

**Sharon Heaton, MA, BSN, RN, EMT-P**

Administrator

**Vivien Lee, MD, FAAN**

Medical Director

**Shahid Nimjee, MD, PhD, FAANS, FAHA**

Surgical Director

Ohio State University Wexner Medical Center Comprehensive Stroke Center

Testimony before the House Transportation and Public Safety Committee

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Chairman Baldrige, Vice Chair McClain, Ranking Member Sheehy and members of the House Transportation and Public Safety Committee, thank you for the opportunity to submit written testimony on S.B. 21. We commend Senators Antonio and Manning for introducing legislation that aims to improve stroke care in Ohio.

One of the nation's leading academic medical centers, The Ohio State University Wexner Medical Center (OSUWMC) offers healthcare services in virtually every specialty and subspecialty in medicine. Thousands of patients come to us each month for treatments and services they cannot find anywhere else. Providing access to healthcare information is central to our research, education and patient care mission. OSUWMC is dedicated to improving health in Ohio and across the world through innovation in research, education and patient care.

Ohio State's Wexner Medical Center is one of the first medical centers in the country to combine the departments of Neuroscience, Neurology, Neurosurgery, Physical Medicine and Rehabilitation and Psychiatry and Behavioral Health into a single, integrated program. The Neurological Institute includes five hospitals, including the 116-bed Brain and Spine Hospital, 10 ambulatory care centers, a telestroke network, and a

Neuroscience Research Institute. The institute is a national leader in neuromodulation and minimally invasive skull-base surgeries.

Part of our Neurological Institute is Ohio State's Comprehensive Stroke Center. OSUWMC was one of the first hospitals in the country to be designated a comprehensive stroke center by The Joint Commission and the American Heart Association/American Stroke Association. Our Stroke Center treats the most complex strokes and cerebrovascular diseases, with physicians, scientists, nurses and therapists from across Ohio State's Neurological Institute collaborating to advance the science and success of stroke treatments, both at Ohio State and at our partner hospitals across Ohio.

Until recently, clot-dissolving drugs were the only treatment for ischemic stroke. Our dual-trained open/endovascular neurosurgeons can remove clots with a stent retriever or aspiration catheter in a procedure called a mechanical endovascular thrombectomy that leads to better patient outcomes. They are also trained in to ensure that hemorrhagic strokes caused by ruptured brain aneurysms do not re-bleed and cause further damage through minimally-invasive techniques through a catheter or by performing open brain surgery. They focus on whatever treatment is best for the patient and are not limited by a specific technique.

In 2019 and 2020, we were recognized with The American Heart Association/American Stroke Association's *Get With The Guidelines Stroke Gold Plus and Target: Stroke<sup>SM</sup> Honor Roll Elite Plus* award. The award recognizes our commitment to providing the most appropriate stroke treatment according to nationally recognized, research-based guidelines based on the latest scientific evidence.

S.B. 21 would require the State Board of Emergency Medical, Fire, and Transportation Services (State Board) to develop guidelines for the assessment, triage, and transport to hospitals of stroke patients. The bill also would direct the regional emergency medical service (EMS) organizations to base their stroke patient protocols on the State Board's guidelines.

Overall, Ohio already has a strong collaborative stroke system of care. Since June 2007, the Ohio Department of Health, in collaboration with the vast majority of hospitals across the state, has received grant funding from the Paul Coverdell National Acute Stroke Program from the Centers for Disease Control (CDC). This project has targeted improvements in care during the entire stroke continuum of care (pre- to post-hospitalization). During the last two years, the focus has been on EMS education and EMS pre-notification of suspected stroke patients to the receiving emergency department, and Ohio is above the national average with EMS pre-notification.

Stroke care has many regional differences across the nation, and stroke care in Ohio has evolved to the point where the majority of the population are within a 30 minute drive of a “stroke capable” hospital. Almost every hospital (and many free-standing emergency departments) in the state of Ohio has a telemedicine or telestroke program where citizens of Ohio are evaluated by a stroke specialist and receive time sensitive clot busting medication treatment quickly.

OSUWMC is the hub for the OSU Telestroke Network, which delivers Ohio State’s critical stroke expertise into 28 hospitals in rural areas of Ohio. Patients who present to an emergency department with stroke symptoms in our telestroke network are evaluated and treated by OSUWMC stroke expert physicians 24/7 via high-quality bidirectional audiovisual technology within minutes. This service is provided at no cost to our partner hospitals. Patients are medically stabilized, treated with clot busting medications, and for those who are determined to require an advanced level of care, a transfer to Ohio State’s Stroke Center is arranged, typically by air flight.

The goals of the Telestroke Network are to:

- Increase access to advanced stroke care in underserved regions of Ohio
- Improve EMS response and recognition of stroke signs and symptoms
- Enhance quality and efficiency within the healthcare system
- Increase the rate of the clot-busting medication treatment for stroke patients and improve the time to treatment

While we recognize the importance of getting the right treatment at the right time, the Ohio State telestroke network already successfully does this. Community and rural hospitals affiliated with a verified stroke center should not be bypassed as they can administer, under consultation with our Stroke Center, extremely time-critical clot busting medications. As the administration of clot busting medications can be done at most hospitals in Ohio with telemedicine support, the motivation for some to suggest that EMS should bypass hospitals arises from the argument of improving care for the subset of stroke caused by large vessel occlusion (LVO), which can be treated up to 24 hours after the time of patient's last known normal by performing a mechanical thrombectomy.

However, efficient and effective stroke care has many complexities that need to be considered. That is why we strongly support a change Senator Antonio and former Senator Eklund included in the stroke legislation they developed last year, which has been replicated in Senate Bill 21. The bill as originally considered last year would have required training in the assessment of LVO. It is important to recognize that implementing requirements with the intent of improving care for a small subset of stroke patients without robust evidence may inadvertently pose barriers or reduce the quality of stroke medical care for the majority of stroke patients.

That training requirement has been changed to include training of EMS personnel in assessment of stroke severity. This is a critical legislative change included in SB 21 that we support.

Firstly, the subset of strokes caused by LVO is small. Per the PLUMBER study (Dozois A et al. Stroke 2017), the rate of LVO acute ischemic stroke in the total EMS population screened for stroke is extremely low (4.87%). Any stroke legislation should aim to benefit all stroke patients and not a small fraction of potential patients.

Secondly, the data supporting the benefit of bypass comes from computer models that do not take into consideration real-world conditions. As LVO strokes represent the most severe type of stroke, this subset of stroke is at higher risk of medical instability

and up to 20% may require intubation (OSUMC internal data). Therefore, the risk of prolonged transport times of even the subset of LVO stroke patients may potentially have an adverse effect that is not being considered.

Thirdly, bypassing a stroke capable hospital would mean delay in CT scan and delay in accurate diagnosis of the stroke type (hemorrhage versus ischemic), which have divergent medical management, including different blood pressure goals. As it is not possible to distinguish hemorrhagic from ischemic stroke without a CT scan, hemorrhagic strokes inadvertently subjected to bypass would have delay in diagnosis and potentially life-saving emergency surgery in the setting of hemorrhagic stroke.

Fourthly, transport delay for bypass would mean delay to treatment with the clot busting medication for ischemic stroke patients, which itself is a time sensitive treatment (meaning it works better the earlier you give it). Studies have shown that early administration of clot busting medication may open an LVO in up to 33% of LVOs, thereby making thrombectomy unnecessary for up to one-third of LVO patients (Seners P et al. Stroke 2016).

Lastly, responsible resource utilization is of paramount importance for the community. Instituting bypass at the level of EMS would mean a large number of patients would be bypassed unnecessarily to a comprehensive center and would translate to decrease volumes in community hospitals without clear benefit. In summary, pursuing bypass of a nearby stroke-capable hospital for the sake of LVO would come at a real cost in pursuit of a theoretical benefit of a faster time to thrombectomy procedure for which the majority of stroke patients will not be eligible.

Ohio should keep stroke care local as possible. Early treatment is critical and minutes matter. For most strokes safe and effective care can be provided at the local level through collaboration with a telestroke program. This is better for the patient and family, expedites care that influences outcome, and lowers cost.

We also have two recommended additions for SB 21.

First, while we appreciate the list of organizations and providers that have been included for consultation as the state guidelines are developed, we believe that all interested parties should have the opportunity to engage in the process. Therefore, we recommend that the State Board make the draft guidelines available for public comment before finalizing them.

Further, we recommend a clarification of the training requirements of the legislation. Among the State Board's current key roles are establishing training and certification standards for EMS personnel and accreditation of EMS training programs. In addition the State Board establishes continuing education requirements for EMS personnel.

As introduced, SB 21 would require the medical director or cooperating physician advisory board of each emergency medical service organization to provide periodically to its emergency medical service personnel training in the assessment and treatment of stroke patients. The training in the bill shall address assessment of stroke severity. We believe this responsibility more appropriately lies with the State Board.

We suggest that this provision be altered to require current State Board-mandated continuing education of EMS personnel to include additional training in:

1. Assessment of stroke patients signs including balance, eyes, face drooping, arm weakness, and speech difficulty; and
2. Education regarding hemorrhagic and ischemic strokes, including the assessment of stroke severity.

Thank you for your consideration of our concerns. We would be pleased to work with the bill's sponsors and members of the committee regarding stroke care in Ohio.