

A new study on the spread of the COVID-19 virus in Lombardy

March 26, 2020

The outbreak in Italy started long before February 20 and aggressive containment strategies are needed to control the spread of Covid-19 and avoid catastrophic outcomes for the national health system.

These are the findings of the study by the group of Italian researchers including Marco Ajelli, Giorgio Guzzetta, Valentina Marziano, Piero Poletti, Filippo Trentini and Stefano Merler from **Trento based FBK**, entitled “The early phase of the COVID-19 outbreak in Lombardy, Italy”, published on the “**Arxiv**” public archive available on the Web.

The study shows that on the night of February 20, 2020, when the first Coronavirus (Covid-19) case was confirmed in Italy (Lombardy), the epidemic had already spread to most of the southern municipalities of the region, with hundreds of cases found retrospectively thanks to a huge testing effort by health professionals. In the following week, the infection tally in Lombardy climbed rapidly. To obtain the **first mapping of Covid-19 cases in a western country**, scholars analyzed the **first 5,830 laboratory-confirmed cases**. The results enabled them to estimate that **each infected person can transmit the infection to more than three people on average**, and that **the time between infections is around 6.5 days**. “These two numbers, combined together” – Stefano Merler commented – “demonstrate the explosive potential of a Covid-19 outbreak. If not controlled, this could lead to the infection of about 70-80% of the population in just a few months, with a devastating impact in terms of mortality and strain on health systems, especially on intensive care units”. In fact, the study shows that 18% of hospitalized patients required invasive mechanical ventilation in intensive care units. And a further result emerged: there is no significant difference in viral load between symptomatic and asymptomatic cases; this shows the transmission potential of Covid-19 by infected but asymptomatic people.

There is good news, though: “We observed a **decrease in transmissibility** as of February 20, probably due to a greater awareness of the population and the first effects of the containment measures, which were timely and consistent, in the Codogno area and beyond. However, aggressive containment strategies are still needed to control the spread of Covid-19 and mitigate otherwise catastrophic outcomes for the health system”- **Merler** added.

In recent years, there has been an increasingly frequent use of this type of **quantitative studies** aimed at gaining knowledge that would allow to take **effective actions** for public health. In particular, this epidemiological research has proven to be critical and **widely used to identify the containment measures implemented in Lombardy**.

[Download the paper in pdf format \(The early phase of the COVID-19 outbreak in Lombardy, Italy\)](#)

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