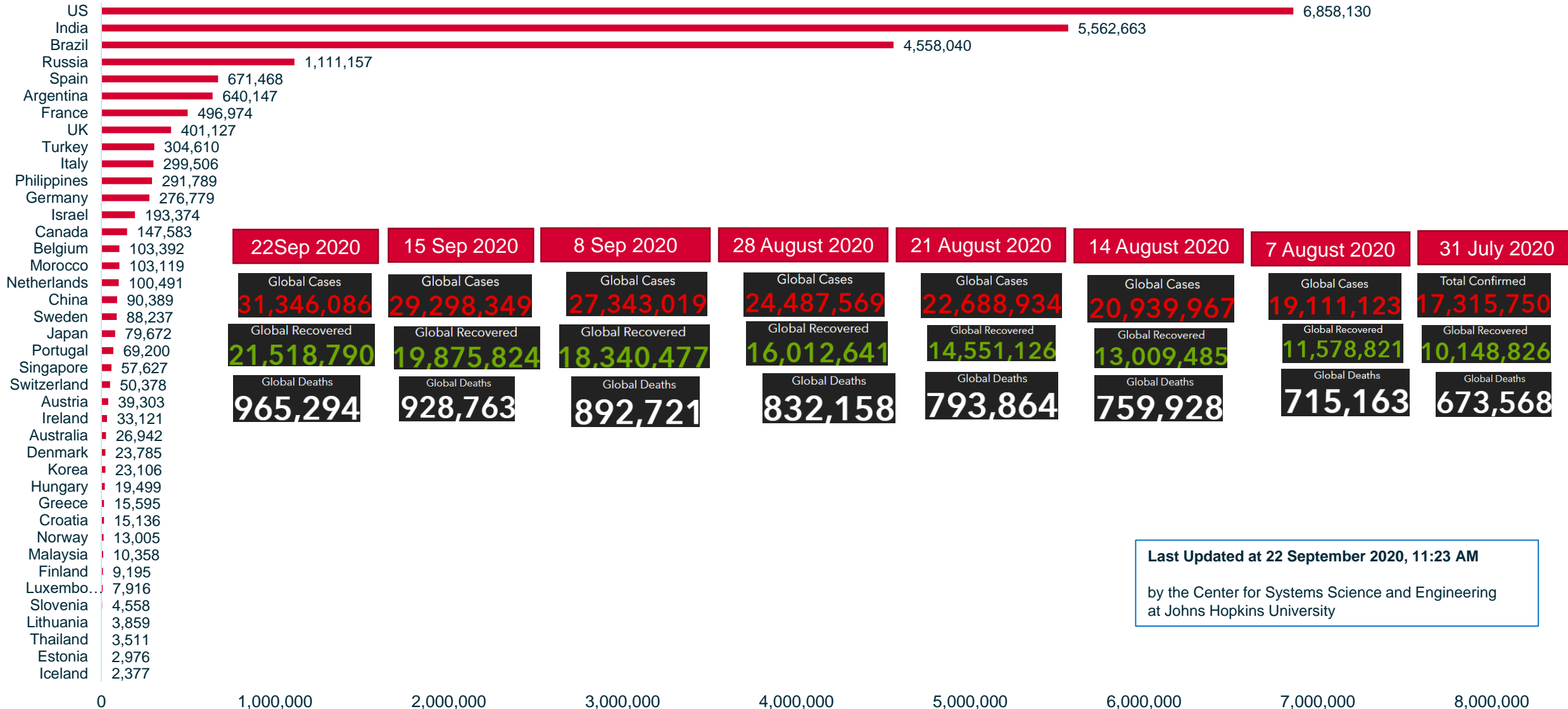
Coronavirus
(COVID-19)

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.

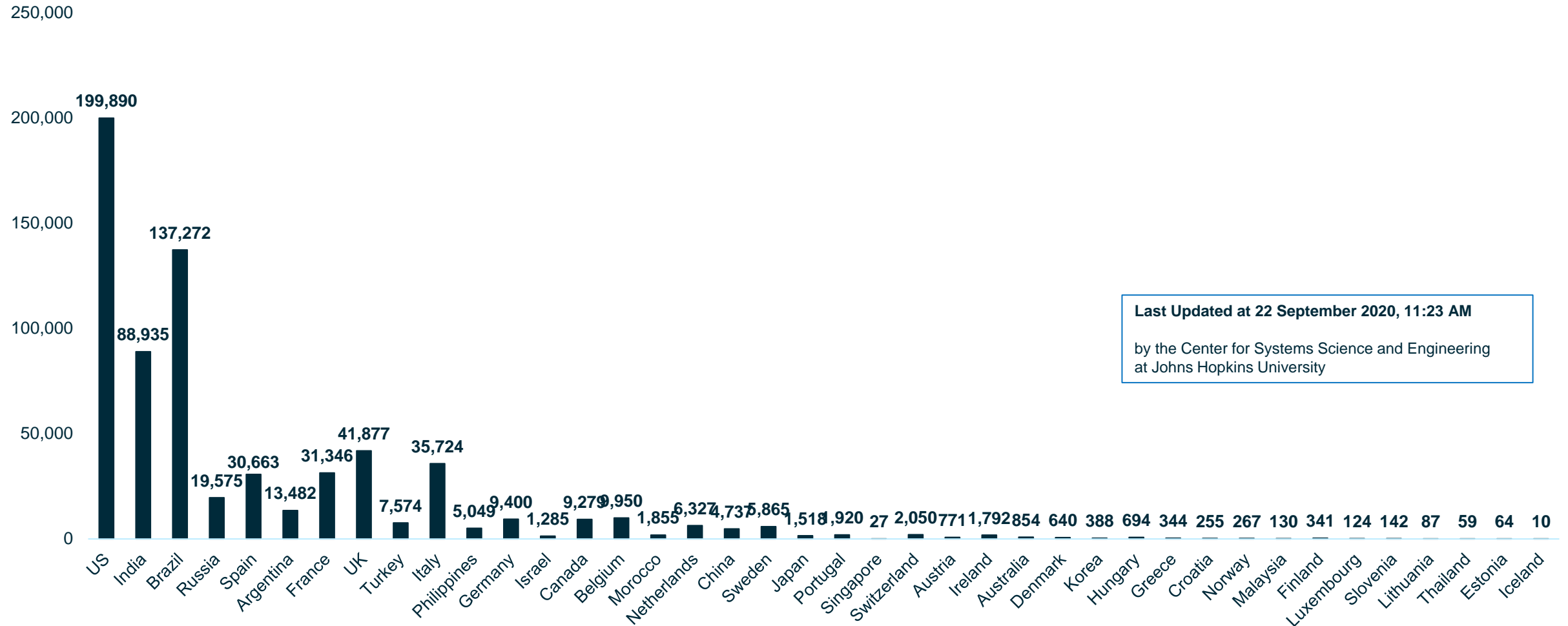
Coronavirus (SARS-CoV-2 / Covid-19) – Confirmed cases by country

Note: Selected Countries, sorted by # of cases



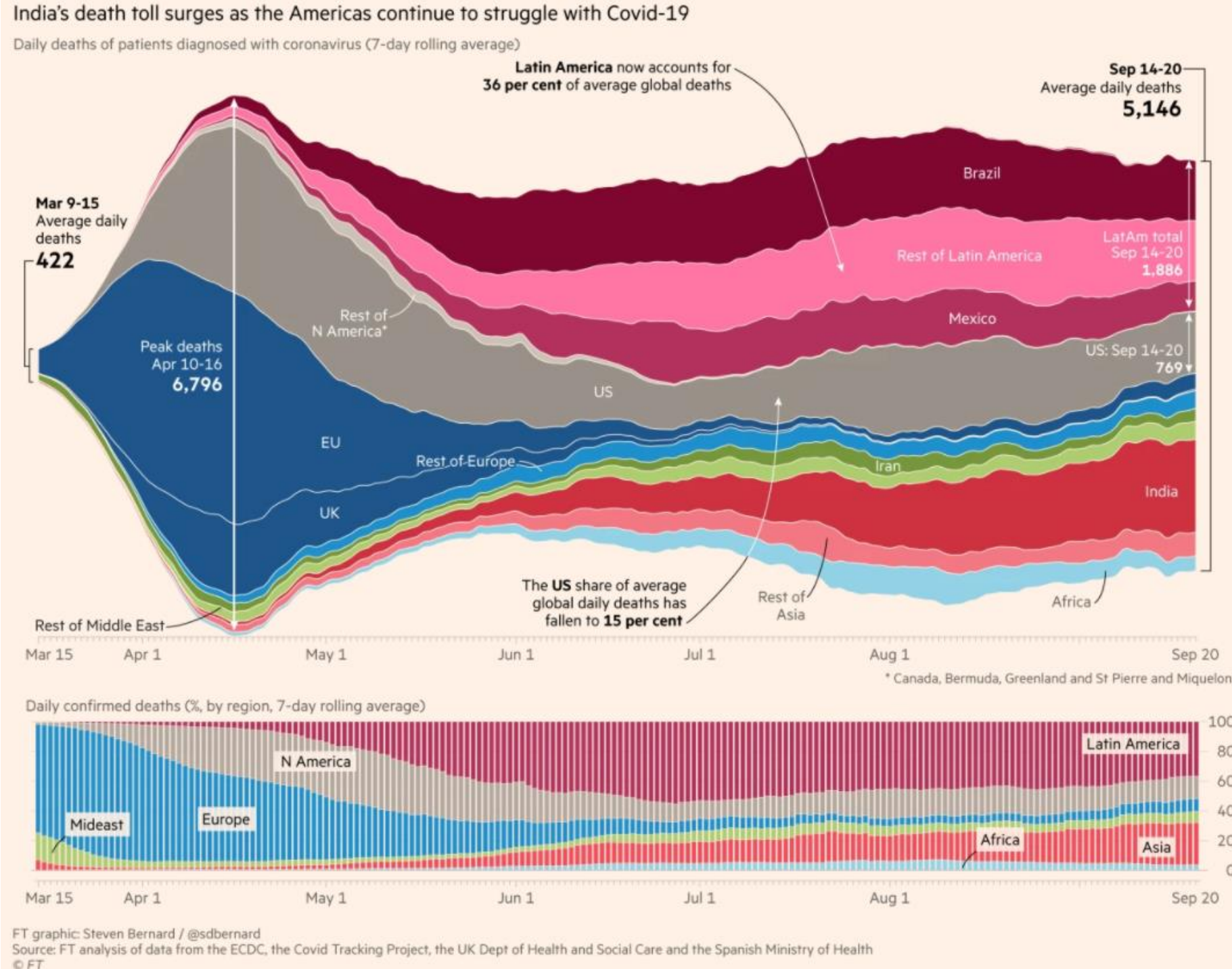
Coronavirus (SARS-CoV-2 / Covid-19) – Deaths by Country

Note: Selected Countries, sorted by # of cases

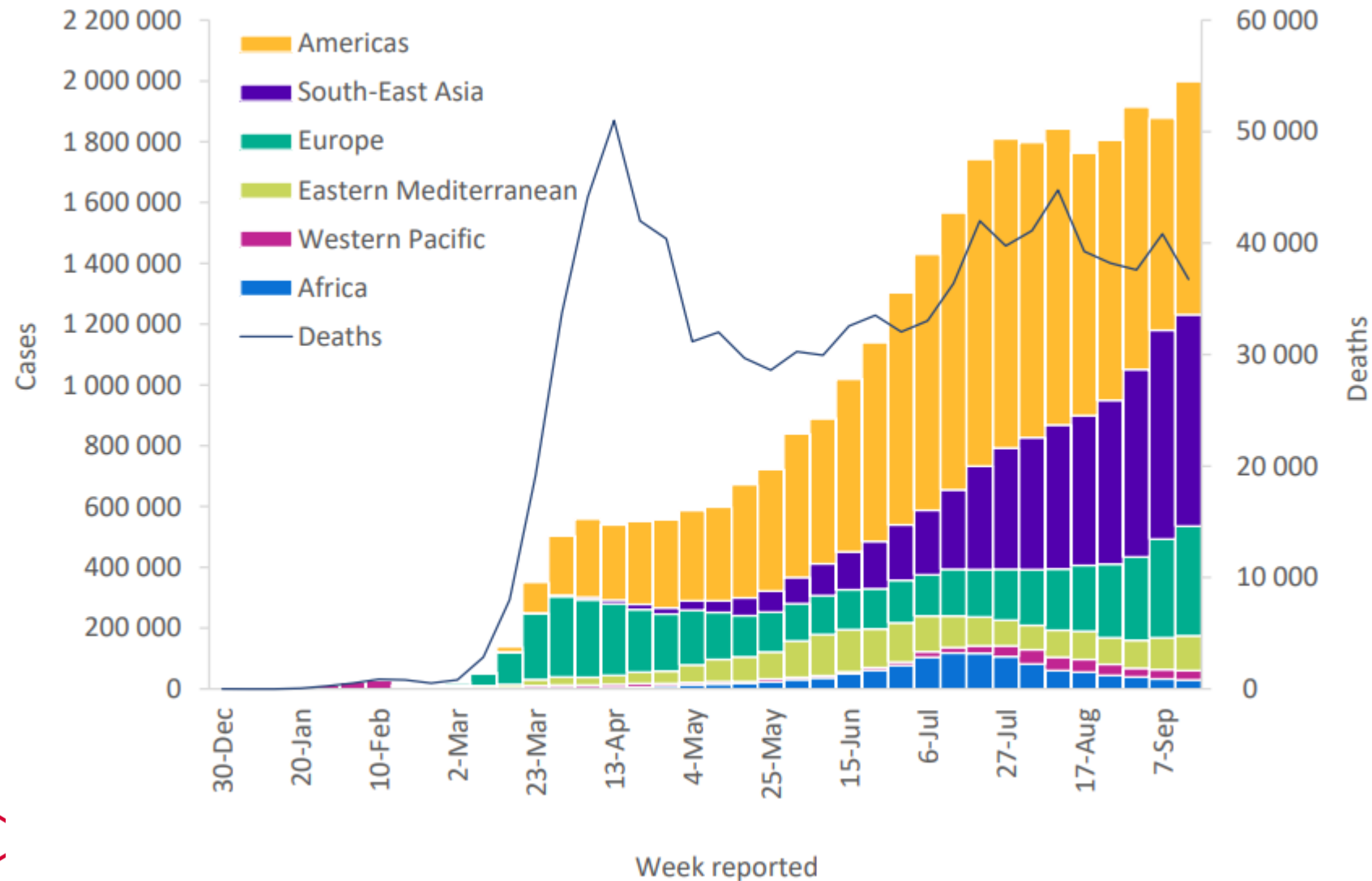


Source: <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

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

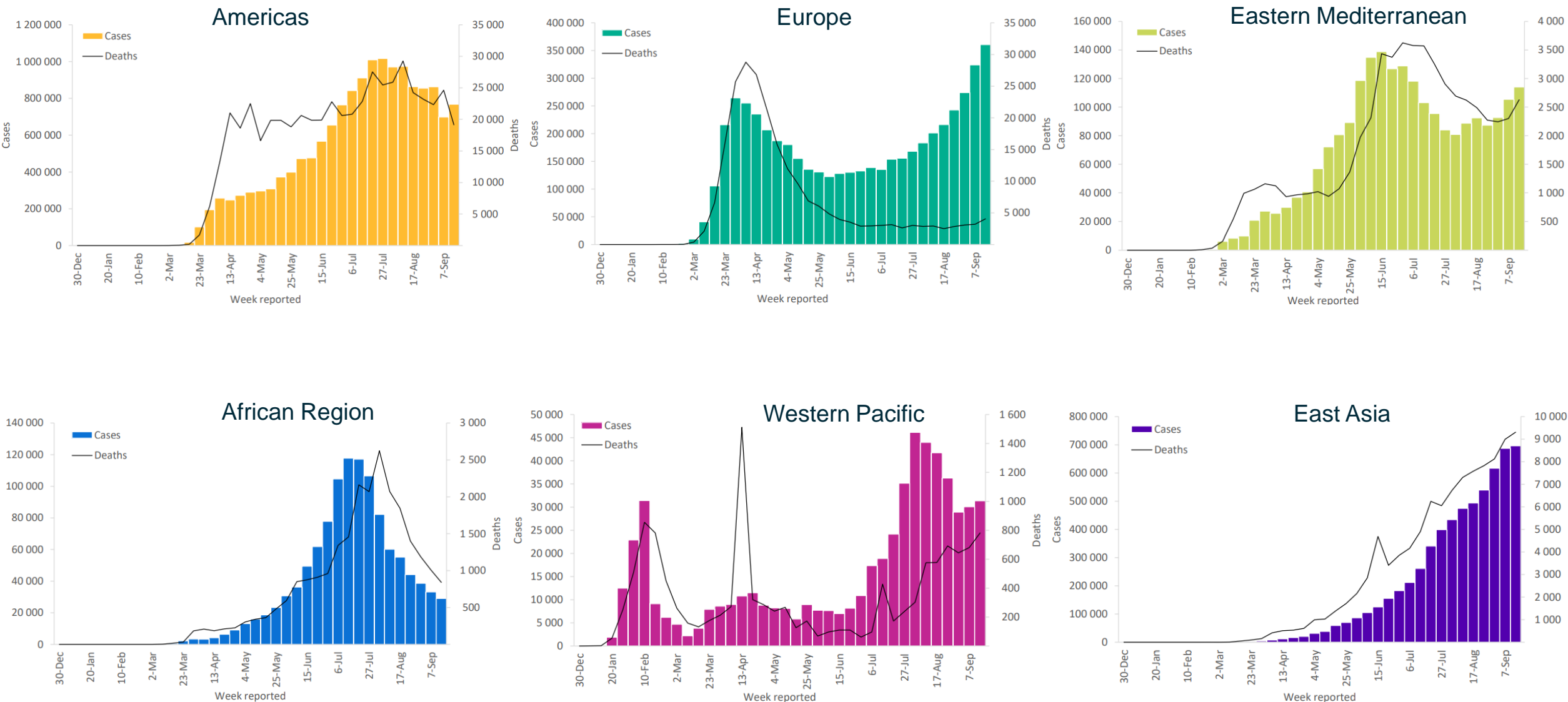


Number of COVID-19 cases reported weekly by WHO region, and total deaths, 30 December to 20 September 2020



Source: WHO

Number of COVID-19 cases and deaths reported weekly by the WHO Region, as of 20 September 2020



Portugal

Covid-19 Projections – Portugal – Daily 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 Deaths per day

1 October 2020

- Upper Range: 8
- Projected: 6
- Lower Range: 4

1 November 2020

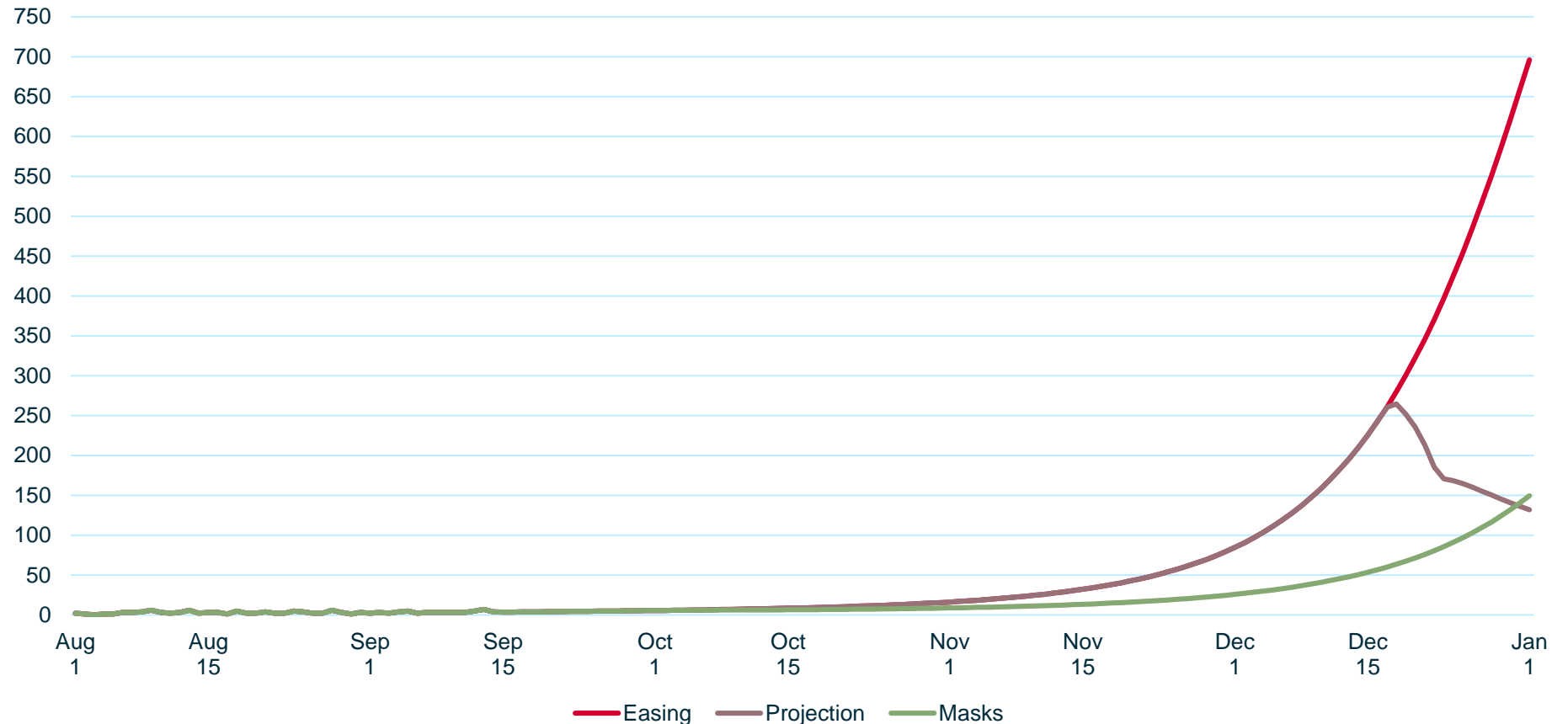
- Upper Range: 32
- Projected: 16
- Lower Range: 8

1 December 2020

- Upper Range: 258
- Projected: 85
- Lower Range: 26

1 January 2021

- Upper Range: 475
- Projected: 132
- Lower Range: 31



Covid-19 Projections – Portugal – Total Deaths

Projection Total Deaths

1 October 2020

- Upper Range: 1,973
- Projected: 1,942
- Lower Range: 1,918

1 November 2020

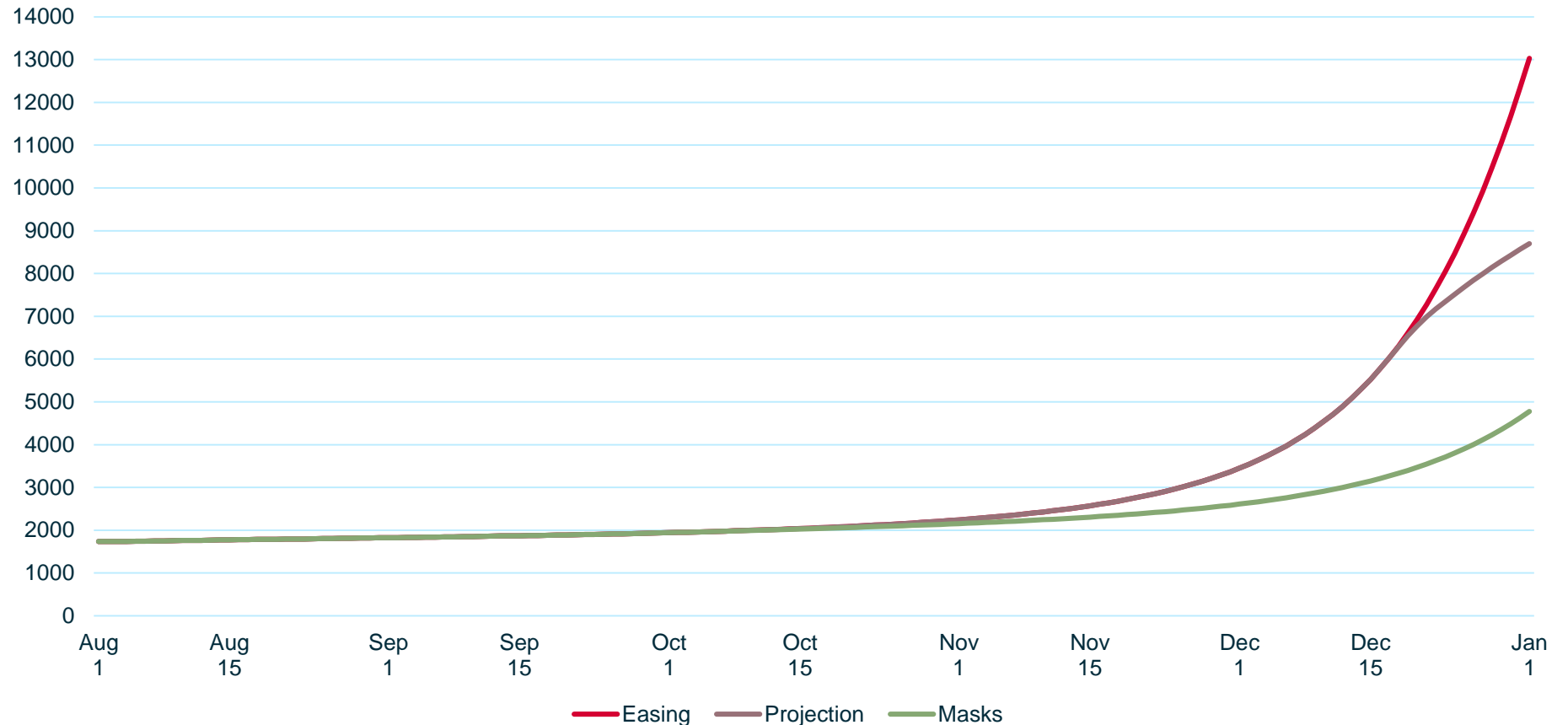
- Upper Range: 2,506
- Projected: 2,242
- Lower Range: 2,075

1 December 2020

- Upper Range: 5,624
- Projected: 3,451
- Lower Range: 2,537

1 January 2021

- Upper Range: 25,311
- Projected: 8,698
- Lower Range: 3,846



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).

Covid-19 Projections – Portugal – Daily Infections

Projection Daily Infections

1 October 2020

- Upper Range: 1,245
- Projected: 692
- Lower Range: 363

1 November 2020

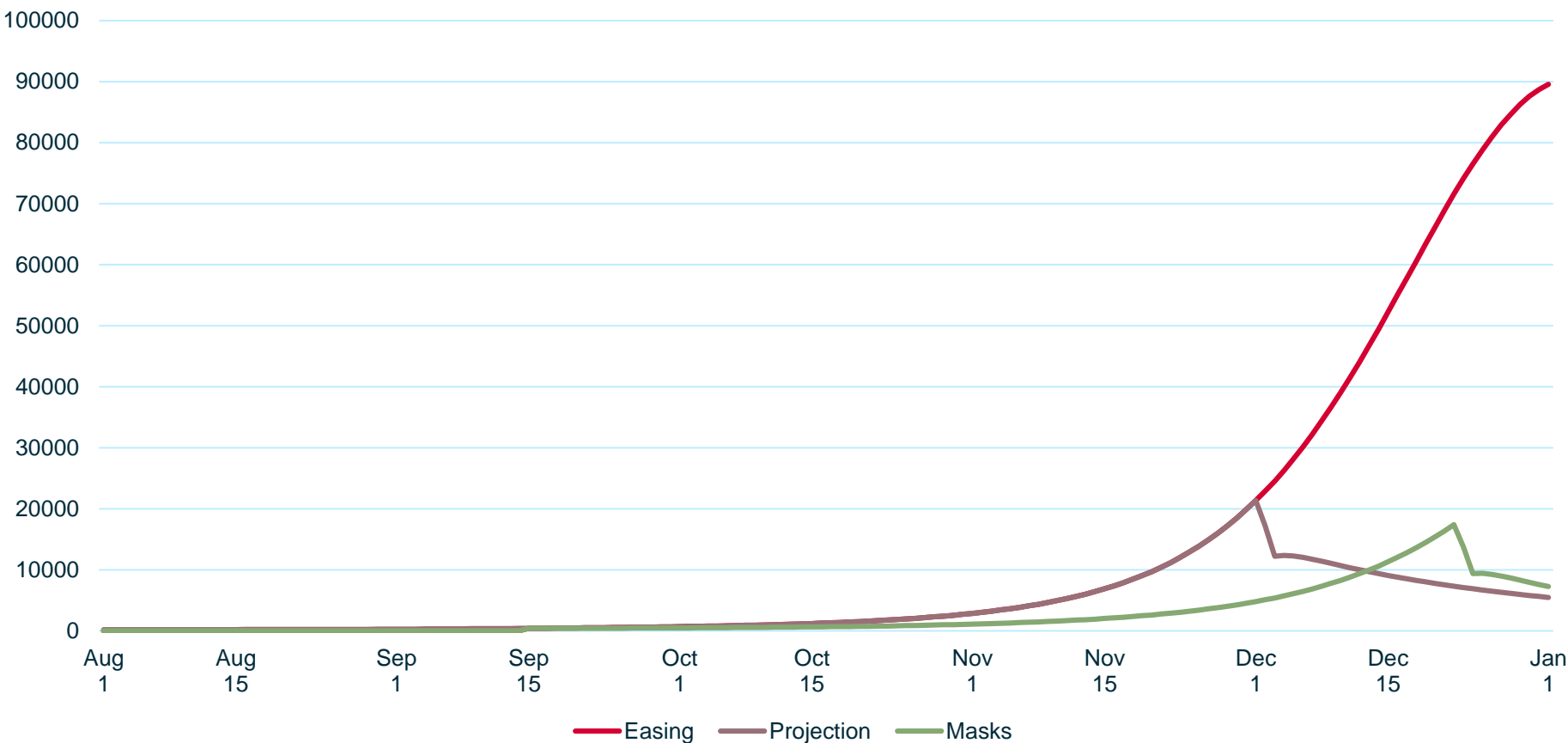
- Upper Range: 7,279
- Projected: 2,864
- Lower Range: 1,139

1 December 2020

- Upper Range: 81,106
- Projected: 21,348
- Lower Range: 4,515

1 January 2021

- Upper Range: 16,639
- Projected: 5,478
- Lower Range: 1,379

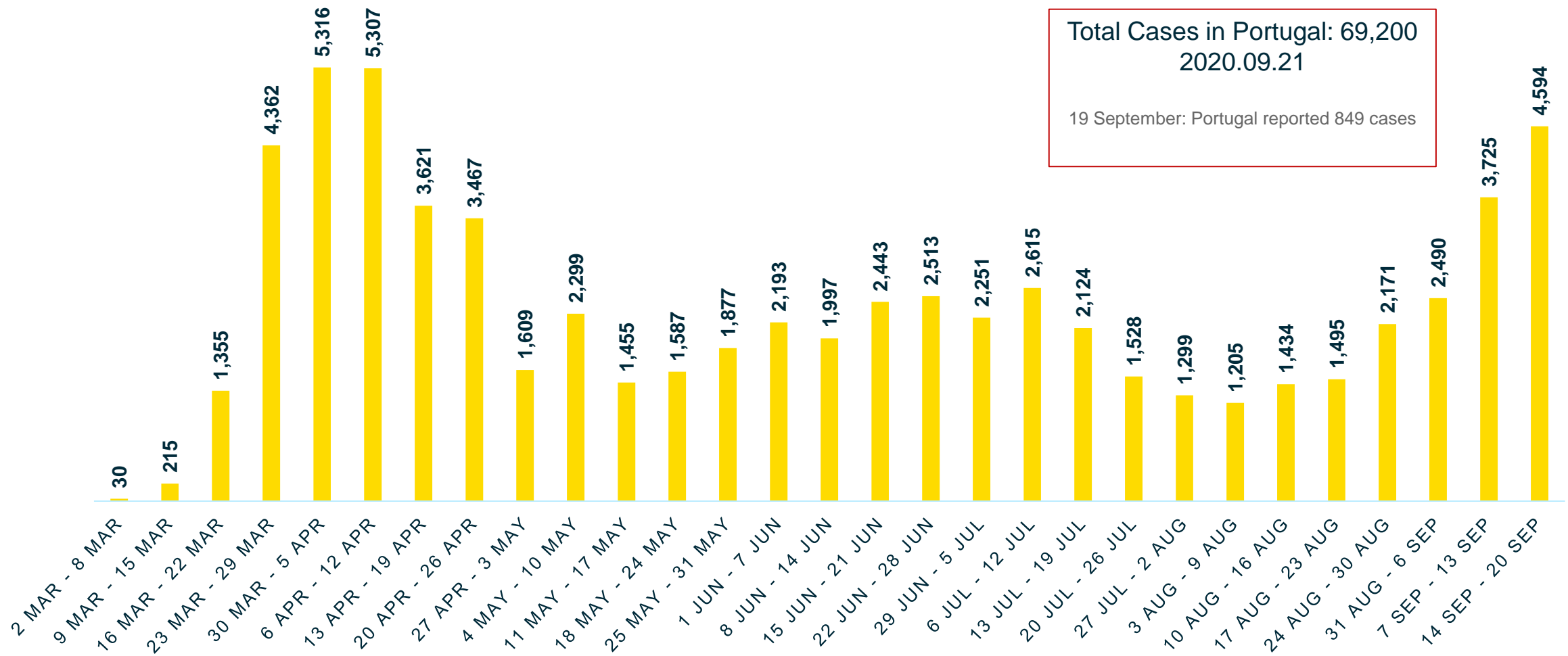


Current projection : Mandates are re-imposed for 6 weeks whenever daily deaths reach 8 per million (0.8 per 100k).

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).

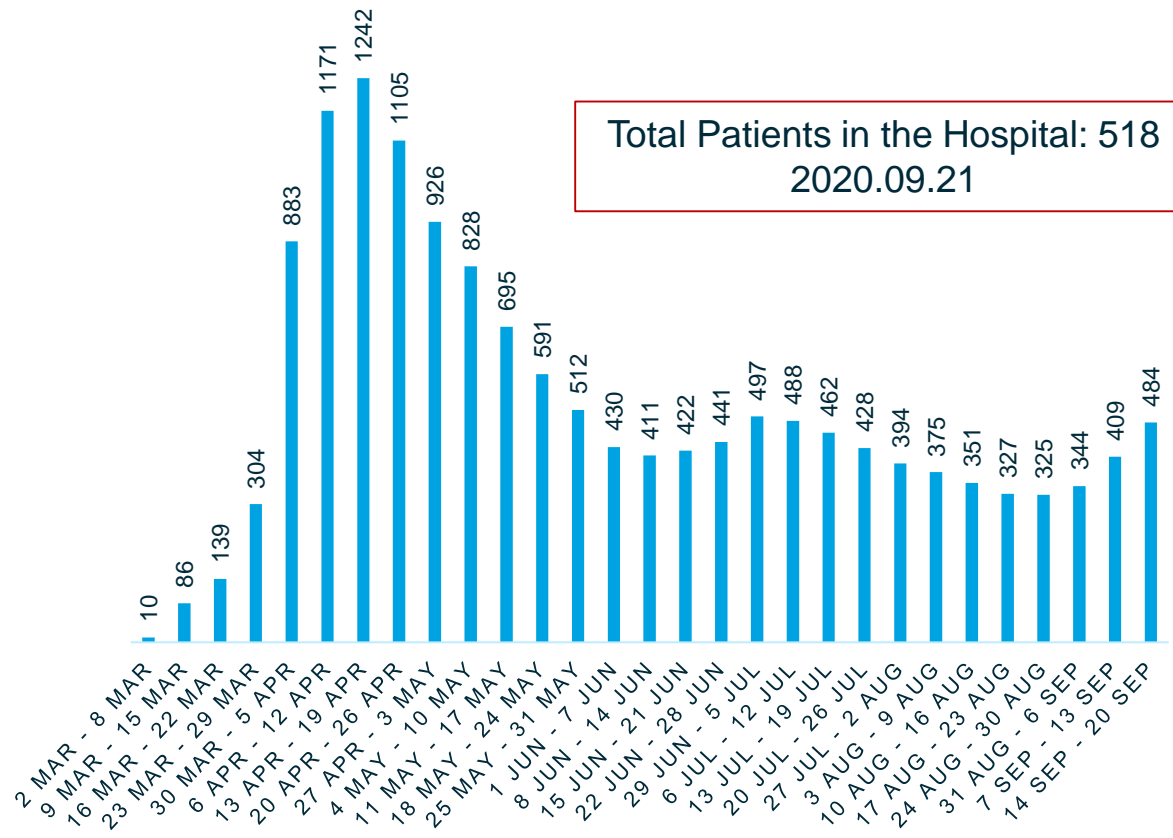
Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – New cases per week



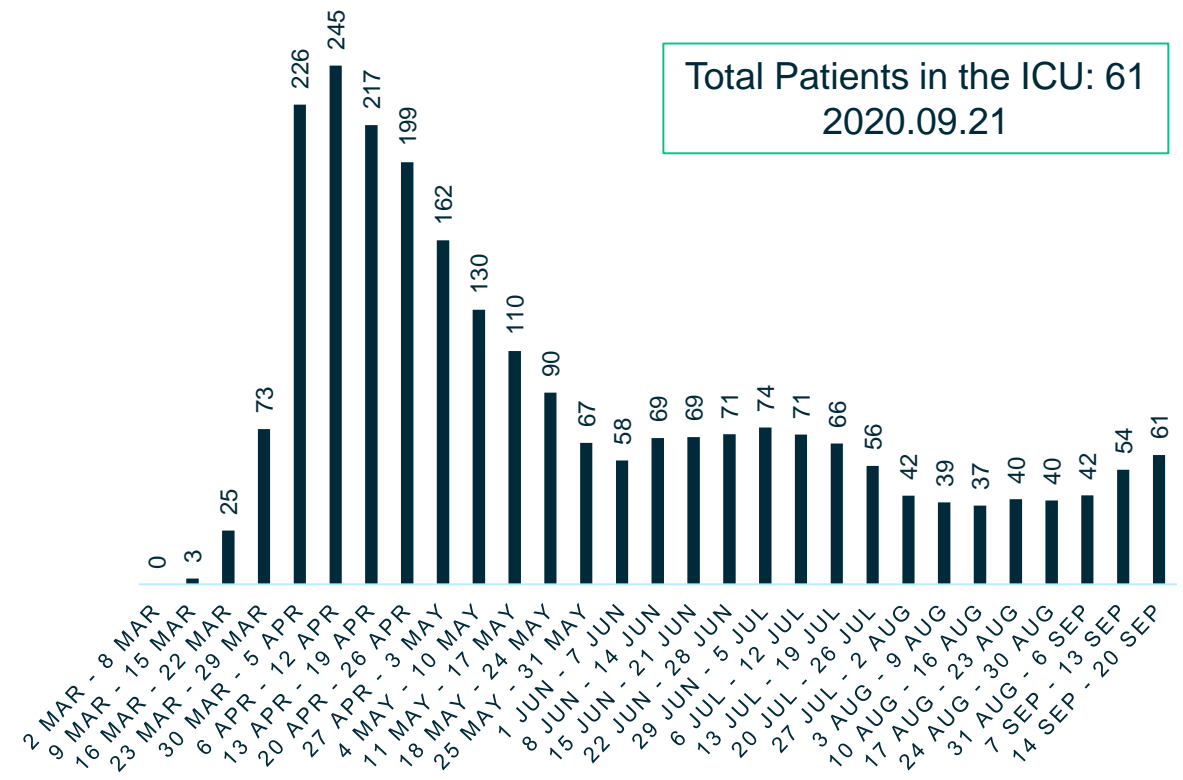
Source: <https://covid19.min-saude.pt/ponto-de-situacao-atual-em-portugal/>

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

■ Average # of Patients stable in the Hospital per week

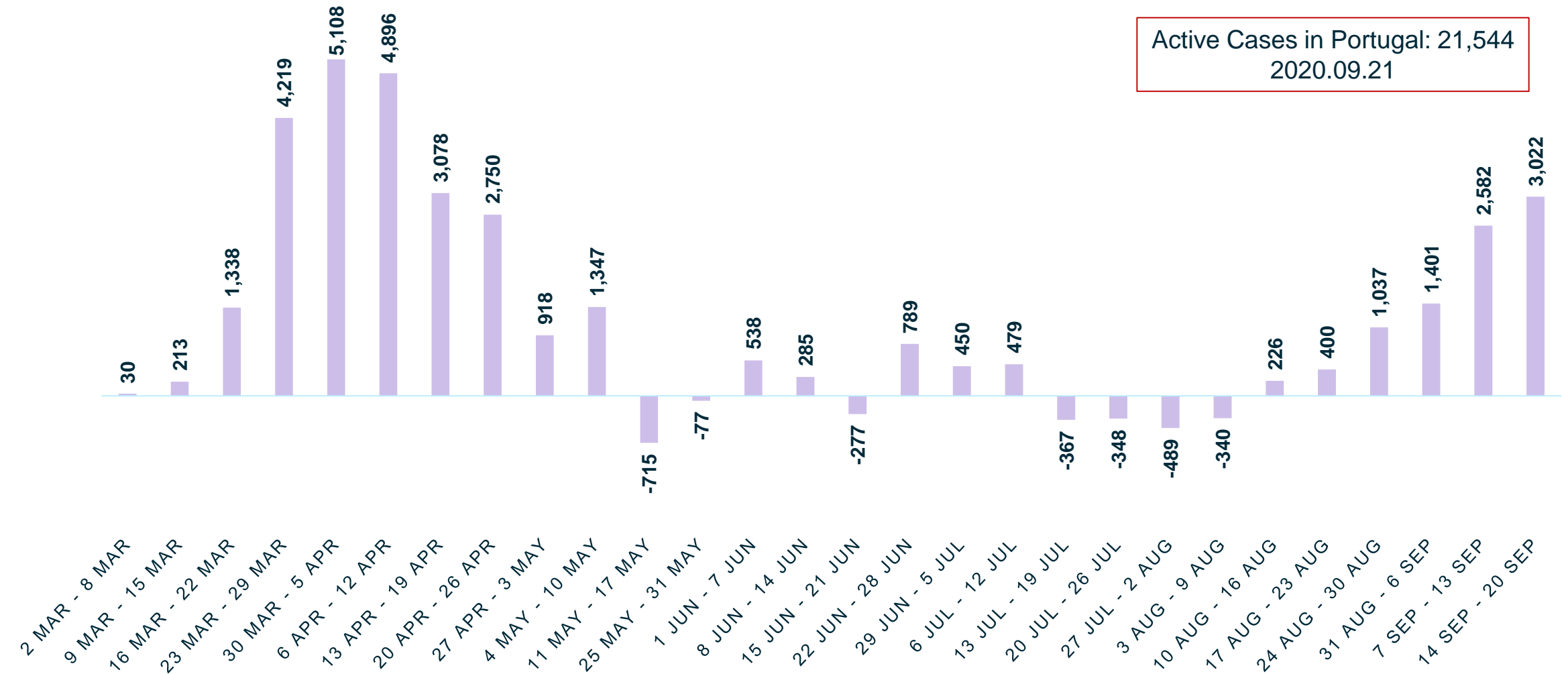


■ Average # of Patients in the ICU per week



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

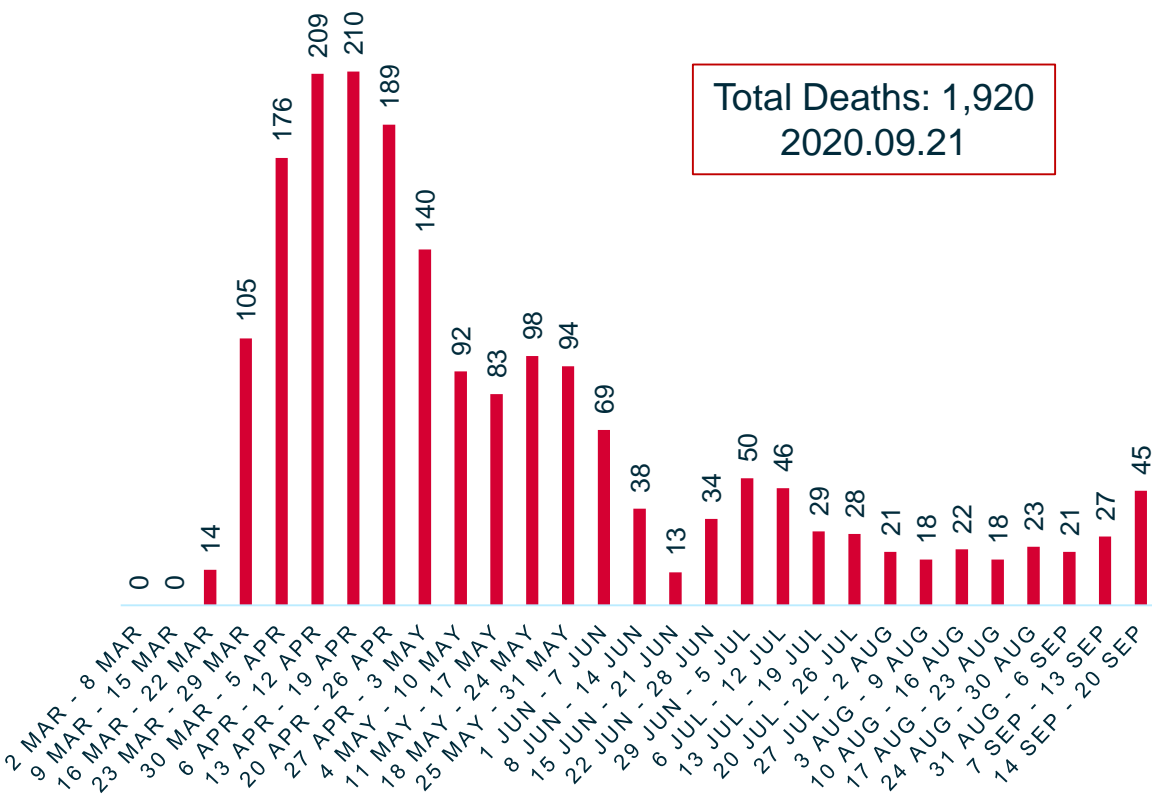
Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – New Active cases per week



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

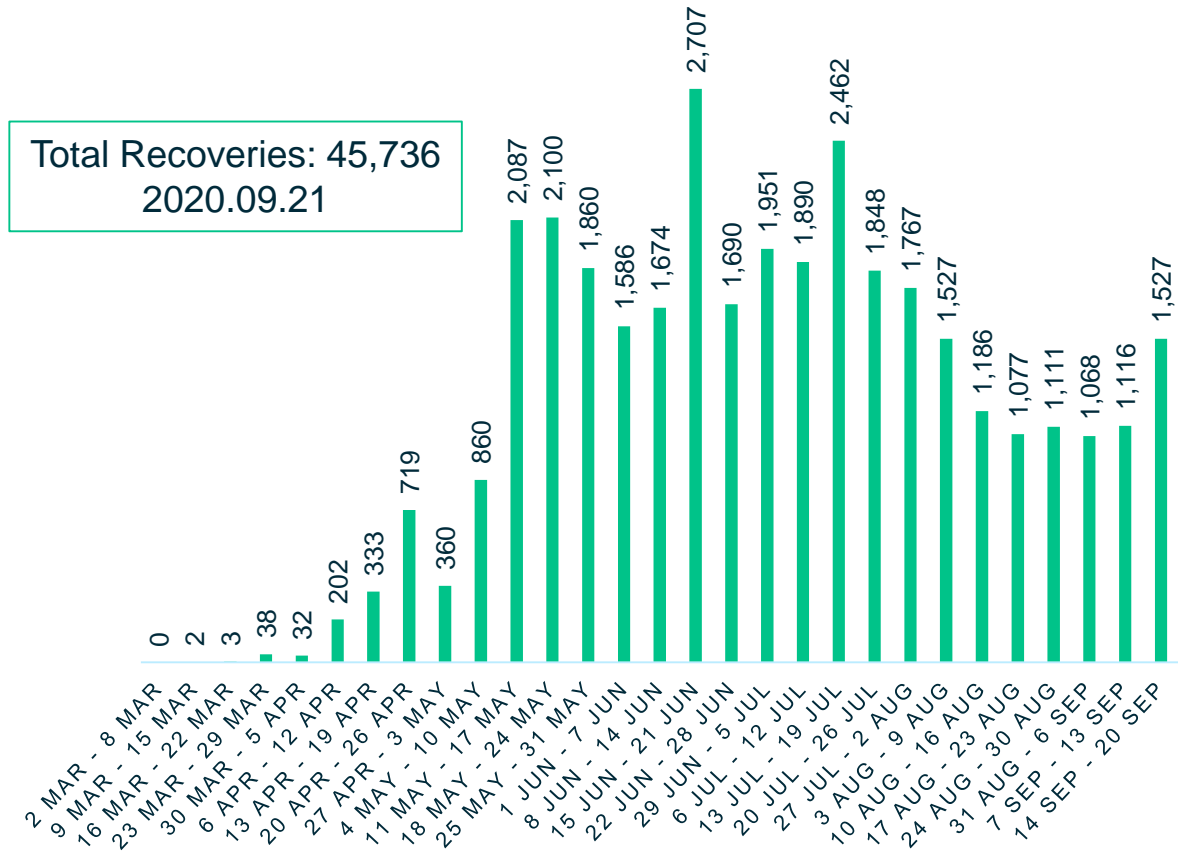
Coronavirus (SARS-CoV-2 / COVID 19) – Portugal – New deaths/recoveries per week

of deaths per week



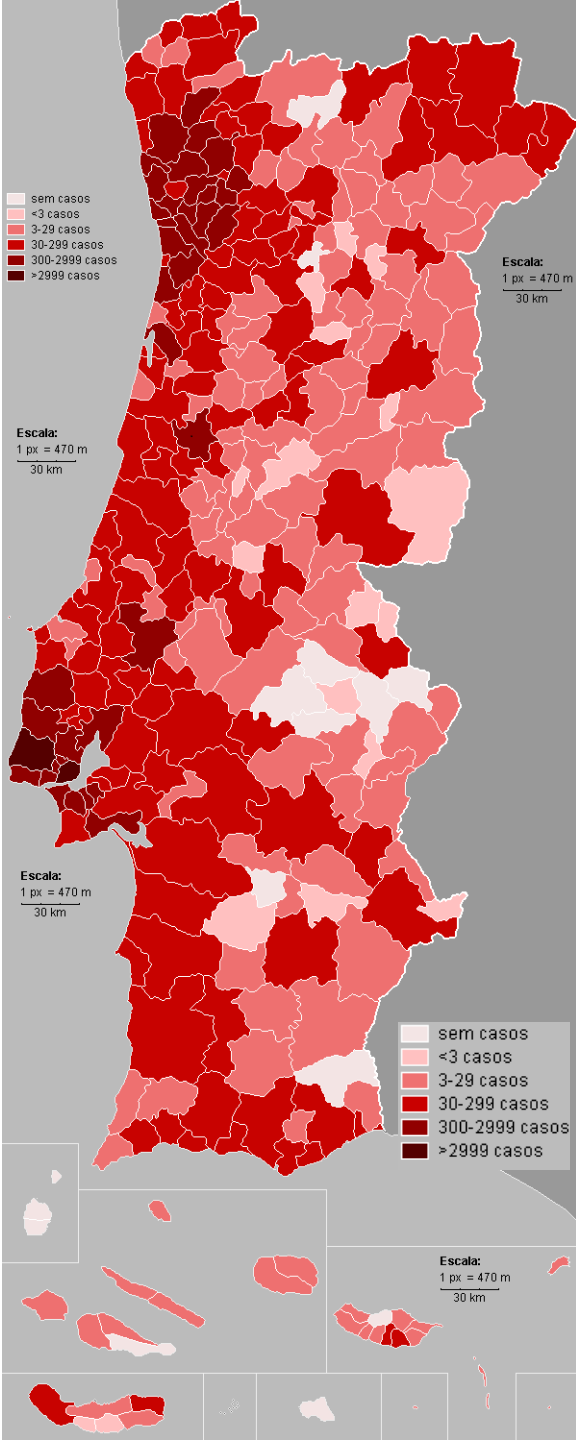
Total Deaths: 1,920
2020.09.21

of recoveries per week



Total Recoveries: 45,736
2020.09.21

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



Coronavirus (SARS-CoV-2 / COVID 19)

Portugal

21 September 2020

SITUAÇÃO EPIDEMIOLÓGICA EM PORTUGAL

TOTAL DE CASOS E VARIAÇÃO

21 544 | + 475
ATIVOS

45 736 | + 140
RECUPERADOS

1 920 | + 8
ÓBITOS

40 465 | + 1103
CONTACTOS EM VIGILÂNCIA

69 200 | + 623
CONFIRMADOS

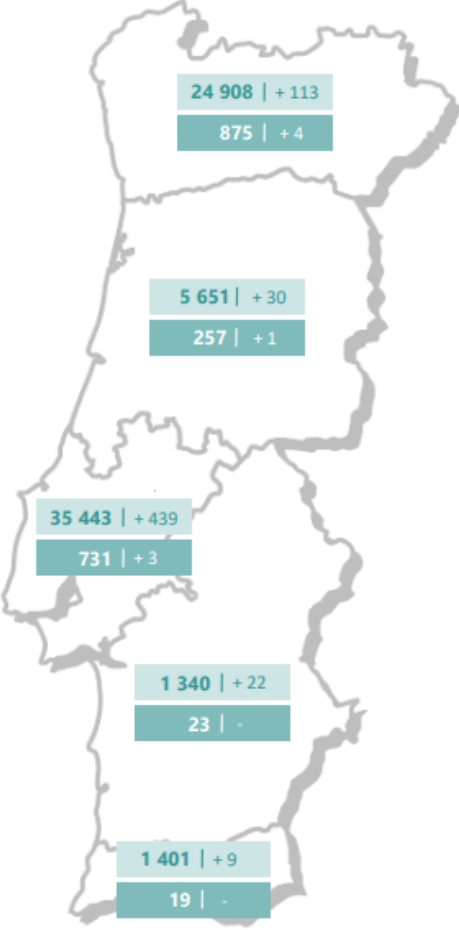
TOTAL DE CASOS, DE ÓBITOS E VARIAÇÃO POR REGIÃO

Açores

252 | + 9
15 | -

Madeira

205 | + 1
0 | -

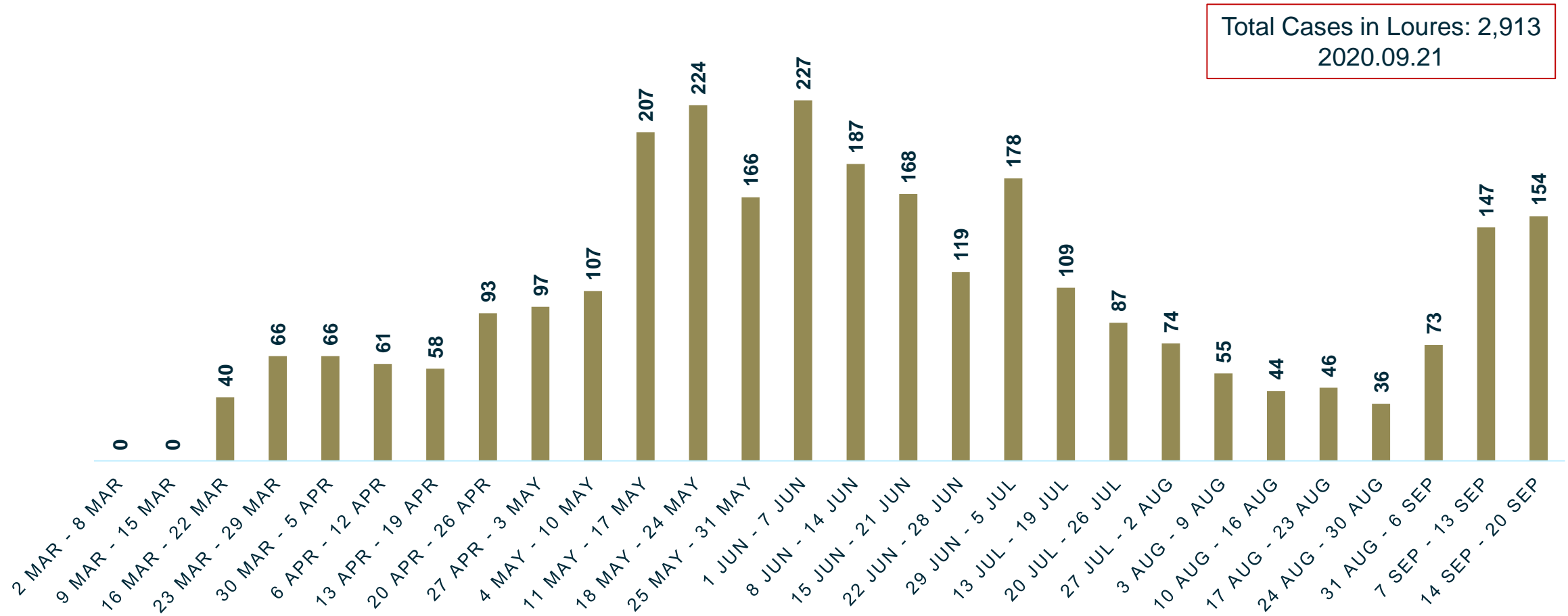


DISTRIBUIÇÃO DOS CASOS EM INTERNAMENTO

518 | + 7
INTERNAMENTO

61 | - 2
INTERNAMENTO
EM UCI

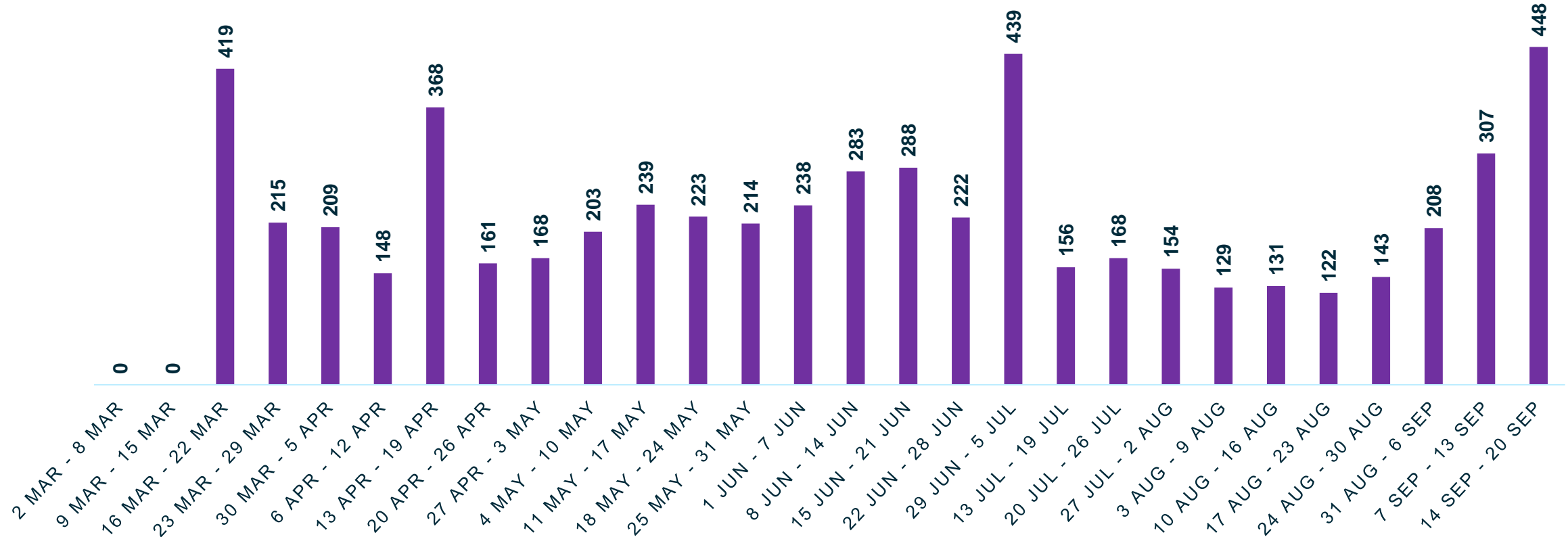
Coronavirus (SARS-CoV-2 / COVID 19)) – Loures - New cases per week



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

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

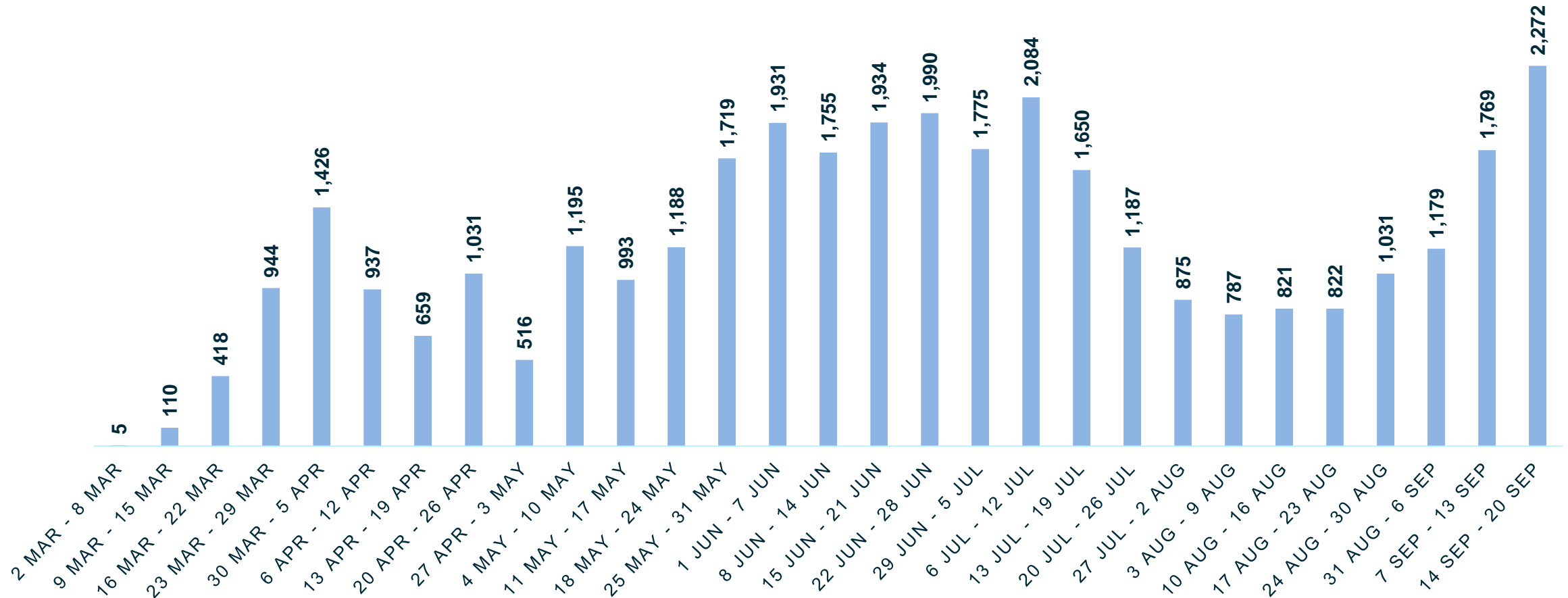
Total Cases in Lisbon: 6,050
2020.09.21



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

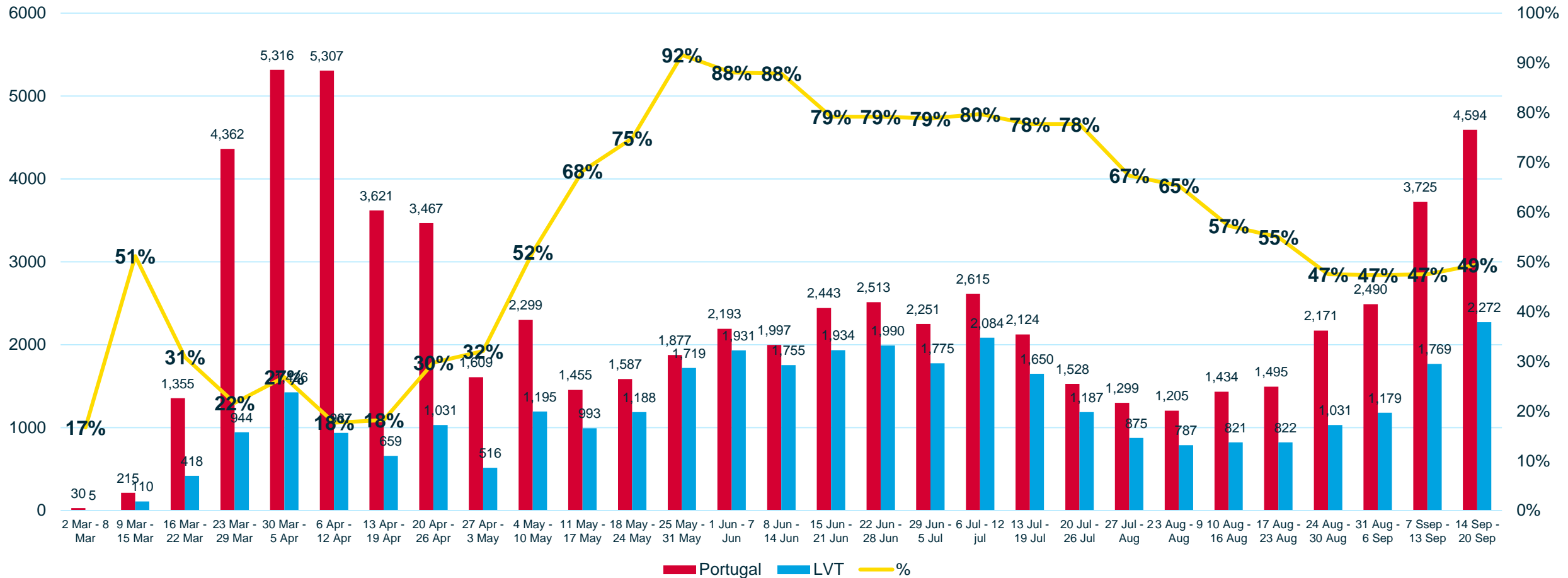
Coronavirus (SARS-CoV-2 / COVID 19) – **Lisbon and Tagus Valley** - New cases per week

Total Cases in Lisbon and Tagus Valley: 35,443
2020.09.21



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

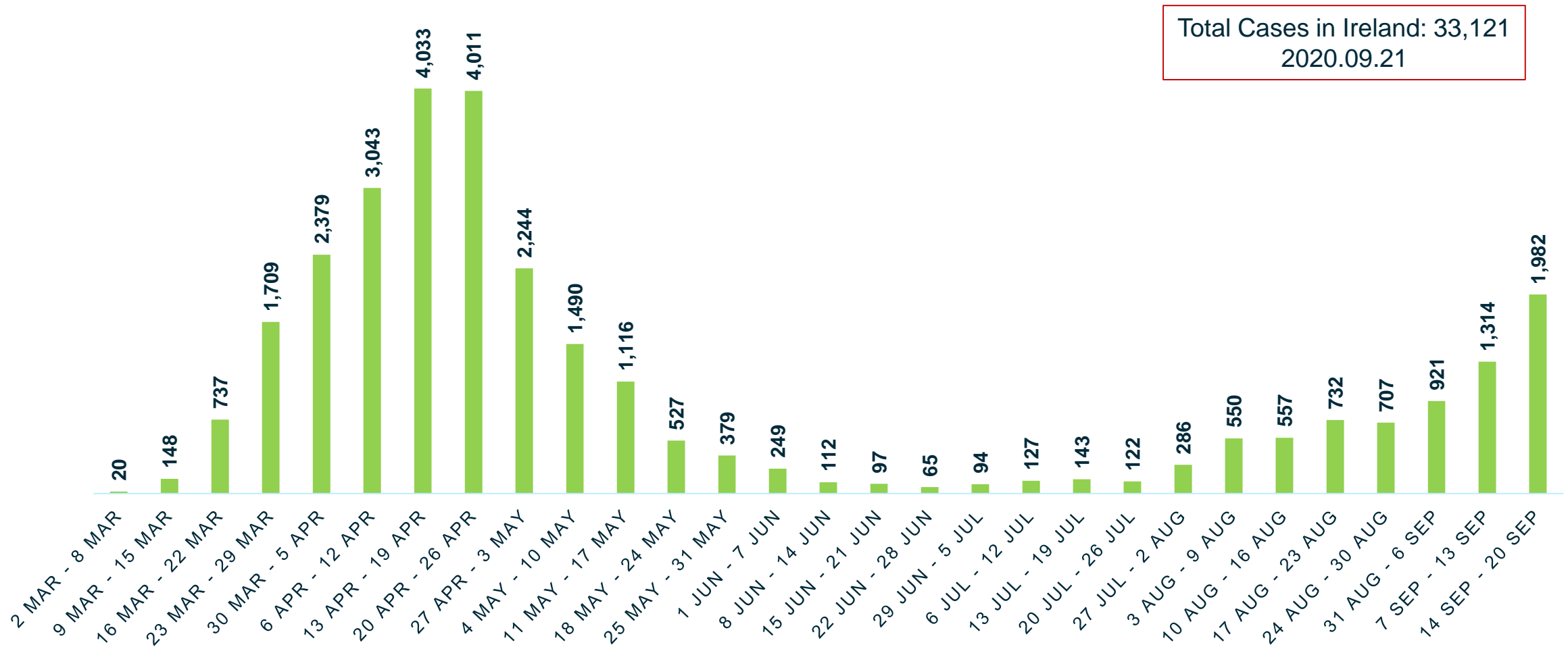
Coronavirus (SARS-CoV-2 / COVID 19) – % of new cases in Lisbon and Tagus Valley - New cases per week



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

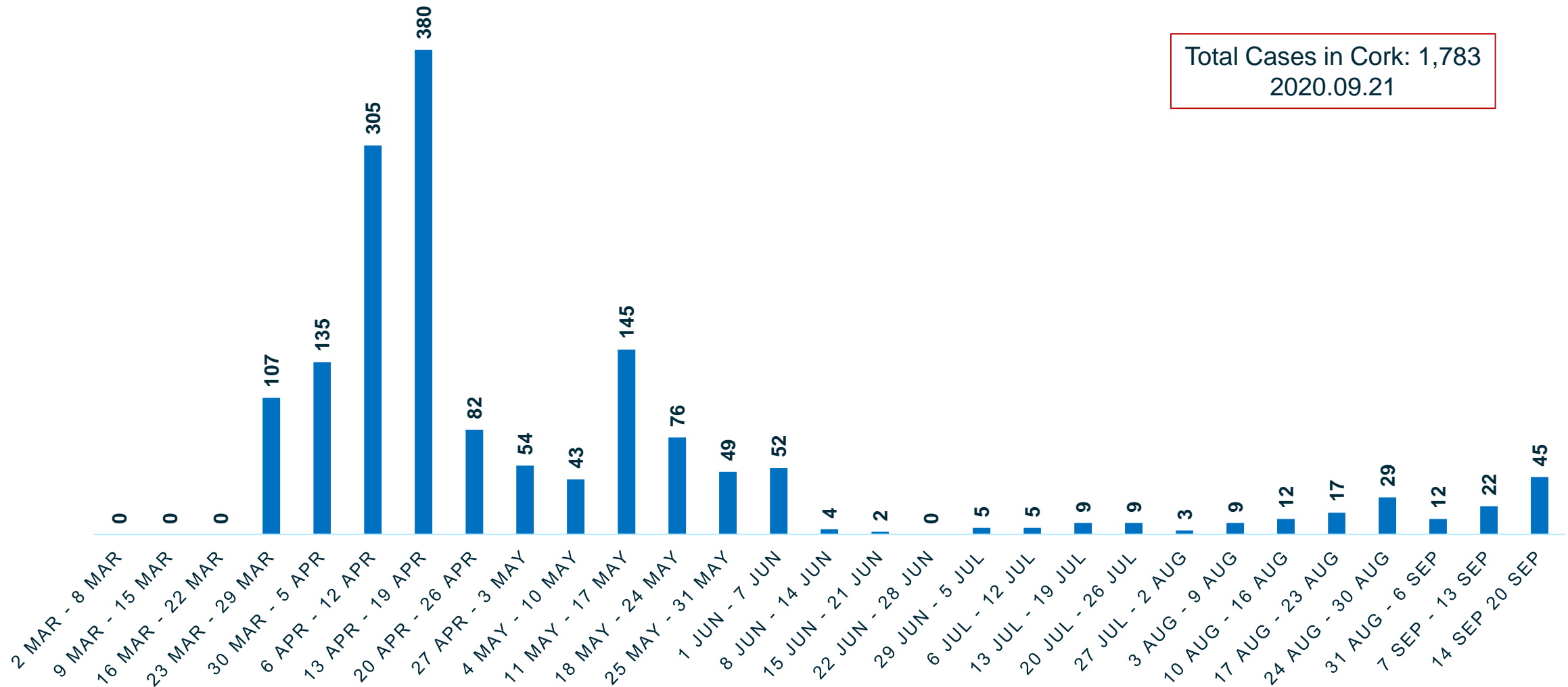
Ireland

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



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

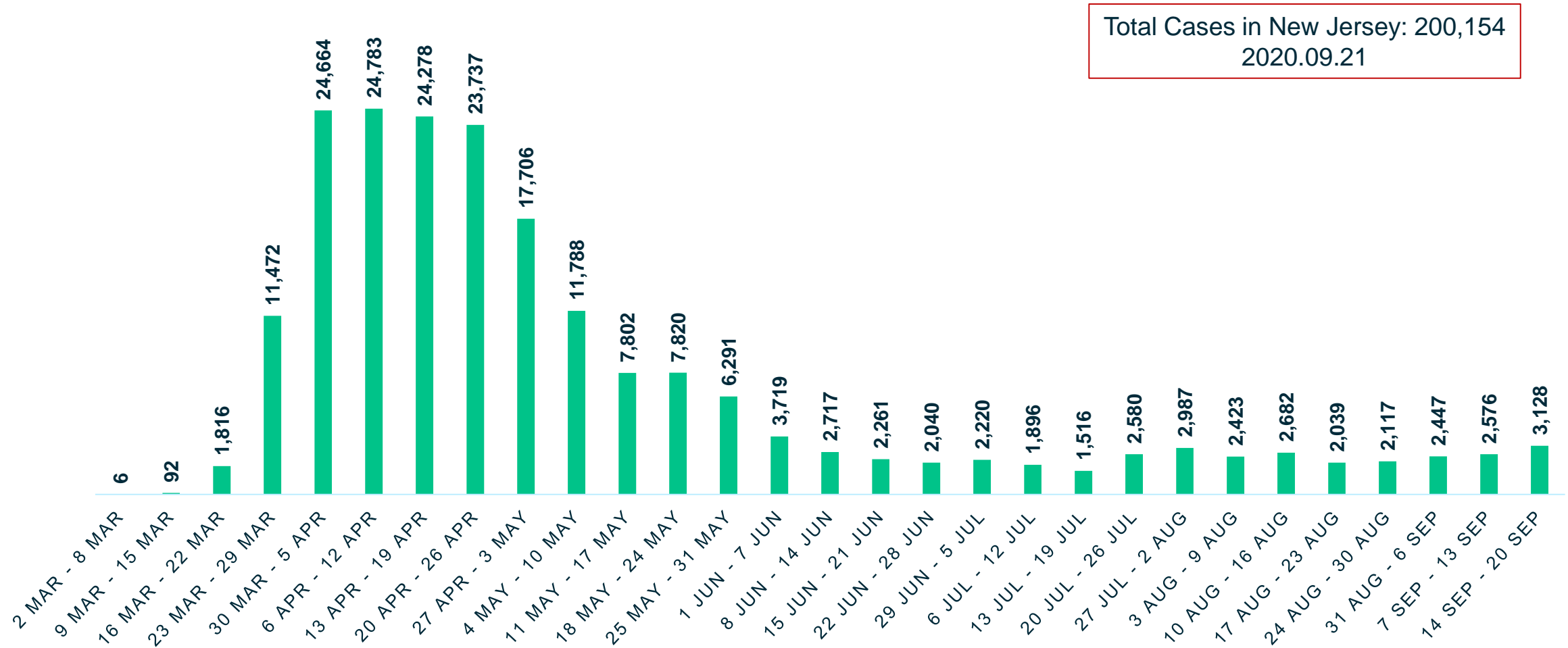
Coronavirus (SARS-CoV-2 / COVID 19) – **Cork** - New cases per week



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

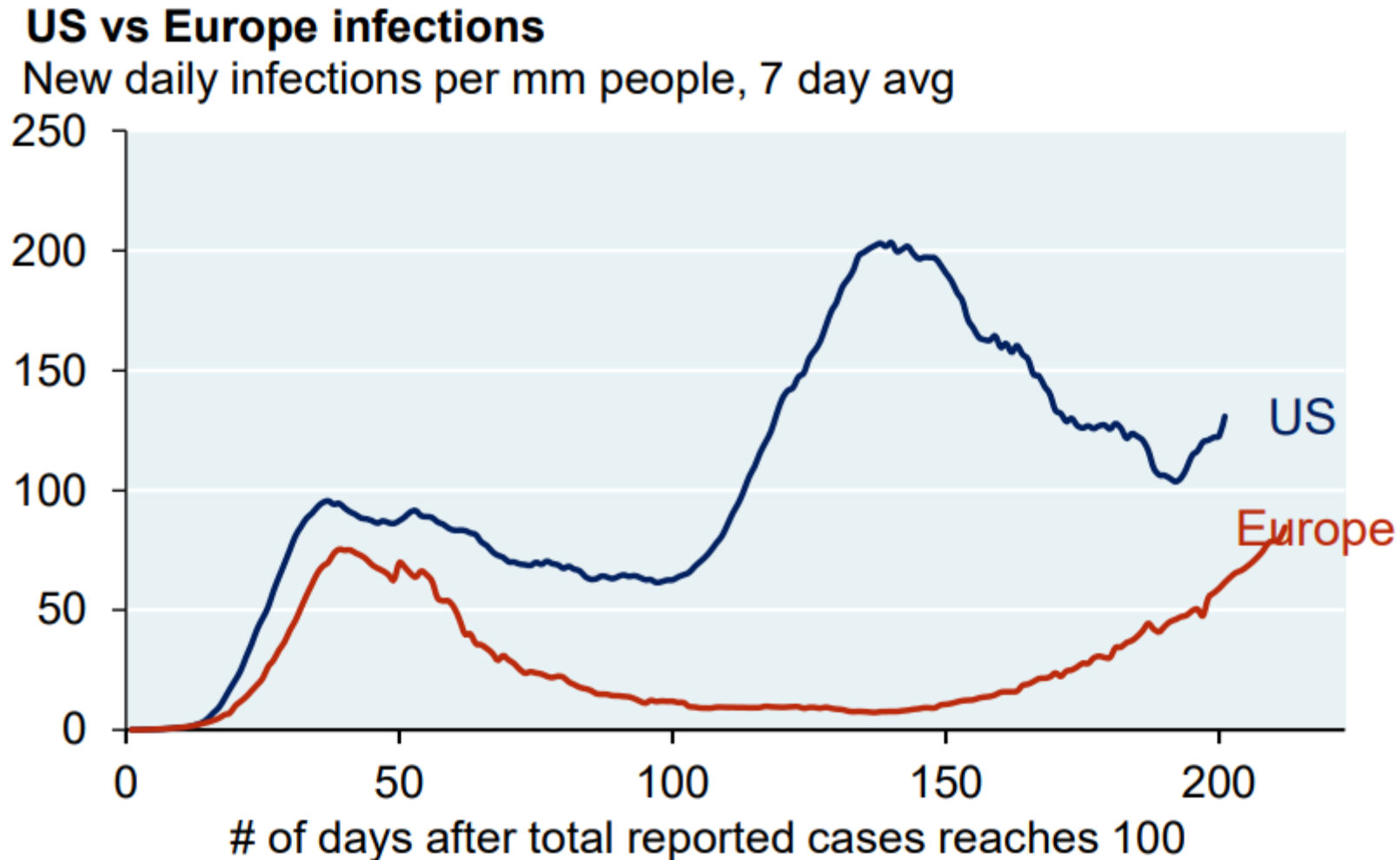
New Jersey

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



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

New daily infections per 1 million people



Recent News

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

- **22 September**

- An \$18 billion initiative to deploy a Covid-19 vaccine around the world is moving into the next phase, with 156 countries and regions joining the program.
- Countries across Europe including the UK, Spain and France are witnessing a surge in the number of Covid-19 cases.
- Some of these countries have just started showing signs of economic revival and new lockdowns to control the recent surge in cases may have serious consequences.
- Meanwhile, the epidemic in the UK appears to be doubling every seven days, according to the government's chief scientific advisor.
- More than 150 countries, including 64 higher income and 92 low- and middle-income economies, have joined the World Health Organization (WHO), Gavi, the Vaccine Alliance and Coalition for Epidemic Preparedness Innovations of COVAX Facility, which aims for equitable distribution of Covid-19 vaccines. However, China and the US are missing from the list of members. COVAX Facility intends to begin signing agreements with vaccine manufacturers and developers to potentially secure two billion doses by the end of next year.

- **21 September**

- Russia has granted marketing authorisation for R-Pharm's Covid-19 prescription drug, Coronavir, to treat outpatients with mild to moderate infection. The antiviral drug has become the first coronavirus drug to be rolled out in pharmacies in Russia.
- Sanofi and GlaxoSmithKline (GSK) have signed an advanced purchase agreement with the European Commission (EC) to supply up to 300 million doses of their potential Covid-19 vaccine, following regulatory approval.
- The European Medicines Agency's human medicines committee (CHMP) has recommended that dexamethasone can be considered a treatment option for adult and adolescent Covid-19 patients needing oxygen therapy.

- **18 September**

- Moderna plans to seek emergency authorisation for the use of its Covid-19 vaccine in high-risk groups, if the vaccine shows at least 70% effectiveness, said Reuters citing the company's chief executive. The vaccine candidate is currently in Phase III trial, which enrolled 25,296 participants so far. An interim analysis is expected to take place in October or November.

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

- **15 September**

- Eli Lilly has plans to seek emergency use authorisation (EUA) from the US Food and Drug Administration (FDA) and other regulatory agencies for its baricitinib to treat hospitalised patients. The decision is based on data from ACTT-2 clinical trial, where the combination of baricitinib with Gilead Sciences' remdesivir reduced time to recovery when compared to remdesivir alone in hospitalised Covid-19 patients. If authorised, Lilly will make baricitinib available via commercial channels and will work with hospitals and governments to allow patient access.
- Researchers at Imperial College London will conduct small clinical trials to evaluate the safety and effectiveness of inhaled versions of their Covid-19 vaccine candidate, as well as the Covid-19 vaccine developed by the University of Oxford and AstraZeneca. Currently, clinical trials are testing intramuscular formulations of these vaccine candidates. The new trials will assess low, medium and high dose of the vaccines administered as an aerosol in a total of 30 participants.

- **14 September**

- Portugal reported 673 cases, bringing the total to 63,983, the government said. The country has had more than 600 daily new confirmed coronavirus cases in three of the last five days, remaining at a level last recorded in April.
- The Medicines Health Regulatory Authority (MHRA) in the UK has said that the clinical trials of the University of Oxford/AstraZeneca Covid-19 vaccine candidate are safe to resume. AstraZeneca voluntarily paused the late-stage trials of the vaccine last week after a participant in the UK study experienced an unexplained illness. The independent committee in the UK completed its review and then recommended to the MHRA that trials were safe to restart. AstraZeneca and the University of Oxford said that further medical information cannot be disclosed.
- Pfizer and BioNTech have submitted a proposal to the US Food and Drug Administration (FDA) to expand their Phase III pivotal Covid-19 vaccine trial to include up to 44,000 volunteers. The initial target enrolment was 30,000 participants, which the companies expect to achieve by next week. The proposed expansion would enable the enrolment of a diverse population of individuals as young as 16 and people with chronic, stable HIV, hepatitis C and hepatitis B.

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

- **8 September**

- Pfizer and BioNTech have secured regulatory approval from the Paul-Ehrlich-Institut in Germany to conduct a Phase II/III clinical trial of their Covid-19 vaccine candidate, BNT162b2. The trial is part of the global pivotal Phase II/III programme launched by BioNTech and Pfizer in July this year. It is designed to assess the safety and efficacy of the vaccine candidate in up to 30,000 participants aged 18 to 85 years.

- **4 September**

- AstraZeneca has entered into a supply agreement with US-based Albany Molecular Research for the manufacture of its Covid-19 vaccine candidate AZD1222. Albany Molecular will carry out sterile fill/finish of AZD1222 at its facility in Albuquerque, New Mexico. The aim is to leverage the manufacturing capacity at the facility to produce millions of doses of the vaccine per year.
- During a digital event hosted by the International Federation of Pharmaceutical Manufacturers & Associations, Pfizer has said that early efficacy results of its Covid-19 vaccine candidate could be available as early as next month. The company's CEO Albert Bourla noted the enrolment of approximately 23,000 participants for a Phase III trial of the vaccine so far. If positive results are obtained, the company plans to seek regulatory approval immediately.

- **3 September**

- The European Medicines Agency (EMA) is reviewing an application of Dexamethasone Taw, submitted by Taw Pharma, as a potential treatment for hospitalised adults with Covid-19. EMA said that its human medicines committee, CHMP, will assess the benefits and risks of the drug candidate within the shortest possible timeframe.
- An analysis of seven international clinical trials showed that treatment with corticosteroid drugs cuts the risk of death by 20% in critically ill Covid-19 patients. Based on these findings, the World Health Organization (WHO) has updated its treatment guidance, recommending the use of steroids for severe and critical Covid-19.

- **2 September**

- Starpharma has used its DEP drug delivery technology to develop a slow release, soluble nanoparticle formulation of Gilead Sciences' remdesivir, allowing long-term activity and less frequent dosing of the Covid-19 drug candidate. Current formulations of the drug require intravenous administration due to low solubility. The new soluble version could enable subcutaneous use in a non-hospital setting such as aged-care.

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

- **28 August**

- The World Health Organization said it would set up a committee to review the rules on declaring an international health emergency, following criticism of its Covid-19 pandemic response.
- Spain announced schoolchildren aged six and over must wear masks to class, just days before the start of the new academic year.
- In a historic move, the US Federal Reserve announced a new monetary policy strategy aimed at building a strong labour market and stabilising prices.

- **27 August**

- Moderna has reported that its Covid-19 vaccine candidate, mRNA-1273, induced immune responses in older adults in a Phase I clinical trial, indicating its potential for use across multiple age groups. The latest results are from an analysis of 20 additional older volunteers who were given an 100µg dose. According to the company, the immune response was similar across age groups of 56 to 70, above 70 and 18 to 55 years.
- The collaboration between the National Research Council of Canada and China-based CanSino Biologics, announced in May for vaccine clinical trials, has been terminated after China had held up vaccine shipments, according to CBC news agency.
- The global economy is gradually showing signs of recovery after a major decline in the first half of the year.
- The growth of the economy is expected to continue from the second half of the year, although the labour market will take a long time to recover.

- **26 August**

- Two European patients were confirmed to have been re-infected with coronavirus, raising concerns about immunity. Regional public broadcasters said a patient in the Netherlands and another in Belgium had been re-infected.
- AstraZeneca has started dosing participants in a Phase I clinical trial of monoclonal antibody (mAb) combination therapeutic AZD7442 to prevent and treat Covid-19.

- **25 August**

- Moderna has completed advanced exploratory discussions with the European Commission (EC) for the supply of 80 million doses of its Covid-19 vaccine candidate, mRNA-1273. The proposed agreement includes an option for European Union (EU) Member States to acquire an additional 80 million doses. The vaccine candidate is currently in a Phase III clinical trial.
- Catalent has agreed to manufacture drug substance for AstraZeneca/Oxford University's potential Covid-19 vaccine. Catalent Cell & Gene Therapy will produce the drug substance at the company's commercial gene therapy manufacturing facility in Harmans, Maryland, US.

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

• 21 August

- Japan plans to ease its Covid-19 entry restrictions on foreign nationals with resident visas starting next month, public broadcaster NHK reported. Re-entry will be permitted for visa holders, including permanent residents and exchange students, on condition that they undergo coronavirus testing and quarantine for 14 days, the same policy that applies to Japanese citizens re-entering the country, according to NHK.
- Germany-based CureVac and the European Commission (EC) have concluded exploratory discussions on an Advanced Purchase Agreement (APA) for the company's mRNA-based Covid-19 vaccine candidate.
- Pfizer and BioNTech have reported positive early safety and immunogenicity data from the Phase I clinical trial of their second Covid-19 vaccine candidate, BNT162b2, in the US.
- Russia's Covid-19 vaccine candidate, Sputnik V, will be tested in more than 40,000 participants in a clinical trial that is scheduled to start next week, according to Reuters.

• 20 August

- Roche and Regeneron have partnered to develop, manufacture and distribute the latter's antiviral antibody combination, REGN-COV2, as potential Covid-19 treatment.
- Dr Reddy's Laboratories has launched Avigan (Favipiravir) 200mg Tablets in India to treat Covid-19 as part of its licensing agreement with Fujifilm Toyama Chemical.

• 19 August

- Brazil: Brazil's health regulator has approved final stage trials for Johnson & Johnson's experimental coronavirus vaccine – the fourth to get approval for testing in the country. The vaccine will be tested on 7,000 volunteers across seven states, Anvisa, the health regulator, said in a statement.
- The new CARE (Corona Accelerated R&D in Europe) consortium has launched in Europe to expedite the discovery and development of medicines against Covid-19. It is supported by the Innovative Medicines Initiative (IMI), along with funds from the European Union (EU), eleven European Federation of Pharmaceutical Industries and Associations (EFPIA) companies and three IMI-associated partners. The five-year project brings together 37 teams across academic and non-profit research institutions and pharmaceutical companies globally. It has an initial grant of €77.7m from the European Union, European Federation of Pharmaceutical Industries and Associations (EFPIA) and three IMI-associated partners. The consortium builds on three main pillars – drug repurposing and repositioning, small molecule drug discovery and virus neutralising antibody discovery.

• 18 August

- China's state media is reporting that a potential vaccine being developed by a unit of China National Pharmaceutical Group (Sinopharm), will cost no more than 1,000 yuan (\$144.27) for two shots.

• 17 August

- The European Commission (EC) has concluded an agreement with AstraZeneca for the supply of up to 400 million doses of the potential Covid-19 vaccine, AZD1222.

Sources

- https://en.wikipedia.org/wiki/Timeline_of_the_2019%E2%80%9320_Wuhan_coronavirus_outbreak
- <https://www.seattletimes.com/seattle-news/health/coronavirus-timeline-how-the-outbreak-unfolded/>
- <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>
- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
- <https://www.pharmaceutical-technology.com/news/coronavirus-a-timeline-of-how-the-deadly-outbreak-evolved/>
- <https://www.cphi-online.com/updated-covid19-pharma-tracker-news082415.html>
- <https://www.dgs.pt/em-destaque.aspx>