

Contributions of the Spanish Investigators in the Emergency Situations TeAm network to COVID-19 knowledge: an example of how emergency physicians can lead first-class research

Juan González del Castillo^a and Òscar Miró^b

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^aEmergency Department, Hospital Clínico San Carlos, IDISSC, Universidad Complutense de Madrid, Madrid and ^bEmergency Department, Hospital Clínic, IDIBAPS, University of Barcelona, Barcelona, Spain

Correspondence to Òscar Miró, PhD, MD, Emergency Department, Hospital Clínic, IDIBAPS, University of Barcelona, Villarroel 170, 08036 Catalonia, Barcelona, Spain
Tel: +34 93 227 98 33; fax: +34 93 227 56 93; e-mail: omiro@clinic.cat

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The COVID-19 pandemic has had a major impact around the world. During the first wave in March–April 2020, it is estimated that around 5% of the world population was infected, affecting more than 30 million Europeans and about 2 million Spaniards [1]. The stress placed on the whole health care system, in general, and on emergency departments (EDs), in particular, has been maintained since then, leading to the need for health structures and professionals to carry out organizational changes for the proper management of all these patients [2–6].

Emergency care focuses on three key aspects: the correct diagnosis of the clinical process, prompt initiation of symptomatic and/or specific treatment, and adequate decision-making regarding patient discharge home or to hospitalization. The fact that COVID-19 was a new disease, with a high mortality, with lack of adequate scientific knowledge caused great uncertainty about patient management in the ED. Therefore, every successive wave demanded different strategies to achieve fulfillment of these three key ED key processes with continued high-quality standards.

In this scenario, it became imperative to carry out rapid quality research to provide the most robust knowledge to policy makers who had to implement adequate strategies to satisfactorily face the COVID-19 pandemic. Obviously, this included prehospital and hospital emergency care. Nonetheless, with respect to some specific aspects concerning emergency medicine practice, emergency physicians were the most, and, in some cases, the only physicians interested in generating this knowledge. In order to respond to this challenge, the Spanish Investigators in the Emergency Situations TeAm (SIESTA) network emerged. The main objective of the SIESTA network was to provide knowledge about the new COVID-19 disease that was of high relevance for emergency medicine practice and generated by a large network of emergency physicians working in collaboration.

Research collaboration not only makes investigational activity more efficient but in some cases allows achieving study objectives that would be difficult to obtain if

addressed by only one site. We believe that the development of the SIESTA network and its success in achieving specific goals within only a few (tough) months merits a quick comment. Unequivocally, the SIESTA experience is an example that perfectly illustrates the vast research opportunities and capacities available in EDs. We will focus this article on discussing five key aspects in which the SIESTA network achieved success and the messages that this success brought to light.

First fact: the SIESTA network was set up very quickly

After a first start up meeting held in mid-April 2020, the network was constructed within 1 month. The main investigators of the project initially contacted with more than half of the Spanish EDs, and finally, 62 EDs formed the SIESTA network. These EDs have a reference population of 15.5 million people, which constitutes about 33% of the whole Spanish population (46.9 million) and provides a quite balanced representation of the Spanish territory (12 of the 17 Spanish autonomous communities), the type of hospitals (including community, reference, and high-technology university hospitals), and the involvement in the pandemic (with EDs attending from 1 to 47% of the ED census corresponding to COVID patients during the COVID outbreak period). Details of the project have been extensively presented elsewhere [7].

The first lesson learnt: EDs are (also) able to quickly organize themselves to face large research enterprises.

Second fact: the SIESTA network investigated clinical and organizational processes which exclusively rely on the field of emergency medicine

The unique information obtained within only a few weeks of the constitution of the network included the definition of specific clinical risk patterns of COVID patients at an ED level [8], anticipation of the identification of patients with intensive care needs [9], the role and the real participation of ED heads in hospital

policies to face the pandemic [10], and detailed mapping of the impact of COVID on every ED along with the ED shortages brought about by the pandemic [11]. All of this was achieved in only a few weeks. This may seem unreal, as the final results of investigations performed in EDs usually take months, if not years, to be obtained. Therefore, we have to be proud of having this done.

The second lesson learnt: the immensity of data generated daily in EDs allows very quick recording of information needed to obtain firm conclusions.

Third fact: the SIESTA network also provided key information on several diseases that helped colleagues of other specialties

Certainly, the SIESTA network was born with a clear and well-defined challenge to contribute to improving the knowledge of every aspect of COVID-19. Indeed, emergency medicine practice is also able to help other specialties to better understand their specific processes. This is especially notable since, in many acute (severe) diseases, the first hours of patient care are played by emergency physicians in the ED fields. This purpose was specifically embraced by the unusual manifestations of COVID-19 (UMC-19) project created by the SIESTA network, which focused on providing relevant information of clinical processes incompletely defined at that time, mostly because many of them constituted atypical manifestations of COVID-19 [7]. This goal can only be managed by looking at the whole (quite unbiased) universe constituted by EDs, in which the majority of the sickest patients consult. For this purpose, the 62 EDs of the SIESTA network amassed their sporadic cases of 10 different complications potentially related to COVID-19 together to provide unique information. The processes investigated were Guillain-Barre syndrome, spontaneous pneumothorax, acute pancreatitis, meningoencephalitis, (myo)pericarditis, acute coronary syndrome, deep venous thrombosis, pulmonary embolism, stroke, and gastrointestinal bleeding. The SIESTA network has described the absolute and relative frequencies and standardized annual incidence for each one of these particular entities [12,13]. Moreover, for some of these processes, the SIESTA cohort was one of the first to provide evidence of such associations worldwide and in defining their risk factors, clinical characteristics, and outcomes. In fact, the SIESTA network has provided one of the largest series published worldwide for some entities. This incentivized top journals of many specialties [14–17] as well, obviously, as the leading journals in the field of emergency medicine [18,19] to publish research led by emergency medicine physicians.

The third lesson learnt: the quality of emergency physician researchers is high enough to play in the premier league.

Fourth fact: the SIESTA network has launched international collaboration as well

The amount of information accumulated by the SIESTA network has been shared with other European emergency medicine investigators to contribute to the constant expansion of knowledge on COVID-19 disease. The creation of international databases is on-going, and, for sure, relevant conclusions will soon arise from this collaborative work. High-quality data are appreciated everywhere, and the quality of the SIESTA cohort meets these standards. Moreover, taking into account the world community of almost 500 million Spanish-speakers, the information generated in Spain will serve Latin-American emergency medicine societies well in helping to face the pandemic [20].

The fourth (local) lesson learnt: Spanish policy makers must believe in and promote Spanish emergency medicine research.

Fifth fact: the SIESTA network is almost exclusively made up of emergency physicians

While in many research projects in which emergency physicians carry out investigation some expert researchers of other specialties also participate as coresearchers and coauthors of the research outputs (even in most research devoted to the field of emergency medicine), the SIESTA network is a unique example of investigation essentially run by emergency physicians. With more than 20 papers published by the SIESTA network to date, the percentage of main authors who are emergency physicians surpasses 95%. This is not a defence of isolation, as collaboration is the best asset of research. However, in contrast to the so-frequent need to use colleagues of other specialties as crutches for emergency medicine research in the past, current, and future perspectives are quickly changing for the better.

The fifth lesson learnt: the maturity of our specialty is great enough to allow us to walk (if needed or wanted) alone along investigation pathways.

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Conflicts of interest

There are no conflicts of interest.

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