

Estimating the cost of training an ophthalmologist in Brazil

Estimativa do custo para formação de um oftalmologista no Brasil

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ABSTRACT

Introduction: It is estimated that 23% of the Brazilian population does not have access to an ophthalmologist, mainly because of the irregular geographical distribution of experts. It may be expensive to train ophthalmologists in Brazil.**Objective:** To estimate the cost of training an ophthalmologist and the labor market conditions so that the provider recovers the investment.**Methods:** Epidemiological study in databases from governmental sources and institutions related to the eye health system regulation.**Results:** The cost for training an ophthalmologist would be equal to R\$ 592.272,00. After specialization, if the provider pledged all his/her income to recover the amount spent on training, it would take 5.2 years to reach the point of equilibrium.**Conclusion:** Young doctors from families unable to afford the cost of their education and support for at least 14 years after the beginning of the undergraduate course will hardly be able to specialize in Ophthalmology if they are unable to carry out their studies in public educational institutions. And those who can specialize are likely to choose to practice their profession in large urban centers, where most of the job opportunities are available, to at least recover the financial investment in training in the medium term.

RESUMO

Introdução: Estima-se que 23% da população brasileira não tenha acesso ao oftalmologista, devido, principalmente, à falta de recursos do Sistema Público de Saúde e à distribuição geográfica irregular dos especialistas. É possível que seja caro formar oftalmologistas no Brasil. Assim, é compreensível que a maioria dos profissionais optem para ficar próximos dos grandes centros consumidores, onde estão as melhores remunerações.**Objetivo:** Estimar o custo para a formação de um oftalmologista e as condições do mercado de trabalho para que ele recupere o investimento.**Métodos:** estudo epidemiológico em bases de dados de fontes governamentais e de instituições relacionadas à regulamentação do sistema de saúde ocular.**Resultados:** Estimou-se que o custo para formação de um oftalmologista seja de R\$ 592.272,00. Após a especialização, caso ele empenhe todo seu rendimento para reaver o valor gasto em sua formação, precisaria de 5,2 anos para atingir o ponto de equilíbrio.**Conclusão:** Jovens médicos oriundos de famílias incapazes de arcar com o custo de sua formação e de seu sustento, por pelo menos 14 anos após o início da graduação, dificilmente conseguirão se especializar em Oftalmologia, se não conseguirem realizar seus estudos em instituições públicas de ensino. E aqueles que conseguem se especializar, provavelmente optem por exercer a profissão em grandes centros urbanos, onde está a maior parte das oportunidades de trabalho, a fim de, a médio prazo, conseguir, pelo menos, recuperar o investimento financeiro na formação.

INTRODUCTION

The World Health Organization (WHO) recommends that every 17 thousand inhabitants should have one ophthalmologist available. In Brazil, this proportion is one for every 11,604 inhabitants. According to estimates, approximately 23% of the Brazilian population does not have access to eye care.⁽¹⁾ Part of the problem may be in the irregular geographical distribution of ophthalmologists, as the North region, for example, has only one specialist for every 30,491 inhabitants.⁽¹⁾ Thus, we consider that, under the current conditions, Brazil probably needs more ophthalmologists.

It is possible that it is expensive to train specialists in Brazil, and this bill would be paid, in general, by society. Thus, it is understandable that, to recover the investment in training, most ophthalmologists choose to stay close to the large consumer centers and linked to private medicine, where the best remunerations are.

This article aimed to estimate the cost of training an ophthalmologist and the labor market conditions so that the provider recovers the investment.

METHODS

It is an epidemiological study in databases of governmental sources and institutions related to the regulation of the eye health system: General Register of Employed and Unemployed – Ministry of Labor; Higher Education Census; National Institute of Educational Studies and Research and the Brazilian Council of Ophthalmology.

RESULTS AND DISCUSSION

The estimated cost of training an ophthalmologist is R\$ 592,272.00.

According to data from the *Secretaria de Modalidades Especializadas de Educação* (Semesp),⁽²⁾ it is estimated that the average monthly fee for private medical colleges in 2018 was R\$6,530.00 for 6 years. Add to this the cost of a preparatory course for admission to the Medical Residence, which is increasingly necessary and sought after, of R\$1,188.00 monthly, for 2 years, during the medical course.⁽³⁾ Many services offer specialization positions in Ophthalmology, without remuneration and some institutions even charge the doctor for the specialization course. Thus, we consider the cost, for 3 years, of specialization in Ophthalmology, of R\$2,600.00 per month, based on Notice 13/2017 of a foundation.⁽⁴⁾ Under these conditions, we estimate that the cost for training an ophthalmologist in Brazil is R\$592,272.00,

disregarding interest on a possible debt or dividends on a potential financial investment that could have been made with this capital (Table 1).

Table 1. The estimated financial cost for training ophthalmologists in Brazil in 2019

Qualification stage	Monthly value (R\$)	Months	Total
Faculty of Medicine ⁽²⁾	6,530.00	72	R\$470,160.00
Preparatory course for residency exam ⁽³⁾	1,188.00	24	R\$28,512.00
Specialization in private institution ⁽⁴⁾	2,600.00	36	R\$93,600.00
Subspecialization in private institution ^(5,6)	1,750.00	24	R\$42,000.00
Total			R\$634,272.00

If, after completing the specialization, the young physician chooses to carry out a subspecialization of 2 years, the value in one of the institutions that charge for the improvement is from R\$1,500.00 to R\$2,000.00 monthly.^(5,6) On average, the additional expense would be R\$42,000.00. Therefore, we estimate that the cost for training an ophthalmologist with subspecialization is approximately of R\$ 634,272.00.

Concerning lost earnings in the training period, as a reference, if the newly graduated doctor chose to work in the Federal Government's *Mais Médicos* Program, right after having graduated, it is estimated that, in the 5 years of specialization and subspecialization, he/she would have earned R\$711,936.00, considering the current base salary of the program, of R\$11,865.60.⁽⁷⁾

The Medical Residency Service of a public institution, which offers a vacancy accredited by the National Medical Residency Council of the Ministry of Education (MEC), has public funding to pay the training scholarship for the resident physician, which currently amounts to R\$3,330.43, with an 11% discount related to the social security contribution (R\$366.34), that is, the net amount is R\$2,964.09.⁽⁸⁾ In private institutions accredited by MEC, the scholarship is funded by the institution. For places not accredited by MEC, the student does not receive payment or, in some institutions, still needs to pay to learn.

The scenario may worsen in the future, as we observed that the specialization vacancies accredited by MEC are proportionally decreasing compared to other vacancies, although they have increased in absolute number. From 2013 to 2017, the proportion of vacancies with scholarships decreased by 6%, from 85.6% to 79.0%. As many services have some vacancies accredited by MEC and others not accredited, private institutions have a financial advantage to increase non-accredited vacancies.

ESTIMATED TIME TO RECOVER THE FINANCIAL INVESTMENT IN TRAINING

Despite the great demand of the health market for doctors, qualified or not,⁽⁹⁾ in 2019, the average salary of an ophthalmologist, with a single job, was R\$6,246.00, according to a survey by the Institute for Economic Research (Fipe), based on the amounts reported by 12 establishments.⁽¹⁰⁾

Research carried out based on data from the General Register of Employed and Unemployed (CAGED) of the Ministry of Labor and Employment in 2019 assigns an average salary of R\$12,579.22 for the beginning ophthalmologist, for a work week of 40 hours.⁽¹¹⁾ The compensation above is considered for the calculation in this research, which, after deducting the contribution from the social security ceiling (*Instituto Nacional do Seguro Social*) of R\$642,34 and the 27.5% discount on personal income tax (*Imposto de Renda da Pessoa Física – IRPF*) of R\$2,413.28,⁽¹²⁾ will be R\$9,523.60 net.

It should be noted that, for that salary mentioned above, it is not specified whether the physicians are specialists or subspecialists since the ophthalmological subspecialties do not have official recognition in Brazil. Data on the remuneration of subspecialist ophthalmologists are not available in the country. However, an article on Brazilian ophthalmologists' perception regarding successful attitudes throughout their careers includes investment in professional qualification.⁽¹³⁾ Another paper highlights the reasons that lead ophthalmologists to seek subspecialty among North American professionals, such as motivation, prestige, and more significant opportunity in the job market.⁽¹⁴⁾

Under this research's conditions, if ophthalmologists without subspecialization commits all their income to recover the amount invested in training, we estimate that they would need 5.2 years to reach the equilibrium point, disregarding interest and monetary restatement, that is, at least 14 years after graduation. In case the ophthalmologist has subspecialization, the return on investment would be 5.5 years, at least 16 years after starting medical school. It is noteworthy that their support would not be considered; that is, they would have a personal or family source of financial aid.

If there is a need to turn to a financial institution to obtain funding for the cost of studies, from graduation to subspecialization, a private payroll loan, the maximum amount committed would be up to 30% of the salary. In this scenario, considering the average wage informed by CAGED, this amount would be up to R\$3,773.76 per month committed to pay the debt. The average rate of

payroll loans in Brazil, according to data from the Central Bank, in June 2019, was 2.88% per month. Thus, according to the Central Bank's calculator, the debt becomes impossible to be paid in these parameters because even if there were 30 years to pay the debt, the installment value would still be R\$15,606.48. The debt growth rate would become more remarkable than the amount available for its monthly rebate.⁽¹⁵⁾

Considering the Federal Government's Student Financing Program (Fies), in which the annual interest rate is 6.5%, with an amortization period of 18 months after formation, and an 18-year debt repayment period, in the case of medical graduates, the monthly amount to be paid would be R\$4,774.91, starting in the middle of the specialization period.⁽¹⁶⁾

There are government stimuli and the social need for a better distribution of income and social growth opportunities, represented by social and racial quota programs in public colleges. If the young doctor were a shareholder in a public college and paid for the specialization and subsequent subspecialization, the total amount invested would be R\$93,600.00 for the specialization and R\$135,600.00 for both. In this case, if the payroll loan is used to acquire this capital, the monthly installment would be R\$4,774.35 over 5 years.⁽¹⁵⁾

In the examination for Residency in Ophthalmology at *Universidade Estadual de Campinas (Unicamp)*, one of the best structured public universities in the country, in the selection of 2018 and 2019, no student graduated from college itself managed to pass and guarantee one of the ten available places. This is probably an effect of the preparatory courses for admission to the Medical Residence.

For comparison, if a young doctor, at the end of his private college, chooses to work in the *Mais Médicos* program, for example, he/she would be able to resume the investment of 6 years of training in about 3.3 years, considering the base salary of the program R\$11,865.60, this being exempt from Income Tax.⁽¹⁷⁾

CONCLUSIONS AND CONSIDERATIONS ABOUT THE FUTURE OF THE OPHTHALMOLOGIST

Because of the scenario in which the vacancies in medical schools are increasing more than the specialization vacancies in Ophthalmology^(18,19) and in which some institutions have progressively opted to charge for the specialization and subspecialization offer, it is possible that in the near future, the tendency is for predominantly doctors from wealthy families to be able to specialize in ophthalmology.

Under the conditions of this study, it was estimated that a young doctor needs to have available approximately R\$634,272.00 to become an ophthalmologist, with subspecialty, in Brazil, studying in private institutions that cover education. In addition, the provider would need at least 16 years of personal support guaranteed by another source, until he/she was able to recover the investment in training. When the doctor would be around 34 years old, he could then begin to build their personal life and invest in their own practice.^(20,21)

Although there are many variables in the teaching conditions and training options in public institutions, we believe that, in general, without additional financial support, it is complicated for a young doctor to specialize in Ophthalmology and, eventually, take a subspecialization through the institution's private companies, which are the fastest-growing concerning the offer of vacancies.

However, some variables are not considered in this study, such as the possibility of the subspecialist obtaining higher income in private clinics or the young doctor being able to carry out paid work during the training period, even if this compromises his/her studies. However, it is evident, under the conditions of this research, that young people from families unable to afford the cost of their education and support for at least 14 years after the beginning of graduation will hardly be able to specialize in Ophthalmology, except for the fact that they carry out their studies in public educational institutions. And those who manage to specialize probably choose to practice the profession in large urban centers, where most of the job opportunities are, to at least recover the financial investment in training in the medium term.⁽²²⁾

We consider it essential that educational policies be implemented to increase specialization vacancies with residency grants to reduce the cost of training ophthalmologists. Otherwise, it will no longer be the meritocracy that will determine who will specialize, but the recent graduate's financial conditions. We need to train the ophthalmologist to meet the needs of society.

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