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Letter to the Editor

Covid-19 in Italy: Lesson from the Veneto Region



The day after the first case of Italian COVID-19 patient in Codogno (Lombardy, Italy) on February 20, 2020, a second outbreak was detected at the “Riuniti Hospitals Padova Sud” of Monselice (Veneto, Italy) [1]. Here, 2 patients (respectively 78 and 67 years old) both coming from Vò Euganeo, a small village near Padua, were admitted because of interstitial pneumonia and found positive to the SARS-CoV-2 virus. Authorities quarantined these 2 “red” areas by closing down schools and commercial activities and cancelling all the social, civil and religious events. In addition, the Hospital of Monselice was promptly locked down and all the patients and healthcare providers, who were inside, were tested in order to identify further sources of infection.

Since then, the Veneto region adopted the so-called “territorial” or “out-of-hospital” model of management, which significantly slowed down the curve of infections [2] and markedly decreased the R_0 from 3.4 to 0.7 within 2 months [3]. Differently from others, who chose the “in-hospital” COVID-19 management, the Veneto region aimed to exponentially increase the number of swab tests among the population, to achieve as much diagnoses as possible, to promptly quarantine, to treat early the infected patients and to reduce the hospital admissions [4]. Swabs were performed to all the patients with symptoms, even the mild ones, to all their family members, and to the contacts of SARS-CoV-2 positive cases. Furthermore, a weekly swab test was extended to all the healthcare providers, irrespective of symptoms presence. Suspected cases were specifically addressed in dedicated hospitals labeled as “COVID hospitals”, which were distinct from the “COVID-free hospitals”. When possible, SARS-CoV-2 positive patients were managed at home with the phone check on daily basis by the local Department of Health Prevention. Others pursued different strategies, performing tests only in individuals with clear symptoms and centralizing patients to the general hospitals. Having preventively bought reagents for about 500.000 swabs and owning certifications and tools to independently produce them, the Veneto region was able to achieve up to 9000 swab tests per day. In 2 months, 380000 swabs were performed and 231500 individuals were tested. As consequence, on April 30 the number of people tested was 4.7% of the overall population in the Veneto region compared to the national average of 2.1% [3]. Until today, a total of 21.6 swabs per each positive case were performed in the Veneto, 5.5 in

the Lombardy and 8 in the Emilia-Romagna regions [3]. According to a statistical analysis performed between April 22 and May 6, the Veneto region made an average of 166 swabs per day every 100000 inhabitants (8151 swabs per day, on average) and 58.1% of them were diagnostic (i.e. positive for SARV-CoV-2); over the same time frame, the national average was 59 swabs per day every 100000 inhabitants and 67.1% of them were diagnostic [5]. The lower rate of diagnostic swabs in the Veneto region likely reflects a wider use of swabs to cover as much population as possible in order to detect positive cases even among asymptomatic people.

The swab results were integrated in real time by a bio-monitoring system of integrated IT platforms (Eng-DE4Bios, Engineering, Rome, Italy) with the information on work, school and family members of the positive cases, in order to trace the possible contacts and the relationships and to draw a map of the COVID-19 diffusion. This integrated system helped the Regional Department of Health Prevention to monitor the geographic diffusion of the epidemic and allowed to preventively contain the infection in the targeted areas.

During the COVID-19 pandemic the numbers of ICU beds were increased by more than 50%, from an average of 10 to 16.8 for 10000 inhabitants; however, positive cases were less hospitalized (on March 22, in the very acute phase, the rate of hospitalization was 29% in the Veneto Region, 59% in the Lombardy and 42% in the Emilia-Romagna regions), with a lower relative rate (7.8% versus the national average of 13.4%) of positive patients admitted in ICUs [4].

At the beginning of the COVID-19 pandemic, the Veneto region, being one of the main COVID-19 outbreaks in Italy, ranked second for COVID-19 incidence. By adopting the “territorial management” model, a prompt limitation of total infections and COVID-related deaths were observed compared to other areas of the country (Table 1). Although several other reasons may have contributed to these regional differences, the adoption of the measures and of the managing model described above (in particular the large use of tests) has significantly contributed to a more limited and slowed diffusion of the COVID-19 pandemic in the Veneto region.

Table 1

Number of infections and COVID-related deaths in four different Italian regions on May 6, 2020[3].

Region	COVID-19 infected patients (n)	COVID-19 infected patients (% overall population)	COVID-related deaths (n)	COVID-related case fatality rate (%)
Veneto	18479	0.4	1568	8.5
Lombardy	79369	0.8	14611	18.4
Piedmont	27939	0.6	3247	11.6
Emilia-Romagna	26379	0.6	3737	14.2

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