

NEUROLOGY PRACTICE IN ASIA

Resources and organization of Neurology care in South East Asia

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Abstract

ASEAN Neurology Association (ASNA) consists of 9 member countries, Brunei, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. Among them 2 countries are considered lower middle income, 4 as upper middle income, and 3 as high income by World Bank criteria. The life expectancy is above 75 years in Brunei and Singapore, below 60 years in Lao and Myanmar. There are a total of 1,871 neurologists in ASNA member countries which has a total of 540 million populations. This constitutes 2.2% of the world neurologists, although ASNA member countries accounts for 8.3% of the world population. Myanmar and Lao in particular, has lowest ratio of neurologist, with one neurologist serving 5 million populations in Myanmar, and 2 million populations in Lao.

INTRODUCTION

One in 12 world populations is now living in South East Asia. This region of the world is now recognized as of increasing important in global socioeconomics, culture and environment. The health status of inhabitants in this zone of the world has improved greatly in the past three decades as judged by major indicators such as infant mortality rate, maternal mortality ratios and life expectancy. Neurological disorders constitute a large and increasing share of the global burden of disease. Stroke, dementia, epilepsy and Parkinson's disease are important diseases determining mortality and morbidity in all parts of the world. However, the resources and services for dealing with these disorders are distributed disproportionately; they are particularly scarce in developing countries. While neurological service in Western countries varies from 1 to 10 neurologists per 100,000 inhabitants, specialist neurology services either does not exist or is only marginally present in many parts of the world.

In 1994 leading neurologists in the South East Asian countries formed an organization called the ASEAN Neurological Association (ASNA) consisted of 5 member countries. They were: Indonesia, Malaysia, Philippines, Singapore and Thailand. The first ASNA convention was held in Manila, Philippine in 1995. Since then, this regional conference has been organized every 2

years with increasing cooperation and success. The second ASNA Convention was in Singapore (1997), the third in Chiangmai, Thailand (1997), the fourth in Kuala Lumpur, Malaysia (2001), the fifth in Cebu, Philippine (2003), the sixth in Jakarta, Indonesia (2005) and the seventh in Cham, Thailand (2007). ASNA has since expanded its membership. There are presently 9 member countries, Brunei, Indonesia, Loa, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. It is appropriate to present the resources and organization of neurology care in these member countries. The information will lead to greater awareness among policy-makers and health planners of individual country to identify areas that need urgent attention, as well as to plan more efficient utilization of resources.

DEMOGRAPHY

The total population in the ASNA member countries is 540.57 million, 8.32% of the world population of 6,500 million. The population and geographical area of each country is listed in Table 1. Indonesia has the biggest population of 222.8 million and largest area of 1,919,317 km². Brunei has the smallest population of 370,000 inhabitants. Brunei is the only Category I country of 0-1 million populations. Lao and Singapore are Category II countries with 1-10 million populations. Vietnam, Philippine, Thailand,

Table 1: The populations and area size of ASNA member countries according to the number of inhabitants.

	Population in millions	Area in km ²

Myanmar and Malaysia are Category III countries with 10-100 million populations, and Indonesia is a Category IV country with over 100 million populations.

MORTALITY

The life expectation, child mortality rate and adult mortality rate of both male and female sexes in the ASNA member countries are listed in Table 2. As shown, the life expectancy of populations in Singapore and Brunei for both males and females is over 75 years, with fairly low child mortality and adult mortality rates. On the other hand, the life expectancy of populations in Myanmar and Lao is less than 60 years, with high child mortality and adult mortality rates. The life expectancy of Vietnam, Malaysia, and Thailand is around 70 years, and child mortality rate is less than 25 per 1,000 populations. The life expectancy of Indonesia and Philippines is below 70 years,

and child mortality rate is around 40 per 1,000 populations.

ECONOMICS

Income in gross domestic product (GDP), health expenditure per capita, and total health expenditure as percentage of GDP are listed in Table 3. Singapore, Brunei and Malaysia are high income countries as classifying by the World Bank Criteria, with over 9,076 USD of gross national income (GNI). Thailand, Philippines, Indonesia and Vietnam are upper middle income countries with GNI of 2,936-9,075 USD. Myanmar and Lao are lower middle income countries with GNI of 736-2,935 USD. There is no low income country in South East Asia with GNI of 735 USD or less. Vietnam is the best in terms of total health expenditure as percentage of GDP (5.4%) whereas Myanmar spends 2.8% of GDP on the total health expenditure, lowest of the ASNA countries.

Table 2: Life expectation, child mortality rate and adult mortality rate in the ASNA member countries

	Life expectation Male/Female	Child mortality* per 1,000 populations Male/Female	Adult mortality** per 1,000 populations Male/Female

*Probability of dying under 5; ** Probability of dying between 15 and 60 years

Table 3: Income and health expenditure in the ASNA member countries

GDP (USD)	Health expenditure per capita (USD)	Total health expenditure as percent of GDP
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HUMAN RESOURCES

There are a total of 181,382 physicians in the 9 member countries of ASNA. Number of physicians and physicians per 1,000 populations in each country are listed in Table 4. As shown, Singapore and Brunei have good physicians per 1,000 population ratio of over 1, whereas the average ratio in ASNA countries is only 0.3 physicians per 1,000 populations. Indonesia has the lowest ratio of 0.13 physicians per 1,000 populations. Malaysia, Philippines and Vietnam have a fairly good ratio of physicians per 1,000 populations of 0.70, 0.58 and 0.53 respectively. Thailand and Myanmar have above average ratio of 0.37 and 0.36 respectively.

There are only 1,871 neurologists in this region. The number of neurologists per 100,000 populations and neurologist per population ratio in the ASNA member countries are listed in

Table 5. Indonesia accounts for 720 of the total 1,871 neurologists (38.5%) in South East Asia, followed by Vietnam (420, 21.5%), Thailand (359, 19.2%), Philippines (270, 14.4%), Singapore (53, 2.8%), Malaysia (50, 2.7%), Myanmar (10, 0.5%), Brunei (4, 0.2%) and Lao (3, 0.2%). Singapore and Brunei have more than one neurologists per 100,000 populations. The ratio for Thailand, Vietnam, Philippines, Indonesia and Malaysia are 0.56, 0.48, 0.33, 0.32, and 0.20 respectively. Lao and Myanmar have the lowest ratio of neurologists per 100,000 populations of 0.05 and 0.01 respectively.

The number and distributions of neurologists according to the World Health Organization (WHO) regions in 2004¹⁰ is listed in Table 6. As shown, most of the neurologists are working in Europe (53.76%) and Americas (26.23%). The two regions account for 80% of the neurologists

Table 4: Physicians and physicians per 1,000 populations in the ASNA member countries

Physicians	Population in millions	Physicians per 1,000 millions
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Table 5: The number of neurologists and its ratio in ASNA member countries

	No. of neurologist (Percent of total in ASNA member countries)	No. of neurologists per 100,000 population	Neurologist per population ratio
Indonesia ¹	720 (38.5%)	0.32	1 : 390,444
Vietnam ²	402 (21.5%)	0.48	1 : 209,452
Philippines ³	270 (14.4%)	0.33	1 : 307,407
Thailand ⁴	359 (19.2%)	0.56	1 : 178,830
Myanmar ⁵	10 (0.5%)	0.01	1 : 5,050,000
Malaysia ⁶	50 (2.7%)	0.20	1 : 506,000
Lao ⁷	3 (0.2%)	0.05	1 : 1,966,666
Singapore ⁸	53 (2.8%)	1.23	1 : 81,132
Brunei ⁹	4 (0.2%)	1.08	1 : 92,500
Total	1,871 (100%)	0.35	1 : 288,920

in the world, although the regions account for about 20% of world population. The Western Pacific region, which includes Japan and China with large number of neurologists, accounts for 16.76%. On the other hand, only 3.25% of neurologists in the world work in the Eastern Mediterranean, South East Asia, and Africa regions. The WHO South East Asia region includes Bangladesh, India, Nepal, Sri Lanka as well as Indonesia, Myanmar and Thailand in South East Asia. The 1,871 neurologists in ASNA member countries constitute 2.2% of the world neurologists, although it accounts for 8.3% of the world population. There is thus marked maldistribution of neurologist in the world, with relatively low number of neurologists in the ASNA member countries.

NEUROLOGICAL DISORDERS

Neurological disorders most frequently reported in specialist care by countries of the whole world¹⁰

are: Epilepsy (92.5%), cerebrovascular disease (84%), headache (61.3%), Parkinson's disease (46.2%), neuropathies (35.8%), neuroinfection (27.4%), Alzheimer's disease and other dementia (26.4%) and multiple sclerosis (26.4%). Data from the 6 countries in the WHO South East Asia region (Indonesia, Myanmar, Philippines, Sri Lanka and Thailand)¹⁰ are: Epilepsy (100%), cerebrovascular disease (100%), headache (83.3%), Parkinson's disease (66.7%), neuropathies (33.3%), neuroinfections (33.3%), Alzheimer's disease and other dementia (0%), and multiple sclerosis (0%). In countries of WHO South East Asia region, most dementia and Alzheimer's disease patients are probably managed by psychiatrists. Multiple sclerosis is a rare disease in South East Asia.¹¹⁻¹⁴ These probably explain the differences in the pattern of neurological disorder from the countries in the WHO South East Asia region as compared with that globally.

Table 6: Number of neurologists and its distributions according to the WHO regions (2004)¹⁰

	Number	No. of countries	Percent of all neurologists
3. Western Pacific	14,293	9	16.76%

*Indonesia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam

for neurological services in different regions of the world.¹⁰

3. Western Pacific 17 %

FINANCING, SERVICES AND HEALTH REPORTING SYSTEM

Table 8 lists the out of pocket payment for neurological services according to the WHO regions.¹⁰ As shown, in countries of South East Asia region, relatively large (40%) proportion of financing for neurological services come from out of packet payment, 40% of financing is tax-based, 20% from insurance. In contrast, for Europe, only 8% come from out of pocket, 33% from tax-based and 59% from insurance. In Americas, 14% is from out of pocket, 33% is tax based, and 72% from insurance.¹⁰

Disability benefit for patients with neurological disorders according to the WHO region is listed in Table 9.¹⁰ As shown, only 33.3% of patients with neurological disorders in countries of WHO South East Asia region received disability benefit in comparison to 93.3% in Americas and 85.4% in Europe.

Data collection system for neurological disorders in WHO regions were tabulated in Table 10. As shown, health reporting system in South East Asia is non-existing in most countries. Health reporting system is important to monitor the neurological conditions, to control the preventable diseases and reduced the conditions causing high disabilities. This is a weakness of this region and should be urgently addressed.

of the world.¹⁰

3. Western Pacific 77.8 %

Table 10: Percentage of health reporting system in different regions of the world.⁽¹⁰⁾

5. Western Pacific 22.2%

CONCLUSION

By comparison to the world generally, the ASNA member countries have low number of neurologists. Limited resources is another challenge faced by ASNA member countries, as only 3 of the 9 countries are classified as high income countries by World Bank Criteria, calling for wise management of the limited resources.

ACKNOWLEDGEMENTS

Data on number of neurologists in each country were given by delegate of each country namely Yusuf Misbach (Indonesia), Duc Hinh Le (Vietnam), Jose Navarro (Philippines), Mi Mi Cho (Myanmar), Chong Tin Tan (Malaysia), Vong Chu (Loas), N Venketasubramanian Ramani (Singapore), and Michael Rajendran (Brunei).

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