Journal report – říjen 2024

OBSAH

1: Kirigaya J, Matsuzawa Y, Kosuge M, Abe T, Iwahashi N, Terasaka K, Kondo H, Matsushita K, Gohbara M, Okada K, Konishi M, Ebina T, Sugano T, Hibi K. **High Detectability of Prehospital 12-Lead Electrocardiogram in Diagnosing Spasm-Induced Acute Coronary Syndrome.** Circ J. 2024 Oct 25;88(11):1800-1808. doi:10.1253/circj.CJ-24-0485. Epub 2024 Sep 20. PMID: 39313393.

2: Agarwal G, Pirrie M, Angeles R, Marzanek F, Paterson JM, Nguyen F, Thabane L. **Community Paramedicine Program in Social Housing and Health Service Utilization: A Cluster Randomized Clinical Trial.** JAMA Netw Open. 2024 Oct 1;7(10):e2441288. doi: 10.1001/jamanetworkopen.2024.41288. PMID: 39466243.

3: Aldabbour B, AbuNemer A, Alfarra MG, Aldabbour O, Abu Zaydah Y, Abuzaid H, Sammour AA, Elamassie S, Yassin A. **ER and doctors' preparedness to manage status epilepticus: a multi-institutional survey from the Gaza Strip.** BMC Health Serv Res. 2024 Oct 23;24(1):1274. doi: 10.1186/s12913-024-11792-5. PMID: 39444030; PMCID: PMC11515649.

4: McMullan JT, Droege CA, Chard KM, Otten EJ, Hart KW, Lindsell CJ, Strilka RJ. **Out-of-Hospital Intranasal Ketamine as an Adjunct to Fentanyl for the Treatment of Acute Traumatic Pain: A Randomized Clinical Trial.** Ann Emerg Med. 2024 Oct;84(4):363-373. doi: 10.1016/j.annemergmed.2024.04.018. Epub 2024 Jun 12. PMID: 38864781.

PREHOSPITAL CARE

– systematic review & meta-analysis

1: Tahernejad A, Makki F, Rezaei E, Marzban H, Tahernejad S, Sahebi A. **Musculoskeletal disorders in emergency medical services personnel: a systematic review and meta-analysis.** Public Health. 2024 Oct 3;237:107-115. doi: 10.1016/j.puhe.2024.08.020. Epub ahead of print. PMID: 39366277.

2: Martin-Gill C, Patterson PD, Richards CT, Misra AJ, Potts BT, Cash RE; Prehospital Guidelines Consortium. **2024 Systematic Review of Evidence-Based Guidelines for Prehospital Care.** Prehosp Emerg Care. 2024 Oct 7:1-15. doi: 10.1080/10903127.2024.2412299. Epub ahead of print. PMID: 39373357.

3: Zhang K, Zhong C, Lou Y, Fan Y, Zhen N, Huang T, Chen C, Shan H, Du L, Wang Y, Cui W, Cao L, Tian B, Zhang G. **Video laryngoscopy may improve the intubation outcomes in critically ill patients: a systematic review and meta-analysis of randomised controlled trials.** Emerg Med J. 2024 Oct 2:emermed-2023-213860. doi: 10.1136/emermed-2023-213860. Epub ahead of print. PMID: 39358006.

4: Mbutiwi FIN, Yapo APJ, Toirambe SE, Rees E, Plouffe R, Carabin H. **Sensitivity and specificity of International Classification of Diseases algorithms (ICD-9 and ICD-10) used to identify**

opioid-related overdose cases: A systematic review and an example of estimation using Bayesian latent class models in the absence of gold standards. Can J Public Health. 2024 Oct;115(5):770-783. doi: 10.17269/s41997-024-00915-4. Epub 2024 Jul 31. PMID: 39085747.

5: Aroor SR, Zevallos CB, Asif KS, Singh N, Potter-Vig J, Rodriguez-Calienes A, Menon BK, Ganesh A, Saver JL, Kamel H, Alexandrov AW, Jauch EC, Miao Z, Huo X, Ramakrishnan P, Desai SM, Limaye K, El-Ghanem M, Toth G, Rao CV, Masoud HE, Wang QT, Herial NA, Atchaneeyasakul K, Szeder V, Amuluru K, Urrutia VC, Al-Mufti F, Yavagal DR, Ortega-Gutierrez S. **Mechanical Thrombectomy Access Score: A Systematic Review and Modified Delphi of Global Barriers to Endovascular Therapy.** Stroke. 2024 Oct 25. doi: 10.1161/STROKEAHA.124.047805. Epub ahead of print. PMID: 39450508.

Journal report – říjen 2024

PREHOSPITAL CARE

– clinical trials & RCT & multicenter study –

1. Circ J. 2024 Oct 25;88(11):1800-1808. doi: 10.1253/circj.CJ-24-0485. Epub 2024 Sep 20.

High Detectability of Prehospital 12-Lead Electrocardiogram in Diagnosing Spasm-Induced Acute Coronary Syndrome.

Kirigaya J(1), Matsuzawa Y(2), Kosuge M(1), Abe T(3), Iwahashi N(4), Terasaka K(1), Kondo H(1), Matsushita K(1), Gohbara M(1), Okada K(1), Konishi M(4), Ebina T(1), Sugano T(1), Hibi K(4).

BACKGROUND: The importance of prehospital (PH) electrocardiograms (ECG) recorded by emergency medical services (EMS) for diagnosing coronary artery spasm-induced acute coronary syndrome (CS-ACS) remains unclear.

METHODS AND RESULTS: We enrolled 340 consecutive patients with ACS who were transported by EMS within 12 h of symptom onset. According to Japanese Circulation Society guidelines, CS-ACS (n=48) was diagnosed with or without a pharmacological provocation test (n=34 and n=14, respectively). Obstructive coronary artery-induced ACS (OC-ACS; n=292) was defined as ACS with a culprit lesion showing 99% stenosis or >75% stenosis with plaque rupture or thrombosis observed via angiographic and intravascular imaging. Ischemic ECG findings included ST-segment deviation (elevation or depression) and negative T and U waves. In CS-ACS, the prevalence of ST-segment deviation decreased significantly from PH-ECG to emergency room (ER) ECG (77.0% vs. 35.4%; P<0.001), as did the prevalence of overall ECG abnormalities (81.2% vs. 45.8%; P<0.001). Conversely, in OC-ACS, there was a similar prevalence on PH-ECG and ER-ECG of ST-segment deviations (94.8% vs. 92.8%, respectively; P=0.057) and abnormal ECG findings (96.9% vs. 95.2%, respectively; P=0.058). Patients with abnormal PH-ECG findings that disappeared upon arrival at hospital without ER-ECG or troponin abnormalities were more frequent in the CS-ACS than OC-ACS group (20.8% vs. 1.0%; P<0.001).

CONCLUSIONS: PH-ECG is valuable for detecting abnormal ECG findings that disappear upon arrival at hospital in CS-ACS patients.

DOI: 10.1253/circj.CJ-24-0485

PMID: 39313393 [Indexed for MEDLINE]

2. JAMA Netw Open. 2024 Oct 1;7(10):e2441288. doi: 10.1001/jamanetworkopen.2024.41288.

Community Paramedicine Program in Social Housing and Health Service Utilization: A Cluster Randomized Clinical Trial.

Agarwal G(1)(2), Pirrie M(1), Angeles R(1), Marzanek F(1), Paterson JM(1)(3), Nguyen F(3), Thabane L(2)(4).

Journal report – říjen 2024

IMPORTANCE: Community Paramedicine at Clinic (CP@clinic) is a chronic disease prevention program that decreases 911 calls for emergency medical services, but its wider system effects are unknown.

OBJECTIVE: To evaluate the effects of CP@clinic vs usual care on individual-level health service utilization outcomes.

DESIGN, SETTING, AND PARTICIPANTS: This open-label, pragmatic cluster randomized clinical trial evaluated all residents 55 years or older in 30 social housing buildings in Ontario, Canada, that had (1) a unique postal code, (2) at least 50 apartments, (3) 60% or more residents 55 years or older, and (4) a similar building for pairing (15 intervention and 15 control buildings, pair-matched randomization). The 12-month intervention had a staggered start date from January 1, 2015, to December 1, 2015, and ended between December 31, 2015, and November 30, 2016. Administrative health data analysis was conducted in May 2022.

INTERVENTION: CP@clinic was a health promotion and disease prevention program led by specially trained community paramedics who held weekly drop-in sessions in social housing buildings. These paramedics conducted 1-on-1 risk assessments, provided health education and referrals to relevant community resources, and, with consent, sent assessments to family physicians. Control buildings received usual care (universal health care, including free primary and specialty medical care).

MAIN OUTCOME AND MEASURES: Individual-level health service utilization was measured from administrative health data, with ED visits via ambulance as the primary outcome; secondary outcomes included ED visits for any reason, primary care visits, hospitalizations, length of hospital stay, laboratory tests, receipt of home care, transfer to long-term care, and medication initiation. Generalized estimating equations were used to estimate intervention effects on individual-level health service utilization, accounting for trial design and individual-level baselines.

RESULTS: The 30 social housing buildings had 3695 residents (1846 control and 1849 intervention participants; mean [SD] age, 72.8 [9.1] years; 2400 [65.0%] female). Intention-to-treat analysis found no significant difference in ED visits by ambulance (445 of 1849 [24.1%] vs 463 of 1846 [25.1%]; adjusted odds ratio [AOR], 0.97; 95% CI, 0.89-1.05) but found higher antihypertensive medication initiation (74 of 500 [14.8%] vs 47 of 552 [8.5%]; AOR, 1.74; 95% CI, 1.19-2.53) and lower anticoagulant initiation (48 of 1481 [3.2%] vs 69 of 1442 [4.8%]; AOR, 0.68; 95% CI, 0.53-0.86) in the intervention arm vs the control arm. CP@clinic attendance was associated with higher incidence of primary care visits (adjusted incidence rate ratio, 1.10; 95% CI, 1.03-1.17), higher odds of receiving home care (AOR, 1.07; 95% CI, 1.01-1.13), and lower odds of long-term care transfers (AOR, 0.32; 95% CI, 0.13-0.81).

CONCLUSIONS AND RELEVANCE: In this cluster randomized clinical trial of CP@clinic, the intervention did not affect the rate of ED visits by ambulance; however, there were increased primary care visits and connections to home care services, which may have increased antihypertensive medication initiation and reduced long-term care transfers from social

housing. Health policymakers should consider CP@clinic's impact as an upstream approach to improve care for older adults with low income.

TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT02152891.

DOI: 10.1001/jamanetworkopen.2024.41288

PMID: 39466243 [Indexed for MEDLINE]

3. BMC Health Serv Res. 2024 Oct 23;24(1):1274. doi: 10.1186/s12913-024-11792-5.

ER and doctors' preparedness to manage status epilepticus: a multi-institutional survey from the Gaza Strip.

Aldabbour B(1), AbuNemer A(2), Alfarra MG(2), Aldabbour O(2), Abu Zaydah Y(2), Abuzaid H(2), Sammour AA(2), Elamassie S(3), Yassin A(4).

BACKGROUND: Status epilepticus (SE) is a top neurological and medical emergency. Adequate staff knowledge and sufficient hospital resources are mandatory for timely management and better outcomes. This study aims to evaluate Palestinian ER doctors' knowledge and beliefs towards SE and assess the state and availability of hospital resources needed to manage SE appropriately.

METHODS: This cross-sectional study surveyed all ER doctors working in the six governmental hospitals in the Gaza Strip during June 2022. A questionnaire assessed the knowledge and beliefs toward SE and the practice of SE knowledge acquisition. Simultaneous field surveys determined the availability of essential medications and resources at each hospital and doctors' actual awareness about the status of these resources. Linear regression determined predictors of higher knowledge scores.

RESULTS: 137 doctors participated (response rate 81%). Most were males, had graduated within six years of data collection, and 45.3% worked at Shifa Medical Complex. 63.5% of participants recognized the correct operational definition of status epilepticus. 85.4 and 83.9% recognized that it might cause permanent brain damage or death, respectively. Only 10.9% recognized the average mortality rate of a single convulsive SE episode. 44.5% believed that awaiting spontaneous SE resolution is a valid approach to management. Significant defects were noted in the awareness of subclinical SE, including its recognition and prevalence in ciritcally ill patients. Having a higher qualification and graduating from local medical schools predicted higher scores. In field surveys, EEG was unavailable at all hospitals, while CT scans and a neurologist physician were unavailable at two hospitals. IV phenytoin was the only second-line treatment available at all hospitals. IV valproate and levetiracetam were universally unavailable.

CONCLUSIONS: The survey revealed significant defects in Palestinian ER doctors' knowledge and beliefs towards SE. Several hospitals also demonstrated a critical lack of resources to manage this condition appropriately. This should be addressed by the local health authorities to avoid potentially preventable SE-related mortality and morbidity.

DOI: 10.1186/s12913-024-11792-5

PMCID: PMC11515649

PMID: 39444030 [Indexed for MEDLINE]

4. Ann Emerg Med. 2024 Oct;84(4):363-373. doi: 10.1016/j.annemergmed.2024.04.018. Epub 2024 Jun 12.

Out-of-Hospital Intranasal Ketamine as an Adjunct to Fentanyl for the Treatment of Acute Traumatic Pain: A Randomized Clinical Trial.

McMullan JT(1), Droege CA(2), Chard KM(3), Otten EJ(4), Hart KW(5), Lindsell CJ(6), Strilka RJ(7).

STUDY OBJECTIVE: To evaluate if out-of-hospital administration of fentanyl and intranasal ketamine, compared to fentanyl alone, improves early pain control after injury.

METHODS: We conducted an out-of-hospital randomized, placebo-controlled, blinded, parallel group clinical trial from October 2017 to December 2021. Participants were male, aged 18 to 65 years, receiving fentanyl to treat acute traumatic pain prior to hospital arrival, treated by an urban fire-based emergency medical services agency, and transported to the region's only adult Level I trauma center. Participants randomly received 50 mg intranasal ketamine or placebo. The primary outcome was the proportion with a minimum 2-point reduction in self-described pain on the verbal numerical rating scale 30 minutes after study drug administration assessed by 95% confidence interval overlap. Secondary outcomes were side effects, pain ratings, and additional pain medications through the first 3 hours of care.

RESULTS: Among the 192 participants enrolled, 89 (46%) were White, (median age, 36 years; interquartile range, 27 to 53 years), with 103 receiving ketamine and 89 receiving placebo. There was no difference in the proportion experiencing improved pain 30 minutes after treatment (46/103 [44.7%] ketamine versus 32/89 [36.0%] placebo; difference in proportions, 8.7%; 95% confidence interval, -5.1% to 22.5%; P=.22) or at any time point through 3 hours. There was no difference in secondary outcomes or side effects.

CONCLUSION: In our sample, we did not detect an analgesic benefit of adding 50 mg intranasal ketamine to fentanyl in out-of-hospital trauma patients.

DOI: 10.1016/j.annemergmed.2024.04.018

PMID: 38864781 [Indexed for MEDLINE]

Journal report – říjen 2024

PREHOSPITAL CARE

– systematic review & meta-analysis –

1. Public Health. 2024 Oct 3;237:107-115. doi: 10.1016/j.puhe.2024.08.020.

Musculoskeletal disorders in emergency medical services personnel: a systematic review and meta-analysis.

Tahernejad A(1), Makki F(2), Rezaei E(2), Marzban H(2), Tahernejad S(2), Sahebi A(3).

OBJECTIVES: Emergency medical services personnel are frequently subjected to strenuous physical tasks, such as lifting and moving patients, as well as working in awkward postures. These activities can result in a variety of debilitating injuries, including musculoskeletal disorders (MSDs). As a result, this systematic review and meta-analysis study aimed to examine the frequency of MSDs among emergency medical services personnel.

STUDY DESIGN: Systematic review and meta-analysis.

METHODS: This systematic review and meta-analysis study was conducted based on the PRISMA guidelines. The protocol of this work is registered in PROSPERO with the code CRD42024506958. Searches were conducted without time limits in several databases including PubMed, Scopus, Web of Science, Science Direct, SID, ISC, and Google Scholar until February 12, 2024. The I2 index was used to assess heterogeneity, and random effects model was used for meta-analysis. Data were analyzed using STATA version 14.

RESULTS: A total of 709 articles were obtained by initial search in the mentioned databases. Following a thorough screening and quality assessment, 27 articles were chosen for meta-analysis. The findings revealed that the overall prevalence of MSDs among emergency medical services personnel is 56.52% (95% CI: 35-78.04, I2 = 99.8%, P < 0.001) and the prevalence in different areas of the body are as follows: the low back (47.38%), upper back (35.15%), neck (31.19%), shoulder (30%), knee (27.07%), hand (20.70%), hip/thigh (19.48%), feet (19.11%), and elbow (17.36%).

CONCLUSION: The prevalence of MSDs among emergency medical services personnel is very high. Considering the importance of the role of these employees and the specific risk factors of their jobs, it is recommended that periodic screening is prioritized. In addition, attention should be paid to the ergonomic evaluation of the work environment and the design of appropriate ergonomic interventions.

DOI: 10.1016/j.puhe.2024.08.020

PMID: 39366277

2. Prehosp Emerg Care. 2024 Oct 7:1-15. doi: 10.1080/10903127.2024.2412299.

2024 Systematic Review of Evidence-Based Guidelines for Prehospital Care.

Martin-Gill C(1), Patterson PD(1), Richards CT(2), Misra AJ(3), Potts BT(1), Cash RE(3); Prehospital Guidelines Consortium.

OBJECTIVES: Evidence-based guidelines (EBGs) are widely recognized as valuable tools to aggregate and translate scientific knowledge into clinical care. High-quality EBGs can also serve as important components of dissemination and implementation efforts focused on educating emergency medical services (EMS) clinicians about current evidence-based prehospital clinical care practices and operations. We aimed to perform the third biennial systematic review of prehospital EBGs to identify and assess the quality of prehospital EBGs published since 2021.

METHODS: We systematically searched Ovid Medline and EMBASE from January 1, 2021, to June 6, 2023, for publications relevant to prehospital care, based on an organized review of the literature, and focused on providing recommendations for clinical care or operations. Included guidelines were appraised using the National Academy of Medicine (NAM) criteria for high-quality guidelines and scored using the Appraisal of Guidelines for Research and Evaluation (AGREE) II Tool.

RESULTS: We identified 33 new guidelines addressing clinical and operational topics of EMS medicine. The most addressed EMS core content areas were time-life critical conditions (n = 17, 51.5%), special clinical considerations (n = 15, 45%), and injury (n = 12, 36%). Seven (21%) guidelines included all elements of the National Academy of Medicine (NAM) criteria for high-quality guidelines, including the full reporting of a systematic review of the evidence. Guideline appraisals by the Appraisal of Guidelines for Research and Evaluation (AGREE) II tool demonstrated modest compliance to reporting recommendations and similar overall quality compared to previously identified guidelines (mean overall domain score 67%, SD 12%), with Domain 5 ("Applicability") scoring the lowest of the six AGREE II domains (mean score of 53%, SD 13%).

CONCLUSIONS: This updated systematic review identified and appraised recent guidelines addressing prehospital care and identifies important targets for education of EMS personnel. Continued opportunities exist for prehospital guideline developers to include comprehensive evidence-based reporting into guideline development to facilitate widespread implementation of high-quality EBGs in EMS systems and incorporate the best available scientific evidence into initial education and continued competency activities.

DOI: 10.1080/10903127.2024.2412299

PMID: 39373357

3. Emerg Med J. 2024 Oct 2:emermed-2023-213860. doi: 10.1136/emermed-2023-213860.

Video laryngoscopy may improve the intubation outcomes in critically ill patients: a systematic review and meta-analysis of randomised controlled trials.

Zhang K(#)(1), Zhong C(#)(1), Lou Y(#)(1), Fan Y(1), Zhen N(1), Huang T(1), Chen C(1), Shan H(1), Du L(1), Wang Y(1), Cui W(1), Cao L(2), Tian B(2), Zhang G(2)(3).

BACKGROUND: The role of video laryngoscopy in critically ill patients requiring emergency tracheal intubation remains controversial. This systematic review and meta-analysis aimed to evaluate whether video laryngoscopy could improve the clinical outcomes of emergency tracheal intubation.

METHODS: We searched the PubMed, Embase, Scopus and Cochrane databases up to 5 September 2024. Randomised controlled trials comparing video laryngoscopy with direct laryngoscopy for emergency tracheal intubation were analysed. The primary outcome was the first-attempt success rate, while secondary outcomes included intubation time, glottic visualisation, in-hospital mortality and complications.

RESULTS: Twenty-six studies (6 in prehospital settings and 20 in hospital settings) involving 5952 patients were analysed in this study. Fifteen studies had low risk of bias. Overall, there was no significant difference in first-attempt success rate between two groups (RR 1.05, 95% CI 0.97 to 1.13, p=0.24, I2=89%). However, video laryngoscopy was associated with a higher first-attempt success rate in hospital settings (emergency department: RR 1.13, 95% CI 1.03 to 1.23, p=0.007, I2=85%; intensive care unit: RR 1.16, 95% CI 1.05 to 1.29, p=0.003, I2=68%) and among inexperienced operators (RR 1.15, 95% CI 1.03 to 1.28, p=0.01, I2=72%). Conversely, the first-attempt success rate with video laryngoscopy was lower in prehospital settings (RR 0.75, 95% CI 0.57 to 0.99, p=0.04, I2=95%). There were no differences for other outcomes except for better glottic visualisation (RR 1.11, 95% CI 1.03 to 1.20, p=0.005, I2=91%) and a lower incidence of oesophageal intubation (RR 0.42, 95% CI 0.24 to 0.71, p=0.001, I2=0%) when using video laryngoscopy.

CONCLUSIONS: In hospital settings, video laryngoscopy improved first-attempt success rate of emergency intubation, provided superior glottic visualisation and reduced incidence of oesophageal intubation in critically ill patients. Our findings support the routine use of video laryngoscopy in the emergency department and intensive care units.

PROSPERO REGISTRATION NUMBER: CRD 42023461887.

DOI: 10.1136/emermed-2023-213860

PMID: 39358006

4. Can J Public Health. 2024 Oct;115(5):770-783. doi: 10.17269/s41997-024-00915-4. Epub 2024 Jul 31.

Sensitivity and specificity of International Classification of Diseases algorithms (ICD-9 and ICD-10) used to identify opioid-related overdose cases: A systematic review and an example of estimation using Bayesian latent class models in the absence of gold standards.

Mbutiwi FIN(1)(2)(3)(4)(5), Yapo APJ(2), Toirambe SE(2), Rees E(1)(6)(7)(4), Plouffe R(7), Carabin H(8)(9)(10)(11).

OBJECTIVES: This study aimed to summarize validity estimates of International Classification of Diseases (ICD) codes in identifying opioid overdose (OOD) among patient data from emergency rooms, emergency medical services, inpatient, outpatient, administrative, medical claims, and mortality, and estimate the sensitivity and specificity of the algorithms in the absence of a perfect reference standard.

METHODS: We systematically reviewed studies published before December 8, 2023, and identified with Medline and Embase. Studies reporting sufficient details to recreate a 2 × 2 table comparing the ICD algorithms to a reference standard in diagnosing OOD-related events were included. We used Bayesian latent class models (BLCM) to estimate the posterior sensitivity and specificity distributions of five ICD-10 algorithms and of the imperfect coroner's report review (CRR) in detecting prescription opioid-related deaths (POD) using one included study.

RESULTS: Of a total of 1990 studies reviewed, three were included. The reported sensitivity estimates of ICD algorithms for OOD were low (range from 25.0% to 56.8%) for ICD-9 in diagnosing non-fatal OOD-related events and moderate (72% to 89%) for ICD-10 in diagnosing POD. The last included study used ICD-9 for non-fatal and fatal and ICD-10 for fatal OOD-related events and showed high sensitivity (i.e. above 97%). The specificity estimates of ICD algorithms were good to excellent in the three included studies. The misclassification-adjusted ICD-10 algorithm sensitivity estimates for POD from BLCM were consistently higher than reported sensitivity estimates that assumed CRR was perfect.

CONCLUSION: Evidence on the performance of ICD algorithms in detecting OOD events is scarce, and the absence of bias correction for imperfect tests leads to an underestimation of the sensitivity of ICD code estimates.

DOI: 10.17269/s41997-024-00915-4

PMID: 39085747 [Indexed for MEDLINE]

5. Stroke. 2024 Oct 25. doi: 10.1161/STROKEAHA.124.047805. Online ahead of print.

Mechanical Thrombectomy Access Score: A Systematic Review and Modified Delphi of Global Barriers to Endovascular Therapy.

Aroor SR(#)(1), Zevallos CB(#)(2), Asif KS(3), Singh N(4), Potter-Vig J(5), Rodriguez-Calienes A(6), Menon BK(7), Ganesh A(7), Saver JL(8), Kamel H(9), Alexandrov AW(10), Jauch EC(11), Miao Z(12), Huo X(13), Ramakrishnan P(14), Desai SM(15), Limaye K(16), El-Ghanem M(17), Toth G(18), Rao CV(19), Masoud HE(20), Wang QT(21), Herial NA(22), Atchaneeyasakul K(23), Szeder V(8), Amuluru K(24), Urrutia VC(25), Al-Mufti F(26), Yavagal DR(27), Ortega-Gutierrez S(2).

BACKGROUND: The availability of mechanical thrombectomy (MT) for acute ischemic stroke is limited, and vast disparities exist between countries. We aim to create a MT access score to measure the drivers of access to help quantify and accelerate treatment worldwide.

METHODS: We used a systematic review complemented by a modified Delphi method. In the first of 3 rounds, 4 independent investigators performed a systematic literature review using key search terms that drive MT access, following Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. In the second round, a panel of 6 anonymous international experts selected key attributes needed for scoring. In the final round, a total of 12 attributes were selected on consensus, each given a score on a 0 to 3 scale. An ultimate MT access score (range, 0-36) was proposed as a new tool to use in identifying barriers to MT access and assist in providing an initial framework for public health interventions.

RESULTS: Of 2864 abstracts screened, 121 studies were included in the final systematic review. A total of 34 attributes that potentially drive MT access were initially identified. In the final round, 12 attributes were selected by the expert panel: public awareness, emergency medical services transportation, prehospital large vessel occlusion screening, interhospital transfer policy, emergency department protocols, stroke imaging protocols, emergency department stroke expertise or telestroke availability, interventionalists, MT-capable centers, device availability, and insurance coverage. These attributes were weighted as part of the final score of 0 to 36.

CONCLUSIONS: The MT access score represents the first tool to quantify barriers to global MT access. Its implementation stands not just as an academic achievement but as a beacon of hope for improving stroke care and outcomes worldwide, bringing us a step closer to bridging the gap in stroke treatment disparities.

DOI: 10.1161/STROKEAHA.124.047805

PMID: 39450508