



# **Covid-19 in Bergamo – Italy**

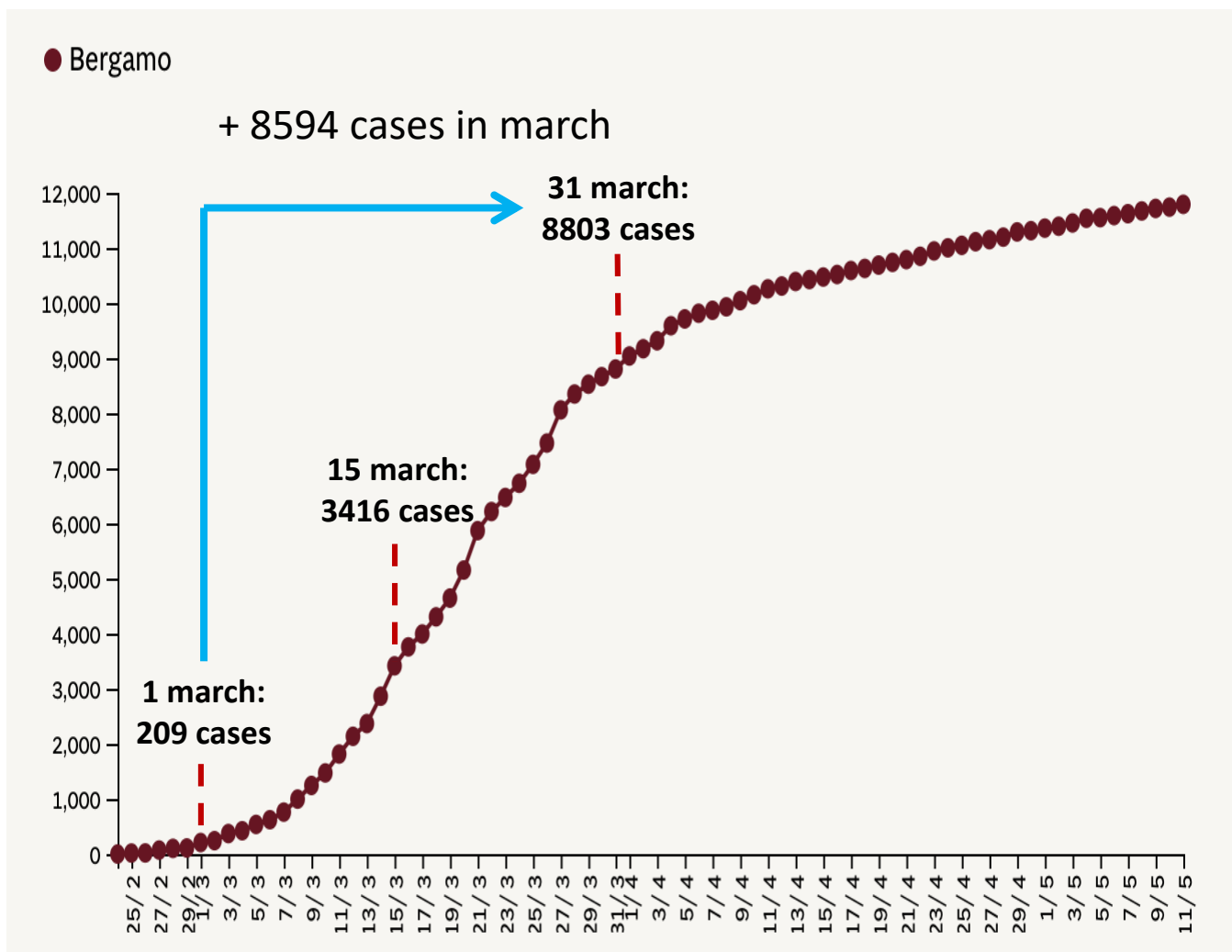
## **Impact on liver transplantation activity**

Lorenzo D'Antiga

*Child Health*

*Paediatric Hepatology Gastroenterology and Transplantation*

# Incidence of cases in Bergamo



# Covid patients coming to ED after lockdown



Slow decrease in the number of new cases after lockdown

# The situation in the hospital in march

- 500/1000 beds occupied by Covid patients (most requiring CPAP)
- 85/100 ICU beds occupied by Covid patients (all ventilated)
- 70 patients/day arriving to the Emergency Dpt with respiratory failure
- All programs closed apart from urgent surgery, oncology and Transplantation
- 30% Health Care Professionals off sick
- All doctors doing shifts on Covid wards

Time of handover



Dirty zone

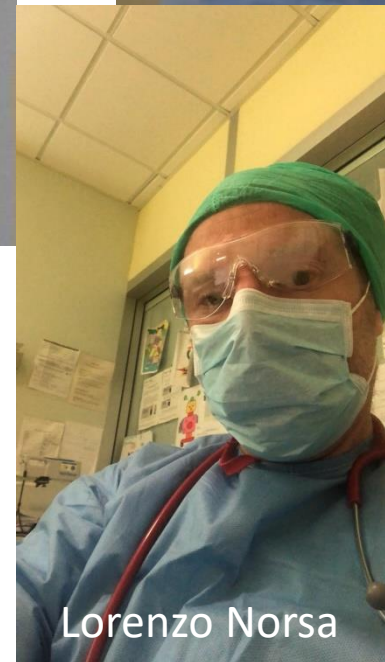
Clean zone



Angelo Di Giorgio



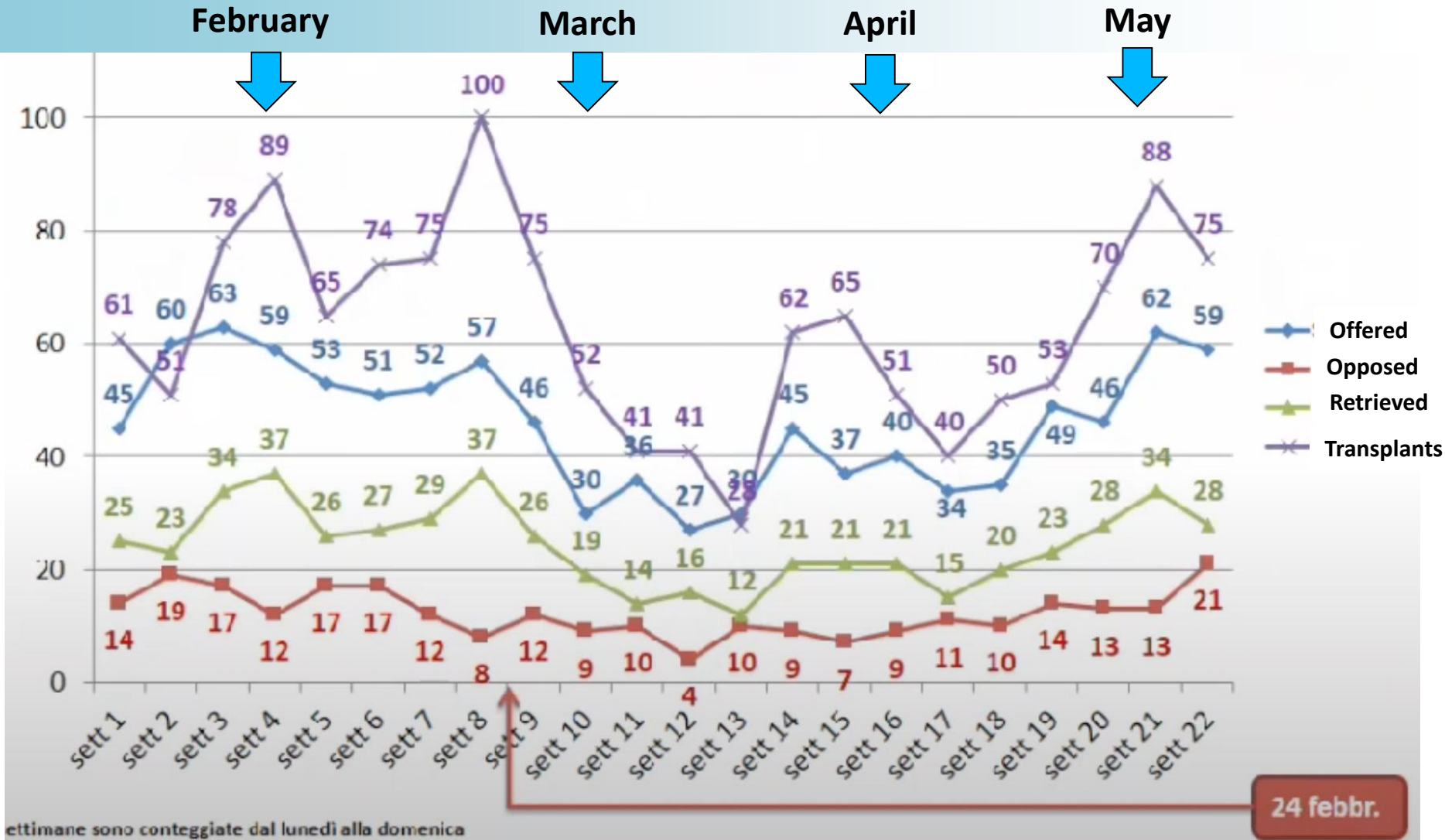
Emanuele Nicastro



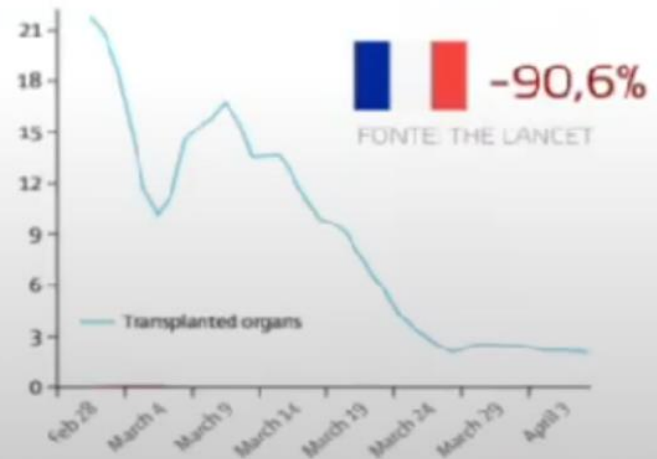
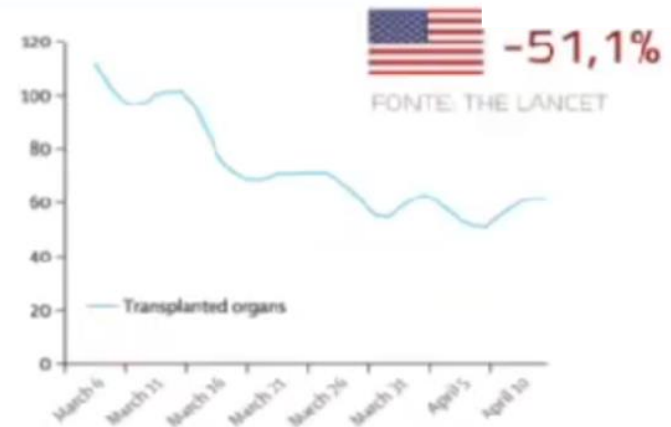
Lorenzo Norsa



# Liver transplant activity in Italy per week



# Worldwide comparison of organ donations trend



Centro Nazionale Trapianti

**DONAZIONI E TRAPIANTI IN ITALIA AL TEMPO DEL COVID-19**

Source: Centro Nazionale Trapianti

<http://www.trapianti.salute.gov.it/trapianti/homeCnt.jsp>

Letters From the Frontline

## Coronaviruses and Immunosuppressed Patients: The Facts During the Third Epidemic

Lorenzo D'Antiga M.D. ✉

First published: 20 March 2020 | <https://doi.org/10.1002/lt.25756> | Citations: 90

virus.<sup>(3)</sup> Influenza is associated with a more complicated course in children <5 years, adults >65 years of age, and persons with comorbidities. Patients receiving immunosuppressive therapy are at risk for more severe or complicated influenza-induced disease.<sup>(4)</sup> This does not seem to be the case for infections caused by the coronavirus family to date.

The majority of viruses that have caused recent epidemics with high lethality rates in people are zoonoses originating from bats. Many of these viruses, including coronaviruses, implicate the host response as an important contributor to the disease process. In this respect, dysregulated and excessive immune responses appear to be particularly important drivers of tissue damage during infection. It has been postulated that the reason why bats are the natural, healthy reservoir of these viruses may reside in their immune tolerance.<sup>(5,6)</sup> These aspects may be relevant when it comes to infection of an immunocompromised host, potentially protected by a weaker immune response against the infection.

ple with MERS-CoV infections include advanced age, male sex, and presence of comorbidities (obesity, diabetes, heart disease).<sup>(7)</sup> Immunosuppression is also a risk factor.<sup>(9)</sup>

Reviewing the literature published on SARS-CoV-2 on COVID-19, we reported on COVID-19 as a risk factor for severe disease, as well as reported to be associated with other conditions. The host response is an important contributor to the disease process. In this respect, dysregulated and excessive immune responses appeared in the literature on COVID-19 in children and adults. It has been postulated that the reason why bats are the natural, healthy reservoir of these viruses may reside in their immune tolerance.<sup>(5,6)</sup> These aspects may be relevant when it comes to infection of an immunocompromised host, potentially protected by a weaker immune response against the infection.

Our preliminary data on approximately 100 patients who have received liver transplantation, 3 of whom have received immunosuppression, that among ap-

In conclusion, the available data on past and present coronavirus outbreaks suggest that immunosuppressed patients are not at increased risk of severe pulmonary disease compared with the general population. Children under the age of 12 years do not develop severe coronavirus pneumonia, regardless of their immune status, although they get infected and can therefore spread the infection. The risk factors for severe disease remain old age, obesity and its complications, other comorbidities, and male sex. Although the surveillance of this particular group of patients should continue, there are no reasons to postpone lifesaving treatments, such as transplantation or chemotherapy for cancer, during coronavirus outbreaks both in children and in adults.



## Health status of patients with autoimmune liver disease during SARS-CoV-2 outbreak in northern Italy

**Table 1. Demography, clinical features and COVID-19 in 148 patients with autoimmune liver disease.**

| Number of patients                                  | 148                               |
|---|-----------------------------------|
| Survey response rate <sup>a</sup>                   | 100%                              |
| Female (%)  | 91 (61%)                          |
| Age at survey, years                                | 47.4 (2.8–81.2)                   |
| 1 to 17 years, n (%)                                | 47 (32%)                          |
| ≥ 18 years, n (%)                                   | 101 (68%)                         |
| Type of AILD, n (%)                                 |                                   |
| AIH   | 133 (90%)                         |
| ASC   | 11 (7%)                           |
| PSC/AIH   | 2 (1%)                            |
| PBC/AIH   | 2 (1%)                            |
| Patients on immunosuppressive treatments            | 148 (100%)                        |
| Prednisone monotherapy                              | 36 (24%)                          |
| Prednisone + azathioprine                           | 69 (47%)                          |
| Prednisone + MMF                                    | 4 (3%)                            |
| Prednisone + cyclosporine                           | 2 (1%)                            |
| Azathioprine monotherapy                            | 33 (23%)                          |
| Cyclosporine monotherapy                            | 2 (1%)                            |
| MMF monotherapy                                     | 2 (1%)                            |
| Travel abroad                                       | 9 (6%)                            |
| to Europe   | 5                                 |
| to Israel   | 1                                 |
| to Emirates   | 1                                 |
| to Malta  | 1                                 |
| to Egypt  | 1                                 |
| to China, South Korea or Iran                       | 0                                 |
| Contact with suspected case of COVID-19, n (%)      | 33 (22%)                          |
| Suspected cases of COVID-19, n (%)                  | 39 (26%)                          |
| Fever   | 26                                |
| Cough   | 23                                |
| Shortness of breath                                 | 3                                 |
| Confirmed cases of COVID-19 <sup>a</sup> , n (%)    | 4 (3%)                            |
| Survived  | 3                                 |
| Died  | 1                                 |
| Estimated incidence                                 |                                   |
| General population                                  | 26,935 per 100,000 (n = 38 cases) |
| AILD patients                                       | 30,281 per 100,000 (n = 43 cases) |
| Discontinuation of immunosuppressive therapy, n (%) | 1 (1%)                            |
| Outcome   |                                   |
| Survived  | 146 (99%)                         |
| Died <sup>b</sup>                                   | 2 (1%)                            |

Angelo Di Giorgio

## Liver Transplantation

### Impact of SARS-CoV-2 outbreak on pediatric liver transplant recipients residing in Lombardy, Northern Italy

|                               |  |                 |
|-------------------------------|--|-----------------|
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| Complete List of Authors:     | <u>Nicastro, Emanuele</u> ; Hospital Papa Giovanni XXIII, Pediatric Hepatology, Gastroenterology and Transplantation |                 |

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Gastroenterology 2020;■:1–2

## Uneventful Course in Patients With Inflammatory Bowel Disease During the Severe Acute Respiratory Syndrome Coronavirus 2 Outbreak in Northern Italy

Lorenzo Norsa,<sup>1</sup> Amedeo Indriolo,<sup>2</sup> Naïre Sansotta,<sup>1</sup> Paola Cosimo,<sup>2</sup> Salvatore Greco,<sup>2</sup> and Lorenzo D'Antiga<sup>1</sup>

# An outbreak of severe Kawasaki-like disease at the Italian epicentre of the SARS-CoV-2 epidemic: an observational cohort study



*Lucio Verdoni, Angelo Mazza, Annalisa Gervasoni, Laura Martelli, Maurizio Ruggeri, Matteo Ciuffreda, Ezio Bonanomi, Lorenzo D'Antiga*

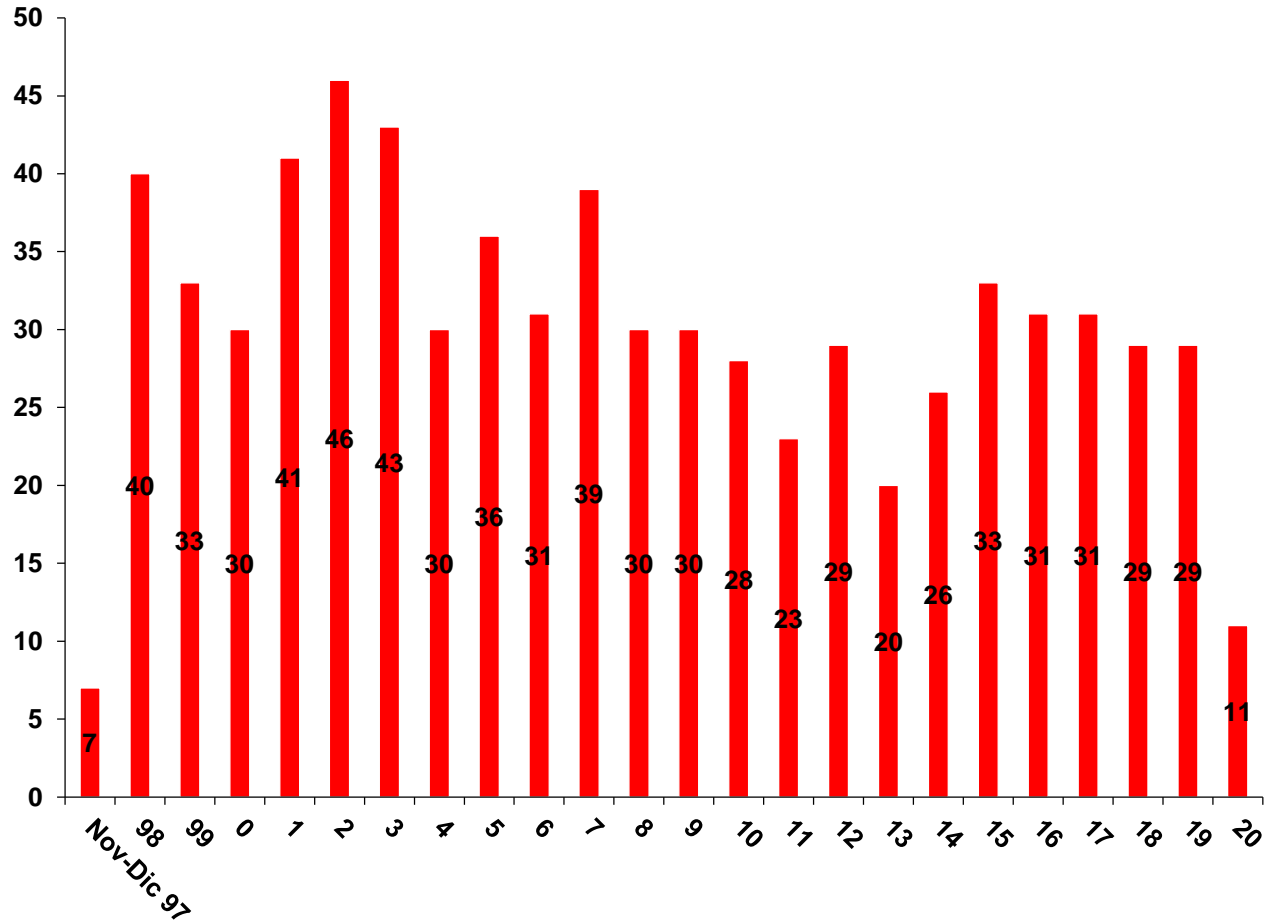
www.thelancet.com Published online May 13, 2020 [https://doi.org/10.1016/S0140-6736\(20\)31103-X](https://doi.org/10.1016/S0140-6736(20)31103-X)

The proinflammatory effect of SARS-CoV-2 has been reported in adults with the most severe respiratory complications of COVID-19.<sup>35,36</sup> Many of these patients have a constellation of features classified under the term cytokine storm, such as fever, lymphopenia, elevated transaminases, lactate dehydrogenase, D-dimer, and ferritin, in keeping with MAS.<sup>11,35,37</sup> Likewise, MAS is a form of cytokine storm, and might affect patients with Kawasaki disease.<sup>9,15</sup> All these elements supported the need to start adjunctive steroids. In our experience, this treatment is effective and safe, and should be considered

**COVID-19 is an immune-mediated disease caused by a powerful activation of the host immune system causing a severe cytokine storm and macrophage activation**

# Activity October 1997 – June 2020

■ Children n=726



13 patients on the waiting list

No mortality on the transplant list

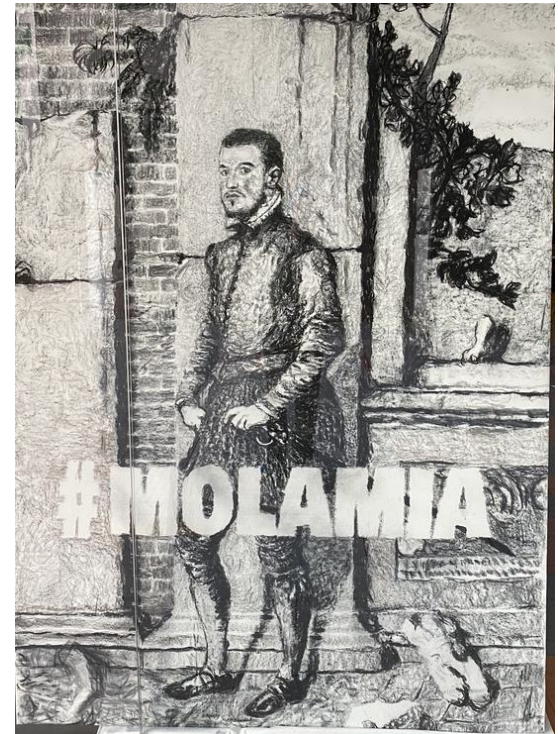
# The situation in the Paediatric Dpt

- From March 6, all admitted patients were tested (NP/OP)
- General ped Unit: 45 infected patients (including 22 kawasaki disease)
- Oncology Unit: 3 infected patients (fever and neutropenia in hepatoblastoma and rhabdoid tumor)
- Transplant Unit: none infected (including one with positive mother)
- Only 2 patients admitted for respiratory problems, the remainders were asymptomatic

# Conclusions

- Bergamo one of the hardest hit area, reliable observation point
- Liver transplantation program slowed down on the adult side, not in the paediatric side
- SARS-CoV-2 mainly acts through activation of the immune system
- Immunosuppressed children do not seem to be at high risk compared to the general population
- We should try to maintain our normal transplant activity





Bergamo holds on

A Tutti Voi... Grazie!



Regione Lombardia  
ASST Papa Giovanni XXIII