Supplement

Bull Emerg Trauma 2026;14(2):2-6.

Bulletin of Emergency And Trauma

Table S1. Main results of articles and reference guidelines entered in the review of the Minimum dataset for the prehospital stroke emergency dashboard.

Reference	First author	Publication year	Proposal of the study	Country	Data elements
[40]	Alijanpour *et al.,*	2025	Iranian Comprehensive Stroke Code Management Program (ICSCM) Phase II: Updated protocol for stroke code management in the prehospital setting	Iran	Stroke code activation, FAST assessment and stroke scale, blood glucose and blood pressure measurement, pre-notification to hospital, time of symptom onset, time of contact, time of arrival at scene, time of scene, time of transfer, transfer to appropriate stroke center, electronic documentation of times and actions
[32]	Hsieh *et al.,*	2021	Providing guidelines for prehospital management, emergency assessment, and treatment of acute ischemic stroke patients by the Taiwan Society of Emergency Medicine and the Taiwan Stroke Society	Taiwan	Time of symptom onset, assessment with CPSS or FAST scale, glucose and blood pressure measurement, pre-notification (stroke code activation), priority transfer to stroke center, airway management, response and transfer time, accurate documentation of times
[47]	Asadi *et al.,*	2021	A study of time indices of prehospital emergency services in Ardabil city, 2020	Iran	Time of activation, time of arrival at scene, time of scene, time of transfer to hospital, total time to hospital
[48]	Li *et al.,*	2021	A study of prehospital time intervals and management of ischemic stroke patients	United States	Time of symptom onset to emergency call, EMS response time, time of scene, time of transfer, total pre-hospital time, percentage of patients eligible for tPA, pre-hospital actions
[49]	Gaeeni *et al.,*	2021	A comparison of time indices and results of prehospital emergency operations in two electronic recording methods (ASAYAR program) and paper	Iran	Response time, time of arrival at the patient, time of scene, time of transfer, total mission time, accuracy, and completeness of data recording
[36]	Berenspöhler *et al.,*	2021	Identifying common data elements (Common Data Elements) for meaningful documentation of stroke in routine care and clinical research	Germany	Time of symptom onset, time of emergency call, time of arrival at scene, type of stroke, stroke severity (NIHSS), actions Prehospital (FAST assessment, blood glucose, blood pressure), pre-notification, transfer time
[69]	Choobi Anzali *et al.,*	2021	A study of the relationship between the time interval from the onset of stroke symptoms to emergency department visit, with patient demographic characteristics	Iran	Time from symptom onset to emergency call/arrival, demographic characteristics (age, sex, location), stroke type
[38]	Azami-Aghdash *et al.,*	2021	Developing quality indicators of prehospital emergency services for traffic injuries	Iran	Quality indicators: response time, time to scene, time to transfer, documentation of actions, protocol adherence (generalizable to stroke)
[37]	Gorchs-Molist *et al.,*	2020	Evaluating an online educational intervention to improve knowledge, compliance with pre-informative information, and time performance in the prehospital stroke code	Spain (Catalonia)	Time to stroke code activation, response time, time to scene, time to transfer, compliance with pre-notification, percentage of correct diagnosis, total time to hospital

Reference	First author	Publication year	Proposal of the study	Country	Data elements
[31]	Powers *et al.,*	2019	Providing an updated guide to early management of acute ischemic stroke patients (2018 update) by the American Heart Association/ American Stroke Association	United States	Time of symptom onset (last known well), stroke scale assessment (such as NIHSS or FAST), blood glucose measurement, blood pressure, pre-notification to hospital, rapid transfer to a stroke center capable of tPA/thrombectomy, avoidance of hypotension except in specific cases, key pre-hospital times
[44]	Howard *et al.,*	2019	Identifying quality indicators of prehospital emergency care services in low- to middle-income countries	South Africa	General quality indicators: response time, time to scene, time to transfer, compliance with clinical protocols, documentation, patient outcomes (generalizable to stroke)
[41]	Askari *et al.,*	2018	Developing performance evaluation indicators of prehospital emergency centers	Iran	Performance indicators: response time, Time to scene, transfer time, mission success rate, geographic coverage
[46]	Yadollahi *et al.,*	2018	Investigating time indicators of prehospital emergency services in Shahrekord County	Iran	Response time (from call to arrival), time on scene, time to hospital transfer, total mission time
[70]	Sabouri *et al.,*	2017	Evaluating performance indicators of prehospital emergency care in Birjand	Iran	Time performance indicators: response time, time on scene, time to transfer, mission outcomes
[39]	Bahadori *et al.,*	2016	Systematic review of the status of prehospital emergency care in Iran	Iran	Overall system indicators: response time, time on scene, time to transfer, number of sites, equipment, personnel
[42]	Oostema *et al.,*	2014	Evaluating the quality of prehospital ischemic stroke care: adherence to guidelines and impact on hospital response	United States	Guideline adherence (blood glucose, stroke assessment, pre-notification), time on scene, time to transfer, percentage of patients with onset time <3-4.5 hours, transfer to stroke center
[43]	Aghababaeian *et al.,*	2014	Investigating the causes, time indicators, and outcomes of pediatric prehospital emergency missions in centers affiliated with Dezful University of Medical Sciences (2011-2012)	Iran	Response time, time on scene, time to transfer, mission causes, mission outcomes (focus on children; indirectly related, generalizable to general time indicators)
[71]	Saver *et al.,*	2012	Standardizing the structure of stroke research data by the NINDS Stroke Common Data Element (CDE)	United States	Common elements of stroke standard: time of symptom onset, time of EMS contact, pre-hospital measures, type and severity of stroke, pre-notification, key pre-hospital times
[45]	Nasiripur *et al.,*	2010	Investigating prehospital emergency care performance in Iran from the perspective of a comprehensive coverage plan	Iran	Overall performance: response time, population coverage, number of missions, equipment, and personnel
[72]	Mant	2001	Comparing process indicators versus outcome indicators in assessing the quality of health care	England	Differentiation Process (e.g., prehospital times) and outcome (e.g., mortality or disability after stroke) indicators
[73]	Donabedian	2005 (1966)	Evaluating the quality of medical care (Framework, Structure, Process, Outcome)	United States	Overall quality framework: process (response time, protocol adherence) and outcome (patient survival, complications) indicators for emergency services

Table S2. List of deleted data elements in the designed Minimum dataset required to develop a prehospital stroke emergency dashboard.

Category	Subcategory	Section	Data elements	CVR	I-CVI	Reason for non-acceptability
Administrative Data	Identification and Mission	Patient Information	Father name	0.42	0.58	Low relevance in acute prehospital identification; mobile number sufficient
			Landline number	0.33	0.50	Declining use in mobile-dominant Iran; low priority for time-critical dashboard
		Dispatch Team	Field of study	0.50	0.67	Not required for real-time mission tracking or clinical decision-making
	Structural and Logistics	Equipment	Handheld wireless	0.58	0.75	Redundant within the broader communication infrastructure
			fixed wireless	0.42	0.58	Overlaps with handheld and station-based systems
			115 line and active station	0.50	0.67	Infrastructure metadata; not patient- or mission-specific data
			CA automatic call	0.25	0.42	Specific proprietary feature; not essential or universally available
			computer and accessories	0.33	0.50	General IT equipment; low stroke-specific relevance
			fax	0.17	0.33	Largely obsolete in modern EMS communication
			internet	0.42	0.58	Connectivity infrastructure; not a direct data element
			battery-powered radio for emergencies	0.50	0.67	Backup system; not core for routine stroke missions
			VOIP phone	0.33	0.50	Redundant with mobile and satellite options
			mobile phone	0.58	0.75	Consolidated under general communication equipment
			satellite phone	0.25	0.42	Rare deployment in standard Iranian EMS; high cost/low utility
			Support Base	0.42	0.58	Non-essential mechanical accessory for stroke cases
			Splints	0.33	0.50	Trauma-oriented; minimal relevance to acute ischemic/hemorrhagic stroke
			Long Back Board	0.25	0.42	Spinal immobilization device; not indicated in routine stroke protocol
			KED	0.17	0.33	Extrication tool; irrelevant to prehospital stroke management
			Traction Splint	0.08	0.25	Orthopaedic-specific; no role in stroke dashboard

Category	Subcategory	Section	Data elements	CVR	I-CVI	Reason for non-acceptability
Clinical Data	Vital Signs and Clinical Findings	Accompanying Symptoms	Weakness and Lethargy	0.50	0.67	Non-specific; already captured via FAST motor assessment
			Slurred speech	0.58	0.75	Duplicate of FAST speech impairment item
			Vomiting	0.42	0.58	Common but low specificity for stroke screening
			Headache	0.50	0.67	More suggestive of hemorrhagic subtype; not minimal for all cases
			Change in breathing pattern	0.33	0.50	Secondary/late sign; not core for initial field assessment
			High or low blood pressure	0.42	0.58	Redundant with continuous BP monitoring
			Hemiparesis, paraplegia	0.50	0.67	Overlaps with FAST arm/leg motor assessment
			Quadriplegia	0.25	0.42	Rare in acute stroke; low relevance for prehospital dashboard
			Emergence of new symptoms	0.33	0.50	Too vague and non-standardizable for consistent data collection
		Medical history	Previous seizure	0.42	0.58	Differential diagnosis factor; not essential for minimal stroke activation
			History of cardiovascular surgery,	0.50	0.67	Broad and non-specific; exceeds minimal prehospital focus.
			Aneurysm,	0.33	0.50	Specific risk: low priority in acute field data
			Intracerebral hemorrhage	0.42	0.58	Prior event; not routinely collected prehospital
			Presence of trigger or associated activity	0.25	0.42	Difficult to define/collect reliably in an emergency setting
			Drug withdrawal	0.33	0.50	Mimic condition; low evidence for routine inclusion
			Stress	0.17	0.33	Non-specific and subjective trigger
			Bath	0.08	0.25	Cultural/context-specific; minimal scientific support
			Physical activity	0.25	0.42	Potential trigger; not essential for dashboard
			Drugs	0.33	0.50	Risk/mimic factor; excluded to keep MDS minimal
	Outcome and Final Diagnosis	Quality of prehospital care	The number of personnel to the number of missions	0.50	0.67	Operational staffing KPI; not core patient-level data for the stroke dashboard
			The ratio of missions to a thousand people per year	0.42	0.58	Epidemiological/population metric; beyond immediate prehospital scope
			The number of personnel to the number of ambulances	0.33	0.50	Resource allocation ratio; indirect to clinical quality
			The average working hours of personnel per month	0.25	0.42	Workload indicator; not directly linked to stroke outcome measures

Table S3. Comparing the systems/dashboards against the proposed Iranian MDS.

Study/Author (Year)	System/Dashboard	Scope	Purpose	Key Similar Elements (retained in Iranian MDS)	Key Differences/ Exclusions (and rationale for Iranian MDS)
Rampishe *et al.,* (2020)	Standardised MDS for stroke health data management	Broader stroke care across settings (not prehospital-only)	Address data inconsistencies and improve interoperability	Administrative (patient identity, EMS mission), clinical (initial assessment, stroke screening scales, vital signs), key time metrics (dispatch, scene arrival, transfer)	Insurance details and extensive medical history omitted
Le *et al.,* (2022)	CDC interactive dashboard for cardiovascular mortality and stroke	County-level epidemiological trends	Visualise long-term mortality patterns by age, race/ ethnicity, sex	Outcome indicators (mortality, disability) for EMS feedback and spatiotemporal monitoring	Broad epidemiological data (long-term geographic trends, racial disparities) were omitted
Matsumoto *et al.,* (2019)	Task Calc. Stroke (TCS) app (hexagonal real-time dashboard)	Real-time hospital and prehospital task tracking	Reduce communication burden with colour-coded timers and progress visualisation.	Key time indicators (task processing time), basic treatment alerts (thrombolysis)	Individual patient history analysis and advanced imaging integration were omitted.
Kitzman *et al.,* (2018)	Kentucky Appalachian Stroke Registry (KApSR)	Rural stroke registry (demographic, clinical, outcome)	Quality assessment and disparity analysis in underserved areas	Identity data, initial assessment (NIHSS), outcome indicators (mortality, IV-tPA)	Patient volume, length of stay, and rural–urban disparity analysis omitted
Dixon *et al.,* (2016)	Pulsara Stop Stroke© app	Prehospital digital coordination app	Reduce door-to-needle time through team alerts	Prenotification, stroke screening (FAST), time indicators	Advanced digital features (image sharing, real-time team messaging) omitted
American Heart Association (ongoing)	Get With The Guidelines-Stroke (GWTG-Stroke)	Comprehensive stroke registry (27 prehospital elements)	National performance improvement and quality benchmarking	All core time-based indicators (dispatch, arrival, scene time, transport), prenotification, blood glucose, vital signs (BP, GCS, oxygenation), stroke screening (FAST/CPSS)	Prehospital EKG, prior antiplatelet medication details, 90-day mRS follow-up omitted