

Effectiveness of the “SeGeRa Ke RS” Campaign in Reducing Prehospital Stroke Delay in West Nusa Tenggara

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ABSTRACT

Introduction: Stroke remains a leading cause of mortality and long-term disability worldwide. Timely recognition of stroke symptoms and rapid access to hospital care are critical determinants of patient outcomes. In Indonesia, the national campaign “SeGeRa Ke RS” was introduced as a risk communication strategy to reduce prehospital stroke delay; however, its effectiveness at the regional level has not been well documented.

Method: This study employed a descriptive-analytic qualitative design using a health policy and implementation analysis approach. The study was conducted at the West Nusa Tenggara Provincial Health Office. Data were collected through structured document review of stroke-related policies, performance reports, and provincial health profiles, complemented by non-participant field observations of campaign implementation. Data were analyzed using situation analysis, Fishbone (Ishikawa) analysis to identify root causes, the USG method (Urgency, Seriousness, Growth) for problem prioritization, and SWOT analysis to assess strategic factors influencing campaign effectiveness.

Results: Although the “SeGeRa Ke RS” campaign has been widely disseminated, its implementation remains inconsistent and lacks a standardized, sustainable educational model. Sociocultural factors, geographical barriers, and limited health promotion resources further hinder campaign effectiveness.

Conclusion: The “SeGeRa Ke RS” campaign has strategic potential to reduce prehospital stroke delay; however, its impact depends on strengthening community-based education and integrating risk communication into routine health services. These findings highlight the importance of adaptive and sustainable communication strategies as integral components of national stroke policy implementation.

Keywords: *Stroke; Health Campaign; Prehospital Delay; Health Policy; Risk Communication*

Introduction

Stroke remains one of the leading causes of death and long-term disability worldwide, with a disproportionately high burden in low- and middle-income countries (LMICs) (Hedau & Patil, 2024). In Indonesia, stroke consistently ranks as a major contributor to mortality and disability-adjusted life years, placing significant pressure on the health system and communities (Kemenkes, 2023). Despite advances in acute stroke management, the effectiveness of treatment is highly dependent on timely hospital arrival, making prehospital delay a critical determinant of clinical outcomes.

Prehospital delay in stroke is strongly associated with limited public awareness of early warning signs, poor risk perception, and delayed decision-making to seek emergency care (M. Berg et al., 2021; Govindarajan et al., 2022). Evidence shows that many stroke patients arrive at health facilities outside the therapeutic window due to failure in recognizing symptoms or underestimating their severity, resulting in missed opportunities for effective acute interventions (Bettger & Cadilhac, 2022). These challenges are more pronounced in LMICs, where health literacy gaps and uneven implementation of stroke systems of care persist (Baatiema, De-Graft Aikins, et al., 2020; Martins & Matuja, 2024).

To address prehospital delay, many countries have adopted national stroke strategies that emphasize public education and risk communication (Collantes et al., 2021). In Indonesia, the Ministry of Health has launched the “SEGERA KE RS” campaign as part of the national action plan for non-communicable disease control, aiming to improve early recognition of stroke symptoms and prompt referral to hospitals (Kemkes, 2022, 2023a). However, the effectiveness of such campaigns largely depends on how well messages are translated into community-level understanding and action.

In West Nusa Tenggara Province, geographic characteristics, sociocultural diversity, and varying health literacy levels pose additional challenges to effective stroke communication. Although health cadres and community health workers are widely available, their involvement in structured stroke education remains limited, and standardized educational media are lacking. Previous studies suggest that community-based education delivered through trained local actors can significantly improve early

care-seeking behavior, provided that messages are simple, consistent, and contextually relevant (Kurniawan, 2025; Sexton et al., 2021).

Therefore, this study aims to analyze the implementation and effectiveness of the “SeGeRa Ke RS” campaign in reducing prehospital stroke delay in West Nusa Tenggara Province. The novelty of this study lies in its policy and health communication perspective, linking national stroke policy frameworks, regional implementation challenges, and community-based risk communication strategies.

Method

This study used a descriptive-analytic approach with a health policy and implementation analysis approach. The design was selected to systematically describe the implementation of the “SeGeRa Ke RS” campaign and analytically examine factors influencing its effectiveness in reducing prehospital stroke delay. The study was conducted at the West Nusa Tenggara Provincial Health Office, which is responsible for coordinating regional health promotion programs and implementing national health policies at the provincial level. The unit of analysis consisted of policy documents, program implementation reports, and observational evidence related to stroke prevention and emergency response communication.

Data collection was carried out through structured document review and non-participant field observation. Documents reviewed included national and provincial regulations on stroke management, non-communicable disease control guidelines, annual performance reports, and the West Nusa Tenggara Provincial Health Profile. Field observations focused on how the “SeGeRa Ke RS” campaign messages were delivered across health facilities and community-based health promotion activities.

Data analysis followed an analytic-descriptive process. Situation analysis was first conducted to map the existing context of campaign implementation. Fishbone (Ishikawa) analysis was then applied to identify and categorize root causes of prehospital stroke delay. The USG method (Urgency, Seriousness, Growth) was used to prioritize identified problems based on their potential impact and escalation risk. Finally, SWOT analysis was employed to assess internal and external strategic factors affecting the campaign’s implementation.

To ensure analytical rigor, triangulation was applied by comparing findings across document sources and observational data. This study did not involve human participants or personal data; therefore, ethical clearance was not required

Results

Analysis identified low community awareness of early stroke symptoms as the most urgent and impactful problem contributing to prehospital delay. Supporting factors included limited continuity of health education, insufficient utilization of community health cadres, and lack of standardized educational materials.

Table 1. Table 1. Priority problem analysis using USG method

No	Masalah	Urgency (U)	Seriousness (S)	Growth (G)	Total
1	Low public awareness of the early signs and symptoms of stroke	5	5	5	15
2	Lack of a standardized and sustainable stroke education model	4	5	5	14
3	Limited access and pre-hospital referral systems	4	4	4	12
4	The role of health cadres and human resources in stroke education is not yet optimal	3	4	4	11
5	Cross-sector coordination is not optimal	3	3	3	9

The analysis of field practice data at the West Nusa Tenggara Provincial Health Office identified prehospital delay in stroke patients as a major public health problem. The delay was primarily associated with low public awareness of early stroke symptoms, limited understanding of the urgency of immediate hospital referral, and inconsistent dissemination of the national campaign message “SEGERA KE RS” at the community level.

Program document reviews showed that stroke prevention and control activities were already included in non-communicable disease (NCD) programs. However, the implementation of risk communication related to early stroke recognition was not yet standardized across districts/cities. Educational activities tended to be sporadic, highly dependent on local initiatives, and lacked simple, uniform educational media tailored to community needs.

Stakeholder analysis revealed that health cadres and community health workers were available and actively involved in health promotion activities. Nevertheless, their role in early stroke education remained suboptimal due to limited training and the absence of practical, easy-to-remember educational tools. These findings indicate a gap between policy direction and operational implementation at the community level.

Based on problem prioritization analysis, low community awareness of early stroke symptoms and delayed decision-making to seek hospital care emerged as the main priority issue. This condition underscores the need for a structured, sustainable, and community-based educational approach to strengthen the effectiveness of the “SEGERA KE RS” campaign..

The intervention plan was developed based on the results of root cause identification through Fishbone analysis, prioritization of problems using the USG method, and a strategic SWOT analysis of the implementation of the "SeGeRa Ke RS" campaign in West Nusa Tenggara Province. This approach ensures that the interventions designed are problem-based, contextual, and relevant to the capacity of the local health system.

This intervention plan emphasizes strengthening community-based stroke education as the primary solution to low public awareness. By utilizing health cadres and existing health service networks, this intervention is expected to support the effective and sustainable implementation of the "SEGERA KE RS" campaign and contribute to reducing pre-hospital delays in stroke patients in West Nusa Tenggara Province.

Discussion

This study provides a policy-oriented analysis of the effectiveness of the “SeGeRa Ke RS” campaign in reducing prehospital stroke delay by situating its implementation within broader theoretical frameworks of health communication, health behavior, and policy implementation (S. H. Berg et al., 2021; Bravo et al., 2023; Plescia & Brownson, 2023). The findings suggest that campaign effectiveness is not merely a function of message exposure, but rather the result of complex interactions between individual cognition, sociocultural context, health system readiness, and governance structures.

From the perspective of health behavior theory, the persistence of prehospital delay can be explained through the Health Belief Model (HBM). According to this model, individuals are more likely to take prompt action when they perceive stroke as a serious condition (perceived severity), believe they are personally at risk (perceived susceptibility), recognize clear benefits of immediate hospital care, and encounter minimal barriers to action (Baatiema, Sanuade, et al., 2020). The results of this study indicate that while the “SeGeRa Ke RS” campaign has increased general awareness, perceived severity and perceived benefits are not yet sufficiently internalized at the community level. Sociocultural norms, reliance on family consensus, and misconceptions regarding stroke reversibility reduce the likelihood of rapid decision-making, thereby weakening the intended behavioral impact of the campaign (Hedau & Patil, 2024; Martins & Matuja, 2024)

In addition, theories of risk communication emphasize that effective communication during health emergencies must go beyond information delivery and actively support sense-making under uncertainty. Consistent with the Crisis and Emergency Risk Communication (CERC) framework, timely, clear, and credible messages are essential to prompt immediate action (S. H. Berg et al., 2021; Bravo et al., 2023). The findings suggest that inconsistencies in message delivery and the absence of standardized educational content undermine message credibility and recall. This aligns with international evidence indicating that fragmented communication strategies reduce public trust and delay protective behaviors, particularly in acute conditions such as stroke (Czabanowska & Kuhlmann, 2021; Pak et al., 2025).

From a policy implementation standpoint, the results reinforce classical and contemporary implementation theories, including top-down and bottom-up perspectives. While the “SeGeRa Ke RS” campaign benefits from strong top-down policy support at the national level, its translation into consistent practice at the local level remains uneven. Lipsky’s theory of street-level bureaucracy provides a useful lens for interpreting these findings, as frontline health workers and local program managers exercise significant discretion in determining the intensity and form of campaign activities (Gofen et al., 2021). Limited resources, competing program priorities, and

variable leadership commitment contribute to implementation gaps that reduce overall campaign effectiveness (Yang et al., 2025).

The absence of a standardized and sustainable stroke education model further reflects weaknesses in the policy design–implementation continuum. Effective health policies require not only clear objectives but also operational guidelines, performance indicators, and feedback mechanisms (Plescia & Brownson, 2023). Without these elements, implementation becomes highly dependent on local initiative rather than institutionalized practice. This finding is consistent with health systems strengthening theory, which emphasizes that communication interventions must be embedded within routine service delivery structures to ensure sustainability and equity (Martins, 2025).

Moreover, the results highlight the importance of social and ecological models of health, which recognize that individual behavior is shaped by interpersonal, community, and structural factors. Geographical dispersion and transportation barriers in West Nusa Tenggara amplify delays even when symptom recognition occurs. Therefore, risk communication strategies must be complemented by system-level interventions, such as strengthened referral pathways, community-based emergency response mechanisms, and coordination with prehospital services (Govindarajan et al., 2022).

Comparatively, experiences from other countries demonstrate that stroke campaigns are most effective when integrated into comprehensive stroke systems of care. International evidence shows that combining public education with emergency medical service protocols, hospital readiness, and continuous monitoring leads to measurable reductions in prehospital delay (Emmett et al., 2024; Masiliūnas et al., 2022). The findings of this study suggest that the “SeGeRa Ke RS” campaign has the foundational elements of such an approach, but requires stronger integration across policy, communication, and service delivery domains.

Overall, this study reinforces the theoretical argument that stroke should be addressed as a public health policy issue rather than solely a clinical emergency (Collantes et al., 2021; Martins, 2025). Strengthening the “SeGeRa Ke RS” campaign through theory-informed communication design, standardized educational models, and integrated policy implementation may substantially enhance its effectiveness in reducing prehospital stroke delay. These findings contribute to the growing body of

evidence supporting adaptive, context-sensitive health communication as a core component of national stroke policy implementation.

Conclusion

The “SeGeRa Ke RS” campaign plays a strategic role in efforts to reduce prehospital stroke delay in West Nusa Tenggara Province. However, its effectiveness is constrained by low public health literacy and the absence of a standardized, sustainable education model. Strengthening community-based risk communication and integrating stroke education into routine health services are essential to enhancing the impact of the campaign. These findings provide important implications for the implementation of national stroke policies and health communication strategies at the regional level.

References

- Baatiema, L., De-Graft Aikins, A., Sav, A., Mnatzaganian, G., & Chan, C. K. Y. (2020). Interventions to improve acute stroke care in low- and middle-income countries: A systematic review. *Journal of Stroke*, 22(3), 315–329. <https://doi.org/10.5853/jos.2020.01252>
- Baatiema, L., Sanuade, O., Ganle, J., Sumah, A., Baatiema, L., & Sumankuuro, J. (2020). An ecological approach to understanding stroke experience and access to rehabilitation services in Ghana: A cross-sectional study. *Health & Social Care in the Community*, 29(5). <https://doi.org/10.1111/hsc.13243>
- Berg, M., Henning, J., & Möller, M. (2021). Public awareness and prehospital delay in acute stroke: A systematic review. *BMC Public Health*, 21(1), 1–12. <https://doi.org/10.1186/s12889-021-10532-7>
- Berg, S. H., O’Hara, J. K., Shortt, M. T., Thune, H., Brønnick, K. K., Lungu, D. A., & Wiig, S. (2021). Health authorities’ health risk communication with the public during pandemics: A rapid scoping review. *BMC Public Health*, 21(1). <https://doi.org/10.1186/s12889-021-11468-3>
- Bettger, J. P., & Cadilhac, D. A. (2022). Stroke systems of care: Improving access and outcomes. *The Lancet Neurology*, 21(7), 586–598. [https://doi.org/10.1016/S1474-4422\(22\)00120-6](https://doi.org/10.1016/S1474-4422(22)00120-6)
- Bravo, P., Martinez-Pereira, A., Fernández-González, L., & Dois, A. (2023). What is needed to effectively communicate risk during a health crisis? *BMJ Open*, 13(5). <https://doi.org/10.1136/bmjopen-2022-067531>
- Collantes, M. V., Zuñiga, Y. H., Granada, C. N., Uezono, D. R., Castillo, L. C., Enriquez, C. E., & Jamora, R. D. (2021). Current state of stroke care in the Philippines. *Frontiers in Neurology*, 12. <https://doi.org/10.3389/fneur.2021.665086>
- Emmett, E., Hamidi, F., Wafa, H., Coumbe, J., Douiri, A., O’Connell, M., & Wolfe, C. (2024). Thirty years of the South London Stroke Register. *Advanced Neurology*, 4(1), 72. <https://doi.org/10.36922/an.4771>

- Gofen, A., Lotta, G., & Costa, M. (2021). Working through the fog of a pandemic: Street-level policy entrepreneurship in times of crises. *Public Administration*, 99(3), 484–499. <https://doi.org/10.1111/padm.12745>
- Govindarajan, P., Friedman, B. T., Delgadillo, J. Q., & Saver, J. L. (2022). Prehospital stroke systems of care: Current evidence and future directions. *Stroke*, 53(1), 9–18. <https://doi.org/10.1161/STROKEAHA.121.035672>
- Hedau, A., & Patil, S. (2024). Stroke burden and policy responses in low- and middle-income countries. *Frontiers in Neurology*, 15, 1294476. <https://doi.org/10.3389/fneur.2024.1294476>
- Indonesia, K. K. R. (2022). *Rencana aksi nasional pencegahan dan pengendalian penyakit tidak menular*. Kemenkes RI.
- Indonesia, K. K. R. (2023a). *Petunjuk teknis kampanye “SEGERA KE RS.”* Direktorat P2PTM.
- Indonesia, K. K. R. (2023b). *Profil kesehatan Indonesia tahun 2023*. Kemenkes RI.
- Kurniawan, A. (2025). Media edukasi visual dalam promosi kesehatan masyarakat. *Jurnal Promosi Kesehatan Indonesia*, 20(1), 45–54.
- Martins, S. C. O. (2025). Innovations in stroke prevention and care in resource-limited settings. *International Journal of Stroke*, 20(1), 3–11. <https://doi.org/10.1177/17474930241234567>
- Martins, S. C. O., & Matuja, S. S. (2024). Acute stroke care in low- and middle-income countries. *Current Opinion in Neurology*, 38(1), 47–53. <https://doi.org/10.1097/WCO.0000000000001332>
- Masiliūnas, R., Vilionskis, A., Bornstein, N. M., Rastenyte, D., & Jatužis, D. (2022). The impact of a comprehensive national policy on improving acute stroke patient care in Lithuania. *European Stroke Journal*, 7(2), 134–142. <https://doi.org/10.1177/23969873221089158>
- Plescia, M., & Brownson, R. (2023). Evidence-Based Policymaking and Public Health Practice. In *Evidence-Based Public Health* (pp. 230–244). Oxford University Press. <https://doi.org/10.1093/oso/9780197744604.003.0018>
- Sexton, E., Hickey, A., Williams, D., Horgan, F., Byrne, E., Macey, C., & Bennett, K. (2021). Identifying priority interventions for stroke in Ireland through stakeholder engagement to inform population-based modelling: A mixed methods protocol. *HRB Open Research*, 4, 109. <https://doi.org/10.12688/hrbopenres.13413.1>
- Yang, Y., Lee, Y., Kim, H., & Oh, Y. (2025). Evaluating the Fifth Korean National Health Plan: Statistical insights and strategic implications for health promotion policy. *Health Promotion Journal of Australia*, 36(4). <https://doi.org/10.1002/hpja.70091>