

## SHORT ARTICLE

# COVID-19 emergency in Sicily and intersection with the 2019-2020 influenza epidemic

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## Keywords

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During the 2019-2020 winter season, the Northern Hemisphere was called to face the experience of a simultaneous epidemic of coronavirus disease 2019 (COVID-19) and seasonal influenza [1]. Recent studies have documented in SARS-CoV-2 positive patients, early in the COVID-19 pandemic, a co-infection with other respiratory pathogens, including influenza [2-4]. The potential occurrence of co-infection underscored the need for simultaneous detection and evaluation in order to improve the differential diagnosis in patients with acute respiratory syndromes [5]. In Italy, the SARS-CoV-2 epidemic started around mid-February 2020 in Lombardy (Northern Italy) and, since then, new cases of infection have been reported in a number of other northern Italian regions, such as Veneto, Emilia-Romagna, Piedmont, Liguria, and Marche. More in depth, following the detection of two imported cases involving Chinese travelers on January 31<sup>st</sup>, 2020 [6, 7], the first autochthonous patient affected by COVID-19 (“patient zero”) was identified on February 19, 2020 in a 38-year-old Caucasian male from Codogno town. On February 21, 2020 the first cluster of 16 Italian cases was reported in Lombardy, followed by a number of new notified cases exponentially growing, until when, on February 22<sup>nd</sup>, 2020, public health authorities established a “red zone” encompassing 11 municipalities to contain the epidemic. Thereafter, in a short time, the epidemic spread to the neighboring regions located in the northern and central part of the country [8, 9], with a substantially lower impact on the rest of the country.

In Sicily, the largest and southernmost region of Italy, as well as the fourth most populated one, the first confirmed case of SARS-CoV-2 infection was a 65-year-old woman from Bergamo (Lombardy), who was already on holiday in Palermo city a couple of days before the detection of “patient zero” in Codogno. This subject showed symptoms possibly referring to COVID-19 on February 23<sup>rd</sup>, 2020 and tested positive at SARS-CoV-2 molecular investigation on February 24<sup>th</sup>, 2020, followed the day after by two of the other twenty-nine fellow companions.

Nevertheless, the first Sicilian autochthonous SARS-CoV-2 cases occurred early in March, most of them in close association with individuals who had travelled to or returned back from Lombardy in the previous week. Early in the course of the outbreak, severe containment measures were adopted by the Italian government throughout the entire country, which resulted in lockdown restrictions since March 9, 2020. These measures determined different local patterns of viral spread and Sicily took a clear advantage of this provision, experiencing low incidence of COVID-19 in the first semester of pandemic [10].

Of interest, chronologically-speaking, the early phase of SARS-CoV-2 epidemic partially overlapped the latter part of the seasonal influenza outbreak, which is annually explored during the winter through a nationwide sentinel surveillance network (InfluNet) [11], to which the Sicilian Reference Laboratory belongs.

However, to date, no official laboratory data have been made available in order to get a shot of the real beginning of the spread of SARS-CoV-2 in Sicily. Therefore, to gain further understanding on the local transmission of SARS-CoV-2, respiratory specimens routinely collected in the framework of the 2019-2020 seasonal influenza virus surveillance were retrospectively re-evaluated by molecular testing for SARS-CoV-2. To this end, 2,330 samples collected from patients presenting with Influenza-like illness, between October 2019 and February 2020, were analyzed by reverse transcriptase real-time PCR, targeting different segments of the N gene of the SARS-CoV-2 genome [12]. Briefly, collected data showed that none of these samples tested positive for SARS-CoV-2, documenting no co-infection with influenza virus and confirming at the same time that in Sicily there has not been any circulation of the pandemic virus prior to the first documented cases.

As stated above, from an epidemiological point of view, in Italy SARS-CoV-2 spread in an asynchronous way, showing different local patterns either in terms of incidence rates or affected geographic areas. Our data confirmed that SARS-CoV-2 appeared in Sicily at a

later stage of the outbreak documented in Italy and, according to severe containment measures adopted by the Italian government, slowly spread with low incidence. Nevertheless, despite the epidemiology of COVID-19 and of seasonal influenza is different, symptoms related to the two mentioned diseases overlap, and their confluence has been expected to result in higher morbidity and mortality rates, with additional stress to the entire public health system [13, 14]. Therefore, a widespread use of influenza vaccination has been promoted during the current season 2020-2021 in combination of containment measures (i.e. correct use of personnel protection equipment, hand washing, social distancing, etc.). At the midterm of the current surveillance season, we were able to demonstrate also in Sicily the dramatic global decline in influenza virus circulation, as clearly documented through the national virological surveillance networks in Italy [15] and elsewhere [16-18]. Lastly, the body of the previous evidences highlights the importance of molecular diagnostic testing for SARS-CoV-2 both to distinguish between influenza and COVID-19 in patients with acute respiratory illness, and to provide continuous surveillance and timely tracing to define and rapidly implement effective containment measures.

## Ethics approval

This study was conducted in accordance with the World Medical Association Declaration of Helsinki and the approval was obtained from the local ethics committee.

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## Conflicts of interest statement

The authors declare no conflict of interest.

## Authors' contributions

Methodology: FT, WM, CMM, FRV.

Formal analysis: GMEC, DDN.

Investigation: all authors.

Writing, review and editing: all authors.

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