

Annual educational expenses of European urology residents and the role of sponsorship in urology training: a survey-based analysis

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Introduction The aim of this article was to evaluate the personal monetary costs associated with the urology residency.

Material and methods The European Society of Residents in Urology (ESRU) designed a 35-item survey and distributed it via email and social media to urology residents in Europe. Monthly net salary and educational expenses (general expenses, literature, congresses and courses) and opinions regarding sponsorship and expenditure were evaluated. Comparisons between different countries and salary cut-offs were made.

Results A total of 211 European urology residents completed the survey from 21 European countries. The median interquartile range (IQR) age was 30 (18–42) years and 83.0% were male. A total of 69.6% receive less than €1500 net per month and 34.6% spent ≥€3000 on education in the previous 12 months. Sponsorships came mainly from the pharmaceutical industry (57.8%), but 56.4% of trainees thought that the ideal sponsor should be the hospital/urology department. Only 14.7% of respondents stated that their salary is sufficient to cover training expenses, and 69.2% agreed that training costs have an influence on family dynamics.

Conclusions Personal expenses during training are high, are not sufficiently covered by the salary and impact family dynamics for a majority of residents in Europe. The majority thought that hospitals/national urology associations should contribute to the educational costs. For homogeneous opportunities across Europe, institutions should strive to increase sponsorship.

Key Words: urology residents ↔ residency costs ↔ training ↔ training costs ↔ sponsorship ↔ salary

INTRODUCTION

Urology is amongst the top specialties associated with burnout syndrome, with the financial factor (insufficient monetary compensation/reimbursement) as a contributor [1, 2, 3]. To date, there are no data on the personal monetary costs (defined as the financial costs of the resident's scientific, academic and practical training) associated with the Urology residency in European countries. Although the cost of medical training is different according to the organizational models of each country, there are data showing that medical training programs result in hospitals having a financial return equivalent or greater than the money invested in the residents. Additionally, residents represent a cheaper labor force compared with senior doctors [4, 5, 6]. In the modern and globalized world, training is not restricted to just providing hospital service, but also to participating in research activities, postgraduate training, theoretical and practical courses, congresses, rotations and fellowships. There are no studies evaluating personal monetary

costs and its impact on Urology residency. Due to the lack of data, we conducted a survey-based study to evaluate this in more depth. The main aim was to evaluate and compare salary, educational expenditure and sources of sponsorship (private or public organizations that financially support an event, activity or products). In addition, we aimed to evaluate its impact on residency, and residents' perception of this. Data would allow us to identify any discrepancies and aid the establishment of solutions for more equal access to medical training.

MATERIAL AND METHODS

Members of the European Society of Residents in Urology (ESRU) designed an online questionnaire with 35 items using the www.surveymonkey.com platform (SurveyMonkey, Portland, OR, EE. UU.). The survey was designed following the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) guidelines [4], and distributed to all ESRU countries members via ESRU National Coordinators communication tools (namely e-mail and social

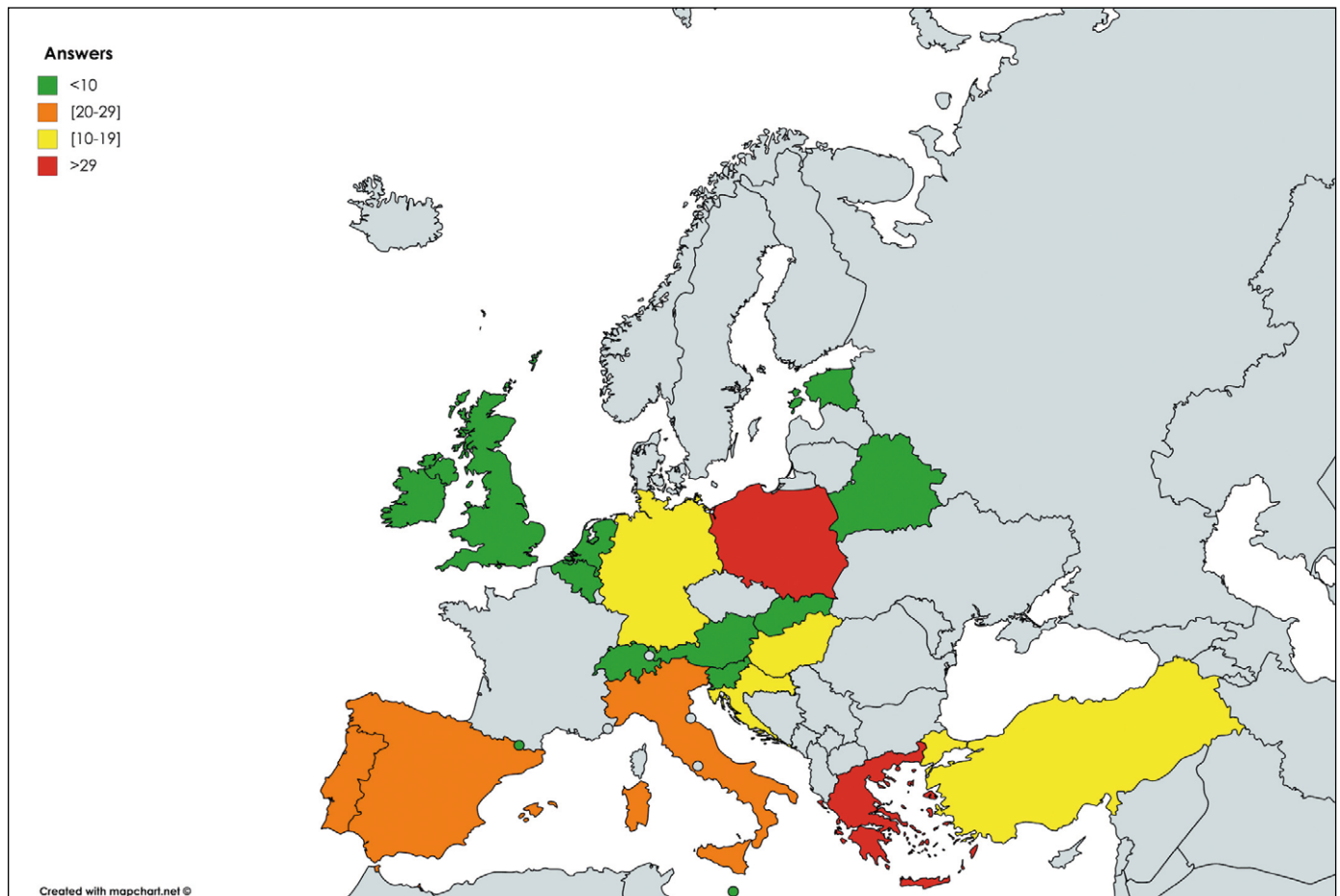


Figure 1. Number of responders per country.

media), obtaining answers from 21 European countries (Figure 1). The questionnaire (Appendix 1) was divided into four sections and components were analysed between countries (since salaries and residency programmes are different between countries). Countries with more than 20 participants (Poland, Greece, Portugal, Italy, Spain) represented an individual group, and countries with ≤ 20 participants were grouped together. The four sections of the questionnaire included:

1. General characteristics (demographic data).
2. General monetary costs: monthly income and expenditure on education.
3. Literature costs: total spending on literature, identification of sponsors and its influence on the access to literature.
4. Courses, congresses and other scientific meetings costs: spending on activities, types of sponsorship, and any limiting factors.

Statistical analysis

Raw data was gathered from Survey Monkey and entered into SPSS version 21.0 (SPSS Inc., Chicago, IL,

EE. UU.) for analysis. A p-value below 0.05 was considered statistically significant. Student's t-test and Kruskal-Wallis test were used to analyse parametric and non-parametric data respectively.

RESULTS

We obtained 211 responses from 21 European countries. Demographic data are shown in Table 1. The percentage of trainees receiving a net salary of less than €1500 was 69.6%, and 21.3% spent over €3000 on education in the previous 12 months (Table 2). The main training expenditures were on courses (37.0%), congresses (24.2%), and literature (21.8%). The percentage of residents with education expenses over €3000 was 21.3%. The percentage of sponsored spending was over 50% in 42.7% of respondents, however, approximately 1/4 of residents did not receive any sponsorship. The main sponsor was the pharmaceutical industry (76.7%, excluding respondents who answered 'no one'). Only 14.7% of respondents claimed that their salary is sufficient to cover training expenses, and 69.2% said that training costs influenced their family dynamics.

Table 1. Demographics

Variable/question	Total	Poland	Greece	Portugal	Italy	Spain	Others	p
n	211	31	30	29	25	21	75	
Age [(median (IQR), years)]	30 (18–42)	30	31	29	29	30	30	0.025
Gender (n; %)								
Female	40 (19.0%)	4 (12.9%)	3 (10.0%)	7 (24.1%)	2 (8.0%)	5 (23.8%)	19 (25.3%)	0.218
Number of children (n; %)								
0	157 (74.4%)	18 (58.1%)	27 (90.0%)	27 (93.1%)	21 (84.0%)	19 (90.5%)	45 (60.0%)	
1	31 (14.7%)	8 (25.8%)	1 (3.3%)	2 (6.9%)	3 (12.0%)	2 (9.5%)	15 (20.0%)	<0.001*
≥ 2	23 (10.9%)	5 (16.1%)	2 (6.6%)	0 (0.0%)	1 (4.0%)	0 (0.0%)	3 (20.1%)	
Year of residency (n; %)								
≤ 3	93 (44.1%)	13 (41.9%)	13 (43.3%)	16 (55.2%)	12 (48.0%)	8 (38.1%)	31 (41.3%)	
≥ 4	118 (55.9%)	18 (58.1%)	17 (56.7%)	44.8%	13 (52.9%)	13 (61.9%)	44 (58.7%)	0.065
Marital status (n; %)								
Married/ partenered	139 (69.5%)	25 (80.7%)	19 (63.3%)	9 (31.0%)	17 (68.0%)	9 (42.8%)	60 (74.0%)	
Single	68 (32.2%)	5 (16.1%)	10 (33.3%)	20 (69.0%)	8 (32.0%)	11 (52.4%)	14 (18.7%)	<0.001*
Other	4 (1.9)	1 (3.2%)	1 (3.3%)	0 (0.0%)	0 (0.0%)	1 (4.8%)	1 (1.3%)	
Hospital (n; %)								
University hospital	118 (55.9%)	10 (32.3%)	14 (46.7%)	16 (55.2%)	23 (92.0%)	18 (25.7%)	37 (49.3%)	
Non university hospital (public)	82 (38.9%)	18 (58.1%)	16 (53.3%)	13 (44.8%)	0 (0.0%)	3 (14.3%)	32 (42.7%)	
Private Hospital	7 (3.3%)	3 (9.7%)	0 (0.0%)	0 (0.0%)	2 (8.0%)	0 (0.0%)	2 (7.7%)	<0.001*
Other	4 (1.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (5.3%)	

IQR – median interquartile range; n – number

*Statistically significant (p < 0.05); 1: Andorra, Austria, Belarus, Belgium, Croatia, Estonia, Germany, Hungary, Ireland, Malta, Netherlands, Slovakia, Slovenia, Switzerland, Turkey, United Kingdom

Table 2. General Monetary Costs

Answer list	European urology residents (n = 211)	Poland (n = 31)	Greece (n = 30)	Portugal (n = 29)	Italy (n = 25)	Spain (n = 21)	Others (n = 75)	p
Monetary spending on urology education in the last 12 months (n; %)								
0–999 €	82 (38.9%)	5 (16.1%)	17 (56.7%)	3 (10.3%)	11 (44.0%)	4 (19.0%)	42 (56.0%)	<0.001*
1000–1999 €	56 (26.5%)	11 (35.5%)	7 (23.3%)	10 (34.5%)	7 (28.0%)	4 (19.0%)	17 (22.7%)	
≥2000 €	73 (34.6%)	15 (48.4%)	6 (20.0%)	16 (55.2%)	7 (28.0%)	13 (61.9%)	16 (21.3%)	
Amount sponsored (n; %)								
0%	51 (24.2%)	2 (6.5%)	9 (30.0%)	2 (6.9%)	10 (40.0%)	1 (4.8%)	27 (36.0%)	0.009
<50%	70 (33.2%)	14 (45.1%)	7 (23.3%)	10 (34.5%)	9 (36.6%)	10 (47.6%)	20 (26.6%)	
≥50%	90 (42.7%)	15 (48.3%)	14 (46.7%)	17 (58.5%)	6 (24.0%)	10 (47.7%)	28 (37.3%)	
Main sponsor (n; %)								
Pharmaceutical industry	122 (57.8%)	29 (93.5%)	13 (43.3%)	25 (86.2%)	12 (48.0%)	16 (76.2%)	27 (36.0%)	<0.001*
No sponsor	52 (24.6%)	2 (6.1%)	10 (33.3%)	1 (3.4%)	10 (40.0%)	3 (14.3%)	26 (34.7%)	
Hospital/urology department	21 (10.0%)	0 (0.0%)	3 (10.0%)	0 (0.0%)	3 (12.2%)	1 (4.8%)	14 (18.7%)	
Other	16 (7.5%)	0 (0.0%)	4 (13.3%)	3 (10.3%)	0 (0.0%)	1 (4.8%)	8 (10.6%)	
Most money spent on? (n; %)								
Courses	78 (37.0%)	15 (48.4%)	14 (46.7%)	16 (55.2%)	3 (12.0%)	9 (42.9%)	21 (28.0%)	0.129
Congresses	51 (24.2%)	7 (22.6%)	4 (13.3%)	8 (27.6%)	7 (28.0%)	5 (23.8%)	20 (26.7%)	
Literature	46 (21.8%)	3 (9.7%)	8 (26.7%)	2 (6.9%)	6 (24.0%)	2 (9.5%)	25 (33.3%)	
Others	36 (17.0%)	6 (19.3%)	4 (13.3%)	3 (10.3%)	9 (36.0%)	5 (23.8%)	9 (12.2%)	
Do you think the money you spend will serve the purpose of being a better urologist? (n; %)								
Yes	192 (91.0%)	31 (100.0%)	26 (86.7)	26 (89.7%)	22 (88.0%)	18 (85.7%)	69 (92.0%)	0.431
Do you think you would be a better urologist if you had more sponsorships? (n; %)								
Yes	178 (84.4%)	29 (93.5%)	28 (93.3%)	27 (93.1%)	19 (76.0%)	20 (95.2%)	55 (73.3%)	0.008*
Do you consider that the distribution of sponsorships in your urology department is fair? (n; %)								
Yes	91 (43.1%)	17 (54.8%)	13 (43.3%)	13 (44.8%)	10 (40.0%)	4 (19.0%)	34 (45.3%)	0.225
Do you consider that the distribution of sponsorships in your country is fair? (n; %)								
Yes	61 (28.9%)	11 (35.5%)	6 (20.0%)	5 (17.2%)	9 (36.0%)	5 (23.8%)	25 (33.3%)	0.381
Do you agree with the existence of sponsorships by the pharmaceutical industry? (n; %)								
Yes	172 (81.5%)	29 (93.5%)	23 (76.7%)	27 (93.1%)	21 (84.0%)	17 (81.0%)	55 (73.3%)	0.093
Do you experience any type of coercion or commercial pressure when you accept a sponsorship from the pharmaceutical industry? (n; %)								
Yes	42 (19.9%)	5 (16.1%)	8 (26.7%)	1 (3.4%)	3 (12.0%)	7 (33.3%)	18 (24.4%)	0.008*
Ideally, who do you think should sponsor your training? (n; %)								
Hospital/urology department	119 (56.4%)	18 (58.1%)	9 (30.0%)	15 (51.7%)	18 (72.0%)	13 (61.9%)	46 (61.3%)	0.026
National association of urology	60 (22.4%)	9 (29.0%)	13 (43.3%)	9 (31.0%)	4 (16.0%)	5 (23.8%)	20 (26.7%)	
Pharmaceutical industry	25 (11.8%)	3 (9.7%)	6 (20.0%)	4 (13.8%)	3 (12.0%)	3 (14.3%)	6 (8.0%)	
Others	6 (2.8%)	0 (0.0%)	2 (6.7%)	1 (3.4%)	0 (0.0%)	0 (0.0%)	3 (6.7%)	
No one	1 (0.5%)	1 (3.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
What is your monthly base net salary as a urology resident?								
≤1000 €	67 (31.8%)	24 (77.4%)	29 (96.7%)	0 (0.0%)	0 (0.0%)	5 (23.8%)	31 (41.3%)	<0.001*
1000–1499 €	80 (37.9%)	6 (19.4%)	1 (3.3%)	28 (96.6%)	4 (16.0%)	9 (42.9%)	11 (14.7%)	
≥1500 €	52 (24.6%)	0 (0.0%)	0 (0.0%)	1 (3.4%)	21 (84.0%)	7 (33.4%)	22 (29.3%)	
“I do not want to answer”	12 (5.7%)	1 (3.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (14.7%)	
Do you think your base salary is enough to finance your medical formation?								
Yes	31 (14.7%)	2 (6.5%)	3 (10.0%)	2 (6.9%)	3 (12.0%)	1 (4.8%)	20 (26.7%)	0.016
Do training/medical formation costs influence your family dynamics?								
Yes	146 (69.2%)	24 (77.4%)	24 (80%)	19 (65.5%)	19 (76.0%)	14 (66.7%)	46 (61.3%)	0.351

n – number

*Statistically significant (p < 0.05)

Table 3. Costs regarding expenses and sponsors

Literature (n = 201)		Courses (n = 201)		Congresses/scientific meetings (n = 201)	
Spending in the last 12 months					
0–99 €	89 (44.3%)	0–999€	121 (57.3%)	0–999€	122 (57.8%)
100–499 €	92 (45.8%)	1000–1999€	52 (24.6%)	1000–1999€	52 (24.6%)
≥500 €	20 (9.9%)	≥2000 €	28 (13.9%)	≥2000 €	27 (13.4%)
Main sponsor					
I did not have any sponsor	150 (74.6%)	Pharmaceutical industry	88 (43.8%)	Pharmaceutical industry	115 (57.2%)
Pharmaceutical industry	27 (13.4%)	I did not have any sponsor	74 (36.8%)	I did not have any sponsor	53 (26.4%)
Hospital / urology department	9 (4.5%)	National association of urology	18 (9.0%)	Hospital / urology department	18 (9.0%)
Other	15 (7.5%)	Other	21 (10.4%)	Other	15 (7.4%)
Would you have invested more if you had more sponsorships?					
Yes	166 (78.7%)	Yes	189 (89.6%)	Yes	179 (84.8%)
What is the biggest problem of attending a course or a congress/scientific meeting?					
		Registration fee	112 (53.1%)	Registration fee	100 (47.4%)
		Accommodation fee	49 (23.2%)	Accommodation fee	57 (27.0%)
		No problems	22 (10.4%)	Transportation fee	28 (13.3%)
		Transportation fee	18 (8.5%)	No problems	16 (7.6%)

n – number

*Statistically significant (p < 0.05)

The majority of residents (91.0%) thought that the money spent on education serves the purpose of being a better urologist, and 84.4% thought that they would be a better urologist with more sponsorships. Regarding the feeling of fairness about the distribution of sponsorships, 71.1% and 56.9% of respondents thought that the distribution was unfair in their countries and in their urology departments, respectively. The majority (69.7%) did not experience any type of coercion or commercial pressure when they accepted a sponsorship from the pharmaceutical industry.

The costs related to literature, courses and congresses are summarized in Table 3. Regarding literature expenditure, 44.3% spent less than €100. However, 78.7% reported that they would invest more in literature if they had more support. Overall, 57.3% of respondents spent less than €1000 on courses in the last year, 13.2% spent more than €2000, and 89.6% would invest more on courses if they had more sponsorship. A total of 57.8% spent less than €1000 on congresses and the registration fee was the main factor influencing attendance. The majority (84.8%) of respondents claimed that they would invest more in congresses if they had more sponsorships.

The net salary effect (<€1500 vs ≥€1500) on demographics and costs is summarized in Table 4. Net salary had a correlation with the civil state (p = 0.027) and with the perception of the salary being sufficient (p = 0.012).

DISCUSSION

To date there are no data regarding monetary costs associated with Urology residency in European countries. It is unclear what amount of money is spent by European residents, what the money is spent on and whether there are any sources of sponsorship. We found that most of the European residents who participated in this survey (69.7%) earn less than €1500 monthly net salary and have to overcome the expenditure of literature, congresses and courses in order to enhance their training. Unfortunately, only 14.7% of respondents thought that their net salary is sufficient for training expenses. We have quoted wages over wide intervals, so the exact comparison with countries' average wages (interesting to understand the cost of living) is not possible. However, some interesting data can be discussed based on the average 2018 net salaries (<https://www.reinischfischer.com/average-salary-european-union-2018>), knowing that there is an annual salary update. In relation to Poland, 80% of respondents receive between €500–999, which is comparable to the average salary, €784 described. In relation to Greece, 96.6% receive <€1000, therefore, the majority receives less than the average salary of €917. Portugal takes on a different context, since all residents receive more than €1000 compared to the average salary of €925. In Italy the average salary (€1758) falls within the range reported by most residents,

Table 4. Demographics and costs per net salary

Variable/ Question	≤1500€	>1500€	p
n	147 (69.7%)	52 (24.6%)	
Age (median, years)	30	30	0.237
Gender (n; %)			
Male	124 (84.4%)	38 (73.1%)	0.064
Number of children (n; %)			
0	111 (75.5%)	40 (76.9%)	
1	21 (14.3%)	7 (13.5%)	0.854
≥2	15 (10.2%)	5 (9.6%)	
Civil state (n; %)			
Married/ Partner	81 (55.1%)	38 (73.1%)	
Single	62 (42.2%)	14 (26.9%)	0.027
Other	4 (2.7%)	0 (0.0%)	
Hospital (n; %)			
University hospital	78 (53.1%)	37 (71.2%)	
Non-university hospital (public)	64 (43.5%)	11 (21.2%)	
Private hospital	4 (2.7%)	2 (3.8%)	
Other	1 (0.7%)	2 (3.8%)	
Monetary spending on urology education in the last 12 months (n; %)			
0–999 €	55 (37.4%)	21 (40.4%)	
1000–1999 €	44 (29.9%)	9 (17.3%)	0.730
>1999 €	48 (32.7%)	22 (42.3%)	
Amount sponsored (n; %)			
0%	31 (21.1%)	15 (28.8%)	
<50%	49 (33.3%)	18 (34.6%)	0.175
≥50%	67 (45.6%)	19 (36.5%)	
Biggest sponsor (n; %)			
Pharmaceutical industry	94 (63.9%)	25 (48.1%)	
No sponsor	31 (21.1%)	16 (30.8%)	0.053
Hospital/urology department	7 (4.8%)	10 (19.2%)	
Other	15 (10.2%)	1 (1.9%)	
In which of the following do you need to spend more personal money on your training? (n; %)			
Courses	60 (40.8%)	12 (23.1%)	
Congresses	34 (23.1%)	15 (28.8%)	0.798
Literature	29 (19.7%)	14 (26.9%)	
Others	24 (16.4%)	11 (21.2%)	
Do you think the money you spend will serve the purpose of being a better urologist? (n; %)			
Yes	134 (91.2%)	47 (90.4%)	0.868
Do you think you would be a better urologist if you had more sponsorships? (n; %)			
Yes	132 (89.8%)	38 (73.1%)	0.003*
Do you consider that the distribution of sponsorships in your Urology Department is fair? (n; %)			
Yes	61 (41.5%)	24 (46.2%)	0.561

Table 4. Continued

Variable/ Question	≤1500€	>1500€	p
Do you consider that the distribution of sponsorships in your country is fair? (n; %)			
Yes	39 (26.5%)	18 (34.6%)	0.269
Do you agree with the existence of sponsorships by the pharmaceutical industry? (n; %)			
Yes	120 (81.6%)	42 (80.8%)	0.891
Do you experience any type of coercion or commercial pressure when you accept a sponsorship from the pharmaceutical industry? (n; %)			
Yes	30 (20.4%)	8 (15.4%)	0.857
Ideally, who do you think should sponsor your training? (n; %)			
Hospital / urology Department	80 (54.4%)	33 (63.5%)	
National Association of Urology	42 (28.6%)	13 (25.0%)	
Pharmaceutical industry	21 (14.3%)	4 (7.7%)	0.317
Others	3 (2.0%)	2 (3.8%)	
No one	1 (0.7%)	0 (0.0%)	
Do you think your base salary is enough to finance your medical formation?			
Yes	12 (8.2%)	11 (21.2%)	0.012*
Do training/medical formation costs influence your family dynamics?			
Yes	105 (71.4%)	35 (67.3%)	0.577

n – number

*Statistically significant (p <0.05)

with 84% receiving more than €1500. Regarding Spain, for an average salary of €1749, only 33.4% receive more than €1500. Perhaps this explains why the majority of Spanish residents claimed that their salary was not enough for training. Despite these differences in salaries, major European or World congresses have the same fees for all participants, regardless of the resident's net salary. The same is true regarding access to literature.

Resident's net salary varies across Europe and within the same country (Table 2). Residents from countries such as UK, Spain, France and Slovenia have a growing net salary system according to the year of residency, while the net salary does not increase with the years of residency in countries such as Germany, Belgium and Croatia. It has been shown that salary is an important factor when choosing a specialty and/or a type of residency program [7, 8].

Within the cohort, 81.5% of respondents agree that support from the pharmaceutical industry should be available, although 19.9% felt some form of coercion on the part of the industry. The pharmaceutical industry usually partially or fully finances major conferences, and participating physicians are usually sponsored to attend. This appears to be a mutual benefit, as it reduces the personal costs for doctors (and national health systems), while industries find

the ideal space to showcase their products. In a UK study, most doctors said that industry support has the potential to influence prescription habits, but only a minority feel susceptible [9]. In this work, the majority of respondents thought that hospitals/ departments should support their training. Carrion et al. showed that support from Urology departments was the variable that most positively influenced research activities [10].

Only 14.7% of respondents stated that the salary is sufficient to cover training expenses, while 69.2% stated that training costs influenced their family dynamics. These are worrying results, showing a financial pressure in the conciliation between building the best curriculum and personal life, something that can contribute to the high rates of burnout and unhealthy lifestyles identified in residents and senior urologists [1, 2, 11–15]. Notably, the salary does not influence the access to sponsorships or the kind of sponsor. Residents with higher salaries stated that their salary was sufficient for training ($>€1500$, 21.2% vs $\leq€1500$, 8.2%; $p = 0.012$). More residents who earned $<€1500$ (89.8% vs 73.1%; $p = 0.003$) thought that having more sponsorships to be important for being a better urologist. Interestingly, there were no significant differences in the assessment of the influence of monetary costs on family dynamics in relation to salary ($<€1500$, 71.4% vs $\geq€1500$, 67.3%; $p = 0.577$).

The pharmaceutical industry was found to be the main sponsor (57.8%). Although 81.5% agreed with industry sponsorships and only 19.9% experienced any type of coercion, only 11.8% thought that the pharmaceutical industry is the preferred sponsor. Physicians consider themselves immune to coercion, but previous studies have demonstrated that advertising has a direct impact on physician prescribing patterns [16, 17]. Training is not restricted to hospital rotations, it is essential to participate in research activities, postgraduate training, theoretical and practical courses, congresses, and fellowships. These training opportunities have a cost that is often overlooked by health authorities, which can prevent an equitable access of residents to the same curricular opportunities. In the search for the best possible curriculum, residents are vulnerable to the 'medical education business', are left without a financial solution to support their education and have to search for sponsors by themselves [16, 18]. This problem is further accentuated when the industry itself organizes or sponsors several scientific events and scientific journals. Some medical organizations already provide education without industry support. The Norwegian Medical Association, determined that industry sponsored events could no longer be

counted as formal education, necessary for accreditation [17]. Similarly, some medical journals have started to separate from industry influence (PLOS Medicine and Emergency Medicine Australasia have ended pharmaceutical advertising), with some journals, such as the British Medical Journal (BMJ), developing strong restrictions on author's financial conflicts. In Denmark, doctors who advise drug companies cannot be involved in formulating national guidelines. Cochrane requires at least 2/3 of authors of systematic reviews to have no financial ties with industries [17]. However, there is the 'other side of the coin'. Restrictions on industry promotion could reduce its profitability, reduce research and reduce drug information.

The feeling of injustice in the distribution of sponsorships found in this survey is very worrying and deserves reflection. In that context, we should discuss financial and sponsorship models that respect basic standards: utility, fairness, clarity of criteria, equal access and scientific integrity. In Europe, each country has its own model. For example, in Portugal, Spain and Croatia, the majority of residents actively applies for or passively receives industry sponsorships in an individual way, with no centralized control. There are few financial supports from national urology associations that need a formal and public application. Governments offer scholarships for research after formal applications. In Greece, there is no official support for literature, congresses or courses. There are only some national scholarships which aim at international fellowship positions after written examination. In Belgium, each resident has a €500 budget for the whole education and there are several National Urology Association sponsorships to apply for. Residents can also apply for industry sponsorships. In the UK, there are 4 mandatory courses (emergency, urodynamics, paediatrics and spinal injury) that are mandatory and funded by the training Deanery. Other sponsorships are mainly from industry and residents have difficult access to them. In Denmark and Belgium, all mandatory courses are paid for by the government. Some other non-mandatory courses can be sponsored by the government after application. It is possible to apply for industry sponsorships, but it is very regulated and all relations between the resident and the industry have to be declared. A 'fairer' solution may involve the national regulatory authorities to define the essential courses and congresses and pay the fees themselves. Curriculum and training pressure should not lead residents to have to pay such large amounts of money, which are often a way for scientific societies to fund themselves.

This challenge is not specific to Europe. In the USA, graduate medical education was pointed with several

challenges: geographic maldistribution; need to reduce dependence on federal funding; graduating residents lacking skills [19]. Regarding education, Moynihan et al. proposed some pathways to financial independence from commercial interests in USA: professional, advocacy, or academic groups engaged in educational activities for health professionals; end reliance on industry funding; national governments work with professionals associations and licensing bodies to develop policies that ensure educational activity; educational activity supported by industry cannot contribute to accreditation [17].

Some recent studies have addressed the relation between medical training and personal finance. Mantica et al., showed that there is a reduction in the availability of surgical simulators in urology departments, which may increase the need to search for courses and increase expenses [20]. In fact, the surgical confidence of urology residents (namely laparoscopic skills) is associated with practical courses participation [21]. Furthermore, a recent study showed that offering financial incentives to urology residents increased scientific production [22].

This study has some limitations. Although widely distributed to the various European countries by ESRU members and with more than 200 responses, it may not represent the real population of urology residents, since the survey was distributed by e-mail and social networks. Given this methodology, the response rate cannot be calculated. Those who are sensitive to financial issues may affect the response rate. Probably, residents with financial problems may be more likely to participate in surveys with this theme. Although the survey tried to distinguish between basic wages and total earnings, we cannot exclude that some participants have confused the two concepts. Another limitation, is the inclusion of young urologists in the data analysis. Only very recent young urologists had access to the questionnaire and the questions were related to the previous 12 months, although there is still a possibility of bias. There are no validated questionnaires on this subject, which can lead to flaws in the interpretation of certain questions. However, the CHERRIES criteria were followed in order to obtain the highest possible quality. In addition, the salary was not adjusted to each country cost of living. Finally, we obtained a small number of responses from several countries, which were grouped together, corresponding to a very heterogeneous group that does not allow definitive conclusions. Furthermore, we were not able to obtain participants from several countries, which diminishes the European impact of this study.

The data provided for this work should merit a reflection by all entities with responsibilities in medi-

cal training, to make training more accessible and equitable amongst European residents. In addition, new forms of training and learning, of easy access and of low cost should be developed and encouraged, with special emphasis on online training. In fact, we already know that urology residents use various tools on the internet to access educational content, in particular social media resources [23]. The recent bet on webinars by several medical associations, with special emphasis on the European Association of Urology may help to mitigate the differences in access to information between interns from several countries.

CONCLUSIONS

The majority of urology residents from Poland, Greece, Italy, Portugal and Spain think that the money they earn is not sufficient for their training and that the money they spend during residency can affect their family dynamics. We need more data and studies at the European level, namely in countries where we had few or no participants. For homogeneous opportunities for training across Europe, institutions should strive to increase sponsorship.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

Appendix 1

Part 1. General Information

1. Age:
2. Gender:
3. Year of Residency:
4. Country:
5. Hospital:
 - University hospital (public)
 - Non-university hospital (public)
 - Private hospital
 - Other
6. Civil State:
 - a. Single
 - b. Married
 - c. Divorced
 - d. Widowed
 - e. Partner
7. Number of children:
 - 0
 - 1
 - 2
 - >2

Part 2. General monetary costs

The next 3 questions are about general expenses and include expenses with literature, courses, congresses, transports, academic formation, professional internships, etc.

8. In the last 12 months, how much did you spend on urology education (this includes the total cost, with and without sponsorship)?
 - 0–999 €
 - 1000–1999 €
 - 2000–2999 €
 - 3000–3999 €
 - 4000–4999 €
 - 5000–7499 €
 - 7500–9999 €
 - ≥10000 €
9. How much of the amount was sponsored?
 - 0%
 - <20%
 - 20–49%
 - 50–79%
 - >80%
12. Who is your biggest sponsor?
 - I did not have any sponsor
 - Hospital / urology department
 - National association of urology
 - International association of urology
 - Pharmaceutical industry
 - Others
13. In which of the following do you need to spend more personal money on your training? (MCQ)
 - Literature (includes books, access to scientific magazines, online information, articles)
 - Publication of articles
 - Courses (including travel and accommodation expenses)
 - Congresses (including travel and accommodation expenses, poster printing)
 - Academic formation (includes postgraduate, MD and PhD programmes)
 - Professional internships
 - Others
13. Do you think the money you spend will serve the purpose of being a better urologist?
 - Yes
 - No
14. Do you think you would be a better urologist if you had more sponsorships?
 - Yes
 - No
15. Do you consider that the distribution of sponsorships in your Urology Department is fair?
 - Yes
 - No
16. Do you consider that the distribution of sponsorships in your country is fair?
 - Yes
 - No
17. Do you agree with the existence of sponsorships by the pharmaceutical industry?
 - Yes
 - No
18. Do you experience any type of coercion or commercial pressure when you accept a sponsorship from the pharmaceutical industry?
 - Yes
 - No
 - Not applicable
19. Ideally, who do you think should sponsor your training?
 - No one
 - Hospital / urology department
 - National association of urology
 - Pharmaceutical industry
 - Others
22. What is your monthly base net salary as a urology resident?
 - <500 €
 - 500–999 €
 - 1000–1499 €
 - 1500–1999 €
 - 2000–2499 €
 - 2500–2999 €
 - >3000 €
 - I do not want to answer
20. Do you think your base salary is enough to finance your medical formation?
 - Yes
 - No
21. Do training/medical formation costs influence your family dynamics?
 - Yes
 - No

Part 3. Literature costs

The following questions are about personal expenses in literature (includes books, access to scientific journals, online information, articles, etc.)

22. In the last 12 months, how much did you spend on literature (includes the total cost, with and without sponsorship)?

- 0–99 €
- 100–499 €
- 500–999 €
- 1000–1999 €
- >2000 €

23. How much of that amount was sponsored?

- 0%
- <20%
- 20–49%
- 50–79%
- >80%

24. Concerning literature, who is your biggest sponsor?

- I did not have any sponsor
- Hospital / urology department
- National association of urology
- International association of urology
- Pharmaceutical industry
- Others

25. Would you have invested more in literature if you had more sponsorships?

- Yes
- No

Part 4. Courses costs

The following questions are about personal expenses on courses (includes travel and accommodation expenses).

26. In the last 12 months, how much did you spend on courses (includes the total cost, with and without sponsorship)?

- 0–999 €
- 1000–1999 €
- 2000–3999 €
- 4000–4999 €
- >5000 €

27. How much of that amount was sponsored?

- 0%
- <20%
- 20–49%
- 50–79%
- >80%

28. Concerning courses, who is your biggest sponsor?

- I did not have any sponsor
- Hospital / urology department
- National association of urology

- International association of urology
- Pharmaceutical industry
- Others

29. Would you have invested more in courses if you had more sponsorships?

- Yes
- No

30. What is the biggest problem of attending a course?

- Registration fee
- Transportation fee
- Accommodation fee
- No problems

Part 5. Congresses/scientific meetings costs

The following questions are about personal expenses in congresses (includes travel and accommodation expenses).

31. In the last 12 months, how much did you spend on congresses (includes the total cost, with and without sponsorship)?

- 0–999 €
- 1000–1999 €
- 2000–3999 €
- 4000–4999 €
- >5000 €

32. How much of that amount was sponsored?

- 0%
- <20%
- 20–49%
- 50–79%
- >80%

33. Concerning congresses, who is your biggest sponsor?

- I did not have any sponsor
- Hospital / urology department
- National association of urology
- International association of urology
- Pharmaceutical industry
- Others

34. Would you have invested more in congresses if you had more sponsorships?

- Yes
- No

35. What is the biggest problem of attending a congress?

- Registration fee
- Transportation fee
- Accommodation fee
- No problems

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