

## Where do doctors graduated from the Medical School of the University of São Paulo work? An observational cross-sectional study

### *Onde trabalham os médicos formados na Faculdade de Medicina da Universidade de São Paulo? Um estudo transversal observacional*

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**ABSTRACT:** Understanding the insertion of health professionals after graduation contributes to the improvement of educational institutions and planning of public health and education policies. The objective of this study is to evaluate the insertion in the job market and in the healthcare system of University of São Paulo Medical School alumni graduated in 1999, 2000, 2009 and 2010. The database from the Brazilian Medical Demographic study was used to collect individual data of the subjects. Their employment bonds were extracted from four digital platforms, which were effective in characterizing their work insertion: Lattes platform, National Registry of Health Institutions, LinkedIn and Doctoralia. Of the 602 doctors analyzed, 63.1% were men, the mean age was 44.7 years and the majority worked both in the public and private health sectors, while a minority worked exclusively at the Unified Health System. The most common workplace were hospitals and there was a low percentage of doctors in Primary Health Care. Maintaining the ability to train specialists in key areas while also promoting careers in primary care, which are essential to the healthcare system, is a curricular and institutional challenge that needs to be tackled. This study may be reproduced to monitor the professional insertion and the social return of human resources for health among health institution's alumni.

**Keywords:** Health workforce; Job market; Health systems; Education, medical, undergraduate.

**RESUMO:** Conhecer a inserção e a atuação dos profissionais de saúde depois de formados contribui para o aprimoramento das instituições formadoras e para o planejamento de políticas públicas de educação e saúde. O objetivo do presente estudo é avaliar a inserção no mercado de trabalho e no sistema de saúde dos médicos formados pela Faculdade de Medicina da Universidade de São Paulo nos anos de 1999, 2000, 2009 e 2010. Para as características demográficas e de formação dos médicos foi utilizada a base de dados do estudo Demografia Médica no Brasil. Os dados sobre vínculos de trabalho foram extraídos de 4 plataformas digitais, e permitiram caracterizar a inserção dessa população: Plataforma Lattes, Cadastro Nacional de Estabelecimentos de Saúde, LinkedIn e Doctoralia. Dos 602 médicos estudados, 63,1% eram homens, com idade média de 44,7 anos; a maioria trabalhava em dupla prática pública e privada, enquanto uma minoria, apenas no Sistema Único de Saúde. O vínculo mais frequente foi com hospitais e houve baixa frequência de médicos na atenção primária. Manter a capacidade de formar especialistas em áreas fundamentais, além de fomentar vocações para a atenção primária, essencial ao sistema de saúde, é um desafio curricular e institucional a ser repensado. O estudo pode ser reproduzido para acompanhar a inserção profissional e o retorno social dos recursos humanos em saúde egressos de instituições de ensino.

**Palavras-chave:** Recursos humanos em saúde; Mercado de trabalho; Sistemas de saúde; Educação de graduação em medicina.

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## INTRODUCTION

Human resources for health, including physicians, need to be sufficient and well-distributed to provide a quality service to the population. In addition, these professionals must have adequate training and appropriate skills to provide quality health services and positively contribute to the improvement of health indicators<sup>1,2</sup>.

The imbalance between the supply of doctors and the needs of health systems and populations is a global phenomenon. A better understanding of this reality requires well-established standards and comparability of data on socio-demographic characteristics, training, and insertion in the labor market among these professionals<sup>3</sup>.

Health systems and the medical profession itself are in constant transformation. A good indicator to understand and monitor the dynamics that guide these changes is the study of the health labor market<sup>3</sup>, which is influenced by health policies, availability of professionals, and demands of the health system, which are converted into the offer of jobs and work opportunities.

In this context, the choice of a medical specialty or area of expertise and the choice of a place of residence and work are determined by multiple factors. The geographic distribution and the choice of specialty depend on factors such as income expectations, work conditions, socio-demographic factors and gender, as well as individual and educational characteristics, among other aspects<sup>4-7</sup>.

In 2020, Brazil reached the milestone of half a million doctors, which corresponds to 2.4 doctors per thousand inhabitants<sup>8</sup>, a similar rate to that of South Korea, Mexico, Poland and Japan, but below the mean of 3.5 doctors per thousand inhabitants of the countries in the Organization for Economic Cooperation and Development (OECD)<sup>9</sup>. Even with the increase in the number of physicians resulting from new medicine courses, Brazil still has a shortage of healthcare professionals in several locations, services, and in certain medical specialties. In addition, these professionals are not well distributed geographically (between urban, suburban, and rural regions) or in the health system (between public and private sectors, between health services and between primary care, outpatient, and hospital levels)<sup>8</sup>.

The medical job market in Brazil is influenced by professional choices and trajectories, but also by the organization and functioning of the health system. More than three decades ago, in 1988, the Federal Constitution created the Unified Health System (SUS), which provides public and universal access to health, while also allowing the participation of the private sector, either in a complementary way, through sales and provision of services to the public system, or in a supplementary way, through private health plans and insurance. Even though 71.5% of Brazilians only use the SUS while 28.5% of the

population has some type of private health insurance<sup>10</sup>, there are more doctors in the private than in the public sector, considering the population size of the two subsectors<sup>8</sup>.

There are gaps in the literature on factors that affect the insertion of doctors in the labor market and in the health system, such as personal choices, undergraduate institution, age, time since graduation, gender, and specialty. This is the objective of this article that addresses the specific case of graduates from the Medical School of the University of São Paulo (FMUSP), founded 108 years ago and recognized as a center of excellence in research and teaching for undergraduate and medical residency courses<sup>11</sup>.

## METHOD

This research is an exploratory, observational, cross-sectional study. Doctors graduated from FMUSP in 1999, 2000, 2009 and 2010 were included. This time frame was chosen to include two distinct groups of physicians, trained approximately two decades ago (1999/2000) and a decade ago (2009/2010) and, therefore, with different degrees of exposure to the labor market.

The planning of the study established guidelines for the collection, use and consolidation of secondary data from heterogeneous and non-integrated sources publicly available on the internet. A previous survey of sources on the work or labor insertion of physicians was carried out, and four sources were used: Lattes Platform (curriculum and academic trajectory), National Registry of Health Institutions – CNES – Datasus (doctors linked to health services), LinkedIn (professional social network) and Doctoralia (doctors working in private offices). The number of platforms chosen considered the feasibility of manual data collection and the attempt to maximize the information on professional relations of different natures.

Then, two researchers consulted and crossed the secondary data through the independent execution of an extraction script, with the objective of comparing data and achieving greater reliability. The data and the pathways were reviewed by a third researcher who acted as collection and quality supervisor.

After obtaining the information available for each individual, the labor insertion and professional bonds of the physicians were classified into: 1) public bonds, subdivided into 1a) public hospital (hospitals that serve the SUS, regardless of their legal nature), 1b) primary health care (UBS and ESF), 1c) specialized outpatient care (AMA, CAPS, DST/AIDS, among others), 1d) teaching or research at a public university or 1e) other public bonds (management, pre-hospital care); and 2) private bonds, subdivided into 2a) private hospital (does not serve the SUS), 2b) private offices or clinics, 2c) teaching or research at a private university, and 2d) other private bonds (diagnostic and therapy services, pharmaceutical industry).

Professional data was collected from September

2019 to July 2020 and followed by the inclusion of information on gender, age, and specialty of physicians, extracted from the database of the Brazilian Medical Demography study.

The data obtained were collected in Microsoft Excel 2009 software and compared using the appropriate statistical methods in the IBM 25.0, SPSS and Microsoft Excel 2009 software. Statistical significance was set at  $p\text{-value} < 0.05$ .

This study is part of the Brazilian Medical Demography study, approved by the Research Ethics Committee of the FMUSP (Resolution 797.424 on 09/03/2014).

## RESULTS

Initially, 653 doctors were considered, representing all doctors graduated from FMUSP in 1999, 2000, 2009

and 2010. After consulting the databases on labor insertion, 51 individuals were excluded, of which 13 were working abroad, 22 were not registered in any of the databases surveyed, 13 were in the databases, but did not present a job description at the time of data collection, and three did not work in medicine.

After excluding these 51 individuals, the 602 physicians analyzed were distributed as follows: 150 graduated in 1999, 147 in 2000, 163 in 2009 and 142 in 2010. Most physicians in the sample were men (63.1%) and the frequency of genders did not differ significantly between the analyzed periods (1999-2000 and 2009-2010). The mean age was 44.7 years with a standard deviation of 1.4 years. The mean age varied according to the year of graduation: it was 44.7 years for those who graduated in 1999 and 2000, and 35.5 years for those who graduated in 2009 and 2010.

**Table 1** - Description of graduates according to gender and biennium of training.

		1999/2000	2009/2010	$\chi^2$ p-value	Total
		N (%)	N (%)		N (%)
Gender	Men	194 (65,3)	186 (61)	0,27	380 (63,1)
	Women	103 (34,7)	119 (39)		222 (36,9)
	<b>Total</b>	<b>297 (100)</b>	<b>305 (100)</b>		<b>602 (100)</b>

**Table 2** - Characterization of graduates according to age and biennium of training.

		1999/2000	2009/2010	$\chi^2$ p-value	Total
		N (%)	N (%)		N (%)
Age	<=35 years	0	183 (60)	<0,001	183 (30,4)
	36-40 years	0	118 (38,7)	<0,001	118 (19,6)
	41-45 years	230 (77,4)	3 (1)	<0,001	233 (38,7)
	46+ years	67 (22,6)	1 (0,3)	<0,001	68 (11,3)
	<b>Total</b>	<b>297 (100)</b>	<b>305 (100)</b>		<b>602 (100)</b>

The platforms studied had different levels of adherence of graduates, and the CNES was the most frequently used. In total, 88.9% of graduates had information on CNES, 74.6% on Lattes Platform, 54.8% on Doctoralia and 24.9% on LinkedIn. The use of the Lattes platform was more frequent ( $p < 0.001$ ) among those who

graduated in 2009 and 2010 (83%) than among those who graduated in 1999 and 2000 (66%). The trend was inverse in Doctoralia, which was more frequently used ( $p < 0.001$ ) by those who graduated in 1999 and 2000 (74.1%) than by those who graduated in 2009 and 2010 (54.8%).

**Table 3** - Frequency of use of the platforms studied according to year of graduation

Platform	1999/2000	2009/2010	Total	$\chi^2$ p-value
	N (%)	N (%)	N (%)	
Lattes	196 (66)	253 (83)	449 (74.6)	<0,001
LinkedIn	76 (25.6)	76 (24.9)	152 (25.2)	0.85
CNES	256 (86.2)	279 (91.5)	535 (88.9)	0.039
Doctoralia	220 (74.1)	167 (54.8)	387 (64.3)	0.02
<b>Total</b>	<b>297 (100)</b>	<b>305 (100)</b>	<b>602 (100)</b>	

Regarding the categorization of employment bonds or professional insertion, most graduates work in both the public and private sectors (52.8%), while a minority (10.1%) had only public bonds. The remaining 37.1% had only private bonds. The comparison between the subgroups showed that, among doctors graduated in 2009/2010, there

was a lower frequency of individuals working only in the private sector compared to those graduated in 1999/2000. However, there was a greater frequency of doctors graduated in 1999 and 2000 who worked exclusively in the public sector or in both public and private sectors.

**Table 4** – Distribution of the categories of employment bonds according to the year of graduation.

Practice	Year of graduation		Total N (%)	x <sup>2</sup> p-value
	1999/2000 N (%)	2009/2010 N (%)		
Both public and private practice	142 (47.8)	176 (57.7)	318 (52.8)	0.015
Only public practice	21 (7.1)	40 (13.1)	61 (10.1)	0.014
Only private practice	134 (45.1)	89 (29.2)	223 (37.1)	<0.001
<b>Total</b>	<b>297 (100)</b>	<b>305 (100)</b>	<b>602 (100)</b>	

The analysis of public work revealed that most bonds are in hospital care: 85% of the individuals who work in the public sector are in public hospitals, while only 5.3% are in primary health care. The second most frequent bond is in specialized outpatient care (outpatient

services, specialty outpatient clinics, Outpatient Medical Assistance – AMA, Psychosocial Care Centers – CAPS, blood centers, HIV-AIDS services, rehabilitation), with a frequency of 15.8%. In addition, there are also public bonds in pre-hospital care, public management and forensics.

**Table 5** - Frequency of public practice subtypes.

Categories	1999/2000 N (%)	2009/2010 N (%)	Total N (%)
Public hospital*	142 (83.3)	180 (83.3)	322 (85.0)
Primary care	5 (3.1)	15 (6.9)	20 (5.3)
Specialized outpatient care	24 (14.7)	36 (16.7)	60 (15.8)
Public university professor or researcher	19 (11.7)	7 (3.2)	26 (6.9)
Other public bonds	7 (4.3)	5 (2.3)	12 (3.2)
<b>Total (at least one public bond)</b>	<b>163 (100)</b>	<b>216 (100)</b>	<b>379 (100)</b>

\*Hospitals within the SUS: public, philanthropic or university hospitals.

The analysis of private bonds shows, once again, a predominance of hospital work, where 72.3% of those working in the private sector have bonds. Work in private offices and clinics is also very frequent, with 63.4% of physicians with these bonds. Only 4.4% of professionals

with private work bonds worked in private universities. In addition, the “other private bonds” described in table 5 include work in diagnosis and therapy services and in the pharmaceutical industry.

**Table 6** - Frequency of private practice subtypes.

Categories	1999/2000 N (%)	2009/2010 N (%)	Total N (%)
Private hospital	186 (67.4)	205 (77.4)	391 (72.3)
Private office or clinic	192 (70)	151 (57)	343 (63.4)
Private university professor	16 (5.8)	8 (3)	24 (4.4)
Other private bonds	38 (13.8)	19 (7.2)	57 (10.5)
<b>Total (at least one private bond)</b>	<b>276</b>	<b>265</b>	<b>541</b>

The comparison of elements that can influence professional insertion showed that the younger the individual, the greater the frequency of “mixed” work or

dual practice (public and private) ( $p=0.002$ ), but the lower the frequency of exclusive private practice ( $p<0.001$ ). There was no statistical difference in the public or private insertion

of the studied physicians between genders. Finally, it is noted that individuals who have surgical specialties

are more often in both public and private practice when compared to those from other specialties.

**Table 7** - Distribution of the work sector according to age, gender, and specialty.

		Public and private sectors		Only public sector		Only private sector	
		N	x <sup>2</sup> p-value	N	x <sup>2</sup> p-value	N	x <sup>2</sup> p-value
Age	≤35	105	0,002	19	0,146	59	<0,001
	36-40	71		18		29	
	41-45	115		20		98	
	46+	27		4		37	
Gender	F	110	0,219	24	0,674	88	0,313
	M	208		37		135	
Specialty*	Surgery	89	0,008	12	0,882	37	0,008
	Other	221		39		168	

\*There were doctors without specialization, so the total of individuals does not coincide with the other lines.

## DISCUSSION

The results of the present study show that FMUSP graduates from the selected classes are predominantly men, reflecting a historical trend observed throughout the country<sup>8</sup>. Regarding the nature of their professional practice, most physicians (52.8%) work simultaneously in the public and private sectors, while only 10.1% had no private bond.

Simultaneous employment bonds in public and private sectors, also known in the literature as dual practice, are a worldwide phenomenon associated with the dynamics of the labor market and the configuration of health systems<sup>12</sup>. The findings of the present study are similar to those of a national study by Miotto et al.<sup>13</sup>, which identified dual practice in 51.5% of Brazilian physicians. However, in that study, dual practice was more frequent among male physicians, while there was no difference in relation to gender in our study population ( $p=0.674$ ).

Theoretical analyses indicate that physician dual practice is related to an attempt to maximize income<sup>14</sup>, but the phenomenon can have negative effects on health services and systems<sup>15</sup>. In Brazil, dual practice can, in theory, reduce the workforce of public institutions that serve SUS patients and users.

Among the doctors graduated from FMUSP that were included in this study, only 10.1% work exclusively in the public sector. Miotto's<sup>13</sup> study found that 21.5% of doctors in the country worked exclusively in the SUS. Conversely, among doctors graduated from FMUSP, there is a greater frequency of exclusive private practice.

These differences between the two surveys should be regarded with caution, as the population of this study had a small number of younger and less specialized physicians, a profile commonly associated with a greater presence in the

SUS. Therefore, the inclusion of 63% of FMUSP graduates in public services, a percentage indicating the sum of those in exclusive public activities and in public-private activities, demonstrates the important contribution of the institution to the Unified Health System.

It is important to consider that physicians trained at FMUSP tend to live in the capital and in the state of São Paulo<sup>17</sup> after graduation, where there is a great concentration of private services and users of healthcare plans and insurance. Therefore, the higher frequency of private bonds may also be associated with the greater offer of job opportunities in the private health sector.

The stratification of the data according to the year of graduation showed that exclusive private practice was more present in classes that graduated in 1999 and 2000, while the classes of 2009 and 2010 had more doctors who worked exclusively in the public sector or in both sectors. Therefore, the longer the time after graduation, the greater the experience and professional specialization and the greater the chance that physicians will work exclusively in the private sector.

There was a predominance of work in hospital care and low insertion in primary care among FMUSP alumni. The greater number of hospital bonds may be related to the course curriculum and the training closer to a large hospital complex, the *Hospital das Clínicas* of the FMUSP (HCFMUSP).

In addition, the level of attention – hospital, outpatient and basic care – and the type of service in which the professional is inserted is also related to the profile and scope of medical specialties and the medical residency programs attended by physicians after graduation.

A supposed institutional “vocation” of training physicians focused on hospital practice can be considered a relevant contribution to the health system, which

also depends on this strategic level of care. Likewise, specialization in surgical areas, which is more frequent among FMUSP graduates<sup>17</sup>, may be associated with institutional tradition combined with the demand for this professional profile in the labor market.

Nevertheless, a greater inclusion in the SUS primary care network is desirable, considering that the FMUSP is a public institution, financed by public resources. This study can encourage discussion about the possible need to review the interaction of FMUSP medical students with primary care, aiming to allow greater attraction or vocation for specialties that work at this level of care in the health system. The recent expansion of private medical education, with little proximity to new medical schools with adequate areas of practice, places even greater responsibility on public institutions, which must train doctors focused on the strategic needs of the SUS.

It is also worth mentioning that the expansion of the curriculum and the institutional efforts to focus more on PHC during FMUSP undergraduate studies, especially after the 2014 national curriculum guidelines for Medicine courses, may have future repercussions on professional choices, which could not yet be captured in the sample analyzed.

The investigation carried out in this study contributes to the literature in several aspects. Studies have already addressed the expectations regarding the profession and the labor market<sup>18-21</sup> among medical students or recent graduates. This study sought to portray the reality of professional insertion several years after graduation and at different times in the medical career.

Another contribution was the combination of different public databases, available online and containing information on the professional performance of physicians and other professionals. The survey may be replicable for the study of professional insertion and the labor market of human resources for health.

In addition, this study enriches the literature already available on the profile of FMUSP graduates<sup>17</sup>, being one more tool to support institutional actions and initiatives for the assessment and improvement of teaching in this institution.

Despite the innovations of the study, the methodology adopted has some limitations related to the exploratory design, the short period analyzed and the restricted population. In addition, the cutoffs for analyzing the

insertion of individuals do not allow identifying changes in employment bonds and jobs throughout their careers or the influence of the time elapsed since graduation on professional insertion, which would require a cohort study.

There are also limitations associated with the characteristics and purposes of the consulted databases, which may contain incomplete or outdated data. Lattes platform is primarily academic, and may exclude individuals who followed an exclusively clinical trajectory. LinkedIn, a professional social network with a broad range, contains a self-report of professional relations, but it is not possible to define the degree of adherence of physicians to this platform. The CNES/Datasus, fed by employers, provides good information on public bonds of doctors, but private bonds are underreported. Doctoralia, on the other hand, is a private company that does not require any fees for the membership of doctors or consultation by customers, being subsidized mainly by advertisements. As it is focused on doctors working in private offices, it does not reach professionals working in the SUS. The choice and combination of different databases in this study was carried out with the objective of mitigating such limitations.

## FINAL CONSIDERATIONS

Most of the physicians who graduated from FMUSP have a professional bond with the Unified Health System (SUS), although the public-private dual practice is the most frequent modality among those who work in the public network. New studies should be conducted to identify the time of dedication to the SUS and to the private sector among doctors in dual practice.

The high rate of hospital work among physicians graduated from FMUSP, despite of the expanding commitment of the institution with the occupation of jobs in primary health care, reveals characteristics compatible with the institutional history and the efforts to train doctors for secondary and tertiary care, which are also essential levels of the health system.

The reproduction of the study to monitor the labor insertion of doctors and healthcare professionals graduated from educational institutions can be an additional tool for planning and evaluating health education in Brazil. Finally, it is expected that public and social investment in training can be compatible with the real needs of the universal SUS and aimed at the benefit of society as a whole.

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## REFERENCES

1. Organização Pan-Americana da Saúde. Contas nacionais da força de trabalho em saúde: um manual. Brasília, D.F.; 2020. Disponível em: [https://iris.paho.org/bitstream/handle/10665.2/52728/9789275722848\\_por.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/52728/9789275722848_por.pdf?sequence=1&isAllowed=y).
2. Nakamura T, Okayama M, Sekine S, Kajii E. Increase in the number of physicians and mortality/life expectancy in Japan. *Jichi Med Univ J*. 2013;35:19-24. Disponível em: [https://jichi-ir.repo.nii.ac.jp/?action=repository\\_uri&item\\_id=29&file\\_id=22&file\\_no=1](https://jichi-ir.repo.nii.ac.jp/?action=repository_uri&item_id=29&file_id=22&file_no=1).
3. McPake B, Maeda A, Araújo EC, Lemiere C, Maghraby A El, Cometto G. Why do health labour market forces matter? *Bull World Health Organ*. 2013;91(11):841-6. doi: <http://dx.doi.org/10.2471/BLT.13.118794>.
4. Gąsiorowski J, Rudowicz E, Safranow K. Motivation towards medical career choice and future career plans of Polish medical students. *Adv Heal Sci Educ*. 2015;20(3):709-25. doi: <http://dx.doi.org/10.1007/s10459-014-9560-2>.
5. Heikkilä TJ, Hyppölä H, Vänskä J, Aine T, Halila H, Kujala S, et al. Factors important in the choice of a medical career: a Finnish national study. *BMC Med Educ*. 2015;15(1):169. doi: <http://dx.doi.org/10.1186/s12909-015-0451-x>.
6. El Koussa M, Atun R, Bowser D, Kruk ME. Factors influencing physicians' choice of workplace: systematic review of drivers of attrition and policy interventions to address them. *J Glob Health*. 2016;6(2):020403. doi: <http://dx.doi.org/10.7189/jogh.06.020403>.
7. McPake B, Squires A, Agya M, Araujo E. The economics of health professional education and careers: insights from a literature review. *World Bank Study*. Washington, DC: World Bank©; 2015. Available from: <https://openknowledge.worldbank.org/handle/10986/22576>.
8. Scheffer M, Cassenote A, Guerra A, Guilloux AGA, Brandão APD, Miotto BA, et al. Demografia médica no Brasil 2020. São Paulo, SP: FMUSP, CFM; 2020.
9. Organisation for Economic Co-operation and Development (OECD 2019). *Health at a Glance 2019*. OECD Indicators. Paris: OECD Publishing; 2019 [cited 202 Oct 25]. <http://dx.doi.org/10.1787/4dd50c09-en>.
10. Instituto Nacional de Geografia e Estatística. Agência IBGE Notícias. PNS 2019: sete em cada dez pessoas que procuram o mesmo serviço de saúde vão à rede pública. São Paulo; 2020 [citado 20 dez. 2020]. Disponível em: <https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/28793-pns-2019-sete-em-cada-dez-pessoas-que-procuram-o-mesmo-servico-de-saude-va-o-a-rede-publica>.
11. The World University Rankings. The Times Higher Education 2020. Clinical, pre-clinical and health [cited 202 Oct 25]. Available from: [https://www.timeshighereducation.com/world-university-rankings/2020/subject-ranking/clinical-pre-clinical-health#!/page/0/length/25/locations/BR/sort\\_by/rank/sort\\_order/asc/cols/stats](https://www.timeshighereducation.com/world-university-rankings/2020/subject-ranking/clinical-pre-clinical-health#!/page/0/length/25/locations/BR/sort_by/rank/sort_order/asc/cols/stats).
12. Ferrinho P, Van Lerberghe W, Fronteira I, Hipólito F, Biscaia A. Dual practice in the health sector: review of the evidence. *Hum Resour Health*. 2004;2:1-17. doi: <http://dx.doi.org/10.1186/1478-4491-2-14>.
13. Miotto BA, Guilloux AGA, Cassenote AJF, Mainardi GM, Russo G, Scheffer MC. Physician's sociodemographic profile and distribution across public and private health care: an insight into physicians' dual practice in Brazil. *BMC Health Serv Res*. 2018;18(1):299. doi: <http://dx.doi.org/10.1186/s12913-018-3076-z>.
14. Socha KZ, Bech M. Physician dual practice: a review of literature. *Health Policy*. 2011;102(1):1-7. doi: <http://dx.doi.org/10.1016/j.healthpol.2010.10.017>.
15. Mcpake B, Russo G, Hipgrave D, Hort K, Campbell J. Policy & practice Implications of dual practice for universal health coverage. *Bull World Health Organ*. 2016;94:142-6. doi: <http://dx.doi.org/10.2471/BLT.14.151894>.
16. Scott A, Holte JH, Witt J. Preferences of physicians for public and private sector work. *Hum Resour Health*. 2020;18(1):1-10. doi: <http://dx.doi.org/10.1186/s12960-020-00498-4>.
17. Gameiro GR, Koyama LKS, Cruz ALIB, Cassenote AJF, Guilloux AGA, Segurado AAC, et al. Who and where are the University of São Paulo Medical School Graduates? *Clinics*. 2019;74:e1147. doi: <http://dx.doi.org/10.6061/clinics/2019/e1147>.
18. Senger MH, Campos MCG, Servidoni M de FCP, Passeri SMRR, Velho PENF, Toro IFC, et al. Professional trajectory of medical course alumni from from Campinas University, São Paulo, Brazil: Graduates' point of view in evaluating the course. *Interface Commun Health Educ*. 2018;22:1443-55. doi: <http://dx.doi.org/10.1590/1807-57622017.0190>.
19. Magalhães APS, Esteves CC, Elias SF, Oliveira LD, Figueredo NDM, Costa ID. Perfil dos egressos de Medicina de uma Faculdade de Medicina de Juiz de Fora/MG. *Rev Ciên Saúde*. 2012;2(2). doi: <http://dx.doi.org/10.21876/rcsfmit.v2i2.98>.
20. Sakai MH, Cordoni-Junior L. Os egressos da medicina da Universidade Estadual de Londrina: sua formação e prática médica. *Rev Espaço Saúde*. 2004;6(1):34-47. Disponível em: [https://www.researchgate.net/publication/255647019\\_OS\\_EGRESSOS\\_DA\\_MEDICINA\\_DA\\_UNIVERSIDADE\\_ESTADUAL\\_DE\\_LONDRINA\\_SUA\\_FORMACAO\\_E\\_PRATICA\\_MEDICA](https://www.researchgate.net/publication/255647019_OS_EGRESSOS_DA_MEDICINA_DA_UNIVERSIDADE_ESTADUAL_DE_LONDRINA_SUA_FORMACAO_E_PRATICA_MEDICA).
21. Torres AR, Ruiz T, Müller SS, Lima MCP. Inserção, renda e satisfação profissional de médicos formados pela UNESP. *Rev Bras Educ Med*. 2012;36(1):32-40. doi: <http://dx.doi.org/10.1590/S0100-55022012000100005>.

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