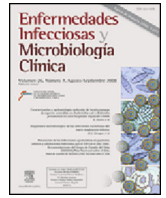




Enfermedades Infecciosas y Microbiología Clínica

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Scientific letter

Impact of COVID-19 on Madrid hospital system

Impacto de COVID-19 en el sistema hospitalario de Madrid

The COVID-19 epidemic in Spain has had its highest incidence on the Madrid Autonomous Region (population 6.5 million) where the first case was diagnosed on February 25th, 2020. Since then, 64,787 COVID-19 cases have been notified in the Madrid region (almost one third of all cases in Spain) of which 41,559 have been hospitalized as of May 10th, 2020.¹

On March 8th we, a group of clinicians working in Infectious Diseases and Internal Medicine Departments of 28 public and 14 private hospitals (list of group members and hospitals appear in the appendix) in Madrid, started to collect and share daily numbers of hospitalized adult COVID-19 cases. Our group includes all the public hospitals and half of the private hospitals in Madrid.² Before the COVID-19 epidemic, these 42 hospitals had a total of 13,482 acute care (range 63–1238) and 522 intensive care unit (ICU) beds (range 0–34). Since March 30th we also collected number of hospitalizations in the IFEMA conference center that was opened as a temporary hospital on March 26th and closed on May 1st.

Total number of hospitalized COVID-19 patients reached a maximum of 16,174 on April 2nd, 2020. Number of patients in ICU beds reached a maximum of 1520 on April 5th (Fig. 1a). Occupancy by COVID-19 cases (not counting IFEMA temporary hospital beds) of acute care hospital beds reached 100% by March 28th and 105% on April 6th because additional beds were placed in improvised wards areas such as physical therapy gyms, corridors, libraries and tents outside the main hospitals. ICU beds occupancy reached almost 300% on April 6th (Fig. 1b). To deal with the enormous surge of cases needing critical care, postanesthesia care units, pediatric ICUs and cardiac/coronary care units were repurposed for COVID-19 adult patients and makeshift ICUs were placed in operating rooms and intermediate respiratory care units. From March 28th to April 7th the COVID-19 case load interrupted almost all non-COVID surgical and medical hospital activities.

Our numbers dramatically show how the COVID-19 outbreak can collapse hospital systems in developed countries. We agree with Ed Yong who recently wrote “The precise magnitude of the virus’s fatality rate is a matter of academic debate. The reality of what it can do to hospitals is not”.³ We need to learn from this devastating experiences and prepare to stop future outbreaks long before they reach the magnitude achieved by the COVID-19 epidemic in Madrid

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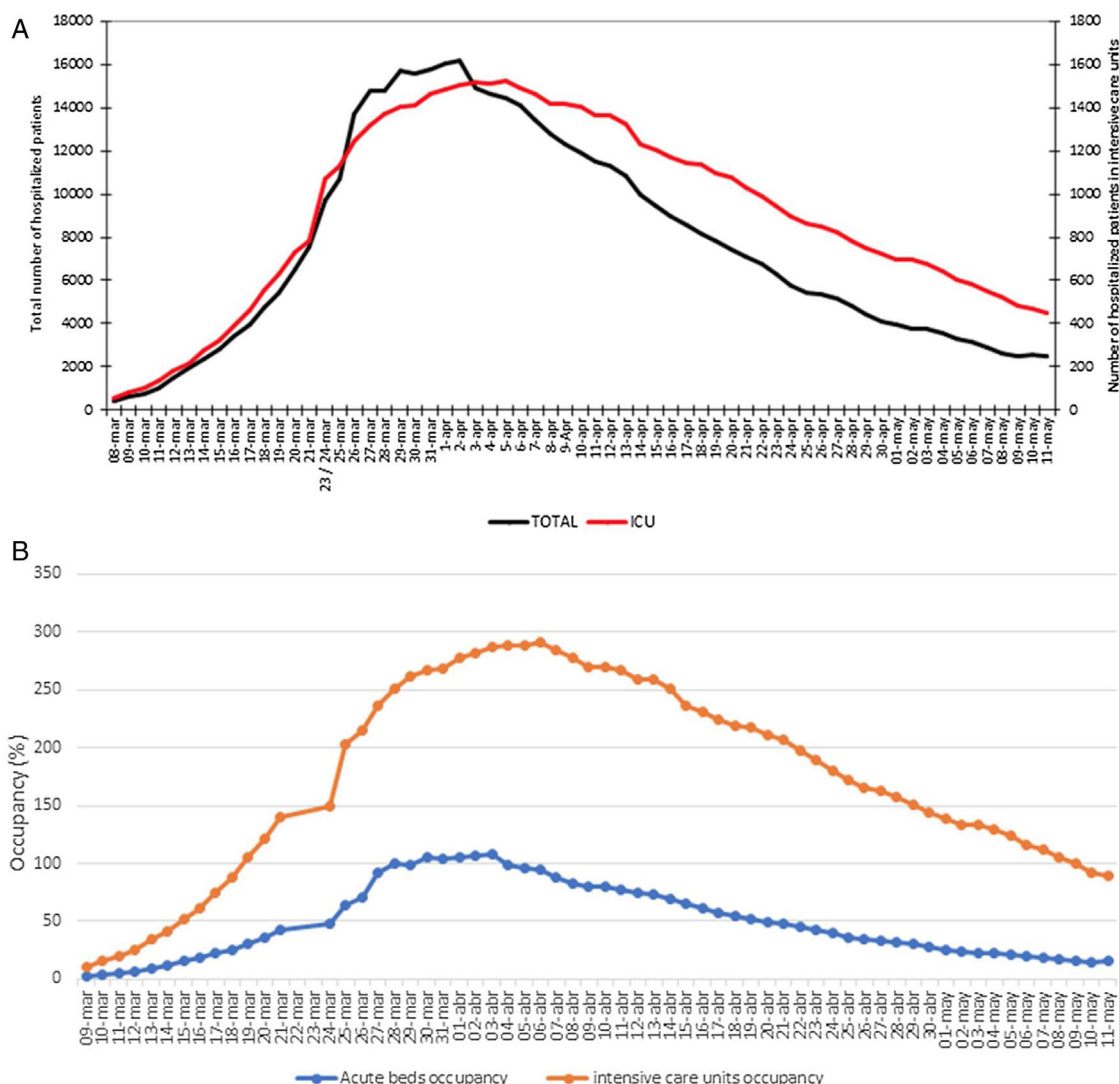


Fig. 1. COVID-19 adult patients hospitalized in the Madrid autonomous region. (a) Total number of hospitalized adult patients and number of hospitalized patients in ICU beds. (b) Daily occupancy percentage of acute care and ICU beds by COVID-19 patients.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.eimc.2020.06.005](https://doi.org/10.1016/j.eimc.2020.06.005).

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¹ The members of the COVID19 MADRID-S.P.P.M. group is as supplementary material in Appendix A.