



ADVOCACY & STAKEHOLDER ENGAGEMENT TOOLKIT

GET AHEAD OF
STROKE
Arrive. Survive. Thrive.®



Get Ahead of Stroke® Campaign

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CAMPAIGN OVERVIEW AND BACKGROUND

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Get Ahead of Stroke® Campaign

ABOUT THE CAMPAIGN

Get Ahead of Stroke® is a national public education and advocacy campaign designed to improve systems of care for stroke patients. Founded in 2016 by the Society of NeuroInterventional Surgery (SNIS), today the campaign is supported by a coalition of organizations with the goal of securing the best possible outcomes for stroke patients by driving policy change and public awareness nationwide.

BACKGROUND

Stroke in the United States

Every 40 seconds, someone in the United States experiences a stroke. Tragically, roughly every 3 minutes someone dies due to stroke.¹

Neurointerventional surgical teams are on the front lines every day providing lifesaving care to patients experiencing stroke. This includes performing the revolutionary medical procedure known as mechanical thrombectomy, a proven method that not only saves lives, but helps patients work toward a full recovery — even after experiencing the most debilitating form of stroke known as emergent large vessel occlusion (ELVO). Studies show that patients who receive a thrombectomy increase their life expectancy by five years compared to patients who do not receive this specialized treatment. In addition, for every 10 minutes saved in getting to a mechanical thrombectomy, patients experienced an additional month of life free from disability.²

As this procedure has become more widely available across the United States, not all eligible stroke patients are benefiting from this lifesaving care. While we've seen incredible 21st century advancements in modern medical technology, many 20th century laws, regulations, and internal operating procedures are serving as roadblocks that prevent stroke patients from getting to the appropriate care right away.

Successes

Since 2016, the Get Ahead of Stroke® campaign has advocated for improving triage and transportation protocols nationwide for severe stroke patients. Specifically, the campaign is committed to ensuring patients are transported directly to a Level 1 stroke center, where they have access to a specially trained neuroendovascular care team 24/7/365. While a stroke patient might live near a Level 1 stroke center that is best equipped to help them, they may be transported to a lower-level facility that is simply closer. The time lost in transfer from the nearest hospital to the best-equipped Level 1 stroke center jeopardizes a patient's chance of recovery considering the loss of two million neurons each minute until the stroke is treated.

Because of the Get Ahead of Stroke® campaign's extraordinary success, 43 states now have (or are finalizing) regional or statewide protocols that ensure patients experiencing a critical stroke such as ELVO are transported directly to Level 1 stroke centers.

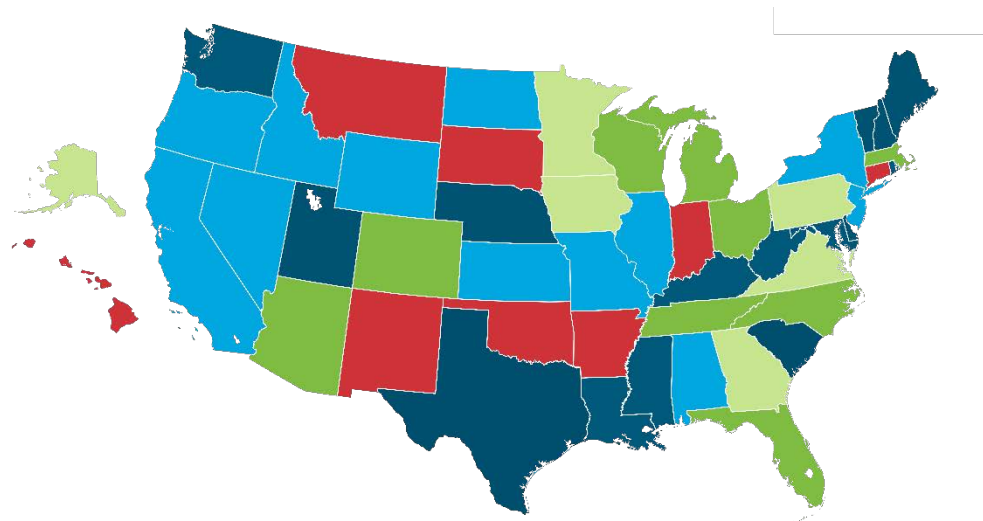
The campaign has played a direct role in improving EMS protocols for stroke patients in states such as Arizona, Colorado, Florida, Massachusetts, Michigan, North Carolina, Ohio, Pennsylvania, Tennessee, and Virginia. The campaign has also achieved progress toward updating protocols in Alaska, Georgia, and Minnesota.

¹ Centers for Disease Control and Prevention. Stroke Facts. Retrieved from www.cdc.gov/stroke/facts.htm

² Dicipinigitis, A.J., Dick-Godfrey, R., Gellerson, O., Shapiro, S.D., Kamal, H., Khozy, S., Kaur, G., Desai, S.M., Ortega-Gutierrez, S., Yaghi, S., Altschul, D.J., Jadhav, A.P., Hassan, A.E., Nguyen, T.N., Brook, A.L., Mayer, S.A., Jovin, T.G., Nogueira, R.G., Gandhi, C.D. and Al-Mufti, F. (2023), Real-World Outcomes of Endovascular Thrombectomy for Basilar Artery Occlusion: Results of the BARONIS Study. *Annals of Neurology*, 94: 55–60. <https://doi.org/10.1002/ana.26640>

The Get Ahead of Stroke® campaign's message has resonated beyond the states where we have driven policy change. Several other states — including Delaware, Kentucky, Louisiana, Maine, Maryland, Mississippi, Nebraska, New Hampshire, South Carolina, Texas, Utah, Vermont, Washington, and West Virginia — all proactively updated their EMS triage and transport protocols to include specific guidance for ELVO. Several regional EMS councils and municipalities in other states such as California, Illinois, Kansas, Missouri, Nevada, New York, and Oregon have done the same despite the absence of a statewide protocol.

In addition to achieving significant progress at the state level, the Get Ahead of Stroke® campaign also secured a major milestone at the federal level. In March 2022, Version 3.0 of the [National Model EMS Clinical Guidelines](#) was released by the [National Association of State EMS Officials](#) (NASEMSO) and disseminated to state EMS medical directors and providers in every state across the nation. The campaign collaborated with SNIS, NASEMSO, the U.S. Department of Transportation's Office of EMS, and the National EMS Advisory Council (NEMSAC) in developing language related to EMS triage and transport of stroke patients that was ultimately included within the national guidelines. The updated guidelines have since been adopted by states such as Arkansas, Iowa, and Wisconsin within their respective statewide EMS protocols.



Challenges

There is still work to be done. Not all states have these protocols in place, and some only have policies in certain regions. Additionally, EMS training and education needs standardization; first responders lack training in stroke detection and severity assessment, and some are even unaware their state has stroke policies in place.

Another major challenge is consumer awareness. Although nearly all American adults (95%) agree stroke is an emergency, according to an omnibus survey by The Harris Poll on behalf of the Get Ahead of Stroke® campaign, less than half (43%) say they would call 911 if they were experiencing a common symptom of stroke.

The barrier to better care is that many Americans are unfamiliar with stroke symptoms. According to the findings, around two-thirds of adults (63%) say they would know if they were having a stroke, but only 16% of adults can correctly identify all stroke symptoms.

The BE FAST acronym is a critical tool to assess stroke symptoms — **B**alance loss, **E**yesight changes, **F**acial drooping, **A**rm weakness, **S**peech difficulty, **T**ime to call 911. Further survey data shows:

- Even though strokes affect people of all ages, including children, older people (ages 65+) are the most likely to call 911 (52%) when experiencing a common stroke symptom, while just over a third (36%) of 18- to 34-year-olds would do the same, followed by 41% of adults ages 35–44, 42% of adults ages 45–54, and 46% of adults ages 55–64.
- Black adults are less likely to call 911 (33%) if they are experiencing a common stroke symptom than white (44%) and Hispanic (47%) adults.
- More than one-fifth (22%) of adults say they wouldn't call 911 because they would be embarrassed to overreact.

This is where advocacy plays a key role. This guide is designed to equip neurointerventionalists who live and breathe this work to identify, engage, and educate the right decisionmakers that impact your ability to save lives.



TOOLKIT OVERVIEW

Within this toolkit, you'll find:

- Helpful tips to effectively advocate for updates to EMS triage and transport protocols
- Strategies to engage lawmakers and other key stakeholders
- Strategies to engage EMS personnel and hospital leaders
- Best practices for conveying a message that resonates among target audiences

You also can find more information and downloadable resources at getaheadofstroke.org. With your help, we can ensure more patients will arrive, survive, and thrive. Thank you for getting involved!



TOOLS FOR EFFECTIVE ADVOCACY

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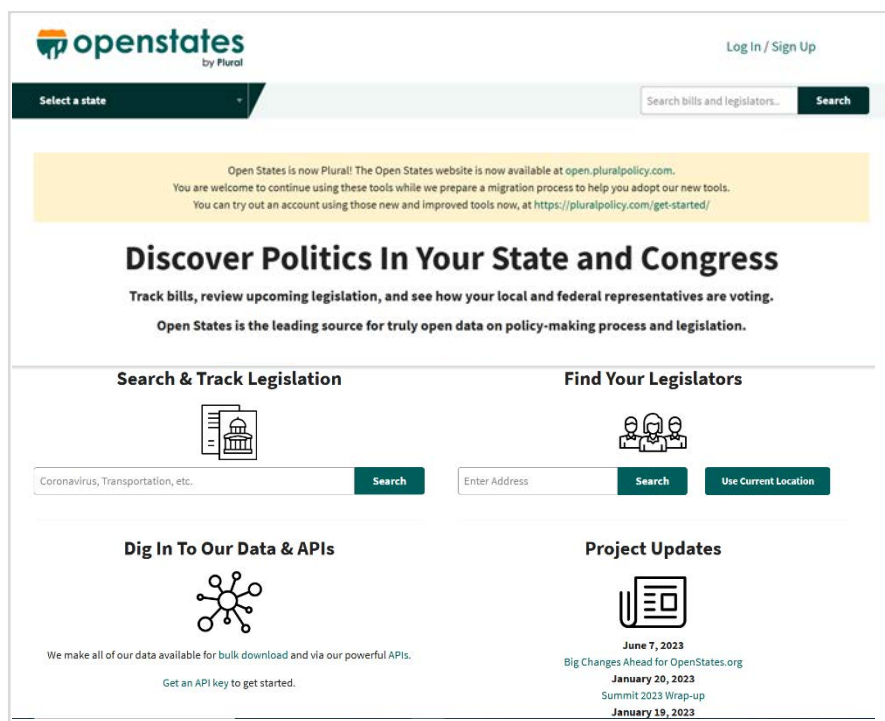
A GUIDE TO ADVOCACY

You are an expert in your profession, but you are also a constituent of local, state, and federal lawmakers. Your elected officials are in office to represent you, to listen to you, and to consider your opinions and concerns when making policy decisions. Through advocacy, you can ensure your voice is heard — and by extension, amplify the voices of your patients and their families.

Many of the laws and regulations impacting how quickly stroke patients are triaged, transported, and treated are made at the state level. In some cases, they are determined by regional EMS councils. Either way, a good place to start advocating for policy changes to ensure the best outcomes for patients is by reaching out to your hospital government affairs team, then state health agency officials and your state legislators.

Identifying and Engaging Elected and Appointed Officials

A Google search can help you find the website of your state legislature, where you can identify your state representative and state senator. You can also visit <https://open.pluralpolicy.com/>, enter your home address, and look up your state legislators.



For most states, the state EMS director and/or EMS bureau is housed within the state health department. If you can't immediately identify a point of contact, you can reach out to the executive or administrative office or ask your state legislator to connect you.

In addition to elected officials, third-party stakeholders are critical to an effective advocacy strategy. They can help influence policy outcomes in the following ways:

- Leveraging their own pre-existing relationships with targeted elected officials
- Activating their extensive member and affiliate networks to help create a “surround sound” of support for specific policy outcomes
- Alerting constituents within targeted members’ districts and encouraging them to contact their legislators to support specific policy measures

Your first stakeholder point of contact should be your hospital’s or clinic’s state government affairs director. They are deeply engaged with the legislature and health care-related activities and can offer insight into prospective legislative champions who will support improving emergency protocols for stroke patients. They also can offer guidance on navigating your state’s legislative process, including the best strategy for influencing key committee members and those within leadership (e.g., speaker of the state assembly).

Additional groups and organizations to consider engaging as stakeholders include:

- State EMS associations
- State stroke advisory board/council
- State medical societies
- Medical professional associations, such as those composed of nurses and physicians
- Firefighter and law enforcement associations
- Patient advocacy groups
- Disability rights advocacy groups
- Veterans organizations
- Business and civic organizations

Individuals to consider engaging as stakeholders include:

- Colleagues
- Former patients
- Family members impacted by stroke
- Hospital administrators
- Local academics who specialize in neuroscience
- Caregivers
- Local and state public health officials

Additional Ways to Influence Local and State Advocacy

Since most laws and regulations impacting care for stroke patients are made at the state level, the Get Ahead of Stroke® campaign’s advocacy efforts are concentrated around state decisionmakers and

stakeholders. Grassroots advocacy is among the most effective methods for engaging and educating target audiences while generating greater awareness among the general public.

While the first steps toward influencing decisionmakers should involve reaching out to your hospital's government affairs director and immediate network of colleagues and patients, you may consider additional engagement strategies within your community. These could include:

- Joining the state's stroke advisory council or task force (or attending meetings)
- Partnering with local EMS and/or attending open houses and health fairs to educate attendees about advancements in stroke treatment and your role in helping patients
- Participating in a local EMS training session that includes triaging stroke and effectively using stroke severity scales to identify severe cases such as ELVO
- Speaking to aspiring first responders at a local technical college
- Attending and presenting at a state health and/or EMS conference
- Attending a town hall or in-district meet-and-greet with your state legislators
- Speaking to medical students at a local or nearby campus

Through these tactics, you will be cultivating and building relationships among key stakeholders — many of them credible subject matter experts — who can provide additional support when needed to help advance legislation or a regulation. Encourage them to join the Get Ahead of Stroke® campaign to ensure they receive consistent updates on efforts across the country that they could replicate within their own communities.

MESSAGING AND TALKING POINTS

Below are key messages to include in your stakeholder outreach, broken down by audience. Note, when first mentioning the procedure to treat severe stroke patients, refer to it as “neuroendovascular stroke surgery, also known as thrombectomy.” Include the following definition as well: “A minimally invasive procedure that uses catheters to reopen blocked arteries in the brain quickly.” After introducing the term, use “thrombectomy” whenever you reference the procedure.

Priority Messages – Lay Audiences and Media

- Every 40 seconds, someone in the U.S. has a stroke³. Appropriate care can be the difference between life and death.
- Whether they need emergency care due to trauma or stroke, all patients deserve the best care possible.
- Neuroendovascular stroke surgery, or thrombectomy, is a minimally invasive procedure that uses catheters to reopen blocked arteries in the brain quickly. Thrombectomy improves the chances that a patient will not only survive a stroke but also will make a full recovery. However, less than one-third of eligible patients receive this care.⁴
- Some people with an emergent large vessel occlusion (ELVO) — a clot that is blocking a large vessel and cutting off significant blood flow to the brain — get lucky and go directly to a Level 1 stroke center, where stroke surgeons can remove the clot quickly. Right now, however, several states don’t have protocols that require EMS to bring ELVO patients to the nearest Level 1 stroke center, so patients may be taken to the nearest hospital instead, which might not have the expertise needed to treat this dangerous type of stroke. These patients may have a significant time delay in getting to a Level 1 stroke center, or they may never get there at all. They have a much lower chance of returning to independence. Let’s take luck out of the equation.
- The Get Ahead of Stroke® campaign is a national public education and advocacy campaign designed to improve systems of care for stroke patients and ensure more patients have access to thrombectomy.
- Check out GetAheadofStroke.org for resources to share with your networks on ways to improve stroke care across the country.

Priority Messages – Health Care and Policy Audiences

- Stroke costs in the United States are estimated at more than \$56 billion annually.⁵
- Neuroendovascular stroke surgery, or thrombectomy, is a minimally invasive procedure that uses catheters to reopen blocked arteries in the brain quickly. Thrombectomy helps reduce recovery time, getting patients back on their feet so they may live independently and work again.

³ Centers for Disease Control and Prevention. Stroke Facts. Retrieved from www.cdc.gov/stroke/facts.htm

⁴ Rai, A. T., Link, P. S., & Domico, J. R. (2023). Updated estimates of large and medium vessel strokes, mechanical thrombectomy trends, and future projections indicate a relative flattening of the growth curve but highlight opportunities for expanding endovascular stroke care. *Journal of NeuroInterventional Surgery*, 15: e349–e355.

⁵ Centers for Disease Control and Prevention. Stroke Facts. Retrieved from www.cdc.gov/stroke/facts.htm

- Studies published in the *New England Journal of Medicine* have proven that thrombectomy is highly effective at treating ischemic stroke patients who have a severe stroke known as an emergent large vessel occlusion (ELVO) — a clot that is blocking a large vessel and cutting off significant blood flow to the brain.⁶
- Currently, several states do not have clear protocols to ensure a person who is having a severe stroke is transported directly to a Level 1 stroke center, where they would have access to a specially trained neuroendovascular care team that can help them 24/7/365.
- The Get Ahead of Stroke® campaign is a national public education and advocacy campaign designed to improve systems of care for stroke patients and ensure more patients have access to thrombectomy at Level 1 stroke centers.
- Check out [GetAheadofStroke.org](https://getaheadofstroke.org) for resources to share with your networks on ways to improve stroke care across the country.

Supporting Messages Library

Background/Rationale

- Someone in the United States has a stroke every 40 seconds, and more than 795,000 people have a stroke every year.⁷
- An emergent large vessel occlusion (ELVO) is caused by a blood clot blocking a large vessel and cutting off significant blood flow to the brain.
- Ischemic strokes make up the vast majority of strokes (87%).⁸
- Nearly 2 million brain cells die every minute an ischemic stroke goes untreated.⁹ For the best possible outcome, a stroke patient needs to receive neuroendovascular stroke surgery, or thrombectomy, within 24 hours.¹⁰ Thrombectomy is a minimally invasive procedure that uses catheters to reopen blocked arteries in the brain quickly.
- Thrombectomy can be a lifesaving procedure for severe stroke patients.

⁶ Costalat, V., Jovin, T. G., Albucher, J., Cognard, C., Henon, H., Nouri, N., Gory, B., Richard, S., Marnat, G., Sibon, I., Di Maria, F., Annan, M., Boulouis, G., Cardona, P., Obadia, M., Piotin, M., Bourcier, R., Guillon, B., Godard, S., . . . Arquizan, C. (2024). Trial of Thrombectomy for Stroke with a Large Infarct of Unrestricted Size. *New England Journal of Medicine*, 390(18), 1677–1689. <https://doi.org/10.1056/nejmoa2314063>

⁷ Centers for Disease Control and Prevention. Stroke Facts. Retrieved from www.cdc.gov/stroke/facts.htm

⁸ American Stroke Association. (2017). Ischemic Strokes (Clots). Retrieved from www.strokeassociation.org/STROKEORG/AboutStroke/TypesofStroke/IschemicClots/Ischemic-Strokes-Clots_UCM_310939_Article.jsp#.VzXybsci6yl

⁹ National Stroke Association. (2017). Stroke 101: Fast Facts on Stroke. Retrieved from https://www.stroke.org/wp-content/uploads/2018/12/NSAM-2017_Stroke-101_v3_AQ_pdfversion.pdf

¹⁰ American Heart Association/American Stroke Association. (2018). More Stroke Patients May Receive Crucial Treatments Under New Guideline. Retrieved from <https://newsroom.heart.org/news/more-stroke-patients-may-receive-crucial-treatments-under-new-guideline>

- Stroke costs in the U.S. are estimated at more than \$56 billion annually.¹¹ The minimally invasive nature of thrombectomy helps reduce recovery time, getting patients back on their feet so they may live independently and work again.
- Patients who receive thrombectomy increase their life expectancy by five years compared to patients who do not receive this specialized treatment.¹²
- Research shows that when patients are taken to a slightly more distant facility that is better equipped to treat them, rather than simply going to the closest facility, they have been found to undergo the appropriate care more quickly and have less disability at 90 days after their stroke.¹³
- In a 2023 study comparing Rhode Island to Massachusetts over a 5.5-year period, implementation of a severity-based field triage EMS protocol for suspected stroke patients in the former was associated with a significant reduction in time to thrombectomy, approximately 55 minutes, with no increase in time to alteplase. In contrast, there was no improvement in time to treatment in Massachusetts, which had not yet updated its EMS protocols at the time.¹⁴
- Patients who need emergency care deserve the best care possible, whether it is for trauma or stroke.

State Policy

- Policies and regulations guiding stroke treatment vary by EMS region and by state.
- When the Get Ahead of Stroke® campaign launched, our objective was to ensure critical stroke patients with a suspected ELVO would be transported by EMS to Level 1 stroke centers as opposed to the nearest hospital. In too many cases, the latter was not capable of providing the necessary treatment, resulting in transport delays that jeopardized the patients' recovery.
- As a result of the Get Ahead of Stroke® campaign's efforts, more than 40 states across the country have enacted updated EMS stroke triage and transport protocols at a regional or statewide level. These protocols will ensure patients experiencing a critical stroke involving an ELVO are transported directly to Level 1 stroke centers, where they will receive the lifesaving care they need by highly trained neurointerventional care teams.
- The campaign's efforts helped improve EMS stroke triage and transport protocols in the following states:

¹¹ Centers for Disease Control and Prevention. Stroke Facts. Retrieved from www.cdc.gov/stroke/facts.htm

¹² Moussavi, M., et al. (Feb. 16–19, 2016). Poster WMP12. Presented at International Stroke Conference, Los Angeles.

¹³ Jayaraman, M. V., Hemendinger, M. L., Baird, G. L., Yaghi, S., Cutting, S., Saad, A., Siket, M., Madsen, T. E., Williams, K., Rhodes, J., Haas, R. A., Furie, K. L., & McTaggart, R. A. (2020). Field triage for endovascular stroke therapy: A population-based comparison. *Journal of NeuroInterventional Surgery*, 12(3), 233–239. Retrieved from <https://jnis.bmj.com/content/12/3/233>

¹⁴ Jayaraman, M. V., Baird, G., Oueidat, K., Paolucci, G., Haas, R. A., Torabi, R., Moldovan, K., Rhodes, J., Potvin, J., Alexander-Scott, N., Yaghi, S., Madsen, T., Furie, K., & McTaggart, R. A. (2022). Long-term effect of field triage on times to endovascular treatment for emergent large vessel occlusion. *Journal of NeuroInterventional Surgery*, 15(e1), e86–e92. <https://doi.org/10.1136/jnis-2022-019250>

- **Arizona:** Collaborated with the Department of Health Services in 2017 on an administrative rule that was adopted and updated stroke protocols to include guidance for patients with ELVO.
- **Colorado:** Passed a stroke care resolution in 2017 that directed the Department of Public Health and Environment to improve how EMS is trained to triage and transport critical stroke patients.
- **Florida:** Passed legislation in 2019 to improve EMS stroke triage and transport protocols statewide.
- **Massachusetts:** Secured an amendment within the FY 2023 state budget that established a stroke advisory task force. This was followed by an amendment in the FY 2024 state budget that directed the Department of Public Health to collaborate with the stroke advisory task force in developing and adopting updated statewide EMS protocols for the triage and transport of stroke patients. SNIS participated in the task force.
- **Michigan:** Collaborated with the Department of Health and Human Services on an administrative rule to update the statewide EMS guidelines for stroke, including for patients experiencing ELVO, that was adopted in 2023.
- **North Carolina:** Secured inclusion of recommendations related to the triage and transport of stroke patients, including those with ELVO, within the state's updated Stroke and ELVO Stroke EMS Triage and Destination Plan that took effect in October 2021.
- **Ohio:** Passed legislation in 2021 that directed the State Board of Emergency Medical, Fire, and Transportation Services to develop guidelines for the assessment, triage, and transport of stroke patients, including those with ELVO, that were formally adopted in December 2021.
- **Pennsylvania:** Secured inclusion of recommendations related to the effective triage and transport of stroke patients experiencing an ELVO within the state's updated Basic Life Support (BLS) protocols adopted by the Bureau of EMS Services in 2021.
- **Tennessee:** Passed legislation in 2018 that updated the statewide EMS stroke triage and transport protocols, including for patients experiencing an ELVO.
- **Virginia:** Secured inclusion of recommended EMS triage and transport protocols for stroke within the 2019 Virginia Stroke Improvement Report released by the Virginia Department of Health and then-Governor Ralph Northam's office. Since then, nearly every regional EMS council across the state has adopted updated protocols based on the statewide guidelines.

Federal Policy

- The Get Ahead of Stroke® campaign worked to secure language within Version 3.0 of the National Model EMS Clinical Guidelines that were released in March 2022. The language included guidance for EMS in triaging and transporting stroke patients, including those with ELVO who need to be transported to a Level 1 stroke center for lifesaving care.
- The updated national guidelines were disseminated by the National Association of State EMS Officials (NASEMSO) among state EMS directors and providers nationwide, encouraging them to adopt the guidelines within their respective local, regional, and state EMS jurisdictions.

- Since the updated national guidelines were released, they have been adopted by states such as Wisconsin.

Mobile App

- The [Stroke Scales for EMS](#) mobile app is a tool to help first responders and EMS personnel assess a patient's stroke severity.
- By measuring, for example, the patient's ability to squeeze and release a hand or make facial expressions — physical indicators of an emergent large vessel occlusion — the scales help first responders determine the level of care that is commensurate with the severity of the stroke. With this information, the app then recommends the type of facility where the patient can receive care that meets their individual needs. Results can then be sent via SMS or email.

Neuroendovascular Stroke Surgery/Thrombectomy

- Neuroendovascular stroke surgery, or thrombectomy, is a minimally invasive procedure that re-establishes blood flow to the brain quickly and improves the chances that a patient will not only survive a stroke but also will make a full recovery.
- Studies published in the *New England Journal of Medicine* have proven that thrombectomy is highly effective at treating ischemic stroke patients who have a severe stroke known as an emergent large vessel occlusion (ELVO) — a clot that is blocking a large vessel and cutting off significant blood flow to the brain.
- For the best possible outcome, a stroke patient ideally needs to receive thrombectomy within 24 hours¹⁵.
- Experiencing a heart attack, stroke, or cardiac arrest can have lasting impacts for people, with recent research showing that people who have experienced any of these events are much less likely than healthy individuals to be working three years after being hospitalized for such an issue. Severe strokes can devastate not only an individual but also their family, with ripple effects on the economy.
- A patient's access to appropriate care in a timely manner can make a huge difference in his or her outcomes. According to a 2017 study by the American Academy of Neurology, severe stroke patients gain a week of healthy life for every minute that is saved in getting them to appropriate care.¹⁶
- Additionally, for every minute saved in transfer to appropriate care, there is \$1,000 in savings on medical costs for short- and long-term care.¹⁷

¹⁵ American Heart Association/American Stroke Association. (2018). More Stroke Patients May Receive Crucial Treatments Under New Guideline. Retrieved from <https://newsroom.heart.org/news/more-stroke-patients-may-receive-crucial-treatments-under-new-guideline>

¹⁶ Meretoja, A., Keshtkaran, M., Tatlisumak, T., Donnan, G. A., & Churilov, L. (2017). Endovascular therapy for ischemic stroke: Save a minute—save a week. *Neurology*, 88(22): 2123–2127.

¹⁷ Kunz, W. G., Hunink, M. G., Almekhlafi, M. A., Menon, B. K., Saver, J. L., Dippel, ... Goyal, M. (n.d.). Public Health and Cost Consequences of Treatment Delays in Endovascular Thrombectomy for Stroke. Unpublished.

Stroke Center Designations

- Stroke Center designations, such as those outlined by credentialing bodies, describe the capabilities that a hospital should have to treat stroke patients of various complexities.
- Similar to the trauma model, stroke center designations can help EMS personnel align a patient's needs with the appropriate level of care.
 - Ideally, all severe stroke patients would be treated at a Comprehensive Stroke Center (Level 1), which offers a full spectrum of neuroendovascular care 24/7/365.
 - Thrombectomy-Capable Stroke Centers (Level 2) may be appropriate for patients without timely access to a Comprehensive Stroke Center (Level 1).
 - Primary Stroke Centers (Level 3) may be appropriate for patients without timely access to a Comprehensive Stroke Center (Level 1) or Thrombectomy-Capable Stroke Center (Level 2). In most cases, however, patients who are candidates for thrombectomy would have to be transferred from the Primary Stroke Center to a center that can perform the procedure.

Volume and Training

- Neurointerventionalists are doctors who specialize in treating vascular diseases of the brain, neck, and spine, such as stroke and aneurysms, using minimally invasive approaches.
- Neuroendovascular care teams are specially trained to perform a type of minimally invasive stroke surgery known as thrombectomy that uses catheters to remove blood clots quickly from a blocked artery.

How You Can Help

- Together, we can improve stroke systems of care so that all patients have the best possible chance to #SurviveStroke.
- Follow us on X, Instagram, and Facebook and use hashtag #SurviveStroke.
- Send us an email at cjewell@vancomm.com if you would like to enact change where you live.

Meeting with Legislators

Once you've identified the appropriate legislators to meet with and have prepared your talking points, it's time to schedule a meeting! You can do this by either sending an email to or calling the legislators' offices. When speaking with the legislative aide, be sure to identify who you are and what the meeting will be about. If you wish to invite any colleagues or patients, be sure to convey the number of expected attendees for the meeting. (As a general rule of thumb, the duration of the meeting should be no more than 30 minutes).

Similarly, you can contact the appropriate agency official(s) (e.g., State EMS Medical Director and/or chair of the state stroke advisory council) either via email or by phone to schedule a meeting.

If you are not already, you might consider getting involved with the stroke advisory council — if one exists in your state — or suggest that a council be established through the appropriate agency. If your state has an

established stroke advisory council, identify and reach out to the chairperson and inquire about speaking at an upcoming meeting. You can also inquire about council membership.

Some states, including Georgia and Michigan, coordinate stakeholder working groups through specific agencies seeking to update statewide guidelines, as was the case in recent years for EMS stroke protocols. If your state's health agency is convening a stakeholder working group to address EMS protocols for stroke, volunteer to serve as a member to have an active role in shaping those protocols.

Here are some helpful tips and expectations to consider prior to the meeting:

- Know the specific “ask.” You’ve prepared your talking points in advance, but don’t forget to articulate what you’re asking of the legislator or agency official: Would they support improving the state’s emergency triage and transportation protocols for stroke patients?
- Speak from the heart. Be prepared to offer examples of patients whose lives you saved because they got to “the right place at the right time.” Convey to the legislator or agency official how the outcome could have been different if there had been a delay in transport.
- During the meeting, you may be asked questions for which you don’t have answers, and that’s OK! Simply take note of those questions and offer to follow up with the answers (you can get them from the Get Ahead of Stroke® campaign team).
- Bring documents to leave behind (included in this guide). Explain what they are and note some of the key points.
- If possible, bring along a device to use for a brief “show and tell” in explaining how a mechanical thrombectomy is performed.
- If permitted, and if your meeting is in person, take a picture (ask the legislator or agency official and staff first). This can be shared on Get Ahead of Stroke® social media channels as well as the legislator’s social media and district updates. Sharing your commitment to stroke care can inspire others to take action and build momentum for the campaign.
- Dress for the meeting setting if you are gathering face to face. Will it be in the legislator’s capitol office, which will require business attire? Or will it be at a coffee shop where casual attire would be more appropriate? For agency meetings, confirm in advance if the attire will be casual.
- It’s possible the meeting will be with the legislator or agency official’s staff, which can be just as effective (if not more) as meeting with the legislator or agency official. The staff will often be more up to speed on the issue and know the process if the legislator or agency official agrees to support the Get Ahead of Stroke® campaign’s objective.
- After the meeting, follow up with a brief thank you email and any outstanding answers you may owe them.

Model Legislation

As you know, stroke systems of care vary by state along with the best approach for improving them. As you advocate for policy changes to ensure more patients to get to appropriate care quickly, consider using the legislative “blueprints” below from Tennessee and Ohio for helpful guidance.

Tennessee Senate Bill 2513

(Effective July 1, 2018)

Legislation introduced by State Senator Bill Ketron amended Tennessee Code Annotated, Title 68, Chapters 11 and 140 as follows:

- The state’s emergency medical services board shall establish protocol guidelines for evidence-based pre-hospital assessment, treatment, education, and transport of stroke patients by emergency medical responders. The protocol guidelines shall include specific language incorporating entry and transfer plans for patients with suspected emergent large vessel occlusion to the most appropriate stroke-ready facility.
- Each of the state’s licensed ambulance service providers shall then implement pre-hospital protocol plans related to the assessment, triage, and transport of stroke patients based on the protocol guidelines established by the state emergency medical services board.
- The state’s licensed ambulance service providers shall then refer to the established protocol guidelines in the course of training licensed emergency medical services personnel on the assessment and treatment of stroke patients, including the most severe cases which may include an emergent large vessel occlusion.

Definitions outlined in S.B. 2513 include:

- “Stroke-related designation” includes a comprehensive stroke center, primary stroke center, acute stroke-ready hospital, or other stroke-related designation approved by rule by the state board for licensing health care facilities in consultation with the emergency medical services board.
- Hospitals that are “capable of providing neuroendovascular treatment” have the capacity to 1) properly assess, diagnose using advanced imaging devices, and treat stroke patients with complex cases of ischemic stroke, including emergent large vessel occlusion, requiring immediate treatment by a trained team of neurointerventional surgeons, vascular neurologists, and assisting medical personnel; and 2) perform a mechanical thrombectomy twenty-four (24) hours per day, seven (7) days per week.

State of Ohio Emergency Medical Services Adult Guidelines and Procedures Manual, p. 84 (language adopted in late 2021 following passage of Ohio Senate Bill 21)

- Patients for whom the onset of stroke symptoms can be confirmed within 24 hours or less of the activation of initiation of the emergency response system should be transported directly to a certified stroke center based upon the local resources and stroke system of care. Patients with a suspected ELVO based upon the use of a stroke severity tool should be transported to a thrombectomy-capable or comprehensive stroke center if the additional transport time is not more than 15 – 30 minutes. At a minimum and as a secondary option, the patient with a suspected acute stroke should be transported to a hospital with a functioning CT scanner and emergent radiology services available.

Model Administrative Rule

While states such as Tennessee and Ohio enacted legislation to update their respective EMS stroke protocols, other states such as Michigan developed and adopted an administrative rule. Below is the

language specific to destination and transfer protocols for stroke patients included within the administrative rule adopted by Michigan in late 2023:

R 330.261 Destination protocols.

Rule 11. Local Medical Control Authorities (MCAs) shall develop and submit stroke patient destination protocols to the bureau of emergency preparedness, EMS, and systems of care for review by the statewide quality assurance task force appointed under section 20916 of the code, MCL 333.20916. After review and approval by the department, the MCA shall formally adopt and implement the protocol. The following factors must be used in evaluating destination protocols:

- a) An evidence-based validated stroke assessment tool.
- b) Stroke patients shall not be transported to a health care facility that does not participate in the state stroke care system unless there is no other reasonable alternative available.
- c) Stroke patients shall be transported to the closest appropriate stroke center as identified in regional and local medical control protocols.
- d) If a Level 1, Level 2, or Level 3 stroke center is not within a reasonable distance from the incident scene, the stroke patient shall be transported to a Level 4 stroke center.
- e) Each region shall make appropriate determinations for stroke patient destination based on what is best for the patient.
- f) In areas of this state close to state borders, the most appropriate stroke center may be out of this state. If possible, transport stroke patients within state borders. Local protocols must address this issue.

R 330.262 Stroke patient inter-facility transfer protocols.

Rule 12. All designated stroke centers shall maintain inter-facility transfer protocols for stroke patients that are consistent with regional and local medical control protocol and are compliant with 42 USC 1395dd.

- a) All Level 4 stroke centers shall develop and implement formal policies based on published guidelines for the transfer of stroke patients who need care at a Level 3, Level 2, or Level 1 stroke center.
- b) All Level 3 stroke centers shall develop and implement formal policies based on published guidelines for the transfer of stroke patients who need care at a Level 2 or Level 1 stroke center.
- c) All Level 2 stroke centers shall develop and implement formal policies based on published guidelines for the transfer of stroke patients who need care at a Level 1 stroke center.
- d) Stroke patients shall be transported to a hospital designated as a stroke center.

R 330.263 Criteria for transfer protocols; criteria.

Rule 13. Designated stroke centers shall contact the department for current stroke patient transfer guidelines.

- a) Stroke care, including stroke bypass, must be provided to patients as necessary pursuant to 42 USC 1395dd or other applicable laws.

MATERIALS AND TEMPLATES

Materials

- [Trauma System of Care Comparison Infographic](#)
- [Paths to Stroke Care Infographic](#)
- [Life Without Disability Infographic](#)
- [Whole System of Care](#)
- [What Is a Level 1 Stroke Center?](#)
- [Stroke Key Terms and Lexicon](#)
- [Stroke vs. Heart Attack](#)

Templates

Email Template for Advocates/Stakeholders

The following email is an example of how you could engage prospective stakeholders who can help amplify the Get Ahead of Stroke® campaign's message among lawmakers and other key audiences.

Subject Line: Improving [name of state]'s system of stroke care

Attention: [name, title, and name of organization]

Good [Morning/Afternoon], [name],

I hope this finds you well. As you may know, more than 795,000 Americans are affected by stroke every year. Tragically, 150,000 of these cases are fatal, with many more resulting in a lifelong disability.

Due to recent advancements in medical technology, we now have a way to save more patients affected by a severe stroke. Across the country, there are Level 1 stroke centers that have the capacity to provide a lifesaving procedure called neuroendovascular stroke surgery (also known as thrombectomy). This minimally invasive procedure, conducted by a highly trained neurointerventional care team, uses catheters to quickly reopen blocked arteries in the brain. Thrombectomy improves the chances that a patient will not only survive a stroke but will make a full recovery.

Despite the revolutionary advancements in stroke treatment that have significantly improved patient outcomes and saved lives, including mechanical thrombectomy, our state is still behind in implementing the appropriate EMS triage and transport protocols that ensure patients are transported to the right hospital the first time. When a patient must be transferred between hospitals, the delay will only jeopardize his or her recovery.

Since 2016, Get Ahead of Stroke®, a national public education and advocacy campaign designed to improve systems of care for stroke patients, has worked across the country to drive policy change at the state level. Founded by the Society of NeuroInterventional Surgery (SNIS), the goal of the campaign is to ensure patients with severe stroke such as ELVO are transported to a Level 1 stroke center where they have access to a

trained neuroendovascular care team that can help them 24/7/365. Clinical trials demonstrate that 65% of stroke patients who are taken directly to a Level 1 stroke center live without a long-term disability.

Today, the Get Ahead of Stroke® campaign is supported by a coalition of organizations committed to the goal of securing the best possible outcomes for stroke patients. This includes educating first responders about the importance of uniform stroke triage that is similar to triage for trauma patients. We have successfully enacted new laws in states such as Florida, Ohio, North Carolina and Tennessee while driving regulatory changes and public awareness in other states such as Arizona, Georgia and Michigan.

I invite you to consider joining the coalition and helping us improve [name of state]'s emergency triage and transportation protocols to ensure the best outcomes for stroke patients. To learn more, please visit our website at getaheadofstroke.org or search #SurviveStroke on social media. Thank you for your consideration!

Sincerely,

[Name]

[Title]

[Signature]

Email Template for Hospital Government Relations Team

The following email template demonstrates how you could engage your hospital's government relations team in facilitating initial conversations with lawmakers to improve EMS stroke protocols.

Subject Line: Improving [state]'s stroke system of care

Attention: [name], Head of Government Relations

Good [Morning/Afternoon], [name],

At your convenience, I would like to schedule some time to discuss with you an important health care issue for which I hope we might identify a legislative or regulatory solution.

As the [title/position] at the [name of hospital and name of department], I can personally attest to the urgency in transporting critical stroke patients to the facility that is best equipped to provide lifesaving care. Time is particularly of the essence when it comes to stroke patients experiencing a large vessel occlusion (ELVO), the deadliest form of ischemic stroke that can destroy up to two million brain cells each minute until treated.

Despite the revolutionary advancements in stroke treatment that have significantly improved patient outcomes and saved lives, including mechanical thrombectomy, our state is still behind in implementing the appropriate EMS triage and transport protocols that ensure patients are transported to the right hospital the first time. When a patient must be transferred between hospitals, the delay will only jeopardize his or her recovery.

I hope that we can help change that by working with the legislature or with officials at the **[name of state health or transportation agency which oversee EMS]**. Given your experience in the legislative and regulatory spaces, I welcome your insights as to how we might engage our colleagues and external stakeholders, including first responders, to help educate and empower government leaders to update our statewide EMS stroke triage and transport protocols. This could include simply adopting protocols based on the [National Model EMS Clinical Guidelines](#) released by the National Association of State EMS Officials (NASEMSO), as states such as Wisconsin have done.

Thank you for your consideration and I look forward to discussing this topic with you further.

Sincerely,

[Name]

[Title]

[Signature]

Email Template for Legislator/Prospective Bill Sponsor

Subject Line: Improving **[State's]** system of stroke care

Attention: **[title and name of legislator]**

Good **[Morning/Afternoon]** **[Senator/Representative Name]**,

I would like to take this opportunity to bring an important health care issue to your attention in hopes it may be resolved during the **[current/next]** legislative session.

You may have seen the story that was published in **[Outlet]** about the prevalence of delays in transporting stroke patients to the hospitals best equipped to treat them. A nationwide issue, these delays are primarily the result of existing policies and protocols that direct first responders to transport stroke patients to the closest hospital. Oftentimes, the closest hospital is ill-equipped to treat severe stroke cases and will eventually transfer the patient elsewhere, prolonging the impact of the stroke.

I understand that under the current system for stroke patients in **[State]**, hospitals and EMS are simply encouraged to **[Insert protocol language and hyperlink to webpage]**.

I respect and commend the progress made by the **[State Department of Health Services and other Committee or Coverdell program if applicable]** to ensure appropriate care for stroke patients. However, given recent advancements in technology that can help stroke patients recover fully, we should review and improve our system of stroke care.

As **[title/position]** at the **[Organization]**, I can personally attest to the urgency in transporting stroke patients to the facility that is best equipped to appropriately treat them the first time to ensure the best possible outcome, as opposed to transfers between two or more hospitals. I would welcome the opportunity to meet with you and your staff to discuss how we can work to improve **[State's]** system of stroke care, specifically as it relates to appropriate triage and transport of patients who have a severe stroke

to Level 1 (comprehensive) stroke centers. Numerous studies and clinical trials conducted over the past decade have demonstrated that when a patient has the most severe form of an ischemic stroke — emergent large vessel occlusion (or ELVO) — the best option to ensure the patient may fully recover is to transport them directly to a Level 1 stroke center, instead of to the nearest hospital.

I have attached the legislation introduced in Tennessee that was ultimately signed into law by then-Governor Bill Haslam in early 2018. I believe that this bill serves as the best model for updating our state's system of stroke care. I would also encourage you to visit www.getaheadofstroke.org for more information.

I look forward to working with you to improve our state's system of care for stroke patients and their families.

Sincerely,

[Name]

[Title]

[Signature]

ONCE YOU'VE LANDED A MEETING

Public Speaking Tips

When you know a great deal about a subject, it can be hard to break it down in palatable ways for diverse audiences, especially when it comes to medical information like stroke. However, using effective public speaking strategies is a good place to start. As you prepare to deliver presentations or speeches about the Get Ahead of Stroke® campaign and the value of thrombectomy, consider these key pointers that will help establish credibility and keep your content interesting for those on the receiving end.

CONTENT. Share information about yourself up front, such as a story or anecdote that you know well. Not only does this personalize you to the audience, but it also allows you to start with content that you are comfortable talking about. This helps reduce anxiety and sets a relaxed tone for the interview or speech.

EYE CONTACT. Eye contact is a tool for you. Use it to get audience feedback that will fuel your energy and confidence. It's the only way you'll know if your audience is getting the message. Look for eyes and heads nodding with you, then move on to other areas of the audience and repeat.

BODY LANGUAGE. Truthful. Approachable. These are the traits that audiences look for in speakers. Defensive body language is exhibited by crossed arms, a fig leaf stance, or a military stance. Positive body language is communicated through openness, gestures, moving away from the lectern (unless you can't take your microphone with you), and taking off your jacket, if appropriate.

FACIAL EXPRESSION. It is impossible to hide your feelings when you talk about something you really care about. The kind of passion people feel and exhibit when they talk about their friends and loved ones is the same passion that should be harnessed when talking about stroke treatment. It will give off good energy and make you convincing for your audience.

GESTURES. Natural gestures help tell the story. Don't pre-program gestures or over-concentrate on your hand and arm movements. The more comfortable you get with your content, the more natural your gestures will be.

VOICE. Sometimes it's good to get loud. Other times, being quiet is a great way to get attention. You have six different octaves — don't be afraid to use them. Never try to camouflage a regional dialect. All you have to do is tell people where you're from and they'll expect you to sound the way you do.

PAUSES/SILENCE. There are four good times to pause: 1) when you move from one subject to another; 2) when you want the message to sink in; 3) when you want or need to collect your thoughts; and 4) when you receive laughter or applause. Don't be afraid of long pauses. They'll seem much longer to you than they do to the audience.

PRACTICE. If possible, spend time alone just prior to your speech, take some deep breaths, and think about your central theme. Avoid practicing in the mirror. It can convince you to overcorrect expressions and gestures that are perfectly natural to everyone else.

How the Public Perceives Health Messages

Thinking about how the public perceives health messages prior to message development can help assure that the public will hear and heed the information you want to convey. Factors affecting public acceptance of health messages include:

“HEALTH RISK” IS AN INTANGIBLE CONCEPT. Many people do not understand the concept of relative risk, so personal decisions may be based on faulty reasoning. For example, the public tends to overestimate their risk of car and airplane accidents, homicides, and other events that most frequently make the news, and underestimate their risk of less newsworthy, but more common health problems, such as strokes.

THE PUBLIC RESPONDS TO EASY SOLUTIONS. The public is more likely to respond to a call for action if it is relatively simple (e.g., get a blood test to check for cholesterol) and less likely to act if the “price” of that action is higher or the action is complicated (e.g., quit smoking to reduce cancer risk).

PEOPLE WANT ABSOLUTE ANSWERS. Some people want concrete information upon which they can make certain decisions. Be sure to carefully and clearly present your information to both the public and the media to avoid inappropriate conclusions.

THE PUBLIC MAY REACT UNFAVORABLY TO FEAR. Frightening information may result in personal denial or disproportionate levels of hysteria, anxiety, and feelings of helplessness. Worry and fear may be accentuated by faulty logic and misinterpretation and compounded if there are no immediate actions an individual can take to ameliorate the risk. Where possible, provide those actions so the public can find a measure of control.

INDIVIDUALS DO NOT FEEL PERSONALLY SUSCEPTIBLE. The public has a strong tendency to underestimate personal risk. A National Cancer Institute survey found that 54% of respondents believed that a serious illness “couldn’t happen to them” and considered their risk as less than that of the general public, regardless of their actual risk. Outlining how a health condition may affect someone personally is an effective way to make them pay attention.

THE PUBLIC HOLDS CONTRADICTIONARY BELIEFS. Even though an individual may believe that “it can’t happen to me,” he or she can still believe that “everything causes strokes,” and therefore, there is no way to avoid a stroke “when your time comes,” and no need to alter personal behavior.

ONCE YOU'VE LANDED A MEDIA INTERVIEW

Interview Tips

Let Your SOCO Be Your Umbrella

Studies have shown that an audience retains one or two key messages from a speech or presentation. Taking this into consideration and recognizing the inherent time limitations on all presentations, you must maximize the time you have to present your information. To better manage this task, develop a “SOCO” — single overriding communications objective — for your interview.

SOCOs are the reason you do a presentation or interview. If all roads lead back to your core communications objective, there will be no doubt in the audience’s mind about what you stand for and how you want them to think and behave.

Examples of Get Ahead of Stroke® SOCOs include:

- Always dial 911 if you suspect stroke.
- Stroke systems of care need to closely follow the trauma model and connect patients to appropriate care, right away.
- Nearly 2 million brain cells die every minute a stroke goes untreated. For the best possible outcome, a stroke patient ideally needs to receive thrombectomy within 24 hours.

Don’t let reporters lead you away from your SOCO. When an interviewer tries to lead you astray, use transitions to get back to your main point.

Staying in Control During a Media Interview

Think about the end goal of the interview — both from your perspective as well as the perspective of the media outlet that is doing the interview. What do you want the audience to take away from your story?

Be sure to review the Get Ahead of Stroke® messaging and talking points and stick to them during the interview. Develop and practice phrases that capture the essence of what you are trying to convey to the audience. These phrases should be utilized in other interviews too, as long as they are on the same topic. And remember to KISS — keep it short and simple.

Here are a few other tips for staying in control during a media interview:

- If you are appearing on television, maintain eye contact with the interviewer, sit up straight, and speak with a loud, clear voice.
- Follow the belief that anything you say will be “on the record.” You can’t be quoted if you don’t say it.
- If using profession-specific terms or clinical language, be sure to explain them and try to provide an example in context that the interviewer and the audience will be able to relate to.
- Politely correct mistakes that the interviewer makes.
- If you make a mistake, stay calm, admit it, and correct it promptly.

- After the interview has concluded, thank the interviewer and offer him/her follow-up materials that will further enhance the story. You can also ask for a copy of the story after it airs.
- When possible, try to use compelling patient stories — they can grab the attention of journalists and their audiences, add credibility to the campaign, and create a lasting impression.
- Do not go off on tangents or offer personal opinions.
- Smile! Smiling goes a long way to helping you feel comfortable and makes you more approachable, whether you're talking to a reporter on the phone or being interviewed in person.

Transitioning Out of a Tough Spot

Transitions are easy-to-use phrases to bring you back to your talking points. Here are a few examples:

- But just as important is ...
- Let me explain ...
- I think it's equally important to know ...
- I'm also frequently asked ...
- Let me add ...
- Another question I'm asked is ...
- We might be overlooking ...
- You can go a step further ...
- For instance ...
- For example ...
- Let me give you the facts ...
- You should also know that ...

Interview Like a Pro

DO:

- Stick to your key messages.
- Be familiar with the style and format of the show/reporter.
- Develop potential questions and practice short answers with a colleague before the interview.
- Provide a brief bio prior to the interview.
- Chat briefly with your interviewer but remember that you will be given a microphone before you go live, and many people will hear and possibly record what you say before the interview begins.
- Repeat your name, title, and organization when testing the microphone.
- Be prepared with stories, examples, anecdotes, and analogies.
- Maintain eye contact with the interviewer.
- Talk conversationally — like talking to a friend or family member.

- Correct misinformation quickly.
- Use transitions to get back to your talking points.

IF YOU'RE GOING ON TV:

- Check yourself in the mirror right before you go on.
- Sit forward in your chair to show authority and interest.
- Leave your hands free to gesture.

DON'T:

- Let the interview end without delivering your key messages.
- Volunteer or repeat negative or inaccurate information.
- Get angry with the reporter.
- Go “off the record.”
- Do an interview with any reporter or outlet whom you're uncomfortable with.
- Be afraid to ask for a question to be repeated, especially if it isn't stated clearly.
- Get frazzled if you're interrupted.
- Use jargon or technical terms.

Special Tips for Television and Radio

KNOW YOUR PROGRAMMING FORMAT AND GENRE. Television and radio broadcast programs have different audiences, styles, and hosts. News talk programs will want more succinct sound bites, while public programming will do a more thorough story. Popular morning radio shows can either be irreverent or serious. While presenting your message on these shows will reach a large audience, you may have to work harder to stay on message.

PAY ATTENTION TO WHAT YOU WEAR. Wear clothes that match how you want to be perceived — aim for a professional look. Avoid distracting patterns.

MAKE EVERY WORD COUNT. Your 5-minute interview with the reporter will likely be edited to a few seconds. Keep your answers short and know that any one of your comments will be edited and used at the reporter's or producer's discretion.

STAY FLEXIBLE. Breaking news may bump your interview. Be prepared for a schedule change if breaking news happens or if the reporter is reassigned to another story.

FIND OUT IF THE SHOW WILL HAVE A WEBCAST. Whereas radio was once a faceless broadcast, most stations now offer a webcast from inside the studio, showing the hosts and any guests in action. Assume your audience will see you and dress appropriately and professionally.

Sample Opinion Pieces or “Op-Eds”

The following opinion pieces were authored by SNIS members and then published in local print outlets as part of the Get Ahead of Stroke campaign’s advocacy efforts in states such as Pennsylvania, Georgia and Michigan. We encourage you to use these as templates for developing your own unique opinion piece in advocating for improved statewide triage and transportation protocols for stroke.

The Patriot-News

Legislators should pass Senate Bill 1311 to save lives and speed recovery from strokes | Opinion

Harrisburg Patriot News

PennLive.com

By State Sen. Elder Vogel and Dr. Stavropoula Tjoumakaris

Published November 23, 2022; Updated on November 27, 2022

As legislators convene in Harrisburg for the final weeks of session, one of the topics of discussion is improving Pennsylvania’s system of stroke care. Senate Bill 1311, currently under consideration by the Senate Committee on Health & Human Services, would amend the Stroke System of Care Act that was enacted in 2012 to ensure the effective triage and transport of critical stroke patients.

As many Pennsylvanians already know, stroke can be an unexpected and devastating illness, depending on the severity. The most critical cases of stroke are considered ischemic, the deadliest form of which is referred to as Emergent Large Vessel Occlusion (ELVO). This type of stroke is the result of a blood clot that disrupts the flow of blood and oxygen to the brain, killing up to two million brain cells each minute. Until a patient experiencing an ELVO receives lifesaving care, they will experience paralysis, speech problems, imbalance, or worse.

Thanks to the incredible advancements in medical innovation in recent years, treatment is now available that has not only made it possible for stroke patients to survive an ELVO, but to achieve a full recovery. This includes mechanical thrombectomy, a minimally invasive procedure performed by highly experienced neurointerventional care teams at Level 1 (comprehensive) stroke centers such as UPMC in Pittsburgh and Thomas Jefferson University Hospital in Philadelphia. Through this procedure, catheters are used to access a patient’s blood vessels and locate the clot responsible for the stroke. The clot is then removed, restoring blood flow to the patient’s brain.

In alignment with the latest advancements in medicine, several states across the country, including our neighbors Ohio and Maryland, have updated their stroke protocols to ensure timely access to lifesaving care for stroke patients with a suspected ELVO. Just as the trauma system ensures critically injured patients are triaged and transported directly to Level 1 trauma centers, there needs to be a similar process in place for critical stroke patients. Research has found that for every 10 minutes saved in accessing treatment, critical stroke patients experience an additional month of life without disability.

The latest National Model EMS Clinical Guidelines released in March also recognize the unique, time-sensitive needs of critical stroke patients. Included within these updated guidelines is a recommendation that EMS consider transporting a patient with a suspected ELVO to a “hospital capable of mechanical thrombectomy,” based on the local EMS stroke plan.

This is the impetus behind introducing Senate Bill 1311, legislation that will help improve Pennsylvania’s system of stroke care to enhance timely access to lifesaving treatment for critical stroke patients. The measure will build on the progress our state has achieved since 2012, including updates adopted by the Bureau of EMS within Pennsylvania’s Basic Life Support protocol last year. The broad support for this legislation across the medical, first responder and patient communities has been very encouraging.

The goal of SB 1311 is to save lives and improve outcomes for stroke patients while doing our part to save on long-term medical costs. It is estimated that strokes cost the United States about \$46 billion each year, primarily due to rehabilitation and long-term care costs when stroke survivors are no longer functionally independent.

Pennsylvania has an opportunity to join the nationwide effort to help bridge the gap between modern advancements in medicine and outdated regulations which inadvertently deter timely patient access to care. We are proud to help lead this effort in Pennsylvania and encourage lawmakers in Harrisburg to join us in supporting passage of SB 1311.

State Senator Elder A. Vogel, Jr. (R-47) is sponsor of SB 1311 and serves as Chairman of the Senate Committee on Agriculture & Rural Affairs.

Dr. Stavropoula Tjoumakaris is professor of Neurological Surgery and the Radiology Director Cerebrovascular/Endovascular Fellowship, Thomas Jefferson University Hospital.



Putting Georgia on the path toward improving outcomes for stroke patients

Saporta Report

By Guest Columnists **JONATHAN A. GROSSBERG, MD, MBA, FAANS** and **C. MICHAEL CAWLEY, MD, FAANS** on behalf of the Society of NeuroInterventional Surgery (SNIS). Both perform mechanical thrombectomy procedures at Emory University Hospital and Grady Memorial Hospital and are members of SNIS, supporting its Get Ahead of Stroke campaign to improve systems of care.

Published March 3, 2023

As most fellow Georgians are aware, our state has the dubious geographic distinction of being the “belt buckle” of America’s “Stroke Belt.” This is an area of the southeastern United States where stroke death rates are approximately 30 percent higher than in the rest of the nation.

According to the Georgia Department of Public Health, our state had the eighth-highest stroke death rate in the U.S. in 2019. Alarming, 19 percent of those stroke deaths occurred in people younger than 65. The research also revealed tremendous disparities in stroke outcomes, with an age-adjusted stroke death rate among Black residents that is 33 percent higher than for White residents in Georgia.

Nationwide, strokes cost the United States nearly \$53 billion each year, primarily due to rehabilitation and long-term care costs when stroke survivors are no longer functionally independent. These costs also factor in the “butterfly effect” when family members of stroke survivors need to leave the workforce to become full-time caregivers to their loved ones. Between 15 and 30 percent of stroke survivors remain paralyzed for the rest of their lives. The best outcome will ensure the patient will go on to live a longer, productive life as opposed to depending on around-the-clock care for the rest of their life.

The reason a stroke has such a devastating impact is that it is often the result of a blood clot blocking a brain artery, which deprives the brain of oxygen and can kill up to two million brain cells each minute. Until stroke patients are properly treated, particularly if they are experiencing an emergent large vessel occlusion (ELVO), the deadliest form of stroke, they will experience paralysis, speech problems, imbalance, or worse. Every minute of delay before the patient receives appropriate care will mean an extra week of recovery. Time is brain.

That is why we have strongly supported the efforts underway in Georgia and across the entire country to improve and update stroke systems of care to align with modern treatment. Specifically, we have worked in collaboration with the EMS community and other key stakeholders to adopt a triage and transport model for stroke based on the trauma system. Just as critically injured patients are transported by EMS directly to Level 1 trauma centers for lifesaving care, we want to ensure critical stroke patients are similarly taken to Level 1 stroke centers.

Level 1 stroke centers, including Emory University Hospital, are staffed with specialized neurointerventional care teams who are trained to provide lifesaving care for critical cases of stroke such as ELVO. The most effective treatment for ELVO is mechanical thrombectomy, a minimally invasive procedure that uses small catheters to reopen blocked arteries in the brain and restore the flow of blood and oxygen. Recent studies confirm that 65 percent of stroke patients treated via mechanical thrombectomy achieve recovery without long-term disability.

As physicians, we have witnessed an incredible medical revolution in stroke treatment that is saving lives and vastly improving patient outcomes. But this treatment is effective only if patients who would benefit from it are triaged and immediately transported to a hospital that has the appropriate capabilities to treat them.

A team of our colleagues reaffirmed this in a recent study in which they compared the stroke triage and transport protocols of two states over 5.5 years. “State 1” had adopted an updated system to ensure critical stroke patients – including those with ELVO – were immediately triaged and transported to Level 1 stroke

centers. “State 2” continued operating under its standard protocol of transporting patients to the nearest hospital – and then transferring them to Level 1 stroke centers. Over the duration of the study, our colleagues reported a reduction of 43 minutes in time to treatment for patients along with lower rates of disability following a stroke in “State 1.” No changes were reported in “State 2.”

We cannot emphasize enough that “time is brain” when it comes to critical cases of stroke. The longer it takes for a patient experiencing a severe stroke such as ELVO to receive the appropriate care he or she needs, the greater the likelihood of a negative outcome – such as long-term disability.

In recent years, states like Florida, North Carolina, Tennessee, Arizona, Colorado, Ohio, and others have adopted the triage and destination-transport protocols necessary to improve outcomes for critical stroke patients. This year, we look forward to seeing Georgia join these states.

We are encouraged by the progress Georgia has made over the past year as health officials and stakeholders from across the state’s medical community have come together to work toward improving the statewide systems of care for medical emergencies, including stroke. The dedication of everyone involved with the process has been inspiring and we could not be prouder of this effort to help improve patient outcomes, including for stroke. We commend our colleagues and fellow stakeholders for their time and commitment to helping save more lives here in Georgia.



State should update emergency protocols for strokes

Grand Rapids Business Journal

By: Jenny Tsai

Published May 13, 2022

Every year in Michigan, thousands of lives are impacted by stroke. In 2019 alone, we lost 5,200 fellow Michiganders to stroke. It can touch any of us and our families, friends and colleagues.

During Stroke Awareness Month, we honor and remember those we have lost to stroke. We also recognize family members and caregivers for the incredible work they do in caring for patients living with disabilities after surviving a stroke.

As a physician who regularly treats stroke patients, I can attest to the life-changing impact this illness has on so many individuals. Yet, I am encouraged by the on-going medical innovations that are making it possible for more people to survive, then thrive, following a stroke. This includes a minimally invasive procedure known as mechanical thrombectomy — or endovascular therapy — which is performed by highly

experienced neurointerventional care teams at Level 1 stroke centers such as Spectrum Health Butterworth Hospital, where I practice. (The centers where mechanical thrombectomy is performed also are known as comprehensive and thrombectomy-capable stroke centers.) Through this procedure, my colleagues and I can quickly locate and extract the clot responsible for the stroke and restore blood flow to the patient's brain.

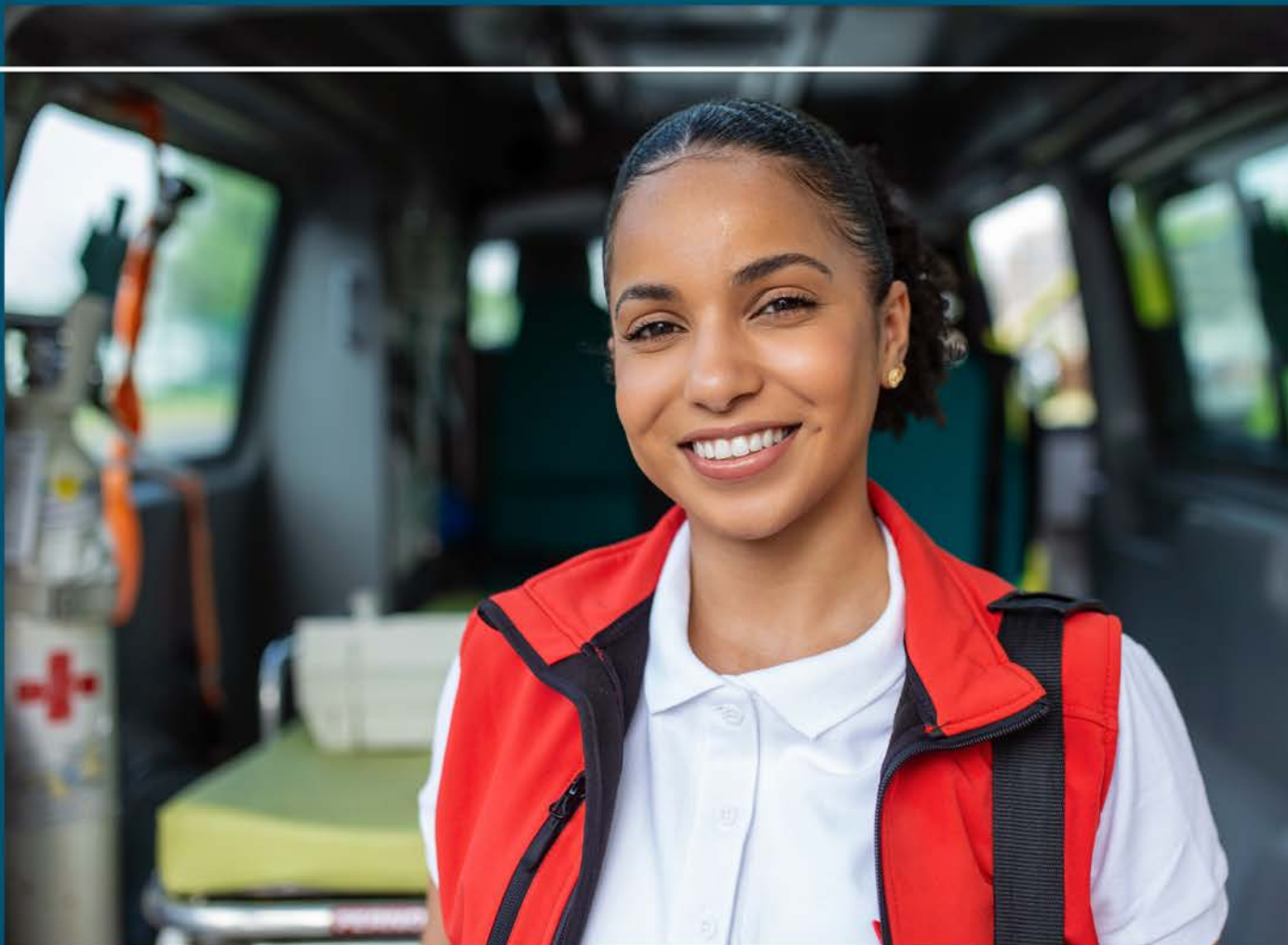
This procedure has revolutionized treatment for critical cases of stroke, including emergent large vessel occlusion (ELVO) — the most severe form of ischemic stroke. Provided patients who would benefit from this procedure are triaged and immediately transported directly to the hospitals equipped to perform it, endovascular therapy is saving lives.

In correlation with the latest in medical innovation, several states across the country have updated their stroke systems of care to reflect the trauma system. Just as a critically injured patient is transported by EMS to a Level 1 trauma center, these states — including our neighbor, Ohio — have adopted a system to ensure a critical stroke patient is transported directly to a Level 1 stroke center for lifesaving care. Research has found that for every 10 minutes saved in accessing treatment, critical stroke patients experience an additional month of life without disability.

The latest National Model EMS Clinical Guidelines that were just released this spring also recognize the unique, time-sensitive needs of critical stroke patients presenting with ELVO. Included within these guidelines is a recommendation that EMS consider transporting a patient with a suspected ELVO to a “hospital capable of mechanical thrombectomy” based on the local EMS stroke plan.

In support of this nationwide effort to improve triage and transport protocols for stroke, I encourage Michigan's health officials and leaders to consider similar changes adopted by states such as Ohio and included within the national EMS guidelines. In honor of Stroke Awareness Month, let's work together to bridge the gap that exists in our state between lifesaving treatment for stroke patients by updating emergency protocols to ensure timely access to the optimal stroke care for our fellow Michiganders.

Dr. Jenny Tsai is a board-certified interventional and vascular neurologist practicing at Spectrum Health in Grand Rapids. She also is a member of the Society of NeuroInterventional Surgery and its board of directors, supporting its Get Ahead of Stroke campaign to improve systems of care for stroke patients.



GET AHEAD OF
STROKE
Arrive. Survive. Thrive.®

TOOLS FOR EMS OUTREACH



Get Ahead of Stroke® Campaign

A GUIDE TO EMS OUTREACH

Why You Should Work with EMS

As a neurointerventionalist, you have a unique and powerful role to play in improving stroke care, but your impact begins well before a patient enters the hospital. By actively engaging and collaborating with EMS, you can help drive faster, more accurate stroke recognition and routing — ultimately improving outcomes for patients experiencing severe stroke and other serious neuroendovascular events. EMS professionals are often the first point of contact for stroke patients, and their ability to identify stroke symptoms and understand routing protocols can mean the difference between full recovery and lifelong disability.

Building relationships with EMS and their agencies creates a vital opportunity to provide education on stroke symptoms, especially those that suggest ELVO. Many EMS personnel receive only basic stroke training, often limited to the FAST or BE FAST mnemonic. Neurointerventionalists can offer deeper insight into how to recognize more complex presentations, how pre-hospital stroke scales (like RACE, LAMS, or VAN) are used to identify ELVO risk, and how this information can be communicated during pre-notification. Teaching EMS teams about the time-sensitive nature of endovascular treatment empowers them to act with confidence and urgency — and fosters mutual respect between the field and the hospital.

In addition, clarifying the specific stroke routing protocols in your state or region with EMS ensures they understand these protocols and how their pre-hospital assessments influence patient triage.

Ultimately, strong partnerships between neurointerventionalists and EMS agencies lead to better coordination, faster door-to-reperfusion times, and improved patient outcomes. By investing time in education, communication, and mutual understanding, neurointerventionalists can ensure that every link in the chain of stroke survival is strong and responsive, from the field to the angiography suite.

Ways to Work with EMS

One of the key ways neurointerventionalists can support EMS is through **ongoing training and education**. Many EMS providers are eager to understand more about stroke — particularly how to identify emergent large vessel occlusions (ELVOs). Neurointerventionalists can lead local trainings on how to use validated pre-hospital stroke severity scales, explain how ELVOs present differently than minor strokes, and highlight the importance of timely transport to thrombectomy-capable hospitals. See recommendations for training materials below. In some cases, updated policies may have been passed, but they are not being implemented locally.

Neurointerventionalists can **advocate alongside EMS for improved state and regional stroke triage protocols**. In many areas, outdated policies still route suspected ELVO patients to the nearest hospital, even if it lacks the ability to provide proper treatment. By partnering with EMS leaders, neurointerventionalists can help push for policies that empower EMS to bypass lower-level stroke centers and transport patients directly to a Level 1 stroke center when appropriate. This alignment ensures patients have the best chance of receiving lifesaving treatment within the critical time window.

When EMS feels included, informed, and valued, the entire system becomes more efficient and unified. They are also highly motivated. In a study conducted by the Get Ahead of Stroke® campaign, EMS personnel surveyed stated that:

- Assessment of stroke severity determines where they transport (70%)
- They feel very confident in their ability to assess stroke severity (73%)
- They use some kind of stroke assessment tool to determine severity (92%)
- They are interested in professional opportunities (more than 70%)

Tips to Engage EMS in Your Area

- **Find and engage your local EMS council or regional EMS authority.** Most states or counties have a local EMS advisory council or regional authority that oversees protocols, training, and coordination among EMS agencies. These councils often welcome medical experts to provide insight and education. Reach out, introduce yourself, and ask to attend a meeting or present on stroke triage, ELVO recognition, or your center's capabilities. This creates an entry point for long-term collaboration.
- **Partner with stroke coordinators in your hospital network.** Stroke coordinators are often already in communication with EMS agencies and may have longstanding relationships with local EMS educators and leadership. Tap into their knowledge and connections to understand how stroke education is currently delivered in your region, what gaps exist, and how you can support or enhance ongoing initiatives. Collaborating with stroke coordinators also ensures a consistent message across departments.
- **Offer to lead or participate in EMS education.** Hands-on, real-world exposure is incredibly valuable for EMS teams. In a survey conducted by the campaign, EMS personnel responded saying that they expect and embrace lifelong learning/professional development. Offer to give short educational sessions at EMS agencies or present during EMS training days hosted by your hospital.
- **Tailor your messaging to their community and be relatable.** When working with EMS, keep your messaging clear, concise, and focused on actionable takeaways in their area. Also keep it local — our survey with EMS personnel showed that EMS feel closely tied to the communities that they serve, so messaging should be localized whenever possible.
- **Share feedback and patient outcomes.** EMS rarely hear what happens after they drop off a patient. Whenever possible, follow up with EMS crews or their leadership to share outcomes and express appreciation. Letting them know when a patient had a good result thanks to their quick action reinforces their importance in the stroke care chain and deepens the partnership.
- **Support policy change where needed.** If your state or region doesn't yet have stroke triage protocols that prioritize transport to Level 1 stroke centers for suspected severe stroke, work with your hospital's stroke program and EMS contacts to advocate for change. Joining forces with EMS leadership adds credibility and momentum to these efforts.

Finding Opportunities to Host EMS Trainings

You can successfully conduct a webinar for EMS providers by focusing on collaboration, relevance, and accessibility. One effective approach is partnering with local, regional or statewide EMS organizations like the Wisconsin EMS Association, which has extensive experience in providing quality educational resources.

For example, the Get Ahead of Stroke® campaign has successfully hosted multiple [webinars](#) with NAEMSE, helping physicians share their expertise with EMS professionals. These partnerships provide access to established audiences, ensuring that your message goes to the right participants.

For broader exposure and professional recognition, there are plenty of opportunities at major industry conferences such as EMS World. If accepted, presenting a webinar at an event like this allows you to present cutting-edge research, demonstrate clinical best practices, and connect with a wider audience of EMS educators and practitioners.

In addition to national webinars, many physicians are finding success by conducting local EMS training sessions tailored to the unique needs of their communities. These localized webinars or hybrid sessions allow doctors to directly address the protocols, challenges, and case studies most relevant to EMS personnel.

Promoting the Free Stroke Scales for EMS Mobile App

The Get Ahead of Stroke® campaign recently relaunched the [Stroke Scales for EMS](#) mobile app. This tool helps first responders and EMS personnel assess a patient's stroke severity.

By measuring, for example, the patient's ability to squeeze and release a hand or make facial expressions — physical indicators of an emergent large vessel occlusion — the scales help first responders determine the best course of action for the patient. With this information, the app then recommends the type of facility where the patient can receive appropriate care. Results can then be sent via SMS or email.

You'll notice a sleeker look, easy-to-navigate format, and robust FAQ section for EMS personnel to learn more about stroke. Downloaded by more than 55,000 EMS since its relaunch, we hope that this application will make it easier for more patients to survive and thrive after stroke.

It is available for download in the Apple [App Store](#) and on [Google Play](#).

EMS Materials for Sharing

- **Website Landing Page:** The *Get Ahead of Stroke*® EMS hub provides tools, education, and resources to help EMS professionals recognize, triage, and transport stroke patients quickly and effectively. <https://getaheadofstroke.org/ems/>
- **Stroke Scales for EMS App (Apple):** This free iOS app helps EMS quickly assess stroke severity using validated scales to support accurate triage decisions. [Apple App Store](#)

- **Stroke Scales for EMS App (Android):** Android users can download this easy-to-use app to guide stroke severity assessments in the field.
[Google Play Store](#)
- **Stroke Scales for EMS Mobile App Postcard:** This postcard can be used as promotion for the Stroke Scales for EMS mobile app. It provides an easy way to download the Stroke Scales for EMS app via the QR code.
[App Postcard PDF](#)
- **EMS Fact Sheet:** This fact sheet shares statistics related to strokes and stroke care to show first responders why the Get Ahead of Stroke® campaign aims to improve systems of care for severe stroke patients. By providing background about thrombectomy and its effectiveness, as well as answers to possible questions, the fact sheet gives first responders an overview of current challenges and the campaign's goals.
[EMS Fact Sheet](#)
- **Stroke Triage, Transport, and Treatment Webinar:** In partnership with the National Association of EMS Educators (NAEMSE), stroke surgeons from the Society of NeuroInterventional Surgery (SNIS) walk attendees through the types of stroke and their respective treatments, tools for assessing stroke in the field, and triage and transport protocols for improving patient outcomes. They also discuss the outcomes of a 5-year study comparing Massachusetts (no statewide severity-based stroke protocols) and Rhode Island (statewide protocols). *This webinar was recorded live in March 2025 by the National Association of EMS Educators in collaboration with Mahesh Jayaraman, MD, and Johanna Fifi, MD.*
[Watch the Webinar](#)
- **5 Things EMS Should Know About Stroke Video:** This video outlines five key facts every EMS provider should know to improve stroke outcomes.
[Watch on YouTube](#)



How We Can Help You

SNIS is committed to helping you reach EMS personnel and strengthen education around stroke recognition and response. We understand how critical early intervention is, and we want to make it easier for you to engage EMS providers in your community and beyond.

We're happy to help identify opportunities for you to connect with EMS professionals, through local agency trainings, regional workshops, or national events. To make your outreach as effective as possible, we can provide a wide range of materials, including flyers, infographics, videos, and other educational resources designed specifically for EMS audiences.

Additionally, if you're planning to host a webinar or training session, we offer pre-existing slide decks and supporting content that you can incorporate into your presentation. These resources are designed to save you time and provide a solid foundation built on the latest data and best practices in stroke care.

Our goal is to make it as seamless as possible for you to educate EMS personnel and strengthen stroke systems of care nationwide. By working together, we can better equip EMS providers with the knowledge and tools they need to improve patient outcomes. Email Camille Jewell at cjewell@vancomm.com if you're interested in learning more.