

## Current Status of Cardiology Residencies. 2009-2010 Residents National Survey.

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“The learning and knowledge that we have, is, at the most, but little compared with that of which we are ignorant.”

PLATÓN, greek philosopher

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### SUMMARY

#### Background

The residency program currently represents the best environment for an integrated training in the specialty. Yet, the program has suffered several modifications due to multiples influences.

The Argentine Council of Residents in Cardiology (CONAREC, *Consejo Argentino de Residentes de Cardiología*) has been trying to determine the reality of the residency program situation for 20 years.

#### Objective

To perform a complete analysis of the situation of cardiologists in training in several centers of the country, especially in the most interesting areas, as demographic variables, medical practice, academic background, cardiometabolic risk factors and psychological status.

#### Material and Methods

An anonymous and voluntary survey was carried out during the XXIX Cardiology Residencies Conference CONAREC 2009, and the information was used in a descriptive, observational and cross-sectional study. The qualitative and quantitative variables analyzed were related to demographic, academic and labor aspects, medical practice and cardiometabolic factors. The Maslach Burnout Inventory (MBI) was used to evaluate the quality of life of residents with the individual analysis of personal accomplishment, depersonalization and emotional exhaustion.

#### Results

Mean age was 28 years, 58% were men; 81% were single and 15% had at least one child. Fifty five percent were at residency programs in the city of Buenos Aires and 77% in private centers, 86% of which had catheterization laboratory and cardiovascular surgery. Each center had an average of eight residents, 83% had chief of residents, 55% had instructor of residents and 44% of centers had one in-hospital call physician. Residents were available in-hospital call for an average of 7 days per month; 50% of residents were on the 3rd or 4th year of residency and only 4% had reduced schedules after in-hospital call. Insofar as the academic background, 77% attended clinical seminars, 82% had theory classes and 56% bibliography forums. Sixty percent had a fellowship, 56% had medical coverage, 66% had occupational risk insurance and 63% had an extra job to improve their income. Thirty three percent worked  $\geq 80$  hours/week and 36% slept  $\leq 35$  hours/week. Fifty five percent were frequently disappointed with the job and half of the survey respondents declared to feel frustrated with the job at least once a week. Thirty-eight percent felt that they do not care about what happened to their patients at least once a month, and only 1 out of 3 residents believed that the job gave him/her valuable things.

#### Conclusions

During the last 20 years, the residency program has undergone significant changes concerning training and academic aspects and medical practice, and presents great heterogeneity in terms of training and labor issues nationwide. A great number of centers with residency programs do not fulfill the minimum academic background and training in medical practice requirements. In addition, current labor conditions should be evaluated in all centers with residency programs.

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### Key words

> Internship and Residency - Quality of Life - Labor Conditions

Argentine Council of Residents in Cardiology (CONAREC, Consejo Argentino de Residentes de Cardiología)

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## BACKGROUND

Medical residency program was originally defined by the National Ministry of Health Resolution 1778/61 as "a system of professional education for graduates from medical schools with full-time capacitating in service, during a determined period of time, with the goal of training for the comprehensive, scientific, technical and social practice of a specialty". (1) The current programs in the province of Buenos Aires estimate that the residency program is a "system aimed at complementing the basic education and training of new graduates in a methodological and progressive fashion to become specialists in a medical discipline". (2)

Any of these definitions consider the same concept: the residency program is the environment in which a newly graduated physician, in the exercise of the powers conferred and with an overwhelming load of responsibilities and duties, may choose to finish a progressive, continuous, unique and complete training in a specific specialty for the next years. (3)

Nowadays, we can ensure that "the medical residency program is considered the 'best' system for training in the practice of a specialty and of medical practice in general. (4)

However, this promising system is undergoing serious and detrimental changes affecting the vocation of graduates to enter the system. Discomfort among physicians has been demonstrated by the fact that "one out of four physicians would not study medicine again and more than one out of three would not be satisfied if one of their children decided to study medicine" (5)

The following situations are responsible for the detriment of the residency programs and of the entire health care system: dizzying growth of medical knowledge, technological advances, and increased number of medical students and low availability of training centers. Managed care and prepaid medical insurance, legal aspects and defensive medicine, greater patients' expectations, lack of time and other problems of the health care system and the lack of evaluating mechanisms of the system also play an important role. (6)

Several articles have been published about the current situation of medical practice, with severe detrimental effects in physicians' quality of life and academic training and, subsequently, a negative impact in the medical care of their patients. (7)

The Argentine Council of Residents in Cardiology (CONAREC) is a scientific society of in-training cardiologists. Created 30 years ago, this autonomous and non-profit organization is unique in the world and has been working for 20 years investigating and analyzing the reality of the residency program to ensure the best possible conditions to its members, bringing relevance to the academic education and training in medical practice without neglecting the working conditions of the residents in cardiology.

Since 1991, The CONAREC has been demonstrating this reality performing surveys among residents. All the results obtained indicate the same repetitive items as the center of the problem: heterogeneous and low income and social benefits in relation with work demands; the academic activity depends mostly on the residents; the supervision of daily medical practice is inadequate and there is great heterogeneity in terms of training in the different centers. In consequence,

more than 50% of residents are dissatisfied.

In 2009, the CONAREC performed a new prospective survey to understand the reality of this process, asking about training, academic, working and medical practice aspects of the residents. Individual personal factors involving quality of life of the residents within the collective social setting were also analyzed. The aim of this survey was to focus on medicine as a vocation insofar as physicians and patients feel comforted by a harmonious health care system.

The goal of the 2009-2010 Residents National Survey is to investigate the status of the residency programs in cardiology nationwide, analyzing several variables as the academic background, labor and medical practice aspects, risk factors and quality of life of the residents in the different medical regions. The latter concept includes all the aspects of human life: physical, emotional and social functions, the perception of people about their position in life, the cultural setting and value system in which they live, as well as their objectives, rules and concerns.

The interest focused on obtaining statistical information to illustrate a reality of situation and to improve the conditions to bring the link Health System-Medical Residency Program closer, constituting a real Unit of Care and improving the quality of patients' care.

The primary goals were to evaluate the situation of the academic background, medical practice and labor conditions of the residents in cardiology in our country.

The secondary goal was to analyze the quality of life and the presence of cardiometabolic risk factors of these in- training cardiologists.

## MATERIAL AND METHODS

### Study design

We conducted an observational, exploratory, descriptive, cross-sectional and non-experimental population study.

An anonymous and voluntary survey was carried out during the XXIX Cardiology Residencies Conference CONAREC 2009 in San Rafael, Mendoza and in our website during the next months. A total of 280 residents in cardiology responded the survey.

### Variables analyzed

This study was divided in five domains:

1. Demographics
2. Academic background
3. Medical practice and working activities
4. Cardiometabolic risk factors
5. Quality of life

### Definitions

Common variables were determined to evaluate demographic features, academic background, medical practice and working activities (Appendix 1).

The Maslach Burnout inventory (MBI) created by Maslach and Jackson in 1981 was used to evaluate the quality of life by estimating the frequency and intensity of the burnout syndrome (Appendix 2). The MBI, containing 22 items, is a Likert-like scale that assesses burnout on three dimensions which constitute the burnout syndrome: *Emotional exhaustion* (9 items; measures feelings of being emotionally overextended and exhausted by one's work) and *Depersonalization* (5 items; measures an unfeeling and impersonal response toward recipients of one's service, care

treatment, or instruction). The score of these dimensions is directly proportional to the severity of the syndrome. It also evaluates *Personal accomplishment* (8 items; measures feelings of competence and successful achievement in one's work). The score obtained is inversely proportional to the degree of the burnout syndrome.

The internal consistency of these three scales is adequate as exhaustion is considered a continuous variable with different degrees of intensity.

The burnout scores were stratified into *low* (1-33), *medium* (34-66), and *high* (67-99) categories according to the cutoff points (tertile distribution).

High scores of emotional exhaustion and depersonalization, and low scores of personal accomplishment despite the absence of clinical cutoff points define the burnout syndrome. (9, 10)

### Statistical Analysis

The information obtained for the individual surveys was included in an Excel 5.0 database. Discrete variables were expressed as absolute values (n) and percentages (%). Quantitative variables were expressed as medians and interquartile range (IQR 25-75). The data were analyzed using simple correlation analysis.

The Statistix® 8.0 software package was used to analyze the numerical variables.

## RESULTS

A total of 280 residents were surveyed nationwide. Mean age was 28 years (27-30) and 58% were men. Eighty percent were single and 15% had at least one child. Thirty seven percent owned the home they lived in.

Half of the residents were in a residency program in the city of Buenos Aires, 16% in the province of Córdoba and the rest in 15 provinces of the country (Figure 1).

The presence of cardiovascular risk factors was as follows: 30% were current smokers (median: 10 packets/year (10-15); 35% had a body mass index  $\geq 25$  (overweight/ obesity) and 45% had no weekly physical activity; among those who had physical activity, only 6% engaged in 6 hours/week of physical exercise. When the residents were asked about their blood pressure, total cholesterol and fasting glucose levels, 81%, 58% and 73% had controlled these parameters at least once, respectively.

Seventy seven percent of residents were in training in a private institution. There were eight residents (6-12) per center. Among the centers with a residency program, 83% had a chief resident and 50% had instructor of residents. When asked about decision-making, 41% of residents answered that a staff-physician always supervised their decisions, 48% were frequently supervised and 11% were rarely supervised. The main characteristics of the residency program are shown in Table 1.

Most of the institutions were tertiary care centers; 86% had a catheterization laboratory and cardiovascular surgery. Table 2 shows the different sections of complementary studies available at the centers with a residency program.

Among the survey respondents, 70% were attending the Specialization Course in Cardiology, which was paid by the institution in only 23% of residents (Figure 2). Insofar as residency admissions, 96% took a written examination and 14% an oral one.

In addition, 76% had a personal interview and 57% presented a résumé.

Eighty percent of the residency systems had a teaching program focused on the comprehensive training of the cardiology resident; 67% of the residents ignore the content of the program and 44% reported that the program was not satisfactorily fulfilled. Most training centers (67%) require at least one-year training in Internal Medicine before applying for a cardiology residency and 16% require at least 6 months; 15% of centers do not demand this condition.

Regarding the academic background, 58% of residents published in a journal of the specialty, 80% made a presentation in a congress or scientific meeting and 74% participated at least once in a clinical trial.

Twelve percent of survey respondents did not have a staff clinical cardiologist dedicated to teaching and training residents, increasing to 28% of cases when the compromise of staff physicians in the different subspecialties is evaluated.

Residents are available in-hospital call for a median of 7 days (5-8) per month; only 44% of centers have one in-hospital call physician to supervise them.

Bedside rounds are performed with a staff physician in 90% of survey respondents. Half of the residencies have bibliography forums and 18% lack of theory classes during the week (Figure 3).

The answer to the question about how they considered their comprehensive training in cardiology was *good* in 53% of survey respondents, *very good* in 34% and *regular/bad* in 13%.

Sixty percent have a fellowship and 2/3 of survey respondents earn less than \$3000 per month (Figure 4).

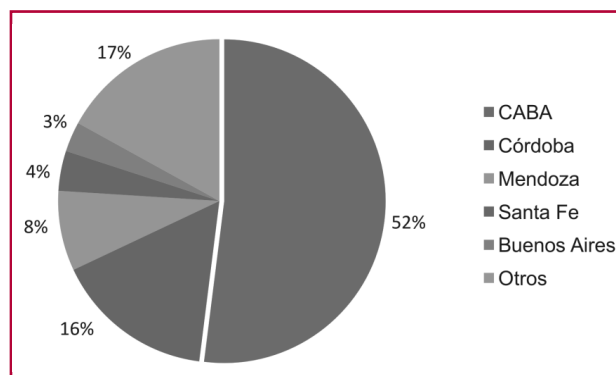
Figure 5 illustrates residents' working conditions. Only 56% have medical coverage and 1/3 do not have occupational risk insurance.

Regarding their working week, 2/3 of residents work more than 60 h/week and 36% sleep less than 35 h/week (Figure 6). Only 4% have reduced schedules after in-hospital call.

In addition, 63% need an extra job to improve their income; the main resource is in-hospital call in another institution (52%).

Exploration of the quality of life of residents in the emotional sphere revealed that 55% are frequently disappointed with their job; 26% feel worn out and 50%

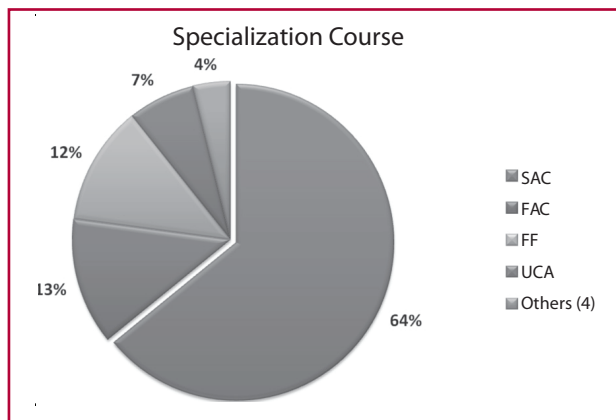
Fig. 1. Residents by province



CABA: Autonomous City of Buenos Aires

**Table 1.** General characteristics

Characteristics	n	%
Age (IQR 25-75)	28	(27-30)
Male gender	161	(58)
Single	222	(81)
N° of residents per Center (IQR 25-75)	8	(6-12)
Chief Resident	231	(83)
Instructor Resident	154	(55)
Year of Residency		
- 1st	50	(18)
- 2nd	90	(32)
- 3rd	71	(25)
- 4th	69	(25)
Specialization Course	196	(70)
N° of in-hospital calls/month (IQR 27-75)	7	(5-8)
Reduced schedules after in-hospital call	11	(4)
In-hospital call staff physician	123	(44)



**Fig. 2.** Distribution by Specialization Course. SAC: Sociedad Argentina de Cardiología. FAC: Federación Argentina de Cardiología. FF: Fundación Falvaloro. UCA: Universidad Católica Argentina.

declare to feel frustrated with the job at least once a week. Fifty-four percent feel that they have hardened their relationship with the patients and 38% feel they do not care about what happens to their patients at least once a month. Thirty-five percent feel that their job never treats emotional problems adequately and only 1 out of 3 residents believes that the job gives him/her valuable things.

Figure 7 shows the results of the MBI survey with the data discriminated by the main variables of the burnout syndrome.

## DISCUSSION

Most residents work at tertiary care private centers; however, the number of in-training residents (20%) working in low complexity hospitals (with availability to perform echocardiograms and exercise stress tests) is significant. This number gives an idea about the

**Table 2.** Characteristics of the center

Characteristics	n	%
Private	215	(77)
General Ward	279	(100)
N° of beds, general ward (IQR 25-75)	20	(12-50)
Coronary care unit	273	(98)
N° of beds, coronary care unit	10	(8-17)
Exercise stress testing	275	(98)
Echocardiography	279	(100)
Myocardial perfusion scintigraphy	211	(75)
MDCT	113	(40)
Cardiac MRI	70	(25)
Catheterization laboratory	241	(86)
- 24 hours	220	(79)
Electrophysiology laboratory	219	(78)
Cardiovascular surgery	241	(86)
Heart transplantation	76	(27)
Cardiovascular recovery	234	(84)

MDCT: Multi-detector row computed tomography. MRI: Magnetic resonance imaging.

lack of training in important areas of the specialty as cardiovascular surgery, cardiovascular recovery, diagnostic techniques and interventional cardiology.

One out of five survey respondents do not have a chief resident and half of them do not have an instructor resident, despite these figures are essential mainstays for residents' education. Many institutions do not fulfill completely their functions of elaborating a residency program (1 out of 5 residents do not have a program) and about 50% fail to adhere to it; theory classes and bibliography forums are also absent in some institutions.

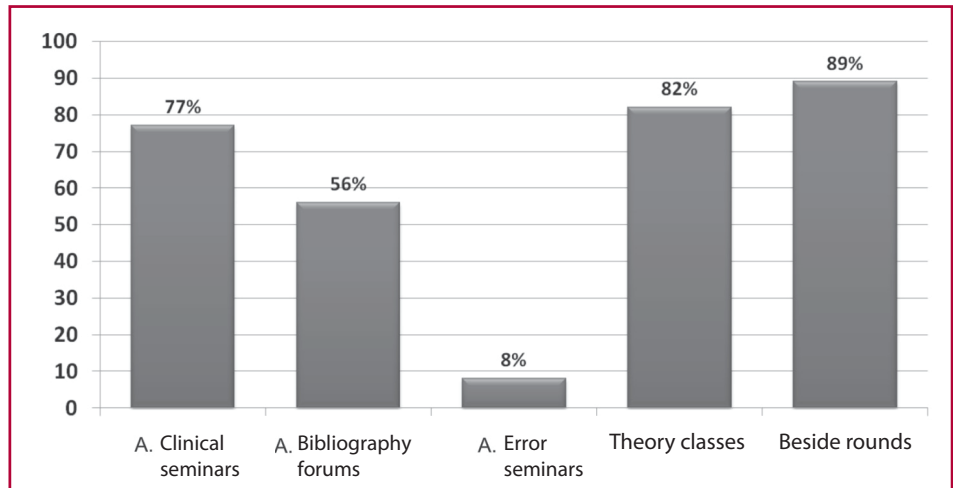
The length of the rotation in internal medicine or even in an intensive care unit is controversial. (11) In some places of the world, the cardiology-training program includes rotations in specialties directly linked to cardiology, as nephrology, pneumology and even neurology. (12) However, we think that minimum one-year training in internal medicine is necessary for a better management of the specialty. We noted that this training does not occur in 1 out of 3 cases.

Another relevant feature is the mechanism currently used for residency admissions. For example, in Spain, application for a residency position is centralized; applicants take a single exam valid to enter all the institutions; this is a good, fair and comparable evaluation tool. (13)

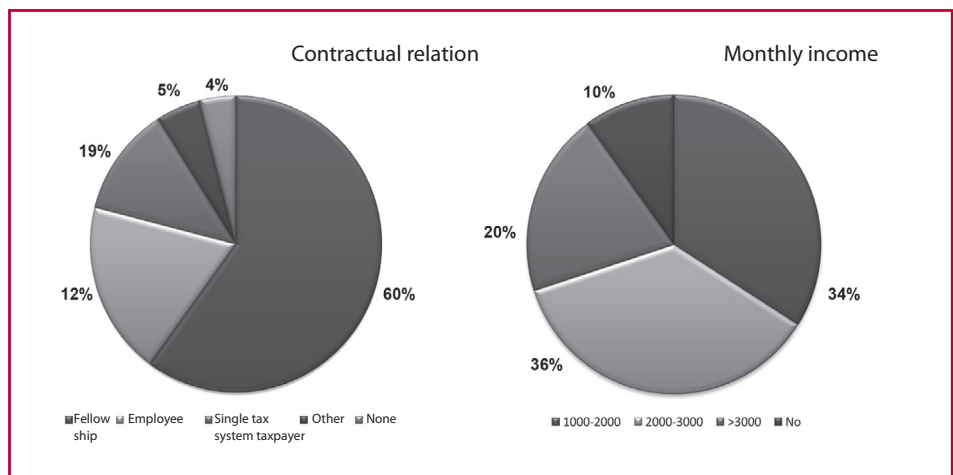
Residents should be able to take a university specialization course as an essential requisite for their education; yet, 1/3 of them do not take it.

Despite daily medical practice is the main training in the specialty, a staff physician supervises less than

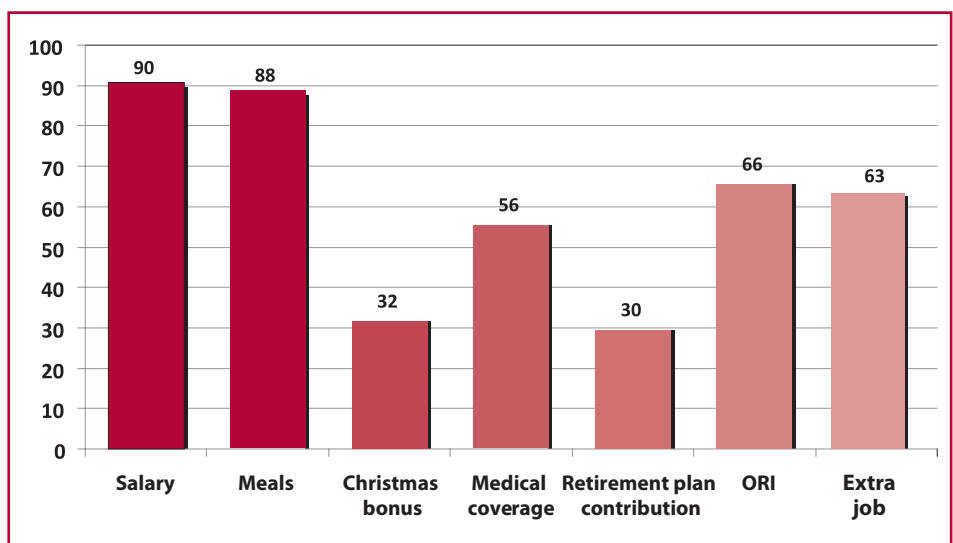
**Fig. 3.** Academic background and medical training



**Fig. 4.** Contractual relation and monthly income



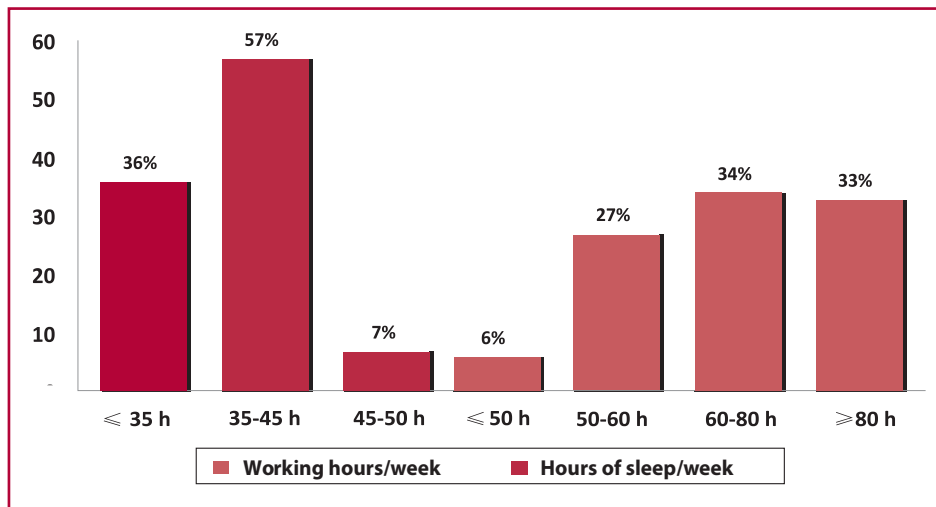
**Fig. 5.** Working conditions. ORI: Occupational risk insurance.



half of the survey respondents. One out of ten residents do not have a staff clinical cardiologist dedicated to teaching and training residents, increasing to one out of three when the compromise of staff physicians in the different subspecialties is evaluated.

Unfortunately, a great number of institutions

with a residency system do not have bedside rounds, comprehensive clinical seminars, bibliography forums or theory classes; more than 90% do not know the meaning of an error seminar. All these teaching activities are the mainstays of the education not only of in-training cardiologists but also of all the staff



**Fig. 6.** Distribution of working hours and hours of sleep per week.

physicians as a way of growth and self-improvement.

The fact that most of the survey respondents present and publish articles in congresses and journals of the specialty is positive. In addition, this is a requisite to take part in some university specialization courses, emphasizing the importance of taking these courses.

Less than half of the centers have one staff cardiologist on duty. Even some residents on duty are not supervised or supported by a qualified superior.

The contractual relationship of residents reveals that 22% of them do not have a direct labor relationship with the institution where they are working. This means that they do not have medical coverage, occupational risk insurance or malpractice insurance. Apart from the regular expenses of any worker, these residents do not have other services included, as meals, lodging or financial support for the specialization course.

Residents' salaries are heterogeneous, as the rest of the data we have been evaluating. Considering the current basic market basket (calculated for March 2010 by the *Fundación de Investigaciones Económicas Latinoamericanas*), (14) 42% of the residents surveyed live below the poverty line and 9% below the destitution line. This reflects that about 26% of the residents earn below the minimum, vital and mobile salary (calculated for January 2010 by the 2009 Resolution of the CNEPSMVM [*Consejo Nacional del Empleo, la Productividad y el Salario Mínimo Vital y Móvil*]) (15)

In-hospital calls must not exceed 8 days per month; yet, 18% of these young physicians are on duty for 24 hours more days per month, and only 3% of them have reduced schedules after in-hospital call (a common practice in Europe and USA). (16) In addition, 66% of them have an extra job in other institutions: in-hospital calls, outpatient clinics or other activities.

The Working Time Law 11544, (17) in its article 1, indicates that the working time should not exceed 8 hours a day or 48 hours per week. This article would not include the residents, as 1 out of 3 work more than

80 hours per week (more than 11 hours/day) and rest less than 35 hours/week (less than 5 hours/day).

Finally, the lack of knowledge about the presence of risk factors in our population is striking, considering that, as physicians, we deal with prevention in our daily practice. We are not aware of the high prevalence of risk factors among physicians and we believe we are exempt from them; once again, we conclude that physicians are the most difficult patients.

Several studies have published the relationship of the burnout syndrome with a negative impact in the medical care of patients and greater rates of depression in these in-training specialists whose lifestyle is at the edge of survival since the first day of residency. These results express dissatisfaction and loss of vocation, the real spirit of medicine. The most striking observation of this investigation is the high percentage of young physicians presenting depersonalization, a feeling so cruel that makes them don't care about patients' problems and is contrary to our ethic and moral principles. (18-20)

#### Study Limitations

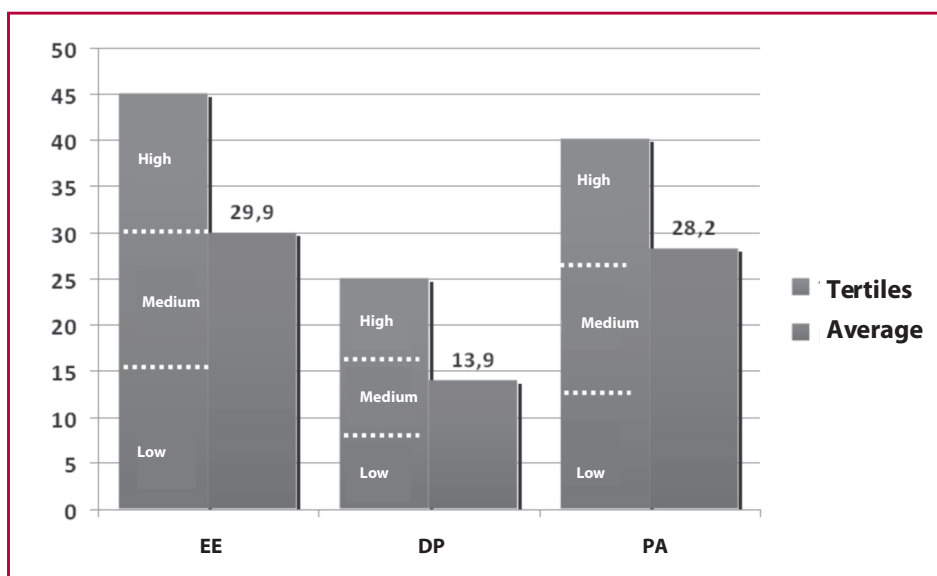
The presence of a selection bias cannot be ruled out, as this was an anonymous and voluntary survey performed in a certain environment.

These results apply for cardiology residents and should not be extrapolated to other specialists, as we did not compare different specialties. Therefore, we cannot ensure that these deficits cannot correspond to a generation. Finally, many of the survey respondents work at the same institution, constituting an inclusion bias.

#### CONCLUSIONS

During the last 20 years, the residency program has undergone significant changes concerning training and academic aspects and medical practice, presenting great heterogeneity in terms of training and labor issues nationwide. According to the main aspects evaluated, as academic background and medical

**Fig. 7.** Quality of life. Variables evaluating the burnout syndrome. EE: Emotional exhaustion. DP: Depersonalization. PA: Personal accomplishment



practice, a high percentage of residencies do not fulfill the minimum indispensable requirements to achieve the objectives implied in its definition. In addition, current working conditions should be evaluated in all centers with residency programs, establishing and asking the institutions to fulfill the minimum indispensable social conditions for each resident.

The scientific societies should work hard in the present towards the future to improve the academic background, medical practice and working conditions of all the medical residency systems nationwide. In this way, with our experience, we shall construct better pathways leading to the same destination: leaving a better future for all in-training physicians.

*“Human understanding is like a candle burning: it gives light as it burns, consumes and sheds tears.”*

SANTIAGO RAMÓN Y CAJAL

## RECOMMENDATIONS

Several items should be considered to start changing the system.

- Creating a single regulatory body to produce education rules, supervise the performance and training of residents selflessly and without competing interests. The scope of this regulatory body should be federative and nationwide, and not provincial or regional, covering the most distant residencies in the country.
- The number of specialists necessary should be adequate to the national demands and regional distribution. For this reason, it is necessary to know the number of the students entering the school of medicine graduate and, above all, the number of physicians necessary. The message should not be to train more doctors to cover the needs nationwide; on the contrary: give them a better education and allow an adequate distribution according to the needs of the healthcare system.

- Establishing the standards of professional training and quality of life. This is the most interesting item of this project where all the links of this health care chain intervene. All of us – specialists in activity, retired or in training – from every area, regardless of our position – 1st year residents, chief of department, labor, directors or managers of these institutions – should selflessly recognize these guidelines, a sort of bible, in favor of a collective benefit. We should base our work on these guidelines and respond to them. A center that does not respect them should not be authorized or go on working.
- Last, but not least, the institutions should make agreements and encourage the faculty to get more deeply involved in training residents, recovering the lost figure of the master. Thus, the in-training specialist will be motivated to improve him/herself.

## RESUMEN

### Estado actual de las Residencias en Cardiología. Encuesta Nacional de Residentes 2009-2010

#### Introducción

El sistema de residencias representa en la actualidad el mejor medio reconocido para una formación integral de la especialidad. Las múltiples influencias ejercidas sobre este sistema han llevado a que sufriera diferentes modificaciones a lo largo de los años.

#### Antecedentes

El Consejo Argentino de Residentes de Cardiología (CONAREC), desde hace ya 20 años, intenta determinar cuál es la realidad de la situación en que se halla el sistema de residencias.

#### Objetivos

Realizar un análisis completo de situación de los cardiólogos en formación de diversos centros del país, abarcando los temas de mayor interés, como son las

variables demográficas, la actividad asistencial, la formación académica, los factores de riesgo cardiometabólico y el estado psicológico.

### Material y métodos

Se realizó un estudio descriptivo, observacional y de corte transversal, a través de una encuesta anónima y voluntaria, a 280 residentes de cardiología en el marco de las XXIX Jornadas Inter-residencias de Cardiología CONAREC 2009. Se analizaron distintas variables, cualitativas y cuantitativas, relacionadas con aspectos demográficos, académicos, asistenciales, laborales, factores de riesgo cardiometabólico y por último se evaluó, con la encuesta de Maslach Burnout Inventory (MBI), la calidad de vida de los residentes mediante el análisis individual sobre la realización personal, la despersonalización y el agotamiento emocional.

### Resultados

La edad promedio fue de 28 años, el 58% eran hombres, el 81% solteros y el 15% tenía al menos un hijo. El 55% realizaba su residencia en centros de Capital Federal y el 77% en centros privados, de los cuales el 86% tenían sala de hemodinamia y cirugía cardiovascular. El promedio de residentes por centro fue de 8, el 83% tenía jefe de residentes, el 55% instructor de residentes y el 44% tenía un médico de guardia activa. La cantidad de guardias promedio por mes fue de 7; el 50% de los residentes se encontraban en 3.º/4.º año y sólo el 4% tenía horario reducido posguardia. En cuanto a la formación académica semanal, el 77% tenía ateneos clínicos, el 82% clases teóricas y el 56% ateneos bibliográficos. En el aspecto laboral, en cuanto a su relación contractual, el 60% se encontraba con una beca, el 56% recibía una obra social, el 66% tenía una aseguradora de trabajo y el 63% debía realizar un trabajo extrarresidencia para poder mantenerse económicamente. El 33% trabajaba  $\geq$  80 horas/semana y el 36% dormía  $\leq$  35 horas/semana. El 55% refirió sentirse frecuentemente defraudado con el trabajo y la mitad de los encuestados manifestaron que se sienten frustrados con el trabajo por lo menos una vez por semana. El 38% sienten, por lo menos una vez por mes, que no les importa lo que les ocurra a las personas que tratan y que sólo 1 de cada 3 residentes cree que consigue diariamente cosas valiosas en su trabajo.

### Conclusiones

En estos últimos 20 años de evolución, el sistema de residencias ha tenido transformaciones significativas en lo que respecta a sus bases formativas, académicas y asistenciales, y se presenta además con una gran heterogeneidad de manifestaciones educativas y laborales a lo largo de todo el país. Hay un porcentaje elevado de centros con residencia que no cumplen con los requerimientos mínimos indispensables para la formación académica y asistencial. Asimismo, se deberían reevaluar las condiciones laborales establecidas actualmente en todos los centros de formación.

**Palabras clave** > Internado y residencia - Calidad de vida - Condiciones de trabajo

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None declared.

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**APPENDIX 1**

Survey about residents training, academic, medical practice and working aspects

**PERSONAL CHARACTERISTICS**

**Age**

**Gender** Male  Female

**Marital status** Single  Married  Other

Which?

**Children** Yes  No

**Factors or conditions before entering the residency program** Yes  No

Which?

**Medication since starting the residency** Yes  No

Which?

**Are you undergoing psychotherapy?** Yes  No

**Household** Tenant  Owner

**Does the hospital provide you with meals during working hours?** Yes  No

**Work-related accidents** Yes  No

Which?

**CHARACTERISTIC AND LEVEL OF COMPLEXITY OF THE INSTITUTION**

**Type of institution** Private  Public

**City**

**Number of residents in the program**

**Number of in-training physicians who are not in the residency program**

**Chief Resident** Yes  No

**Instructor Resident** Yes  No

**Does your institution have:**

**General ward?** Yes  No

Nº of beds

**Coronary care unit ?** Yes  No

Nº of beds

**Cardiovascular recovery unit?** Yes  No

Nº of beds

**Cardiovascular surgery?** Yes  No

**Exercise stress testing?** Yes  No

**Echocardiography?** Yes  No

**Catheterization laboratory?** Yes  No

**Open 24-hours-a-day** Yes  No

**Myocardial perfusion scintigraphy?** Yes  No

**Cardiac magnetic resonance imaging?** Yes  No

**Multi-detector row CT?** Yes  No

**Electrophysiology laboratory?** Yes  No

**Heart transplantation?** Yes  No

**MEDICAL PRACTICE**

**Year of residency**

**Working week** ≤ 50 h  50-60 h  60-80 h  ≥ 80 h

**Hours of sleep per week** ≤ 35 h  35-45 h  45-50 h  ≥ 50 h

**Nº in-hospital calls per month**

**Staff cardiologist on duty In-hospital** call  On call

**Reduced schedules after in-hospital call** Yes  No

**Nº of days off for vacation per year**

**Do staff physicians supervise residents' decision-making?**

Always  Frequently  Rarely  Never

**INVESTIGATION**

**Do residents at your institution participate in:**

Publications in journals of the specialty Yes  No

Oral presentations in Conferences and Congresses Yes  No   
 Investigation protocols Yes  No  (Choose the correct option/s):  
 Projects originated in your center  Projects generated by the industry

### TEACHING ACTIVITY

**Specialization Course** Yes  No  Which?

Paid by your institution? Yes  No

**Selection mechanism of residents applicants** (Choose the correct option/s):

Written examination  Oral examination  Personal interview  Résumé  None

**Your residency program includes** (Choose the correct option):

one-year internal medicine training  six-month internal medicine training  One-year internal medicine training experience

Internal medicine training experience is not a requisite or a rotation

**How many staff clinical cardiologists are dedicated to and responsible for teaching and training residents?**

**How many staff cardiologists in the different subspecialties (electrophysiologists, interventional cardiologists, specialists in diagnostic imaging) are dedicated to and responsible for teaching and training residents?**

**Does your residency system have a written teaching program with the following items: goals of learning, contents of teaching load, rotation schedule and evaluation system of residents performance?** Yes  No

**Are you aware of and informed about the contents of that program?** Yes  No

**In your opinion, is this program satisfactorily fulfilled?** Yes  No

**Which of the following activities are developed at your institution** (Choose the correct option/s):

Bedside rounds Yes  No  Weekly clinical seminars Yes  No

Bibliography forums Yes  No  Error seminars Yes  No  Theory classes Yes  No

**How you do consider your comprehensive training in clinical cardiology?**

Very good  Good  Fair  Bad

### SOCIAL ASPECT

**Contractual situation** (Choose the correct option):

Fellowship  Single tax system taxpayer  Employee  Other  None

**Do you receive payment for your work as a resident?** Yes  No

Monthly income in ARS:  $\leq 1000$   1000-2000  2000-3000   $\geq 3000$

**Do you receive Christmas bonus?** Yes  No

**Does the system provide you with medical coverage?** Yes  No

**Does the system contribute to a retirement plan?** Yes  No

**Do you have occupational risk insurance?** Yes  No

**Do you need an extra job to improve your income?** Yes  No  Which?

In-hospital calls  Outpatient clinic  Intraoperative monitoring  Emergency department  Other

**Does the contract consider day(s) off during workweek?** Yes  No

How many?

### CARDIOMETABOLIC RISK FACTORS

**Body mass index**  $\leq 19$   19-25  25-30   $\geq 30$

**Current smoking** Yes  No  How many packets/year?

**Alcohol intake** Yes  No  How many units/week?

**Physical exercise per week** None   $\leq 3$  h  3-6 h   $\geq 6$  h

**Do you know your levels of:**

**Blood pressure** Yes  No  Value (mm Hg)?

$\leq 120$   120-129  130-139   $\geq 140$

**Total cholesterol** Yes  No  Value (mg/dl)

$\leq 160$   160-199  200-279   $\geq 280$

**Blood sugar** Yes  No  Value (mg/dl)

$\leq 99$   100-126  126-200   $\geq 200$

### QUALITY OF LIFE

Quality of life is evaluated with the Maslach Burnout Inventory (Annex 2).

**APPENDIX 1****MASLACH BURNOUT INVENTORY (MBI)**

You will find a series of statements about your work and your feelings towards it hereafter. Your answers should reflect your feelings. There is no better or worse answer; the right answer is the one that truly reflects its own existence. The results of this survey are strictly confidential and under no circumstances will be made available to anyone. The aim of this survey is to contribute to understand your job and improve your level of satisfaction.

Please answer each statement expressing how frequently you experience the feeling, as explained below:

Never:..... 1      Several times a year:..... 2  
 Several times a month:..... 3      Several times a week:..... 4  
 Daily:..... 5

Please, indicate which number you consider more adequate:

1. **EE** I feel emotionally drained from my work.
2. **EE** I feel used up at the end of my work day.
3. **EE** I feel fatigued when I get up in the morning and have to face another day on the job.
4. **PA** I can easily understand how my patients feel about things.
5. **D** I feel I treat some patients as if they were impersonal objects.
6. **EE** Working with people all day is really a strain on me.
7. **PA** I effectively deal with the problems of my patients.
8. **EE** I feel like I am working too hard on my job.
9. **PA** I feel I am a positively influencing other people's lives through my work.
10. **D** I have become more callous toward people since I took this job.
11. **D** I worry that this job is hardening me emotionally.
12. **PA** I feel very energetic in my job.
13. **EE** I feel frustrated by my job.
14. **EE** I feel I spend too much time in my job.
15. **D** I do not really care what happens to some patients.
16. **EE** Working with other people directly puts too much stress on me.
17. **PA** I can easily create a relaxed atmosphere with my patients.
18. **PA** I feel exhilarated after working closely with my patients.
19. **PA** I have accomplished many worthwhile things in my job.
20. **EE** I feel like I am at the end of my rope.
21. **PA** In my work I deal with emotional problems very calmly.
22. **D** I feel patients blame me for some of their problems

**EE:** Emotional exhaustion. **D:** Depersonalization. **PA:** Personal accomplishment .

