Update on STEMI, Stroke, Sepsis and Other Initiatives

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MHCA President

MISSISSIPPI HEALTHCARE ALLIANCE

NEUROCARDIO CME CONFERENCE

April 27, 2024

2009

MHCA was founded in August 2009 with 5 Hospitals with the mission to improve the health status of Mississippians. MHCA's vision was to unite stakeholders and align efforts that reduce morbidity, mortality, and cost associated with problematic disease process that plague our community.

2010

MHCA established the **STEMI System of Care.** The North, Central and South Regions were created to help coordinate and improve the quality of care delivered to STEMI patients, reducing related mortality and morbidity. The SOC was adopted by the Mississippi Department of Health **(MSDH)** in 2011.

2013

MHCA established the **Stroke System of Care**, that was adopted by the MSDH. The Stroke SOC was divided into the three regions to help unite local area stakeholders provide timely diagnosis and treatment to decrease mortality and morbidity in Mississippi.

2024

MHCA has grown into an interdisciplinary team across the State of Mississippi, including numerous EMS agencies, STEMI Receiving Hospitals, and Stroke Hospitals. Our continued efforts to provide education for healthcare professionals and communities, offer funding for quality registries, and our strategic partnerships with the American Heart Association®, American College of Cardiology®, myCares™, and the MSDH are rooted in our mission established in 2009.

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STEMI System of Care

Adopted by MSDH 2011

- STEMI Receiving Centers are designated by site visits or by reciprocity
- STEMI Receiving Centers collect and submit data to the ACC/NCDR Chest Pain-MI Registry™
- STEMI PI Committee Review Key Metrics from ACC/NCDR Chest Pain-MI Registry™ Executive Dashboard

PI and Advisory Committees

Designation Criteria

Process Improvement

Data Collection

STEMI Network (24/7) PCI Centers

Columbus: Baptist Memorial Hospital Golden Triangle

Corinth: Magnolia Regional Health Center

Olive Branch: Methodist Olive Branch

Oxford: Baptist Memorial Hospital North MS

Southaven: Baptist Memorial Hospital DeSoto

Tupelo: North MS Medical Center

Flowood: Merit Health River Oaks

Greenville: Delta Health - The Medical Center

Jackson: Mississippi Baptist Medical Center, St. Dominic's, University of Mississippi Medical Center

Meridian: Anderson Regional Medical Center

Vicksburg: Merit Health River Region

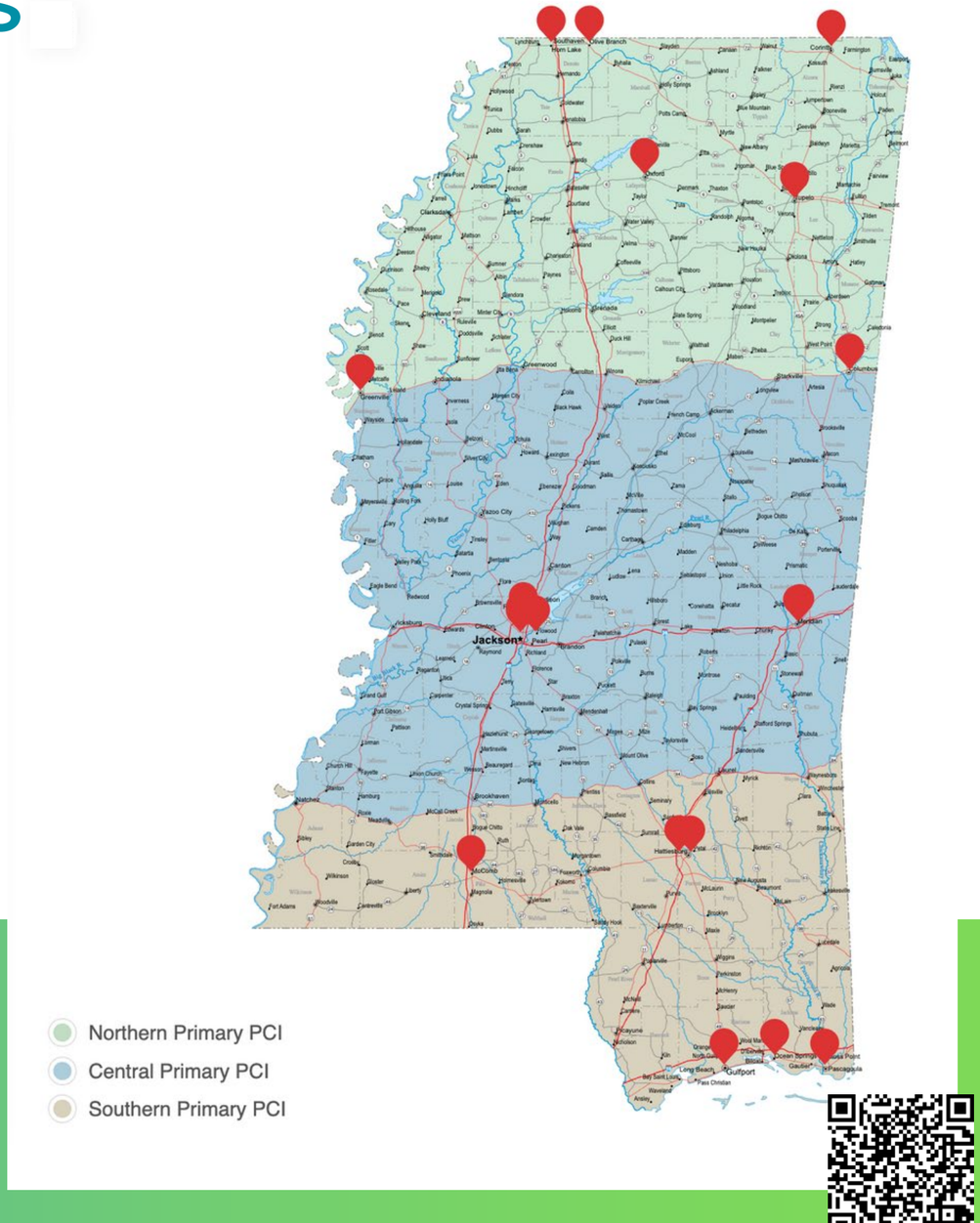
Gulfport: Memorial Hospital Gulfport, Singing River Gulfport

Hattiesburg: Forrest General Hospital, Merit Health Wesley

McComb: Southwest MS Regional Medical Center

Ocean Springs: Ocean Springs Hospital - Singing River Health System

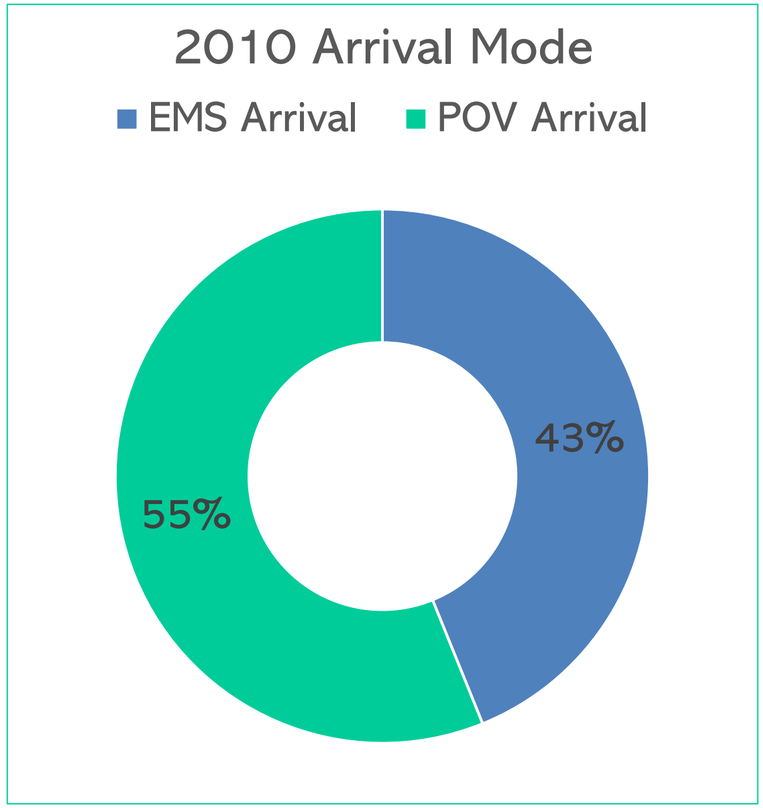
Pascagoula: Pascagoula Hospital - Singing River Health System

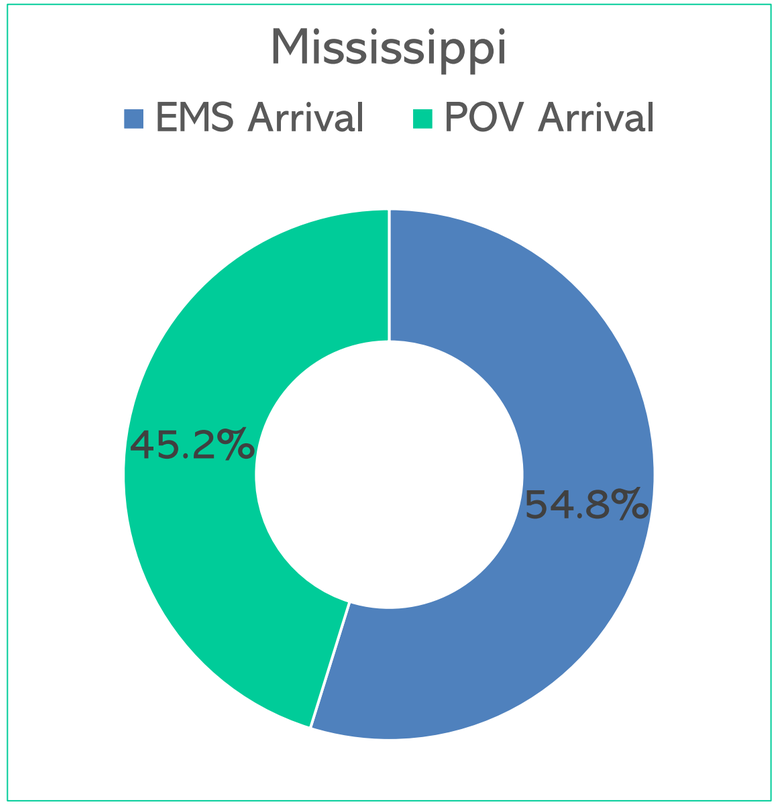


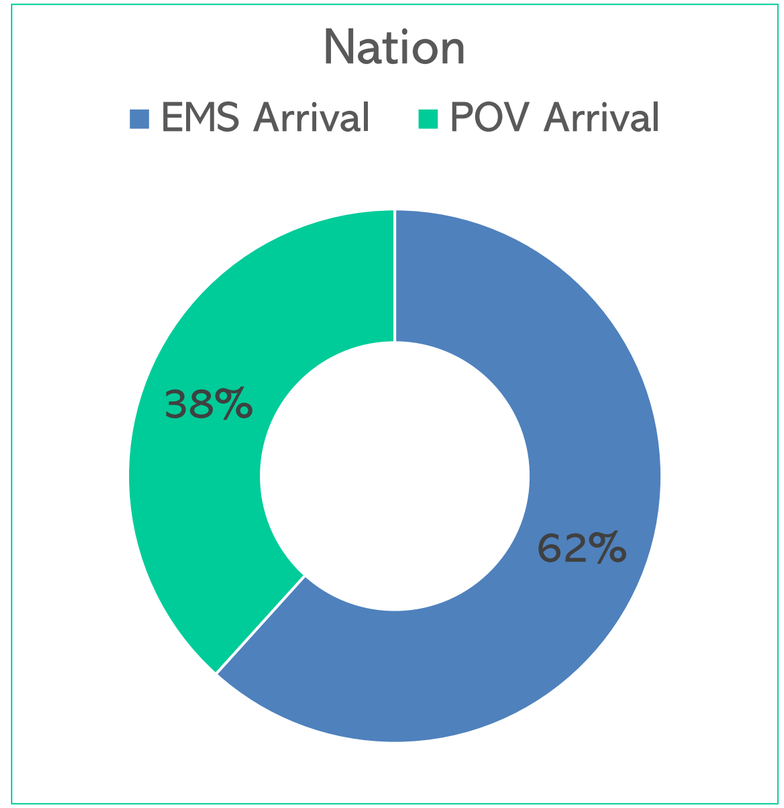
STEMI PATIENTS: ARRIVAL MODE

MEASURED BY PERCENTAGE

3Q2023 ROLLING 4Q







Metric 8898

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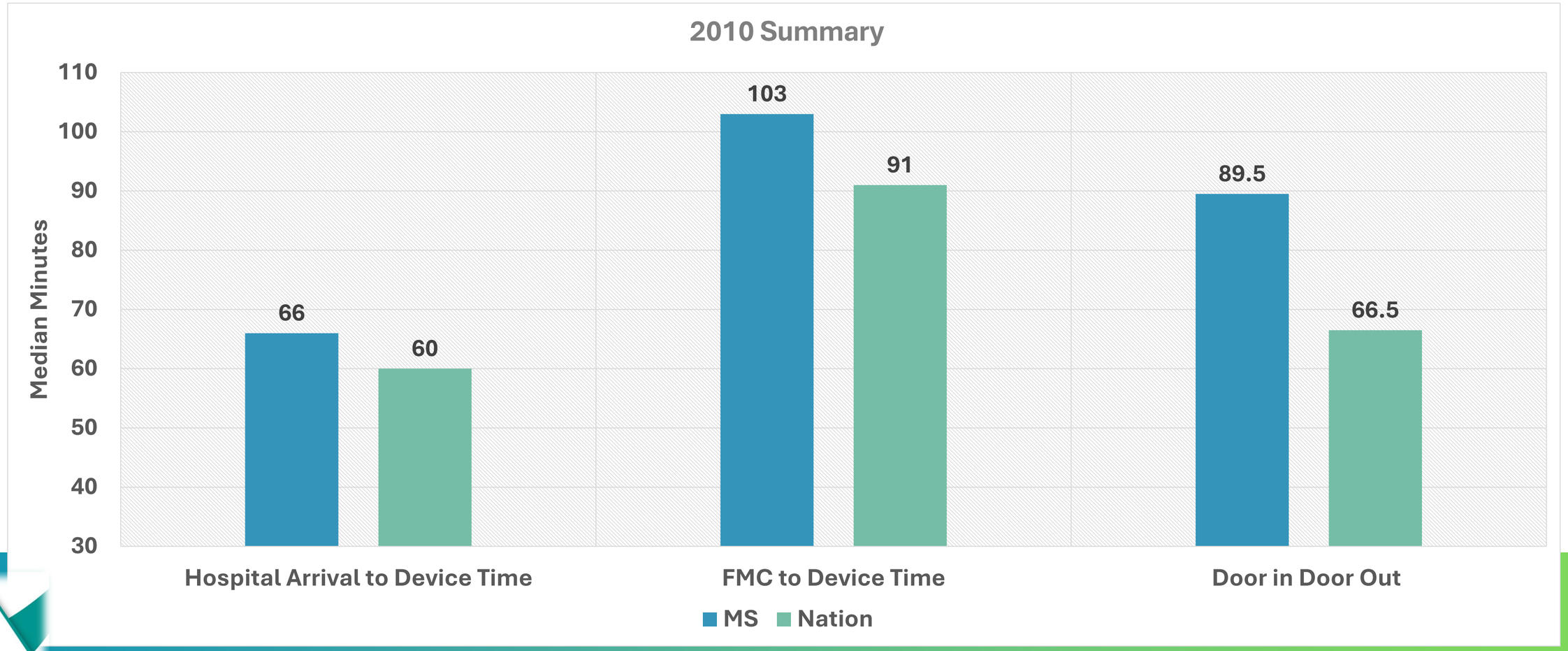
Data collected from NCDR Chest Pain-MI® Registry
Report pulled 1.15.24

STEMI: 2010 DATA SUMMARY

MEASURED IN MEDIAN MINUTES
STEMI SOC IMPLEMENTED 2011



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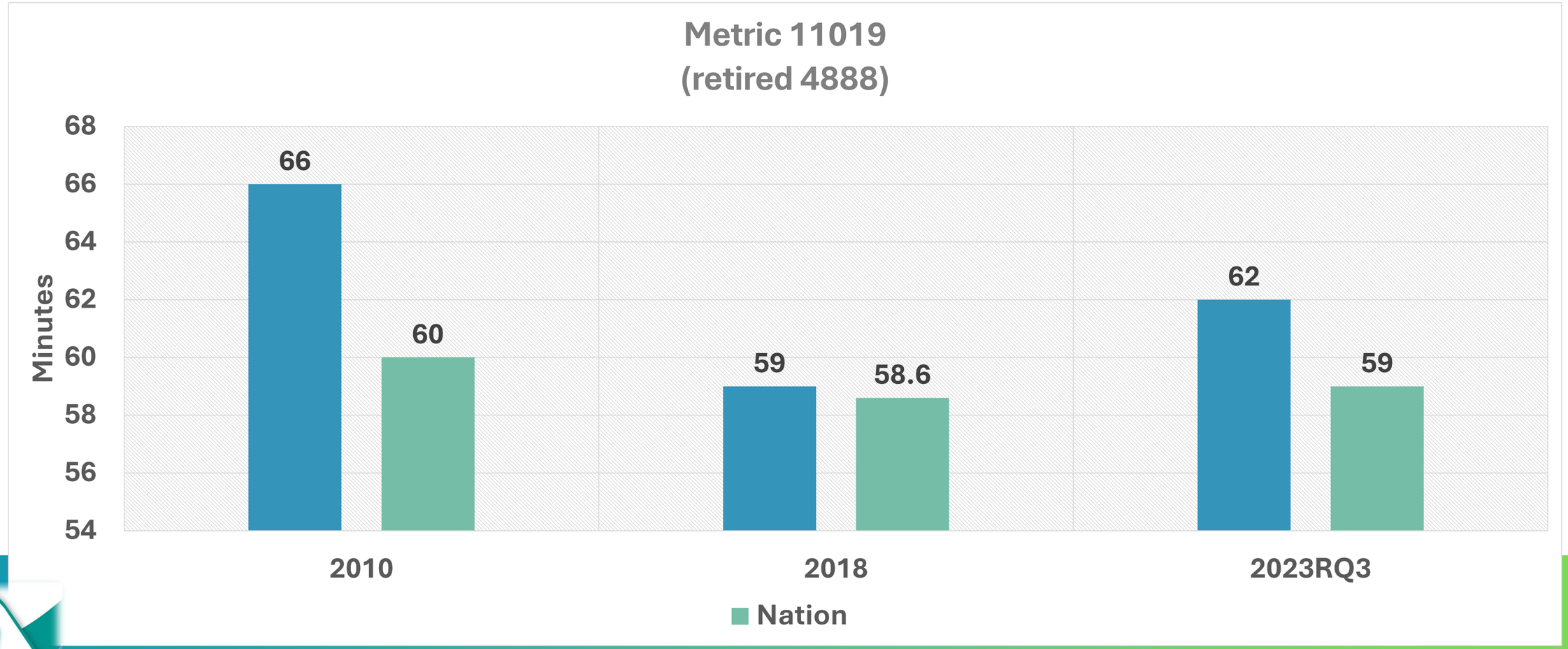
HOSPITAL ARRIVAL TO DEVICE TIME
EMS AND POV PATIENTS

MEASURED IN MEDIAN MINUTES
GOAL: ≤ 90 MIN.



Data Source: Mission Lifeline and CP-MI Registry. 4.8.24

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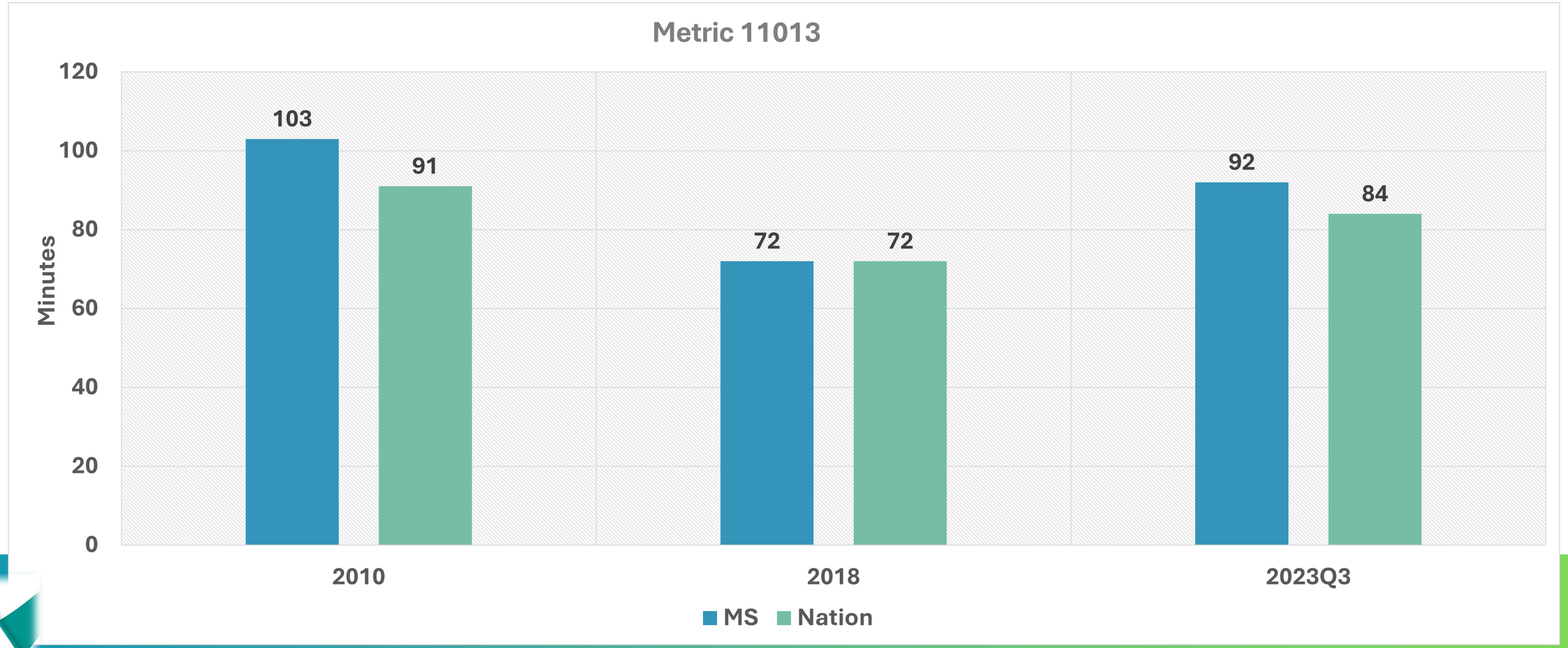
MEDIAN TIME OF FMC TO DEVICE TIME
EMS PATIENTS
MEASURED BY MEDIAN MINUTES
GOAL: ≤90 MIN.



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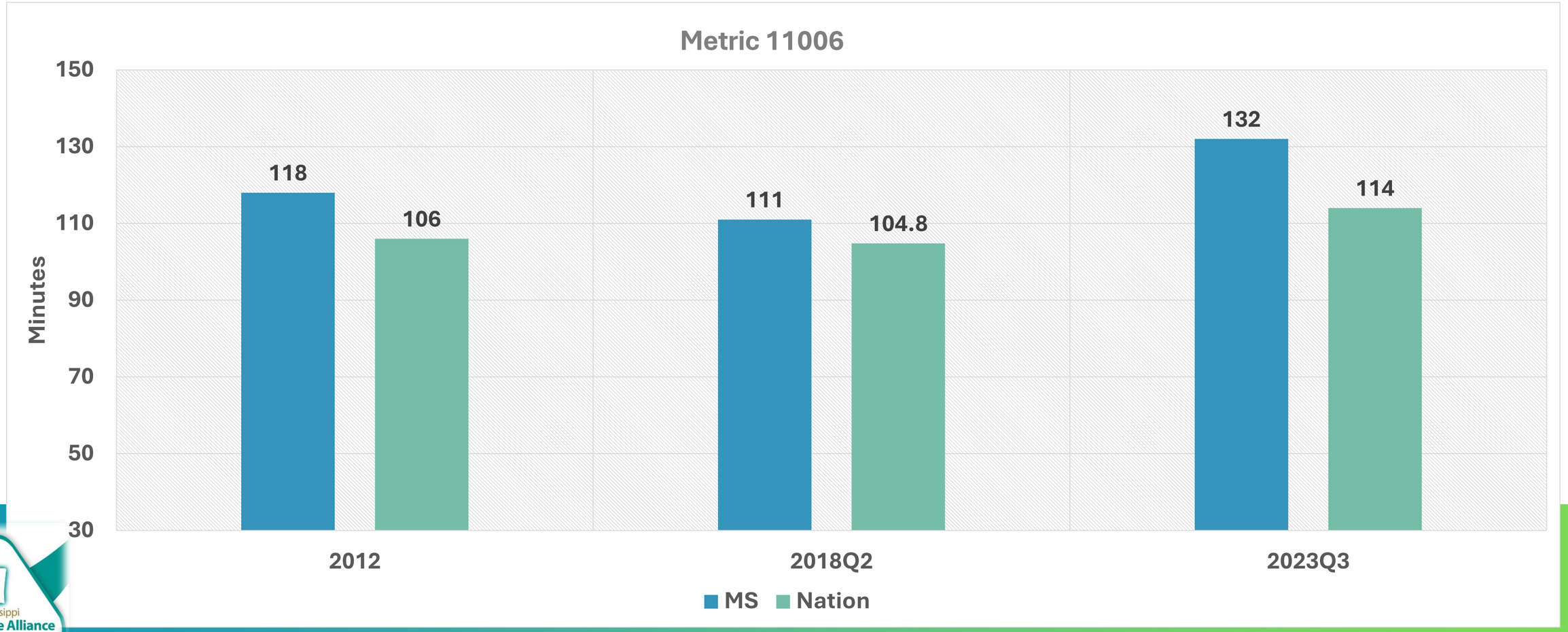
Data Source: Mission Lifeline and CP-MI Registry. 4.8.24

FIRST FACILITY ED ARRIVAL TO DEVICE TRANSFERRED STEMI PATIENTS

MEASURED IN MEDIAN MINUTES
GOAL: ≤120 MIN.



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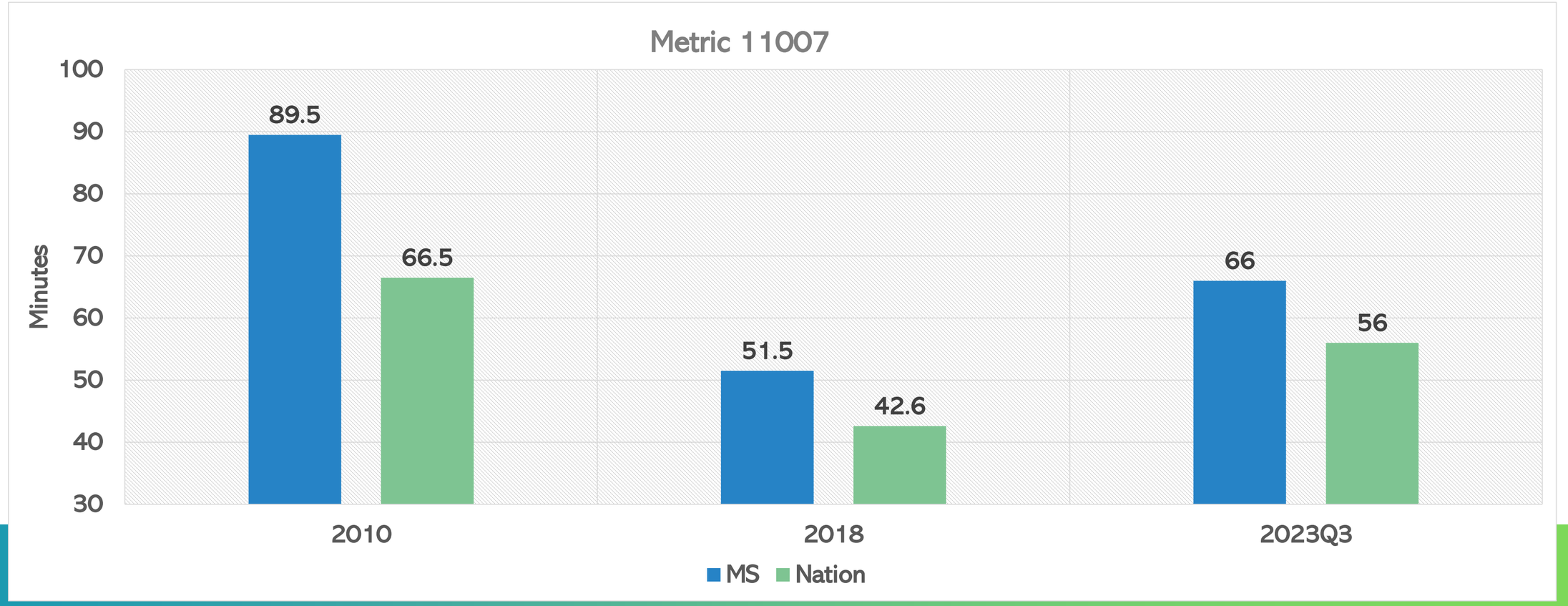
Data Source: Mission Lifeline and CP-MI Registry. 4.8.24

FIRST FACILITY ED ARRIVAL TO TRANSFER OUT: DIDO

MEASURED IN MEDIAN MINUTES
GOAL: ≤ 45 MIN.



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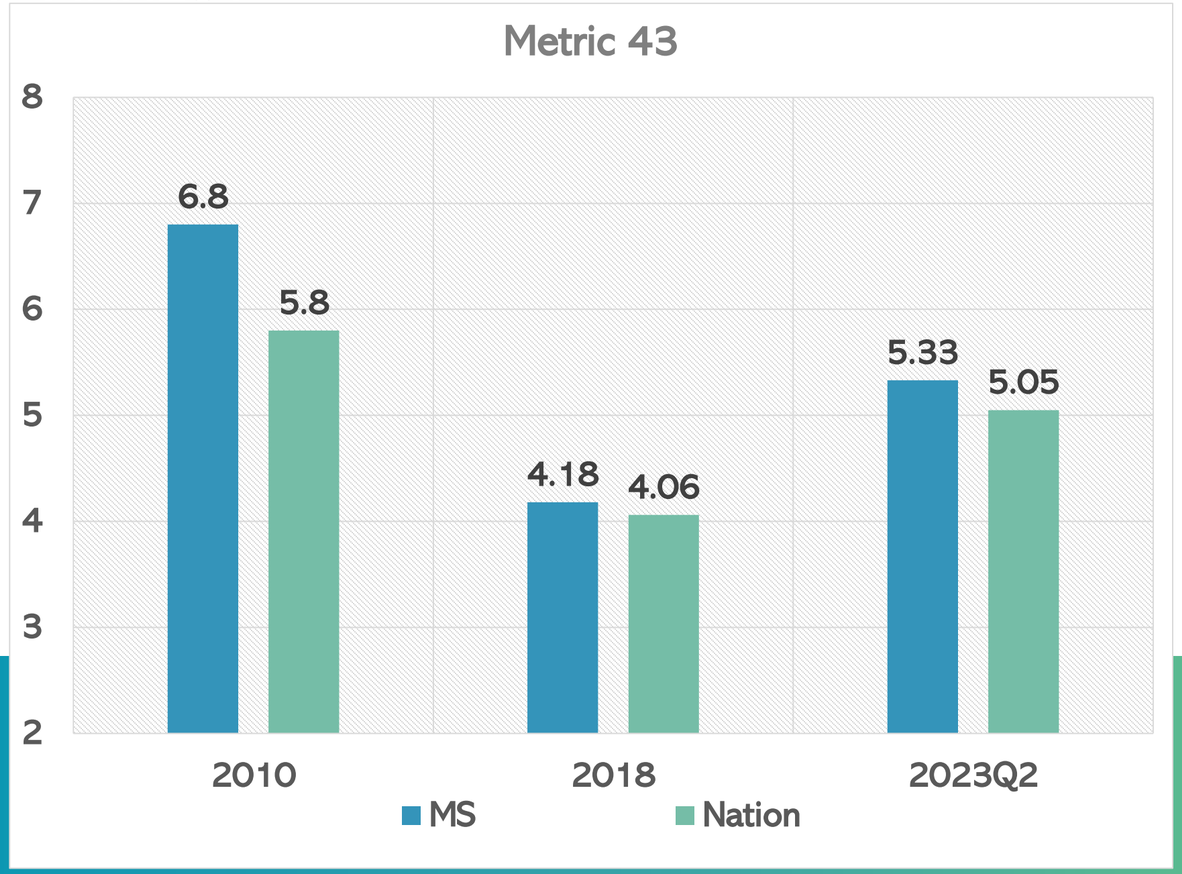
Data Source: Mission Lifeline and CP-MI Registry. 4.8.24

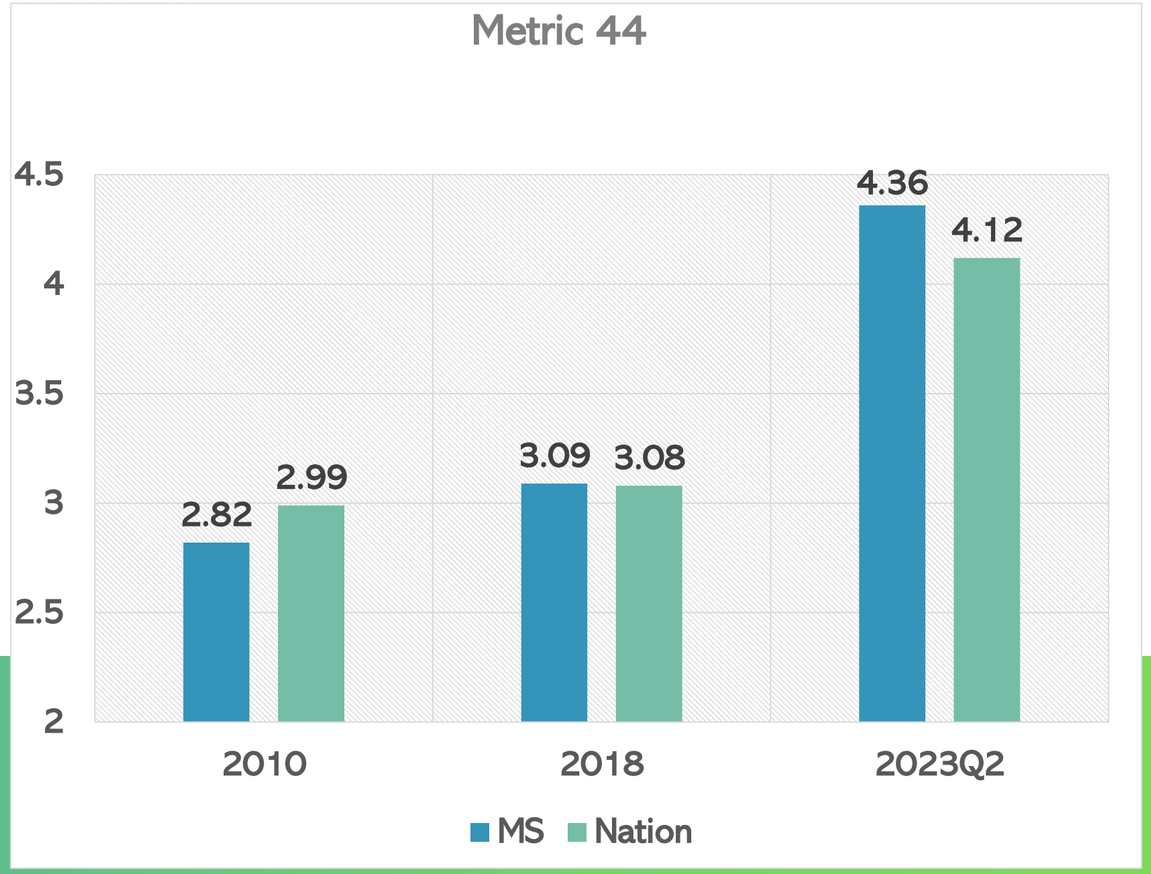
IN-HOSPITAL RISK STANDARDIZATION MORTALITY: ALL AMI PATIENTS

MEASURED IN PERCENTAGE

METRIC 43: INCLUDING CARDIAC ARREST



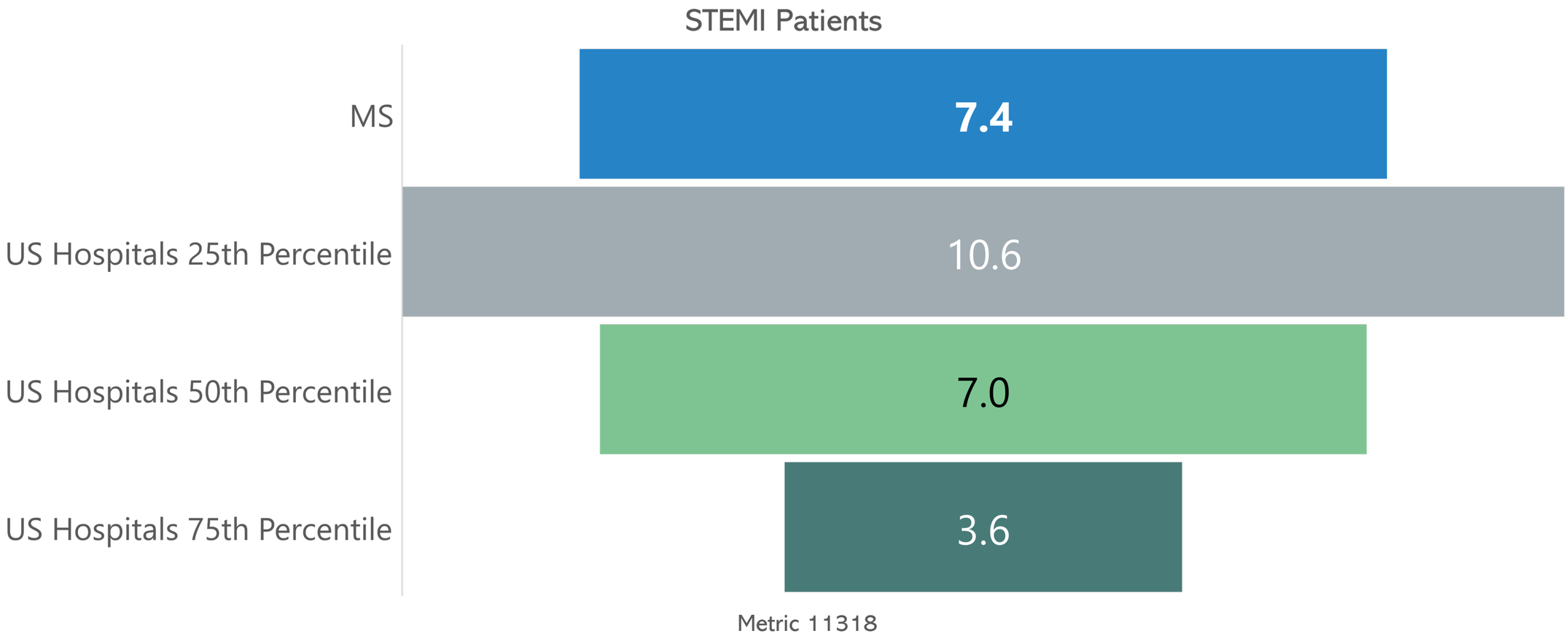
METRIC 44: <u>EXCLUDING</u> CARDIAC ARREST



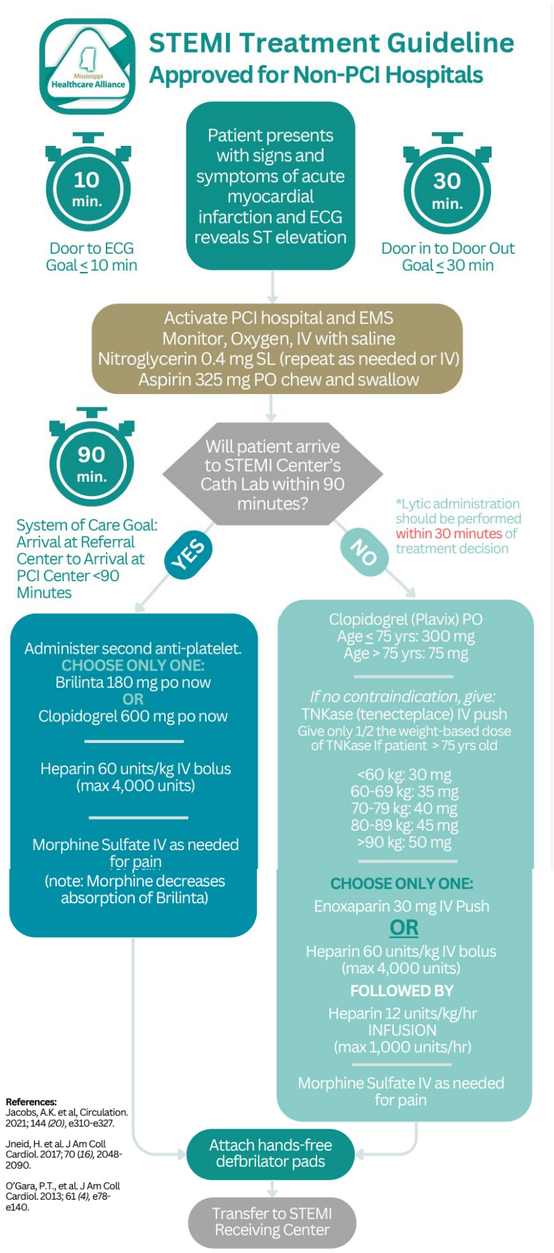
STEMI PATIENTS: CARDIOGENIC SHOCK ON ARRIVAL

MEASURED IN PERCENTAGE

ROLLING 4Q (2022Q4-2023Q3)



Revised STEMI Treatment Guideline



STROKE SYSTEM OF CARE

EST. 2012

ADOPTED BY MSDH IN 2013

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STROKE SYSTEM OF CARE

Local Stroke Participation

- All participating hospitals collect and submit data to the Get With The Guidelines® Stroke

Stroke PI Committee

- Monitors and Trends Key Metrics from Get With The Guidelines® Stroke
- Review unblinded data in secure and confidential setting
- Provide feedback as needed for systems improvement at local and regional levels

Stroke Advisory Committee

- Interdisciplinary team that provides guidance, ensures guidelines are updated, and lends technical advice in the implementation, execution and adherence of the Stroke plan.

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American Heart Association.

Mississippi State Department of Health

Mississippi Stroke Hospitals

Level 1 Stroke Center

Capable of diagnosing and treating stroke patients who require intensive medical, surgical, and interventional vascular (thrombectomy capable) care. The team consists of neurologists, neurosurgeons, and endovascular specialists.

Level 2 Stroke Center

Capable of diagnosing and treating stroke patients who require intensive medical and surgical care. The team consists of a diagnostic radiologists, neurologists, and neurosurgeons.

Level 3 Stroke Center

Capable of diagnosing and stabilizing stroke patients for transfer to Level 1 or 2 Stroke Centers.

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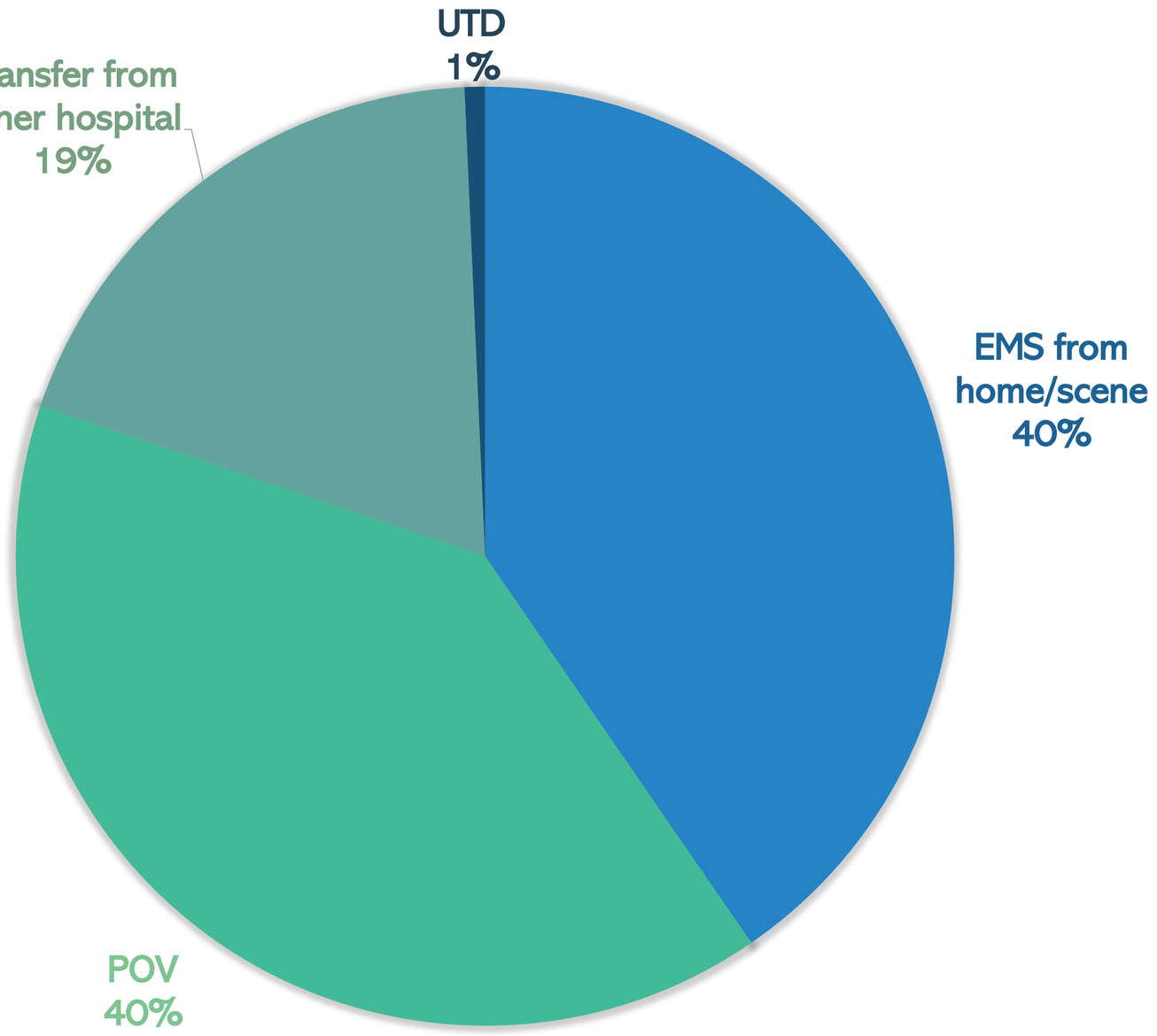
ARRIVAL FOR MS STROKE PATIENTS
BY PERCENTAGE

QUARTERLY DATA (2022Q4-2023Q3)



Get With The Guidelines® Stroke

Report Run 1.17.24

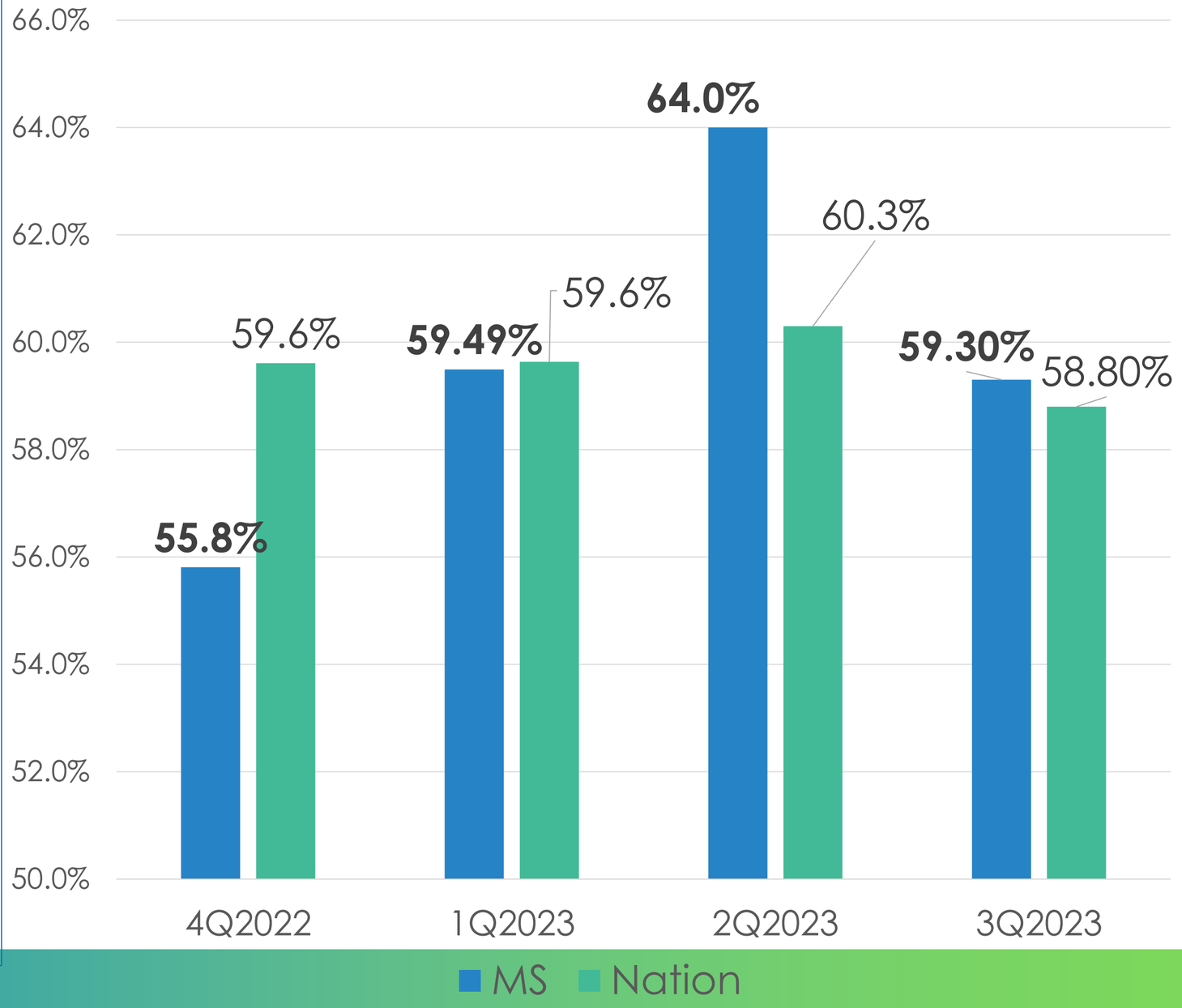
PRE-NOTIFICATION BY EMS

BY PERCENTAGE

AHASTR 39

QUARTERLY DATA (2022Q4-2023Q3)

PERCENT OF CASES OF ADVANCED NOTIFICATION BY EMS FOR PATIENTS TRANSPORTED BY EMS FROM THE SCENE



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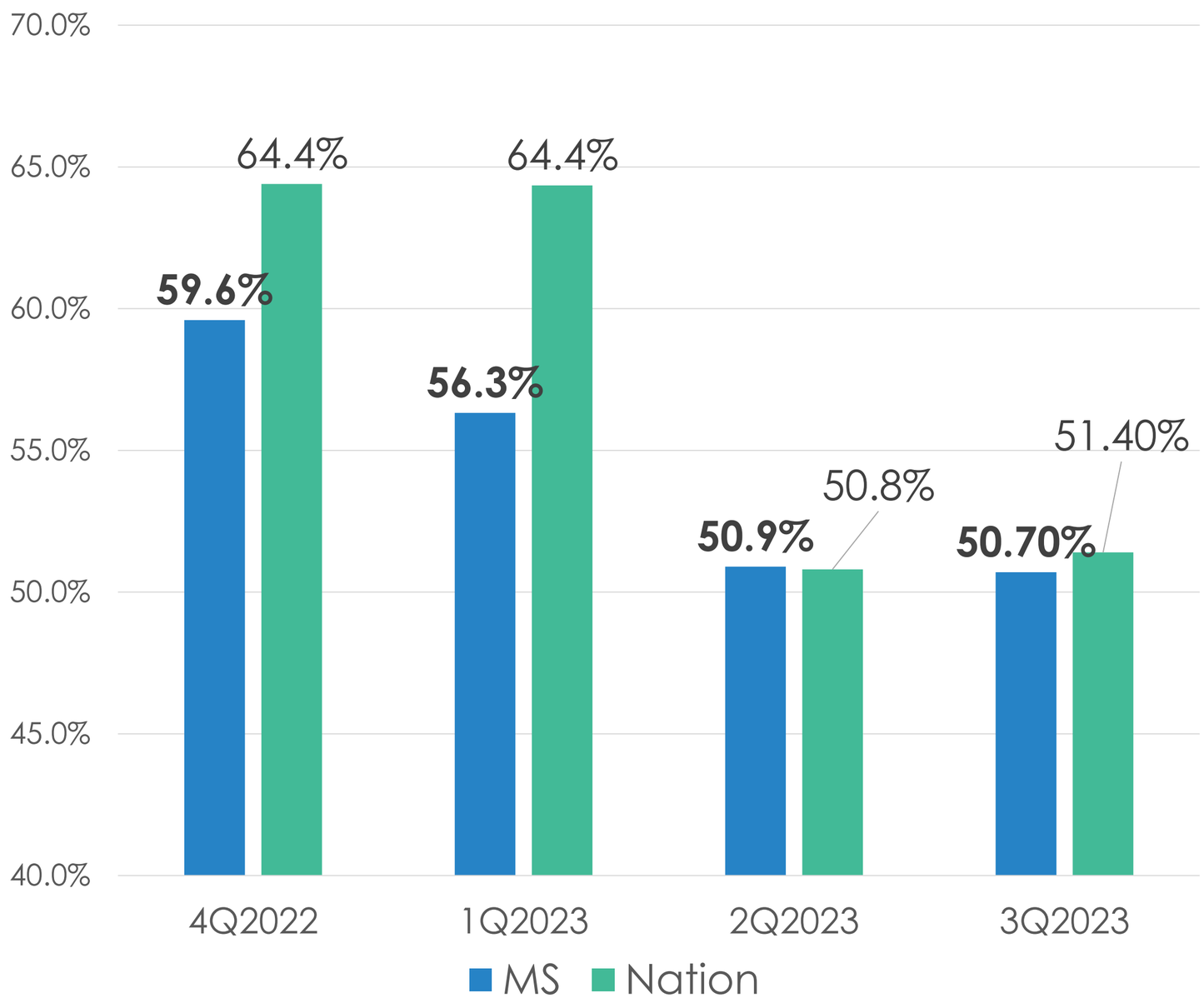
DOOR TO CT ≤ 25 MINUTES

BY PERCENTAGE

AHASTR16

QUARTERLY DATA
(2022Q4-2023Q3)

PERCENT OF PATIENTS WHO RECEIVE BRAIN IMAGING WITHIN 25 MINUTES OF ARRIVAL



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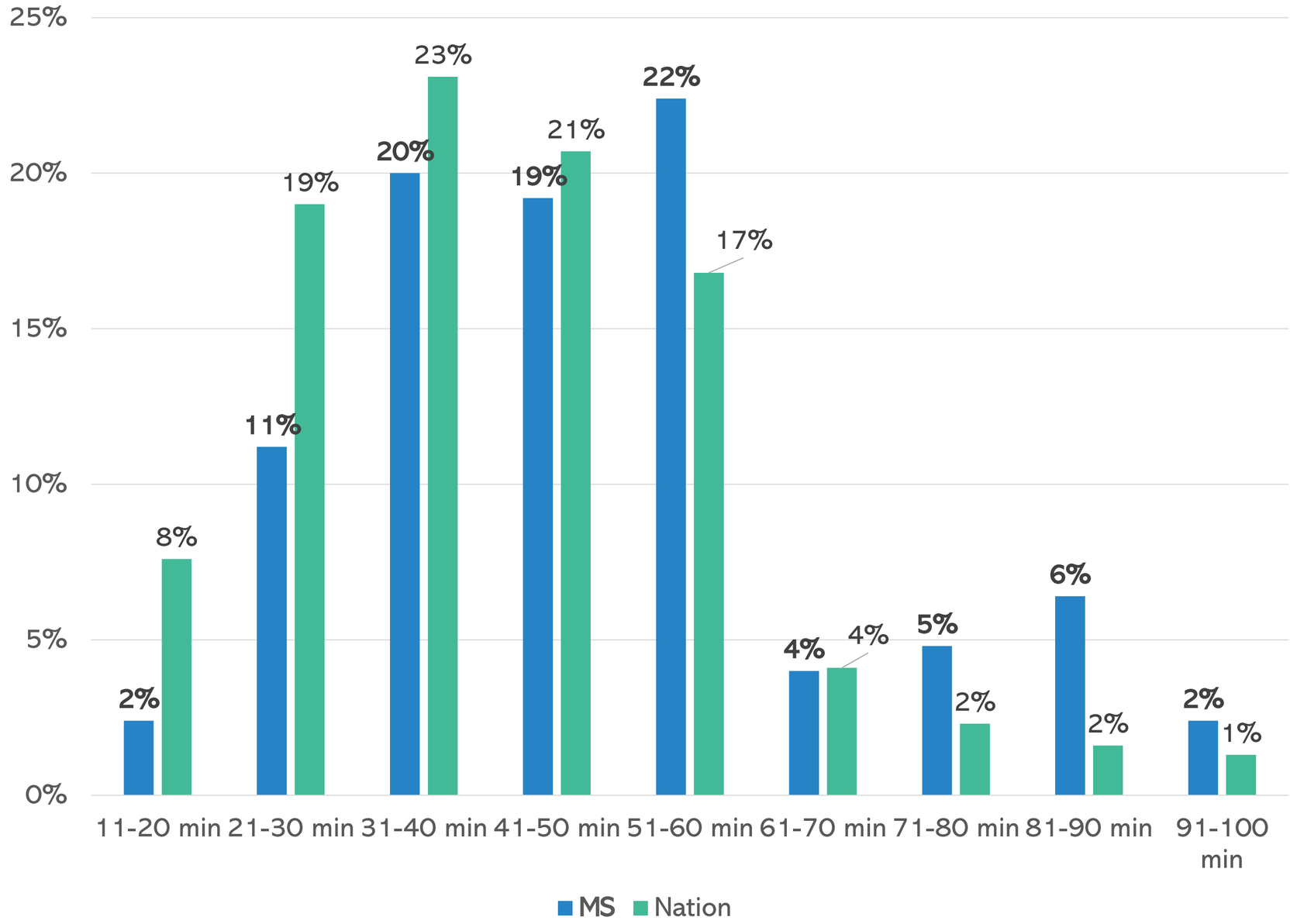
TIME TO IV THROMBOLYTIC THERAPY TIMES

BY PERCENTAGE
AHASTR50

2023Q3
MS MEDIAN: 49 MIN
NATION MEDIAN: 40 MIN

TIME FROM HOSPITAL ARRIVAL TO INITIATION OF THROMBOLYTIC THERAPY ADMINISTRATION FOR ISCHEMIC STROKE PATIENTS TREATED AT MY HOSPITAL



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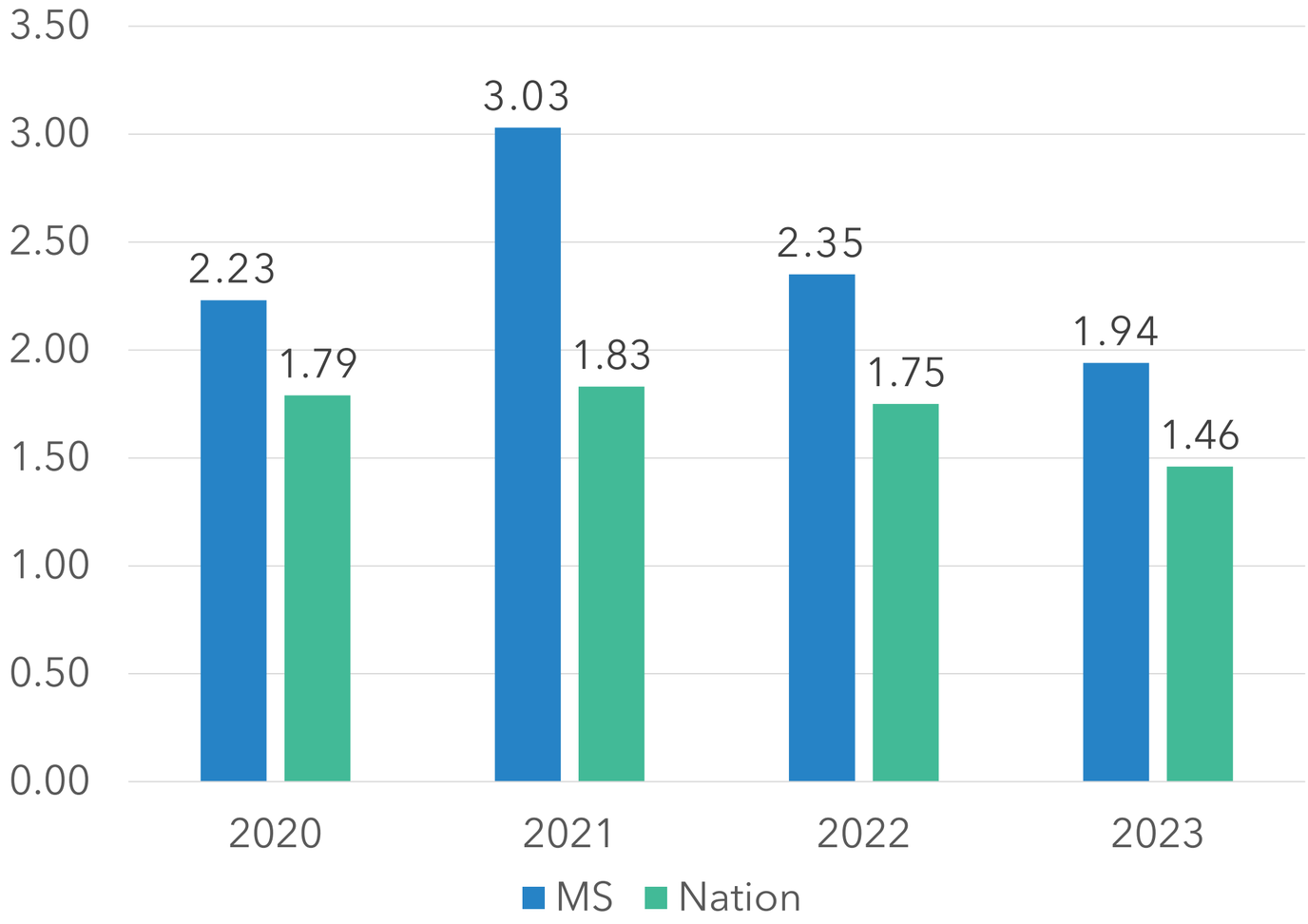
RISK-ADJUSTED MORTALITY ISCHEMIC STROKE AND HEMORRHAGIC STROKE

BY PERCENTAGE

AHASTR60

2020-2023 (YTD)

GLOBAL STROKE MODEL



Get With The Guidelines® Stroke

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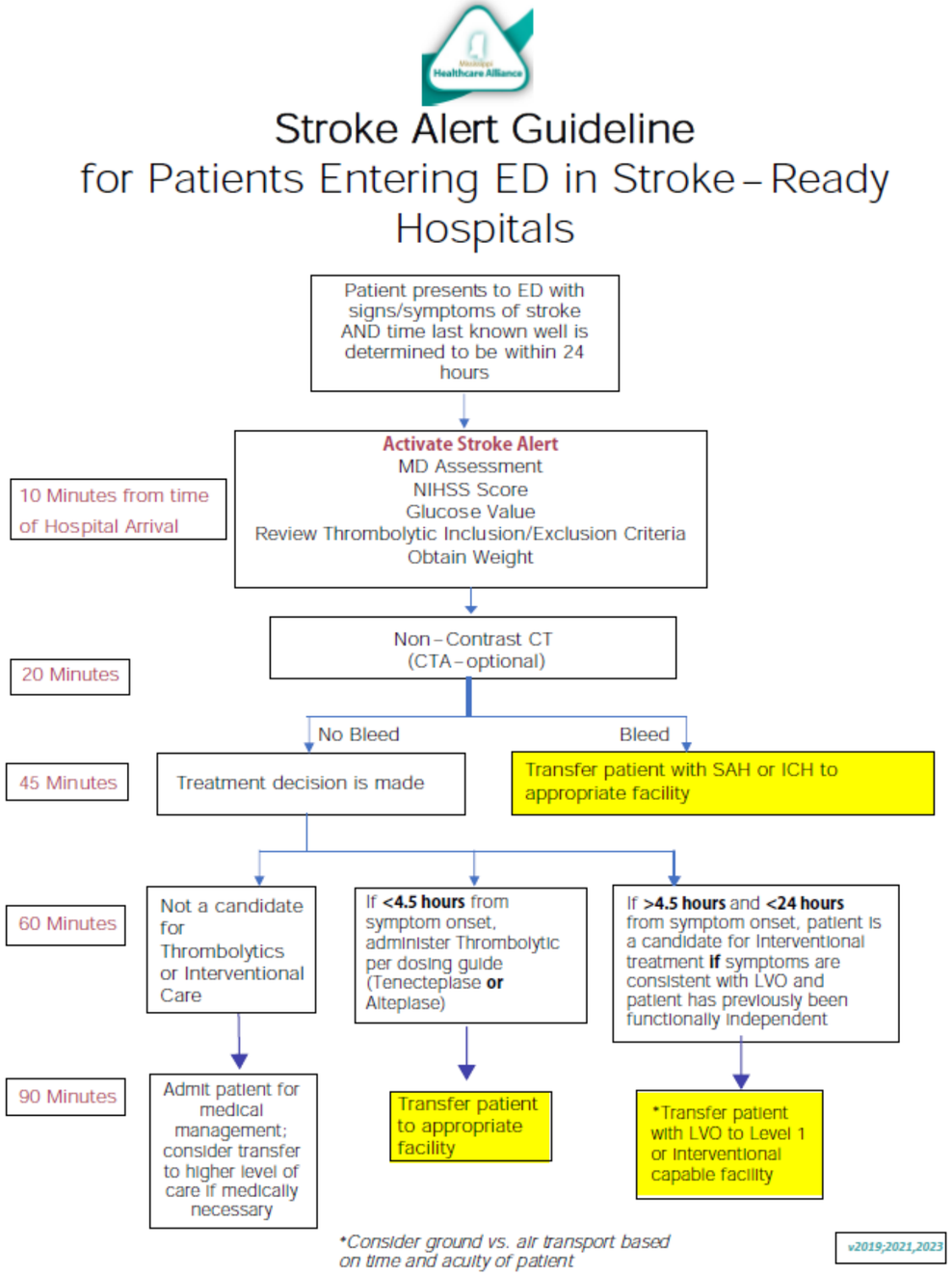
Revised Stroke Alert Guideline for Patients Entering ED in Stroke-Ready Hospitals



MHCA Tenecteplase (TNKase) Guide for Stroke and STEMI

Caution: The dosing tenecteplase for stroke is NOT the same as the dose protocol for administration in STEMI (ST-Elevation Myocardial Infarction)

Acute Ischemic Stroke Patient

(For patients with **no evidence of hemorrhage** per Head CT and no contraindications for fibrinolytic therapy administration)

Obtain weight in kg

Monitor VS and oxygen levels

- SBP <185
- DBP <110

IV (x2 if possible) with saline *(TNKase not compatible with D5W solutions)*

Verify last known well for treatment decision

If > 4.5 hrs and < 24 hours from symptom onset, patient is a candidate for endovascular intervention if symptoms consistent with LVO and pt has previously been functionally independent, **contact an interventional capable facility and EMS for transfer of patient**

Ensure imaging is sent to accepting facility

If <4.5 hours from symptom onset:

-TNKase IV Push

0.25mg/kg with a MAX of 25 mg total (see *AIS TNKase dosing guide*)

-Admit patient for medical management, consider transferring to high level of care if medically necessary

STEMI Patient

(For patients **unable** to arrive at PCI Center within 90 minutes for Primary PCI and no contraindications for fibrinolytic therapy administration)

Activate PCI hospital and EMS

Obtain weight in kgs

Monitor VS and oxygen levels

IV (left side preferred) with saline

Nitroglycerin 0.4 mg SL (repeat as needed)

Aspirin 325 mg PO chew and swallow

Clopidogrel PO

- Age ≤ 75 yrs: 300 mg
- Age > 75 yrs: 75 mg

TNKase IV Push (*Give ONLY 1/2 of the weight-based dose of TNKase if patient >75 years old)*

- *<60 kg: 30 mg
- *60-69 kg: 35 mg
- *70-79 kg: 40 mg
- *80-89 kg: 45 mg
- *> 90 kg: 50 mg

CHOOSE ONLY **ONE** ANTICOAGULANT to follow TNKase

- *Enoxaparin 30 mg IV Push*
- *OR*
- *Heparin 60 units/kg IV **bolus** (max 4000 units) FOLLOWED BY Heparin 12 units/kg/hr **infusion** (max 1000 units/hr)*

MHCA Educational Guide for TNKase 2023

Acute Ischemic Stroke TNKase Dosing

ROUND DOSE TO THE NEAREST MG

Pt wt (kg)	TNKase dose (mg) to give over 5 min	*TNKase IVP Volume (ml)*
40-41	10 mg	2 ml
42-45	11 mg	2.2 ml
46-49	12 mg	2.4 ml
50-53	13 mg	2.6 ml
54-57	14 mg	2.8 ml
58-61	15 mg	3 ml
62-65	16 mg	3.2 ml
66-69	17 mg	3.4 ml
70-73	18 mg	3.6 ml
74-77	19 mg	3.8 ml
78-81	20 mg	4 ml
82-85	21 mg	4.2 ml
86-89	22 mg	4.4 ml
90-93	23 mg	4.6 ml
94-97	24 mg	4.8 ml
>98	25 mg	5 ml

Users can verify through their EHR or a medical calculator, such as MDCalc.

Tenecteplase (TNK) Dosing for Ischemic Stroke Calculator (mdcalc.com)

New TNKase Guide for Stroke and STEMI

SEPSIS COLLABORATION

• **Purpose and Background:** Reduce mortality, morbidity, and associated healthcare costs through timely recognition and intervention

- Affects 1.7 million adults in the US
- Mortality:
  - US Mortality Percentage 12.5% *
  - MS Mortality Percentage 19.1% **

• **Goals of the Sepsis Collaboration with the Mississippi State Department of Health**

- To improve processes and outcomes in the care of sepsis patients in collaboration with healthcare providers across the state by developing and promoting standardized care from pre-hospital care through hospital inpatient care
- Provide education and resources to all healthcare providers for early recognition and treatment

**Paoli, C. J., Reynolds, M. A., Sinha, M., Gitlin, M., & Crouser, E. (2018). Epidemiology and Costs of Sepsis in the United States-An Analysis Based on Timing of Diagnosis and Severity Level. Critical care medicine, 46(12), 1889–1897.*
*** Mississippi State Department of health, Office of Vital Records and Public Health Statistics. https://mstahrs.msdh.ms.gov/. Retrieved January 16, 2023*

FUNDING AND COLLABORATION

Pulsara

- Activation Platform for STEMI, Cardiac Arrest, Stroke, Emergent Surgeries, Trauma, and Sepsis Teams
- Allows for rural hospitals to consult with other hospitals for higher level of care decisions.

RAPIDAI

- 42 MS hospitals will be using artificial intelligence to help with LVO detection of LVO, leading to rapid diagnosis, treatment, and appropriate transfer destinations.

ASLS

- Grants given to EMS and hospitals across the state to help with high costs of transitioning to the new blended AHA certification

National Quality Registries

- Get with the Guidelines Stroke and CAD
- NCDR Chest Pain MI Registry
- CARES Out of Hospital Arrest Registry

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FUNDING AND COLLABORATION

EMS Recruitment

- Invested in The Mississippi Center for Advancement of Prehospital Medicine program to teach EMT classes in high schools across the state.
- These high school seniors can continue with the EMT program at a community college

CPR In Schools

- Partnering with the Mississippi State Fire Academy and the American Heart Association to increase CPR, AED, and choking training of students in every high school in Mississippi to reduce mortality rates and increase bystander CPR rates across the state.
- Faculty and Staff are trained and given a CPR kit with a mannequin and resources to train their students.

Public Service Announcements

- Signs and Symptoms of a Heart Attacks/ Strokes
- Importance of Calling 911 Campaigns
- New treatment options in Stroke and Cardiac Arrest

Continuing Education

- Annual Symposiums
- Support for Education across the state
- Quarterly STEMI and Stroke Coordinator Meetings

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ON THE HORIZON

Mississippi State Department of Health

- Continued partnership with MSDH for Sepsis Collaboration Advisory Committee and Pre-Hospital Sepsis Treatment Guidelines
- Partnership with MSDH for Maternal-Fetal Collaboration
  - The American College of Obstetricians and Gynecologists/ Society for Maternal-Fetal Medicine Levels of Maternal Care
- Rural healthcare provider focus groups to identify common areas of concern and outline and address opportunities to implement healthcare improvement across the state

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FORBES RANKS MISSISSIPPI

#5

AMONG BEST STATES FOR EMERGENCY HEALTH CARE

Mississippi ranked well across the board, especially for:

- Average time patients spend in the emergency department before being discharged
- Percentage of potential stroke patients who receive a brain scan within 45 minutes of arriving at the emergency department

@forbes *@mississippihealthcarealliance*

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