

SPECIAL ARTICLE

Medical training programs: comparisons between family and community medicine, internal medicine, intensive care medicine, anesthesiology and critical care, and emergency medicine

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Objective. To analyze whether current medical residency training programs in Spain foster the acquisition of knowledge and skills that enable specialists to provide emergency and urgent medical care.

Methods. We studied documents related to the content of residency programs for the following 4 specialties in effect in June 2021: internal medicine, intensive care medicine, anesthesiology and critical care, and family and community medicine. Program descriptions were obtained from the website of the Spanish Ministry of Health and the professional associations for each specialty. The associations' unofficial drafts and proposed updates were also studied. For emergency and urgent medicine, we studied drafts and updates of proposals presented to the Ministry of Health by the Spanish Society of Emergency Medicine (SEMES) in 2010 and an updated version presented in 2021. The proposals were drafted by the SEMES committee to promote specialization in emergency medicine.

Results. Existing residency programs treat the management of urgent events from diverse points of view related to hospital settings (internal medicine focusing on admitted patients, anesthesiology on patients in perioperative settings, and intensive care on those in their specialized units) or to primary care centers (family medicine), where they are an extension of routine care. The residents' rotations in emergency medicine vary. In anesthesiology, intensive care medicine, and family medicine, training occurs while residents are on call — in the first year for trainees in anesthesiology and intensive care medicine but throughout the 4-year residency (with time decreasing each year) for trainees in family medicine. Internal medicine offers an initial 3-month rotation in emergency medicine in the early phase and then assigns on-call shifts, without specifying a number. The proposed program submitted by SEMES includes wide-ranging contact with emergencies in various hospital settings (observation ward, trauma care, and pediatric care). Training in out-of-hospital emergencies and emergency and urgent care resource coordination centers are also included.

Conclusions. Currently available residency training in Spain does not provide appropriate preparation for practicing emergency medicine. Emergency medicine has its own body of theory and settings for practice that differ from those of other specialties. Therefore, at present there is a training gap in Spain that should be filled by creating a specialization in emergency medicine.

Keywords: Emergency medicine. Specialization. Education. Training programs. Internship and residency.

Análisis comparativo de los Programas de Formación Sanitaria Especializada de Medicina Familiar y Comunitaria, Medicina Interna, Medicina Intensiva, Anestesiología y Reanimación y Medicina de Urgencias y Emergencias

Objetivo. Analizar si con las especialidades actuales se adquieren los conocimientos y habilidades necesarios para desempeñar las funciones propias de la Medicina de Urgencias y Emergencias (MUE).

Método. Mediante análisis de contenido documental, se comparan los programas formativos de Medicina Interna (MI), Medicina Intensiva (MIV), Anestesiología y Reanimación (AyR) y Medicina Familiar y Comunitaria (MFyC) vigentes a fecha de junio de 2021, accesibles tanto en el portal web de Ministerio de Sanidad (MS), como a través de las sociedades científicas de las especialidades, incluidos los borradores no oficiales y propuestas de actualización de los programas y del programa de formación elaborado por la Comisión Promotora de la Especialidad de MUE, presentado por SEMES (Sociedad Española de Medicina de Urgencias y Emergencias) al MS en 2010 y actualizado en 2021.

Resultados. Los programas formativos de las especialidades existentes en la actualidad contemplan el manejo de las enfermedades urgentes de forma heterogénea en sus distintas áreas asistenciales (MI en las áreas de hospitalización, AyR en el perioperatorio y MIV en unidades de críticos) o como extensión de la actividad asistencial en el centro de salud (MFyC). Los periodos formativos en el área de la MUE son variables y se realizan en el caso de AyR, MIV y MFyC en un formato exclusivo de guardias (AyR y MIV únicamente durante el primer año y MFyC a lo largo de los 4 años de residencia, con porcentaje decreciente conforme avanza el tiempo de formación), y en el de MI a

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través de un rotatorio inicial de 3 meses durante su primera etapa formativa, y el resto del tiempo a través de guardias, sin especificar su número. La propuesta del programa de formación en MUE detalla un contacto amplio y específico tanto en los SUH, incluyendo todas sus áreas asistenciales propias (observación, urgencias traumatológicas y pediátricas) como en los dispositivos de emergencias extrahospitalarias y centros coordinadores de urgencias y emergencias.

Conclusiones. No es posible la adecuada preparación para desarrollar la MUE con la oferta formativa actual. La MUE presenta un cuerpo doctrinal y ámbito de actuación propios que son diferentes de los de otras especialidades. Esto provoca que en España exista un vacío formativo que se solventaría mediante la creación de una especialidad primaria en MUE.

Palabras clave: Medicina de Urgencias y Emergencias. Especialidad. Docencia. Programas formativos. Médicos internos residentes.

Introduction

Specialized Health Care Training (FSE in Spanish) in Spain is the means by which graduates in Medicine and Surgery acquire, by means of medical intern residency (MIR), the knowledge, skills and aptitudes that enable them to provide, in an efficacious manner, patient care in the field of each specialty. This training and development of technical competencies should be oriented towards improving the quality of the National Health System (NHS).

The Ministry of Health has published in 2021 a draft Royal Decree (RD) that will regulate the creation, revision or suppression of specialist degrees in Health Sciences and specific training area diplomas establishing the criteria for the creation or maintenance of a given specialty. It focuses on the importance of new degrees developing a set of contents and competencies significantly different from those already incorporated in other specialties; and that the competencies of a specialty cannot be acquired by adapting the official program of another pre-existing specialty or by increasing its duration¹.

A total of 50 medical specialties are recognized in Spain. Unlike the vast majority of European Union countries, Spain does not have a specialty in Emergency Medicine (EM). Most of the professionals currently working in Spanish hospital emergency departments (ED) and out-of-hospital emergency services (EMS) have a degree in Family and Community Medicine (FCM), although there are also specialists in Internal Medicine (IM) and even professionals without a specialty². This article analyzes and compares the training programs of the specialties of FCM, Intensive Care Medicine (ICM), Anesthesiology and Resuscitation (A&R), Internal Medicine (IM) and EM in a complementary manner to that carried out by Miguens et al. in 2015³, including the most recent updates formulated in these programs. The objective is to demonstrate whether the current specialties provide the knowledge and skills necessary to perform the functions of an emergency physician or whether the creation of a primary specialty of EM is necessary.

Methods

Prior to a documentary content analysis, a comparative analysis was made of the IVM, IVR, IM and FCM

training programs in force as of June 2021 and accessible on the website of the MOH and through the scientific societies of the four specialties, including unofficial drafts and proposals for updating the A&R and IVM programs, and the training program developed by the EM Specialty Promotion Committee and presented by SEMES (Spanish Society of Emergency Medicine) to the SC in 2010, reevaluated and updated in 2021.

We used the training programs of the specialty of: (i) MI, Order SCO/227/2007 of January 24⁴; (ii) MFyC, Order SCO/1198/2005, elaborated by the National Commission of the Specialty (CNE) of MFyC, published in BOE on May 3, 2005⁵; (iii) AyR elaborated by CNE and approved by the Secretary of State for Universities and Research of the Ministry of Education and Science by Resolution dated April 25, 1996⁶, with proposed update published in the Spanish Journal of Anesthesiology and Resuscitation in 2020⁷; (iv) IVM, prepared by the CNE on April 25, 1996, currently in force through RD 127/84⁸, with a draft prepared and presented by this same Commission to the Ministry of Health in February 2010, pending approval; and (v) EM program prepared in 2010 and revised in 2021 by the Specialty Promotion Commission. The variables analyzed were the conceptual definition of the specialty, fields of action, years of residency, shifts performed in the ED and EMS, and the existence of a specific rotation in the ED and EMS.

After analyzing the data, a descriptive comparison of each variable was made to detect the differences in training in each of the programs within the field of emergency medicine, in comparison with the training that would be provided by the creation of the primary specialty of EM via MIR with a program focused on the acquisition of knowledge, techniques and skills specific to its field of action, maintaining the vision of a transversal and global patient care.

Results

Conceptual definition of the specialty

The programs are heterogeneous in terms of extension and content, and some have been in force for 25 years, as is the case of the H&R program.

EM is defined as the medical specialty with surgical

skills that includes knowledge, prevention, diagnosis and treatment of all urgent diseases, conditions that, in the opinion of the patient, his family or whoever assumes responsibility for the demand for care, require immediate and emergent assistance, defined as urgent conditions that put the patient's life or the function of an organ in immediate danger.

The teaching program of FCM describes the family medicine specialist as one who provides integrated patient care from a biopsychosocial perspective, linking it to a specific family and social context, providing continuous care to the people he or she treats, raising the level of health of the healthy, curing the sick and palliating the effects of the disease, integrating curative activities with those of health promotion, prevention, rehabilitation, palliative care and carrying out his or her activity within a team of Primary Care (PC) professionals.

MI offers comprehensive care to the adult patient. It uses a medical approach in the prevention, diagnosis, therapeutic indication and follow-up of diseases, including rehabilitation and palliation.

A&R is the specialty responsible for perioperative medicine, competent in the knowledge and performance of all anesthetic and sedation techniques for diagnostic-therapeutic procedures, emergencies, resuscitation, assistance to patients with critical illness of any etiology and pain management.

Finally, IVM deals with patients with actual or potential dysfunction or failure of one or more life-threatening organs or systems that are amenable to recovery (Table 1).

The different specialties frame their scope of action both in the out-of-hospital and in the hospital environment, giving it greater importance depending on where their main healthcare activity takes place. The EM is responsible for the initial care of all patients presenting an urgent/emergent process until their transfer to another specialty, seeking, when necessary, interconsultation with other professionals.

On the other hand, the scope of action of the FCM physician is the health center. However, their training period is open to other teaching areas to broaden their learning within short-stay units, home hospitalization and palliative care, considering that the knowledge and skills acquired serve as a basis for developing their healthcare activity in EMS, ED, drug addiction care units, etc.

In turn, the field of action of the IM specialist focuses on the care of the adult multipathological and multi-symptomatic patient and the care of prevalent diseases in the hospital setting. The care of patients requiring urgent care at the different levels of hospital emergency care is also part of his or her area of care. AyR establishes, according to the current plan, the scope of action at both in-hospital and out-of-hospital levels.

In-hospital includes pre-anesthesia consultation, anesthesia in the operating room, post-anesthesia recovery unit, resuscitation, pain unit, post-anesthesia follow-up, emergency unit (resuscitation of critical patients

Table 1. Comparison of the conceptual definitions of the specialties

| | |
|-------------|---|
| MFyC | Specialty that provides integrated patient care from a biopsychosocial perspective linked to a family and social context, provides continuous care to the people it treats, raises the level of health of the healthy, cures the sick and cares for and palliates the effects of the disease when recovery of health is not possible, integrates healing activities with those of health promotion, prevention, rehabilitation and palliative care, and carries out its activity within a team of PC professionals. It integrates healing activities with those of health promotion, prevention, rehabilitation and palliative care and carries out its activity within a team of PC professionals. |
| MI | Medical specialty that offers a global attention to the adult patient with hospital practice and focuses its field of action in the attention to the pluripathological and polysymptomatic patient and with difficult diagnosis, using a medical approach in the prevention, diagnosis, therapeutic indication and follow-up of adult diseases including their rehabilitation and palliation. |
| IVM | Specialty that cares for patients with actual or potential dysfunction or failure of one or more life-threatening or failure of one or more organs or systems that represent a threat to life and are amenable to recovery. |
| AyR | Medical specialty responsible for perioperative medicine, competent in the knowledge and performance of all anesthetic and sedation techniques for diagnostic and therapeutic procedures, emergencies, resuscitation, assistance to patients with critical pathology of any etiology and treatment of acute and chronic pain. |
| EM | Medical specialty with surgical skills encompassing knowledge, prevention, diagnosis and treatment of all urgent and emergent diseases affecting patients of all age groups, and where time is critical. |

FCM: Family and Community Medicine; IM: Internal Medicine; IVM: Intensive Care Medicine; A&R: Anesthesiology and Resuscitation; EM: Emergency Medicine; PC: Primary Care.

and emergency management of surgical patients) and in-hospital sedation in special units. At the out-of-hospital level, it is understood as the place where the injured or critically ill patient is located, as well as the means of transport used for their evacuation.

Finally, IVM defines its scope of action as wherever the critically ill patient is: the intensive care unit (ICU) and other areas where there are critically ill patients requiring comprehensive care (hospitalization, emergency and urgency areas); at the out-of-hospital level, in the transport of critically ill patients and in disaster situations.

Duration and distribution of training

As for the years of training, there are also differences in the various training plans. While IM and ICU foresee a duration of 5 years, A&R and FCM stipulate 4. However, the draft of A&R extends its training period to 5 years. The proposed duration of the EM training plan is 5 years. During the 5 years of the EM training plan, there will be rotations within 3 teaching areas: the specific area of Emergency Medicine for 37 months, the general area for 7 months and complementary areas for 9 months (Table 2).

Of the 5 competency areas developed in the FCM

Table 2. Rotational schedule of the Emergency Medicine training plan

| | |
|-----------|--|
| R1 | <ul style="list-style-type: none"> – 5 months of Rotarians per specific area of emergency medicine, including 1 month each in cardiology, pulmonology, and digestive and emergency medicine, including 1 month each in cardiology, pulmonology, and digestive medicine and 1 month in emergency medicine. – 3 months in the general area of internal medicine and specialties of cardiology, pneumology and digestive medicine. – 1 month of rotation in primary care. – 1 month of rotation in general surgery. – 1 month of rotation in complementary radiology area. |
| R2 | <ul style="list-style-type: none"> – 7.5 months in specific area of emergency medicine, including 1 month of training in toxicology, 1 month in neurological emergencies, 1 month in oncological emergencies and palliative care and 1 month in emergencies. – 1 month in general internal medicine and medical specialties (neurology). – 1 month in primary care. – 1 month in complementary areas of psychiatry, nephrology, neurology and palliative care. and dermatology, of which 15 days are dedicated to urgent care in these disciplines. |
| R3 | <ul style="list-style-type: none"> – 6.5 months in a specific area of emergency medicine, including 2 months in traumatology emergency, 1 month in pediatric emergency and 1 month in emergency. – 4.5 months of rotation in complementary areas, including 1 month in pediatrics, 2 months in anesthesia and resuscitation and 30 days in otorhinolaryngology, ophthalmology and urology, of which 15 are dedicated to emergency care in these disciplines. |
| R4 | <ul style="list-style-type: none"> – 7 months in specific area of emergencies and emergencies, including 1 month of training in emergency ultrasound, 1 month in gynecological-obstetric emergencies, 1 month in short stay unit, 1 month in emergency coordination center, 1 month in emergencies and 2 months in emergencies. – 2 months in complementary area in intensive care unit, 2 months of elective rotations. |
| R5 | <ul style="list-style-type: none"> – 11 months in specific area of emergencies and emergencies, of which 4 in emergencies, including 1 month in helitransport and 7 in emergencies. |

program, 4 of them establish the health center and PC as the place of reference where learning should take place, leaving only the training content of competencies related to individual care open to be developed within the hospital setting in the teaching areas of IM, medical specialties, medical-surgical and emergency care. The following program is developed for each year of residency: during the first year, a minimum stay of 3 months and a maximum of 6 months in PC and 5 to 8 months in IM and specialties, without specifying which; during the second and third year, 8 months of training in IM and medical and medical-surgical specialties; 3 months in PC in rural centers; 3 months of child care mainly in PC; 3 months in mental health; 3 months in women's care; 3 months of elective stays or in health centers; during the fourth year, 11 months in PC. Training in the field of emergency medicine is only during on-call duty. Throughout the training period, each competency is assigned a priority level of acquisition and a level of responsibility attributed to the physician for that skill.

The IM training program distributes the rotations over 42 months in the IM service and related areas, of which only 3 months are spent in the hospital emer-

gency area; the remaining 18 months will be used for rotations in other units or services, of which 2 months will be spent in the intensive care or urgent critical care area.

The current H&R program establishes rotations in cardiology, pneumology, nephrology and radiodiagnosis during the first year of training and subsequently in the different surgical units. Rotations in ED and EMS are not foreseen.

Finally, the IVM training program proposes rotations through medical services, being mandatory MI, A&R, radiodiagnosis, cardiology, pneumology, neurology, general surgery, nephrology, coronary unit, polytrauma or neurocritical unit and postoperative cardiac surgery unit. Rotation through the ED is performed during the first year of training and only through on-call duty (Figure 1).

Definition of on-call periods

Regarding on-call periods, in the EM program they are considered as a source of teaching material and a time in which the resident can develop and put into practice his/her knowledge and skills. The maximum percentage will be performed within the emergency setting, mainly in the ED and EMS, but also in the emergency departments and devices of PC (ED/PA ED/PAED).

During the first year, 25% are in PC and 75% in the ED; during the second and third years, 25% are in PC, 37.5% in the ED, 12.5% in pediatrics, 12.5% in traumatology, 4.5% in gynecology and 8% in medical-surgical services; during the last year, 75% are in PC, 12.5% in the ED and 12.5% in EMS.

The training program for the specialty of IM recommends the performance of 4 to 6 on-call duties per month during the 4 training periods, alluding to their level of progressive acquisition of responsibilities. Only emergency room duty is specified during the first year. In the following periods, the relation of emergency/MI shifts is not specified or, directly, they are not contemplated.

In H&R, four shifts per month are scheduled to be performed in the anesthesia department itself. They are not contemplated in the ED or EMS departments. In the new program proposed in 2020, it is recommended that during the first months, on-call duty be performed in the ED, without specifying the total number or the recommended time.

IVM residents are expected to have contact with EDs limited to on-call duty during the first year of residency, approximately 5-6 per month. There are no plans to rotate through the EMS.

Knowledge, skills and abilities

Regarding the knowledge, skills and abilities variable, there is great variability from one training program to another. While in the reference program for the specialty of EM there is an extensive development of all

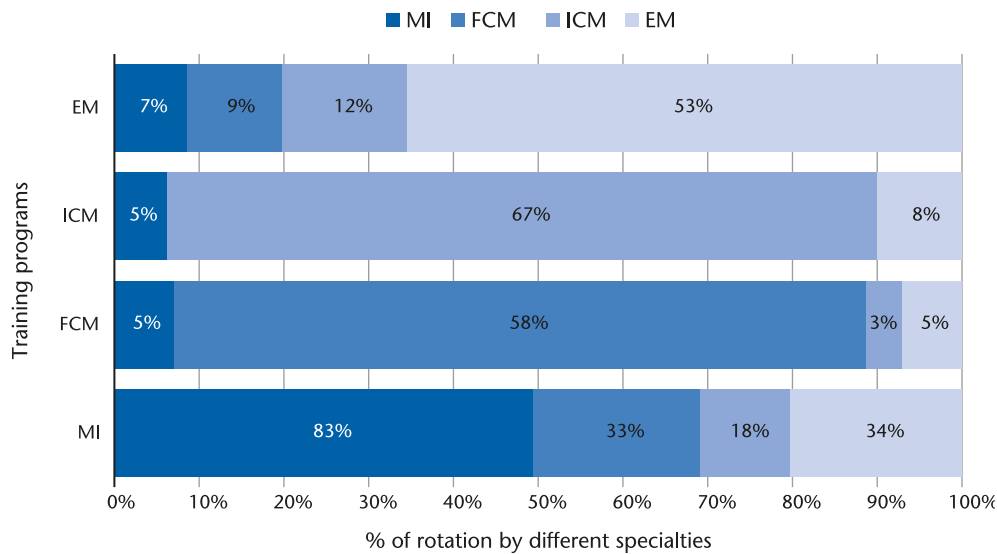


Figura 1. Planned rotations of each training program for the different specialties. EM: Emergency Medicine; ICM: Intensive Care Medicine; FCM: Family and Community Medicine; IM: Internal Medicine. The schedule for Anesthesiology and Resuscitation is not included since its training program only includes rotations for surgical specialties that include the practice of anesthesia.

the necessary knowledge and skills to be acquired during training, in the rest of the programs there is not as much depth (Table 3).

Discussion

According to the Annual Report of the Health System of 2019⁹, 23 million emergency consultations were attended in acute hospitals of the SNS. The frequency of ED visits was 0.49 consultations per inhabitant per year, which means that, every 2 years, the total Spanish population is attended in an ED. On the other hand, the demand for ED care in 2018 was 6.7 million, with 46.3 attendances per 1000 inhabitants. Both care areas have a clear upward progression in recent years. The emergencies attended in PC account for 28.7 million per year, with a frequency of 0.62 consultations per inhabitant per year.

The growing trend in emergency consultations reflects a change in the needs of the population that should be reflected in the skills acquired by specialists in training. Training is currently provided in a heterogeneous manner by the professionals themselves who carry out their healthcare activity in the ED and EMS. It is absolutely necessary to establish homogeneous training bases for the professionals who make up these services, unifying training and care criteria for the group of patients with urgent and emergent pathology.

The comparison of the training programs of the specialties involves difficulties because some of them have not been updated since their official publication, although the General Directorate of Professional Management of the Ministry of Health commissioned the different National Commissions of each specialty to

prepare an update of their training programs in 2016. The MFyC program has not officially changed since 2005 and that of MI since 2007; on the other hand, that of AyR has been updated, although its definitive publication is pending, so officially the program dates from 1996; finally, MIV has a draft from 2010, pending approval and publication, but the current one is from 1996. Thus, the differences objectified in the training programs of the 5 specialties have not changed substantially with respect to what was published by Miguens et al. in 2015, except for the novelties introduced in the EM reference program. In this regard, it should be emphasized that the permanent scientific-technological advances in the field of Medicine make it necessary to periodically review and update these training programs by adapting their curricular design.

The 5 training plans analyzed aim to provide a global and comprehensive vision of the patient, including in their definition the patient requiring emergency care, but each of them develops its action at certain times of the emergency process. Thus, IM is oriented to the adult multipathological patient, H&R focuses on perioperative medicine, IVM develops the bulk of its training in the maintenance of the critically ill patient, and FCM covers the management of adult patients from a biopsychosocial perspective in a specific socio-familial context. It is EM that encompasses the comprehensive care of all patients (children, adults and elderly) in all settings and situations, regardless of their severity.

In terms of content, there are important differences in the different fields of action of each of these specialties. According to this variable, each specialty makes it clear in its own training programs that it is not the same as that of EM. In the FCM program, it is limited

Table 3. Knowledge, skills and abilities of the different training programs

| | | | |
|------------|--|------------|---|
| FCM | <ul style="list-style-type: none"> – Health care communication. Clinical interview. Physician-patient relationship. – Clinical reasoning and decision making. – Care management. – Bioethics. – Approach to risk factors and cardiovascular problems (hypertension, hyperlipidemia). – Respiratory problems. – Digestive tract and liver problems. – Infectious problems. – Metabolic and endocrine problems (diabetes, obesity, thyroid). – Mental health problems. – Nervous system problems. – Hematological problems. – Skin problems. – Trauma, accidents, intoxications. – Kidney and urinary tract problems. – Musculoskeletal problems. – Otorhinolaryngology problems. – Ophthalmological problems. – Addictive risk behaviors. – Urgencies and emergencies. – Attention and preventive activities based on population groups and risk factors: children, adolescents, women, immobile patients, terminal patients, social or family risk situations. – Training, teaching and research. | ICM | <ul style="list-style-type: none"> – Clinical reasoning, decision making and disease management. – Resuscitation and initial management of the critically ill patient. – Therapeutic interventions/organ support in multi-organ or organ failure. – Practical procedures. – Perioperative care. – Comfort and recovery. – Care of the terminally ill patient. – Pediatric care. – Transport. – Patient safety and health systems management. – Training, teaching and research. – Professionalism. |
| MI | <ul style="list-style-type: none"> – Health care communication. Clinical interview. Relationship patient-physician relationship. – Clinical reasoning and decision making. – Indication and interpretation of complex complementary tests. – Cardiovascular diseases. – Respiratory diseases. – Digestive tract and liver diseases. – Infectious diseases. – Nervous system diseases. – Hematological diseases. – Tumor diseases. – Skin diseases. – Diseases of the endocrine system or nephrourological diseases. – Aging diseases. – Autoimmune and systemic diseases. – Emergency and/or critical care. – Diseases derived from alcohol abuse. – Alternatives to conventional hospitalization. – Specific units (HTA, systemic diseases...). – Development of technical skills: punctures, fundus examination, rectal and vaginal rectal and vaginal examination, use of peak-flow, pulse oximetry, ECG interpretation, echocardiography interpretation, performing FNA, interpretation of radiological tests such as computed tomography or nuclear magnetic resonance, indication of bronchoscopies and digestive endoscopies, interpretation of cardiac and respiratory functional tests, sternal punctures, advanced cardiopulmonary resuscitation, orotracheal intubation, insertion of venous accesses, puncture of cavities: lumbar puncture, thoracentesis, paracentesis. – Training, teaching and research. | AR | <ul style="list-style-type: none"> – Physiological and pharmacological basis of anesthesia. – Management and organization of the surgical area. – Urgent patient safety, hygiene and risk management. – Anesthesia equipment and advanced monitoring. – Preoperative evaluation. – Airway management. – Intraoperative management and care of the surgical patient. – Locoregional anesthetic techniques. – Perioperative medicine and acute pain management. – Cardiopulmonary and cerebral resuscitation management. – Medical management of the critically ill patient. – Critical emergency medicine. – Obstetric anesthesia. – Cardiothoracic anesthesia. – Neuroanesthesia. – Solid organ donation and transplantation. – Pediatric anesthesia/pediatric critical care. – Anesthesia in areas outside the operating room. – Ambulatory anesthesia. – Emergency anesthesia. – Multidisciplinary pain management. – Non-technical skills in anesthesia. – Professionalism and ethics. |
| | | EM | <ul style="list-style-type: none"> – Health communication. Clinical interview. Physician-patient relationship. – Clinical reasoning and decision making. – Indication and interpretation of complex complementary tests. Complex. Signs, symptoms and reasons for consultation. – Organization, planning and management of Emergencies and Emergencies. – Support of vital functions. – Cardiovascular emergencies. – Respiratory emergencies/emergencies. – Digestive/abdominal emergencies. – Infectious pathology emergencies/emergencies. – Endocrinometabolic/nutritional emergencies. – Nephrourological emergencies. – Nervous system emergencies. – Hematologic emergencies. – Rheumatologic emergencies. – Dermatological emergencies. – Ophthalmologic emergencies. – ENT emergencies. – Gyneco-obstetric emergencies/emergencies. – Urgencies/emergencies due to physical/environmental agents. – Toxicological emergencies/emergencies. – Psychiatric emergencies/emergencies. – Traumatologic emergencies/emergencies. – Pediatric emergencies. – Oncological emergencies/emergencies. – Organ/tissue donation. – Mastery of techniques and skills. – Assistance to multiple victims/disasters. – Medical coordination and regulation. – Training, teaching and research. |

FCM: Family and Community Medicine; IM: Internal Medicine; ICM: Intensive Care Medicine; AR: Anesthesiology and Resuscitation; EM: Emergency Medicine; ECG: electrocardiogram; FNA: fine needle aspiration puncture; HT: hypertension.

to the health center, which is already a factor that excludes professionals who practice as emergency physicians, whose field of action is the hospital/outpatient setting.

In the case of IVM, there is a contrast between what is indicated in the "Scope of action" section, where the ED and EMS are mentioned, and the subsequent development of rotation and on-call duty, where these services are relegated to a secondary role. Although the H&R and IVM training programs also operate in the hospital setting, their respective programs do not include training in the out-of-hospital setting, as is the case with the IM training program. However, within the EM program, an important part of the program is dedicated to development and training in this area, which has very specific characteristics: knowledge and particularities of the environment, contact with emergency coordination and information centers, emergency care resources and management, plans for the care of multiple victims, interaction and joint action with other out-of-hospital resources (firefighters, police), knowledge and operation of rescue units, isochrones or criteria for referral to a useful center (out-of-hospital-hospital interaction and coordination). Therefore, it is evident that no other training plan has contact with emergencies.

The training of specialist physicians should be carried out with quality, under the supervision of accredited teachers, during regular working hours, with adequate planning and encouraging scientific-teaching activities such as clinical sessions of the service, bibliographic sessions, discussion seminars, research or attendance at courses and congresses. In a complementary manner, during on-call duty, the training and work function should concur. The different training plans analyzed only contemplate on-call duty during an initial period of training, reducing the acquisition of knowledge and training tools in EM.

The amount of time that each of the training programs of these specialties expressly dedicates to EM training is anecdotal and insufficient. The IM program only proposes a 3-month rotation in the ED during the first year of training. For the rest of the time, training in the ED is relegated to on-call duty only, 4 to 6 per month between those performed in the hospitalization area and those performed in the ED, without specifying the percentage of each area. A similar situation occurs with the IVM training program, which contemplates emergency training exclusively in the form of on-call duty during the first year of training.

The current program for the specialty of H&R does not include rotations in the ED or EMS. As for on-call duty, four on-call duties per month are established in their own service. It is true that, in the new program proposed in 2020, it is recommended that during the first months of training, on-call duty in the emergency department is performed.

The contact with the EDs that the HCP training program contemplates is exclusively through on-call duty. Although the percentage is high with respect to the to-

tal number of shifts performed by these residents (37% of the total to be performed during their entire training period), shifts cannot be considered an optimal period for the training of professionals due to the high care load or the difficulty of acquiring knowledge during night hours. Therefore, the exclusive use of this modality does not guarantee the necessary training in EM. In addition, during the last year of training, there is hardly any presence in the ED, given that the training program, in coherence with the scope of action of FCM -distinct from that of the specialty of EM-, establishes a majority stay in PC, both in ordinary working hours and in continuous care, making it difficult to acquire the optimal knowledge to work with guarantees in an ED.

The proportion of training time dedicated to emergency medicine in each specialty is insufficient and deficient, as can be seen in the comparison of the total number of months of rotation (Figure 1). Adequate acquisition of the knowledge and skills necessary to carry out care work in the ED and EMS requires much more time to be dedicated than that foreseen by the other specialties. This shows that no specialty dedicates sufficient training time to the correct development of the others. It cannot be inferred that the fact of having completed a time-limited rotation in a given specialty qualifies the physician for the performance of that specialty.

The comparative analysis of rotations shows that, of the 4 strictly hospital-based specialties, EM is the only one that includes a real and extensive rotation in PC, in order to complete its comprehensive view of the patient and reduce the fragmentation caused by urgent care by other specialists.

Although the training plans for FCM and EM share some competencies, the FCM program assigns a tertiary level of responsibility to most of those considered essential within the EM specialty, i.e., those of other specialties (Table 4). Similarly, the EM and IVM programs are similar with respect to critical patient care. However, the IVM program lacks training in EMS, traumatic diseases, psychiatry, gynecology or pediatrics.

As stated in the program of the Emergency Medicine section of the Union Européenne Des Médecins Spécialistes (UEMS)¹⁰, emergency physicians have a key role in modern healthcare systems. The EP must address the medical needs of all patients in the emergency setting and prioritize interventions, coordinating and directing the care of multiple patients at the same time. He or she must possess not only the essential knowledge and skills necessary for patients requiring acute care, but also the knowledge and organizational skills necessary to work efficiently in the prehospital setting, the emergency department, observation and short-stay units, and ambulatory care. No training program, with the exception of the EM specialty, includes the organization of health care in EMS, nor does it train professionals to act in possible out-of-hospital or hospital scenarios in the care of multiple victims, including the military, in catastrophes or terrorism. Only in EM is training provided in patient transport

Table 4. Common teaching objectives between FCM and EM. Levels of priority and responsibility assigned in the FCM plan

| Area/description | Priority level* | Responsibility level** | Area/description | Priority level* | Responsibility level** |
|---|-----------------|------------------------|---|-----------------|------------------------|
| Cardiovascular | | | Ophthalmology | | |
| Acute coronary syndrome | | | Abrupt loss of visual acuity (OACR, vitreous hemorrhage, RD). Ocular perforation. Foreign body in the eye | 1 | Secondary/Tertiary |
| Cardio-respiratory arrest | | | Physical/chemical ocular trauma | | |
| Acute heart failure | | | Acute glaucoma | | |
| Arrhythmias | 1 | Secondary/Tertiary | Herpes zoster ophthalmicus | | |
| Pericarditis | | | Management of corneal ulcer, keratitis, uveitis and episcleritis | 2 | Secondary/Tertiary |
| Venous thromboembolic disease | | | Emergencies | | |
| Acute peripheral arterial obstruction | | | Initial diagnostic and therapeutic management of medical, surgical and traumatic emergencies attended in a health center | 1 | Primary/Tertiary |
| Aortic syndrome | | | Serum therapy | 1 | Tertiary |
| Hypertensive emergency and urgency | 1 | Primary/Tertiary | Oxygen therapy | | |
| Respiratory | | | Diagnostic and therapeutic management in a first level of medical, surgical and trauma emergencies attended in a hospital | 2 | Tertiary |
| Acute dyspnea | | | Diagnostic and therapeutic management in the critical area of medical, surgical and traumatologic emergencies | 3 | Tertiary |
| Massive hemoptysis | 1 | Tertiary | Techniques | | |
| Pneumothorax | | | Arterial blood gas analysis | 3 | Tertiary |
| Respiratory arrest | | | Thoracentesis | | |
| Severe asthma crisis | | | Lumbar puncture | | |
| Digestive | | | Paracentesis | 2 | Tertiary |
| Acute abdomen | | | Paraphimosis reduction | | |
| Biliary obstruction | | | Joint infiltrations | | |
| Acute pancreatitis | | | Arthrocentesis | 3 | Secondary |
| Acute appendicitis | | | Arterial tamponade | 1 | Tertiary |
| Intestinal occlusion/perforation | 1 | Tertiary | Gastric lavage | | |
| Hernial incarceration | | | Electrical treatment of CRP Advanced life support | | |
| Gastrointestinal bleeding | | | SNG placement | 2 | Tertiary |
| Hepatic insufficiency | | | Normal delivery | | |
| Hemorrhoidal crisis | | | Thrombolysis | | |
| Abscesses anal region | | | Central venous cannulation | | |
| Endocrinology | | | Pericardiocentesis | 3 | Tertiary |
| Acute complications in diabetic patients | 1 | Primary/Tertiary | Cricothyrotomy | | |
| Thyrotoxicosis | | | Ultrasound | | |
| Diagnosis of hyper/hypoCa, hyper/hypoNa, hyper/hypoK | 1 | Tertiary | | | |
| Infectious | | | | | |
| Sepsis | 1 | Tertiary | | | |
| Meningitis/encephalitis | 1 | Secondary/Tertiary | | | |
| CNS | | | | | |
| Diagnosis of altered level of consciousness (coma) | 1 | Secondary/Tertiary | | | |
| Mental health | | | | | |
| Attempted self-harm | | | | | |
| Psychomotor agitation | 1 | Tertiary | | | |
| Psychotic crisis | | | | | |
| Trauma and intoxications | | | | | |
| Initial management of: | | | | | |
| Polytrauma. TBI. Trauma thoracic and abdominal | | | | | |
| Drowned patient | | | | | |
| Sprains. Fractures. Dislocations | 1 | Secondary/Tertiary | | | |
| Complex wounds. Burns moderate/severe. Extensive animal bites | | | | | |
| Acute intoxications | | | | | |
| Therapeutic management of polytrauma and acute intoxications | 3 | Tertiary | | | |

*Priority levels: 1, Indispensable (those competencies that must be acquired by all residents and their absence questions competence); 2, Important (competencies that must be acquired by the majority of residents); and 3, Of excellence (if the previous levels have been reached). **Levels of responsibility: Primary (the family physician should be able to identify, evaluate and treat this type of problem without the support of another level of care in 90% of cases); Secondary (consultation with another level of care is usually required during the management of this type of problem); Tertiary (diagnosis and treatment is the responsibility of other specialists). F&CM: Family and Community Medicine; EM: Emergency Medicine; CTE: cranioencephalic trauma; CRAO: central retinal artery occlusion; RRA: retinal detachment; NGT: nasogastric tube; CNS: central nervous system; CRA: cardiorespiratory arrest; hypoCa: hypocalcemia; hypoNa: hyponatremia; hypoK: hypokalemia; hypoK: hypokalemia.

and stabilization in situ, triage systems and patient prioritization, organization and coordination with other security forces, organization and prioritization in the evacuation of patients to useful centers in order to optimize resources and increase both survival rates and the probability of functional recovery.

However, the current training offer does not allow for the training of an EM specialist as stipulated in the EM program. This statement is evident from an analysis

of the different programs, showing the unbridgeable gap between the EM program and those of H&R, IVM, IM and FCM. EM has its own body of doctrine and a scope of action different from that of the other 4 specialties, with minimal overlapping of content, as evidenced in detail by their respective programs.

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The cost of implementation would be minimal as these services already have personnel in training in other specialties and accredited teachers. The similarity between the program in the United States¹¹, the European program¹² and the one proposed in Spain is noteworthy, with very similar rotations, objectives, competencies and skills to be acquired, with specific implementation proposals. It ensures uniform and high quality training, which would place Spain at the level of the most advanced, with the most powerful ED and EMS.

Likewise, it addresses a clear medical and social need and resolves the frustration that many recent graduates express when they want to specialize in EM and cannot, being forced to choose other options as a step prior to their definitive claim, negatively affecting the transit specialties. In turn, the existence in the medium term of EM specialists trained on the basis of the program described above will result in increasingly solid, consistent and uniform training of successive professionals throughout the Spanish NHS.

We agree that it is necessary to implement legal, administrative and political measures at the national level with the aim of homogenizing the training of physicians involved in EM care.

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