Problem Statement:
• An identification gap exists for lower brainstem strokes that leads to poorer outcomes and delayed interventions (Balam, Chen, & Buchanan, 2013; Fox et al., 2017).

Purpose:
• To increase recognition of lower brainstem strokes through the use of the BeFASSTT acronym to improve patient outcomes.

Background:
• Lower brainstem strokes are often misdiagnosed when appropriate assessments and imaging are not performed. This results in missed opportunities for administering important drugs in a timely manner and poorer outcomes (Sangha et al., 2015).
• Approximately 10% (n = 70,000/year) of all strokes occur in the brainstem (Ortiz de Mendivil, Alcala-Galiana, Ochoa, Salvador, Milan, 2013).
• Loss of temperature and pain sensory deficit may occur hemisensory – contralateral on the body and ipsilateral on the face – depending on the location of the infarct (Day, Schwartz, Chenkin, Shanji, & Frost, 2014).
• Numerous, single-case studies validate the need for further assessment and evaluation.

Case Study:
66 year-old male, retired, active

Medical history: Hypertension and hypercholesteremia; well controlled with medications

History of Symptoms:
• For 3 mornings before onset of symptoms, patient had been scraping and painting the eaves of home.
• He first noted a lack of temperature sensation to his left hand while retrieving a cold soda from the fridge. An ipsilateral effect of lack of temperature sensation was noted to the left foot while walking barefoot outside. Later that day the patient noted the lack of temperature sensation extended to entire left side of body from neck down. Patient awoke at midnight, felt unwell, had elevated bp on home monitor of 195/102, and general weakness. He presented to the ER with BP of 228/111. CT performed was unremarkable for an infarction to the cerebrum; sensory deficits were attributed to possible pinched nerve.

42 hours later, a 2nd CT was ordered to include the neck, that was remarkable for a lateral spinothalamic tract infarct of 9x5x11 mm. A 2nd stroke occurred 1 week later resulting in ipsilateral symptoms to the face, nystagmus, vertigo, and cervico-neck dystonia (Ogawa, Suzuki, Oishi, & Kamei, 2015).

Recommended Interventions:
• Education of BeFASSTT for recognition of sensory deficits of pain & temperature for lower brainstem infarcts.
• Extended anatomical imaging to include the neck for correct identification of brainstem strokes (Ortiz de Mendivil, Alcala-Galiana, Ochoa, Salvador, Milan, 2013; Winters, 2017).
• A brainstem stroke should be ruled out in all forms of neck trauma for patients of all ages (Albrich, Martin, & Hennick, 2013; Fox et al, 2017).

References
• Stroke Association (2017). Two years post-stroke: Compliant rehabilitation, medications, exercise, and self-prescribed daily hydrotherapy, have resulted in slowly alleviated symptoms and minor to moderate remaining sensory deficits exacerbated by cold weather.

Contact information:
Marietta.Sperry@indstate.edu
Amber.Wilson@indstate.edu