Portugal deveria estar nos corredores turísticos da Europa.

Vasco Ricoca Peixoto, Alexandre Abrantes
Centro de Investigação em Saúde Pública
Escola Nacional de Saúde Pública, Universidade NOVA de Lisboa

Portugal tem bons indicadores de risco epidemiológico em relação à COVID-19, um sistema nacional de saúde com boa capacidade de resposta, boas opções de transporte aéreo, rodoviário e ferroviários e é um país democrático, de direito onde se cumpre a lei a ordem. A decisão do Reino Unido de não colocar Portugal no "corredor turístico seguro, devido à COVID-19, carece de rigor técnico-científico e de transparência. Interpretar valores de incidência de casos reportados sem considerar outros indicadores de risco epidemiológicos, a distribuição geográfica e sem considerar que diferentes países detetam diferentes percentagens do total real de casos, é errado e levou à adoção de políticas desadequadas que, sem contribuir de forma relevante para prevenir a transmissão, têm consequências negativas a nível socioeconómico, político e diplomático.

Portugal should be in the safe European touristic corridors

Vasco Ricoca Peixoto, Alexandre Abrantes
Public Health Research Center, NOVA National School of Public Health

Portugal has good COVID-19 epidemiological indicators, has a national health system with good capacity to respond to the pandemic, good transportation system by air, road and train, and is a state where law and order are practiced. The United Kingdom decision to exclude Portugal from its safe tourist corridors lacks technical and scientific rigor and transparency. COVID-19 incidence rates need to be used in conjunction with other epidemiological indicators, consider that different countries detect different proportion of cases, the geographical distribution of cases, as well as death rates and hospital admissions. Lack of such approach led the UK to adopt an inadequate COVID-19 related travel policy that, without contributing in a relevant way to prevent transmission, has had a significantly negative impact at the socio-economic, political and diplomatic levels.

1. Introduction

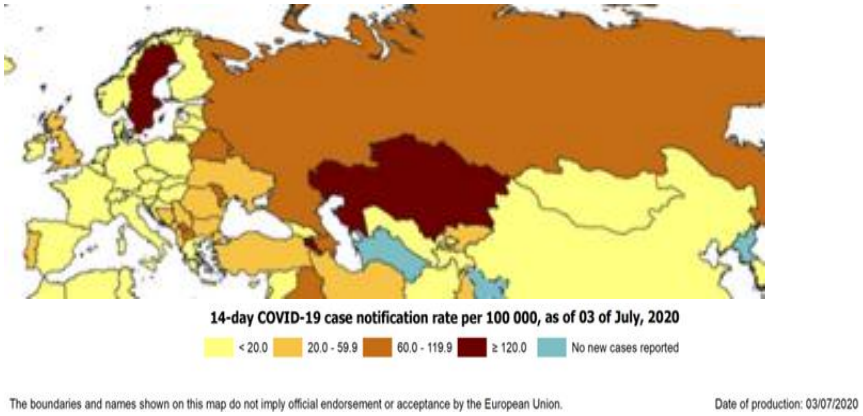
The United Kingdom has just excluded Portugal from the list of countries for which it no longer applies the recommendation to limit international travel to the essential minimum. From a practical point of view, this means that any traveller arriving in the UK from Portugal will have to be isolated for 14 days. The same will not have to happen for travellers arriving from other Western European countries, namely Belgium, Spain, France and Italy. This decision is based, according to the British Government, on criteria of epidemiological risk, capacity of local health systems, transport options, and criteria of law and order[1], but which are not clarified. The epidemiological situation of COVID-19 in Portugal and the country's position in each of these other areas does not justify the exclusion of Portugal from tourist corridors in the United Kingdom. This decision has strong socio-economic implications for the tourism industry and for the national economy and specific regions, since the United Kingdom is the main outbound market for tourists to Portugal, having accounted for 19.2% of overnight stays from foreigners in 2019 and, in the Algarve, English tourists accounted for 60% of overnight stays in that market that year.

1. Epidemiological risk related to COVID-19

Like other countries, the United Kingdom considers the incidence of COVID-19 (number of cases per hundred thousand inhabitants) in the last 14 days as the main epidemiological risk criterion to compare the severity of the pandemic in different countries and regions, and to decide its containment policies, notably those of opening borders.

The analysis of the epidemiological risk of COVID-19 should include a set of other indicators, including: a) under-detection of cases, b) testing policy, c) diagnostic testing policies, d) the severity of cases, as measured by rates of mortality, morbidity, general admission and in intensive care units, and e) the geographical distribution of cases.

Figure 1. Incidence map of COVID-19 per 100,000 inhabitants, in the last 14 days, July 2020. Source ECDC



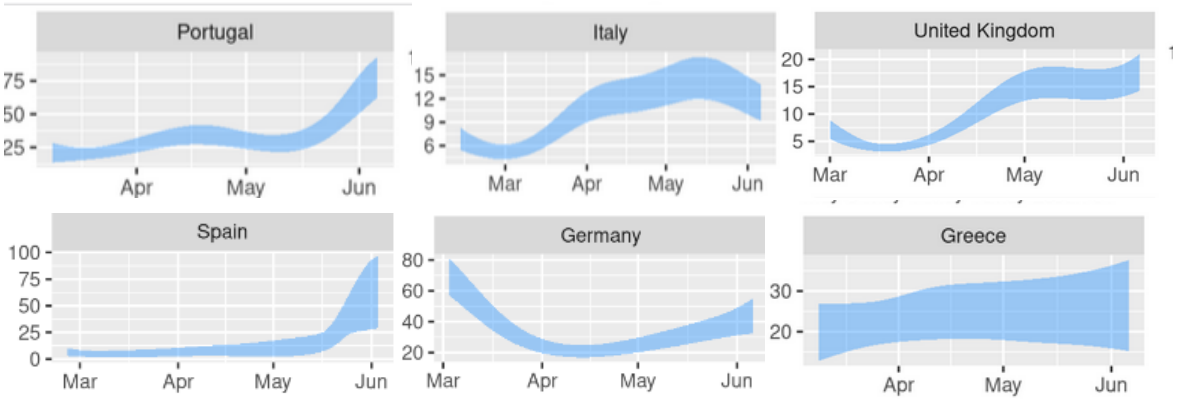
a) Under-detection of cases

Studies carried out by *Imperial College London*[4] and the *London School of Hygiene and Tropical Medicine*[9], estimate that Portugal detects about 80% of real cases of COVID 19, a percentage of cases much higher than many other European countries. If we take into account the estimates of the % of the total cases that are detected in different countries, the actual incidence of COVID-19 per 100,000 inhabitants in Portugal is close to that of other countries that are included in the UK's tourist corridors and is much lower incidence in the United Kingdom itself (Table 1).

According to the real-time reports from the *London School of Hygiene and Tropical Medicine*, they estimate the case detection capacity for countries over time, based on the best estimates for overall mortality rates for COVID-19 (between 1% and 2 %), showing that Portugal may be detecting 79% (62% -93%) of COVID-19 cases, while others are detecting lower percentages: Germany 43%, Italy 11%, Greece 24% and the United Kingdom 18%.

(Figure 2)

Figure 2. Estimates of % of cases reported over time in different countries (Source: *London School of Hygiene and Tropical Medicine*).



No country detects 100% of new COVID-19 infections. Under-detection of cases has been referred to since the beginning of the pandemic as a critical issue with potential implications for relevant national and international health policy decisions [2 3 4 5] Under-detection is one of the reasons why the incidence per inhabitant in the last 14 days, by itself, can give a distorted picture of reality because we only find what we have tested. There are countries that detect a lower % of the actual number of infections than others. Countries that test more, such as Portugal, which detect a higher percentage of the real total of cases, including many mild and asymptomatic cases, appear to have more serious epidemiological situations than those that test a smaller percentage of the actual number of infected.

Table 1. Incidence, % estimates of cases detected / reported in the 14 days prior to the referred date and Incidence adjusted for estimated under-detection.

Country	Incidence 14 days per 100.000 Inhabitants (30 June)	Estimates ICL % of Symptomatic cases reported (14 days to 28 June)	LSHTM % of Symptomatic cases reported (14 days to 7 July)	Incidence adjusted for sub-detection (ICL)	Incidence adjusted sub-detection (LSHTM)
Belgium	9,9	30,2	33	32,8	30,0
Czech Rep	16,3	-	74	-	22,0
France	10,3	29,7	30	34,7	34,3
Germany	8,9	48,8	43	18,2	20,7
Greece	2,4	-	24	-	10,0
Italy	5,2	17,1	11	30,4	47,3
Portugal	47,4	90,1	79	52,6	60,0
Sweden	149,4	42,9	41	348,2	364,4
United Kingdom	22,7	13,5	18	168,1	126,1

If we take into account these estimates of the % of the total cases that are detected in different countries, the actual incidence of COVID-19 per 100,000 inhabitants in Portugal is close to that of other countries that are included in the UK's tourist corridors and is much lower than the estimated incidence for the United Kingdom.

Part of the under-detection problem is associated with the diagnosis of asymptomatic cases. We will discuss this in the section dealing with diagnostic testing policies for COVID-19.

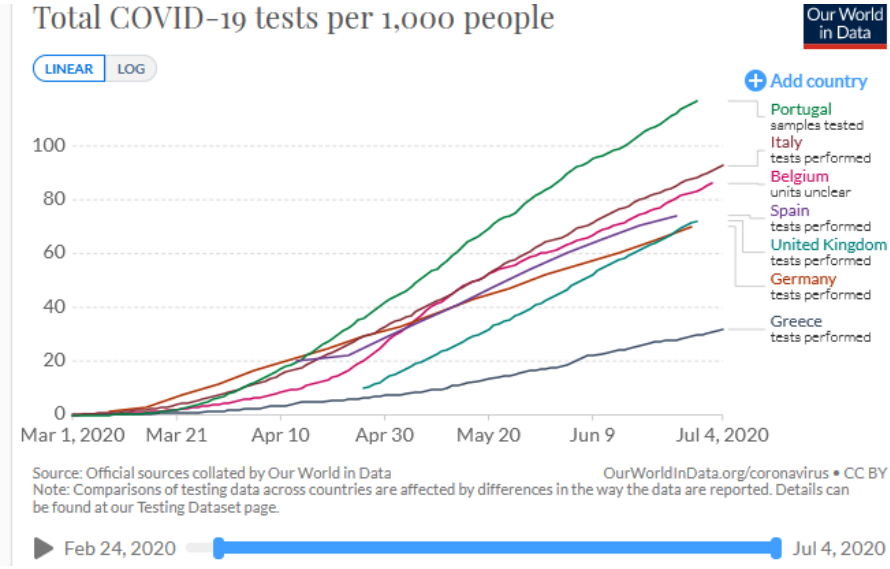
All estimates have limitations, but since mortality statistics in developed countries are reliable and the pattern of infections in terms of age in Europe is similar, these estimates can be considered as robust.

b) Diagnostic testing policy for COVID-19

Portugal has one of the highest levels of testing per inhabitant at European level, much higher than those in Germany, Spain or Italy (Figure 3). If Portugal had adopted a more restricted testing policy, similar to that of these countries, its incidence rate of COVID-19 per 100,000 inhabitants in the last 14 days would be lower than that which we recorded. The testing policy adopted by Portugal leads to the diagnosis of a large number of asymptomatic or mild symptoms, which go unnoticed in other European countries with less comprehensive policies.

We only find what we are looking for. If, in Portugal, only people who had a cough or fever were tested, cases of asymptomatic COVID-19 or milder symptoms would not be diagnosed. If, in Portugal, all asymptomatic contacts in work, family or social contexts were not tested, many of the cases now diagnosed would go unnoticed. If, in Portugal, extensive screenings were not being carried out in school and work, many of the cases now diagnosed would go unnoticed. Some will say that this would facilitate the spread of the epidemic. It would not necessarily be so, if these contacts were properly identified and isolated for 14 days, preventing transmission to other people, as is the case in other countries with stricter testing policies.

Figure 3. Diagnostic tests for COVID-19 per 1,000 inhabitants. (Source: Our World in Data)



As we said above, part of the problem of under-detection is associated with the diagnosis of asymptomatic cases. A large proportion of COVID-19 cases are asymptomatic, with the proportion of asymptomatic individuals reaching 50 % [6] [7]. In the recent national serological survey carried out in Spain[8], a representative sample of 35,883 households and 61,075 participants between April 27 and May 11, about 1/3 of the individuals with identified SARS-CoV-2 antibodies had no symptoms. Among individuals who had antibodies and who had reported symptoms, only 16% to 20% had been tested previously, which demonstrates a very relevant under-detection. On May 11, Spain had reported 227,770 cases. This study estimated that by that date 5 % of the Spanish population had been infected (95% CI 4 · 7–5 · 4), that is, approximately 2.5 million infections. The cases officially reported at that time were then 9.1% of the total infected.

It is also important to compare the specificity of the testing policy. If we increase the probability that tests are positive, for example, leaving a phase of extended screening in the context of reopening workplaces, schools and moving to screening in the context of contacts, without changing the number of tests per inhabitant per period, we will obtain a higher positivity rate in the most recent period.

In recent weeks, Portugal has registered not only one of the highest test rates per 1,000 inhabitants, but also one of the lowest positivity rates in Europe and the World (Figures 4 and 5), confirming that the testing rate in Portugal is much more broader and less focused on risk groups than in other European countries. Note that the number of tests reported is not uniform in Europe (Spain and the United Kingdom do not have numbers of tests per 100,000 inhabitants or % positive per week in the ECDC [10] Country Overview) and, in early July, the United Kingdom announced the end of the reporting of the number of new tests after 5 weeks in which it did not report them, having been accused of a lack of transparency by making it impossible to scrutinize the testing policy [11].

Figure 4. Tests per 100,000 inhabitants and positivity rate per week in Portugal (Source: ECDC COVID-19 Country Overviews: https: //www.ecdc.europa.eu/en/covid-19/country-overviews

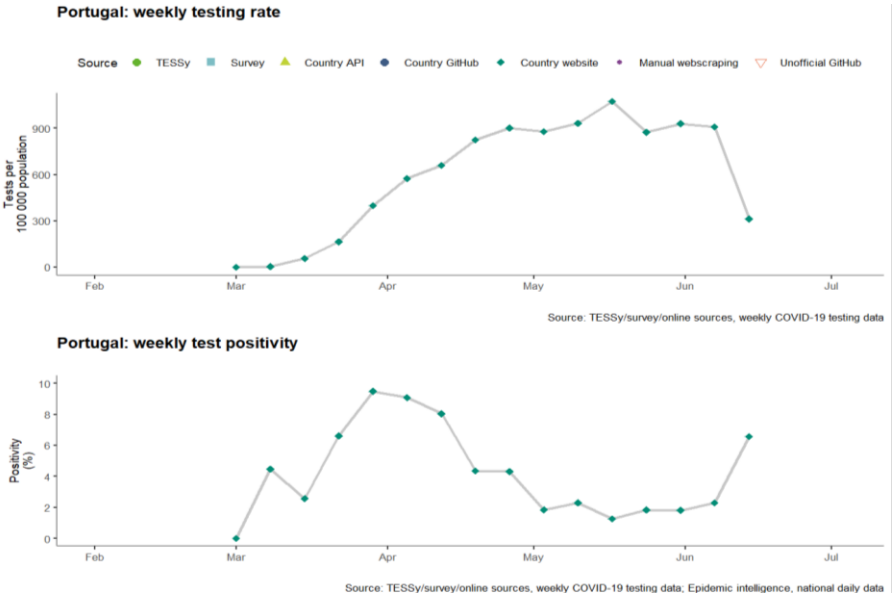
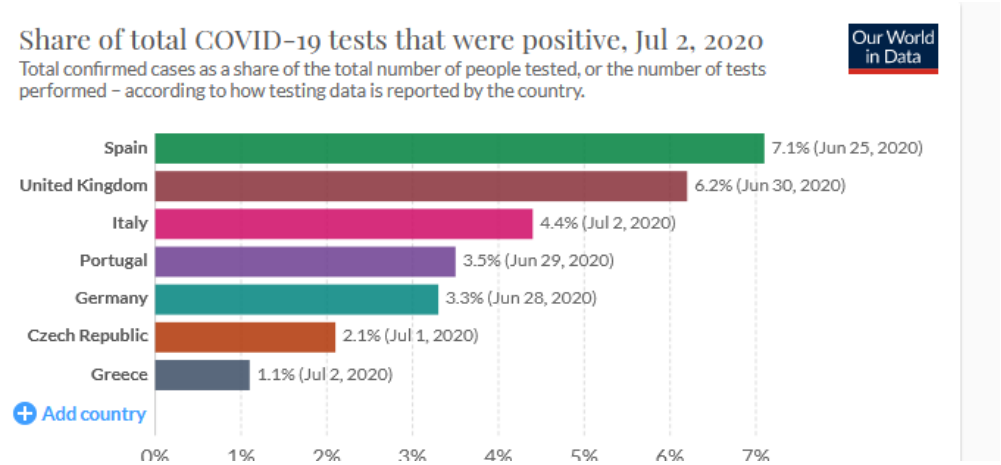


Figure 5. Percentage of positive tests among total tests in different countries (Source: *Our World in Data)*



c) Mortality, lethality and hospital admissions and in intensive care by COVID-19

Portugal has an accumulated mortality rate of 15.8 deaths per 100,000 inhabitants and a lethality rate of 3.7% per COVID-19, rates that are much lower than those registered in Spain, France, Italy or the United Kingdom in Europe (Figure 6). Portugal also has one of the lowest hospital occupancy and intensive care rates in Europe. These epidemiological risk criteria should be as or more important than the incidence per 100,000 inhabitants in the last 14 days when making decisions regarding cross-border movements.

What makes COVID-19 so serious is its easy transmissibility and the severity of symptoms and lethality in people over 60 years old. Over 80 % of COVID-19 cases are asymptomatic or have very mild symptoms. In Portugal, at this moment only 4 % of COVID-19 cases required hospitalization and only

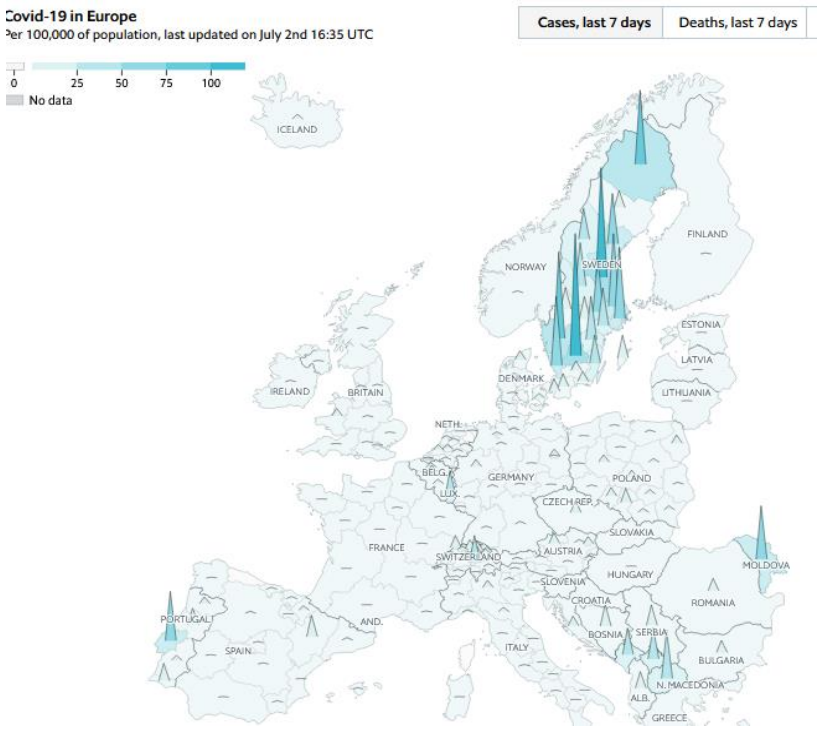
0.6% needed intensive care. The ECDC states in its Rapid Risk assessment of 23 April that the main objectives in controlling COVID-19 should be to reduce morbidity, serious illness and mortality. [12]

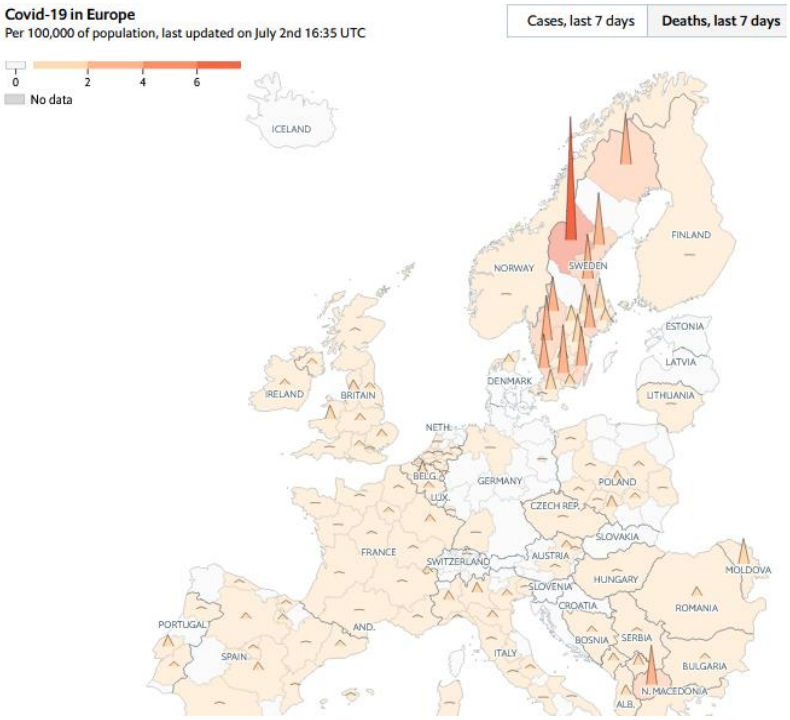
Low mortality rates are a good indicator of the severity of COVID-19 in Portugal, since the number of deaths (the numerator) and the resident population (the denominator) are reliable statistics.

Low lethality rates may reflect relatively effective protection for the elderly population or those with certain comorbidities that increase the risk of suffering serious illness or dying from COVID-19. They can also, in part, be explained by the fact that the numerator of the lethality rate, the number of deaths, is comparable between European countries, but the denominator is in Portugal higher, because the Country detects a greater proportion of real cases of infection by COVID-19

In the last few weeks, the increase in the number of cases of infection has not been accompanied by an increase in the number of hospitalized or deaths due to COVID-19. This may reflect the increase in the diagnosis of infections in young people, asymptomatic or with mild complaints, and an effective protection of populations with a higher risk of serious illness, namely the elderly or with certain co-morbidities.

Figure 6: Incidence and mortality due to COVID-19 per 100,000 inhabitants, in the last 7 days.
Source: The Economist





d) Geographical distribution

The main tourist regions of Portugal, namely the Algarve, Madeira and even Porto have very low incidence of COVID-19 per 100,000 inhabitants. The UK's decision strongly discourages tourism in the whole of Portugal, requiring 14 days of isolation from travellers from Portugal, based on a high incidence in a region so well delimited and which is outside the tourist circuits, is questionable.

More than 70% of the new cases of COVID-19 in the country are concentrated in the 5 counties on the outskirts of Lisbon, where the 19 parishes are located with contexts of great socioeconomic vulnerability, and which continue to be subject to mitigation measures that correspond to the "state of calamity". None of these parishes are found in the tourist circuits of Lisbon.

Figure 7. Map with incidence of COVID-19 per 100,000 inhabitants in Europe, in the weeks 24 and 25 of 2020.

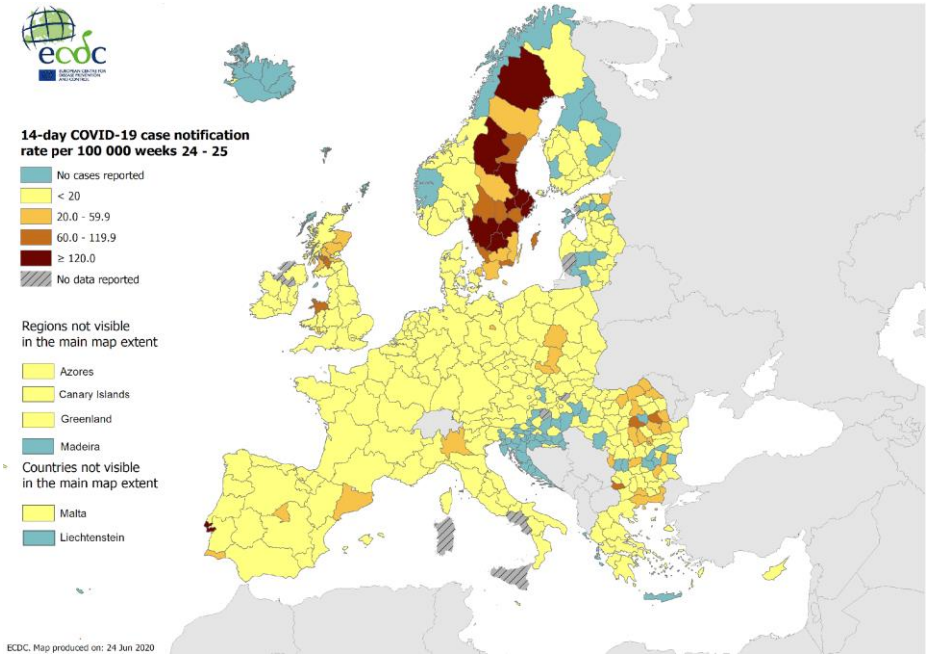
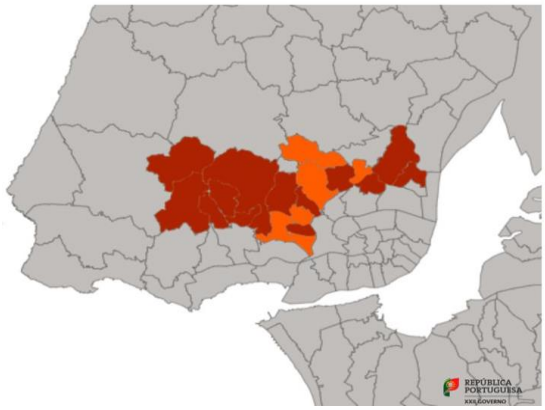


Figure 8: Map of parishes in State of calamity. Government of Portugal



Tourism implies a relatively low risk of contracting COVID-19. The risk of being infected or infecting will be reduced if we ensure that tourists and the population that interacts with them comply with the measures recommended by the General Directorate of Health, in indoor or outdoor public spaces

(wearing masks and physical distance), in the family context and between friends (physical distance). Under these conditions, the eventual transmission will be limited to the family or group of friends who come on holidays.

3. Relative capacity of health systems,

The good performance of the Portuguese national health system is recognized internationally, through various indicators and different reports. According to the Euro Health Consumer Index (EHCI) 2018, Portugal is ranked 13th (in 35 countries), immediately after Germany and better than that of the United Kingdom itself. (Figure 5) [13]. It is not clear how the United Kingdom considered this criterion in its decision to hinder tourism in Portugal

The United Kingdom states that it takes the relative capacity of health systems into account as one of the criteria it uses to decide on safe tourist corridors, although it is not transparent as to how it applies that criterion.

Figure 5. Ranking of European Health Systems (EHCI). 2018.

Euro Health Consumer Index 2018 Green> 750 on a 1000 point scale. Red <650.
https://healthpowerhouse.com/media/EHCI-2018/EHCI-2018-report.pdf

The fact that at no point in the pandemic has the capacity for hospital response in general, or intensive care in particular, been a relevant and specific indicator of the relative capacity of the NHS to respond to the challenges imposed by the COVID pandemic. -19 [14] [15]. Field hospitals set up to respond to spikes in demand that the NHS could not accommodate closed without ever receiving an inpatient.

4. Transport options

Mainland Portugal is a small country, with three international airports (Faro, Lisbon and Porto), an excellent road network with good connection to European networks, and good rail connections

between the main tourist regions. It is not clear how the United Kingdom considered this criterion in its decision to exclude Portugal from its tourist corridors.

5. Law and order

Portugal is recognized as a rule of law, democratic and secure, ranking 3rd in the *Global Peace Index of 2020*, after Iceland and New Zealand [16]. It is not clear how the United Kingdom considered this criterion in its decision to exclude Portugal from its tourist corridors.

Table 2. *Global Peace Index* of 2020

RANK	COUNTRY	SCORE	CHANGE	RANK	COUNTRY	SCORE	CHANGE	RANK	COUNTRY	SCORE	CHANGE
1	Iceland	1.078	⟷	29	Poland	1.657	↓1	=57	Greece	1.877	↑8
2	New Zealand	1.198	⟷	30	Estonia	1.68	↑3	=57	Liberia	1.877	↓1
3	Portugal	1.247	⟷	31	Italy	1.69	↑6	59	Malawi	1.885	↓14
4	Austria	1.275	⟷	32	Costa Rica	1.691	↑2	=60	Equatorial Guinea	1.891	↑10
5	Denmark	1.283	⟷	33	Botswana	1.693	↓2	=60	The Gambia	1.891	⟷
6	Canada	1.298	⟷	34	Latvia	1.7	↓2	62	North Macedonia	1.9	↑2
7	Singapore	1.321	⟷	35	Uruguay	1.704	⟷	63	Madagascar	1.905	↓8
8	Czech Republic	1.337	↓1	36	Lithuania	1.705	⟷	=64	Cyprus	1.92	↓2
9	Japan	1.36	↑2	37	Taiwan	1.707	⟷	=64	Vietnam	1.92	↓5
10	Switzerland	1.366	⟷	38	Spain	1.712	↑1	66	France	1.93	↓3
11	Slovenia	1.369	↓2	=39	Kuwait	1.723	↑5	67	Eswatini	1.934	↑9
12	Ireland	1.375	⟷	=39	Mongolia	1.723	↑7	68	Oman	1.941	↑1
13	Australia	1.386	⟷	41	United Arab Emirates	1.752	↑6	69	Montenegro	1.944	↓2
14	Finland	1.404	⟷	42	United Kingdom	1.77	↓2	70	Kazakhstan	1.948	↓4
15	Sweden	1.479	↑3	43	Ghana	1.776	↓2	71	Moldova	1.95	↓3
16	Germany	1.494	↑6	44	Zambia	1.794	↑5	72	Jordan	1.958	↑3
=17	Belgium	1.496	↑6	45	Chile	1.804	↓17	73	Nepal	1.974	↓1
=17	Norway	1.496	⟷	46	Sierra Leone	1.82	↓4	74	Argentina	1.978	↑3
19	Bhutan	1.501	↓4	47	Senegal	1.824	↑7	75	Paraguay	1.991	↑11
20	Malaysia	1.525	⟷	48	South Korea	1.829	↑9	76	Dominican Republic	1.992	↑6
21	Netherlands	1.528	↓5	49	Indonesia	1.831	↓6	77	Sri Lanka	2.003	↓4
22	Romania	1.541	↑3	50	Laos	1.843	↓2	78	Cambodia	2.011	↑3
23	Mauritius	1.544	↑1	51	Serbia	1.846	↑1	79	Bosnia and Herzegovina	2.04	↓1
24	Hungary	1.559	↓5	52	Tanzania	1.85	↑6	80	Jamaica	2.041	⟷
25	Slovakia	1.568	↓4	53	Namibia	1.861	↑8	81	Rwanda	2.049	↑4
26	Croatia	1.615	↑1	54	Timor-Leste	1.863	↓3	82	Guyana	2.05	↑8
27	Qatar	1.616	↑3	55	Albania	1.872	↓2	83	Morocco	2.057	↑1
28	Bulgaria	1.628	↓2	56	Panama	1.875	↓6				

Conclusion

Portugal is being penalized by a metric (the incidence of COVID-19 per 100,000 inhabitants in the last 14 days) that does not correctly reflect the seriousness of the epidemic in Portugal, with serious economic and social consequences.

Portugal is being penalized for having a comprehensive testing policy, which identifies a large number of asymptomatic and mild cases that go unnoticed in other countries, and because international analyses do not take into account the regional distribution of cases, applying sanctions to the entire national territory , based on figures that refer largely to 19 parishes concentrated in a restricted geographical area, outside tourist circuits.

Such decisions should take into account other epidemiological risk indicators, namely:

1. Incidence rates adjusted for the% of real cases detected;
2. Number of tests per capita and positivity rates in the last 7/14 days;
3. Percentage of new asymptomatic cases and% of tests performed on asymptomatic people or those with mild symptoms, which does not fit in the current COVID-19 case definition;
4. Average number of infections per infected (Rt), at detailed geographical levels (Municipality / Parish);
5. Mortality and lethality rates per 100,000 inhabitants in the last 7/14 days;

6. Rates of general hospitalization and intensive care units per 100,000 inhabitants in the last 7/14 days;
7. Occupancy rates for COVID beds in general inpatient and ICU; and
8. The geographical distribution of cases, Rt, deaths and hospitalizations.

Finally, in the case of the United Kingdom's decision to exclude Portugal from tourist corridors, it is not known how the English authorities took into account the other criteria they say are relevant, namely the capacity of health services, transport options and the state of law and order in Portugal.

COVID-19 is a pandemic that requires a concerted response at a global level and that of the European Union. Unilateral decisions by the United Kingdom and other European Union countries (Austria, Denmark, Greece, and the Czech Republic), without European coordination, and based on weak scientific technical criteria, are economically rewarding countries with low rates of infection detection , to the detriment of those who are detecting and reporting a higher percentage of infections through more comprehensive testing strategies.

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