# Disputes & Debates: Editors' Choice

Steven Galetta, MD, FAAN, Editor
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## Editors' Note: Simulation-Based Assessment of Graduate Neurology Trainees' Performance Managing Acute Ischemic Stroke

In a prospective, observation, single-center simulation-based study, Dr. Pergakis et al. assessed the performance of 53 trainees (including 31 graduate neurology trainees) and 5 attending physicians, independently of a multidisciplinary stroke team, in the management of a mock patient involving acute ischemic stroke, tissue plasminogen activator (tPA)–related hemorrhage, and cerebral herniation syndrome. They found that graduate trainees performed well in the initial management of acute ischemic stroke but frequently made errors in the treatment of hemorrhagic transformation after thrombolysis—with only 55% reversing tPA according to guidelines—suggesting the need for more education for this low-frequency but high-acuity event. In response, Dr. Das notes that the Laerdal SimMan 3G mannequin used in this study is unable to demonstrate sensorimotor deficits, limiting its fidelity in stroke simulation, and indicating a potential role for more innovative mannequins or alternative approaches like immersive virtual reality. He also suggests that periodic assessment with high-fidelity simulations, similar to those used for advanced cardiac life support certification, should be considered in the maintenance of stroke scale certifications. Noting that there were disparities in performance of specific critical action items, he suggests using peer coaching strategies in which neurology trainees work closely with their critical care counterparts. Responding to these comments, the authors add that few trainees performed a comprehensive neurologic examination in their study, potentially in part due to limitations in current simulation technology in assessing the neurologic examination. They also suggest that innovative technologies like improved robotics, haptic feedback, or virtual reality–based simulation may help bridge the gap for teaching more nuanced aspects of the bedside stroke assessment like the HINTS (head impulse, nystagmus, test for skew) examination for posterior circulation stroke. This exchange highlights both the potential for simulation to enhance training and assessment in neurology and the limitations of conventional simulation technology in replicating key aspects of the neurologic bedside assessment. It will be interesting to track technological advancements in this educational space in the coming years.

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## Reader Response: Simulation-Based Assessment of Graduate Neurology Trainees' Performance Managing Acute Ischemic Stroke

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Pergakis et al.[1] reported results from their institutional use of simulation to assess graduate trainees' performance in acute ischemic stroke management. This is important given the increased emphasis on the role of simulation, especially in endovascular stroke training and multidisciplinary team training during acute stroke codes.[2,3]

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The authors used a Laerdal SimMan 3G mannequin, which is unable to demonstrate sensorimotor deficits despite this simulator's high cost. This limits its fidelity in stroke simulation and highlights the need for innovation in mannequins or use of conventional or immersive virtual reality for stroke training and assessment of trainees. Also, given the limited value of an annual online NIH Stroke Scale certification for vascular neurologists,[4] replacing this requirement with periodic assessments using high-fidelity simulation akin to maintaining advanced cardiac life support certification should be considered.

The authors assessed trainees across subspecialties and reported a disparity in the performance on specialty-specific critical action items.[1] For example, trainees from critical care performed well in airway actions, and those from neurology performed well on stroke actions. This is a potential educational opportunity to use peer coaching strategy in neurocritical care fellowships that will improve the utility of learning compared with more traditional didactic-based continuing medical education initiatives.[5]


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## Author Response: Simulation-Based Assessment of Graduate Neurology Trainees' Performance Managing Acute Ischemic Stroke

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We appreciate Dr. Das's comments on our study.[1] The idea of using peer education is particularly exciting and applicable to the diverse backgrounds of critical care fellows that rotate through our neurocritical care unit.

In our study, we found that few trainees performed a comprehensive neurologic examination (including the NIH Stroke Scale), likely due to the ease of identifying a large left middle cerebral artery stroke syndrome in conjunction with the technologic limitations of replicating findings with current simulator technology.[1] Thus, we worry that current simulation technology may fall short in assessing and teaching the neurologic examination.

In posterior circulation stroke syndromes, the diagnosis is often delayed or missed, and recognition of the subtle examination findings elicited by provocative maneuvers (i.e., HINTS examination) is essential.[2,3] The HINTS examination is often wrongly interpreted or underused, suggesting a need for further education to reach mastery level.[4,5] Innovative technologies such as improved robotics, haptic feedback, or virtual reality–based simulation may bridge the gap. We hope that further advances will lead to expanded application of simulation to teach and assess neurologic examination skills.

Author disclosures are available upon request (journal@neurology.org).


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CORRECTIONS

# Ischemic Stroke and Pulmonary Arteriovenous Malformations
## A Review

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In the Review "Ischemic Stroke and Pulmonary Arteriovenous Malformations: A Review" by Topiwala et al.,[1] Dr. Claire L. Shovlin's affiliation should be listed as "National Heart and Lung Institute, Imperial College London, UK." The authors regret the error.

## Reference

1. Topiwala KK, Patel SD, Saver JL, Streib CD, Shovlin CL. Ischemic stroke and pulmonary arteriovenous malformations: a review. *Neurology.* 2022;98(5):188-198.

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# Cysticidal Therapy for Diffuse Parenchymal and Calcific Neurocysticercosis (1931)

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In the AAN Annual Meeting Abstract "Cysticidal Therapy for Diffuse Parenchymal and Calcific Neurocysticercosis (1931)" by Agarwal et al.,[1] the Disclosure section mistakenly includes Aisawan Petchlorlian, who was not an author, as the second author. The correct disclosure for the second author, M.V. Padma Srivastava, is as follows: "Prof. M.V. Padma Srivastava has nothing to disclose." The authors regret the error.

## Reference

1. Agarwal A, Srivastava MVP, Gupta A, et al. Cysticidal therapy for diffuse parenchymal and calcific neurocysticercosis (1931). *Neurology.* 2021;96(15 suppl):1931.

Author disclosures are available upon request (journal@neurology.org).



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