



CONE HEALTH
Moses Cone Hospital

STROKE CENTER

Hannah Bell, BSN, RN, SCRNP, ASC-BC
Stroke Response Coordinator

Stroke Response

Utilizing Neuro ICU Nurses in the Code Stroke Process

- Introduction to Cone Health and Moses Cone Hospital
- Stroke Program Description and Characteristics
- Initial Program Change Request
- *Current* State of Stroke Response
- Future Initiatives

About Cone Health

- **Not-for-Profit Health Network serving a 5-county area**
- **5 Hospitals (1,231 licensed beds) + 100 other locations**
- **2 freestanding Emergency Departments**
- **13,000 employees, 1800 physician partners and 1000 volunteers**
- **Joint Commission Accredited**



About Moses Cone Hospital



- 628-bed teaching hospital
- Regional Referral Center
- Level II Trauma Center
- Key Service Lines:
 - Heart & Vascular
 - Neurosciences
 - Rehabilitation
- FY22 discharges: 28,515
- FY22 ED visits: 76,217



**American Heart Association
American Stroke Association
CERTIFICATION**
Meets standards for
Comprehensive Stroke Center

Stroke Program at Moses Cone Hospital



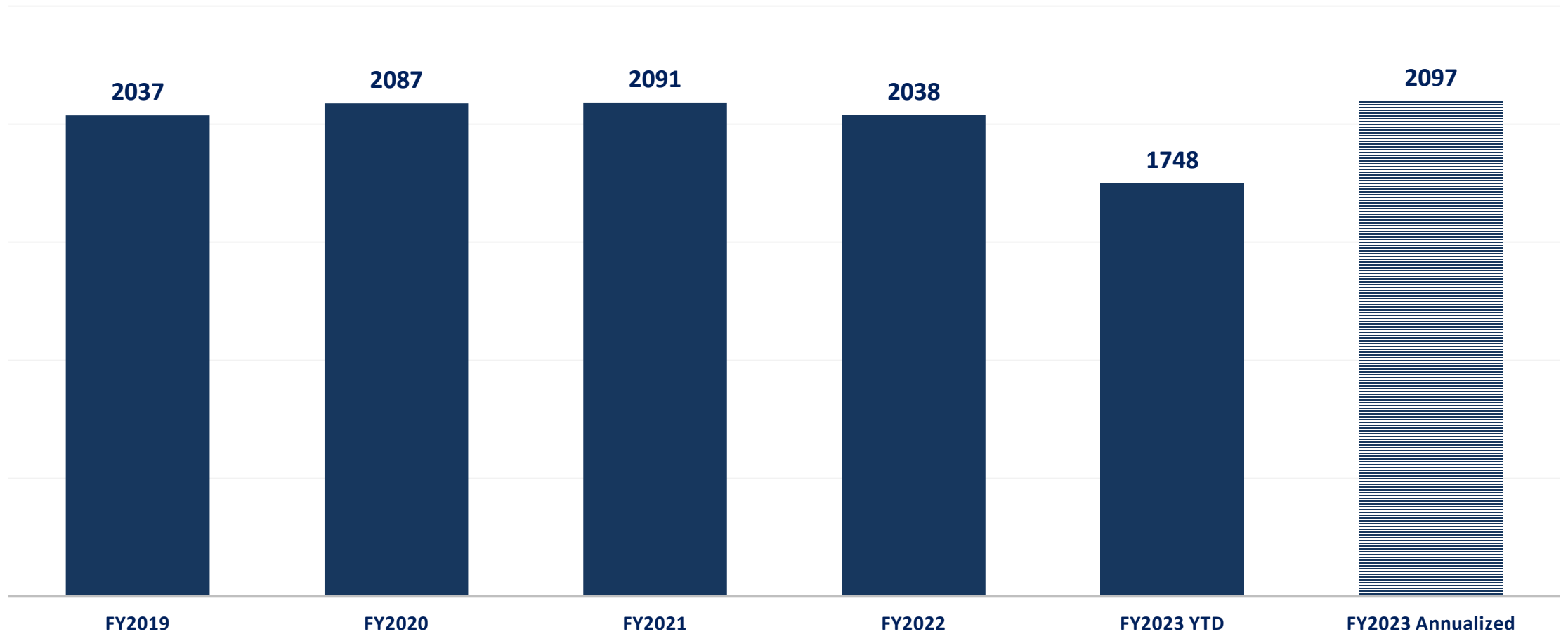
Scope of Services:

Adults 18 Years and Older

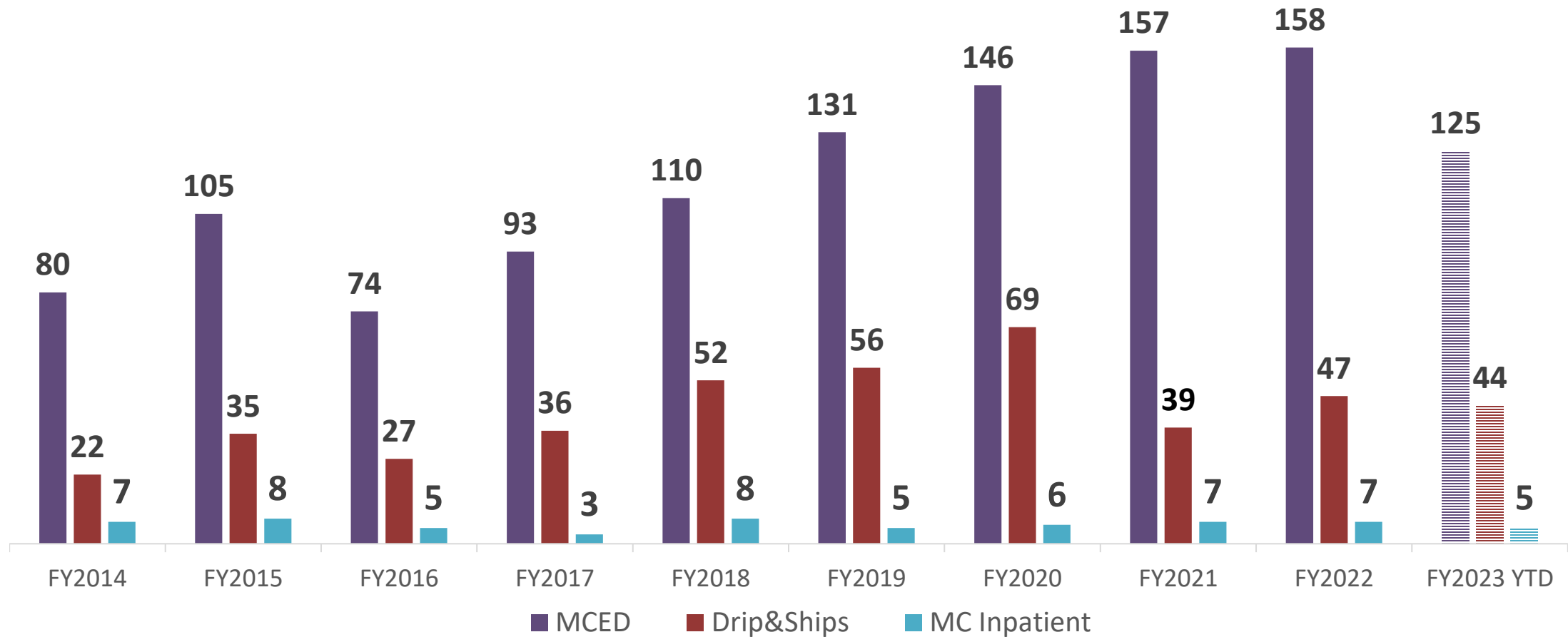
Patients that present with or develop sudden onset of stroke symptoms

- **Emergency Department**
- **Inpatient**

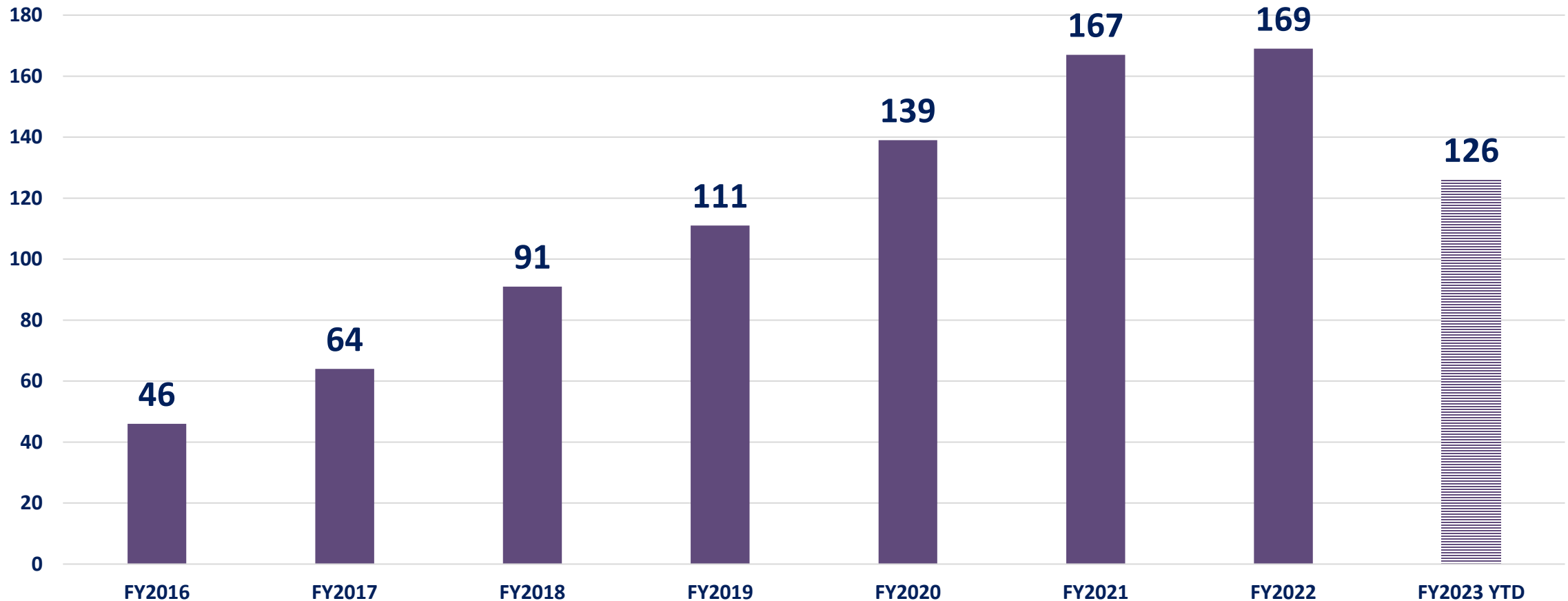
Moses Cone Stroke Volume Data



Stroke Volume: Thrombolytic



Stroke Volume: Endovascular Therapy



Procedures and Treatment Available 24/7

Stroke

- **Thrombolytic Therapy**
- **Endovascular therapy for AIS**
 - **Mechanical thrombectomy**
- **Extracranial carotid stenting**
- **Carotid endarterectomy**

Aneurysms

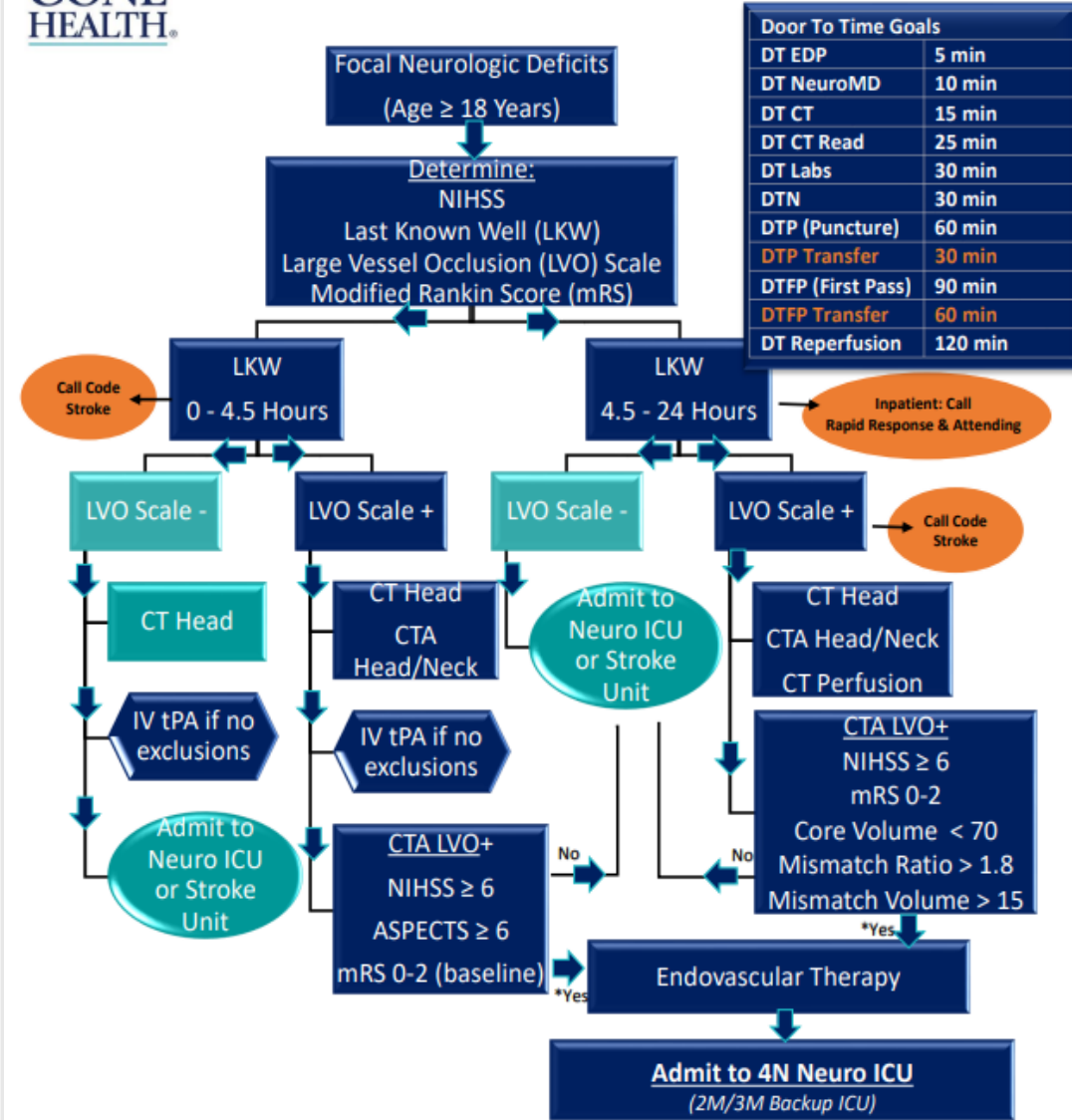
- **Microsurgical aneurysm clipping**
- **Endovascular aneurysm coiling**



Code Stroke Process



Moses Cone Acute Ischemic Stroke Protocol



Door To Time Goals	
DT EDP	5 min
DT NeuroMD	10 min
DT CT	15 min
DT CT Read	25 min
DT Labs	30 min
DTN	30 min
DTP (Puncture)	60 min
DTP Transfer	30 min
DTFP (First Pass)	90 min
DTFP Transfer	60 min
DT Reperfusion	120 min

- *LVO+ patients outside algorithm may qualify for Endovascular Therapy (case by case risk versus benefit)
- LKW 4.5-6 Hours, meeting CTP criteria is not required, to be used with clinical decision making

Stroke Team Members

Staff responsible for responding to Code Strokes

Neurohospitalist Physicians

Neurohospitalist Advanced Practice Providers

Stroke Response Nurses

Moses Cone Rapid Response Team

Initial State – Stroke Response (2020)

Two Full-Time Designated Stroke Response RN's
0800-1630 Monday through Friday

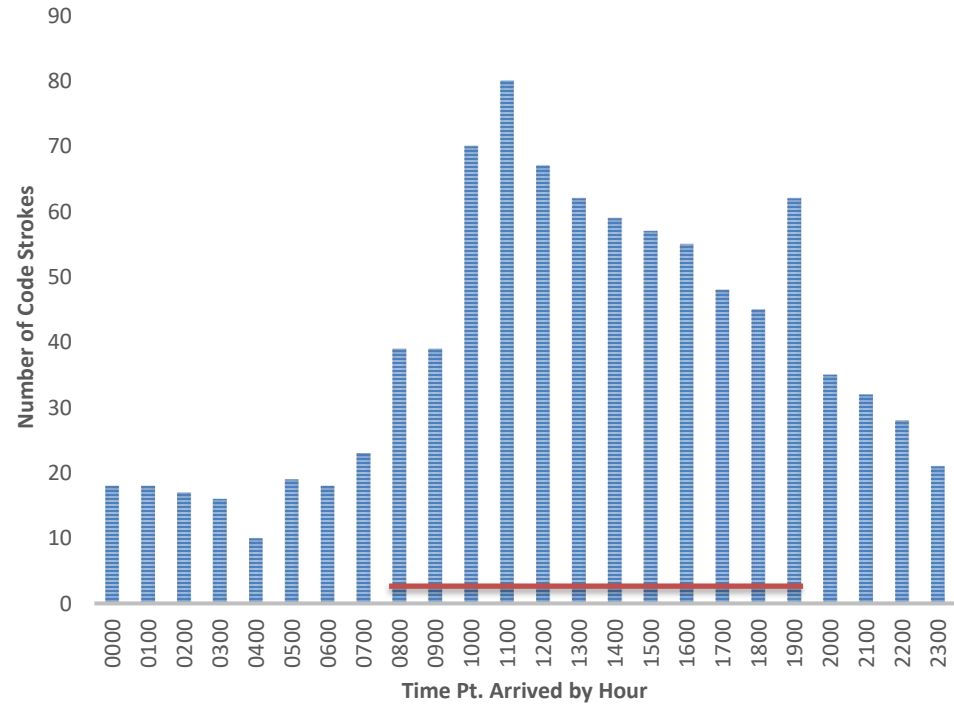
Code Stroke Response, Maintain Data, Case Review, Feedback, Performance Improvement, Education

Rapid Response covered when Stroke Response not available (Nights, Weekends)

Code Stroke Volumes

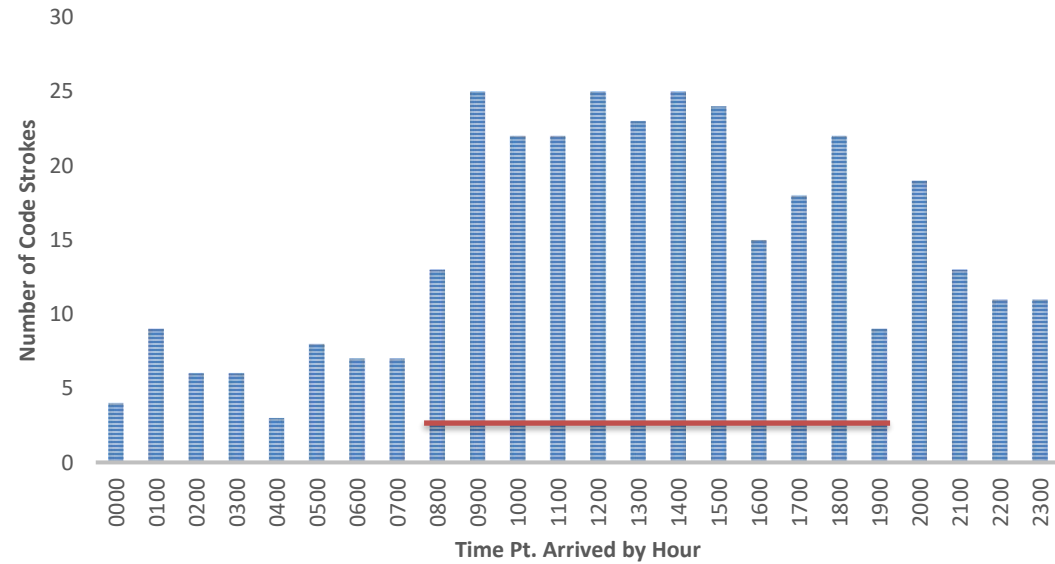
MONDAY-FRIDAY

6.1.2019 - 5.31.2020



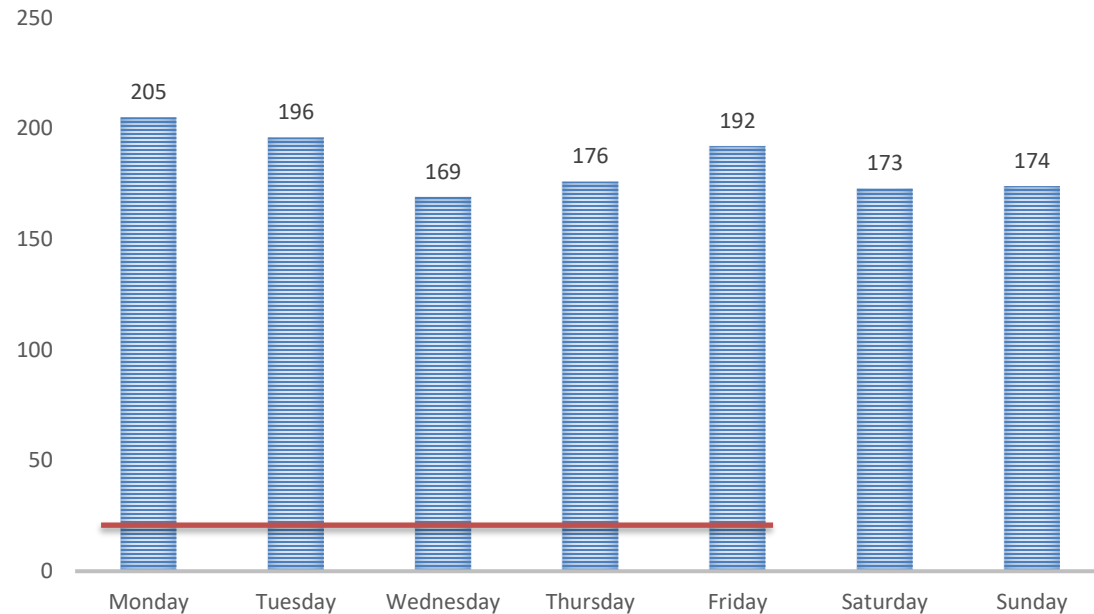
SATURDAY/SUNDAY

6.1.2019 - 5.31.2020



Code Stroke Volumes

CODE STROKES BY DAY
6.1.2019 - 5.31.2020



Brain Saved -

Door to Needle: 2 minutes

Door to IR Activation: 19.5 minutes

Door to Puncture: 8.5 minutes

Door to First Pass: 13 minutes

FY2020

Code Stroke Total: 1261

Stroke Response: 417 (33%)

Rapid Response: 318 (25%)

No Response: 526 (45%)

The Proposal

Stroke Response RN

Pool of cross trained ICU/Stroke Response Nurses:
Coverage Mon-Sun, 7am-7pm

(coverage stability with pool of 10+ staff)

Rapid Response will cover lower nighttime volume

Benefits

- Increased stroke response nurse coverage
- Improved ability to achieve
- thrombectomy goals: 20min / IR patient
- tPA Patients admitted to Progressive Care
- Recovery Directly on ICU (without PACU)
- Expand Hemorrhagic Stroke Support
(Timely BP Management/Anticoagulation Reversal)
- Stroke Patient Education
- Resource Nurse to support ICU

Stroke Response Coordinator

Maintain Comprehensive Stroke Joint Commission Requirements

Data, case review, feedback, performance improvement, stroke response nurses orientation/competency, provide back-up response, EMS feedback and education, staff education, support acute stroke research, member Core Stroke Team

Timeline

*Idea Born
June 2020*

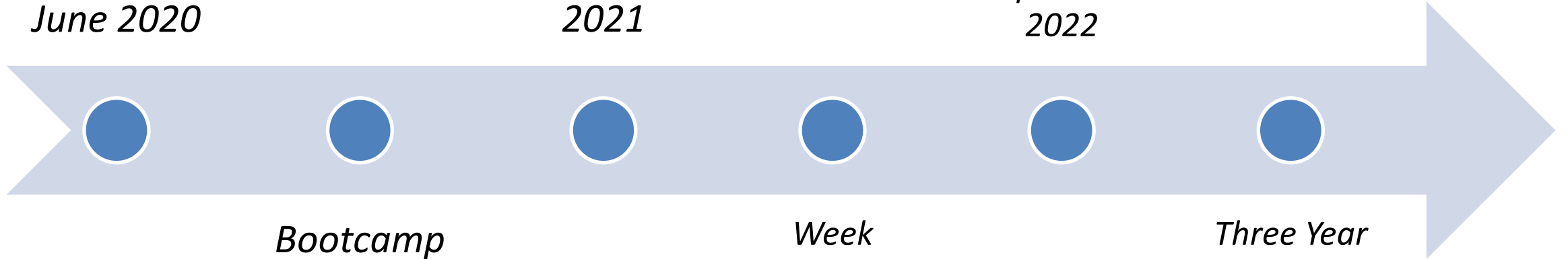
*Bootcamp
& Pilot
Started
September
2020*

*Official
Program
Change
January
2021*

*Week
Orientation
Process
Created
May 2021*

*First
Medical ICU
Nurse
September
2022*

*Three Year
Anniversary
September
2023*



Stroke Response Nursing *Current State*

Monday – Friday

Five Days: 7a-7p

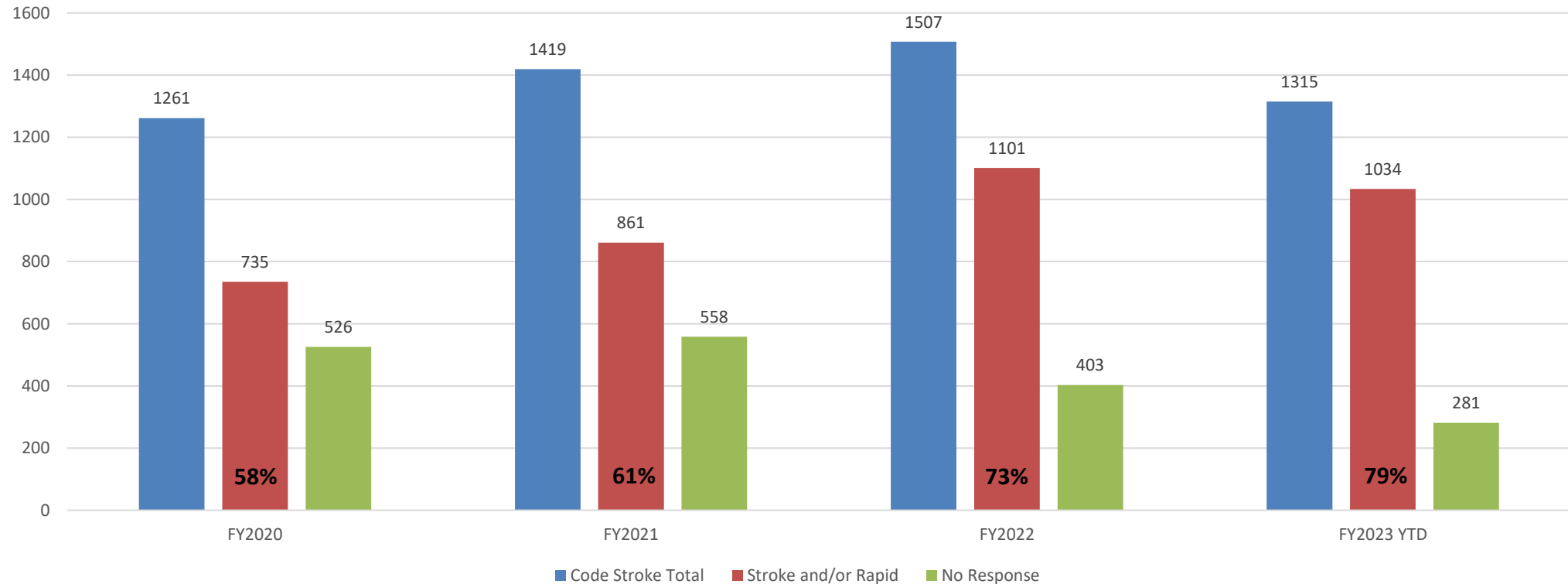
4 North ICU – Out of Staffing

Nights & Weekends: Rapid Response
when available

*Responding to Code Strokes, Treatment
Feedback, Rounds, Supporting 4North*

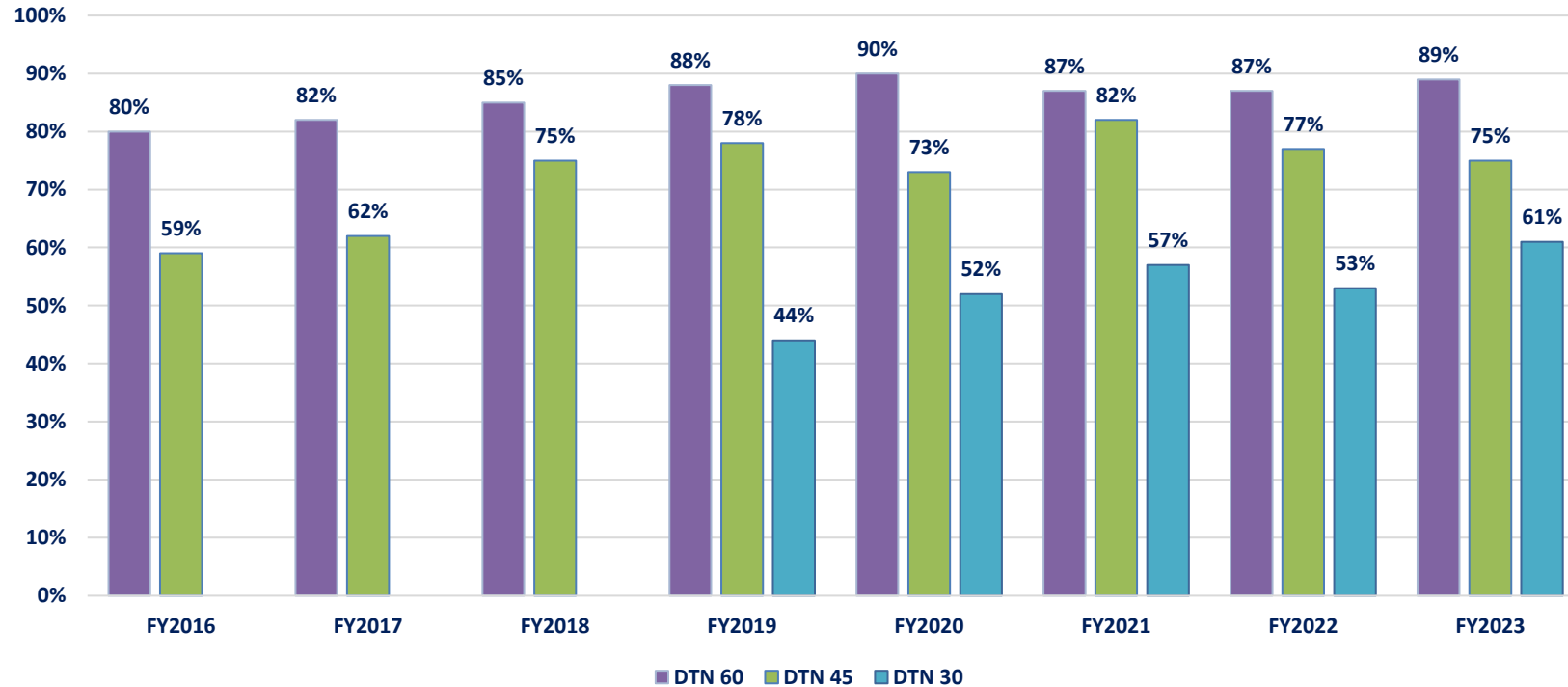
Code Stroke Response Growth

Code Strokes Volumes *and*
Stroke Response Presence



Door to Needle Success

89% of patients received thrombolytic within 60 minutes

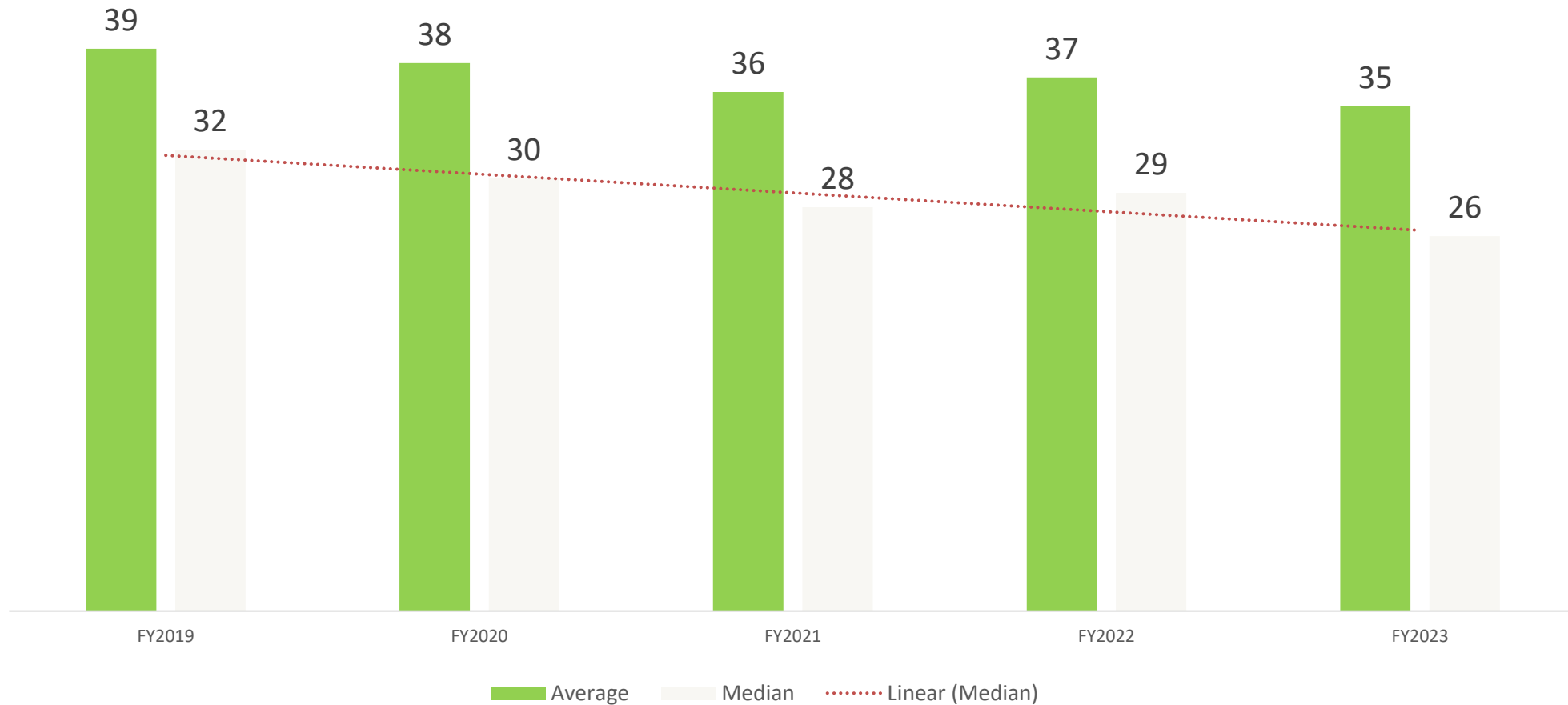


Dr. Ashish Arora



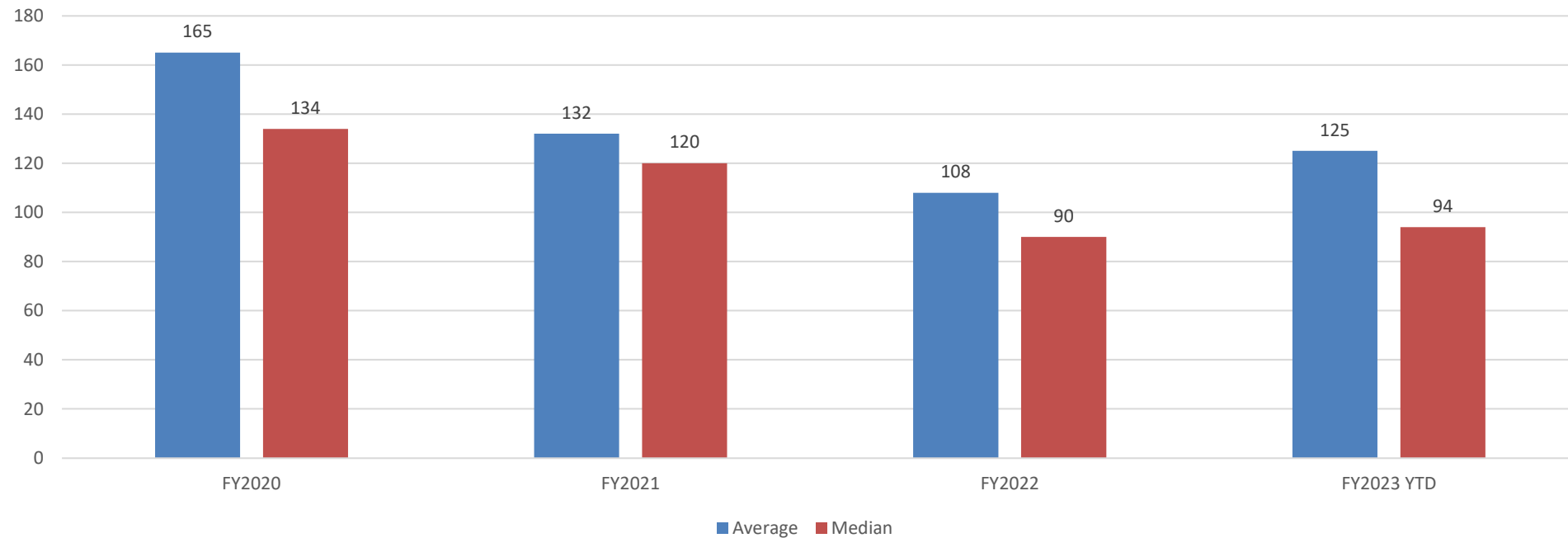
Time to Beat 9 Minutes

Door to Needle



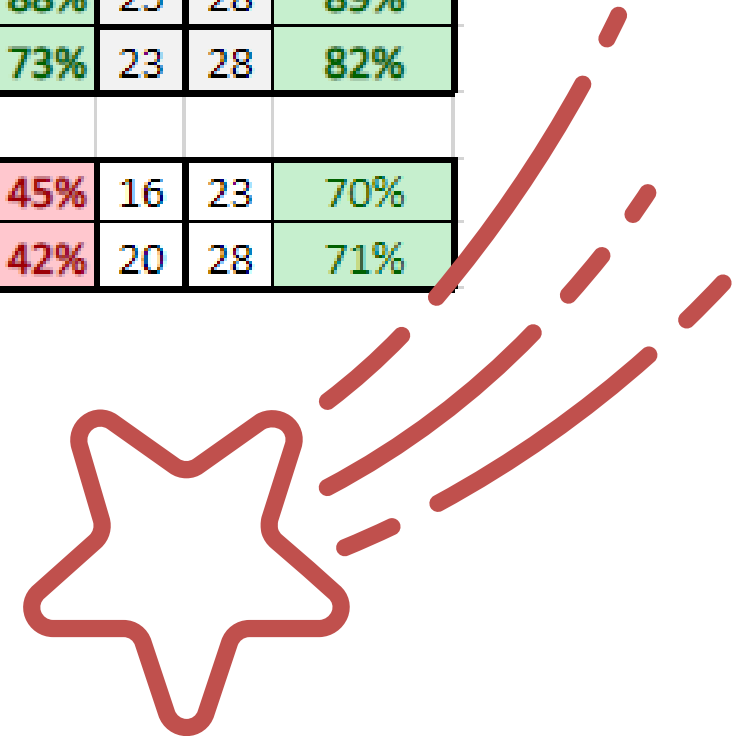
Door to First Pass- Direct Arrival

Door to First Pass
MCED Direct Arrival
Goal: 90 minutes in 50% Direct Arrivals



AHA Target Stroke Measures

	Goal	CY 2020			CY 2021			CY 2022			CY 2023		
TPA- 60 minutes	85%	91	94	97%	119	123	97%	94	98	96%	31	32	97%
TPA- 45 minutes	75%	81	90	90%	113	119	95%	81	92	88%	25	28	89%
TPA- 30 minutes	50%	59	85	69%	79	100	79%	60	82	73%	23	28	82%
Door to 1st pass within 60 minutes for patients transferred from ar													
(6 hour treatment Window)	50%	12	83	14.5%	40	88	45%	37	83	45%	16	23	70%
(24 hour treatment Window)	50%	14	100	14%	46	103	45%	44	104	42%	20	28	71%




Stroke Champions

Across the Hospital

- Review and Give Peer Feedback regarding assessments
- Support Progressive Care Stroke Unit
- Medical ICU (Stroke Back-Up Unit) is connected directly to Stroke Team
- Cross Department Relationships

Feedback – Code Stroke



Stroke Patient Summary

MRN
Hospital Account
Age

Code Stroke Date
LKW
Mode of Arrival
Time of Arrival

Arrival Location
Transfer Location

Event	Time	Event Metrics	Minutes	Goal
LKW		Door/Code Stroke TO Neurology Arrival		<= 15
Code Stroke		Door TO ED MD		<= 10
Door		Door TO CT Read		<= 45
ED MD		Door TO PT/INR Lab Result		<= 45
Neurology Arrival		Door TO Needle		<= 30
CT End		Door TO CTA Start		<= 20
CT Read		CT End TO CTA Start		
CTA Start		Door TO IR Activation		<= 30
PT/INR Lab Result		Door TO ED Departure		
Needle		LKW TO Needle		
CTA End				
IR Activation				
ED Departure				

Delay Reason

Review Notes

Story Notes

Monitoring Notes:

NIHSS
ASPECTS
IA tPA/Other

Pre-morbid mRS
Site of Occlusion
Device/Stent
Last TICI

Education –

2023 Stroke Fairs

In-person events: 2 Stroke Hours (2 CE)

Moses Cone

North Tower Room 101-104

June 1st 0730-15

Alamance Regional

Lower-Level Education Center

May 18th 0730-1

Must arrive by 1300 to receive credit

Poster Review Days: 1 Stroke Hour (no CE)

	Annie Penn	5/25 (0730-1500)	Location: Center for Education
	Drawbridge	6/15 - 6/19	Location: ED Conference Room Ground Floor
	Welsey Long	6/12 - 6/14	Location: Classroom 2 on the 2nd floor
	Alamance	8/9 (0800 - 1600)	Location: Lower Level Education Room
	Moses Cone	9/12 (0730 - 1930)	Location: AHEC GW195

TOPICS COVERED

- Code Stroke Process
- Thrombolytic Therapy
- Endovascular Treatment
- BP management in stroke
- Hemorrhage
- AC/thrombolytic reversals
- Dysphagia Screen
- Stroke Core Measures
- Stroke Workup
- Mobility
- Stroke Patient Education
- Cone Stroke systems of
- EMMI

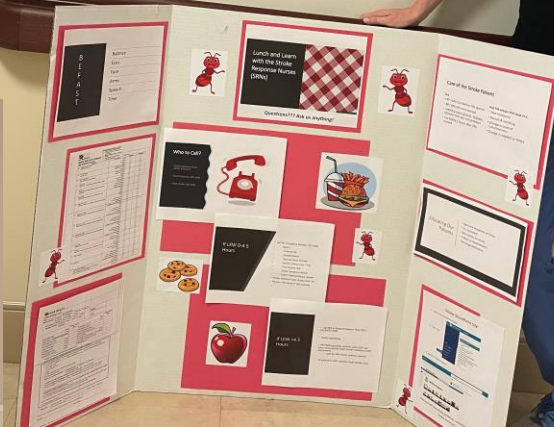


Lunch & Learn

- What? A time for your staff to meet the Stroke Response Nurses and learn about Stroke
- When? Month of May
- Why? Connect Staff to Stroke Resources

Email will be sent out for sign ups –

- Staff will be entered into drawing
- Treat to the Unit ☺



Research - OPTIMISTmain

OPTIMISTmain

Optimal Post rTpa-iv Monitoring in Ischemic Stroke



Johns Hopkins research trial looking at decreased vital signs and neuro checks for stable IV thrombolytic patients

Low Intensity Monitoring Continued through December 2022

January 2023 –
Participation in ICH BP Trial



Please place in patient room as a reminder of the study protocol

OPTIMISTmain 

Optimal Post rTpa-iv Monitoring in Ischemic Stroke

This patient is included in the OPTIMISTmain Research Trial

See **OPTIMIST Information Sheet** for additional information



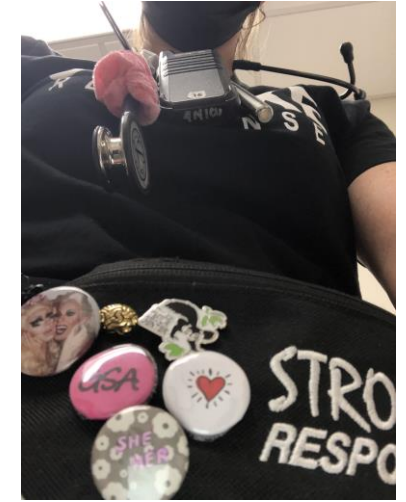
Community Engagement



2022 Guilford Heart and Stroke Walk:
Raised over \$75,000!

Unexpected Benefits

- Increased Job Satisfaction and Retention
- Preventing Nursing Burnout
- Nursing Recruitment for New Grads
- Career Growth



“Stroke Response has been a blessing for me this past year since I started. It has allowed me to stay connected to patient care but be one step removed. Ultimately, helping me from being burned out.”

- Hannah Mack, Stroke Response RN



Stroke Response Nursing *Future State*

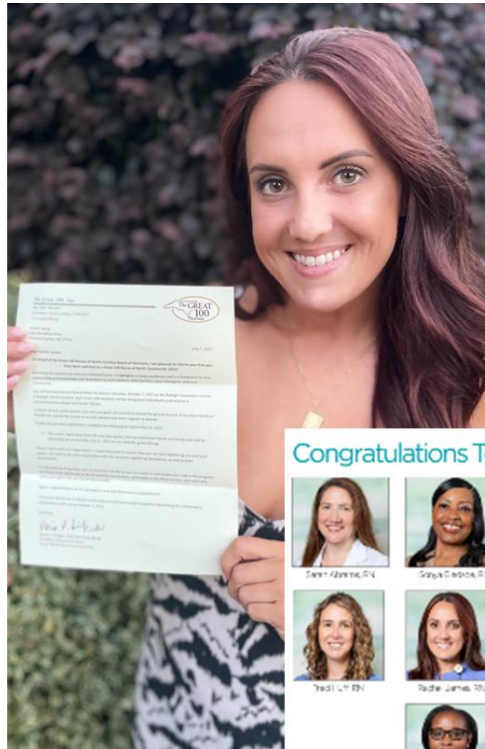
Sunday - Saturday

Seven Days: 7a-7p

Nights: Rapid Response *when available*

Include –Patient Education, Stroke Unit Staff Support, Patient Rounding

Awards –



Congratulations To Our Cone Health Great 100 Nurses 2023



Hannah Mack



The DAISY Award®
FOR EXTRAORDINARY NURSES
HONORING NURSES INTERNATIONALLY
IN MEMORY OF J. PATRICK BARNES

October 2021
Hannah Mack, RN, BSN

Neuro Trauma Intensive Care
Cone Health Moses Cone Hospital
Greensboro, NC
United States

