

Time matters: Improving Awareness to Reduce Stroke Mortality – Policy brief

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Key Messages

Stroke kills an estimated 5 million people worldwide each year, with developing countries contributing 3.3 million; the number one cause of stroke is hypertension.

Stroke deaths moved from the 7th (2009) to the 3rd (2019) place as a leading cause of mortality in Rwanda, counting for 5.1% of total deaths. Provider adherence to screening and treatment protocols can help to control hypertension and its complications in Rwanda.

Improving public awareness of the causes and symptoms of stroke can prevent over 130 stroke deaths per year.

Problem Statement

A stroke is an acute loss of neurological function due to an interruption of blood supply to the brain. It is the second leading cause of mortality worldwide (5 million annual deaths) [1], the second most common cause of disability (116.4 million Disability Adjusted Life Years (DALYs), and a major public health challenge [2,3] and low and middle-income countries contribute 66% of all stroke deaths worldwide [4]. In the absence of a significant global public health response, projections show that stroke mortality will increase faster in middle and low-income countries than in high-income countries by 2030 (Figure 1) [5]. In 2019, there were 2,915 deaths from stroke in Rwanda, counting for about 5% of total deaths. Research suggests that the first hour between

symptoms onset and clinical care is critical and the gold standard response time [6]. In Rwanda, the median presentation delay is 72 hours for patients with ischemic stroke and 24 hours for patients with hemorrhagic stroke [7]. Although Rwanda has put efforts into the prevention of non-communicable diseases (NCDs), the percentage of deaths due to stroke is still increasing. It remains Rwanda's third leading cause of death (Figure 2) [8]. There is an urgent need to reduce the burden of stroke in Rwanda.

What are the Policy Options?

To reduce deaths and significant disability from stroke, the Ministry of Health must increase awareness of the causes and symptoms of stroke to ensure that Rwandans act quickly when facing the possibility of stroke. Our policy options include

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a public education campaign, health professional capacity building for early detection, and training to ensure adherence to high blood pressure (HBP) control protocols.

Educate the Public on the Causes and Symptoms of Stroke

What: Educate the public using the Act FAST (Facial drooping, Arm weakness, Speech difficulties, and Time to go to hospital) protocol. Highlight the importance of the emergency response to stroke and the availability of time-limited acute stroke treatments [9,10].

Why: In Rwanda, stroke mortality is primarily driven by late presentation and assessment. Studies show that Act FAST can decrease late presentation at healthcare facilities [9].

Feasibility: High. Research showed the effectiveness of the Act FAST, and in Rwanda, similar educational programs have been conducted successfully.

Train Healthcare Providers on Stroke Prevention, Symptoms, and Care (Capacity Building)

What: Increase the capacity of health care professionals [1] for early detection and immediate action in case of suspected stroke event [2], to improve the decision-making process in emergency situations, and to transfer suspected cases quickly at the health facility level [3].

Why: There is a low number of trained professionals in stroke prevention and management. Improving decision-making and a sense of urgency may result in faster transfers when necessary.

Feasibility: High. The Government of Rwanda strongly supports the capacity building of employees through the Ministry of Health and Rwanda Biomedical Centre (RBC) in collaboration with academic institutions and other partners.

Encourage Adherence to Routine Blood Pressure Testing and Treatment

What: Use refresher training on the importance of HBP control to encourage healthcare providers to screen and treat hypertension. Highlight the significance of HBP as a key risk factor for stroke mortality and adherence to existing HBP screening protocols at all health system levels [1,2].

Why: HBP is a silent killer and causes death in 80% of strokes. The prevalence of HBP is 15% in Rwanda, and blood pressure testing is not routine. Research has shown that reducing blood pressure effectively decreases the risk of stroke [11].

Feasibility: High. There are existing initiatives through NCD Mass Campaigns, including hypertension screening, and the government encourages the community to participate in HBP testing campaigns.

Economic Analysis

We performed the economic evaluation using local data, expert opinion, and evidence from the literature [1]. Guided by the data, we assumed that the FAST campaign would get 50% of the target population (persons aged 35 years and above) [2], healthcare provider capacity would be increased by 50% after the training, and 67% of screened hypertensive patients would be treated (compared to 41% without the intervention) [3]. Due to cost barriers and the impact of hypertension on stroke, the analysis was limited to 10 districts with the highest rates of hypertension and the 3 districts of Kigali, the capital city.

The FAST campaign is the most cost-effective option to reduce stroke deaths, and adherence to screening and treatment protocols will help prevent strokes by controlling high blood pressure.

Recommendations and Next Steps

Implementing the screening and treating training and the FAST campaign in 13 districts could lead to over 12,600 cases of controlled hypertension and prevent 133 deaths from stroke respectively. Therefore, we recommend that the Ministry of Health pilot the Act FAST campaign and the screening and treating refresher program through the RBC and its partners. To successfully implement this strategy, high-level policy formulation and endorsement are needed, and activities on the prevention of stroke deaths should be prioritized in next year's (2023) action plan. Also, key stakeholders and donors such as RBC, private healthcare providers, local leaders, civil society organizations, and academic institutions should be mapped and mobilized for participation. The stakeholders should be involved in the development and modification of the documents

Table 1: Evaluation of the selected policy options

Description	Status quo (No intervention)	Population campaign	Provider capacity building	Screening & treating BP training
Estimated annual deaths	1,594	1,461	1,489	NA
Estimated cases of controlled BP	43,088	NA	NA	55,774
The difference in deaths/ BP control	N/A	133	106	12,685
Estimated annual cost (USD)	N/A	20,004.2	63,570.9	708,410.6 ^a
Cost per life saved (or per BP controlled) in USD	N/A	150.57	601.45	55.84
Cost per life saved (or per BP controlled) in Rwandan Francs (RWF)	N/A	147,554.4	589,424.4	54,727.9

^a The estimated cost is the training cost plus the difference in treatment costs due to a higher rate of treatment.

USD is United State Dollar

BP is blood pressure; the Difference figures are between intervention and status quo.

needed for the policy options. This will help ensure campaign approval, ownership by beneficiaries and local leaders, and the sustainability of the projects. Stroke Day should be added to the calendar, and the week before the stroke day, several activities, such as blood pressure monitoring, should be conducted to raise awareness further. Finally, we recommend multisectoral collaboration to increase public exposure to information on stroke prevention and care.

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