

# Stroke in Sri Lanka: How Can We Minimise the Burden?

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## Keywords

Stroke · Stroke care · Sri Lanka · Burden · South Asia

## Abstract

The burden of stroke in Sri Lanka is high and steadily increasing. Accurate estimation of the burden is hampered by a paucity of epidemiological data. More neurologists, stroke units, facilities for modern treatments and multi-disciplinary rehabilitation services are urgently needed. Essential drugs for risk factor control and secondary prevention are available in many hospitals. Aggressive preventive strategies and promoting stroke awareness are the best ways to minimise the stroke burden in Sri Lanka.

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## Burden of Stroke in Sri Lanka

Stroke is the sixth leading cause of death [1] and the fifth leading cause of disability-adjusted life years lost [2] in Sri Lanka. Several factors, including dramatic demographic and epidemiological transitions, are likely to increase this burden in the near future. Sri Lanka has a rap-

idly ageing population, with 12.4% of the population in the ≥60-years segment [1]; this proportion is expected to double by 2040 [3]. Chronic non-communicable diseases are responsible for 90% of the disease burden [3] and 71% of all deaths in the country [1]. Epidemiological data that will help quantify the stroke burden is limited. Two community studies have yielded prevalence rates of ~10/1,000 population, suggesting a large number of stroke survivors in the community (Ranawaka et al. [4]: age-adjusted prevalence, all age groups: 10.6/1,000 population, ≥65-year-olds: 86/1,000; Changet al. [5]: crude prevalence: ≥18-year-olds: 10.4/1,000, ≥75-year-olds: 38/1,000). No community-based incidence data is available.

## Tackling the Burden of Stroke – What Can We Do?

Minimising the burden of stroke in Sri Lanka would require a multi-pronged approach, and improving manpower and infrastructure should take top priority. Approximately 95% of in-patient care in Sri Lanka is provided in state-sector hospitals, which is free at the point of delivery [1]. An E-mail survey was conducted in 2018 among neurologists attached to all the neurology units in



**Fig. 1.** Stroke walk to mark the National Stroke Day, 2020: Anuradhapura, 202 km from Colombo (Courtesy: Anuradhapura Clinical Society and National Stroke Association of Sri Lanka).



**Fig. 2.** Workshop on multidisciplinary stroke care, 2015: Trincomalee, 262 km from Colombo (Courtesy: Ragama Stroke Unit).

state-sector hospitals in the country, and data was collected from 21 of 22 hospitals with a neurologist (95.5%) [6]. The survey highlighted the inadequacies of the existing stroke services; only 38 neurologists were present in state-sector hospitals serving a population of 21.2 million, thrombolysis was available in only 14 hospitals and mechanical thrombectomy in only 1 hospital [6]. The capacity to improve stroke care by establishing basic stroke units with limited resources is well documented for Sri Lanka [7, 8]; however, stroke units were available in only 9 hospitals [6]. Patients with stroke in Sri Lanka are managed by neurologists and internal physicians; there are no trained specialist stroke physicians or stroke neurologists in the country, and there is no formal training or accreditation programme in stroke care. Rehabilitation facilities are limited, and community-based rehabilitation services are virtually non-existent [6]. An important limitation of the survey was that it was confined to hospitals with neurologists as key facilities for stroke care such as thrombolysis, mechanical thrombectomy and rehabilitation were available in only such hospitals. It did not capture data on the available services in hospitals without neurologists; however, the facilities available in these hospitals are unlikely to be any better.

Appropriate preventive strategies hold the key to minimising the stroke burden in resource-limited countries such as Sri Lanka. Hospital-based registry data indicate that the vascular risk factor burden is high, similar to other South Asian countries [9]. Hypertension (52–59%), diabetes mellitus (29–42%), dyslipidaemia (18–40%) and smoking (25–33%) are common among patients with

ischaemic stroke [10–12]. Cheap and effective medications needed for risk factor control and secondary prevention of stroke are readily available in state-sector hospitals. In the survey among neurologists highlighted above, availability of antihypertensive drugs, statins, anti-diabetic drugs and warfarin was rated as “good” by participants in all the hospitals, and antiplatelet drug availability was rated as “good” in 95% of the hospitals [Ranawaka UK, unpubl. data]. Public awareness on stroke enables early symptom recognition, timely care-seeking behaviour and risk reduction behaviour. However, surveys have revealed low levels of stroke awareness among Sri Lankan stroke patients [13], general practitioners [14] and in the community [14, 15]. The National Stroke Association of Sri Lanka has been in the vanguard in creating public awareness, with awareness campaigns conducted in many parts of the country to mark the National and World Stroke Days over the last 20 years [6] (Fig. 1, 2). The Ministry of Health, in a salutary move, has started risk factor screening and health promotion programmes at a primary care level.

### The Way Forward

Sri Lanka has a high burden of stroke, similar to its South Asian neighbours. A multi-faceted approach is required to minimise this burden. More neurologists, stroke units, stroke-ready hospitals capable of delivering modern acute care and rehabilitation facilities are clearly needed. However, the main focus should be on prevent-

ing strokes in the community, which is the best way to minimise the burden of stroke in a resource-limited country like Sri Lanka.

### Statement of Ethics

Ethics approval was not required as no patients were involved.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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### Author Contributions

U.K.R.: conceptualized the paper, wrote the paper, performed critical review, approved the final manuscript. N.V.: conceptualized the paper, performed critical review, approved the final manuscript.