

June 4th 2020

IMPACT OF THE COVID-19 EPIDEMIC ON THE TOTAL MORTALITY OF THE RESIDENT POPULATION IN THE FIRST FOUR MONTHS OF 2020

This second Report, jointly produced by Istat and the Istituto Superiore di Sanità (ISS), shows an analysis of total mortality and Covid-19 deaths in April 2020 and an updating of the analysis of January-March 2020 data, already presented in the first Report. The longest period of observation allows to evaluate better, thanks to a bigger and consolidated database, the effects of the epidemic several preventive measures implemented in Italy, such as above all the isolation and quarantine of suspect or positive cases and the "social distancing" starting from 11 March 2020 (lockdown).

Total mortality data analysed in the report refers to the first four months of 2020. Today Istat releases data of 7,270 municipalities (out of a total of 7,904, 92%, relating to 93.5% of resident population in Italy). The database, realised in Istat, is obtained thanks to the integration of population register sources (ANPR and municipalities) with the data of the Tax Register¹.

The Istituto Superiore di Sanità (i.e. the Italian National Institute of Health) by the decree 640, of the Italian Civil Protection of 27 February 2020, is responsible for the Italian National integrated Surveillance of cases of Covid-19.

The system contains data on all laboratory confirmed cases (i.e., by RT-PCR on nasopharyngeal swabs) of COVID-19 as per the case definition published and regularly updated online by the European Centre for Disease Prevention and Control (ECDC). Data is collected daily using a secure online platform from the 19 regions and two Autonomous Provinces (AP) of the Italian territory², according to an increasingly harmonized track-record. Data collected includes information on: demographics, clinical severity, comorbidities, date of symptom onset, date of diagnosis, date of death (or recovery), region of diagnosis and municipality of residence.

Data here reported are continuously updated and the decision to take as a reference the first four months of 2020 allows to carry out the analysis of the impact of the Covid-19 epidemic on the total mortality of the resident population on a database as consolidated as possible³.

¹ For more information on quality and mortality data coverage see the Methodologica Note included in the Report.

² Data of the ISS COVID-19 Integrated National Surveillance is not perfectly aligned with the flow of Civil Protection and the Ministry of Health which report aggregated data sent daily by the regions
<http://opendatadpc.maps.arcgis.com/apps/opsdashboard/index.html#/b0c68bce2cce478eaac82fe38d4138b1>

³ Date of the integrated surveillance database refers to May 25th 2020.

SYNTHESIS OF MAIN RESULTS

- The number of Covid-19 cases reported in Italy is highest in March with 113,011 cases, (the peak is reached on March 20th), therefore it begins to decrease; 94,257 cases were reported in April, although many deaths in April referring to those diagnosed in March. The decline continues sharply in May (18,706 cases, month not complete and data updated to May 25th).
- Of the 209,013 Covid-19 cases reported up to April 30th, 2020, 53.3% (111,452) are female. The median age class is 60-64 years (compared to the 0-100 range). For people aged 90 and more, women are almost 80%, also due to female prevalence in this age class. Just 1% of the reported cases concerns subjects under the age of 14, 27% concerns individuals in the 15-49 age class, 46% in the 50-79 age class, 26% individuals older than or equal to 80 years old.
- Integrated National Surveillance registered 28,561 deaths from Covid-19 positive people from February 20th to April 30th 2020; of these 15,114 (53%) died within the month of March (the peak was reached on March 28th) and 13,447 (47%) in April. The continuous updating of data by the Regions has allowed to acquire a further 790 deaths (15,114 compared to 14,324) that occurred in the month of March but communicated after the date of updating of the database of the first Report (April 26th 2020).
- The heterogeneity in the geographical spread of the epidemic is confirmed. It is contained in the Southern Regions and in the Islands, on average higher in those of the Centre than in the South and very high in the Northern regions. Considering Covid-19 cases and deaths, 75% of the reported cases and 82% of the deaths are in the provinces defined as "high" spread, 17% of the cases and 13% of the deaths in the "medium" spread" and respectively 8% and 5% in the provinces with "low" spread.
- Mortality from overall causes decreases as Covid-19 cases and deaths decrease. At national level, total deaths drop from 80,623 in March to 64,693 in April and the estimate of excess mortality goes from an average increase of 48.6% in March (26,350 more deaths in 2020 than the 2015-2019 average) to 33.6% in April (16,283 more deaths). The mortality of the high-spread provinces decreases. Overall in this area, deaths goes from 44,998 in March 2020 (113.1% more than in 2015-2019) to 32,931 in April (73.9% more than in 2015-2019).
- The most important drop is observed in Lombardia: deaths for the overall causes decrease from 24,893 in March to 16,190 in April 2020 and the excess of deaths compared to the average for the same months in 2015-2019 drops from 188.1% to 107.5%. The provinces most affected by the epidemic are the ones in which the most important reductions are observed. In Bergamo and Lodi the mortality decrease has been more accentuated, the excess mortality drops from 571% in March to 123% in April in Bergamo and from 377% to 79.9% in Lodi.
- Excess mortality is still high in April 2020, at levels similar to those of March, in the provinces of Pavia (135% more deaths than the 2015-2019 average), Monza and Brianza (102%) and Milan (98%).
- The excess mortality in March and April 2020 is more important for men aged 70-79 and 80-89 years, for whom the cumulative deaths from January 1st to April 30th 2020 increase by more than 52 percentage points compared to the same period of the 2015-2019 average. For people aged 90 and over excess mortality has an increase of 48%.
- The increase in female mortality is more contained for all age classes; at the end of April it reaches 42% more than the average of the years 2015-2019, for the age 90 years and more, which is the most affected by excess mortality. Age class 80-89 follows with an increase of 35% and 70-79 (31%).
- The increasing number of deaths due to all the causes in the last ten days of April 2020 remarkably reduces the estimate of excess mortality compared to 2015-2019. This can also happen because, due to the high mortality of the last period, the population more fragile and therefore more exposed to the risk of death has decreased.

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- The covered share of Covid-19 deaths increases with the decrease in excess mortality: while in March of the 26,350 deaths estimated in excess of 54% have been reported by integrated surveillance (14,420), in April 82% of the 16,283 excess deaths are reported by surveillance (13,426).
 - The reduction in the share of total excess mortality not covered by Covid-19 is a very important result of this Report. With the data today available, only two possible causes can be hypothesized: the diagnostic capacity of healthcare facilities has increased and therefore the cases of COVID-19 have been diagnosed more accurately; indirect mortality not related to the virus but caused by the crisis of the hospital system in the most affected areas has decreased. The latter improves as pressure on health systems reduces.