

15 January, 2021

Indicators of demographic context and territorial expression of the COVID-19 pandemic in Portugal

COVID-19: a territorial view on demographic context and territorial expression of the pandemic

The expression of the pandemic on national territory continues to be characterised by a high degree of heterogeneity. Some of the results obtained in this context:

- In the Norte and Centro regions, the only ones to exceed the national average, the number of deaths between December 7, 2020 and January 3, 2021 was 1.2 times higher than in the same period of reference (average for the same period in the previous five years). In 225 municipalities the number of deaths between December 7 and January 3 was higher than the corresponding reference value, of which 60 registered a number of deaths 1.5 times higher than that observed in the reference period.
- On January 13, 2021, 61,273 new cases were registered in Portugal in the last 7 days, the highest value since the beginning of the COVID-19 pandemic in Portugal, and since December 28, 2020 there has been an exponential increase in the number of new cases in the last 7 days. The 14-days incidence rate of COVID-19 was 1 011, corresponding to the number of confirmed new cases of COVID-19 in the last 14 days per 100 thousand inhabitants.
- On January 5, 2021, the date of the last data update at municipality level, only the Norte (681 new cases in the last 14 days per 100 thousand inhabitants) and Centro (653) regions exceeded the COVID-19 incidence rate registered in Portugal (615).
- The new cases registered in the last 14 days in the Norte and Centro regions represented 61% of the total new cases in the country. With values above the regional average, the sub-regions of Cávado (916), Terras de Trás-os-Montes (874), Alto Tâmega (851), Ave (784) and Douro (775), of the Norte region, and the sub-regions of Viseu Dão Lafões (791), Beiras e Serra da Estrela (774), Aveiro (678) and Médio Tejo (674), of the Centro region, stand out.
- On January 5, 2021, 57 municipalities registered a number of new confirmed cases of COVID-19 (last 14 days) per 100,000 inhabitants above the threshold defined as extremely high risk (960 new cases per 100,000 inhabitants), of which 19 belonged to NUTS 2 Norte and 21 belonged to NUTS 2 Centro.
- The lowest level of territorial concentration of new cases COVID-19 (last 14 days) occurred on January 5, 2021 and the highest on June 21, considering the location coefficient calculated weekly since April 19. Until June 21, the trend was towards a greater concentration of new registered cases followed by a reduction in concentration.

I. Demographic and territorial context indicators

The number of deaths in the Norte and Centro regions was 1.2 times higher than in the reference period

Figure 1 - Ratio between deaths in the last 4 weeks and deaths in the same reference period, Portugal, weeks between 2 to 29 March 2020 and 7 December 2020 and 3 January 2021

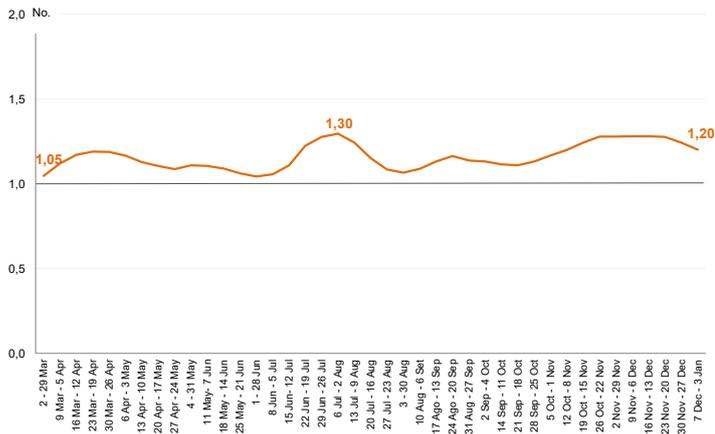
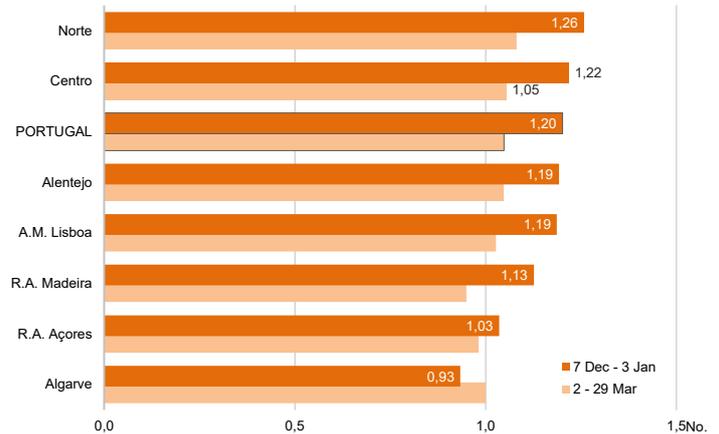


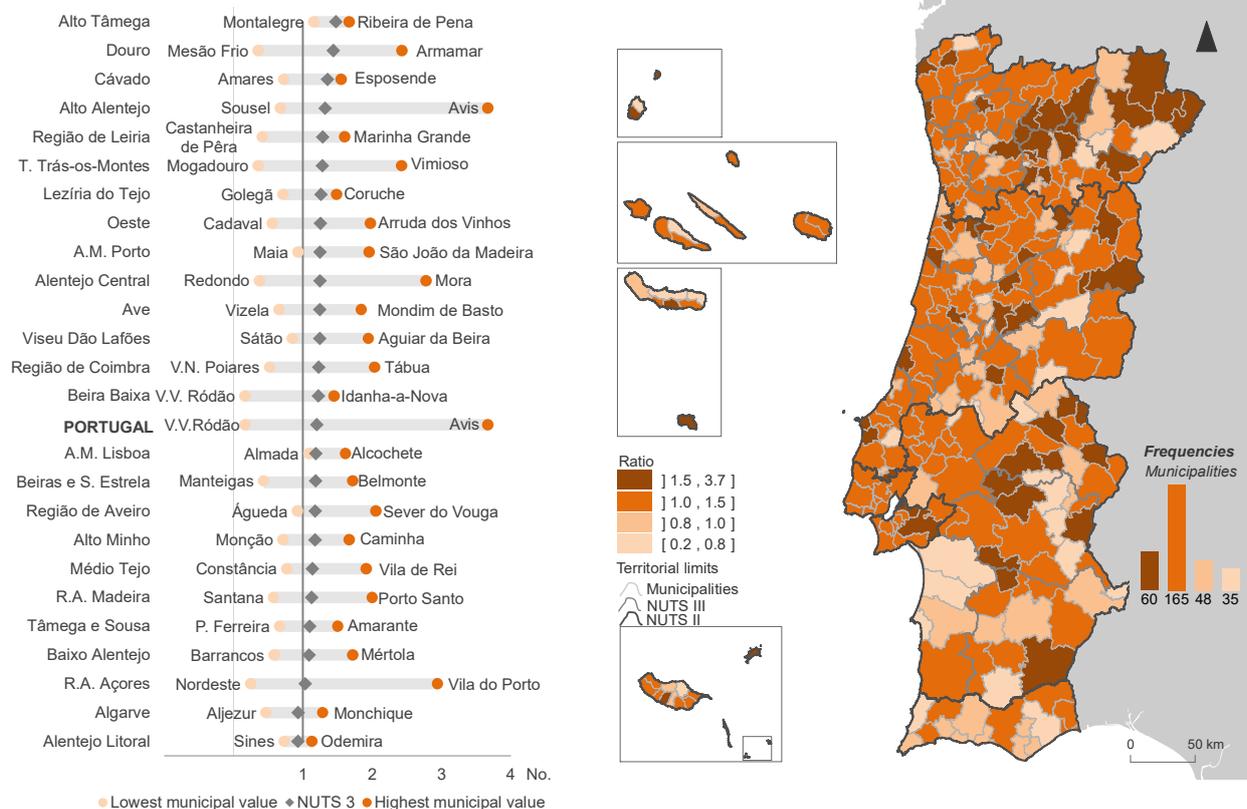
Figure 2 – Ratio between deaths in the last 4 weeks and deaths in the same reference period, Portugal and NUTS 2, weeks from 2 to 29 March 2020 to weeks and from 7 December 2020 and 3 January 2021



Source: INE, I.P., Statistics on Deaths (Preliminary (2020 and 2021) and Final Results (2015 up to 2019)).

In 225 municipalities the number of deaths between 7 December and 3 January was higher than the same reference period

Figure 3 - Number of deaths in the last four weeks (7 December 2020 to 3 January 2021) per deaths in the same period of reference, Portugal, NUTS 3 and municipality

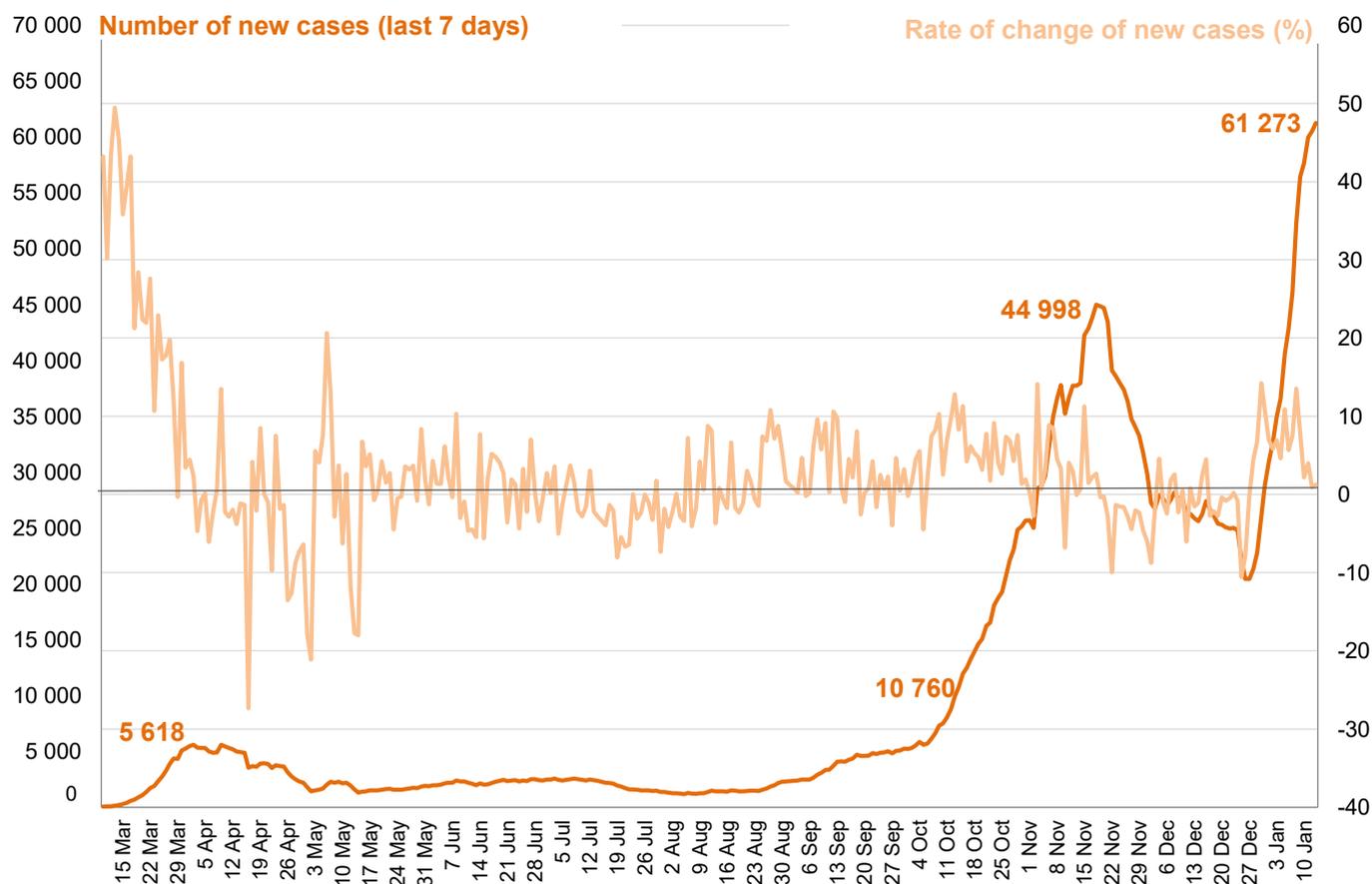


Source: INE, I.P., Statistics on Deaths (Preliminary (2020 and 2021) and Final Results (2015 up to 2019)).

II. The expression of the pandemic in the municipalities

On January 13, 2021 the highest number of new confirmed cases in the last 7 days was recorded since the beginning of the pandemic

Figure 4- Number of new confirmed cases (last 7 days) of infection by SARS-CoV-2/COVID-19 and respective rate of change, Portugal, per day (10/3/2020 to 13/1/2021)

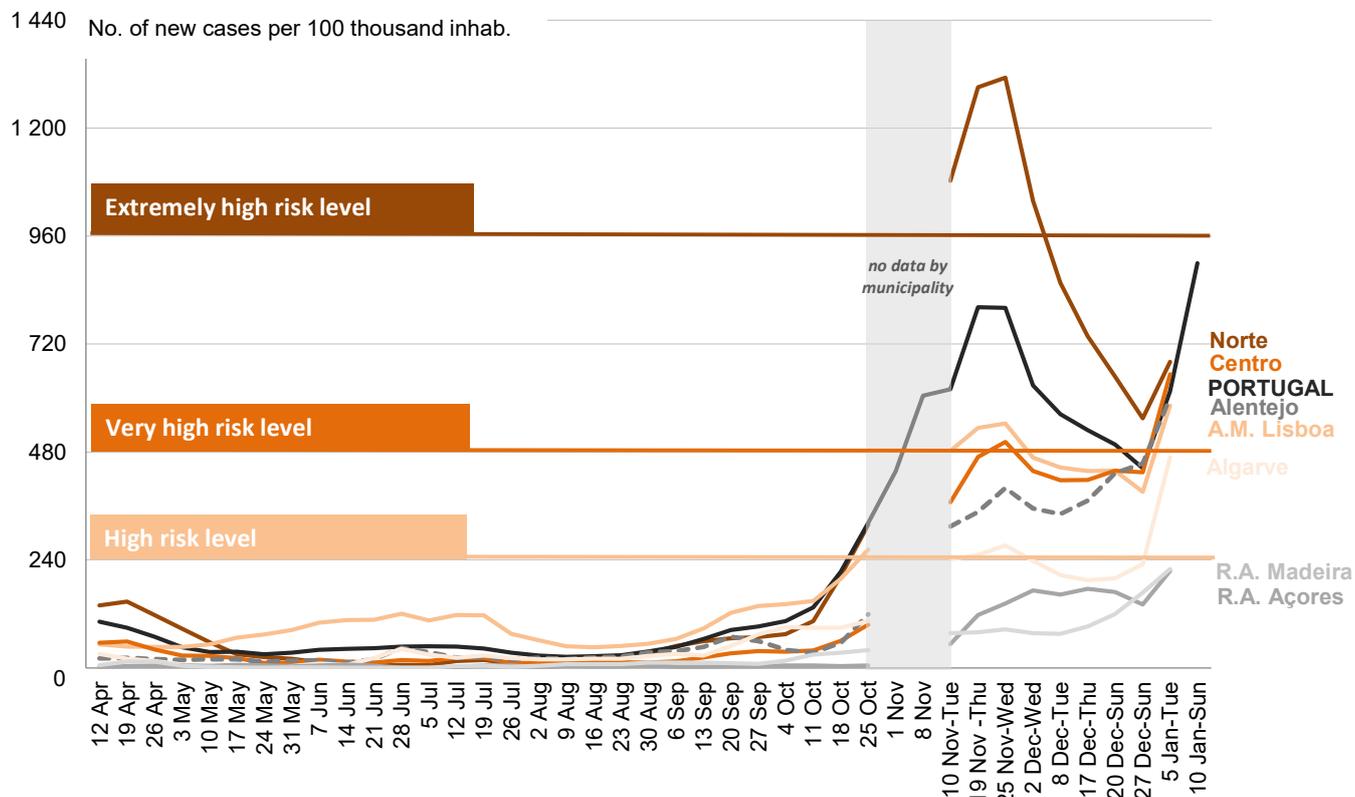


Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to January 14).

Note: The number of new cases includes the +4,375 confirmed cases resulting from the historical update released by the Directorate-General of Health in the COVID-19 Status Report made available on 16 November (data on the situation up to 15 November) with impact on the new cases in the last 7 days for the period 15-21 November. The dates marked on the graph axis correspond to Sundays.

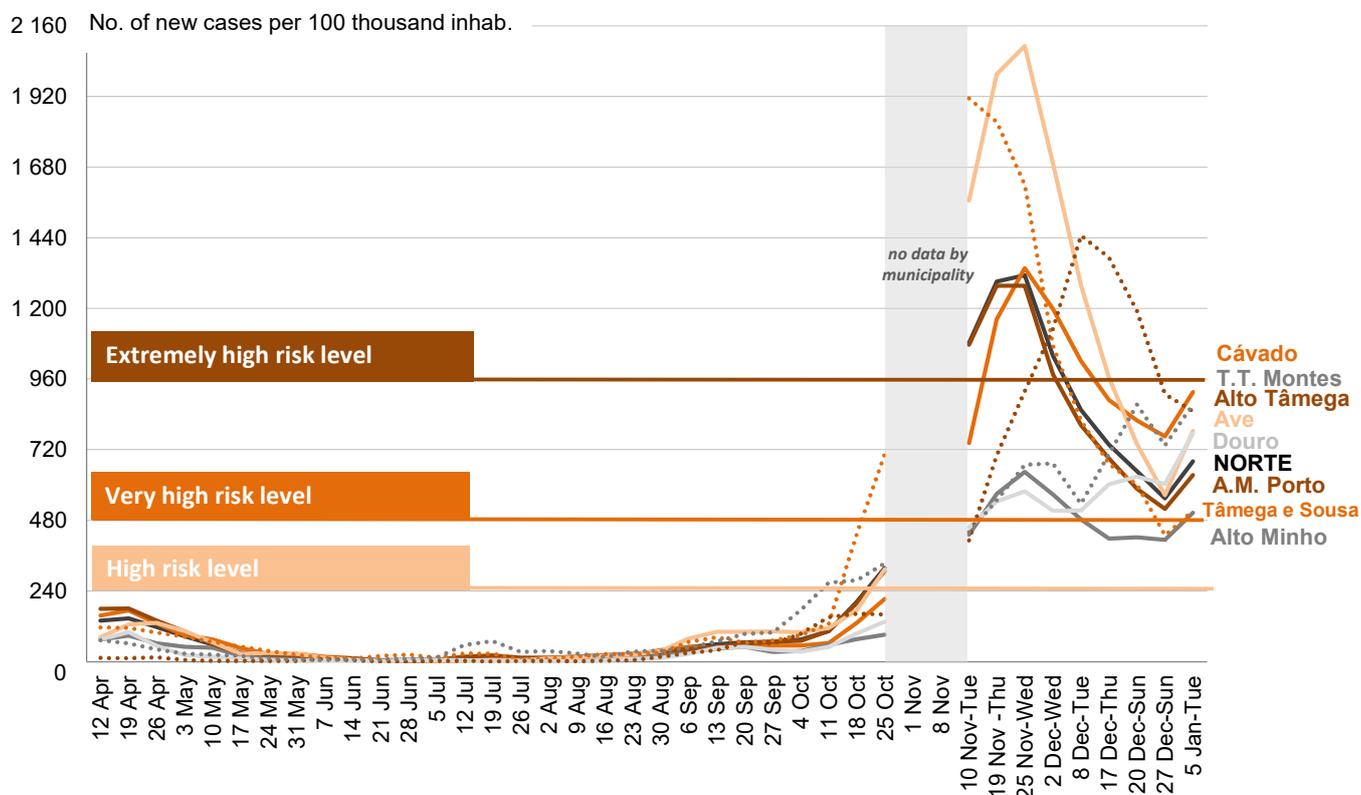
61% of new confirmed cases of COVID-19 in the last 14 days were registered in the Norte and Centro regions

Figure 5 - 14-day cumulative incidence rate of SARS-CoV-2/COVID-19, Sundays - 12 April to 25 October; 10, 19 and 25 November, 2, 8, 17, 20 and 27 December, 5 and 10 January, Portugal and NUTS 2



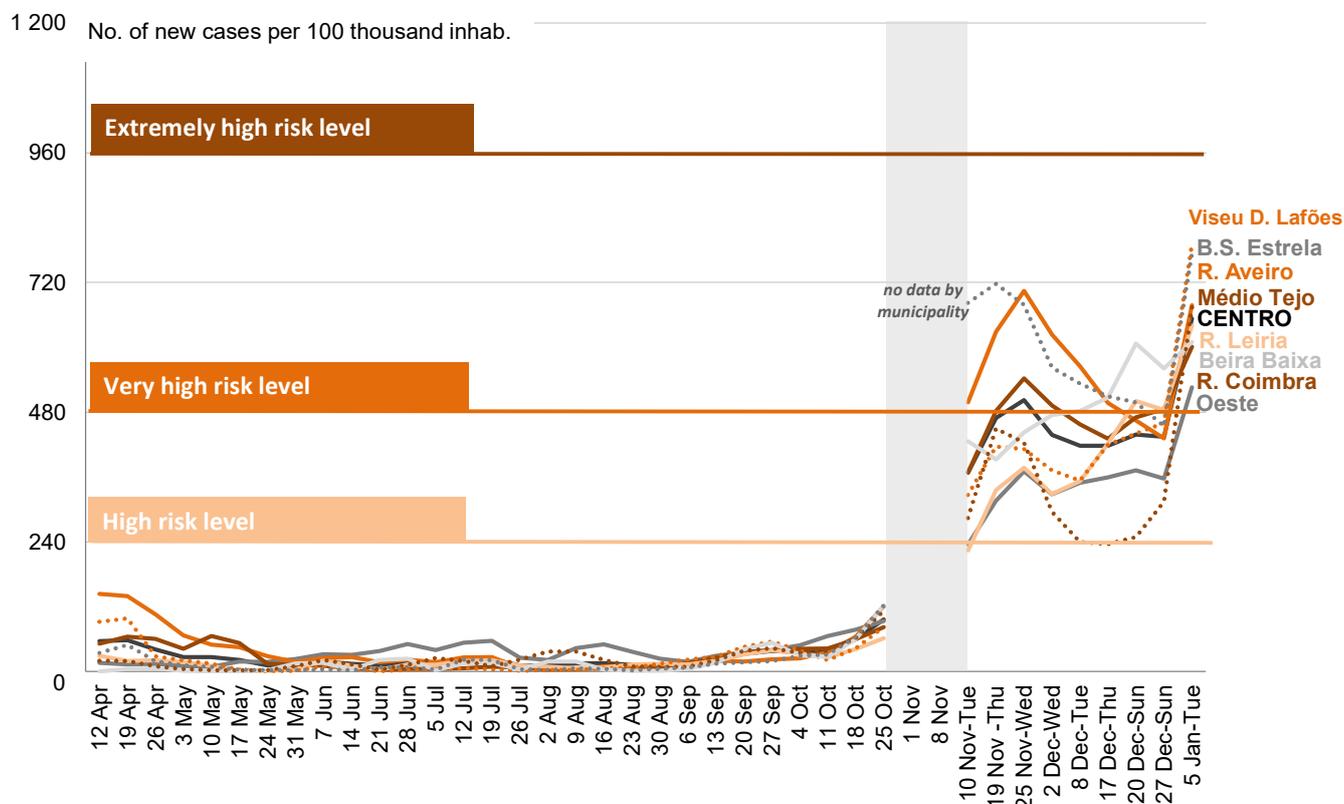
Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to January 11). INE, I.P., Annual estimates of resident population, 31 December 2019.
 Note: The absence of values at the regional level on 1 and 8 November is due to the interruption in the dissemination of data at the municipality level in the COVID-19 Status reports. The dates marked on the graph axis correspond to Sundays until 8 November and then to the reference days associated with the 14-day cumulative incidence indicator that is now being released weekly by the Directorate-General of Health (see technical note at the end of the press release).

Figure 6- 14-day cumulative incidence rate of SARS-CoV-2/COVID-19, Sundays - 12 April to 25 October; 10, 19 and 25 November, 2, 8, 17, 20 and 27 December, and 5 January, Norte region and respective NUTS 3 sub-regions



Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to January 11). INE, I.P., Annual estimates of resident population, 31 December 2019.
Note: The absence of values at the regional level on 1 and 8 November is due to the interruption in the dissemination of data at the municipality level in the COVID-19 Status reports. The dates marked on the graph axis correspond to Sundays until 8 November and then to the reference days associated with the 14-day cumulative incidence indicator that is now being released weekly by the Directorate-General of Health (see technical note at the end of the press release).

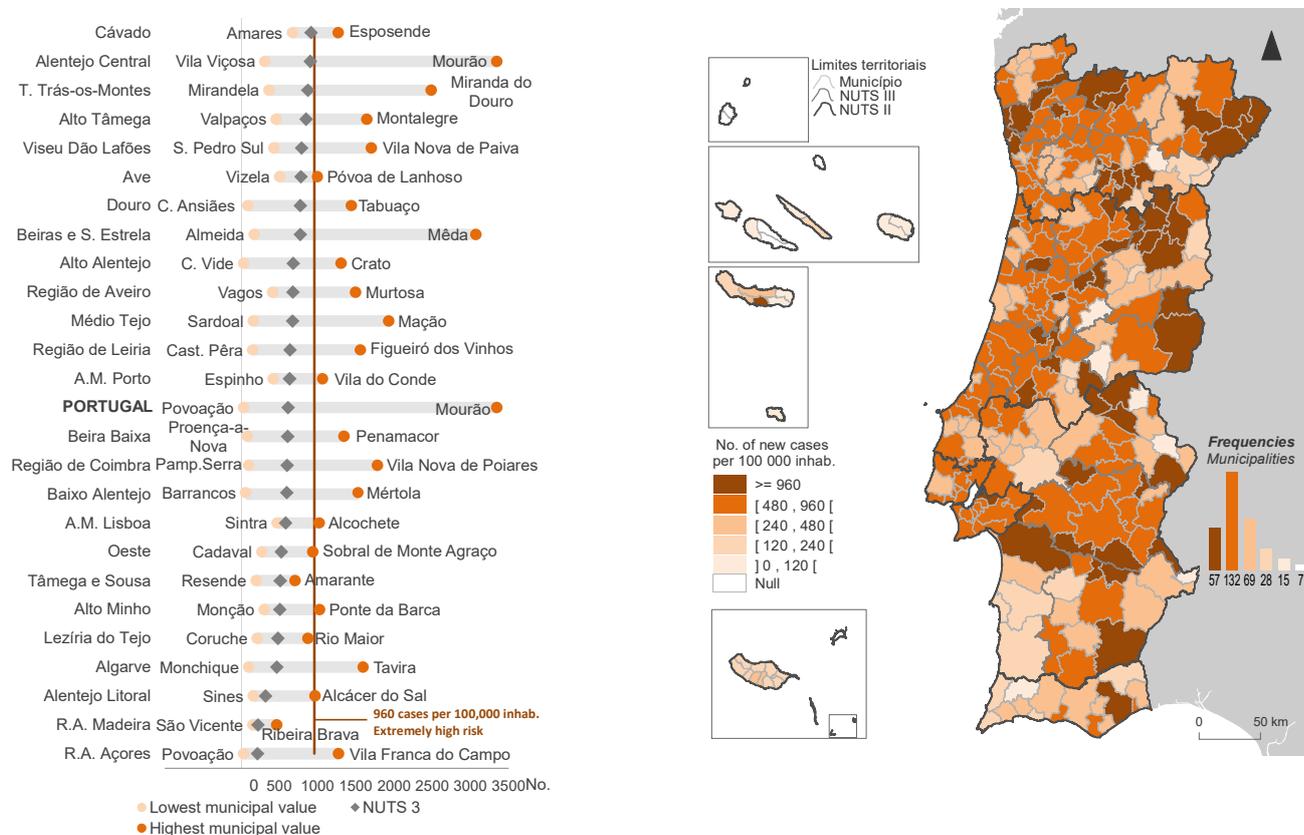
Figure 7- 14-day cumulative incidence rate of SARS-CoV-2/COVID-19, Sundays - 12 April to 25 October; 10, 19 and 25 November, 2, 8, 17, 20 and 27 December, and 5 January, Centro region and respective NUTS 3 sub-regions



Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to January 11). INE, I.P., Annual estimates of resident population, 31 December 2019.
 Note: The absence of values at the regional level on 1 and 8 November is due to the interruption in the dissemination of data at the municipality level in the COVID-19 Status reports. The dates marked on the graph axis correspond to Sundays until 8 November and then to the reference days associated with the 14-day cumulative incidence indicator that is now being released weekly by the Directorate-General of Health (see technical note at the end of the press release).

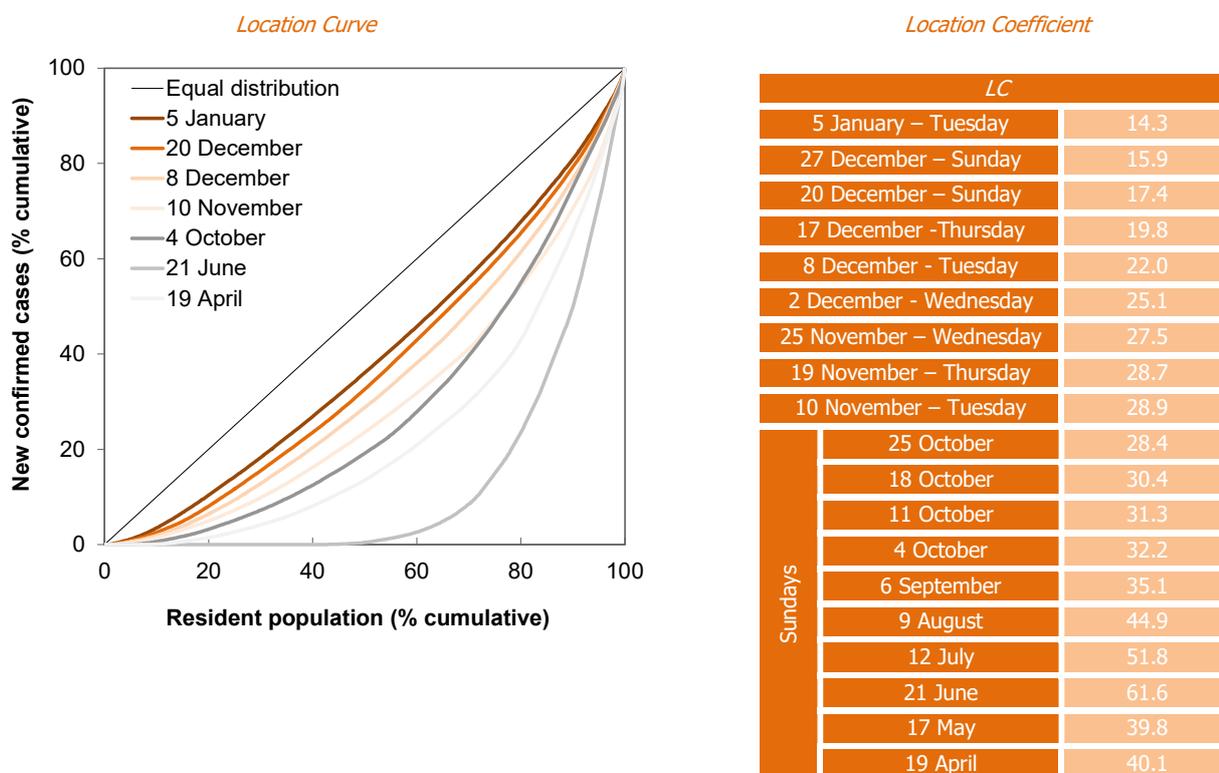
57 municipalities were at extremely high risk, with more than 960 new cases per 100,000 inhabitants

Figure 8 – 14-day cumulative incidence rate of infection by SARS-CoV-2/COVID-19 on 5 January, Portugal NUTS 3 and municipality



Source: Directorate-General of Health, Daily COVID-19 Status Report (released on January 11); INE, I.P., Annual estimates of resident population, 31 December 2019. Note: In the graph, in NUTS 3 sub-regions with zero data status, the municipalities with the lowest value in the indicator are identified.

Figure 9- Territorial concentration of new confirmed cases of infection by SARS-CoV-2/COVID-19 (last 14 days), in relation to the resident population, based on the distribution by municipality.



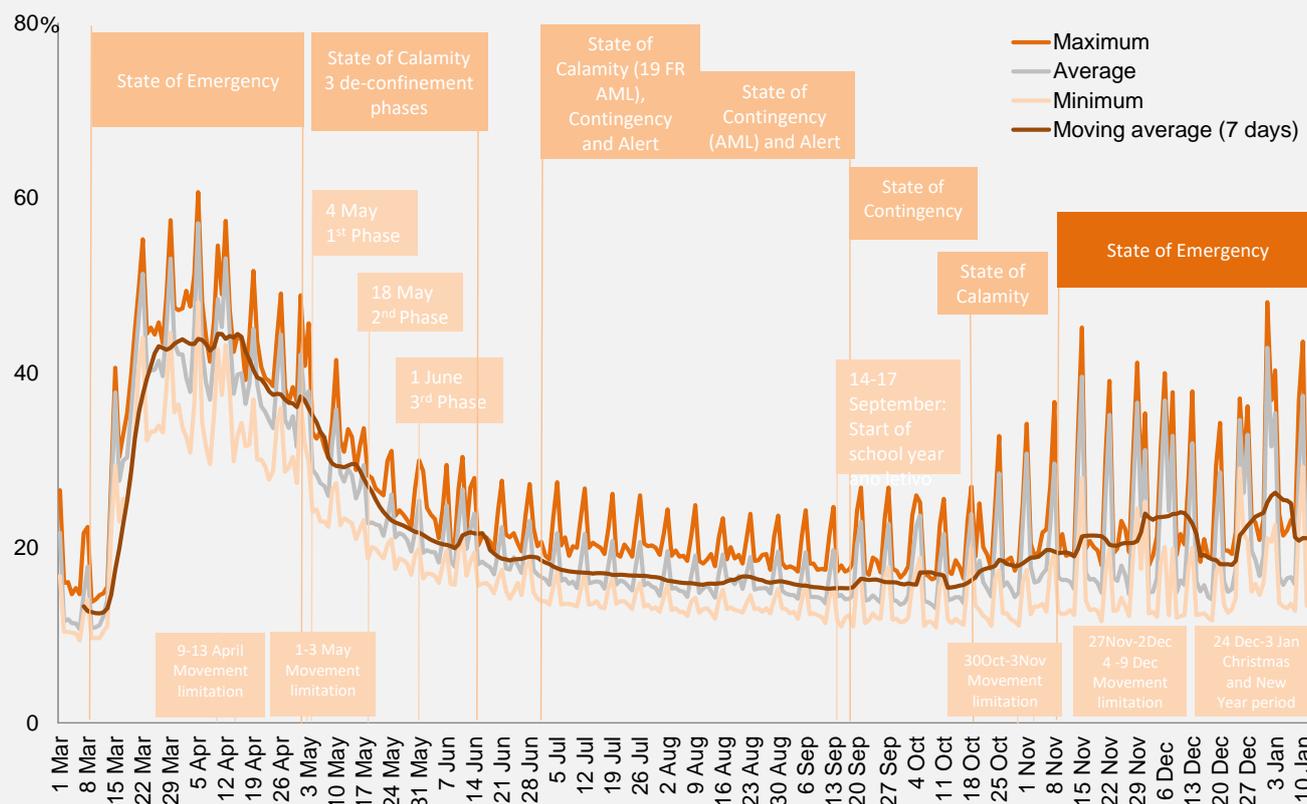
Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to January 11); INE, I.P., Annual estimates of resident population, 31 December 2019.
Note: For the calculation of the location coefficients zero cases were considered for the municipalities with no value in the Directorate-General of Health Status report (0 or < 3 cases).

Population mobility indicators at regional level: an analysis based on information from Facebook's "Data for Good" Initiative

Taking advantage of Facebook's "Data for Good" initiative, the figure below shows the proportion of the population "staying put" between 1 March and 12 January, namely the minimum, average and maximum values calculated based on the NUTS 3 sub-regions. The proportion of population that "stayed put" is based on the number of Facebook users associated with a single reference grid of 600mx600m during 8 am and 8 pm on day x, requiring at least three occurrences during that time period.

It is possible to observe that on Sundays there is generally less mobility of the population than on other days of the week. It is also noteworthy that after the first confirmed cases of COVID-19 and following the declaration of the first State of Emergency, there is a decrease in the mobility of the population, followed by an increase in the levels of mobility after the implementation of the de-confinement measures, the first phase of which started on 4 May. More recently, and considering the moving average of the last 7 days, there has been an overall reduction in average mobility levels following the declaration of the State of Emergency on November 9 and its successive renewal. This reduction continued until the days before Christmas where there was an increase in mobility due to the general cancelling of measures restricting movement between municipalities, and is subsequently resumed, highlighting the decrease in mobility levels on the days with limitations of movement during the New Year period.

Proportion of the population "staying put" between 1 March and 12 January – minimum, average and maximum values of NUTS 3 sub-regions



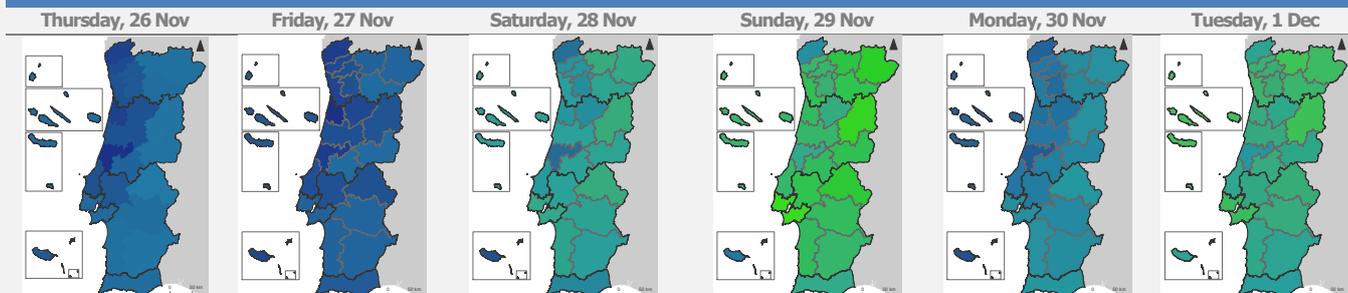
Source: Facebook's "Data for Good" Initiative. Data provided by Carnegie Mellon University. Note: The dates marked on the graph axis correspond to Sundays.

The following figure presents the population mobility levels for six days a week (Thursday, Friday, Saturday, Sunday, Monday and Tuesday) associated with the periods with measures of general application on the limitation of movement between municipalities during the month of December 2020 and early January 2021. There are, globally, lower levels of mobility on days corresponding to Sundays, as well as on days of the week with limitation of movement between municipalities and, in particular, on days corresponding to holidays, such as Tuesdays 1 and 8 December, Thursday 25 December and Friday 1 January 2021. It is also worth mentioning the decrease in mobility levels on Saturday, January 2, due to circulation restrictions.

Proportion of the population "staying put" on Thursdays, Fridays, Saturdays, Sundays, Mondays and Tuesdays associated with periods with measures of general application on the movement between municipalities during the month of December 2020 and early January 2021

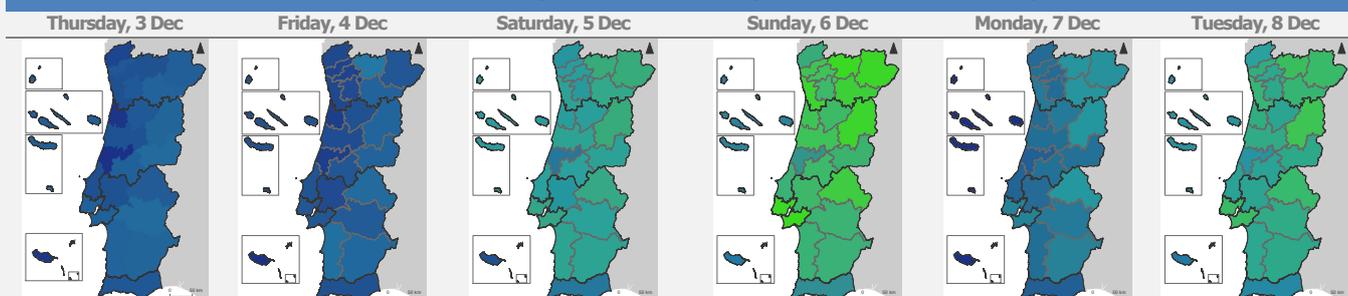
December 1st Holiday ("Restauração da Independência")

Limitation of movement between municipalities between 11:00 pm on November 27 and 5:00 am on December 2



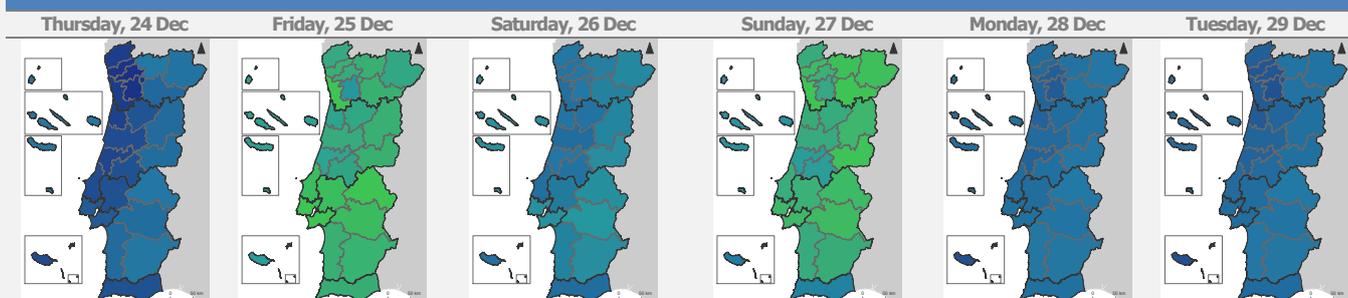
December 8th Holiday ("Dia da Imaculada Conceição")

Limitation of movement between municipalities between 11:00 pm on December 4 and 11:59 pm on December 8



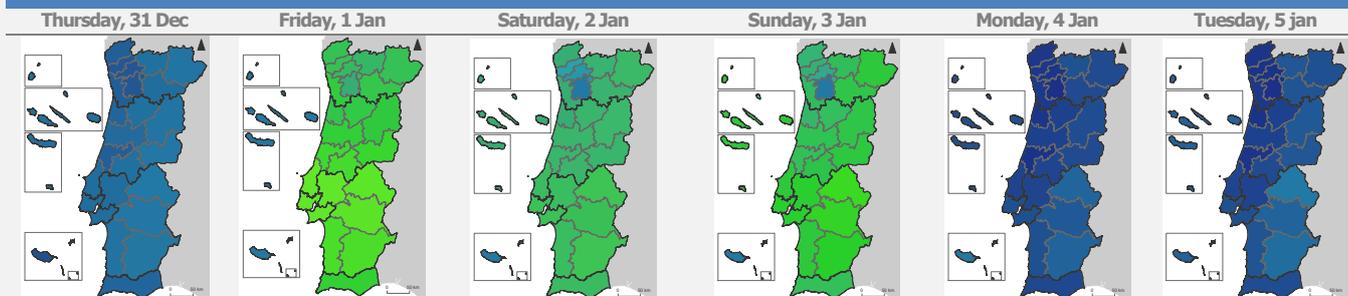
Christmases period

No limitation of movement between municipalities between 23 and 26 December



New Year period

Limitation of movement between municipalities between 00h00 of December 31 and 05h00 of January 4



Territorial limits
 \ NUTS II \ NUTS III
 60,7% 9,7%

Source: Facebook's "Data for Good" Initiative. Data provided by Carnegie Mellon University.