



Exploring new training scenarios: 17 years of external rotations in Family and Community Medicine and Nursing at the Teaching Unit of Huesca.

Explorando nuevos escenarios formativos: 17 años de rotaciones externas en Medicina y Enfermería Familiar y Comunitaria en la Unidad Docente de Huesca.

Ana Isabel Aller Blanco ¹*, María Isabel Loscertales Artieda ², Soledad Lorés Casanova ³, Ana Isabel Mendoza Escuer ⁴.

¹ Family Physician. Specialist in Preventive Medicine and Public Health. Health Technician at the Multidisciplinary Teaching Unit of Medicine and Nursing in Huesca. aaller@salud.aragon.es; mvillamayor18@gmail.com; <https://orcid.org/0000-0003-0263-3496>

² Specialist nurse in Family and Community Nursing. Head of Resident Nurse Training at the Multidisciplinary Teaching Unit of Medicine and Nursing in Huesca. miloscertales@salud.aragon.es

³ Doctor of Medicine. Specialist in Family and Community Medicine. Head of Studies at the Multidisciplinary Teaching Unit of Medicine and Nursing of Huesca. slores@salud.aragon.es

⁴ Nurse. Head of Quality at the Multidisciplinary Teaching Unit of Medicine and Nursing in Huesca. aimendoza@salud.aragon.es

* Correspondence: aaller@salud.aragon.es

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Summary

Aim: To analyze the external rotations undertaken by MIR and EIR residents at the Multidisciplinary Teaching Unit of Huesca between 2008 and 2024, reviewing destinations, duration, evaluation, motivations, educational impact, barriers, and recommendations. **Methods:** Study design: A descriptive, retrospective, and cross-sectional study with a mixed-methods approach (quantitative and qualitative) at the Multidisciplinary Teaching Unit of Huesca. Participants: 91 external rotations managed since 2008, of which 54 (59.3%) were carried out between 2022 and 2024. Twenty-one responses were received to the survey sent to residents who completed rotations in the last four years. Interventions: Data collection was carried out using internal records, evaluation reports, and a self-administered survey. Variables analyzed included type of center, location, evaluation, presentation of the experience, motivations, barriers, and perceived impact. **Main measurements:** Dichotomous and multi-category qualitative variables, ordinal variables (Likert scale), and open-ended questions were analyzed using statistical tools and thematic analysis. **Results:** A significant increase in demand for external rotations was observed after the pandemic. Most were domestic, with a preference for hospitals. South America was the most popular international destination. Personal interest was the main motivation. 95% rated the educational impact as high or very high, 85% had no difficulties with the arrangements, and 100% would recommend the experience. **Conclusions:** Since 2020, external rotations have increased, especially among resident physicians (EIRs), with a preference for Aragon and South America. Although dissemination was limited, the perceived educational impact was high. Areas for improvement were identified regarding the involvement of Teaching Units and tutors in the preparation, supervision, and dissemination of information.

Keywords: External Rotations; Multidisciplinary Teaching Units; Family and Community Medicine (FCM); Family and Community Nursing; educational impact

Objetivo: Analizar las rotaciones externas realizadas por residentes MIR y EIR de la Unidad Docente Multidisciplinar de Huesca entre 2008 y 2024, revisando destinos, duración, evaluación, motivaciones, impacto formativo, barreras y recomendaciones. **Métodos:** Diseño del estudio: Estudio descriptivo, retrospectivo y transversal con enfoque mixto (cuantitativo y cualitativo) en la Unidad Docente Multidisciplinar de Huesca. Participantes: 91 rotaciones externas gestionadas desde 2008, de las cuales 54 (59,3 %) se realizaron entre 2022 y 2024. Se recibieron 21 respuestas a la encuesta enviada a residentes que realizaron rotaciones en los últimos cuatro años. Intervenciones: Recogida de datos mediante registros internos, informes de evaluación y encuesta auto administrada. Se analizaron variables como tipo de centro, ubicación, evaluación, presentación de la experiencia, motivaciones, barreras y percepción del impacto. **Mediciones principales:** Variables cualitativas dicotómicas y de varias categorías, ordinales (escala de Likert) y preguntas abiertas, analizadas con herramientas estadísticas y análisis temático. **Resultados:** Se observó un aumento significativo en la demanda de rotaciones externas tras la pandemia. La mayoría fueron nacionales, con preferencia por hospitales. Sudamérica fue el destino internacional más elegido. El interés personal fue el principal motivo. El 95 % valoró el impacto formativo como alto o muy alto, el 85 % no tuvo dificultades en la gestión y el 100 % recomendaría la experiencia. **Conclusiones:** Desde 2020 han aumentado las rotaciones externas, especialmente de los EIR con preferencia por Aragón y Sudamérica. Aunque la difusión fue limitada, la percepción del impacto formativo fue alto. Se identifican áreas de mejora respecto a la implicación de las Unidades Docentes y tutores en la preparación, supervisión y difusión.

Palabras clave: Rotaciones Externas; Unidades Docentes multidisciplinares; Medicina Familiar y Comunitaria (MF y C); Enfermería Familiar y Comunitaria; impacto formativo

1. Introduction

Resident physicians and nurses (MIR and EIR) are qualified professionals who gain access to specialized training after passing a national examination. In the case of Family and Community Medicine, the training lasts four years, while in Family and Community Nursing it lasts two years. Both programs are primarily conducted in accredited health centers and hospitals, following the pathways established by their respective regulatory frameworks: the Family Medicine Specialty Program, the Family and Community Nursing Specialty Program, and Royal Decree 183/2008 (1-3). Royal Decree 183/2008, concerning the classification and development of specialized healthcare training in Health Sciences, includes optional training placements, known as external rotations, which allow residents to expand their training in specific areas of interest. In Medicine, these rotations can last up to four months within each annual evaluation period. In Nursing, the maximum duration is 4 months in the entire two years of training (3).

Optional external rotations offer residents the opportunity to choose national or international destinations to delve deeper into specific areas, learn about new work dynamics, and explore other healthcare environments. Initially, an external rotation requires starting from scratch in a new department, where the team and work dynamics are unfamiliar (4). Adapting to a new team and environment can be challenging at first, but these experiences enrich both the resident's professional and personal development. Furthermore, they foster the creation of collaborative networks that are valuable for clinical practice and research.

The main objective of this article is to analyze the external rotations undertaken by residents of the Multidisciplinary Teaching Unit of Huesca from 2008 to the present. Secondary objectives include: describing the characteristics of the external rotations (destinations, duration, areas of interest, and modality), identifying the main reasons and criteria that influenced residents' choice of rotation centers, evaluating residents' perceptions of the educational and professional impact, and

identifying barriers and facilitators in the application, management, and development process for these rotations.

2. Methods

A descriptive, retrospective, and cross-sectional study with a quantitative and qualitative approach was conducted, focusing on the external rotations undertaken by residents of the Multidisciplinary Teaching Unit of Huesca between 2008 and 2024. Inclusion criteria were medical and nursing residents who completed at least one external rotation during the period from 2008 to 2024. To assess the perceived impact, the study period was shortened to 2022 to 2024, as most rotation requests were submitted during this time, making it easier to contact residents to complete the survey. No exclusion criteria were applied.

Three main sources were used for data collection: internal records of the teaching unit (resolutions of the General Directorate of Healthcare and Planning after acceptance by the respective tutors, head of studies, Teaching Commission and manager), external rotation evaluation reports and a self-administered survey sent to MIR and EIR residents who carried out rotations between 2022 and 2024. This survey allowed us to explore the personal experience, the objectives pursued and the perception of the educational impact of the rotations.

The variables analyzed in the study included: the year of residency in which the rotation took place, the resident's specialty (MIR or EIR), the receiving center and its geographical location, as well as whether or not the rotation evaluation was completed. It was also considered whether or not the resident shared their experience with other colleagues; factors that influenced the choice of rotation center (measured using a qualitative variable with several categories); the perceived educational impact (measured using a Likert scale from 1 to 5); the improvement of professional skills (using an open-ended question); the barriers and facilitators encountered during the process (also using an open-ended question); and finally, whether or not they would recommend this experience to future residents.

Statistical analysis was performed using Jamovi and Excel. Descriptive and chi-square tests were applied, with statistical significance at $p < 0.05$. When necessary, 95% confidence intervals were used. For qualitative responses, a cross-sectional thematic analysis was applied, which allowed for the identification of relevant patterns and categories in the residents' opinions.

3. Results

Since 2008, the Multidisciplinary Teaching Unit of Huesca has managed a total of 91 external rotations, 72% for Medical Interns (MIRs) and 27% for Nursing Interns (EIRs) (Figures 1 and 2). From 2020 onwards, a progressive increase in demand has been observed, with 60% of applications concentrated in the years 2022, 2023, and 2024. Of the 54 external rotations, 41% correspond to EIRs and 59% to MIRs. Regarding the timing of these rotations, Medical Interns (MIRs) typically complete them in their third year, while Nursing Interns (EIRs) do so in their first or second year of training.

Regarding the type of center chosen, hospitals were the preferred option for most residents, with no statistically significant differences between MIR and EIR residents ($p = 0.678$). As for the type of rotation, 82.4% were within Spain. Within Spain, Aragon was the most requested region (36%), followed by Catalonia (14.7%), the Canary Islands (13.3%), and Madrid (12%). No significant differences were observed between MIR and EIR residents in the type of center chosen ($p = 0.678$) or in the geographical distribution of placements ($p = 0.559$).

Internationally, South America was the most popular destination, accounting for 11% of external rotations. Argentina was the most chosen country by resident physicians (MIRs), while resident physicians (EIRs) opted for Chile, specifically the city of Talcahuano.

Regarding the factors that influenced the choice of destination, of the 21 people surveyed, 9 cited personal interest as the most frequently mentioned reason. Other factors included the experience of other residents (5 responses), the opportunity to travel (3), and a tutor's recommendation (1).

Eighty-seven percent of the rotations were formally evaluated. However, only 20% of the experiences were shared with other residents through clinical sessions or educational presentations. Of the 21 surveys received regarding the perceived impact of the rotation, only 14% (5.6%, 31.5%) indicated having had difficulties with management, although some mentioned problems such as difficulty coordinating dates, excessive bureaucracy, and administrative procedures.

Finally, 95% CI (81.5%; 98.1%) of the respondents rated the perception of the educational and professional impact of the external rotation as high or very high, highlighting its contribution to the development of clinical and personal skills, as shown in Table 1. We see that in MIRs (Medical Intern Residents) clinical skills in emergencies, home care, and adaptation to diverse health systems stand out, while in EIRs (Nursing Intern Residents), skills in techniques such as suturing, wound care, and pediatric care stand out, along with the development of strategic management and intercultural sensitivity.

Furthermore, 100% would recommend doing an external rotation, highlighting its relevance for both professional growth and personal development.

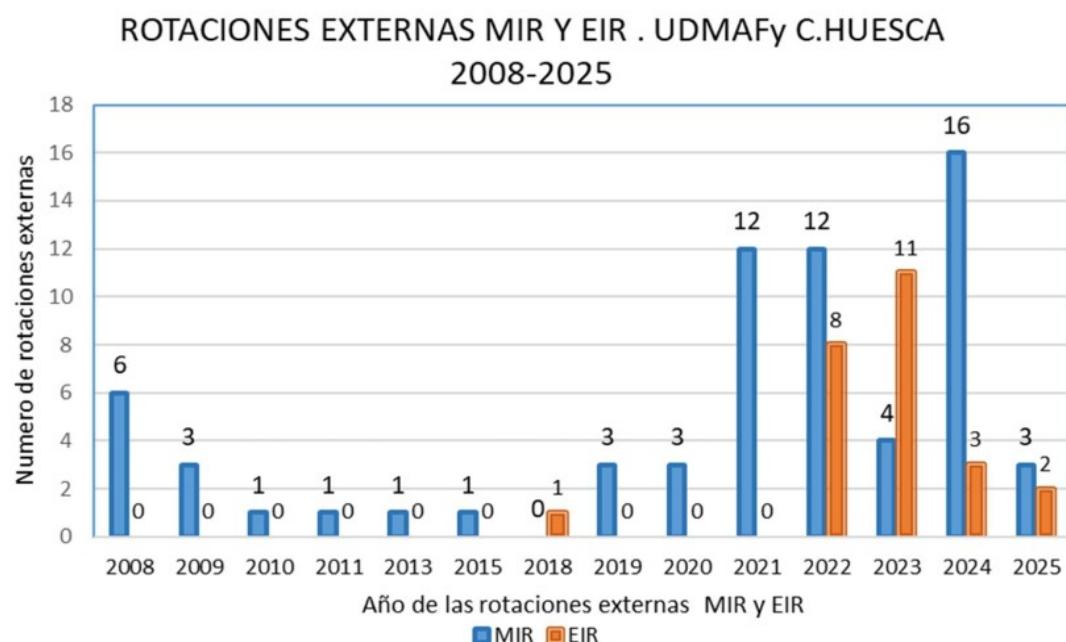


Figure 1. External rotations MIR and EIR at the UDMFy C Huesca.

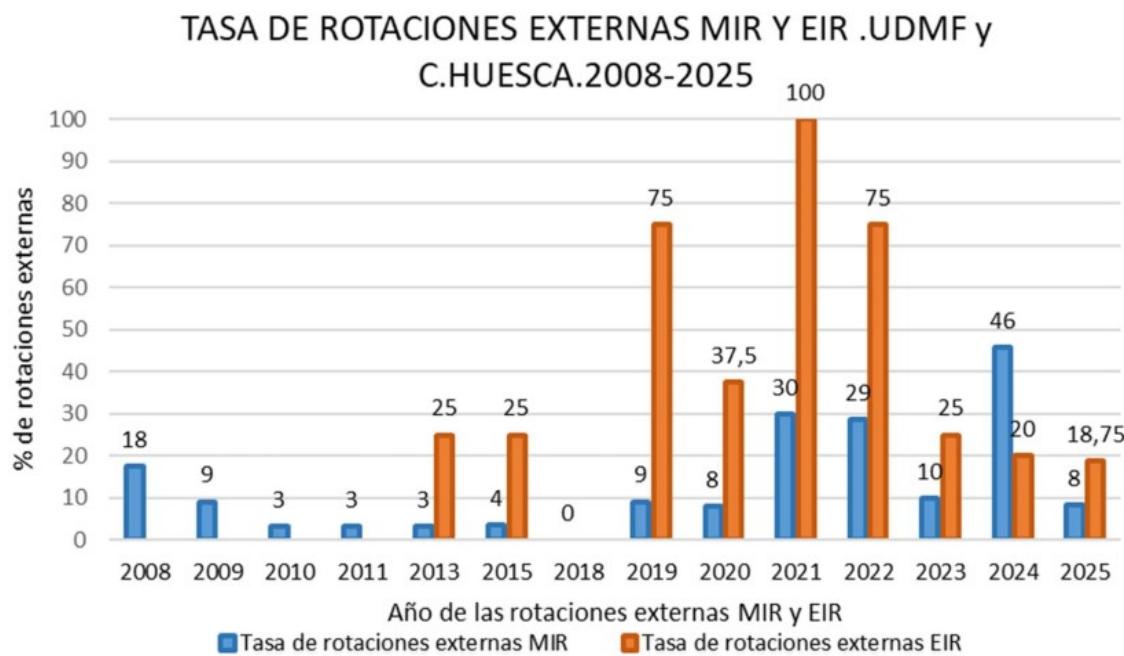


Figure 2. Rate of external rotations MIR and EIR in the UDMFy C Huesca.

Table 1. Educational and professional impact.

	MIR	EIR
Technical and Clinical Competencies	<ol style="list-style-type: none"> Handling critical situations at the primary care level Rapid identification and treatment of acute conditions. Ventilation and application of respiratory support techniques in non-hospital settings. Reading and analysis of radiological studies to support diagnoses. Pain management. Management of infectious diseases 	<ol style="list-style-type: none"> Suturing and handling of cold and electric scalpels: Management of insulin pumps, sensors and portion control Comprehensive assessment and wound care Diabetes education.
Out-of-hospital care	<ol style="list-style-type: none"> Monitoring patients at home, humanized approach and end-of-life management. Coordination of complex care outside the hospital. 	
Adaptation to the healthcare environment.	<ol style="list-style-type: none"> Knowledge of another health system. Provide home-based resources before referring to hospital. Avoid unnecessary hospitalizations. Primary care in another country with fewer resources. Adapting to contexts with limitations. 	<ol style="list-style-type: none"> Knowledge of a different healthcare system (Argentina). Understanding of its local functioning and structure. Development of skills in contexts with restricted access to hospital services. Support and learning in diverse cultural contexts.
Pediatric and maternal-child care.		<ol style="list-style-type: none"> Comprehensive approach to maternal and child health. Pediatric diabetes unit. Clinical

		knowledge, communication, and education adapted to children and their families.
		3. Pediatric palliative care. Development of in-depth clinical, ethical, and communication skills.
Transferable skills	1. Improved relationship with patients and teams, and efficient use of available resources.	1. Efficient and strategic use of available services. 2. Care management: optimization of human and material resources.



Figure 3. External rotations carried out by MIR and EIR residents of the Multidisciplinary Teaching Unit of Huesca between 2008 and 2024.

4. Discussion

This article aims to analyze the training path undertaken by residents of the Multidisciplinary Teaching Unit for Family and Community Care (UD M a F y C) in Huesca with regard to external rotations since 2008. The increase in the demand for this type of rotation in the last 3-4 years is very striking, especially from EIRs (Specialized Resident Physicians) coinciding with the end of the COVID-19 pandemic, which could reflect new motivations to broaden professional experience beyond the usual environment, after a period of restrictions imposed by the pandemic.

Most of the studies available in the literature on external rotations tend to focus on individual experiences and, for the most part, on international rotations. (5-9) This work offers a global analysis of external rotations—both for resident physicians (MIR) and resident nurses (EIR)—managed by the Teaching Unit, covering both national and international destinations.

One interesting finding is the overlap between MIR and EIR residents in their preference for hospital rotations, suggesting a shared training motivation to acquire skills in more specialized clinical settings. Furthermore, rotations in other autonomous communities within Spain have enriched the training experience, allowing residents to observe different organizational models and establish personal and professional connections that will serve as a foundation for future collaboration networks, which are so valuable in both clinical practice and research (4).

The choice of international destinations, especially outside the European environment, stems from a growing interest in learning about other health systems and broadening professional perspectives, since health professionals (and especially those who intend to work in Primary Care) must not only be clinically competent, but also train and practice in understanding and considering the socio-cultural contexts of their patients, neighborhoods and work teams (10).

85% of the 21 surveys completed indicated that they experienced no difficulties in processing their external rotations. The Teaching Units were highlighted for their facilitating role in the document management process, an important factor in helping residents expedite the necessary procedures.

Also noteworthy is the high percentage of formal evaluations of rotations, reflecting a commitment to quality training. However, this contrasts with the low level of dissemination of experiences among colleagues, possibly attributable to a certain laxity on the part of the Teaching Units and tutors in this regard.

Adequate preparation prior to the rotation, supervision during the training period, and subsequent evaluation and dissemination of the experience are essential elements to guarantee effective learning (10). In this process, the Teaching Units should play an active role in identifying areas for improvement to better optimize the educational benefits of the external rotation.

It should also be noted that 100% of respondents would recommend this external rotation experience, highlighting its relevance both at an educational and professional level, an aspect that is also highlighted by Bridgwood B et al. (11) and that is in line with the results obtained in our study.

When assessing motivation and the perceived educational impact of external rotations, we encountered the limitation of the low survey response rate. This may be due to contact problems caused by email address changes or loss of contact after residency completion, or because residents did not perceive the survey as valuable. Despite being sent twice, only 38% of residents (21 out of 54) responded. This low response rate can generate selection bias, since the most motivated participants or those with more positive experiences could be overrepresented. In addition, some

open-ended questions, such as those relating to the perception of motivation, although valuable, had a small number of responses, which limits the generalizability of the findings.

However, the qualitative nature of these questions allows for valuable insights to be drawn from the responses received. Among the factors mentioned, personal motivation was the most frequently cited, reinforcing the idea that the individual desire to broaden knowledge and experience remains a key driver in the choice of these rotations.

Finally, it is necessary to propose some lines of research that could enrich the approach to this topic. Among them, the need to delve deeper into the role that Teaching Units should play in key aspects such as planning, support during the residency, and the subsequent dissemination of experiences and their impact in terms of knowledge, transfer (application of what has been learned), and the repercussions on the population stands out. Future research should incorporate a prospective design and post-residency follow-up strategies that encompass non-technical skills, such as communication, adaptation to diverse cultural contexts, and the resident's personal growth.

5. Conclusions

- Since 2020, external rotations have increased, especially for EIRs with a preference for Aragon and South America.
- Although dissemination was limited, the perception of the educational impact was high.
- Areas for improvement are identified regarding the involvement of Teaching Units and tutors in preparation, supervision and dissemination.

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AI Use Declaration : The authors declare the use of AI tools to support the writing of this manuscript. In particular, Microsoft Copilot (based on the OpenAI GPT-4 model) was used for: writing, grammar checking, and style improvement in the introduction, discussion, and conclusions sections. All decisions regarding the design, results, and final conclusions of the content were made by the authors.

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