NEUROSURGICAL CERTIFICATION AND LICENSURE

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AUTHORS DISCLOSE THAT THERE IS NO CONFLICT OF INTEREST
INTRODUCTION

- The process of assessing neurosurgical knowledge competency upon graduation is very heterogeneous depending upon the individual country.

- The standards of evaluation varies according to the countries' individual legislations.

- Overproduction of neurosurgeons can potentially lead to a dilution of experience and eventually difficulty in maintaining technical competency (Reulen & Lindsay, 2007). On the other hand, small number of neurosurgeons per population may limit the number of neurosurgical cases that can be treated (Reulen et al, 2009).

- That's why the purpose of this project is to analyze from the educators’ perspective the residency structure, the certification examination process and the licensure to practice neurosurgery in the United States and compare it to other developed systems such as Canada, the United Kingdom and continental Europe.
METHODS

- The process of certification and licensure of neurosurgery Residents was analyzed in America, Canada, Mexico and Europe.
- An electronic survey with a 23-item questionnaire was created using Survey Monkey.
- The responses were collected from Chairmen and Prominent Senior Neurosurgeons from the United states, Canada, Mexico, Britain, Ireland and 36 European countries.
- All information and responses provided have been kept confidential.
- Individual and comparative analyses of the certification and licensure process were performed using different geopolitical and socioeconomic factors into account.
RESULTS

Certification process (1)

- Our data showed (Fig. 1) that the National Board Exam is required in 31 countries and is mostly based on written and oral components.

Figure 1. National exam requirements
RESULTS

Certification process (2)

- Descriptive analysis showed that more countries of the European Union (EU) (18[78.3%] and 10[66.7%]) and/or countries from Eastern Europe required to pass the National Neurosurgical Exams (16[84.2%] and 12[63.2%]).

- Oral exam is required in the United States, Canada, Mexico, 17 EU countries and 10 non-EU countries.

- The USA, Canada, Mexico and 5 Western countries of Europe require to pass written exam; compared to 10 countries mainly from Eastern Europe who did not require to pass written exam.

- Only Sweden and 6 Eastern European countries (Bulgaria, Croatia, Hungary, Kazakhstan, Macedonia and Moldova) require to pass live/surgery exams.

- The United Kingdom and Croatia necessitate pass an objective structured clinical examination (OSCE).
RESULTS

Licensure process (1)

- Most European countries demand a formal exam for the licensure process (30 countries) the same as the USA, Canada and Mexico (Fig. 2).
- Neurosurgeons from the USA, Mexico and only 20 European countries are required to provide logbook for starting practice independently in their countries.
- Chairman/Program Director approval is needed in the USA, Mexico, Canada and 27 countries of Europe.
- Specific Committee approval is required in the USA, Mexico and in 12 Western European countries and 3 Eastern European countries(Azerbaijan, Bulgaria and Latvia).

Figure 2. Formal exam requirements
RESULTS

Licensure process (2)

• Western and Eastern Europe have their own disparities in licensure requirements such as formal exam, Chairman and/or Committee approval (Table 1).

• More countries from Western Europe required Committee approval compared to Eastern Europe (12 [63.2%] and 3 [15.8%], \( p = .003 \)) while more countries from Eastern Europe required formal exam compared to Western Europe for graduation from residency and starting practice (18 [94.7%] and 12 [63.2%], \( p = .042 \)).

• Some countries have other requirements such as doctoral thesis.

Table 1. Comparative analysis
DISCUSSION

- Neurosurgery is one of the most profound, lengthy duration, and liable specialty in medicine. Therefore, the process of certification and accreditation is one of the most difficult tasks to be accomplished by the legislation body.

- Our results conclude that certification and licensure process is heterogenous in different parts of the world which is probably based on their own experience planted with time.

- During 35 years period (Mosberg et al., 1982) limited number of countries did changes in their certification and licensure technique. But this also prove the dynamic and complex character of accreditation.

- We believe that our study can provide an overview of neurosurgical exams and licensure for Residents and Neurosurgeons but we also think that basic level of standards around the world has not been achieved by globalization process.

- That's why our findings suggests that future studies should pay more attention to new era of general standards development in neurosurgical field globally, also including reliable methods of assessing knowledge with modern components (Gasco et al., 2011) during examination (OSCE, live/surgery exam, Committee Approval etc.).
SUMMARY POINTS

- We did not find homogeneity in the certification and licensure process between the USA, Canada, Mexico or European countries.
- We believe that the rich experience of each country in certification and licensure process can be utilized for improvement of neurosurgery practice on a global scale.