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

- On 10 February, there were 29,511 new cases in the last 7 days, corresponding to a daily average of 4,216 new cases and the lowest number since 31 December 2020. Since 28 January, there has been a progressive decrease in the number of new confirmed cases in the past 7 days. The 14-day COVID-19 incidence rate was 903, corresponding to the number of new confirmed cases of COVID-19 per 100,000 population in the past 14 days. This rate had reached a maximum on 29 January (1,667).

- At territorial level, the high number of deaths in the Metropolitan Area of Lisboa and the Alentejo should be highlighted, which, between 4 and 31 January, was 1.8 times higher than in the corresponding reference period, the highest values of the weekly series. In 59 municipalities the number of deaths was more than double that recorded in the corresponding reference period: two weeks earlier (21 December to 17 January), there were 17 municipalities.

- On 2 February 2021, the date of the last update of data at municipality level, the national 14-day cumulative incidence rate of COVID-19 (1,548) was surpassed by AML (2,164) and Centro (1,559) - new cases registered in these two regions represented almost 2/3 (61%) of the total. Compared to 26 January, there was an increase in the 14-day cumulative incidence rate only in AML and in the Região Autónoma da Madeira.

- On 2 February 2021, 219 (71%) Portuguese municipalities were at extremely high risk (76% on 26 January), of which 125 reported more than 1,500 new cases per 100,000 inhabitants. Compared to the previous week (26 January), 204 municipalities recorded a reduction in the cumulative incidence rate and 103 municipalities showed an increase, a group that includes all municipalities of the AML.

- The combined analysis of the location coefficient and the 14-day cumulative incidence rate made it possible to distinguish differentiated phases in the evolution of the pandemic [Figure 9], highlighting the positive dynamics recorded in the period from 25 November to 27 December: reduction of the 14-day cumulative incidence rate and reduction of the territorial concentration of new cases (last 14 days). From 27 December to 26 January, there was an exponential growth in the incidence rate and a relative stabilization of the territorial concentration of new cases. In recent weeks, since January 26, the results already suggest a tendency for an increase in the territorial concentration, and also on February 2 there was a reduction in the incidence rate, compared to the previous week.

I. Demographic and territorial context indicators

The number of deaths in AML and Alentejo regions was 1.8 times higher than in the reference period

Figure 1 - Ratio between deaths in the last 4 weeks and deaths in the same reference period (average for the period from 2015 to 2019), Portugal, weeks between 29 March 2020 and 31 January 2021, weekly
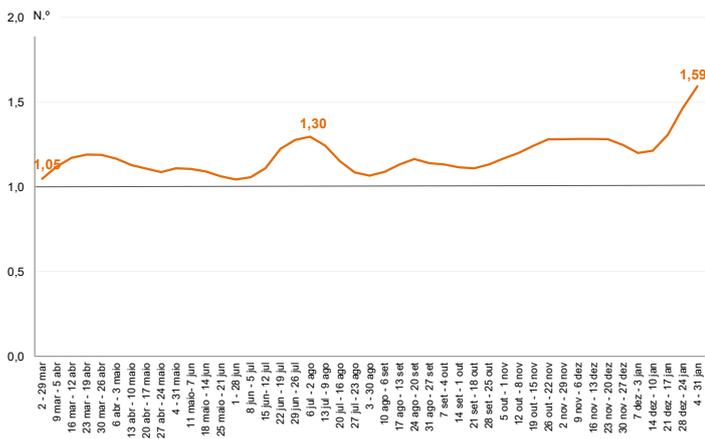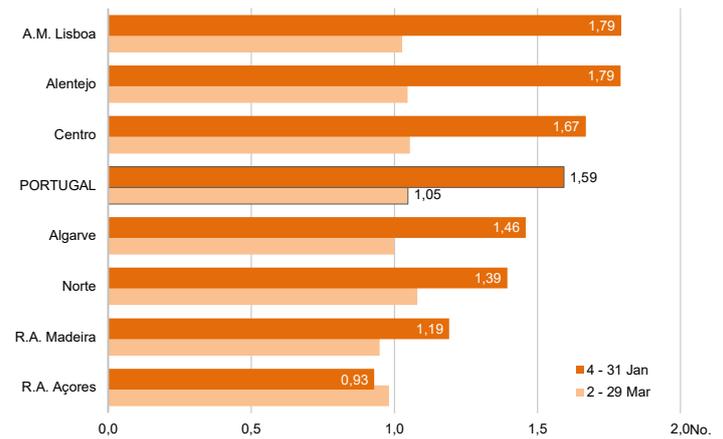
Figure 2 – Ratio between deaths in the last 4 weeks and deaths in the same reference period (average for the period from 2015 to 2019), Portugal and NUTS 2, weeks 29 March 2020 and 31 January 2021

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

In 155 municipalities the number of deaths between 4 and 31 January was 1.5 times higher than in the same reference period (there were 77 municipalities between 21 December and 17 January)

Figure 3 - Number of deaths in the last four weeks (32January 2021) per deaths in the same period of reference (average for the period from 2015 to 2019), Portugal, NUTS 3 and municipality
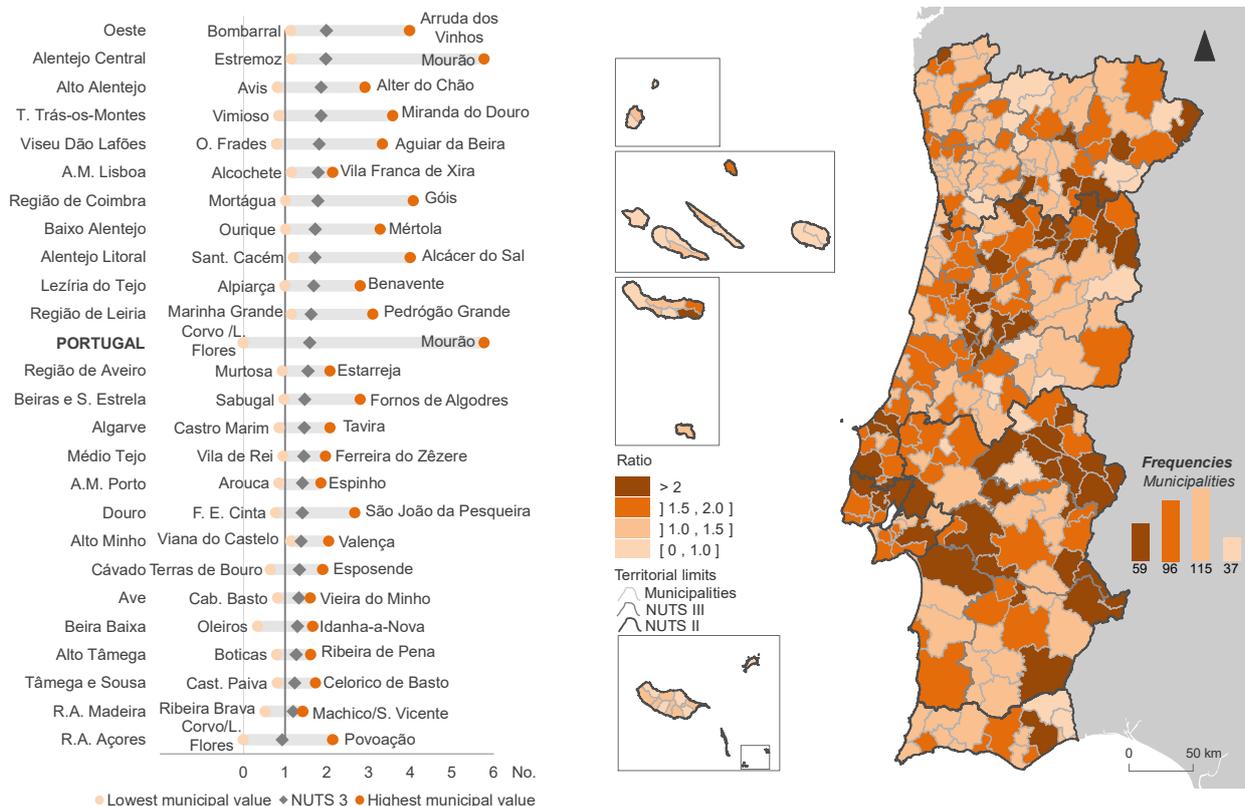

Source: INE, I.P., Statistics on Deaths (Preliminary (2020 and 2021) and Final Results (2015 up to 2019)).

II. The expression of the pandemic in the municipalities

Since 28 January 2021 there has been a progressive decrease in the number of new cases confirmed in the last 7 days

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 10/2/2021)
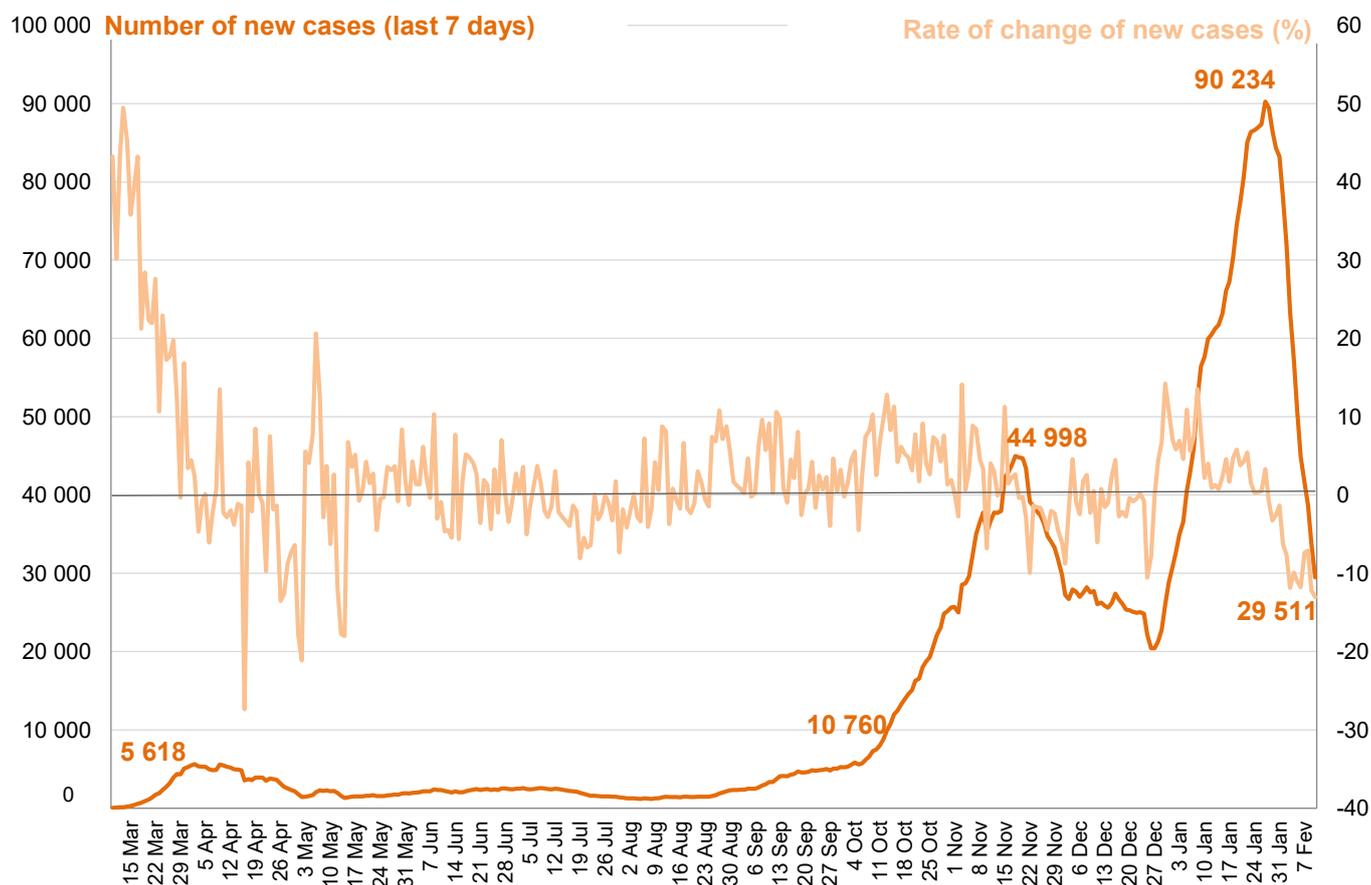
Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to February 11).
Note: The number of new cases includes the +4,375 confirmed cases resulting from the historical update released by the Directorate-General of Health in the COVID-19 Status Report made available on 16 November (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.

AML and Região Autónoma da Madeira were the only regions in the country with an increase in the 14-day incidence rate

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, 12, 18 and 26 January and 2 February, Portugal and NUTS 2
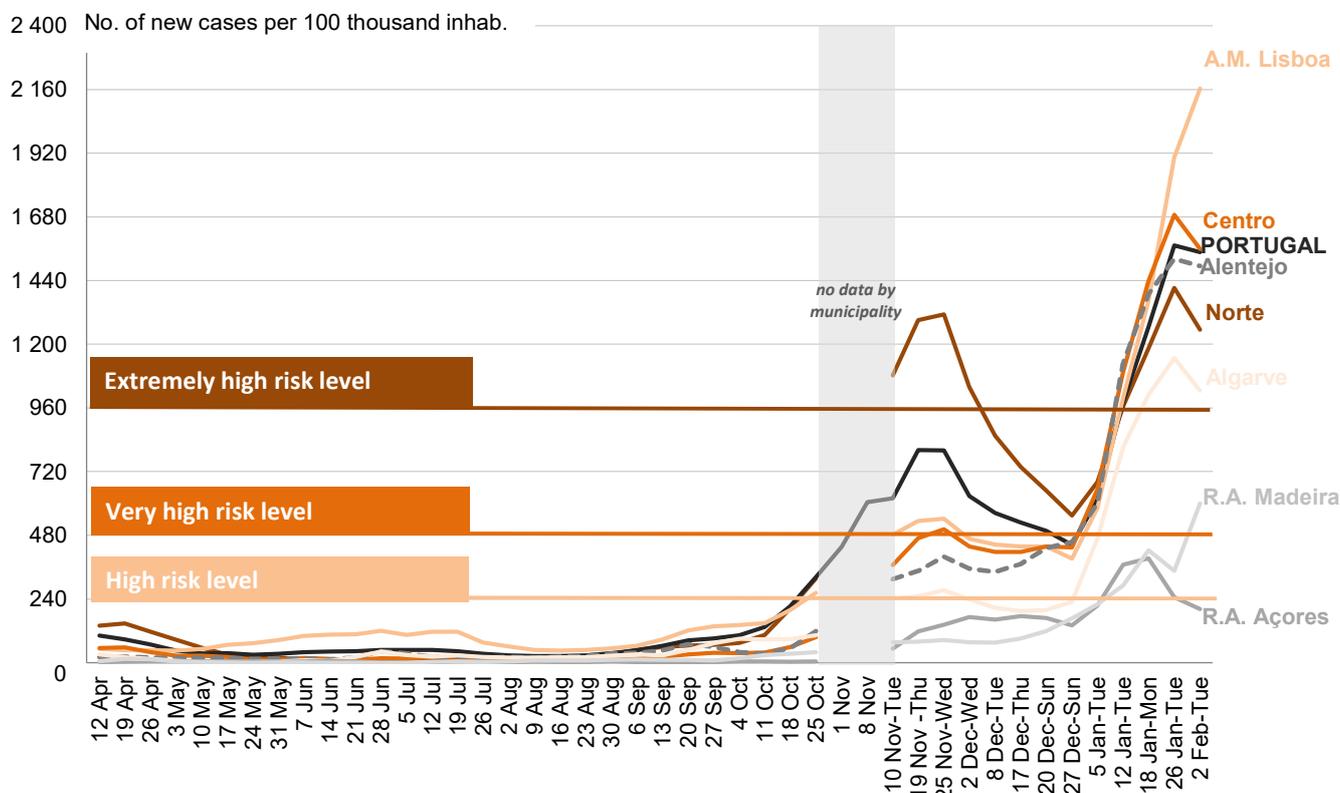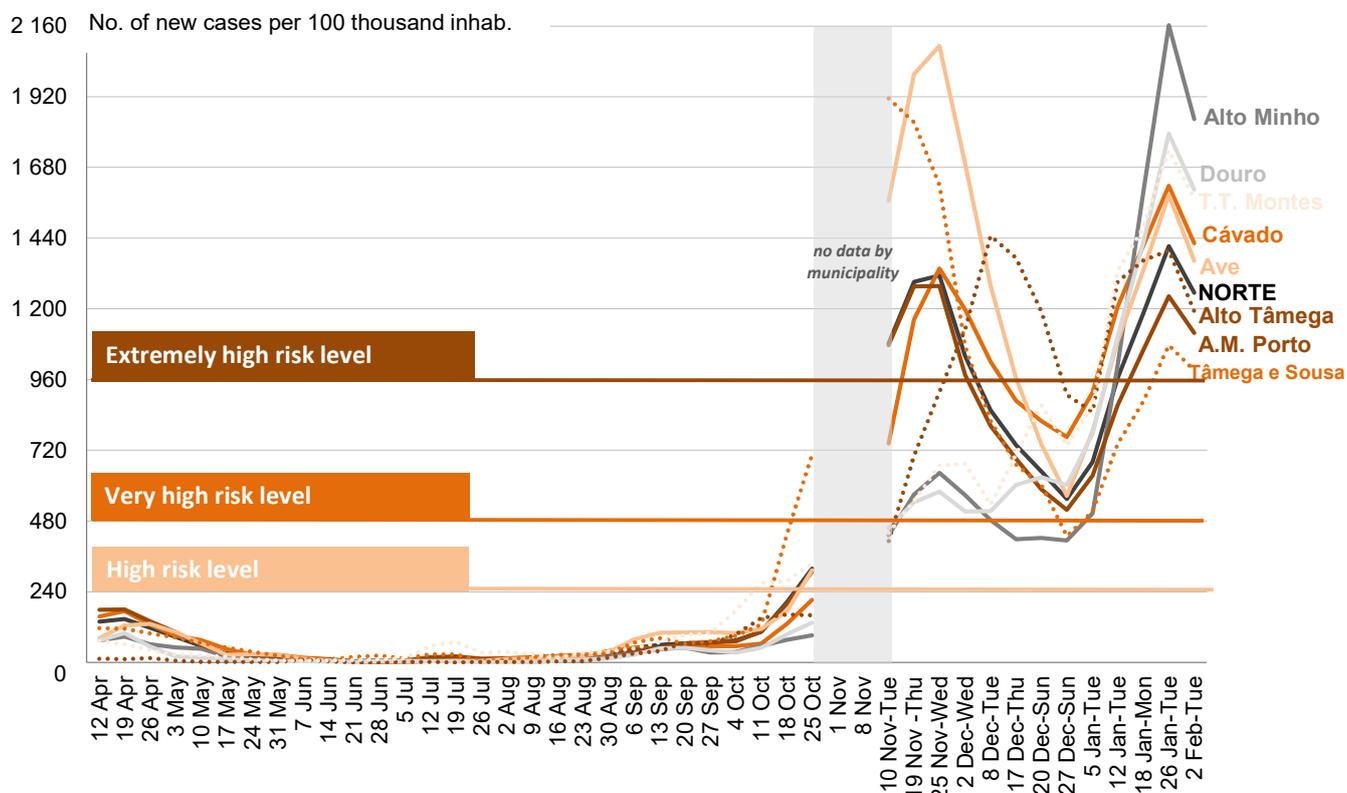

Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to February 8). INE, I.P., Annual estimates of resident population, 31 December 2019.
Note: The absence of values at the regional level on 1 and 8 November is due to the interruption in the dissemination of data at the municipality 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, 12, 18 and 26 January and 2 February, Norte region and respective NUTS 3 sub-regions
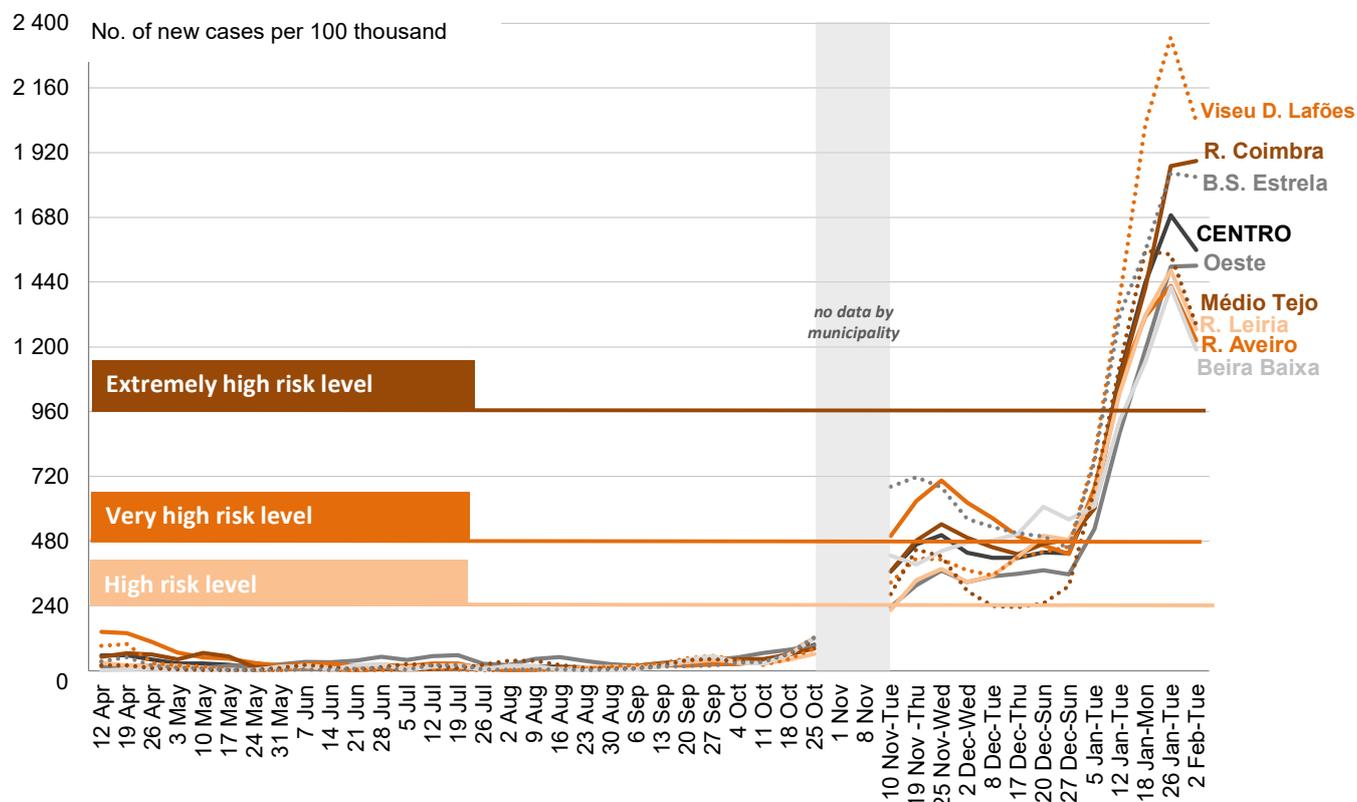

Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to February 8). INE, I.P., Annual estimates of resident population, 31 December 2019.
Note: The absence of values at the regional level on 1 and 8 November is due to the interruption in the dissemination of data at the municipality 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).

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

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, 12, 18 and 26 January and 2 February, Centro region and respective NUTS 3 sub-regions

Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to February 8). 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).
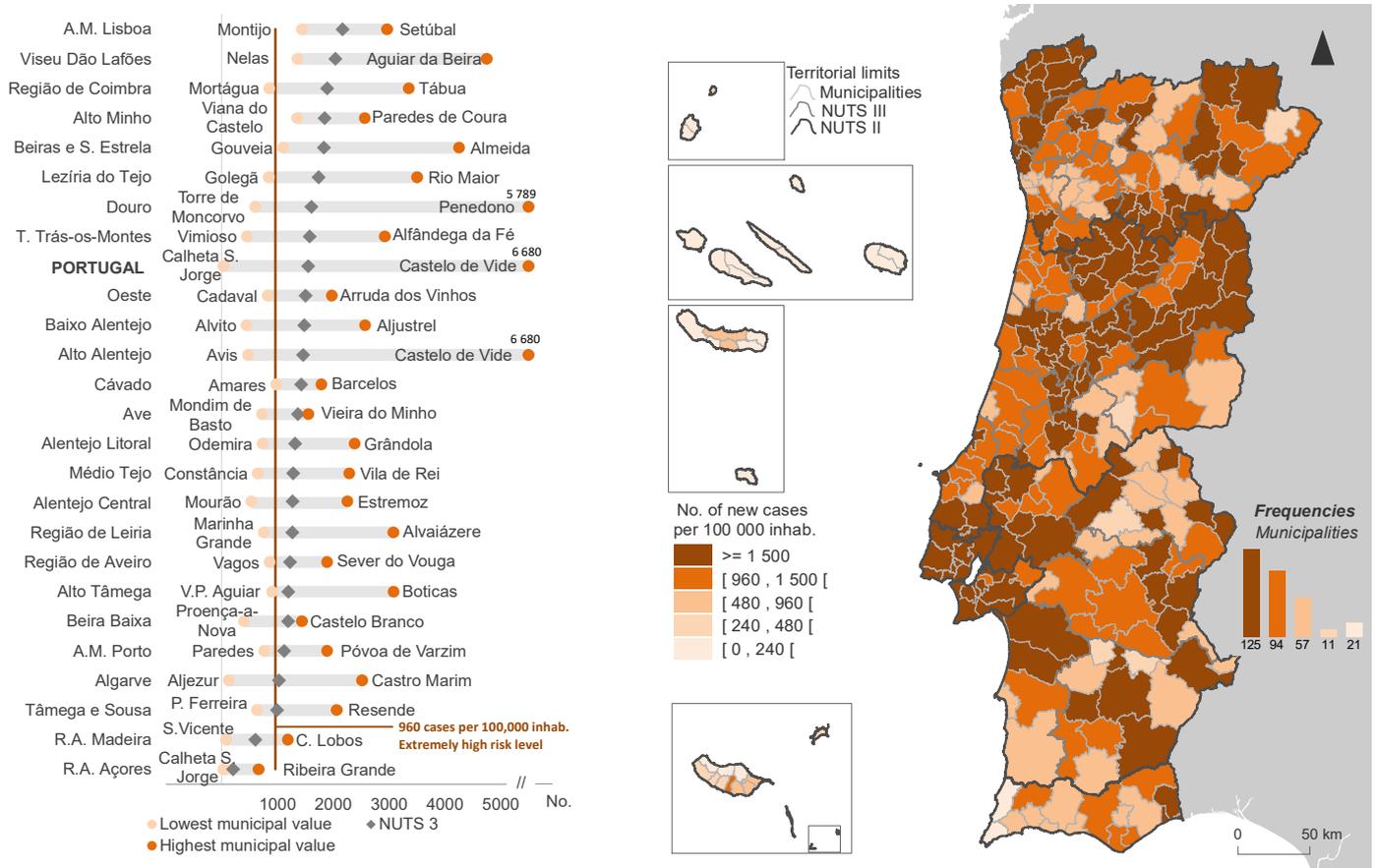
On 2 February 2021, 71% of Portuguese municipalities were at extremely high risk (76% on 26 January)

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

Source: Directorate-General of Health, Daily COVID-19 Status Report (released on February 8); 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 and 14-day cumulative incidence rate of infection by SARS-CoV-2/COVID-19, Portugal
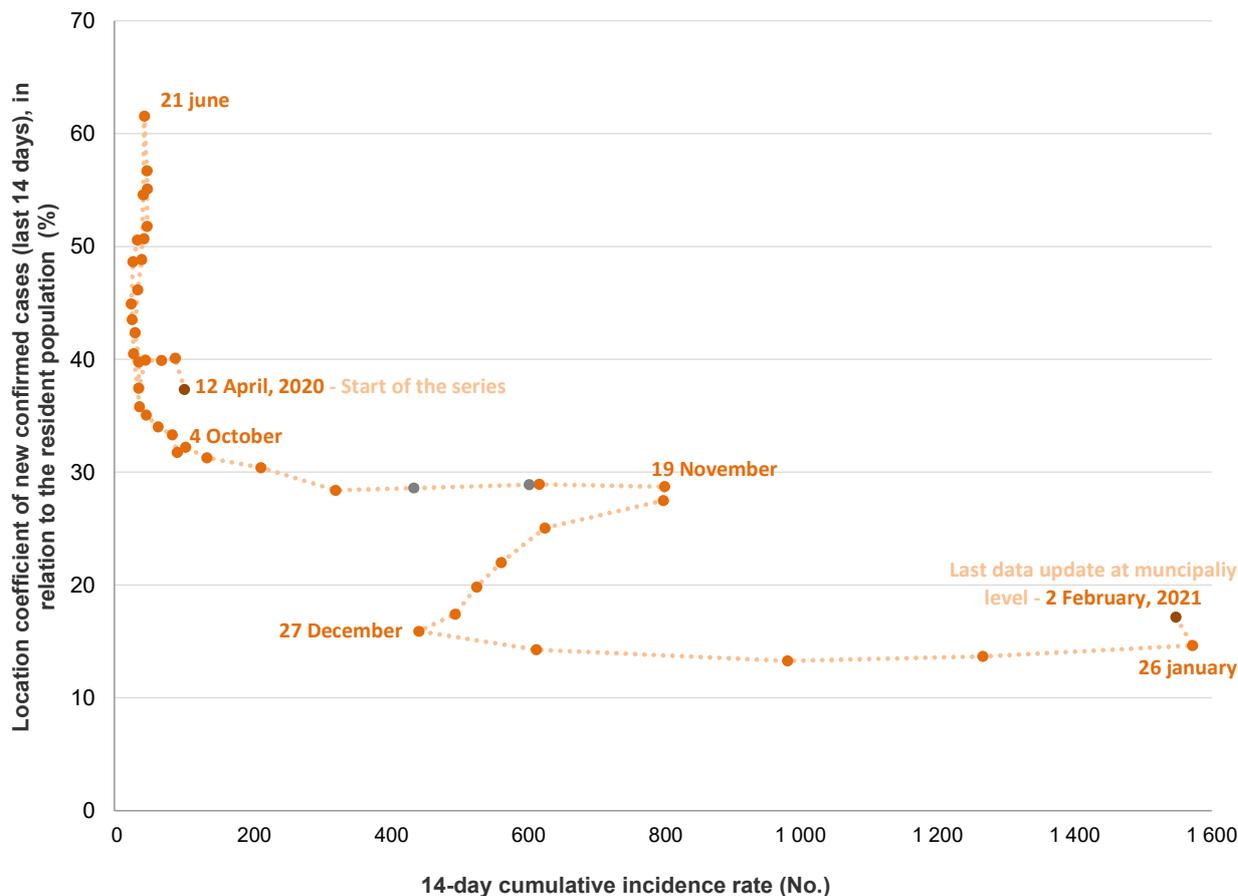
Source: Directorate-General of Health, Daily COVID-19 Status Report (released on February 8); INE, I.P., Annual estimates of resident population, 31 December 2019.
Note: For the calculation of the location coefficients zero cases were considered for the municipalities with no value in the Directorate-General of Health Status report (0 or< 3 cases). The values of the location coefficient were estimated for 1 and 8 November, due to the absence of data at the municipality level in the COVID-19 Status reports. 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).

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

Figure 10- Rate of change and 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, Portugal and municipality

Rate of change (26 January/2 February)

Location Coefficient

Rate of change
- > 15
-] 0 , 15]
-] -15 , 0]
- [-67 , -15]
- not applicable

Territorial limits
- Municipalities
- NUTS III
- NUTS II

Frequencies
Municipalities

63 40 98 106

0   50 km

LC	
2 February - Tuesday	
26 January – Tuesday	
18 January – Monday	13.7
12 January – Tuesday	13.3
5 January – Tuesday	14.3
27 December – Sunday	15.9
20 December – Sunday	17.4
17 December –Thursday	19.8
8 December – Tuesday	22.0
2 December – Wednesday	25.1
25 November – Wednesday	27.5
19 November – Thursday	28.7
10 November – Tuesday	28.9
25 October	28.4
18 October	30.4
11 October	31.3
4 October	32.2
6 September	35.1
9 August	44.9
12 July	51.8
21 June	61.6
17 May	39.8
19 April	40.1

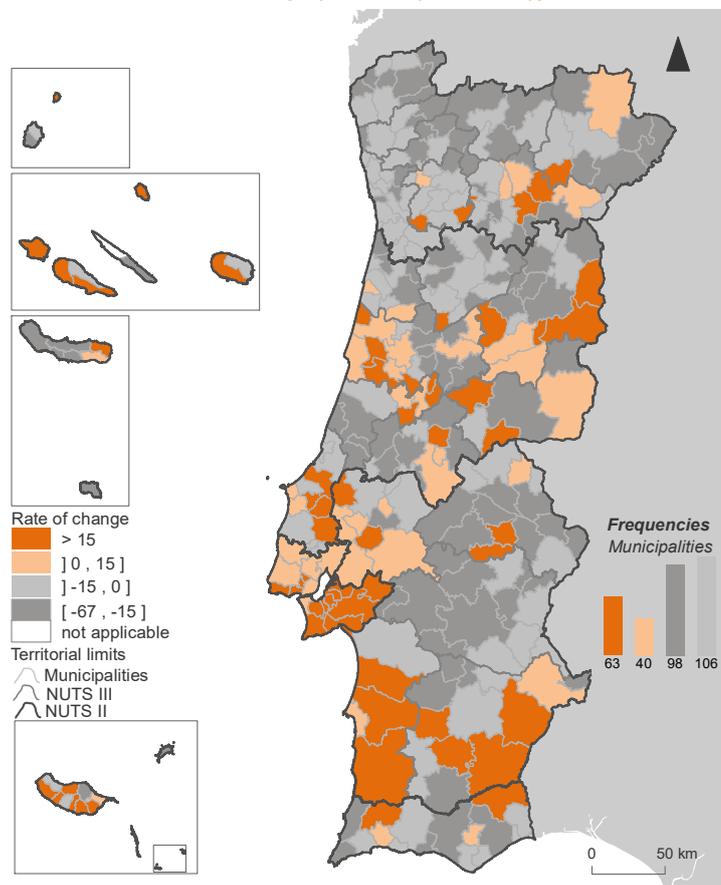(The 25 October through 19 April rows are labeled "Sundays")

Source: Directorate-General of Health, Daily COVID-19 Status Report (released up to February 8); 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 2020 and 9 February 2021, 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.
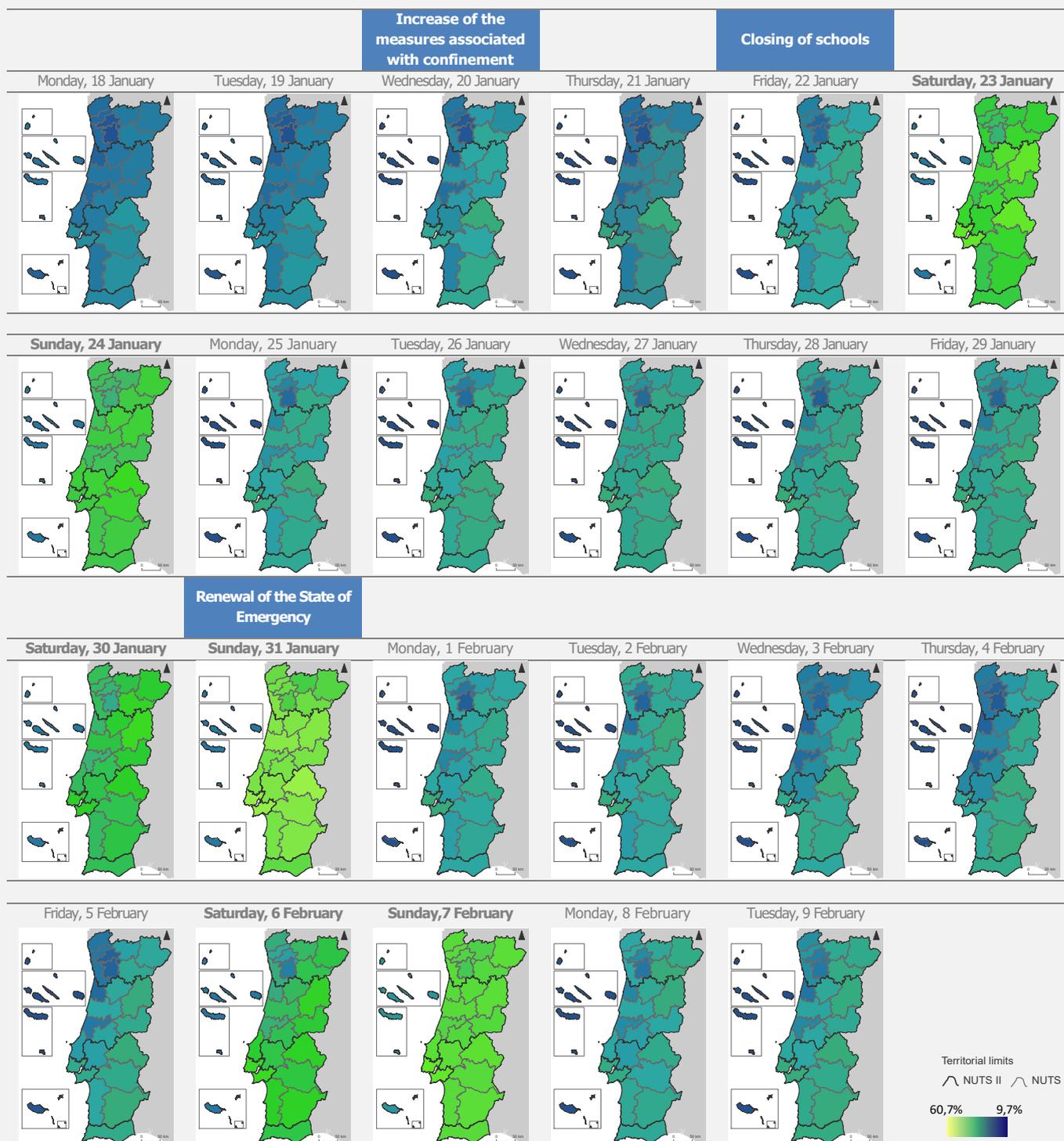
Considering the moving average of the last 7 days, there has been an overall reduction in the average levels of mobility following the declaration of the State of Emergency on November 9 and subsequent renewals. In this context, the days before Christmas and after New Year are the exception, where there is an increase in mobility due to the general cancelling of measures restricting circulation. This tendency to reduce mobility is accentuated after the entry into force, on January 15, 2021, of extraordinary measures to limit the spread of the pandemic, including a new confinement period, followed by the closing of schools on January 22 and, more recently, with the renewal of the State of Emergency and the maintenance of the general duty of compulsory recollection on 31 January.

Proportion of the population "staying put" between 1 March and 9 February – minimum, average and maximum values of NUTS 3 sub-regions
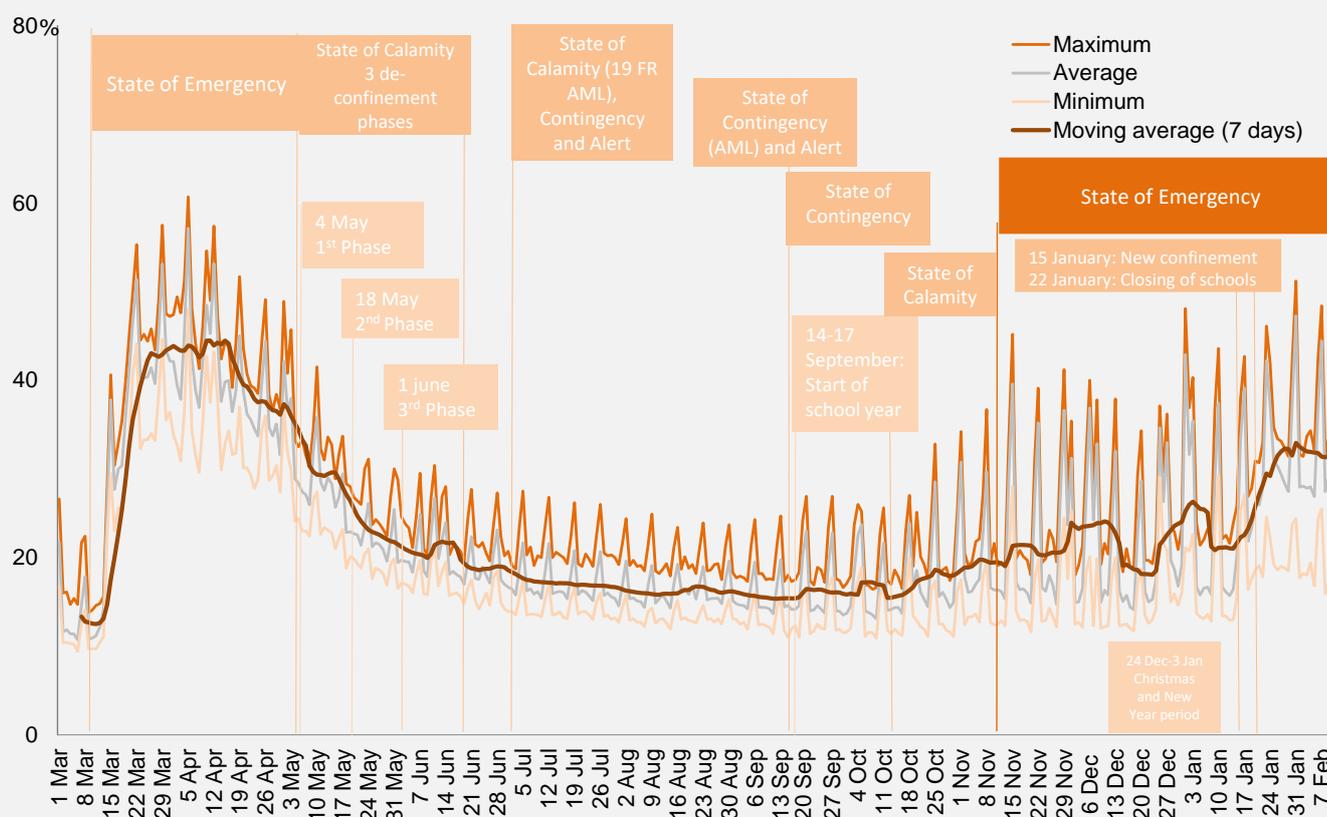
Source: Facebook's "Data for Good" Initiative. Data provided by Carnegie Mellon University. Note: The dates marked on the graph axis correspond to Sundays.

The following figure shows the mobility levels of population between January 18 and 9 February 2021 for the 25 NUTS 3 sub-regions. Overall, there are lower levels of mobility at weekends. Also noteworthy is the decrease in mobility on working days following the declaration of a new confinement period, the closing of schools, and more recently the renewal of the State of Emergency on 31 January.

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

INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

STATS lab

Proportion of the population "staying put" between 18 January and 9 February 2021 by NUTS 3

		Increase of the measures associated with confinement		**Closing of schools**	
Monday, 18 January	Tuesday, 19 January	Wednesday, 20 January	Thursday, 21 January	Friday, 22 January	**Saturday, 23 January**

Sunday, 24 January	Monday, 25 January	Tuesday, 26 January	Wednesday, 27 January	Thursday, 28 January	Friday, 29 January

	Renewal of the State of Emergency				
Saturday, 30 January	**Sunday, 31 January**	Monday, 1 February	Tuesday, 2 February	Wednesday, 3 February	Thursday, 4 February

Friday, 5 February	**Saturday, 6 February**	**Sunday, 7 February**	Monday, 8 February	Tuesday, 9 February	

Territorial limits

NUTS II   NUTS III

60,7%   9,7%

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

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