Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Low influenza vaccination coverage among hospitalized COVID-19 patients in Milan: A gap to be urgently filled

The first wave of the COVID-19 epidemic in Italy during March and April 2020 put extreme pressure on the national healthcare system, particularly on the hospitals in the most affected regions of northern Italy. Although the drastic measures taken to contain SARS-CoV-2 transmission (including a nationwide lockdown) led to a marked decrease in the number of new COVID-19 cases and deaths during the summer, the number of new cases is currently rising again at an alarming rate [1], and the coming winter raises further concerns about the additional effects the seasonal influenza epidemic will have on already stressed healthcare services.

Both influenza and COVID-19 can present with non-specific symptoms (fever, myalgia, headache, non-productive cough and shortness of breath), most of which are self-limiting but may also progress to severe conditions. Moreover, like COVID-19, influenza puts older people and those with chronic medical conditions at higher risk of morbidity and mortality [2–4]. This is why extended influenza vaccination programmes aimed particularly at such risk groups are more than ever necessary to avoid the overload of health services and hospitals due to the concomitant diffusion of influenza and COVID-19 infections with the subsequent challenge of differential diagnosis. However, this means overcoming the existing barriers to vaccinations that are responsible for the historical sub-optimal use of influenza vaccine in many countries (including Italy, where it is offered free of charge to people at high risk and healthcare providers) [5].

In a bid to contextualise this issue, we have analysed the patients living in the province of Milan who were admitted to our referral COVID-19 centre between 21 February and 31 May 2020 in order to calculate the proportion who received the influenza vaccination for the 2019-2020 season. The data regarding seasonal influenza vaccination uptake were extracted from the electronic immunisation register of Milan's Health Protection Agency.

The study population consisted of 428 subjects (146 females and 282 males with a median age of 60.6 years, range 48.9-72.7), of whom 335 (78.3%) belonged to one or more of the categories for which influenza vaccination is recommended by the Italian national immunisation guidelines: 174 (40.7%) were aged ≥65 years, 291 (68.0%) had underlying chronic diseases, and 57 (13.1%) were healthcare workers. However, only 109 of the patients who should have been vaccinated actually received the vaccine: 44.2% of those aged ≥65 years, 33.0% of those with underlying chronic diseases, and 31.6% of healthcare workers.

Our data show disappointingly low influenza vaccination coverage among the subjects at risk and healthcare workers admitted to our COVID-19 centre during the first wave of the epidemic. Particularly in the elderly the coverage was far below the minimum *recommended threshold of 75%* and consistent with the worrying decline of influenza vaccination registered in Lombardy over the last decade [6]. This clearly calls for the prompt reinforcement of the seasonal influenza vaccination information campaign and a greater supply of vaccine in order to make the most of the benefits of influenza vaccination for individual well-being and the functioning of the healthcare system at large over such a critical time. Moreover, emerging data suggest that influenza vaccinations may have a protective effect against the risk of experiencing severe COVID-19, especially among high-risk groups [7-9], which may be of paramount importance given the paucity of effective COVID-19 treatments, (Table 1).

Table 1
Vaccination coverage rate for influenza season 2019/2020 among patients hospitalized with COVID-19 in Milan, Italy.

Characteristic	Total (n=428)	Vaccinated (109)	Not vaccinated (319)
Sex, n (%)			
Females	146 (34.1)	36 (24.7)	110 (75.3)
Males	282 (65.9)	73 (25.9)	209 (74.1)
Age, n (%)			
< 65	254 (59.3)	32 (12.6)	222 (87.4)
≥ 65	174 (40.7)	77 (44.3)	97 (55.7)
Heath care workers	57 (13.3)	18 (31.6)	39 (68.4)
At least one underlying chronic disease, n (%)	291 (68.0)	96 (33.0)	195 (67.0)
Type of underlying comorbidities, n (%)			
Chronic lung disease	68 (15.9)	25 (36.8)	43 (63.2)
Heart disease	202 (47.2)	75 (37.1)	127 (62.9)
Diabetes mellitus	53 (12.4)	21 (39.6)	32 (60.4)
Chronic renal disease	36 (8.4)	14 (38.9)	22 (61.1)
Cancer	41 (9.6)	14 (34.1)	27 (65.9)
Immune disorders	32 (7.5)	10 (31.3)	22 (68.8)
Chronic liver disease	10 (2.3)	3 (30.0)	7 (70.0)

Authors' contribution

ALR, LM, and AG conceived the study, collected data and drafted the manuscript. LO conducted data analysis. SA and CB critically revised the manuscript. All of the authors contributed to writing the manuscript and approved the final version.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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