

The chief resident: an experience in a university hospital in Uruguay

El jefe de residentes: una experiencia en un hospital universitario de Uruguay

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Received: March 21, 2022 ; Accepted: April 17, 2022 ; Posted: May 16, 2022

Summary: The presence of a Chief Resident who performs management functions is essential to improve the formation and functioning of the group of residents. The figure of the Chief Resident occupies a preponderant role in the academic structure in various countries, exercising a liaison position between residents, teachers and the administrative structure of a hospital. Hospital Maciel is a public hospital in Montevideo, Uruguay, associated with the University of the Republic. Medical Clinics 1 and 3 operate at Hospital Maciel, two clinical services dependent on the Department of Internal Medicine. Each year a position of Head of Internal Medicine Residents is filled through competitive examination and merits. This article describes the main functions performed by the Chief Resident of Internal Medicine at the Maciel Hospital, during the period between November 2015 and November 2016. An analysis is made of his role in the planning and execution of different activities and presents a reflection on the importance of having this figure of reference during the training stage of medical specialists.

Keywords: Medical Education; Postgraduate Education in Medicine; Internal Medicine

Resumen: La presencia de un Jefe de Residentes que desempeñe funciones de gestión es fundamental para mejorar la formación y el funcionamiento del grupo de residentes. La figura del Jefe de Residentes ocupa un rol preponderante en la estructura académica en diversos países, ejerciendo un puesto de enlace entre los residentes, docentes y la estructura administrativa de un hospital. El Hospital Maciel es un hospital público de Montevideo, Uruguay, asociado a la Universidad de la República. En el Hospital Maciel funcionan las Clínicas Médicas 1 y 3, dos servicios clínicos dependientes del Departamento de Medicina Interna. Cada año se provee un cargo de Jefe de Residentes de Medicina Interna mediante concurso de oposición y méritos. Este artículo describe las principales funciones desempeñadas por el Jefe de Residentes de Medicina Interna en el Hospital Maciel, durante el período comprendido entre noviembre de 2015 y noviembre de 2016. Se realiza un análisis de su rol en la planificación y ejecución de diferentes actividades y se presenta una reflexión sobre la importancia de contar con esta figura de referencia durante la etapa de formación de los médicos especialistas.

Palabras clave: Educación Médica; Educación de Postgrado en Medicina; Medicina Interna

1. Introduction

The figure of the Chief Resident emerged at the end of the 18th century in the United States and Canada (1), due to the need to articulate teaching and care tasks in the complex organizational structure of university hospitals. There it was established as a position of importance and renown, constituting a key piece to guide the adaptation and learning process of the residents (2). Since then,

various hospitals around the world have incorporated Chief Residents, managing to demonstrate that their insertion contributes to a better development of educational programs (3).

The Chief Resident is a mediator between residents and teachers, in charge of monitoring and ensuring compliance with the training program. It performs multiple functions in the administrative, assistance, educational and leadership areas, which include the planning, organization and coordination of activities, as well as the supervision and evaluation of residents (1). Must be able to combine care tasks with educational management activities, including teaching and research (4). Table 1 summarizes the main qualities and competencies that a Chief Resident must have (5).

Table 1. Main qualities and competencies that must be present a Chief Resident	
Qualities	Competencies
Integrity	Clinics
Responsibility	Communication skills
Professionalism	Critical analysis and research
Constancy	Leadership
Objectivity	Management
Accessibility	Coordination of learning groups
Humanism	Conflict resolution

Some examples of the tasks carried out by the Chief Resident include the defense of the educational interests of the residents, the distribution of their shifts, rotations and licenses, the programming of educational rounds, the link with the superior personnel and the orientation of newer residents (6.7). Often these obligations are not standardized. Therefore, the goals, responsibilities, and experiences of those who undertake this challenge can be highly variable, depending on the different institutional traditions, the allocation of resources, and the needs and expectations of each program (8).

The Chief Resident position represents recognition of exemplary performance in many services, and is often seen as a stepping stone to an academic career. However, the ambiguity of the role and the lack of formal credentials, as well as the little feedback on clinical, educational and/or leadership skills that commonly exists, are negative aspects in relation to the performance of the position. In addition to developing these types of skills, the Chief Resident should acquire training in human resource management, response mechanisms and adaptation to institutional change, conflict management, and regulatory and institutional responsibility issues. To this end, it is currently promoted that the Head of Residents receive continuous mentoring and feedback on their performance, that they participate in leadership courses and interviews with institutional references for their advice, and that they develop academic work to broaden their curriculum (9).

In Uruguay, the first regulations related to the positions of Chief Residents were established in the 1970s (10), and they are currently appointed by the Council of the Faculty of Medicine, according to the new Medical Residency Law of 2014 (11). Former residents who have the title of the corresponding specialty can apply within two years of the end of their residency and, unlike other countries, the call does not require the prior presentation of a project. The Chief Resident must complete thirty hours per week and his performance is evaluated every year, with a maximum contract term of three years. Despite the existence of this legal framework that establishes the method of selection, appointment and general characteristics of the position of Chief Resident, his figure is still poorly defined and recognized in the local medical scene. In fact, not all university hospitals, nor all specialties, have a Chief Resident.

Within the training centers that exist in Montevideo, the Maciel Hospital is a public university hospital whose Department of Internal Medicine is made up of two Medical Clinics (1 and 3). A total of 20 Internal Medicine residents attend each year, highlighting that the position of Chief Resident has been vacant since November 2016.

In Uruguay there are no studies related to the exercise of the position of Chief Resident. The objectives of this article are to define the figure of the Chief Resident in an Internal Medicine service, establish its main functions and reflect on the importance of this position in the training of specialists.

2. Postgraduate training system in Uruguay

The objective of the National System of Medical Residencies of Uruguay is the postgraduate training of graduated doctors, and it is made up of the Ministry of Public Health, the Faculty of Medicine of the University of the Republic, the Graduate School of the Faculty of Medicine and the public and private health-providing institutions that make up the National Integrated Health System (1). Medical specialization is carried out through two different routes: the conventional postgraduate course and the residency. The conventional postgraduate course does not include remuneration and has a time requirement of 24 hours per week; on the other hand, the residency involves working 48 hours a week with pay (12).

There are currently 48 postgraduate specialties that are accessed through an anonymous entrance test based on a pre-established syllabus, prepared independently by each specialty (13). When the graduated doctor wants to apply for a paid position, it is an essential requirement not to have received more than three years of training. Those professionals who do not meet this condition can access the same specialty by conventional postgraduate (12). The entrance tests are taken between the months of November and December of each year, while the courses begin in April of the following year.

The number of professionals who enter this complementary training as residents is defined year by year by the Technical Commission for Medical Residencies, based on the capacity of the Teaching Units and the general budget available (12). Residents specialize through programmed activities under the supervision of the teaching staff of the centers accredited by the Faculty of Medicine (1), both in the public and private subsectors. Among the public hospitals where the chairs of the Faculty of Medicine dependent on the University of the Republic are located, the medical clinics of the Maciel Hospital, the Hospital de Clínicas and the Pasteur Hospital stand out (14).

3. Specialization in Internal Medicine in Uruguay

In the specialty of Internal Medicine there is a limited number of positions; the former are for resident postgraduates and the latter are for non-resident postgraduates. The choice of the training center is voluntary and is carried out according to the order of priority established by the score of the entrance test. Until 2009, the specialization had a duration of 3 years; From there, a new 4-year proposal was proposed, which will come into effect in 2022 (14).

The current curriculum requires completing three modules and collecting 614 credits, which arise from participation in regular activities of the chair, instances of evaluation of knowledge and skills (partial thematic tests, common courses and Mini-CEX or structured clinical examination exercise), as well as activities for the production of knowledge, dissemination or other works (monographs, annotated clinical histories) (14).

To obtain the title of specialist in Internal Medicine, the postgraduate must take a final clinical test before a panel of three professors, with two members from the center to which the postgraduate belongs and a third professor from another of the remaining medical clinics (14).

4. Methodology

A qualitative documentary research was carried out to establish the main functions performed by the Chief Resident of Internal Medicine at the Maciel Hospital during the period between November 2015 and November 2016. Personal records obtained by the Chief of Internal Medicine were used as a source of information. of Residents in each activity, with documentary criteria and self-assessment of their performance.

5. Functions performed by the Chief Resident

5.1 - Administrative functions

5.1.1. - Creation of a database

The Chief Resident collected demographic data from the residents (personal data, academic background, work activities, languages, others). This database allowed him to have a comprehensive knowledge of the group.

5.1.2. - Establishment of a communication channel

E-mail was established as a formal means of communication for the dissemination of information related to academic and care activities. Alternatively, a WhatsApp group was used.

5.1.3. - Creation of a Residents Commission

A first, second and third year resident was appointed by vote to form a representative Residents Commission of the group. Periodic meetings were held with the Chief Resident, tutors and other hospital authorities, to discuss topics of interest, planning and proposals for improvement during the course of the residency.

5.1.4. - Coordination of healthcare activities

The Chief of Residents coordinated the activities of outpatient consultation and emergency calls in conjunction with the heads of service, placing emphasis on ensuring coverage in cases of unforeseen absenteeism, regulatory licenses, rotations, congresses, among others.

5.1.5. - Coordination of other activities

The Chief of Residents collaborated with the coordination and dissemination of the meetings held on a weekly basis. Participated in the coordination of rotations of third-year residents for other services. In addition, it organized three cycles of preparatory seminars (23 in total) for the theoretical knowledge evaluation tests, supervised by teachers. PowerPoint presentations were used as the focus of discussion. The seminar cycles are summarized in Table 2.

Table 2. Cycles of preparatory seminars for the semester theoretical test of the Internal Medicine residency carried out during 2015-2016.		
Cycle	Thematic areas	Syllabus
I	Hematology and hemotherapy	Chronic lymphoproliferative syndromes
		Chronic myeloproliferative syndromes
		Multiple myeloma and monoclonal gammopathies
		Reversal of anticoagulant therapy
		Transfusion reactions
	Rheumatology	Systemic lupus erythematosus
		Antiphospholipid syndrome
		Rheumatoid arthritis
Spondyloarthropathies		
II	Cardiology	pericarditis
		Tachyarrhythmias
		Bradyarrhythmias
		Ischemic heart disease I
		Ischemic heart disease II
		Pathology of the aorta
		Venous thromboembolic disease
		Cardiomyopathies
III	Pneumology	Pulmonary hypertension
		Hemoptysis
		Bronchopulmonary cancer
		Interstitiopathies
		Pulmonary tuberculosis
		Sleep apnea

5.2 - Assistance functions

The Chief Resident performed tasks of direct assistance to patients in the polyclinic and hospitalization area, with variable frequency. These included:

- Control and monitoring of outpatients.
- Support of the teams of teachers - residents responsible for the hospitalization rooms.
- Supervision of residents, generating feedback to teachers in relation to their performance (clinical and communication skills, among others).

Likewise, the Chief Resident attended weekly clinical meetings to discuss complex cases, participating in making diagnostic and therapeutic decisions.

5.3 - Educational functions

This section describes activities for updating, deepening, perfecting and acquiring knowledge and skills by residents. For its planning and development, active participation methodologies (workshops, seminars, discussion groups) were prioritized, as established by the current training program (15).

5.3.1. Clinical Reasoning Course

A clinical reasoning course was planned that used a case-based learning model. Nine interactive clinical sessions were completed with real patients and teacher discussion facilitators. The course presented global satisfaction levels above 90% among residents and teachers. (16).

5.3.2. Introductory course to Evidence-Based Medicine

This course was implemented to educate residents in tools for the critical analysis of biomedical information. The contents of the course are summarized in Table 3. Once finished, periodic sessions of critical reading of scientific articles were held.

Exercise	Syllabus
Theoretical I	Introduction to medicine based on Evidence
	Levels of evidence
	Analysis of clinical trials and clinical practice guidelines
Theoretical II	Risk
	observational studies
Theoretical III	Diagnostic tests
Theoretical IV	Introduction to the meta-analysis study

5.3.3. First Conference on hospital malnutrition and nutritional prescription

This activity was organized in conjunction with the Special Nutrition Unit of the Maciel Hospital to educate residents on the importance of early detection of hospitalized patients with nutritional risk.

5.3.4. Maciel Hospital Medical Week

The Chief Resident participated as an assistant in this continuing medical education activity, and was part of a working group that wrote a scientific article (17).

5.3.5. - Drafting of the Maciel Hospital Anticoagulation Guide

The Chief Resident collaborated with the Internal Medicine and Hematology services to write the Maciel Hospital Anticoagulation Guide, adapting its extended version to a summarized format for dissemination (18).

5.4 - Leadership functions

The Chief Resident exercised positive leadership towards the group of residents, adopting the role of representative and defender of their interests. Some of the highlights of this feature were:

- Problem identification, conflict resolution.
- Accompaniment, tutoring, advice regarding personal or labor problems.
- Observing/supervising residents, collecting feedback on a regular basis.
- Facilitation of communication between residents, teachers and other hospital officials.

- Defense of the interests of the residents, in line with the needs of the program and the hospital.

6. Discussion

The functions carried out by the Chief Resident were aimed at facilitating the operation of the group of residents and contributing to improving their training, in the context of the great care and academic demands of the university hospital. Self-management and coordination of the group in this environment is difficult, despite the small number that attend each year. Knowledge of people, the structure of the hospital and the teaching environment were key to the development of these functions.

In the experience reported here, the applicant for Chief Resident presented a management project appropriate to the current training program. Table 4 shows the main objectives considered in it. The drafting of this type of work plans possibly contributes to improving the performance of the Chief Resident, providing him with an organizational reference framework for his actions.

Table 4. Objectives established in the Chief Residents project of the Maciel Hospital 2015 – 2016	
General	Contribute to improving the training of residents in Internal Medicine
	Improve the functioning of the group of Internal Medicine residents
Specific	Implement a work scheme that allows generating a positive impact on the resident's conception of the Internal Medicine residency
	Organize and supervise the different activities framed in the Training Program for Internal Medicine Specialists to guarantee compliance
	Encourage the discussion of proposals and the resolution of problems in the group of residents
	Facilitate communication between residents and the different services of the Hospital, fundamentally with the teaching structure
	Motivate the participation of residents in training activities and enhance their interest in research tasks

The Chief Resident became a continuous support figure for teachers. From his position as an intermediary, he received feedback from the residents about their training needs. Participatory teaching modalities, developed in an educational environment suitable for feedback, were received positively. This aspect was very relevant, since the imbalance between care tasks and educational activities during the residency is frequent and constitutes a factor that generates dissatisfaction in residents (19-21).

In relation to assistance activities, the Chief Resident participated in coordination tasks, but also carried out direct assistance to patients and supervision of residents. These instances have shown that they allow developing the teaching profile of the Chief Resident, broadening their clinical training and promoting their professional growth (22).

The Chief Resident also carried out research and scientific production functions. The clinical reasoning course experience was presented at an international conference and published in a peer-reviewed journal (16). The interaction with other medical services and the participation in continuing medical education activities allowed the writing of an article (17) and a clinical guide (18), generating its contribution to hospital medical practice. These types of activities are currently becoming increasingly important for continuing medical education.

In human aspects of his function, the Chief Resident collaborated with the insertion and adaptation of the newest residents in the hospital. His positive leadership was instrumental in creating a pleasant work environment. It should be noted that the Chief Resident plays an

important role in medical education by being considered a role model by his fellow residents, especially the younger ones (23). The Residents' Commission facilitated communication, while allowing discussion of activity proposals and conflict resolution in a more orderly manner.

This experience was positive for the Chief Resident. However, the care overload represented the main barrier for the insertion and execution of academic activities, making their management difficult. Some teachers considered that formal education activities distorted the obligatory scheme of assistance tasks. The conflicting interests between residents and teachers challenged the Chief Resident's ability to negotiate and conciliate to achieve a balance between their needs. It has been shown that these and other situations can be unrewarding for Chief Residents, generating a negative impact on the perception of their role (4).

It is important to note that the Chief Resident did not receive prior training to perform his function. Management, communication and leadership skills are competencies that should be taught (4). The future development of compulsory training spaces for Chief Residents is essential to acquire the specific tools necessary for their performance.

Among the methodological limitations of this work, it is necessary to mention the universe of study considered in it. Although the design allows the main objectives to be achieved, the results presented are limited to two teaching units belonging to a single hospital. In this way, there may be biases due to the lack of representativeness of the population, reducing the scope of the work. Carrying out a more extensive study that encompasses different teaching units of internal medicine and allows reaching more accurate conclusions is difficult to implement in the local environment, mainly because not all medical clinics have Chief Residents in the same period of time.

7. Conclusions and future work

- The Chief Resident is an important piece in the complex teaching machinery in a university hospital. Their integration into specialist training programs is essential.
- The Chief Resident performed multiple functions aimed at improving the interaction between the group of residents and the hospital.
- The study presented means an advance to demonstrate the applicability of the figure of the Chief Resident in an internal medicine residency program in the local environment. One of the main challenges in the future is to replicate this type of study in other institutions in Uruguay in order to broaden the knowledge of the reality of the Chief Residents. The preparation of management projects for Chief Residents, the assessment of their performance through satisfaction surveys, the establishment of common functions and objectives between the different services, and the promotion of joint calls can be useful tools to guarantee the development of evaluation with a global and inter-institutional scope.
- It is essential to give importance and hierarchy to the role of the Chief Resident at the Maciel Hospital. The continuity of this figure can result in a positive impact for the educational quality of postgraduates. In the next calls it will be necessary to encourage residents to apply and develop training spaces for the teaching of specific skills.

Funding: There has been no funding.

Acknowledgments: To Drs. Jaime Innerarity and Jorge Menoni, for their comments regarding the drafting of the Chief Resident Project. To the Drs. Jorge Facal and Alberto Sosa, for their collaboration in relation to the description and regulation of the figure of the Chief Resident in Uruguay.

Declaration of conflict of interest: The author declares that he has no conflict of interest.

Authors' contributions: The author contributed at all stages of the manuscript writing process.

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