



ORIGINAL ARTICLE

Assessment of a residency training program in endocrinology and nutrition: Results of a resident survey[☆]

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Abstract

Introduction: In 2006, a new training program was approved for resident physicians in endocrinology and nutrition (EN). A survey was conducted to EN residents to assess their training, their depth of knowledge, and compliance with the new program, as well as potential changes in training, and the results obtained were compared to those from previous surveys.

Material and methods: A survey previously conducted in 2000 and 2005 was used for this study. The survey included demographic factors, questions about the different rotations, scientific and practical training, assessment of their training departments and other aspects. Results of the current survey were compared to those of the 2005 survey.

Results: The survey was completed by 40 residents. Mandatory rotations are mainly fulfilled, except for neurology. Some rotations removed from the program, such as radiology and nuclear medicine, still are frequently performed and popular among residents, who would include them back into the program. There was a low compliance with practical training in the endocrinology area. Forty percent of residents were not aware of the new program, but 60% thought that it was fulfilled. A total of 82.5% of residents thought that their departments fulfilled the training objectives.

Conclusions: Few differences were found in rotations as compared to the data collected in 2005 despite changes in the training program, and there was still a lack of practical training. By contrast, rating of training received from departments and senior physicians was improved as compared to prior surveys.

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PALABRAS CLAVE

Formación;
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Valoración del programa de formación MIR en endocrinología y nutrición: resultados de una encuesta dirigida a residentes**Resumen**

Introducción: En 2006 se aprobó un nuevo programa formativo para la especialidad endocrinología y nutrición (EYN). Con la realización de una encuesta a los residentes de la especialidad tratamos de evaluar cómo es la formación de nuestros residentes, el grado de conocimiento y cumplimiento del nuevo programa y posibles cambios en la formación de especialistas de EYN derivados de ello comparando los resultados con los de encuestas previas.

Material y métodos: Se utilizó la misma encuesta ya distribuida en 2000 y 2005. La encuesta incluye variables demográficas, y preguntas sobre las distintas rotaciones, formación práctica y científica, evaluación de los distintos servicios de origen y otros aspectos. Se compararon los resultados con los de 2005.

Resultados: La encuesta fue completada por 40 residentes. Las rotaciones obligatorias se cumplen en su mayoría a excepción de neurología. Existen rotaciones que han quedado fuera del programa como radiología y medicina nuclear que aún son frecuentes y que los residentes incluirían de nuevo. Existe poco cumplimiento en los aspectos de formación práctica del área de endocrinología. Un 40% de los residentes desconoce aún el programa, aunque un 60% considera que se cumple. El 82,5% considera que sus servicios consiguen los objetivos formativos.

Conclusiones: Existen pocas diferencias respecto a las rotaciones respecto a los datos obtenidos en 2005 a pesar del cambio de programa y sigue habiendo carencias en aspectos prácticos de la especialidad. Por el contrario, se percibe una mejoría de la valoración de los residentes de la formación recibida por sus servicios y facultativos adjuntos con respecto a encuestas previas.

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Introduction

The new training program for resident physicians (RPs) in endocrinology and nutrition (E&N), prepared by the national committee of the specialty, was approved by the Ministry of Health in September 2006.¹ As compared to the prior 1996 program,² this new program included significant changes to the clinical training rotations required, gave a much more detailed list of the knowledge to be acquired, and included and/or gave a wider coverage of new or emerging E&N areas. It also represented a change in clinical training rotations in external medical areas, some of which were suppressed, while new ones were included. All of them were limited to the first year of training, as compared to the first two years in the old program.

We previously reported in this journal, before the new program was implemented, the results of surveys of E&N residents conducted in 2000³ and 2005⁴ to assess their training. These showed a positive overall evaluation. In addition, a gradual improvement in treatment compliance and a trend to more consistent training were seen in the latter survey as compared to the former.

The results of a new survey completed by RPs in E&N after implementation of the new program are reported here. The study objectives were to describe the training of residents, to discover whether they knew and were complying with the new program, and to discover whether the change in program had resulted in significant changes as compared to previous data.

Material and methods

The same survey as previously used in 2000 and 2005 was distributed to RPs who attended courses on clinical nutrition and dietetics for residents organized by the *Sociedad Española de Endocrinología y Nutrición* in November 2008 (in Madrid) and in November 2009 (in Leon). This was a 4-page anonymous survey about the training program in endocrinology and nutrition (available as [Appendix A in the online version of this article](#)). The following data were collected: personal particulars of the resident (age, sex, year of residency, hospital, autonomous community), clinical training rotations and on-call duties during the 4 years of residency (at the E&N department itself, other departments, and other hospitals), and the theoretical and practical training undergone in accordance with the training program of the specialty. The survey also addressed other aspects such as subjective assessment of compliance by each department or unit of the training objectives of the program, scientific and research activity carried out by each resident (publications, papers, doctorate, doctoral thesis), texts and journals used, attendance of courses and meetings, work prospects, and work preferences.

SPSS 17 software was used for statistical analysis. Quantitative variables are given as mean \pm standard deviation, and all other variables as percentages and absolute values.

Data were compared to those obtained in 2005.

Table 1 Rotations of resident physicians in endocrinology and nutrition through other specialties.

	2009 data (No. = 40)	2005 data (No. = 46)	Agree with inclusion
<i>Compulsory in the new program</i>			
Internal medicine	36 (90%)	42 (91.3%)	33 (82.5%)
Cardiology	35 (87.2%)	35 (76%)	30 (75%)
Nephrology	33 (82.5%)	30 (65.2%)	30 (75%)
Neurology	22 (55%)	21 (45.7%)	20 (50%)
Gynecology	6 (15%)	16 (34.8%)	12 (30%)
<i>Optional in the new program</i>			
Intensive medicine	8 (20%)	18 (39.1%)	11 (27.5%)
Hematology/oncology	3 (7.5%)	2 (4.3%)	3 (7.5%)
Pneumology	5 (12.5%)	9 (19.6%)	7 (17.5%)
Gastroenterology	13 (32.5%)	15 (32.6%)	14 (35%)
Laboratory	6 (15%)	10 (21.7%)	15 (37.5%)
<i>Not included in the new program</i>			
Radiology	17 (42.5%)	20 (43.5%)	24 (60%)
Nuclear medicine	16 (40%)	25 (54.3%)	23 (57.5%)
Emergency room	9 (22.5%)	5 (10.9%)	2 (5%)
Pathology	7 (17.5%)	6 (13%)	11 (27.5%)
Infectious diseases	4 (10%)	7 (15.2%)	4 (10%)
Ophthalmology	4 (10%)	6 (13%)	10 (25%)

Results

The survey was completed by 40 residents (75% females), all of them fourth-year RPs (60.6% of all R4), with a mean age of 28.6 ± 1.2 years. The residents surveyed were being trained in the following regions: Madrid (8), Catalonia (7), Andalusia (6), Navarre (3), Valencia (3), Galicia (2), Basque Country (2), Aragon (1), Balearic Islands (1), Canary Islands (1), Cantabria (1), Castile-Leon (1), Extremadura (1), and Murcia (1). Three residents did not report the region where they were being trained.

Clinical rotations in E&N areas

According to the data collected, all residents fulfilled the basic clinical rotations of the specialty with an adequate minimal duration (hospitalization area, 11.1 ± 5.6 months; outpatient clinics, 14.7 ± 7.6 months; and nutrition, 5.8 ± 2.0 months), and almost all of them spent some time in pediatric endocrinology (92.5%). These results are similar to those of 2005, with only a 10% increase in the number of residents rotating through pediatric endocrinology, included for the first time as compulsory in the new program.

Residents had a positive opinion about the clinical training rotations at E&N, except for rotation in the hospitalization area. They thought that this was too long and should ideally last 7 ± 2.8 months.

Clinical rotations outside E&N

Most residents complied with compulsory clinical training rotations in internal medicine (90%), cardiology (87.5%), and nephrology (82.5%), while almost half of them had not performed a rotation in neurology despite its being compulsory.

These data were similar to those collected in 2005 (these clinical rotations were also compulsory in 1996), and only a slight increase in all other clinical rotations was found. However, compliance with new compulsory clinical rotations such as gynecology was poor. Most residents were in agreement regarding the need for compulsory clinical rotations, except for neurology again, which in the opinion of half of them should not be included.

Gastroenterology was the most commonly performed optional external rotation (32.5%). Laboratory rotation, optional in the new program, is performed by only 12.5% of residents, but more than one-third of them thought that it should be compulsory. There are other common clinical rotations not included in the new program but still performed by residents despite the change in contents, such as radiology (42.5%) and nuclear medicine (40%), which are also the clinical rotations whose inclusion as compulsory is most demanded (by 60% and 57.5% respectively). By contrast, there were new optional clinical rotations rarely or never performed such as andrology (one RP only) and regional hospital (no resident). A comparison with the 2005 data showed decreased performance of these optional rotations, which were previously compulsory. Table 1 gives a detailed summary of the results.

Teaching committees (external clinical rotations)

One or more clinical rotations outside their centers were performed by 77.5% of RPs. The most commonly requested clinical rotations were in pediatric endocrinology (45%), nutrition (37.5%), neuroendocrinology (17.5%), and diabetology (15%). A small group of RPs (12.5%) rotated in hospitals abroad, as compared to no resident in 2005.

Table 2 Compliance with practical training aspects by resident physicians in endocrinology and nutrition.

Activity	Comply (%)	
	2009	2005
Clinical histories (>100/year)	95%	95%
Reading of imaging tests (>10/year)	70%	77.8%
Case reporting (>10/year)	52.5%	65.2%
Dynamic tests (>20/year)	45%	44.4%
RIA ^a (>10/year)	0%	13.5%
FNA ^b (>20/year)	20%	27.3%
Thyroid cytology (>20/year)	25%	9.1%
Diabetological education (>30/year)	77.5%	73.3%
TEN and TPN ^c (>10/year)	95%	94.7%
Dietary history (>10/year)	87.5%	86.5%
Anthropometrics (>25/year)	62.5%	61%

^a FNA, fine needle aspiration.

^b RIA, radioimmunoassay.

^c TEN, total enteral nutrition; TPN: total parenteral nutrition.

Practical training and on-call duties

Practical objectives such as taking a clinical history (95%) and diabetological education (77.5%) and those in the field of nutrition were mostly met, unlike those in the field of endocrinology, where less than half the RPs had done dynamic tests, only 25% had done cytologies, and only a fifth had performed fine needle aspiration (FNA). Results were similar to those found in 2005. Table 2 provides data about practical training.

All residents performed a mean of 5.4 ± 1.2 on-call duties in their first 2 years in the emergency room (97.5%) and in the last 2 years of training in internal medicine (77.5%). Only 4 RPs performed any specific on-call duty at endocrinology during their residency.

Scientific training

Seventy-five percent of RPs had undertaken a doctoral course, and 32.5% were preparing their doctoral thesis at the time of the survey, although none of them had completed it.

Of the surveyed residents, 52.5% had participated in a research project and a majority (72.5%) had cooperated on a scientific publication and/or submitted a paper (92.5%). Weekly clinical sessions were attended by 97.5%, literature sessions by 72.5%, and hospital sessions by 75%. In addition, 52.5% frequently presented case reports.

The journal most commonly read was the *Journal of Clinical Endocrinology and Metabolism* (57.5%), followed by the Spanish journal *Endocrinología y Nutrición* (12.5%), and the most commonly consulted book was *Williams Textbook of Endocrinology* (67.5%), followed by Spanish texts for residents such as *Manual del Residente de Endocrinología y Nutrición* (5%).

Meetings most often attended were those of *Sociedad Española de Endocrinología y Nutrición* (70.5%) and courses for residents organized by this association (74.5%).

Evaluations of departments and other aspects

On a 0 to 5 scale (in which 0 was the worst and 5 the best score), residents scored their supervision by associate physicians 3.6 ± 0.9 and their departments 3.5 ± 0.9 , while 82.5% thought that they met the training objectives, which contrasts with the 2005 data, which revealed that 40% of RPs disapproved of the training received in their departments.

Forty percent of RPs were still unaware of the contents of the new program, while 60% thought that it was being adequately complied with.

As regards the final evaluation system, only half of the RPs agreed with the current system, and 62.5% of them did not consider an exam at the end of the residency period to be necessary. Virtually all RPs (97.5%) thought that they would be prepared for professional practice when they had completed their training period, and 72.5% would like to work in the fields of both endocrinology and nutrition, while only 25% and 2.5%, respectively, would like to work in the endocrinology and nutrition areas only.

E&N was the first choice specialty after the RP exam for 90% of RPs, and 97.5% would recommend it for future RPs. A total of 67.5% thought that no additional positions should be offered in the RP exam, and more than a half (57.5%) considered that they had a greater chance to work there as compared to other medical specialties when they had completed the residency period.⁵

Discussion

The survey conducted allowed for collecting information about the training our residents had received. The fact that the survey was completed by fourth-year RPs only increases the reliability of the data, since they have completed most of their training and have experienced the changes made to the program in 2006. In addition, we think that the data are highly generalizable because although the survey was not completed by 100% of RPs in E&N, geographic distribution is consistent with the locations of the greatest numbers of RPs.

Results show compliance with the program as regards clinical rotations in the specialty of E&N, and the only thing RPs would change would be the duration of ward rotation, which is currently excessive in their opinion and should be shortened to a period closer to the 6 months recommended by the program.

Compulsory external clinical rotations are met in most cases. Residents also agree with the inclusion in the program of these clinical rotations, except for neurology, whose inclusion in future programs would be controversial because they think that it is not useful for their training. Residents would include clinical rotations in radiology and nuclear medicine, which have been removed from the new program but for which there is the greatest demand. By contrast, they would not include new clinical rotations such as those in gynecology, andrology, and regional hospitals, which are rarely or never performed.

Clinical rotation in other hospitals was down by 20% as compared to 2005. This probably reflects an improvement in the different department areas which allows for performing

some clinical rotations (such as nutrition) with no need for training at another hospital.

No improvement over the prior data was found regarding deficiencies in the practical aspects of the specialty, particularly in the field of endocrinology, such as performance of FNA and cytological or hormone tests, included in the new program as indispensable skills to be acquired, or in scientific training aspects such as the preparation of doctoral theses during residency.

It should be noted that only 4 residents had performed any on-call duty activities in endocrinology (a similar number, 3 RPs, had performed these in 2005), despite the significant increase in the number of units and day hospitals of our specialty in recent years, which could well have led to an increase in such activities.

As shown, no substantial changes were found in the clinical training rotations and the practical aspects as compared to the 2005 data despite the changes in program contents, with a few exceptions. It should, however, be emphasized that resident perception of their training had significantly improved, as a vast majority of them were satisfied with the training received in their departments, while 40% of residents were dissatisfied with their training in 2005. That is, training contents are similar to those in previous years, but are perceived as being qualitatively better. This may reflect a progressive improvement in quality of training or a greater awareness by associate physicians of the significance of RP training. This change appears to be gradual, as improvement was already seen in 2005 as compared to the 2000 data.

Vocation for the specialty was high among our residents, who liked both the endocrinology and nutrition areas, and would recommend it to other colleagues. However, more than half of them would not increase the number of RP positions, probably to prevent an increased competition for work positions.

As to the controversy about the best evaluation system at the end of the residency period, opinions were divided as regards the current system, but more than a half thought that no exam was needed. This is currently a controversial subject.

The training of our residents is a current subject of debate because of the planned implementation of core training for specialists in health sciences, which represents a threat to our postgraduate medical training system, considered one of the best training systems worldwide. It should be noted that core training was characteristic in programs prior to the one approved in 2006. Such training included in the first 2 years clinical rotations and training in all medical areas outside E&N. However, as a result of changes in

subsequent programs, and especially in the most recent one, there has been a progressive trend to limit such common training to the first year, extending specific training in E&N, despite the fact that core training was already considered as a future system in 2003.⁶ The results reported show that residents disagree with this and would not include in their E&N training clinical rotations in medical specialties (Table 1) which have been removed from the current program such as pneumology or gastroenterology, among others, but which would be reintroduced if core training were to be implemented.

We think that a dynamic review and adjustment of the training program is required to gradually improve the quality of training by including new areas and removing areas of little value. There is no registry regulating training compliance or quality in the different departments teaching residents in Spain. The availability of such a registry would be the best means of achieving minimal training objectives, qualifications, and quality from teaching departments.

Conflicts of interest

The authors state that they have no conflicts of interest.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.endoen.2011.08.001](https://doi.org/10.1016/j.endoen.2011.08.001).

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