



CONVEGNO INTERNAZIONALE
**GIORNATE
INFETTIVOLOGICHE
"LUIGI SACCO"**

HYBRID
EDITION

18-19 Ottobre 2021

UNIVERSITÀ DEGLI STUDI
DI MILANO

Regione
Lombardia
ASST Fatebenefratelli Sacco

**CORONAVIRUS 3
ESPERIENZA DEI REPARTI DI MALATTIE INFETTIVE
DURANTE L'EPIDEMIA DA SARS-COV-2**

- ASST Papa Giovanni XXIII – *M. Rizzi*
- ASST Spedali Civili – *F. Castelli*
- Fondazione IRCCS Policlinico San Matteo – *R. Bruno*
- ASST Lariana Ospedale Sant'Anna – *L. Pusterla*
- ASST Sette Laghi Ospedale di Circolo – *P. Grossi*
- ASST Cremona Ospedale di Cremona – *A. Pan*
- ASST Mantova Ospedale Carlo Poma – *S. Casari*
- ASST Monza Ospedale San Gerardo – *P. Bonfanti*
- ASST Lecco Ospedale A. Manzoni – *S. Piconi*
- ASST Valle Olona Ospedale di Busto Arsizio – *F. Franzetti*
- ASST Lodi Ospedale Delmati – *A. Regazzetti*
- ASST Ovest Milanese Ospedale Nuovo di Legnano – *S. Rusconi*
- ASST Santi Paolo e Carlo Ospedale San Paolo – *A. d'Arminio Monforte*
- Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico – *A. Gori*
- ASST Grande Ospedale Metropolitano Niguarda – *M. Puoti*
- Ospedale San Raffaele IRCCS – *A. Castagna*
- ASST Fatebenefratelli Sacco – *G. Rizzardini*

Il sottoscritto *Marco Rizzi* ai sensi dell'art. 76 comma 4 dell'Accordo Stato-Regioni del 2 febbraio 2017
dichiara

per l'evento in oggetto l'esistenza negli ultimi due anni di rapporti di natura finanziaria e/o lavorativa con le seguenti imprese commerciali operanti in ambito sanitario:

- Mc Cann Health
- Effetti Srl
- Sinergie Edizioni Scientifiche
- Medstage srl
- Summeet srl
- Dynamicom Education srl
- Contatto & Archimedita Edizioni Scientifiche
- Roche
- Menarini

COVID-19 in the Bergamo province

- $\simeq 10,000$ patients admitted to the hospitals of the Bergamo province[^]
 - In the most affected municipalities, March + April death rate at 1%
 - Serological surveys: in the most affected communities seroprevalence $\simeq 50\%$
-
- During the epidemic all the public and private hospitals of the province gradually and substantially reduced their «ordinary» activities: in March and April care for COVID-19 absorbed the largest part of available resources.
 - One hospital (Ospedale Bolognini, Seriate) was identified by Regione Lombardia as a «COVID-19 only facility» (no admissions for nonCOVID-19 pts).

[^]COVID-19 pts from the Bergamo province at health facilities from other Lombardy provinces: 2,243*

- Milano	725	- Brianza	505	- Val Padana	25
- Insubria	162	- Brescia	599	- Pavia	48
- Montagna	179				

*includes pts transferred in the post-acute phase to low-level care settings.

➤ Pts were also transferred to facilities in other Italian regions and abroad.

COVID-19 at the Papa Giovanni XXIII Hospital

COVID-19 pts at the peak of the epidemic

- ED: 90 pts/day
- ICU occupancy: 92 pts
- cPAP (wards): 150 pts
- N. of pts (ICU+HDU+wards): 550

COVID-19 cumulative numbers

(as of June 15th)

- ED home discharged pts. 1,100
- Admitted pts: 2,012
- ICU admissions: 260
- In-hospital deaths: 434
- Days of stay: 30,021 (as of May, 31)

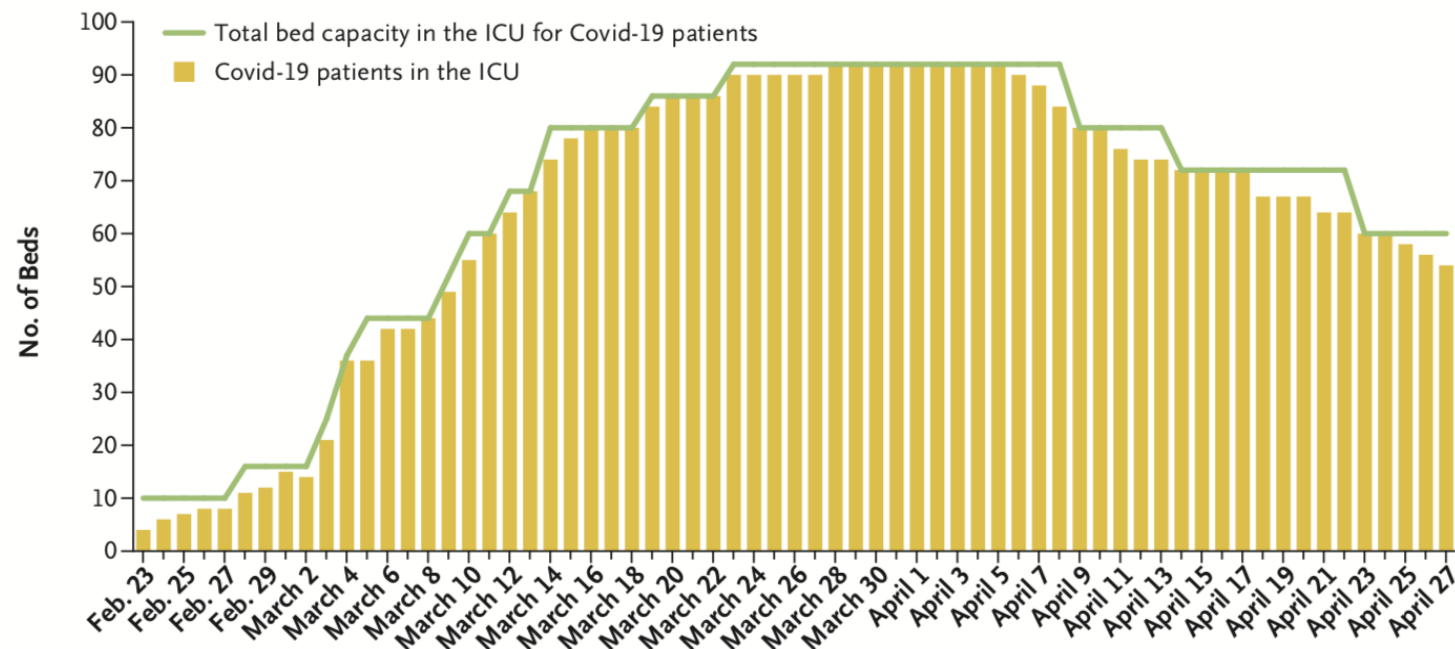
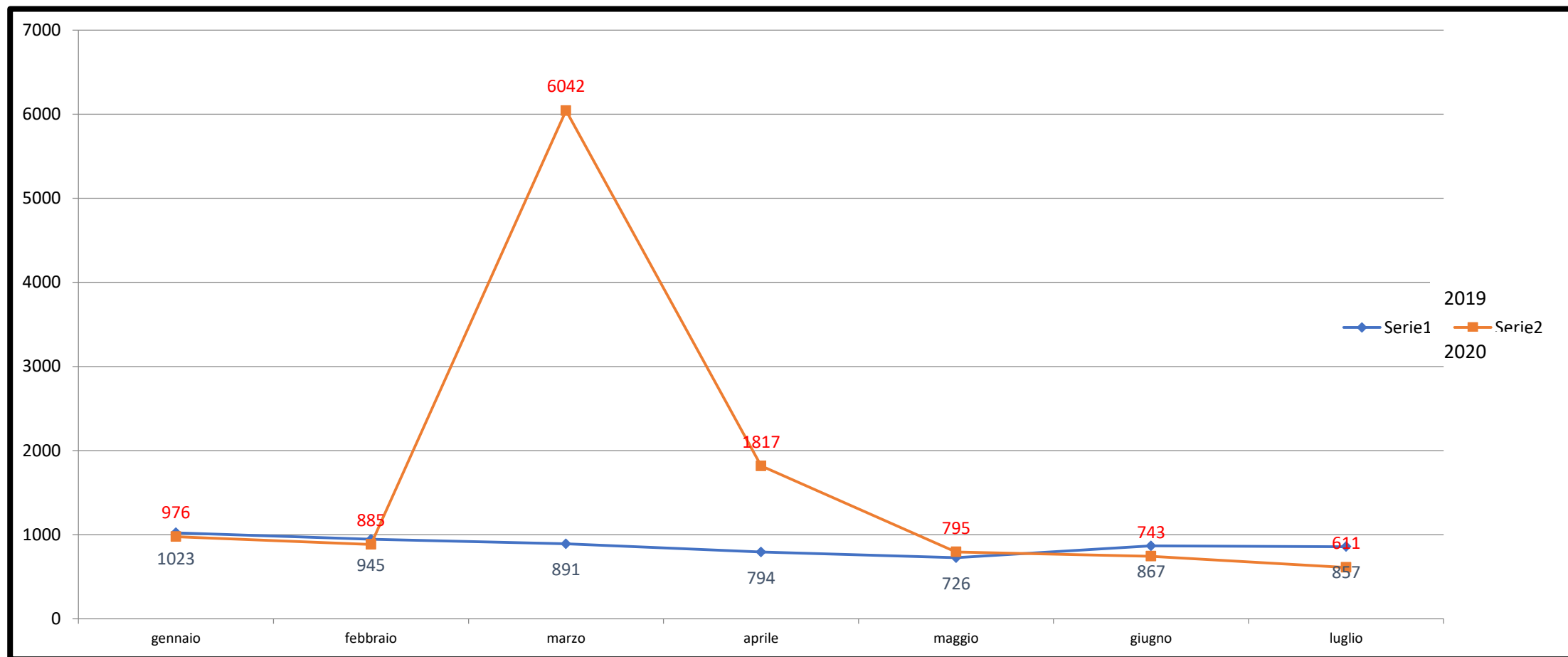


Figure 1. Availability of ICU Beds for Patients with Covid-19 and Hospitalization Trends in the ICU, February 23 through April 27, 2020.

All patients with Covid-19 hospitalized in the ICU were receiving mechanical ventilatory support. On February 28, and again on March 3, 9, 11, 13, and 19, new intensive care departments were dedicated to patients with Covid-19 and were filled within 72 hours. When ICUs began to overflow, some less-sick patients had to remain at home, where several of them died.

Bergamo province

Excess mortality: 2020 versus 2019



$$\Delta = 5.766$$

Converting the hospital (Feb, 21 - April, 30)

➤ ED

- Opening of the «Maxi-emergency» area as a COVID-19 dedicated area

➤ Wards

- Expanding the N. of beds in the ID ward* (40 → 48)
- Activating a few COVID-19 beds in the Obst & Ped wards (max 10 pts)
- Converting specialty wards into COVID-19 wards (48 beds each)
 - Pneumology & Gastroenterology
 - Internal medicine*
 - Neurology*°
 - Internal Medicine 2*° (mountain hospital: San Giovanni Bianco; 330 cumulative COVID-19 admissions)
- Creating new COVID-19 wards (48 beds each)
 - HematoCOVID
 - SurgeryCOVID

* Embedded ID specialists ←

° ID directed ←

Converting the hospital (Feb, 22 - April, 30)

➤ HDU

- Creating a new COVID-19 dedicated 12-bed HDU

➤ ICU

- Converting available 8-bed ICU units into COVID-19 dedicated areas
- Converting the recovery area into a COVID-19 dedicated area

➤ Opening a temporary field hospital (Presidio Medico Avanzato «Bergamo Fiera»)*

- 112 admissions (first pt admitted on Apr, 6)

* Embedded ID specialists ←

Converting the hospital (Feb, 21 - April, 30)

- Staff hiring
- Integration in the staff of HCWs from the Italian military, Russian military, Italian Red Cross, NGOs.
- Staff training (for permanent and temporary HCWs)
 - Development of a dedicated 6-hour training program (COVID-19, HCW safety, ventilatory assistance) offered as frontal lessons and e-learning
 - Creation of an intranet COVID-19 minisite, with daily updates
- Admission & Discharge policies
 - Development of a written policy for selective admission
 - Development of a written policy for early discharge (both to lower levels of care and home*)
 - Development of a written algorithm for admission to the ICU

*as of 22/06/2020:

- home discharged pts: 962
- transferred pts: 644



Creation of an intranet COVID-19 minisite, with daily updates

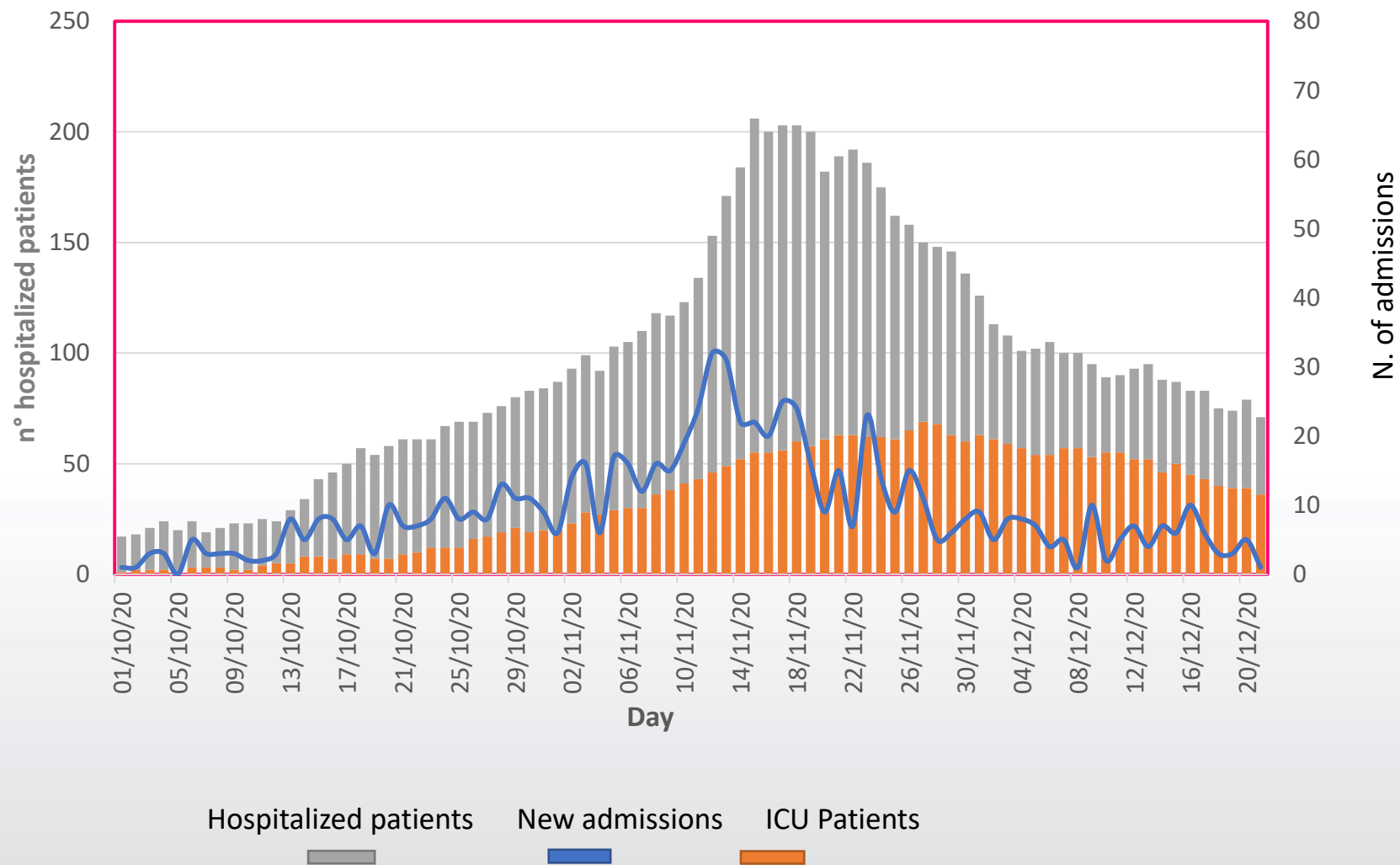
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	1-Raccolta campioni	08/03/2020 12:42	Documento di Mi...	272 KB
	2a-Segnalazione malattia infettiva	08/03/2020 12:43	Documento di Mi...	271 KB
	2b-Scheda di sorveglianza	08/03/2020 12:43	Documento di Mi...	78 KB
	3-Precauzioni aggiuntive	08/03/2020 12:43	Documento di Mi...	333 KB
	4-Terapia	08/03/2020 12:44	Documento di Mi...	90 KB
	5-Insufficienza respiratoria	08/03/2020 12:44	Presentazione di ...	5.223 KB
	6-Trattamento di diabete ed iperglicemia....	11/03/2020 19:04	Download parziale	1.304 KB
	7-Gestione cadavere	08/03/2020 12:44	Documento di Mi...	271 KB
	8a-Criteri di dimissibilità	08/03/2020 12:45	Documento di Mi...	269 KB
	8b-Isolamento domiciliare post-dimissio...	08/03/2020 12:45	Documento di Mi...	273 KB
	8c-Opuscolo per isolamentodomiciliare	08/03/2020 12:45	Presentazione di ...	298 KB
	8d-Comunicazione avvio isolamento do...	08/03/2020 12:45	Documento di Mi...	255 KB
	9-Compilazione SDO	08/03/2020 12:46	Documento di Mi...	244 KB

Prioritizing ICU admissions

(3 assessments per day for all non-ICU pts)

CoVID-19 Score (criteri di priorità per l'accesso alla Terapia Intensiva)							
DATA ORA							
ITEM		2		4		6	
età	>70		60-69		<60		
<u>comorbidità</u>	2 o più organi		1 organo		No <u>comorbidità</u>		
ventilazione	CPAP PEEP ≤14		CPAP PEEP >14		NIV		
PCO2	<40		40-45		>45		
P/F	>150		150-100		<100		

The second COVID-19 wave at Papa Giovanni XXIII Hospital



Pts' place of residence (province) as of Dec, 1

Etichette di riga	DECEDUTO	DIMESSO	RICOVERATO	TRASFERITO	Totale
	3	20	9	3	35
AGRIGENTO		1			1
BARLETTA-ANDRIA-TRANI			1		1
BELLUNO		1			1
BERGAMO	32	216	49	88	385
BRESCIA	1		4	4	9
CATANZARO			1		1
COMO		13	3	5	21
CREMONA		2	1	1	4
CUNEO	1				1
L'AQUILA		1			1
LECCO	1	2		1	4
LODI			4		4
MANTOVA			1	1	2
MESSINA				2	2
MILANO	4	81	19	34	138
MONZA E DELLA BRIANZA	1	28	7	10	46
PADOVA		1			1
PALERMO		1			1
SONDRIO		2	1	1	4
VARESE	1	13	9	10	33
VICENZA			1		1
Totale	44	382	110	160	696

- Bergamo
385 (55.32%)
- Lombardy (other than BG)
300 (43.10%)
- Other regions
11 (1.58%)
- TOTAL
696 (100.00%)

ALLEGATO 1: letti COVID ordinari acuti vs totale da: Regione Lombardia, nota G1.2020.0041554 del 07/12/2020

ATS	29-ott	04-nov	13-nov	Massimo raggiunto*
ATS BERGAMO	16%	22%	30%	43%
PRIVATO	17%	21%	23%	38%
PUBBLICO	15%	23%	35%	47%
ATS BRESCIA	17%	24%	30%	43%
PRIVATO	23%	34%	36%	45%
PUBBLICO	14%	18%	27%	41%
ATS BRIANZA	33%	48%	55%	62%
PRIVATO	32%	41%	48%	55%
PUBBLICO	33%	50%	57%	64%
ATS INSUBRIA	26%	43%	61%	68%
PRIVATO	16%	36%	58%	62%
PUBBLICO	29%	45%	63%	70%
ATS MILANO	29%	39%	49%	55%
PRIVATO	31%	39%	46%	55%
PUBBLICO	28%	39%	50%	55%
ATS MONTAGNA	15%	19%	26%	44%
PRIVATO	9%	9%	26%	70%
PUBBLICO	16%	21%	27%	40%
ATS PAVIA	12%	23%	34%	42%
PRIVATO	9%	28%	58%	83%
PUBBLICO	13%	21%	28%	32%
ATS VALPADANA	22%	27%	37%	44%
PRIVATO	34%	38%	36%	40%
PUBBLICO	18%	24%	37%	45%
Totale complessivo	24%	34%	44%	52%
PL Ordinari totali	5000	7000	9000	10500

*valore massimo raggiunto nella settimana del 24 novembre in cui è avvenuto il picco epidemico

Converting the hospital (Oct, 1 - Nov, 30)

➤ Wards

- Maintaining the multidisciplinary COVID-19 area (22 beds)
- Maintaining a few COVID-19 beds in the Obst & Ped wards (max 10 pts)
- Expanding the N. of beds in the ID ward* (40 → 48)

➤ Converting specialty wards into COVID-19 wards (48 beds)

- Pneumology & Gastroenterology

➤ Creating a new COVID-19 ward (48 beds)

- SurgeryCOVID*

* Embedded ID specialists ←

Converting the hospital (*Oct, 1 - Nov, 30*)

- **HDU (max Nr of pts: 12)**
 - Activating a 12 COVID-19 dedicated HDU beds in the Pneumology ward

- **ICU (max Nr of pts: 32)**
 - Converting available ICU units into COVID-19 dedicated areas, for a total of 28 beds, plus a few single-bed isolation boxes as needed

❖ Cumulative bed Nr, main building: 208 beds

Converting the hospital (Oct, 1 - Nov, 30)

➤ Reopening of the temporary field hospital (Presidio Medico Avanzato «Bergamo Fiera»)

❖ 3 ICU units (with mixed équipes, from a number of hospitals)

- start-up: Nov, 2
- capacity: 32 pts
- max occupation: 32

❖ 1 medical ward*°

- start-up: Nov, 25
- capacity: up to 50 pts
- max occupation: 10 pts

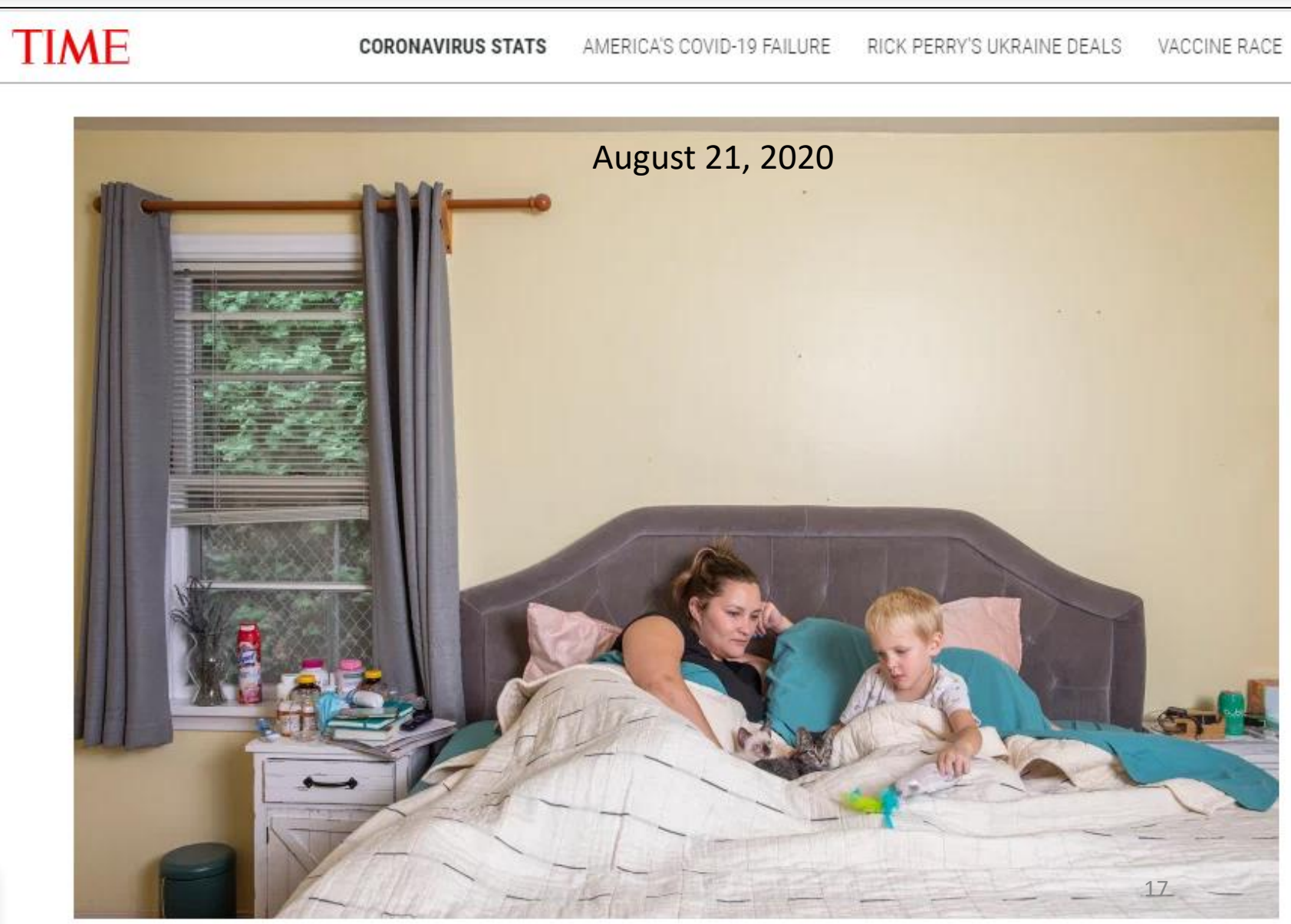
* Embedded ID specialists ←

° ID directed ←

Cumulative Nr, «Fiera»: 42 beds

Cumulative number, «Fiera» + main building: 250 beds

When COVID doesn't go away...



Surviving COVID-19

The Bergamo project for the follow-up of pts with COVID-19

- To provide care for a large cohort of post-acute adult patients
- To improve our understanding of the middle and long-term outcomes of COVID-19

Sistema Socio Sanitario



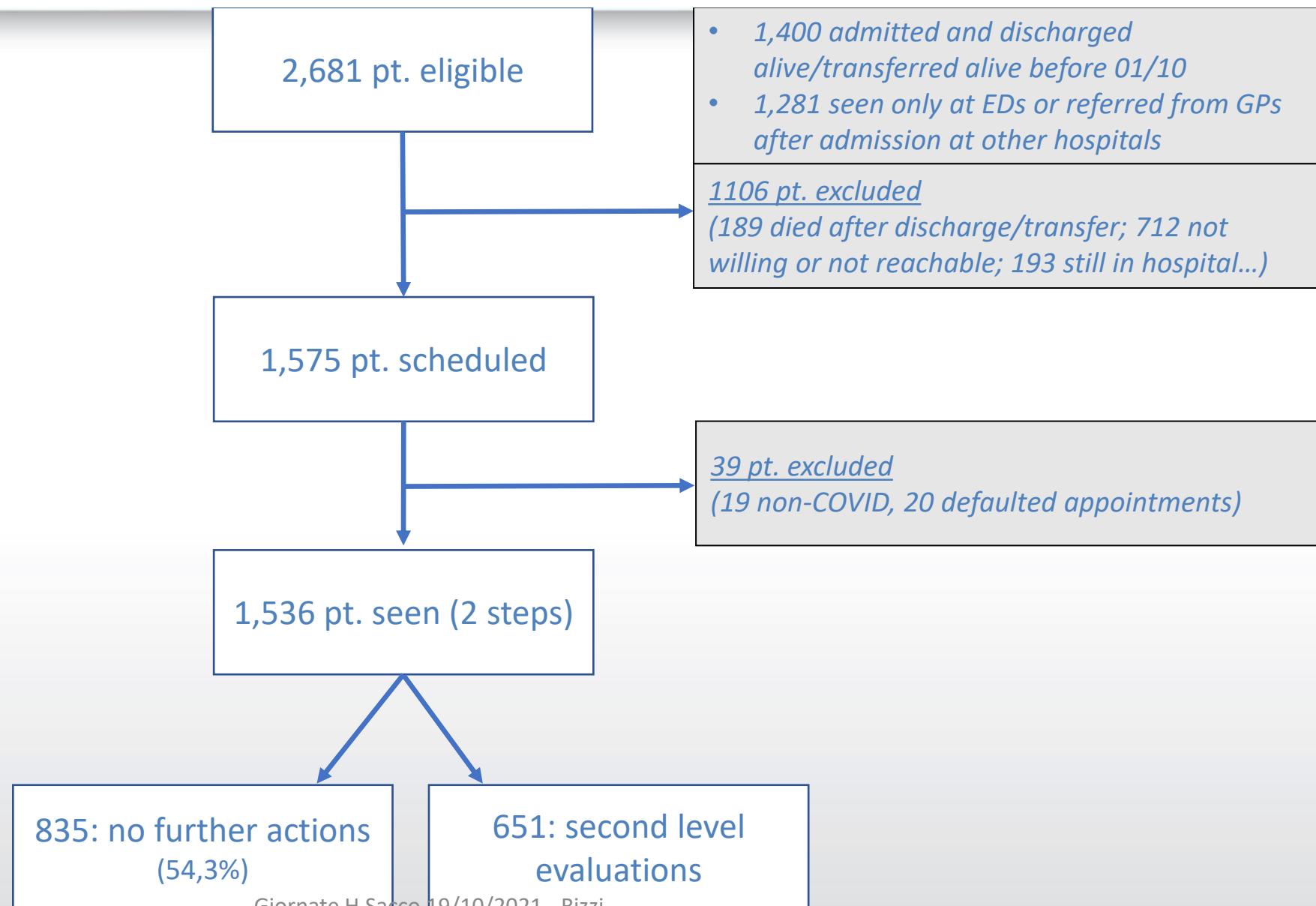
Regione
Lombardia

ASST Papa Giovanni XXIII

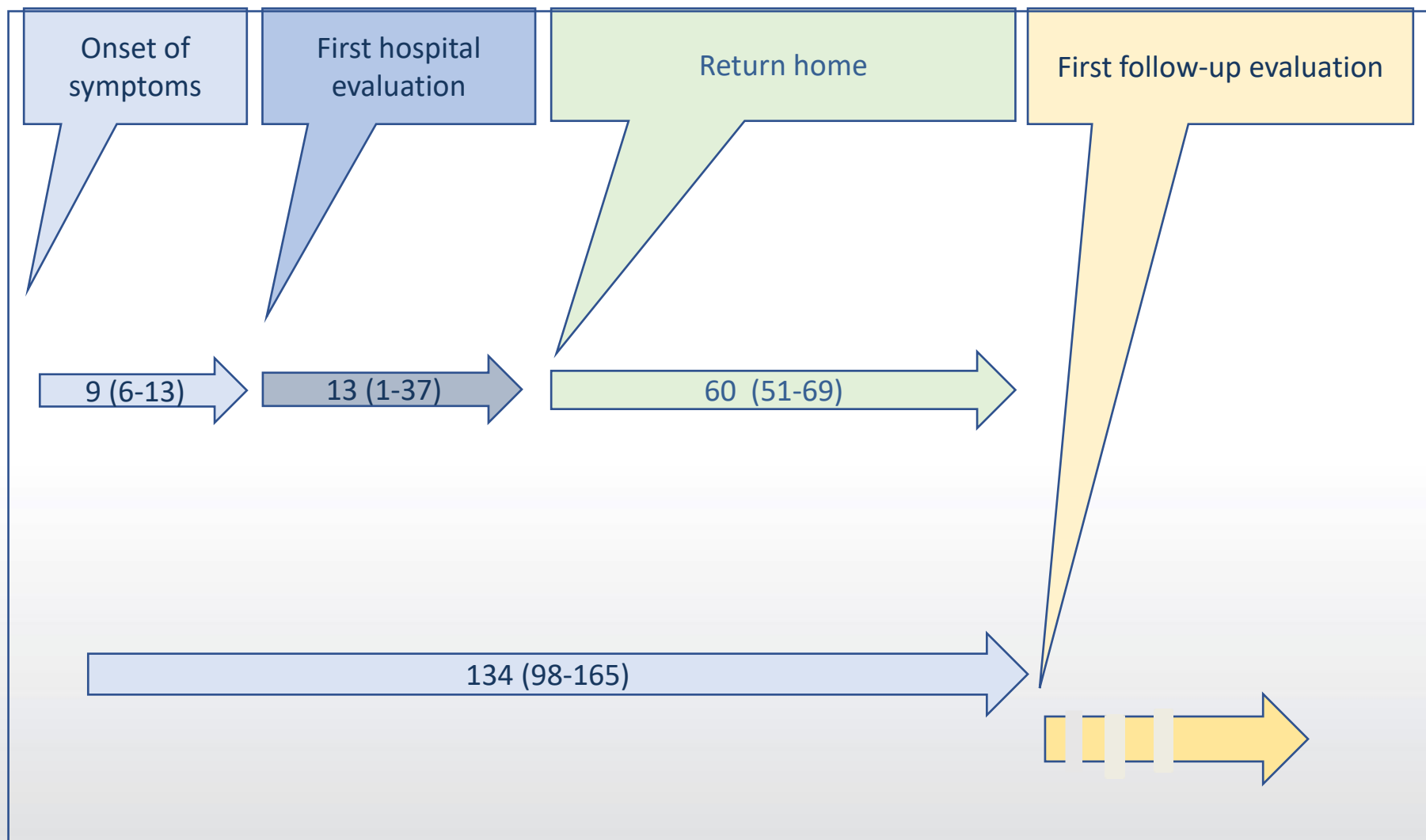
SURVIVING COVID-19

**Progetto clinico-organizzativo per un modello di follow-up e di raccolta
dati sugli outcomes a medio e lungo termine
della malattia da SARS-CoV-2**





Timeline (days: median, IQR)



Anosmia

➤ If anosmia persists beyond 3 months:

- Olfactory training?
- Neuroradiological evaluation?



***Grazie per
l'attenzione***

