Spanish hospital emergency physicians' knowledge of emerging viruses

Valoración del conocimiento de virus emergentes de los médicos de urgencias

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Emerging infectious diseases (EIDs) are those that have recently appeared or that existed in the past but have now increased in frequency, geographic range, or both. In today's globalized world, EIDs are no longer confined to tropical regions[1-3] and are increasingly encountered in our hospitals.[4,5] The management of imported diseases represents a considerable number of consultations in emergency departments (EDs), where there is generally a lack of specific protocols for the management of such conditions.[6,7]

The recognition and reporting of EIDs depend entirely on the clinician's awareness of these diseases, their differential diagnosis, and the diagnostic tests performed. Adequate training in these diseases improves diagnosis based on clinical suspicion, since lack of training is the main cause of underdiagnosis.[8,9]

A clear example is the absence of unified criteria applicable across all emergency departments nationwide regarding the procedures to follow in cases of suspected viral hemorrhagic fever. EDs have non-uniform physical and functional structures that clearly differ among autonomous communities,[10] with various models of healthcare organization and emergency service delivery, and a lack of validated organizational models approved by authorities to ensure standardization.[11]

The objective of this study was to assess the knowledge of emergency physicians from different Spanish hospitals through a survey. This was a descriptive, cross-sectional, prospective, and observational study. The survey was conducted using Google Docs between March and May 2023. It was disseminated primarily via the institutional email of the University Hospital of Toledo, and participants were asked to share it through WhatsApp and Twitter with other attending emergency physicians from other hospitals. The Twitter account of SEMES Castilla-La Mancha (@SEMES-CLM) assisted in disseminating the voluntary and anonymous survey, as specified both in the distribution message and at the top of the response form.

The survey, conducted according to CHERRIES validation standards, included 33 questions organized into five sections: 1) epidemiological data of the respondent; 2) questions about physicians' perception of their training and preparedness to manage these diseases, as well as the preparedness of their EDs; 3) implementation of isolation measures; 4) knowledge of the presence in Spain of certain viruses causing hemorrhagic fevers; and 5) use of diagnostic tools.

A total of 58 participants completed the survey. Since the survey was disseminated through Twitter and WhatsApp, it is impossible to determine how many individuals received it and therefore the participation rate cannot be estimated.

Participants represented 26 different hospitals across 8 autonomous communities (Table 1). Of these, 73.2% were women. The mean age of participants was 44.42 years (IQR 11), and the mean time working in emergency care was 14.59 years (IQR 11.25). A total of 58.9% reported that their hospitals did not have an Imported Pathology and Global Health Unit. Moreover, 60.7% had not received specific training in emerging infectious diseases, and 58.9% stated that their EDs did not perform periodic reviews regarding the suspicion, management, or diagnosis of patients with probable viral hemorrhagic fever. Notably, 98.2% believed that regular training in this type of disease was important. Furthermore, 58.9% of participants did not know which information sources to consult when faced with a suspected case. A total of 53.6% did not feel confident performing an appropriate differential diagnosis in such cases. Additionally, 69.6% believed they had not received sufficient training to manage a suspected hemorrhagic fever case. All participants (100%) considered it important for EDs to have an isolation room for such patients, despite the rarity of these conditions.

A total of 30.4% of par-

Table 1. Distribution of the participants' workplaces

Centro de trabajo	Participantes
SUMMA 112	3
Hospital Universitario de Toledo	5
Hospital Universitario Ramón y Cajal	5
Hospital Universitario 12 de Octubre	4
Hospital Universitario Fundación Jiménez Díaz	2
Hospital Universitario Fundación Alcorcón	8
Hospital El Bierzo	1
Hospital El Escorial	4
Hospital Universitario La Paz	3
Hospital Universitario Infanta Leonor	2
Hospital Universitario Príncipe de Asturias	2
Hospital Universitario Infanta Sofía	1
Hospital Universitario de Getafe	4
Hospital Universitario de Torrejón	1
Hospital General de Elche	1
Hospital Universitario San Jorge	1
Hospital Universitario Donostia	1
Hospital San Eloy	1
Hospital Universitario Rio Hortega	1
Hospital General Dr. Balmis	1
Hospital Peset Valencia	1
Hospital de Talavera de la Reina	1
Hospital Galdakao-Usansolo	1
Hospital Universitario Puerta de Hierro	1
Hospital Universitario La Princesa	1
Hospital Central de Defensa Gómez Ulla	1
Hospital Universitario de A Coruña	1

Table 2. Distribution of responses regarding the presence of autochthonous viruses in Spain (upper half) and responses regarding the need for isolation for different viruses (lower half)

Virus presence	Yes (%)	No (%)	Don't know (%)	Correct answer
Dengue	36.4	58.2	5.5	Yes
Zika	16.1	75	8.9	No
Chikungunya	12.5	73.2	14.3	No
West Nile virus	25	48.2	26.8	Yes
Crimean-Congo virus	51.8	14.1	7.1	Yes
Rift Valley virus	5.4	53.6	41.1	No
Need for isolation by virus	**Yes (%)**	**No (%)**	**Don't know (%)**	**Correct answer**
Ebola	100	0	0	Yes
Marburg	88.7	3.8	7.5	Yes
Severe dengue	37.5	55.4	7.1	No
Mild dengue	16.1	78.6	5.4	No
Crimean-Congo virus	82.1	12.5	5.4	Yes
Lassa fever	39.3	16.1	44.6	Yes

ticipants stated that they would call 061 to report the suspected case so that the RENAVE protocol could be activated through Public Health. Another 28.6% would call 112, while 21.4% would contact the Coordination Center for Health Alerts and Emergencies directly. In contrast, 12.5% admitted they would not know what to do, and 7.1% said they would wait until the following day if the case occurred during the night, so that the Preventive Medicine department could handle the situation. A total of 60% of respondents also did not know which level of biosafety should be applied to samples obtained from a suspected patient. Only 21.8% correctly indicated that the appropriate biosafety level should be BSL-4 (biosafety level 4 laboratories, the highest level of biological safety), while 18.2% answered incorrectly.

With respect to prophylactic measures taken prior to travel to tropical regions, 52.7% of respondents admitted they would not know what questions to ask. Among emergency department (ED) attending physicians surveyed, 62.5% were unaware of how many high-level isolation units exist in Spain. Furthermore, 51.8% believed that their EDs were not adequately designed to maintain proper isolation of a patient with a suspected emerging virus infection until transfer.

Table 2 shows the distribution of responses regarding knowledge of the autochthonous presence of certain emerging diseases and the need for isolation.

A large percentage of surveyed health care workers acknowledged insufficient training in these pathologies, despite being frontline hospital personnel. Most did not receive regular training on potential outbreaks that might occur, even though being prepared before an outbreak begins is essential in this type of disease.

All respondents recognized the importance of promoting education and training on these diseases. It is necessary to prioritize training in these pathologies and simulation-based preparedness in emergency settings for potential outbreaks. Globalization and climate change make it likely that periodic outbreaks of emerging viruses will occur, and being prepared to provide a rapid response can make a crucial difference. It is essential to emphasize the creation of precise and standardized action protocols throughout the national territory. This would ensure that healthcare workers faced with suspected cases know exactly which actions to take and whom to contact in case of doubt. Each hospital could establish its own committees, while a nationally coordinated strategy could be implemented through various scientific societies to guarantee that accurate information and standardized protocols reach all hospitals.

The main limitation of this study is its limited dissemination and participation, with underrepresentation from several Spanish autonomous communities and healthcare professionals. Nevertheless, the presented data provide an initial approximation of training needs and will help to plan broader future studies, including other emergency and prehospital care professionals across Spain.

Note of the editors: This is a BOWMAN-generated English translation of the officially indexed Spanish-language article, which should be cited as Rev Esp Urg Emerg. 2024;3:61-63. In this translated version, the editors have supervised the process; however, it cannot be ruled out that some errors resulting from the artificial intelligence translation process may have gone unnoticed.

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