

Global Neurosurgery Activities in the Latin American Region

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Latin America comprises 33 countries and 15 dependencies of other countries, having a population of over 630 million inhabitants (Tables 1 and 2). As one of the most urbanized regions worldwide and with many diverse cities, there is a large variability in life expectancy and mortality profiles. A recent study on the life expectancy and mortality in 363 Latin American towns published in Nature found that Life expectancy at birth ranges from 74–83 years and 63–77 years in women and men. Regarding mortality profiles, they found proportionate mortality by violent injury from near 0%, like Italy, to almost 20%, identical to Iraq (1).

TABLE 1. Latin American Countries, including population and subregion.

#	Country	Population (2020)	Subregion
1	Brazil	212,559,417	South America
2	Mexico	128,932,753	Central America
3	Colombia	50,882,891	South America
4	Argentina	45,195,774	South America
5	Peru	32,971,854	South America
6	Venezuela	28,435,940	South America
7	Chile	19,116,201	South America
8	Guatemala	17,915,568	Central América
9	Ecuador	17,643,054	South América
10	Bolivia	11,673,021	South América
11	Haití	11,402,528	Caribbean
12	Cuba	11,326,616	Caribbean
13	Dominican Republic	10,847,910	Caribbean
14	Honduras	9,904,607	Central América
15	Paraguay	7,132,538	South América
16	Nicaragua	6,624,554	Central América
17	El Salvador	6,486,205	Central América
18	Costa Rica	5,094,118	Central América
19	Panamá	4,314,767	Central América

20	Uruguay	3,473,730	South América
21	Jamaica	2,961,167	Caribbean
22	Trinidad and Tobago	1,399,488	Caribbean
23	Guyana	786,552	South América
24	Suriname	586,632	South América
25	Belize	397,628	Central América
26	Bahamas	393,244	Caribbean
27	Barbados	287,375	Caribbean
28	Saint Lucia	183,627	Caribbean
29	Grenada	112,523	Caribbean
30	St. Vincent & Grenadines	110,94	Caribbean
31	Antigua and Barbuda	97,929	Caribbean
32	Dominica	71,986	Caribbean
33	Saint Kitts & Nevis	53,199	Caribbean

T A B L E 2. Latin American Dependencies, including population and subregion.

#	Territory	Population (2020)	Dependency of
1	Puerto Rico	2,860,853	U.S.A.
2	Guadeloupe	400,124	France
3	Martinique	375,265	France
4	French Guiana	298,682	France
5	Curaçao	164,093	Netherlands
6	Aruba	106,766	Netherlands
7	U.S. Virgin Islands	104,425	U.S.A.
8	Cayman Islands	65,722	The UK.
9	Sint Maarten	42,876	Netherlands
10	Turks and Caicos	38,717	The UK.
11	The British Virgin Islands	30,231	The UK.
12	Caribbean Netherlands	26,223	Netherlands
13	Anguilla	15,003	The UK.
14	Montserrat	4,992	The UK.
15	Falkland Islands	3,48	The UK.

While most inhabitants live in urban areas, countries like Brazil, Colombia, Guatemala, and El Salvador have several rural populations, countries like Colombia, as an example, of the 9.5 million inhabitants living in rural areas, over 7.1 million people, or 15.1% of Colombia's total population, do not have geographical access to surgery, anesthesiology, or obstetric services (SAO) within a two-hour driving distance (2)

In addition to geographical barriers, indirect healthcare costs are another critical barrier to accessing SAO services in some countries, affecting rural and urban populations. These issues show a trend in rural people becoming impoverished, and several individuals from the regional countries need to incur catastrophic health expenditures. Access to neurosurgical services is essential in Latin American countries, especially in areas like Venezuela, Colombia, Nicaragua, El Salvador, Honduras, Brazil, and Guatemala, where disproportionately high rates of interpersonal violence and road injuries lead to an increased incidence of TBI-related death and

disability, contributing to a significant burden of disability life year. According to internal, not-yet-published data, many areas in some countries without any neurosurgical services per 100,000 inhabitants, concentrated mainly in the Amazonian region (3). Neurosurgical training programs are essential to increasing neurosurgical capacity and enhance the low percentage of neurosurgical services per 100,000 inhabitants. Only 75% of Latin American countries currently have in-country training in neurological surgery (4). In response to the unmet need for neurosurgical services worldwide, the Bogota Declaration, co-sponsored by the World Federation of Neurosurgeons (WFNS) and the World Health Organization (WHO), was ratified in Bogota, Colombia, on December 9th, 2016. The declaration calls on all neurosurgeons and neurosurgical societies "to take urgent, coordinated action to lead and address the unmet global neurosurgical need" (5,6). Knowing that collaboration is the heart and driver of adequate progress, the Latin American Federation of Neurosurgical Societies (FLANC) has strengthened relationships with multilateral entities like the WHO, WFNS, and several educational institutions promoting improvement neurosurgical training at different levels. Several initiatives are currently running, including programs like the Recife Reference Center for Training Young African Neurosurgeons, an institutional effort lead by Dr. Hildo Azevedo-Filho with support of the local government of Pernambuco state and the Restauracao Hospital in the city of Recife (Brazil), the Global Neurotrauma Fellowship program with academic support from the Barrow Neurological Institute at Phoenix Children's Hospital in the USA, Meditech Foundation in Colombia and the Global Health Research Group on Neurotrauma at the University of Cambridge in the UK, and the Caribbean, CARICOM Neurosurgery project, promoted by the Program in Global Surgery and Social Change at Harvard University developing an initiative for global neurosurgery enhancement in the Caribbean region (7–9).

The future for global neurosurgery in Latin America looks bright. In keeping with strengthening global partnerships, the Latin American Region and FLANC are welcoming delegates for the XVII WFNS World Congress in Neurosurgery in Bogota. Given the ever-changing nature of pandemic regulations, we expect to define the best opportunity for an in-person meeting to discuss and disseminate more globally (10).

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