



ORIGINAL

Occupancy of the Departments of Intensive Care Medicine in Catalonia (Spain): A prospective, analytical cohort study^{☆,☆☆}



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Abstract

Background: Before deciding increases in the number or capacitance of Intensive Care Units (ICUs), or the regionalization of Units, it is essential to know their present effectiveness.

Objective: To analyze the daily occupancy rate of ICUs in Catalonia (Spain) and the frequency of denied admission due to lack of capacity.

Design: A prospective, observational multicenter study was carried out.

Participants: A total of 35 out of 40 ICUs of Catalonia (87%).

Interventions: Daily registry.

Variables of interest: Open beds and free beds, patients not discharged due to unavailability of ward beds, critically ill patients not admitted due to a lack of ICU beds, and rate of transfer to other ICUs.

Statistical analysis: A descriptive cohort analysis was made.

Results: Daily averages were 383 open ICU beds, 58 available beds (15%), and 16 patients not discharged due to unavailability of ward beds. Each day 6 patients on an average were not admitted due to a lack of ICU beds, and one of them (16%) was transferred to another ICU. The mean occupancy rate was $83 \pm 19\%$, and a 100% occupancy rate was reported in 35% of the registries. A subanalysis of the 24 public hospitals demonstrated slightly higher occupancy ($87 \pm 16\%$), with a 100% occupancy rate reported in 38% of the registries.

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PALABRAS CLAVE

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Conclusions: The mean occupancy rate of Catalanian ICUs may appear correct, but in some Units over-occupancy very often precludes early ICU treatment and even ICU admission for a significant number of critically ill patients.

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Ocupación de los Servicios de Medicina Intensiva de Catalunya: un estudio analítico prospectivo de cohortes

Resumen

Fundamento: Ante la demanda por aumentar el número de UCI o su capacidad, o por regionalizar servicios, es conveniente conocer su efectividad actual.

Objetivo: Analizar la ocupación diaria de los Servicios de Medicina Intensiva (SMI) de Catalunya y con qué frecuencia pacientes críticos no pueden ingresar en UCI y/o son derivados a otros centros.

Diseño: Prospectivo observacional multicéntrico.

Participantes: Treinta y cinco de los 40 (87%) SMI de Catalunya.

Intervenciones: Registro diario.

Variables de interés: Camas abiertas y camas libres, pacientes no altados de UCI por falta de camas en planta, pacientes críticos no ingresados en UCI por falta de cama y cuántos fueron derivados a otros centros. El análisis estadístico es descriptivo de cohortes.

Resultados: Los promedios diarios fueron: 383 camas de UCI abiertas, 58 (15%) camas libres y 16 pacientes no dados de alta por falta de cama en planta. Cada día 6 pacientes en promedio no ingresaron en UCI por falta de camas y uno (16%) fue derivado a otras UCI. La ocupación media fue del $83 \pm 19\%$ con un 100% de ocupación en el 35% de los registros. El subanálisis de los 24 hospitales públicos mostró una ocupación ligeramente superior ($87 \pm 16\%$) con 100% de ocupación en el 38% de los registros.

Conclusiones: La ocupación media de las UCI de Catalunya podría parecer correcta, pero existe sobrecapacidad muy frecuentemente en ciertas unidades lo que dificulta el ingreso precoz y además provoca que una cantidad significativa de pacientes críticos no puedan ingresar en UCI.

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Introduction

Intensive Care Medicine is facing great challenges as a result of the increase in life expectancy and the widespread use of more aggressive treatments with increasingly effective life support systems. There is no doubt about the social benefits of critical patient care in terms of survival and cost-effectiveness,¹ though it is also true that such care implies an exponential increase in associated economic costs for society as a whole.

There is little information in the literature on the real and/or perceived effect of the limitation of technical and human resources in critical care,² and certainly no recent data have been published in this regard during the current economic crisis. The imbalance between the needs of critically ill patients and the means available to cover such needs is basically a consequence of delays in patient admission to the Intensive Care Unit (ICU) or the impossibility of admission to the ICU.

Regarding delays in patient admission, there are sufficient references to the benefits of early treatment in a range of scenarios (sepsis, acute myocardial infarction, stroke, etc.), and in this respect mobile critical care teams have been created that take professionals not only to the emergency care room or hospital ward,³ but even to the home of the patient. It has also been shown that each hour of delay

in admission to the ICU is associated to a decrease in patient life expectancy.⁴

Likewise, admission denial has been shown to have a negative impact upon patient survival,^{5,6} and in this regard a lack of free beds is one of the permanent factors underlying the decision not to admit a patient to the ICU.⁷

On the other hand, the limitation of economic and human resources prevents the unlimited expansion of critical care. In this respect, before deciding increases in the number and capacitance of ICUs or the regionalization of such Units,^{8–10} it is necessary to know the current distribution of the available means and their effectiveness.

The present study was carried out to analyze the daily occupancy rate of ICUs in Catalonia (Spain) and the frequency of denied admission due to lack of capacity, and/or referral to other centers.

Material and methods

The study was carried out during 30 days (from 12 November to 12 December 2012) in the 35 out of 40 (87%) Departments of Intensive Care Medicine (DICMs) in Catalonia (Annex 1) that agreed to participate. Given the observational nature of the study, patient informed consent was not required.

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