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RESEARCH ARTICLE

# Utility of hospitalization for elderly individuals affected by COVID-19

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La fase di picco della prima ondata a Milano



La fase post picco....





# Obiettivi

L'ipotesi nulla era che nella fase di Picco gli anziani potevano accedere meno all'ospedale e che quindi la loro mortalità nella fase post-picco fosse inferiore a quella dei pazienti giovani (che avevano accesso)

# Materiali e Metodi

- Prima ondata: marzo 2020 a Milano
- Ospedali Policlinico, Niguarda, San Carlo Milano;
- A seconda del numero di accessi in questi ospedali abbiamo definito una fase di «picco» e una fase «post picco» due settimane dopo il picco
- Abbiamo calcolato l'età media dei ricoveri Covid nei due periodi;
- Abbiamo calcolato la mortalità nella città di Milano nei due periodi divisi per età (maggiore e minore di 80 anni) e abbiamo calcolato la Standardized Mortality Ratio del 2020 confrontando la mortalità con quella dei 5 anni precedenti per anziani e giovani (sopra e sotto 80 anni)

# Risultati

**Table 1. Characteristics of the COVID-19-positive patient population examined.**

		Peak (n = 396)	Off-peak (n = 338)	
Age	< 80 y	335 (84.8%)	206 (61.0%)	P < 0.0001 <sup>a</sup>
	≥ 80 y	60 (15.2%)	132 (39%)	
Median age (IQR)		64 (54 to 75)	74.5 (56 to 83)	P ≤ 0.0001 <sup>b</sup>
Gender	Female	124 (31.3%)	166 (49.1%)	P ≤ 0.0001 <sup>a</sup>
	Male	272 (68.7%)	172 (50.9%)	

IQR: Interquartile range

<sup>a</sup> Fisher's exact test

<sup>b</sup> Wilcoxon two-sample test.

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**Table 3. Standardized mortality according to age during peak and off-peak phases of the COVID-19 epidemic in Milan.**

	<b>Peak SMR (95% CI)</b>	<b>Off-peak SMR (95% CI)</b>	<b>Peak/Off-peak Ratio of SMRs (95% CI)</b>
All age groups	2.17 (2.00 to 2.36)	2.10 (1.99 to 2.23)	1.03 (0.93 to 1.14)
≥ 80 y	2.28 (2.07 to 2.52)	2.48 (2.32 to 2.65)	0.92 (0.81 to 1.04)
< 80 y	1.98 (1.72 to 2.29)	1.40 (1.25 to 1.58)	1.41 (1.17 to 1.72)
<b>Sensitivity analysis</b>	<b>Peak SMR (95% CI)</b>	<b>Off-peak SMR (95% CI)</b>	<b>Peak/Off-peak Ratio of SMRs (95% CI)</b>
≥ 85 y	2.16 (1.92 to 2.44)	2.54 (2.35 to 2.74)	0.85 (0.74 to 0.98)
< 70 y	1.73 (1.35 to 2.22)	1.17 (0.96 to 1.43)	1.48 (1.06 to 2.05)
65–79 y	2.10 (1.78 to 2.47)	1.57 (1.37 to 1.80)	1.34 (1.07 to 1.67)

SMR: Standardized mortality ratio; CI: Confidence interval.

Sensitivity analyses with patients in different age categories were also conducted.

<https://doi.org/10.1371/journal.pone.0250730.t003>

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## Conclusions

Greater access to hospitals during an off-peak phase did not affect the mortality rate of COVID-19-positive elderly patients in Milan. This finding, if confirmed in other settings, should influence future decisions regarding resource management of health care organizations.

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The birth date cannot be considered an eligibility criterion for the allocation of care services. This kind of message may be misleadingly interpreted and potentially pave the way towards ageistic attitudes. It is surely necessary to have the current hospital-centered system evolve towards alternative care services for frail older persons, but such alternatives cannot be proposed without evidence stemming from randomized controlled studies (e.g., comparing a well-defined and standardized intervention and involving a clearly characterized population).

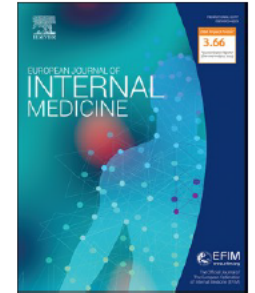
In our opinion, this article is at risk of reporting asymmetric results. It does not seem to adequately consider the complexity of addressing the clinical needs of frail older persons outside of the hospital setting. These difficulties translate into limited access to care, inadequate capacity to address basic necessities, and increased risk of health-related adverse events. For this reason, we recommend a cautious interpretation of the findings. We also hope that the article will not be used to promote ageistic attitudes in the clinical setting and the society. The modernization of the healthcare system as a whole will only happen through the avoidance of obsolete paradigms (such as the use of chronological age for allocation of services) and the promotion of personalization of care (based on the individual's biology and functions).



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# European Journal of Internal Medicine

journal homepage: [www.elsevier.com/locate/ejim](http://www.elsevier.com/locate/ejim)



Original article

## Examination of the relationship between emergency department presentations and population mortality: a multicenter analysis of emergency department presentations during the COVID-19 pandemic

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# Obiettivi

Valutare la relazione tra riduzione degli accessi in PS e mortalità nella popolazione corrispondente escludendo l'influenza del Covid

# Materiali e Metodi

- Prima ondata: marzo 2020
- Infezioni da Covid molto variabile a seconda delle zone dell'Italia
- Selezionare 3 zone a diversa prevalenza di Covid in base ai dati della protezione civile e alla mortalità per covid (molti casi non diagnosticati con rischio di sottostima della prevalenza dell'infezione)
- Valutare la mortalità nella popolazione afferente ai PS selezionati

# PS selezionati

- Policlinico Milano (alta prevalenza di Covid)
- Ferrara (media prevalenza di Covid)
- Perugia (bassa prevalenza di Covid)



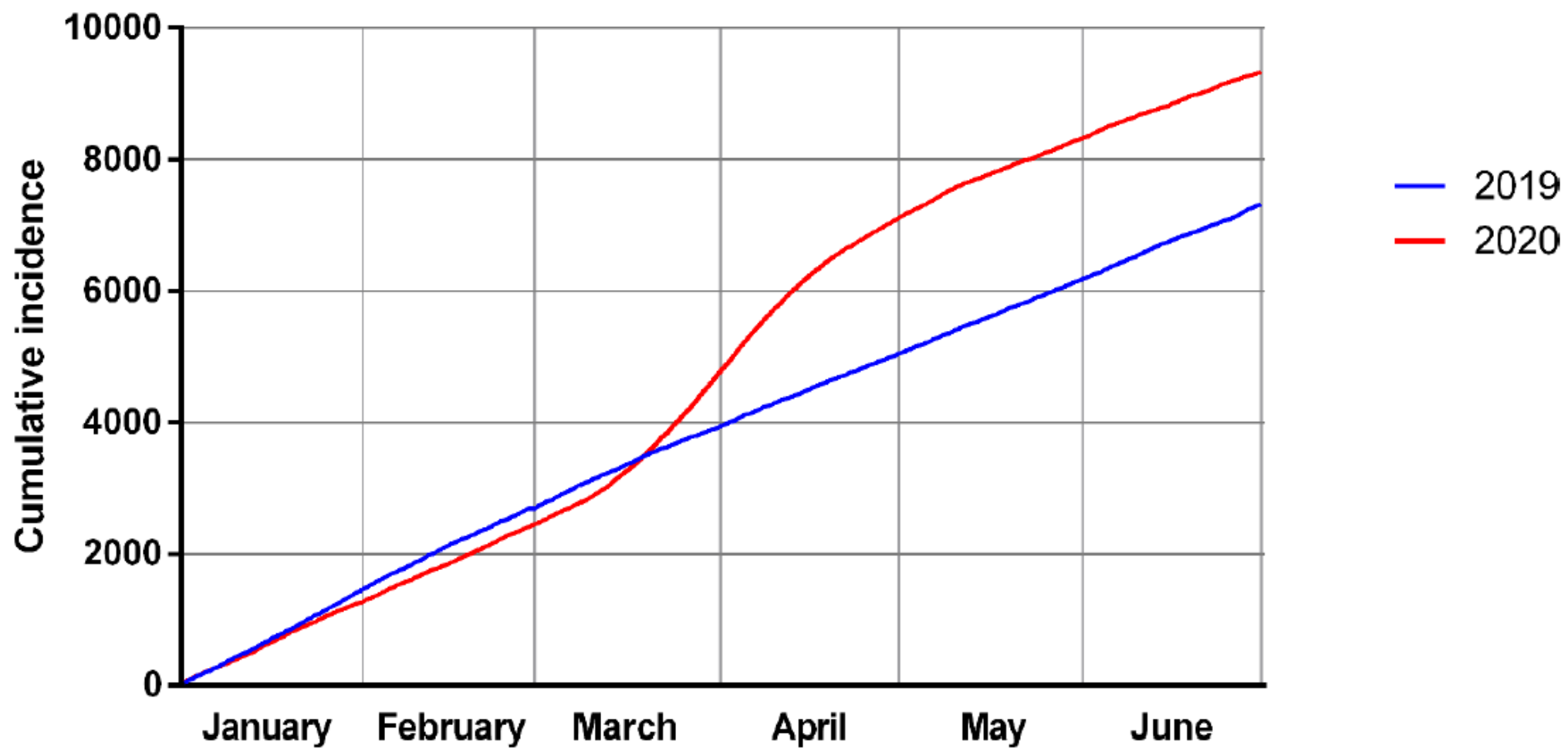
**Table 1**

Numbers of ED consults by triage priority color code from March 1 to April 30 in 2019 and 2020.

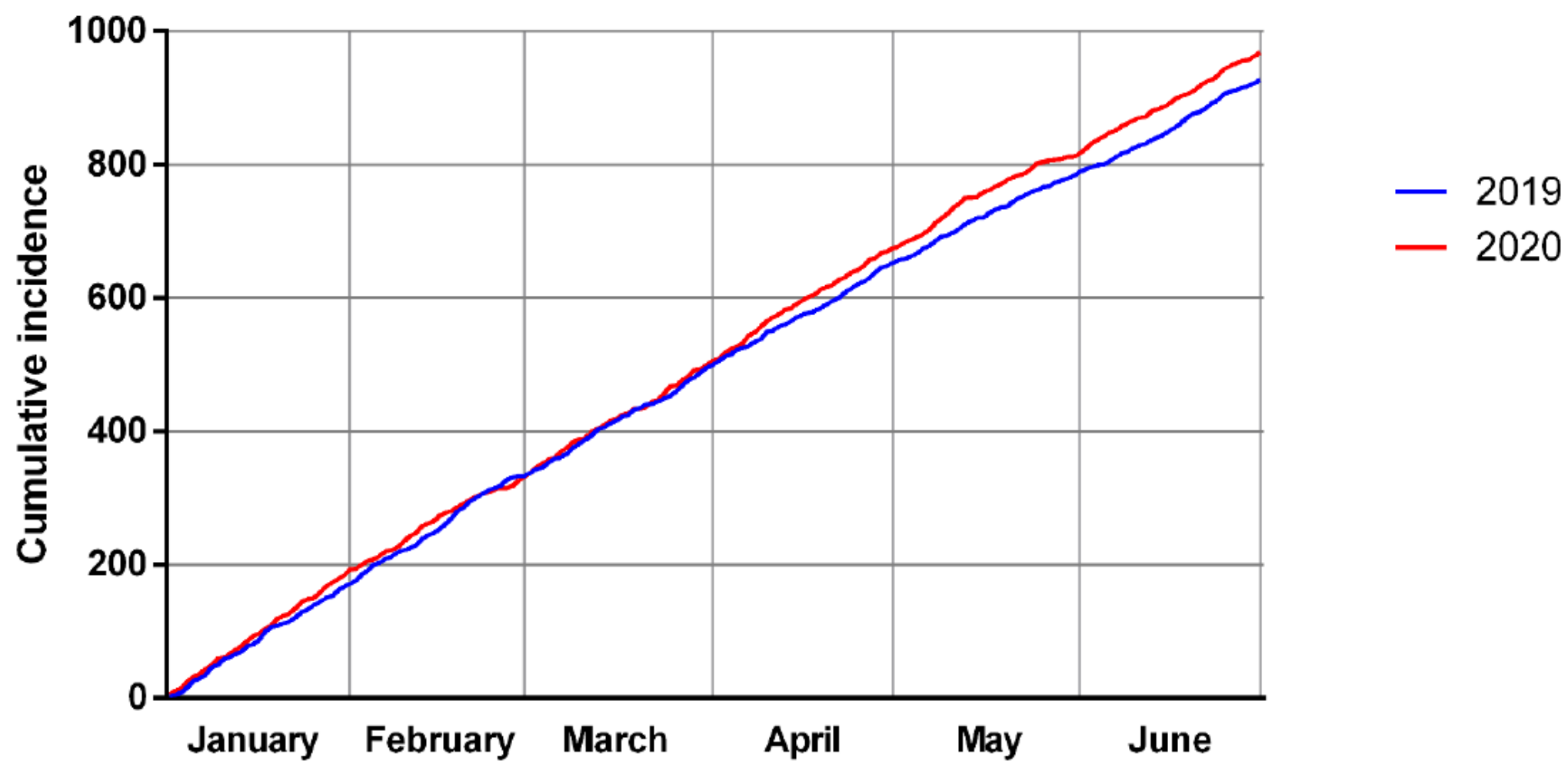
Center	Code	ED consults in 2019, N (%)	ED consults in 2020, N (%)	Relative variation <sup>a</sup> 2020 vs. 2019
Milan	Red	437 (5.4%)	270 (7.9%)	-38%
	Yellow	1596 (19.7%)	870 (25.4%)	-45%
	Green	5740 (70.8%)	2221 (64.9%)	-61%
	White	340 (4.2%)	59 (1.7%)	-83%
	<b>Total</b>	8113 (100.0%)	3420 (100.0%)	<b>-58%</b>
Ferrara	Red	499 (4.5%)	297 (5.5%)	-40%
	Yellow	3915 (35.4%)	2374 (44.1%)	-39%
	Green	6260 (56.7%)	2536 (47.1%)	-59%
	White	370 (3.4%)	176 (3.3%)	-52%
	<b>Total</b>	11044 (100.0%)	5383 (100.0%)	<b>-51%</b>
Perugia	Red	259 (2.6%)	166 (4.0%)	-36%
	Yellow	1798 (18.3%)	1003 (24.2%)	-44%
	Green	6944 (70.7%)	2766 (66.8%)	-60%
	White	823 (8.4%)	206 (5.0%)	-75%
	<b>Total</b>	9824 (100.0%)	4141 (100.0%)	<b>-58%</b>

<sup>a</sup> Relative variation in the absolute number of ED consults, calculated as (2020 value – 2019 value) / (2019 value), inclusive of the months of March and April.

## Milano



## Ferrara



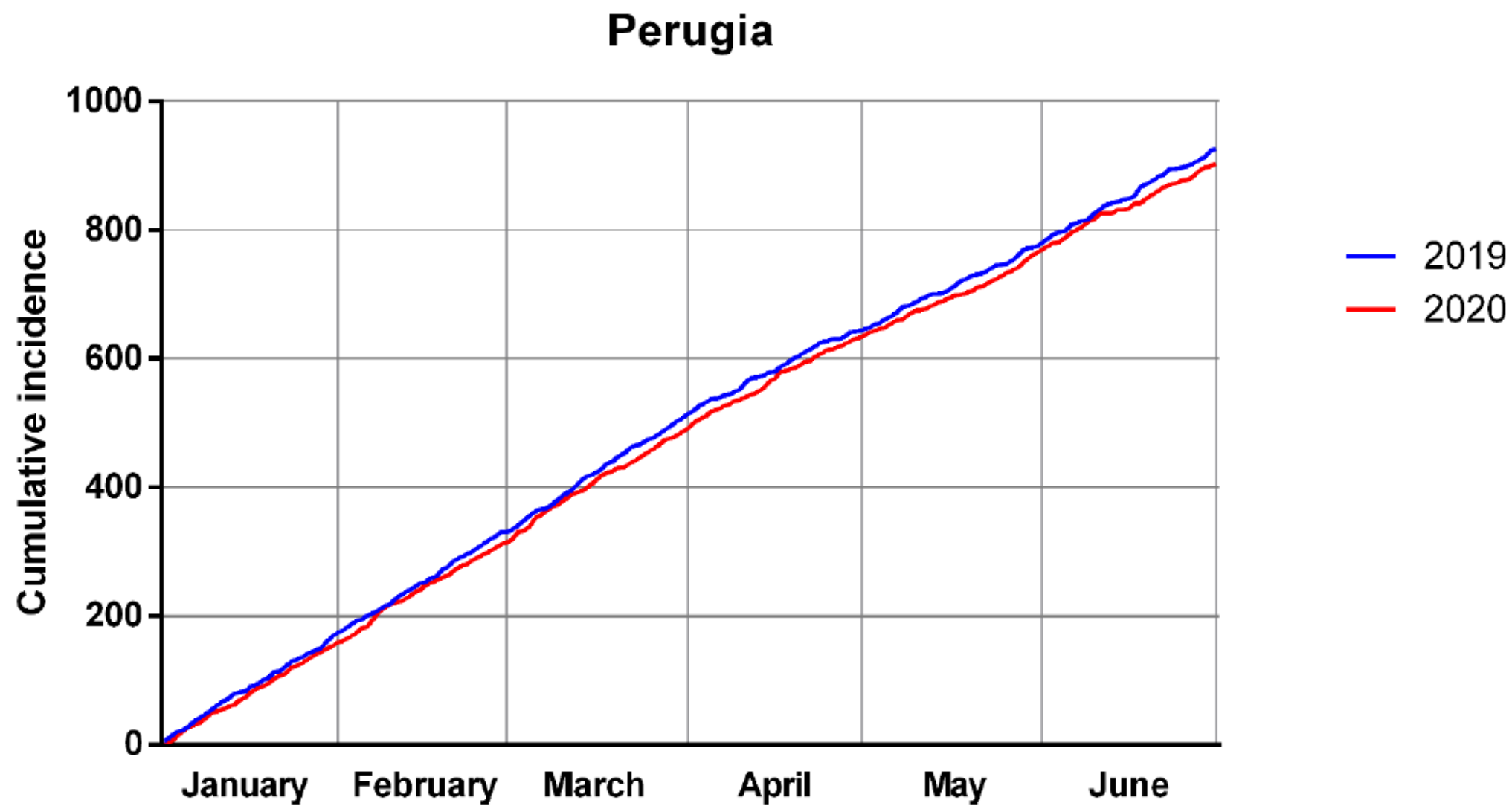


Fig. 1. Cumulative mortality from January 1 to June 30 in 2019 and 2020.

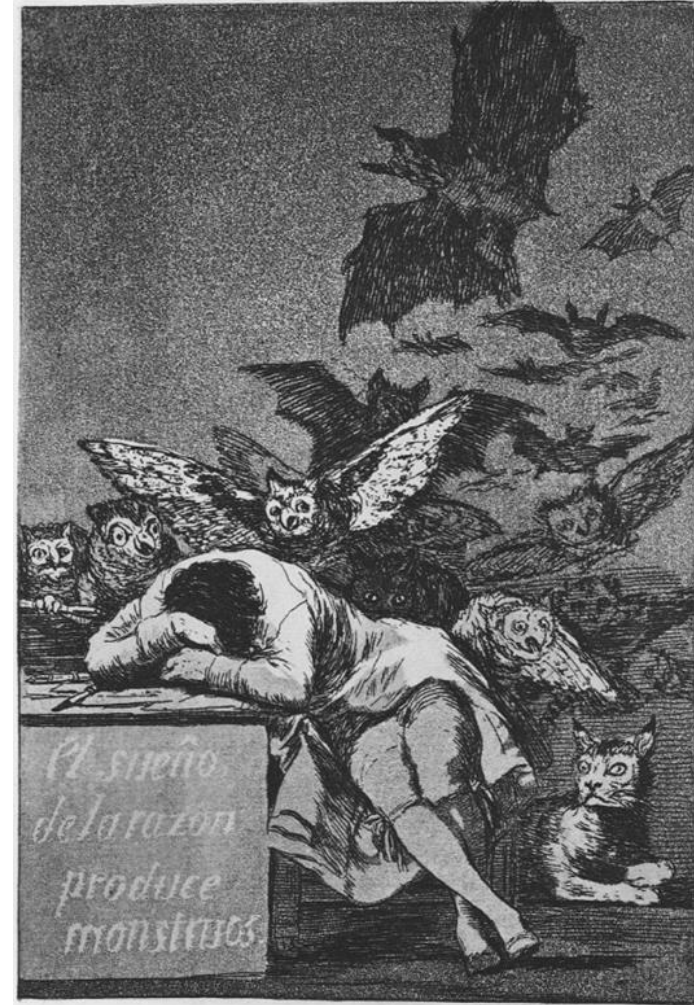
*Conclusions:* : Taking into account the increase in mortality due to SARS-CoV-2, reductions in ED access did not seem to affect death rates. If this finding will be confirmed, ED organization and access would need to be reconsidered.





Vogliamo riferirvi la storia  
di un viaggio compiuto  
da uno sfruttatore e da due sfruttati.  
Osservatene bene il contegno.  
Trovatelo strano, anche se consueto,  
inspiegabile, pur se quotidiano,  
indecifrabile, pure se è regola.  
Anche il minimo atto,  
in apparenza semplice,  
osservatelo con diffidenza! Investigate se  
specialmente l'usuale sia necessario.  
**E — vi preghiamo — quello che succede ogni giorno  
non trovatelo naturale.**  
**Di nulla sia detto: è naturale**  
**in questo tempo di anarchia e di sangue,**  
**di ordinato disordine, di meditato arbitrio,**  
**di umanità disumanata,**  
**così che nulla valga**  
**come cosa immutabile.**

Bertolt Brecht, L'eccezione e la regola



**Table 2. Number of expected and observed deaths during both peak and off-peak phases of the COVID-19 epidemic in Milan.**

	Number of expected deaths		Number of observed deaths	
	Peak (n)	Off-peak (n)	Peak (n)	Off-peak (n)
<b>All age groups</b>	<b>265.8</b>	<b>531.6</b>	<b>578</b>	<b>1119</b>
$\geq 85$ y	124.8	257	270	652
80–84 y	46.2	89	120	207
70–79 y	58.4	102.6	125	163
$< 70$ y	36.4	83	63	97

<https://doi.org/10.1371/journal.pone.0250730.t002>

**Table 2**

Hospitalization rate for ED accesses from March 1 to April 30 in 2019 and 2020.

Center	2019		2020		Relative change <sup>a</sup> 2020 vs. 2019	
	ED consults	Hospitalizations N (%)	ED consults	Hospitalizations N (%)	ED consults	Hospitalizations
Milan	8113	1198 (14.8%)	3420	1043 (30.5%)	-58%	106.5%
Ferrara	11044	2177 (19.7%)	5383	1860 (34.6%)	-51%	75.3%
Perugia	9824	2259 (23.0%)	4141	1396 (33.7%)	-58%	46.6%

<sup>a</sup> Calculated as (2020 value – 2019 value) / (2019 value), inclusive of the months of March and April.