

NIHSS Training Options

(National Institutes of Health Stroke Scale)

PURPOSE

This document is intended to support health care professionals (e.g. clinical educators) in creating a system for training, certification and recertification of staff using the NIHSS in hyperacute and/or acute stroke care in Ontario.

BACKGROUND

Across the Province of Ontario, a knowledge gap was identified regarding the options available for educators and practitioners to undertake NIHSS training. Therefore, the Ontario Regional Stroke Education Group (OREG) set out to create a guide, for Stroke Networks and Organizations across the province who use the NIHSS that would facilitate access to NIHSS training information and related resources.

In 2021, OREG initially consulted a developer of the NIHSS, Dr. Patrick Lyden, regarding the possible development of a training guide. Dr. Lyden shared that a training guide was not presently available and he encouraged OREG to develop one. Furthermore, he indicated that new training options for the NIHSS would be available in the near future.

Recommended NIHSS training is comprised of two elements:

- I. Online training course
- II. In-person practical component

RATIONALE FOR USE OF NIHSS

The NIHSS was developed by the National Institute of Health and is a multi-item scale intended to evaluate neurologic impairment. Studies confirmed that the NIHSS is a reliable and valid tool for the assessment of an acute stroke patient when used by properly trained and certified providers. The NIHSS is commonly used to inform decisions for treatment for stroke patients in the hyperacute and acute settings (e.g. thrombolytic therapy and endovascular therapy). (Alijianpour et al, 2021; Lyden 2017; Anderson et al, 2020).

The NIHSS does not replace a properly done, thorough neurological exam. The NIHSS allows certified health care professionals to quickly and efficiently:

- Describe stroke severity
- Objectively quantify key features of the clinical exam (both for determination of the use of thrombolytics and in the acute phase of care)
- Determine if the patient's neurological status is improving or deteriorating
- Provide standardization in assessment (the same exam is performed from one person to the next)
- Communicate patient status (nurses and physicians are speaking the same language)

RESEARCH EVIDENCE

The use of a stroke scale in the assessment of an acute stroke patient is established best practice stroke care. The [Canadian Stroke Best Practice Recommendations](#) states, “A neurological examination should be conducted to determine focal neurological deficits and assess stroke severity” (Boulanger et. al., 2018, p. 960).

“The NIHSS instructions include counterintuitive scoring rules therefore, education, training and practice on the NIHSS is required to attain and maintain competence in using the scale and interpreting the score including actual demonstration on live patients” (Lyden, 2017, p.516). Recognizing that the scale was initially developed for clinical trials, it has also become a bedside rating tool for stroke severity (Lyden, 2017).

Currently, there is no standard in place regarding NIHSS recertification frequency. Individual organizations will need to determine their own protocol for NIHSS certification and re-certification. The literature and the NIHSS training options that were reviewed during the creation of this resource revealed varying recommendations on retraining timing. Although the National Stroke Association recommends certification every six months (American Stroke Association, 2022), another report states: “The data suggest that mastery of National Institutes of Health Stroke Scale scoring rules is stable over time, and the recertification interval should be lengthened. Mandatory retraining may be needed after unsuccessful re-certifications, but not routinely otherwise” (Anderson et. al., 2020, p. 1). Please refer to the table found in the article from Anderson et al, 2020 “Training and Certifying Users of the National Institutes of Health Stroke Scale” for further suggestions on certification and re-certification of the NIHSS.

TRAINING OPTIONS

There are many ways to obtain the education and training required to competently administer and interpret the NIHSS. Two independent, free and CME accredited web-based options are outlined below.

Option #1: Apex Innovations

This course can be accessed through Apex Innovations. Upon completion of the 3 hour training and test, successful participants will be able to print out a certificate of completion (participants must obtain a score of 93% on the test). **Please note: Once an individual has created an account, their access will not expire. They will have an option to access the videos and training to review whenever they feel it is necessary.*

To access this course [Click here](#)

Option #2: NIHStrokeScale.org by BlueCloud

BlueCloud is a private, secured networking system that provides access to training and certification courses at no cost. The BlueCloud Basic Membership (free of charge) offers online training for the NIHSS. Access to the course requires registration with BlueCloud.

To access this course [Click here](#)

PRACTICAL COMPONENT

The second part of successful NIHSS training is the practical component. Lyden (2017) recommends a practical demonstration of competency to support knowledge translation. This evaluation will give the learner an opportunity to use the scale with the assistance of a NIHSS champion. The practical component should be completed at the bedside, with a designated evaluator/NIHSS champion overseeing the assessment. Prior to this demonstration, participants must complete the online training course.

[Click here](#) for a PDF copy of the NIHSS on Stroke Engine.

Contact your regional stroke network with any questions.

BIBLIOGRAPHY/REFERENCE LIST

- Alijanpour, S., Mostafazadeh-Bora, M., & Ahmadi Ahangar, A. (2021). Different Stroke Scales; Which Scale or Scales Should Be Used? *Caspian Journal of Internal Medicine*, 12(1), 1–21.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7919174/>
- American Stroke Association (2022). www.stroke.org
- Anderson, A., Klein, J., White, B., Bourgeois, M., Leonard, A., Pacino, A., Hill, J., & Lyden, P. (2020). Training and Certifying Users of the National Institutes of Health Stroke Scale. *Stroke*, 51(3), 990–993.
<https://pubmed.ncbi.nlm.nih.gov/31986988/>
- Boulanger, J. M., Lindsay, M. P., Gubitz, G., Smith, E. E., Stotts, G., Foley, N., Bhogal, S., Boyle, K., Braun, L., Goddard, T., Heran, M., Kanya-Forster, N., Lang, E., Lavoie, P., McClelland, M., O’Kelly, C., Pageau, P., Pettersen, J., Purvis, H., ... Butcher, K. (2018). Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018. *International Journal of Stroke: Official Journal of the International Stroke Society*, 13(9), 949–984. <https://pubmed.ncbi.nlm.nih.gov/30021503/>
- Goldstein, L. B., & Samsa, G. P. (1997). Reliability of the National Institutes of Health Stroke Scale. Extension to non-neurologists in the context of a clinical trial. *Stroke*, 28(2), 307–310.
<https://pubmed.ncbi.nlm.nih.gov/9040680/>
- Lyden, P. (2017). Using the National Institutes of Health Stroke Scale: A Cautionary Tale. *Stroke*, 48(2), 513–519.
<https://pubmed.ncbi.nlm.nih.gov/28077454/>
- Lyden, P., Brott, T., Tilley, B., Welch, K. M., Mascha, E. J., Levine, S., Haley, E. C., Grotta, J., & Marler, J. (1994). Improved reliability of the NIH Stroke Scale using video training. NINDS TPA Stroke Study Group. *Stroke*, 25(11), 2220–2226. <https://pubmed.ncbi.nlm.nih.gov/7974549/>
- Lyden, P. D., Lu, M., Levine, S. R., Brott, T. G., Broderick, J., & NINDS rtPA Stroke Study Group. (2001). A modified National Institutes of Health Stroke Scale for use in stroke clinical trials: Preliminary reliability and validity. *Stroke*, 32(6), 1310–1317. <https://pubmed.ncbi.nlm.nih.gov/11387492/>
- Lyden, P., Lu, M., Jackson, C., Marler, J., Kothari, R., Brott, T., & Zivin, J. (1999). Underlying structure of the National Institutes of Health Stroke Scale: Results of a factor analysis. NINDS tPA Stroke Trial Investigators. *Stroke*, 30(11), 2347–2354. <https://pubmed.ncbi.nlm.nih.gov/10548669/>
- Meyer, B. C., Hemmen, T. M., Jackson, C. M., & Lyden, P. D. (2002). Modified National Institutes of Health Stroke Scale for use in stroke clinical trials: Prospective reliability and validity. *Stroke*, 33(5), 1261–1266.
<https://pubmed.ncbi.nlm.nih.gov/11988601/>