



January 8th 2020

WEEKLY DEATHS – preliminary data

Weeks 1 to 52 of 2020

MORTALITY IN PORTUGAL IN THE CONTEXT OF THE COVID-19 PANDEMIC

THE NUMBER OF DEATHS BY COVID-19 SURPASSED THE INCREASE OF DEATHS BETWEEN NOVEMBER 30TH AND DECEMBER 27TH COMPARED TO THE AVERAGE OF THE LAST 5 YEARS

Between March 2nd, when the first cases of COVID-19 were diagnosed in Portugal, and December 27th, there were 99,356 deaths in the national territory, an increase of 12,852 deaths in 2020 when compared to the average number of deaths during the same period over the past five years. Of these deaths, 52.0% (6,677) were due to COVID-19. In the last 4 weeks (November 30th to December 27th) there were 1,884 more deaths than the average. In these weeks, there were 2,172 registered deaths from COVID-19, 15.3% more than the increase compared to the average of the same weeks of 2015-2019.

Of the total deaths recorded between March 2nd and December 27th 49,453 were of men and 49,903 were of women, an increase of 5,833 and 7,019 deaths, respectively, compared to the average of deaths observed in the same period between 2015-2019.

More than 70% of deaths were of people aged 75 years or over. Compared to the average observed in the same 2015-2019 period, another 10,886 people aged 75 and over died, of which 8,038 were aged 85 and over.

The largest increases occurred more frequently in the region Norte, followed by the region Área Metropolitana de Lisboa.

Of the total deaths recorded between March 2nd and December 27th 2020, 60,024 occurred in a hospital and 39,332 outside a hospital, corresponding to an increase of 5,650 deaths and 7,202 deaths, respectively, when compared to the average number of deaths in the same 2015-2019 period. In that period, 56.0% of the increase of deaths occurred outside a hospital. However, since week 44 (October 26th to November 1st), the greatest increase in deaths occurred in hospitals.



In this press release Statistics Portugal provides preliminary information regarding the evolution of weekly deaths that occurred in national territory up to the 52nd week of 2020 (December 21st to 27th) and provides a comparison with the average number of deaths for the same period from the last five years (2015-2019).

Information on deaths is obtained through the Civil Register collected under the Integrated Civil Registration and Identification System (SIRIC) until January 5th 2021. This time lag prevents the disclosed information from being subjected to considerable revisions. Even so, the information referring to 2020 is preliminary and will be subject to subsequent update.

One of the most dramatic consequences of the COVID-19 pandemic concerns the increase in the total number of deaths. The number of COVID-19 deaths provides only a partial measure of these effects. A more comprehensive measure of the impact on mortality may be provided by the difference between the total number of deaths observed in 2020, by all causes of death, and the average number of deaths for the last five years (2015-2019)¹, even though there are other known effects on mortality, such as seasonal flu and spikes or hot or cold waves.

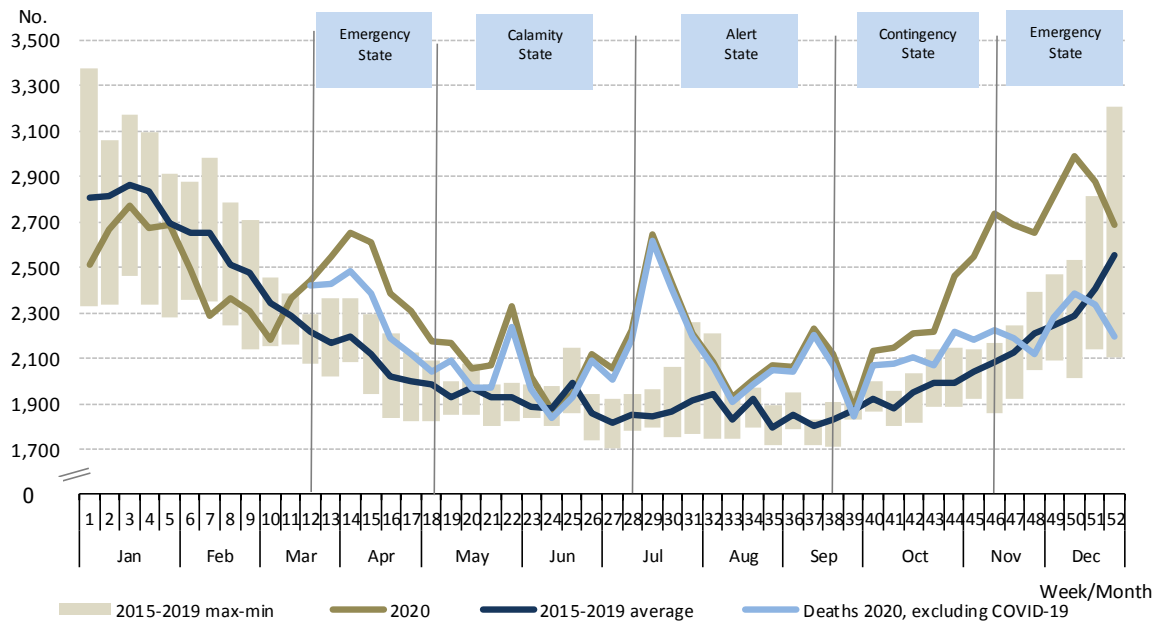
Number of deaths in 2020 higher than in previous years

In the first two months of 2020, the number of deaths was, in general, lower than the values observed in the last five years. However, in week 11 (9th to 15th March 2020), the number of deaths exceeded the average values recorded in recent years. In Figure 1, the shaded bars, defined by the minimum and maximum values of deaths recorded per week in any of the five years between 2015 and 2019, provide an indication of the range of variation in the number of deaths in the considered period. It shows that the number of deaths in 2020 was, from the beginning of March, in general, above the upper limit of this range of values.

Between March 2nd, when the first cases of COVID-19 disease were diagnosed in Portugal, and December 27th, that is, between weeks 10 (March 2nd to 8th) and 52 (December 21st to 27th), there were 99,356 deaths, 12,852 above the average number of deaths observed in the same weeks from 2015-2019.

¹ In this press release, the measure adopted to quantify the increase in the number of deaths compared to previous years, take as a basis of comparison the average of deaths in the last five years (2015-2019). This measure should therefore not be confused with the *excess mortality* indicator published in some studies, in particular through the EuroMOMO platform.

Figure 1: Deaths 2020 and average 2015-2019, by week, Portugal, weeks 1 to 52



Source: Statistics Portugal, Deaths. Directorate-General of Health, Daily COVID-19 Status Report.

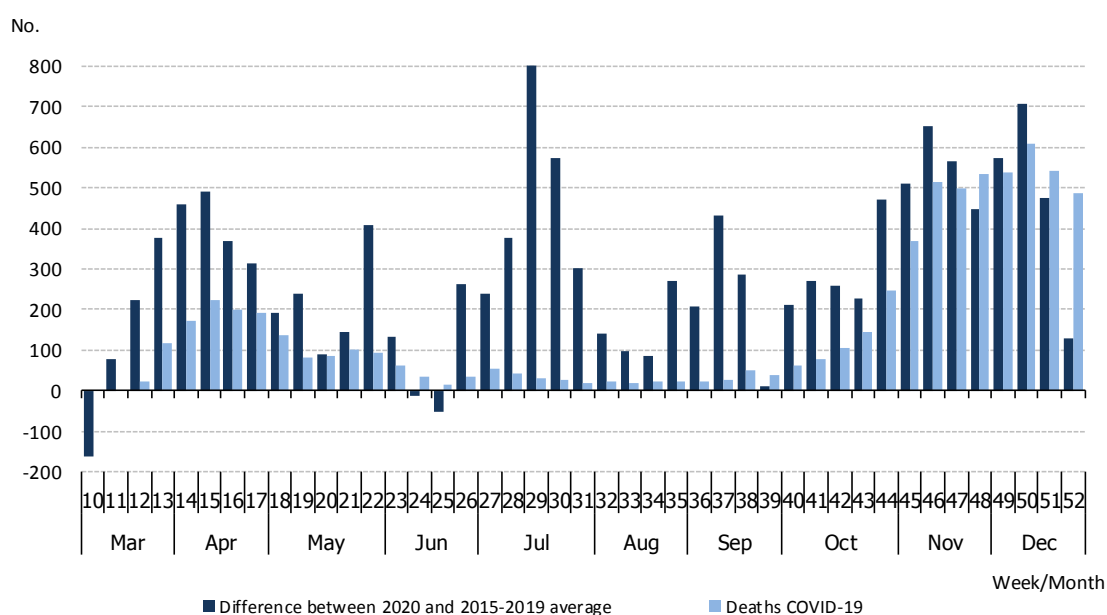
The increase in deaths in 2020 compared to the 2015-2019 average peaked at week 15 (April 6th to 12th), gradually decreasing until the end of the first State of Emergency period (May 3rd). At the end of May (week 22: 25th to 31st May), there was a new peak in mortality. In weeks 24 and 25 (June 8th to 21st) mortality returned to the values of previous years. From week 26 (June 22nd to 28th) there was an increase in mortality in 2020 compared to the average of the same period, reaching its highest point in week 29 (July 13th to 19th), with an additional number of around 800 deaths. It should be recalled that the month of July 2020 was an extremely hot month with several heat waves. In the following weeks, until week 34 (August 17th to 23th), there was a lower increase in the number of deaths, approaching the average of the last five years. As of this week, the number of deaths, compared to the 2015-2019 average, increased again, reaching a new peak in week 37 (September 7th to 13th), after which it decreases to average values in week 39 (September 21st to 27th). From week 40 (September 28th to October 4th) to week 46 (November 9th to 15th), the number of deaths increased continuously, moving away from the average of the last five years. In weeks 47 and 48 (November 16th to 29th) the number of deaths decreased slightly, increasing again in the following weeks. In week 50 (December 7th to 13th), the highest number of weekly deaths recorded in 2020 was observed: 2,992 deaths. The increase in the number of deaths, compared to the 2015-2019 average, recorded from the end of September (week 40) is, as we approach the end of the year, increasingly explained by the increase in deaths by COVID-19. At weeks 48, 51 and 52, the number of deaths from COVID-19 exceeded the increase in mortality compared to the same weeks of 2015-2019.



In the last 4 weeks (November 30th to December 27th) there were 1,884 more deaths than the average, in the same period, of 2015-2019. In that period, there were 2,172 deaths from COVID-19, 15.3% more than the increase in deaths compared to the average of the same weeks of 2015-2019.

In Figure 2, the bars represent the total weekly death differential relative to the 2015-2019 average for the same period and the number of COVID-19 deaths.

Figure 2: Difference between deaths 2020 and 2015-2019 average, by week, Portugal, weeks 10 to 52



Source: Statistics Portugal, Deaths. Directorate-General of Health, Daily COVID-19 Status Report.

Portugal in the European context

Considering as a basis for comparison the information on 24 European countries² that submitted data to Eurostat until week 48 and for all weeks of years 2016 to 2019³, the mortality in the first weeks of 2020 was below the average values observed over the 2016-2019 period. From the beginning of March 2020, contrary to what has been observed in recent years, there was a significant increase in the number of deaths, reaching a peak in week 14 (March 30th to April 5th), with 43% more deaths than in the same weeks of 2016-2019. Mortality in Portugal

² European countries considered: Germany, Austria, Belgium, Bulgaria, Cyprus, Croatia, Denmark, Spain, Estonia, Finland, France, Hungary, Netherlands, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, United Kingdom, Sweden and Switzerland. Note that the countries considered in this press release are not the same of the previous press release (December 11th), as such the results are not comparable. In this press release Croatia, Luxembourg and Poland were added and Slovenia was removed.

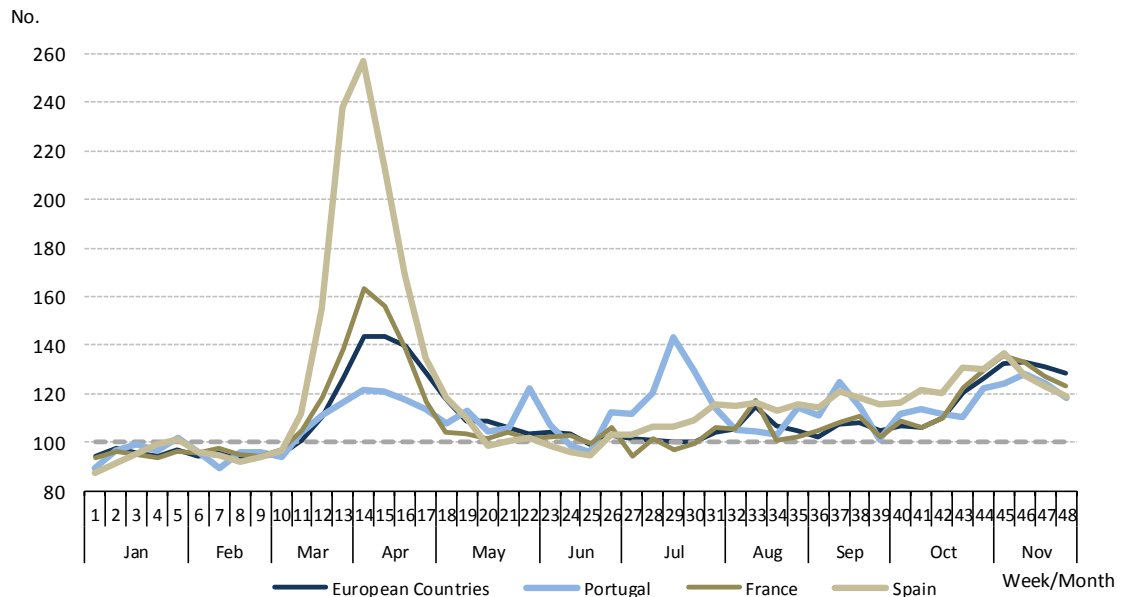
³ It should be noted that 2015 was not included in the base comparison period due to the lack of data for some of the countries.



followed a similar pattern, albeit showing a lower difference in relation to the 2016-2019 average, just under 25% more deaths. In the following weeks, mortality in Europe was closer to the average. In Portugal, despite an initial period where there was a reduction in mortality, it increased again, remaining far from the average until week 23 (June 1st to 7th). While in European countries mortality tended to remain close to the average of recent years, between the weeks 26 and 31 (from June 22nd to August 2nd) the increase in the number of deaths in Portugal was very significant when compared to the average, reaching 43% in week 29 (July 13th to 19th). In the following weeks, mortality in Portugal has decreased, reaching lower values than those of the European countries as a whole in weeks 33 and 34 (August 17th to 30th). At the beginning of September, mortality in Portugal increased again in comparison with these European countries. In the following weeks, mortality has decreased in Portugal and in week 39 went below mortality level of this group of European countries. In weeks 40 to 42, the excess of mortality in Portugal has increased again in comparison with these European countries. In week 43 (October 19th to 25th), Portugal's mortality is again lower than that of the European countries considered. Despite the increase in mortality in Portugal in the last five weeks (October 26th to November 29th), it remained below the values of the European countries considered.

Comparing with the two geographically closest European countries, Spain and France, it is worth noting the significantly higher increase in mortality in the first weeks of the pandemic, especially in Spain, compared to that observed in Portugal. In the last half of May and during the month of July, the excess mortality in Portugal was relatively higher than that observed in these two countries, although it is visible in July the beginning of a trajectory of a continuous increase in mortality in Spain, while France remained close to the average of the group of European countries considered. Mortality in France increased from week 42, approaching Spain, moving away from the average of European countries. In week 45, the overmortality in France surpassed that observed in Spain. In the last three weeks, there was a reduction in overmortality in the three countries to values below the set of European countries.

Figure 3: Deaths in 2020 compared to 2016-2019 average (2016-2019 average = 100), by week, Portugal, Spain and France, and 24 European countries, weeks 1 to 48



Note: 24 countries: Germany, Austria, Belgium, Bulgaria, Cyprus, Croatia, Denmark, Spain, Estonia, Finland, France, Hungary, Netherlands, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, United Kingdom, Sweden and Switzerland.

Source: Statistics Portugal calculations based on online Eurostat database (extracted on 6/1/2021)

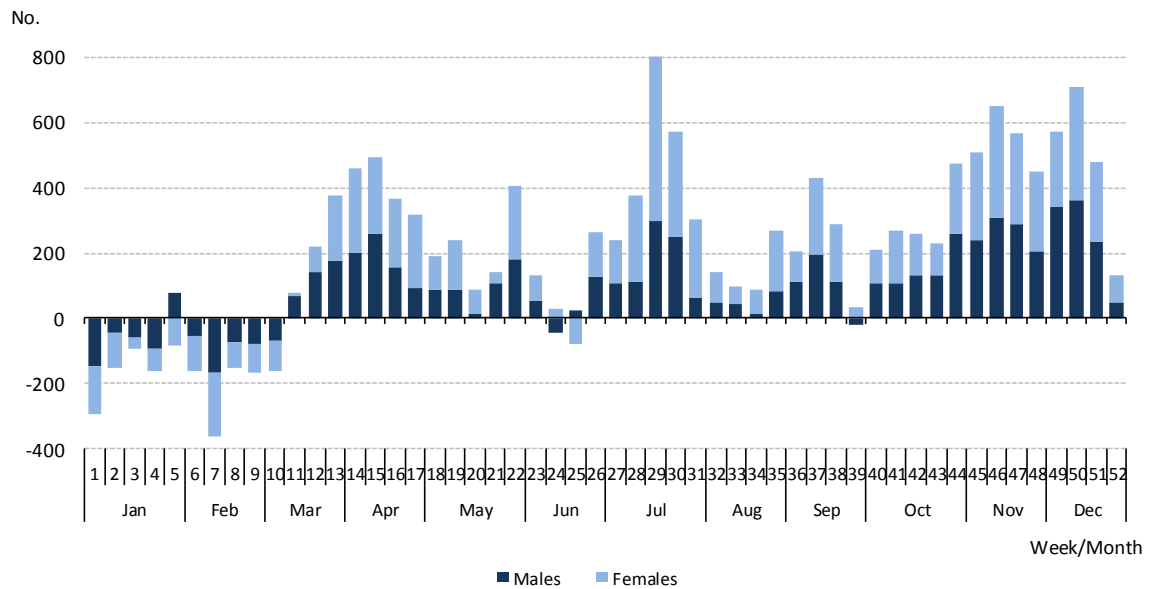
Deaths of women with the greatest contribution to the increase in mortality

Between March 2nd and December 27th, that is, between weeks 10 and 52, there were 49,453 deaths of men and 49,903 of women, an increase of 5,833 and 7,019 deaths, respectively, compared to the average of deaths observed in the same period of 2015-2019.

In weeks 11 and 12, the increase of mortality resulted mainly from the increase in male deaths. From that moment, the contribution of female deaths to the increase in the number of deaths was generally higher, especially in July (weeks 28 to 32). In weeks 42 to 44, the contribution of male deaths was again higher. Female mortality again exceeded male mortality in weeks 45 and 46. In the last weeks, the primacy of contributions of male and female deaths to the increase in mortality have been alternating.



Figure 4: Difference between deaths in 2020 and 2015-2019 average, by week and sex, Portugal, weeks 1 to 52

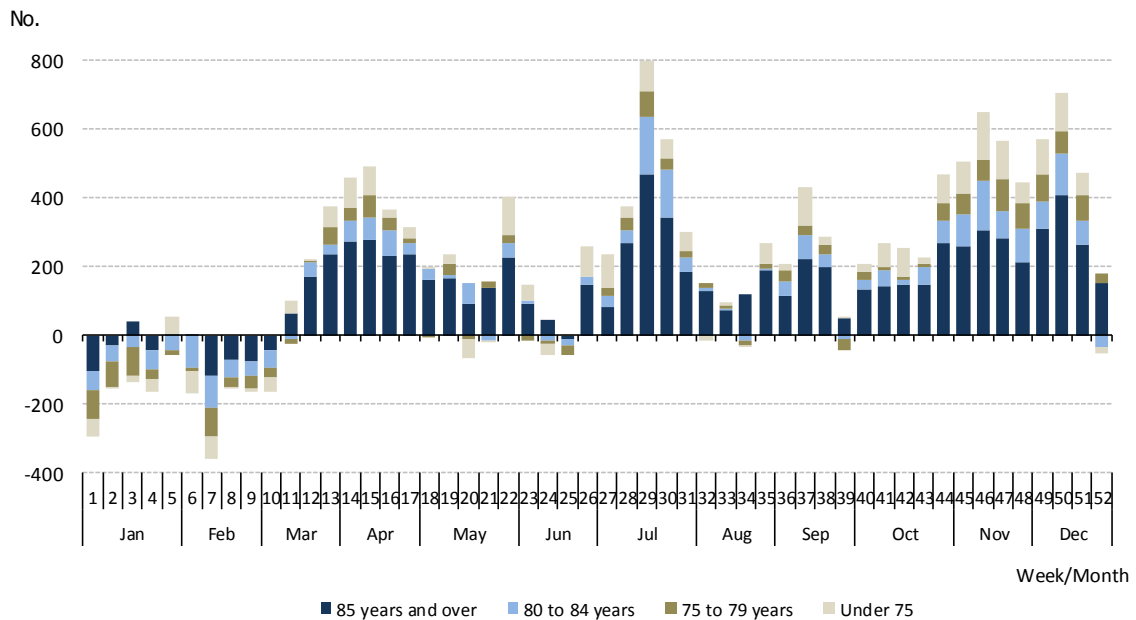


Source: Statistics Portugal, Deaths.

More than 70% of deaths were from people aged 75 or over

Between March 2nd and December 27th 2020 (weeks 10 to 52), 71.7% of deaths (71,201 deaths) were of people aged 75 years and over and, of these, 59.7% (42,506) were of people aged 85 and over. Compared to the average of the same period of 2015-2019, there was an increase of 10,886 deaths of people aged 75 and over, of which 8,038 were 85 or older.

Figure 5: Difference between deaths in 2020 and 2015-2019 average, by week and age group, Portugal, weeks 1 to 52



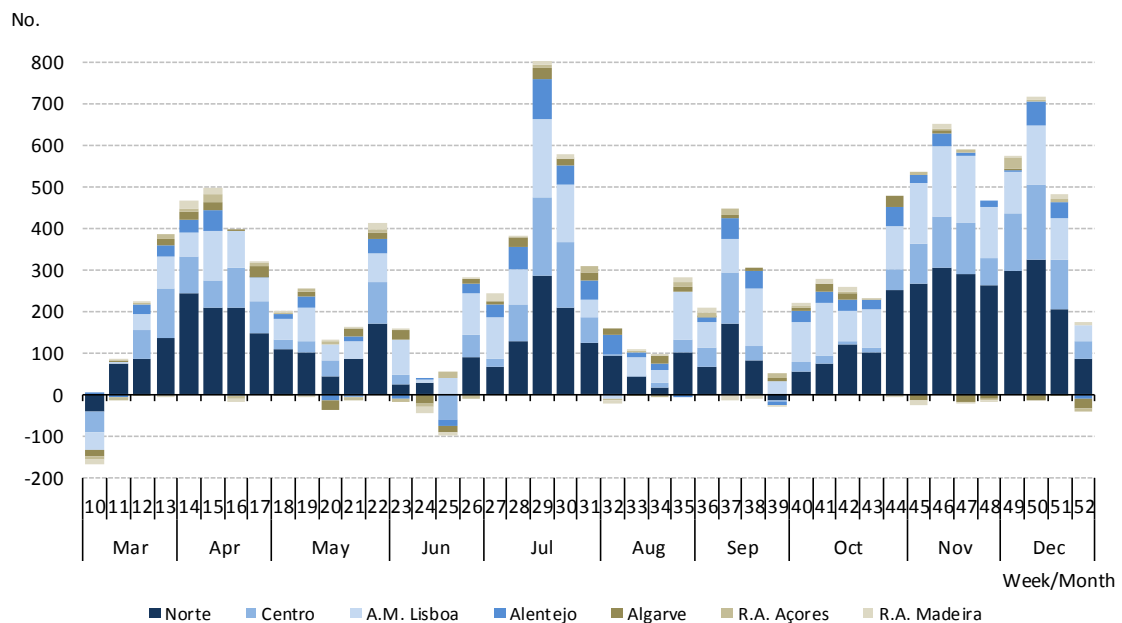
Source: Statistics Portugal, Deaths.

In the last 7 weeks, the region Norte had the greatest contribution to excess mortality

Between March 2nd and December 27th (weeks 10 to 52), compared to the average number of deaths observed in the same period of 2015-2019, the largest increase in the number of deaths was registered in the Norte region (+5,696 deaths), followed by Área Metropolitana de Lisboa (+3,428 deaths), Centro (+2,423 deaths), Alentejo (+948 deaths), Algarve (+256 deaths) and the autonomous regions of Açores and Madeira (+129 and +114, respectively).

Comparing the number of deaths per week with the average of the period 2015-2019, the excess of deaths in week 11 (March 9th to 15th) is explained by the increase in deaths in the Norte region. Although the Norte region remains the greatest contributor to the increase in the number of deaths between weeks 13 (March 23th to 29th) and 22 (April 25th to May 31st), the contributions of the remaining regions increased, in particular those from the Centro and Área Metropolitana de Lisboa regions. In the weeks 23 and 25 to 27 the largest contribution was from the Área Metropolitana de Lisboa, and then the region Norte returned to occupy the first position. In weeks 38 to 41 (between September 14th and October 11th) the largest contribution to the increase in the number of deaths once again was from the Área Metropolitana de Lisboa. Since week 42 (October 12th to 18th), the North region again had the greater increase of deaths.

Figure 6: Difference between deaths in 2020 and 2015-2019 average, by week and regions NUTS 2, weeks 10 to 52



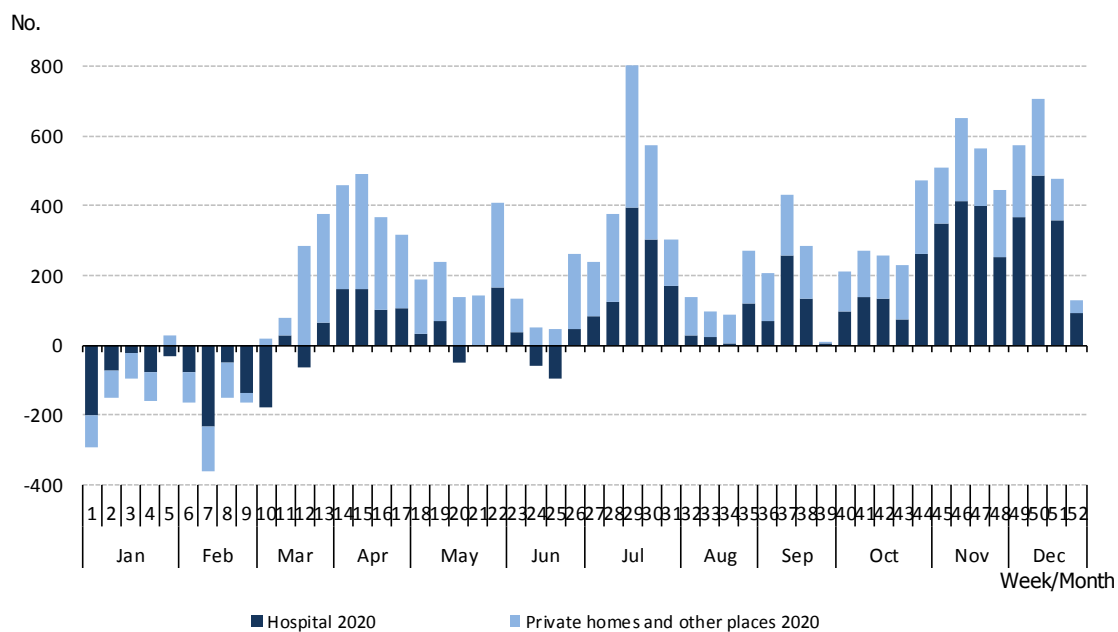
Source: Statistics Portugal, Deaths.

Mortality outside hospital (at private homes and other locations) higher than in previous years

Of the 99,356 deaths between March 2nd and December 27th 2020, 60,024 took place in a hospital and 39,332 occurred outside the hospital context, corresponding to an increase of 5,650 deaths and 7,202 deaths, respectively, compared to 2015-2019 average over the same period.

The excess of deaths outside the hospital context is important throughout all weeks, especially until mid-July (week 28). In the following three weeks (July 13th to August 2nd) the increase in deaths was more evenly distributed between those that took place in a hospital and those that occurred outside the hospital context. The contribution of deaths outside the hospital context increased in weeks 32 to 36 (August 3rd to September 6th). In weeks 37 to 42 (September 7th to October 18th) there was a relatively even distribution of the increase in deaths, compared to the average of the same period of 2015-2019, between the hospital environment and out of that context. In week 43 (October 19th to 25th), the number of deaths outside the hospitals increased again. In the last nine weeks, the greatest increase in deaths was registered in hospitals, reaching a peak in week 51 (December 14th to 20th), representing 75.1% of the increase in deaths compared to the average of the last five years.

Figure 7: Difference between deaths in 2020 and 2015-2019 average, by week and place of occurrence, weeks 1 to 52



Source: Statistics Portugal, Deaths.



TECHNICAL NOTE

Statistics Portugal releases the preliminary weekly deaths for 2020, based on the information registered in the Civil Register Offices until January 5th 2021.

Data on deaths is obtained from statistical operations of direct and exhaustive collection on live births and deaths in Portuguese territory using facts that are subject to compulsory civil registration (birth and death) in the Sistema Integrado do Registo e Identificação Civil (SIRIC).

In addition to administrative information obtained from Civil Register Offices, Statistics Portugal collects an additional set of variables identified as statistically pertinent to the National Statistic System (NSS) and the European Statistical System (EES).

Data is recorded and sent electronically, in compliance with the requirements set out by Statistics Portugal and laid down in liaison with the Instituto de Registos e Notariado (IRN) and the Instituto de Gestão Financeira e Equipamentos da Justiça (IGFEJ).

DEFINITIONS:

Death: The permanent disappearance of vital functions.

Detailed methodological information available at: www.ine.pt, option Products, Metadata system.

Detailed statistical information available at: www.ine.pt, option Products, Statistical data, database, theme Population, subtheme Mortality and life expectancy.