



OPEN

## Indirect impact of Covid-19 on hospital care pathways in Italy

Teresa Spadea<sup>1</sup>, Chiara Di Girolamo<sup>2</sup> , Tania Landriscina<sup>1</sup>, Olivia Leoni<sup>3</sup>, Silvia Forni<sup>4</sup>, Paola Colais<sup>5</sup>, Caterina Fanizza<sup>6</sup>, Alessandra Allotta<sup>7</sup>, Roberta Onorati<sup>1</sup>, Roberto Gnani<sup>1</sup> & the Mimico-19 working group\*

Earlier in 2020, seven Italian regions, which cover 62% of the Italian population, set up the Mimico-19 network to monitor the side effects of the restrictive measures against Covid-19 on volumes and quality of care. To this aim, we retrospectively analysed hospital discharges data, computing twelve indicators of volume and performance in three clinical areas: cardiology, oncology, and orthopaedics. Weekly indicators for the period January–July 2020 were compared with the corresponding average for 2018–2019; comparisons were performed within 3 sub-periods: pre-lockdown, lockdown, and post-lockdown. The weekly trend of hospitalisations for ST-segment elevation myocardial infarction (STEMI) showed a 40% reduction, but the proportion of STEMI patients with a primary PTCA did not significantly change from previous years. Malignant neoplasms surgery volumes differed substantially by site, with a limited reduction for lung cancer (< 20%) and greater declines (30–40%) for breast and prostate cancers. The percentage of timely surgery for femoral neck in the elderly remained constantly higher than the previous 2 years whereas hip and knee replacements fell dramatically. Hospitalisations have generally decreased, but the capacity of a timely and effective response in time-dependent pathways of care was not jeopardized throughout the period. General trends did not show important differences across regions, regardless of the different burden of Covid-19. Preventive and primary care services should adopt a pro-active approach, moving towards the identification of at-risk conditions that were neglected during the pandemic and timely addressing patients to the secondary care system.

In Italy, the Covid-19 pandemic has caused more than 4.2 million cases of infection and over 130,000 deaths to date<sup>1</sup>. In response to the first epidemic outbreak in Lombardy, which rapidly spread to other regions, the government issued the first national lockdown starting on 9 March 2020. Since then, evidence had accrued on its possible effects on people's health<sup>2,3</sup>. Services whose benefits could be lower than the patient's risk of infection and the organizational difficulties were postponed, and the population was recommended to avoid unnecessary access to health services. This indication, however, may have caused—for fear of contagion or misinterpretation of the norm—further delays in recognizing symptoms and timely accessing diagnosis and treatment, even for non-deferrable conditions. Furthermore, several specialist departments had their hospital beds cut down to face the huge flow of Covid-19 patients.

Earlier in 2020, seven Italian regions (Piedmont, Lombardy, Emilia-Romagna, Tuscany, Lazio, Puglia, and Sicily) have therefore set up the Mimico-19 network to monitor the side effects of the restrictive measures against Covid-19 on the quality of care. These seven regions total about 37 million inhabitants (62% of the Italian population) and cover areas of the country with a different epidemic burden<sup>4</sup>.

The objective of this report is to describe the indirect impact of the pandemic and the lockdown measures on hospital activities through indicators of volume and performance in three clinical areas: cardiology, oncology, and orthopaedics. These clinical areas were chosen because of their high volumes of activity and the severity of the conditions.

<sup>1</sup>Epidemiology Unit ASL TO3, Piedmont Region, Turin, Italy. <sup>2</sup>Regional Health and Social Care Agency of Emilia-Romagna Region, Viale Aldo Moro, 21, 40128 Bologna, Italy. <sup>3</sup>Regional Epidemiological Observatory, Lombardy Region, Milan, Italy. <sup>4</sup>Regional Health Agency of Tuscany Region, Florence, Italy. <sup>5</sup>Department of Epidemiology, Regional Health Service, Lazio Region, Rome, Italy. <sup>6</sup>Regional Healthcare Agency of Puglia Region, Bari, Italy. <sup>7</sup>Department of Health Services and Epidemiological Observatory, Sicily Region, Palermo, Italy. \*A list of authors and their affiliations appears at the end of the paper. ✉email: chiara.digirolamo@regione.emilia-romagna.it