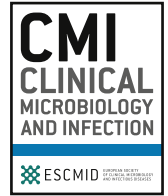




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## Letter to the Editor

## A cluster of COVID-19 cases in a small Italian town: a successful example of contact tracing and swab collection

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## Dear Editor,

In Italy, a country inhabited by 60 million people, divided into 20 regions and further divided into provinces, the first COVID-19 case was detected on 21 February 2020 in the large Lombardy region with 10 million inhabitants. Since then, more than 50 000 cases were reported in the country in the following 30 days, with more than 6000 deaths. More than 28 000 cases and 3700 deaths occurred in Lombardy alone, but all the regions were progressively hit [1]. In an attempt to stop the virus from spreading, Italy was progressively put under a lockdown.

Based on COVID-19 cases exported from Italy, Tuite et al. estimated that, as of 29 February, 72% of Italian cases could be classed as non-identified [2]. Different regions and provinces showed different approaches to facing the epidemic, with different levels of aggressiveness for case-finding efforts. For example, as of 24 March, the 5-million-inhabitant Veneto Region, with approximately 5500 cases detected and fewer than 200 deaths, collected 61 000 nasal

swabs (1 for every 74 inhabitants), whereas in Lombardy only 73 000 were collected (1 for every 131 inhabitants) [1].

Epidemic growth and COVID-19 incidence rates also vary across the country [3]. It is possible that, in addition to population age distribution, and prevalence of chronic conditions and lifestyles, different approaches in managing outbreaks could affect the magnitude of the epidemic and the outcomes.

In the 1.2-million-inhabitant Friuli Venezia Giulia (FVG) region, in the northeast of Italy, the first cases were detected 1 week later than in Lombardy. Even within this relatively small region, there are different approaches to the disease. We describe the course and management of a cluster of COVID-19 cases in Remanzacco, a 6000-inhabitant town in the province of Udine in FVG.

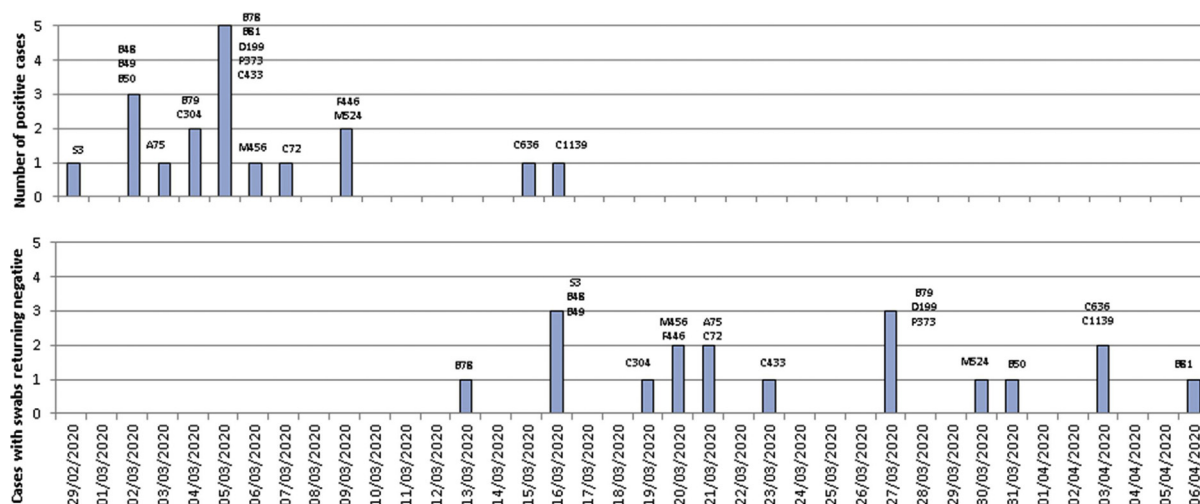
The first upper respiratory specimen for the first case in this local outbreak was collected from swab on 29 February after contact with a confirmed COVID-19 case from another region, during an agriculture engineering congress held in Udine on 20–21 February. After this congress, many attendees tested positive for COVID-19 in various Italian cities.

After the positivity of the first case, swabs were collected from close contacts on 1 March. Between 29 February and 16 March, the Prevention Department of Udine traced, collected nasal swabs, and followed all symptomatic and asymptomatic close contacts of the initial case and any further detected cases. The network of the outbreak is shown in Fig. S1.

Real-time reverse transcriptase-PCR assays for the detection of SARS-CoV-2 on upper respiratory specimens collected from swabs were conducted at the Virology and Microbiology Laboratories of Udine, according to WHO guidance [4]. The responses were available after an average of 5 hours.

Overall, 143 persons were traced and followed. Forty-eight lived in Remanzacco, the others in neighbouring towns. Based on epidemiological and clinical criteria, no swabs were collected from 63 subjects; however, 54 of them were quarantined as a precaution. Swabs were collected from all the other persons, who were either

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**Fig. 1.** Timelines of case positivity and return to negativity in the COVID-19 outbreak in the 6000-inhabitant town of Remanzacco, Italy, 29 February to 16 March 2020. The upper timeline shows the date of the first positive swab for each case; the lower timeline shows the date of the first negative swab.

quarantined in cases of a negative test result or isolated in cases of a positive test. One hundred and eleven people who provided e-mail addresses were sent quarantine instructions.

All quarantined persons were periodically monitored by telephone to assess clinical conditions. During follow-up, one person whose first swab was negative underwent a second collection after developing symptoms 7 days later and the result was positive.

Including this person, confirmed cases were 18. Dates of the first positive swabs are shown in Fig. 1. Median age was 46.5 years (interquartile range 42–56, range 17–73); nine were female. Cases were clinically monitored daily by telephone for a total of 101 telephone calls. All cases but one were initially isolated at home; one was hospitalized. Eleven cases (61%) were asymptomatic at first swab collection. Their median age was 45 years (vs 47 in subjects with symptoms at first swab).

In addition to the person with the first negative swab and second positive swab, another two initially asymptomatic persons with first positive swab developed symptoms (including cough in both cases) respectively after 7 and 15 days; both were hospitalized. An additional person, initially symptomatic with fever and cough, was hospitalized with bilateral pneumonia 6 days after the first positive swab.

As of 20 March, all 18 infected people were either still asymptomatic or had clinically recovered. As of 30 March, 15 (83%) were microbiologically negative (i.e. tested negative on two different consecutive occasions). All had two negative swabs by 6 April (Fig. 1). All other persons concluded their quarantine period. No additional cases related to any of the 18 cases of the Remanzacco cluster were reported.

This experience shows that prompt contact tracing of confirmed cases and extensive collection of nasal swabs from close, even asymptomatic, contacts of cases, with consequent isolation or quarantine, can be effective in extinguishing the COVID-19 epidemic. In our setting, synergic work with the Infectious Disease Clinic, Prevention Department, and Virology and Microbiology Laboratories made these resource-consuming activities possible and effective.

In Udine province, since there were only three cases at the end of February, we tried to identify clusters of COVID-19 in an attempt

to reduce the number of infected persons and prevent massive afflux of severe cases to hospitals. Thus, we collected swabs not only from symptomatic patients but also from asymptomatic close contacts of confirmed cases. As of 24 March, we collected one swab for every 94 inhabitants in Udine province, vs one every 142 in the whole FVG region.

From 23 February the FVG government decided to shut down schools and universities, possibly contributing to the favourable outcome of this outbreak.

In conclusion, although difficult due to the high proportion of asymptomatic patients able to transmit the infection, contact tracing, identification and isolation of cases might reduce the number of infected subjects and even stop small outbreaks.

#### Transparency declaration

The authors declare that they have no conflicts of interest.

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None.

#### Ethics

This letter does not report the results of a research project but describes a case of public health practice, for which no ethics approval was needed. Any personal data were treated by the authors according to the Legislative Decree 14 of March 9, 2020 for the sole purpose of managing the public health emergency situation caused by COVID-19.

#### Author contributions

Conceptualization: C.T. and F.V.; Methodology: F.V. and T.G.; Formal analysis: F.V.; Investigation: T.G., E.M., C.P., A.S., M.M., G.B., S.M., F.C.; Data curation: F.V., E.M., C.P., S.M.; Writing – Original draft: F.V. and C.T.; Writing – Review and Editing: T.G., E.M., C.P., A.S., M.M., G.B., F.C.; Visualization: F.V., Supervision: C.T. and T.G.

**Appendix A. Supplementary data**

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.sleep.2020.03.025>.

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