

BRIEF REPORT

Nurses' roles in emergency response coordination centers in Spain: a resource to consider

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Objectives. To study nurse staffing at emergency response coordination centers (ERCCs) and determine nurses' functions and activities within the structure and organization of ERCCs.

Methods. Observational cross-sectional study in January and April 2019 in the 17 Spanish autonomous communities and the autonomous cities of Ceuta and Melilla. We consulted ERCC institutional reports and webpages, conducted telephone interviews, and maintained email correspondence with key informants (nurse supervisors and staff directly implicated in managing emergency calls).

Results. All the ERCCs except those in Asturias, Rioja, and the 2 autonomous cities have nurses on staff. Their usual functions are prevention and health promotion; supporting primary care physicians; managing health alerts, multiple victim incidents, and secondary patient transport; activating response codes; coordinating transport for transplants; and contacting hospitals so they expect arrivals.

Conclusion. Nurses in Spanish ERCCs have similar functions, but they are developed at different levels in each center.

Keywords: Emergency medical services. Call center. Emergency medical regulations. Emergency nursing.

El rol del personal de enfermería en los centros coordinadores de urgencias de España: un elemento a considerar

Objetivo. Conocer la dotación de personal de enfermería de los centros de coordinación de urgencias (CCU) españoles, así como las funciones y actividades de los profesionales dentro de la estructura y organización de los CCU.

Método. Estudio observacional transversal realizado entre enero y abril del 2019 mediante consulta de la información institucional en memorias y páginas web de los servicios de emergencia, así como entrevistas telefónicas y correos electrónicos a informantes clave (responsables de enfermería o profesionales implicados directamente en la gestión de llamadas) de las 17 comunidades autónomas (CCAA) y las ciudades autónomas de Ceuta y Melilla.

Resultados. Todas las CCAA, excepto Asturias, La Rioja y las dos ciudades autónomas, tienen personal de enfermería cuyas funciones más habituales son la prevención y promoción de la salud, atención a consultas sanitarias, apoyo a atención primaria, alertas epidemiológicas, gestión de incidentes de múltiples víctimas, transporte secundario, activación de códigos asistenciales, coordinación de trasplantes y preavisos hospitalarios.

Conclusiones. El personal de enfermería en los CCU de España tiene funciones similares, pero con distinto nivel de desarrollo en cada CCAA.

Palabras clave: Servicios médicos de emergencia. Centro de llamadas. Regulación médica urgente. Enfermería de urgencias.

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Introduction

Emergency medical systems (EMS) have been evolving in Spain over the last few decades to integrate into the National Health System (NHS)¹. The fundamental element in the management of emergencies is the emergency coordination centers (ECC), which can be reached in Spain through the telephone numbers 112 or 061². The ECCs are defined as those integrated systems of public safety and healthcare elements that usually consist of a system access mechanism to notify an emergency, as well as others to provide pre-hospital emergency medical care and patient transport, in addition to elements of public education and prevention³.

The coordination of the different agents involved in emergency care is carried out from the ECCs, guaranteeing the accessibility and coordination of the resources available for this type of care 24 hours a day⁴. In addition, since 1999, the type of health care personnel at the ECC and the mobile emergency units (MEU), and the activities of the emergency care units have also been regulated⁵.

The ECCs are the main center of the EMSs as they are responsible for meeting the demand of the emergencies/emergencias carried out by telephone and for managing the necessary resources for each situation⁶. According to Martínez Almoyna, the functions of health regulation include: "assigning resources according to

need; choosing the most appropriate solution; avoiding inefficient procedures, duplication of services or unnecessary use of resources; improving care for high-risk patients; or preparing hospitals for the proper reception of emergency patients”, among others⁷.

The evolution of resources and the health needs of the population requires a regular redefinition of the structure of health resources for an improvement in the health care provided⁸. In this sense, the ECCs also need to adapt to new technologies and data management^{9,10}. Likewise, nursing personnel have been joining the ECC for several years both in Spain and in other European countries^{11,12}. The aim of this work is to find out about the nursing staffing of the Spanish ECC, including telephone consultancy, as well as the functions and activities of these professionals within the structure and organization of the ECC.

Method

Transversal observational study carried out between January and April 2019 by consulting the institutional information in the reports and web pages of the EMS, as well as through telephone interviews and e-mails to those considered key informants of each ECC (heads of nursing or professionals directly involved in call management) of the 17 autonomous communities and the autonomous cities of Ceuta and Melilla (Table 1). Only one researcher was in charge of conducting the telephone interviews. Data were collected on the number of nursing staff in the ECCs, their form of organization into shifts, and the functions assigned.

Results

All autonomous communities have nursing staff in their ECC, except La Rioja, the Principality of Asturias and the autonomous cities of Ceuta and Melilla. However, their numerical strength in terms of links to the ECC is very heterogeneous (up to 39 per million inhabitants in Cantabria and the Basque Country, and only 1.6 in the Community of Valencia). Furthermore, in some autonomous communities these professionals combine their work at the ECC with that of the care units. In 64% of the autonomous communities, the shifts are 12 hours (day and night shifts). Table 2 summarizes the main data related to the organization.

Table 3 shows the main tasks assigned to nurses in the ECC. In all of them, except for the one in the Community of Valencia where they are gradually being integrated, the nursing staff performs preventive and health promotion functions. They also include health consultations such as preparing diets or fasting for diagnostic tests, doubts about results, contraceptive issues, etc. As in the previous case, all the ECCs except the one in the Valencian Community, which is developing it, include these nursing functions. On the other

Table 1. Sources of information

Andalusia	Corporate website (http://www.epes.es/) and phone contact with key informants. Provides documents for consultation.
Aragon	Corporate website (https://112aragon.aragon.es/) and telephone contact with key informant.
Asturias	Corporate website (http://www.samuasturias.es/). Without telephone contact because there is no nurse in the ECC.
Balearic Islands	Corporate website (https://www.ibsalut.es/samu061/ca/) and telephone contact with key informants Provides documents for consultation.
Canary Islands	Corporate website (http://www.112canarias.com/info/) and contact via e-mail with key informant.
Cantabria	Corporate website (http://www.scsalud.es/attention061) and telephone contact with key informant.
Castilla-La Mancha	Corporate website (https://sescam.castillalamancha.es/ciudadanos/servicios-sanitarios/servicios-de-urgencias-y-emergencias) and telephone contact with key informant.
Castilla y León	Corporate website (https://112.jcyl.es) and telephone contact with key informant of the CCU Provides documents for consultation.
Catalonia	Corporate website (http://sem.gencat.cat/en/061CatSalutRespon/) and telephone contact key informant.
Ceuta-Melilla	Corporate websites (http://www.areasanitariaceuta.es/primary-care/emergency-services/ ; http://www.areasaludmelilla.es/asm/index.php) No telephone contact because there is no nurse in the ECC.
Euskadi	Corporate website (http://www.euskadi.eus/gobierno-basque/emergency-112/) and contact by mail with key informant.
Extremadura	Corporate website (http://www.juntaex.es/112/) and telephone contact with key informant. Provides documents for consultation.
Galicia	Corporate website (https://061.sergas.gal/Paxinas/web.aspx) and telephone contact with key informant.
La Rioja	Corporate website (https://www.riojasalud.es/ciudadanos/centros-y-servicios/urgencias). No phone contact because there is no nurse in the ECC.
Madrid	Corporate website (http://www.madrid.org/112/) and telephone contact with key informant. Provides documents for consultation.
Murcia	Corporate website (http://www.serviciomurciandesalud.es/061murcia) and telephone contact with key informant. Provides documents for consultation.
Navarra	Corporate website (https://www.navarra.es/home_es/Issues/Security/112-SOS+NAVARRA.htm) and telephone contact with key informant.
Valencia	Corporate website (http://www.112cv.gva.es/es) and telephone contact with key informant.

hand, all the autonomous communities include the function of support to the primary care nursing personnel, as a connection between this and the specialized care, except for the Valencian Community that is developing it. Other functions are the management of secondary or inter-hospital transport in 86% of the ECC with nursing staff (except in Galicia and Navarra); the activation of clinical codes in 40% (the two most frequent codes, heart and stroke, are activated by nursing staff in 67% of the ECC); the coordination of transport in transplants in 40%; collaboration in the manage-

Table 2. Number and organization of the nursing staff in the Emergency Coordination Centers

	ECC with nursing staff	
	Number of nurses in the ECC	Shifts
Andalusia	12	9 to 21 h.
Aragon	6 nurses on duty 1 nurse on ward (2 occasionally).	8-20 h and from 20-8 h.
Balearic Islands	9	9 to 21 h.
Canary Islands	N/A	1 per island day shift. 1 in the archipelago at night.
Cantabria	23	9 to 21 h.
Castilla-La Mancha	14	Two nurses during the day in shifts of 12 and 24 h.
Castilla y León	9 (until 13-15)	2 during the day, 1 at night, shifts of 12 h.
Catalonia	13	8-20 h and 20-8 h.
Euskadi	86 staff members and about 15 additional. Combine ECC with activity in mobile units.	Bizkaia: 2 day nurses and one at night. Guipuzcoa: one day nurse and night only weekends and public holidays. Álava: weekends during the day.
Extremadura	5	Shifts of 24 h.
Galicia	7 (in times of reinforcement there are 10)	9-21 h and 21-9 h.
Madrid	30	12 hour shifts. 1 24 h shift in one of the SVAE.
Murcia	6	24 h shifts.
Navarra	4	Monday-Friday: from 15-22 h. Saturday-Sunday: 9-21 h.
Valencia	8	12 h shifts.

Note: as of April 2019.

ECC: Emergency Coordination Centers; N/A: no answer; ANC: advanced nursing care.

ment of multiple victim incidents in 66% (in Galicia, Castilla y León, Extremadura, Valencia, Madrid, the Canary Islands and Castilla La Mancha it is activated by nursing staff, while in Cantabria, Murcia and the Basque

Country it is activated in collaboration with medical staff in the ECC); and epidemiological warnings in 46%.

Discussion

For the first time, this study shows an outline of the functions performed by nursing professionals in the ECC, a new professional area that has emerged in recent years in Spain. The absence of documented procedures and their difficulty of access suggest that sometimes the incorporation of nursing professionals into the ECCs has been carried out due to a labor and organizational need rather than a process of formal identification of needs, definition of roles and responsibilities and establishment of coordination mechanisms with the medical regulators.

Currently most ECCs in Spain have incorporated nursing professionals into their staffs, although their work organization is very variable, suggesting the need to define and adapt these functions. It seems important to highlight the versatility and wide variety of tasks that these professionals carry out, including prevention and healthcare development.

In autonomous communities without nursing staff in their ECC, up to 40.7% of calls for care are resolved by medical advice over the phone¹³. Given that health advice in most regions is being resolved by trained nurses, with the occasional collaboration of the doctor on the ward, it would be important to analyse the impact of this change on the outcome and efficiency of medical telephone consultations. The incorporation of these professionals makes it necessary to clearly establish the functions and procedures carried out, as well as to analyze their real impact on the quality of care¹⁴. Given that in some ECCs doctors and nurses work together, the clear definition of their respective roles, for example in the management of incidents with multiple victims, is extremely important.

Table 3. Nursing responsibilities in emergency coordination centers

	Prevention and promotion of healthcare	Healthcare consultation	PC nursing support	Epidemiological warnings	MVI Management	Secondary transport	Code activation	Transplant coordination	Hospital pre-notification
Andalusia	Yes	Yes	Yes	No	No	Yes	No	No	No
Aragon	Yes	Yes	Yes	No	Not specifically	Yes	Yes	No	No
Baleares	Yes	Yes	Yes	No	No	Yes	No	No	Yes
Canarias	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cantabria	Yes	Yes	Yes	No	With the doctor	Yes	No	No	With the doctor
Castilla-La Mancha	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Castilla y León	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Cataluña	Yes	Yes	Yes	N/R	N/R	Yes	Yes	N/R	Yes
Euskadi	Yes	Yes	Yes	No	With the doctor	Yes	Yes	Yes	Yes
Extremadura	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Galicia	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Madrid	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Murcia	Yes	Yes	Yes	Yes	With the doctor	Yes	Yes	Yes	Yes
Navarra	Yes	Yes	Yes	No	No	No	No	No	Yes
Valencia	In progress	In progress	In progress	No	Yes	Yes	Yes	Yes on public roads	Yes

PC: Primary Care; MVI: multi-victim incidents; N/R: no response.

The roles of the nursing staff at the ECC are varied, but we do not know the process by which each ECC has selected some tasks and not others. Apart from the gradual implementation of functions over time and in each autonomous community, many of them are common to the different ECCs. However, it is necessary to establish mechanisms to evaluate the impact on health and on the health system of the incorporation of nursing personnel into the ECC, as well as their correct dimensioning, workload and assigned tasks.

The main limitation of this study has been the difficulty in accessing information about nursing procedures in the ECCs, either because of their lack or because they are documents for internal use. Therefore, the use of key informants has been chosen. The data obtained correspond to the study period (January-April 2019) and, given the rapid incorporation of nursing personnel into the ECCs, at the time of publication of this study it is possible that they may have varied. Another limitation is the impossibility of comparing rates of staffing and incorporation of nurses into the ECC, given the variations in the organization of care.

In conclusion, in the last few years there has been a gradual but heterogeneous incorporation of nursing personnel into the ECCs, and they are now present in almost all the autonomous communities. The roles they perform, many of which are common among different ECCs, are very varied. It is necessary to define their functions well and to analyze the impact of their incorporation to the ECC on health and the health system.

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