Evolution of the Neurosurgical Workforce in Low- and Middle Income Countries from 2016 to 2018

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INTRODUCTION

- Low- and middle-income countries (LMICs) bear most of the burden of neurosurgical disease
- LMICs lack the neurosurgical workforce
- In 2016, there was the first global census of neurosurgeons
- Neurosurgical density target: 1 neurosurgeon per 200,000 people or 0.5 per 100,000
- Actions have been taken by the World Federation of Neurosurgical Societies (WFNS) to reduce the workforce shortage
METHODS

- Neurosurgical societies, neurosurgical affiliates and individual neurosurgeons were contacted by email, Twitter and WhatsApp
- Wilcoxon-signed rank: absolute number of neurosurgeons and neurosurgical workforce density (2016 v 2018)
- Kruskal-Wallis: absolute number of neurosurgeons and neurosurgical workforce density by World Health Organization (WHO) region and by World Bank (WB) income category
- P-value: 0.05
RESULTS

81 out of 92 LMICs surveyed (88.0%)
RESULTS

- Absolute number of neurosurgeons: 12,730 in 2018 v. 12,641 in 2016

Changes in the neurosurgical workforce density between 2016-2018 p-value 0.028

- Increase: 17 countries
- Decrease: 4 countries
- No change: 60 countries
RESULTS

• 2016
  Median density - 0.10 per 100,000;
  Mean density – 0.30 per 100,000 (SD: 0.36)

• 2018
  Median density – 0.11 per 100,000
  Mean density - 0.32 per 100,000 (SD: 0.38)

* Outliers; o extreme outliers
There has been some progress in the global neurosurgical workforce density.

We need to keep tracking these metrics.

The neurosurgical demand is increasing due to:
- Conflicts – they equally reduce the number of neurosurgeons,
- Demographic explosion in Africa (young population, neurotrauma).

The global neurosurgery community should intensify and streamline its efforts to bring about more rapid changes.
SUMMARY

- The mean annual neurosurgical density increased by 0.01 neurosurgeons per 100,000.
- At this rate, the neurosurgical density of LMICs in 2030 should be 0.44 per 100,000.
- There is a significant disparity between countries by income levels and by region.
- We must develop targeted efforts by the global neurosurgical community.
EVOLUTION OF THE NEUROSURGICAL WORKFORCE IN LOW- AND MIDDLE-INCOME COUNTRIES BETWEEN 2016 AND 2018

Change in the neurosurgical workforce density between 2016-2018

74.1% of countries saw no change in the workforce density

Changes in country groups by World Bank income level and by WHO region

Significant disparities found between and within groups in both years

Mean annual change in neurosurgical density of low- and middle-income countries

Neurosurgical workforce density target should be reached in 2036

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