

The Nobility of Mobility

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Tale of Three Cities

- **What are the lessons learned**
- **Operationally?**



5 Year Program History

Stroke 1 Dispatches: **9103**

Stroke 1 Cancelled En-Route: **5542 (61%)**

Arrived on Scene (No Transport): **2391 (26%)**

Stroke 1 Transports: **1326 (13%)**



5 Year Program History

Population Served: **700 K**

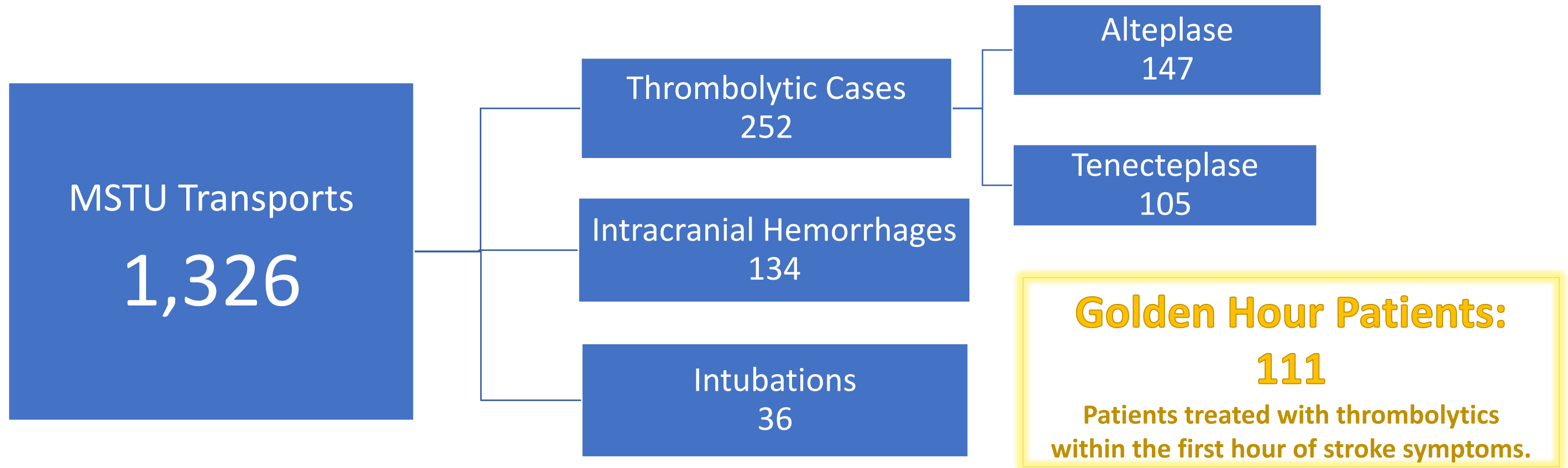
CAT 1 Dispatches: **2256**

CAT Arrived on Scene: **1196 (53%)**

CAT Transports: **264 (12%)**

CFD Transports at a Glance

Numbers since Go-Live 05/29/2019





5 Year Program History

CAT Transports: 264

Thrombolytic Cases: 77 (29%)

Intracranial Hemorrhages: 19 (7%)



5 Year Program History

CVA Incidents without Stroke 1

2023: 7 AM to 7 PM: 531

7 PM to 7 AM : 671

2023: Stroke 1 OOS: 259

Stroke 1 on another Event: 274





5 Year Program History Operations

7am – 7pm shifts

Divided between two cities

Colorado Springs – 157 days/year

Aurora – 158 days/year (not providing data here)

OOS – 50 days/year



5 Year Program History

Stroke 1 Transports – Destinations

3 Adult Health Care Systems
each with Single Comprehensive Stroke Center

System A: 269 (20%)
System B: 277 (21%)
System C: 780 (59%)





5 Year Program History

Transports – Destinations

2 Adult Health Care Systems

each with Single Comprehensive Stroke Center

System A (owner): 65%

System B: 35%

Tale of Three Cities

- **What are the lessons learned**
- **Operationally?**
- **Economically?**

Mobile Stroke Operational Cost

MSU Staffing: Approach to staffing and operating Mobile Stroke Unit to support long term growth and sustainability

Single MSU Ambulance

Ambulance Team

- 1 nurse to support triaging and treatment
- 1 CT tech to operate the CT scanner
- 1 medic to drive MSU and provide support
- 1 EMT Basic to drive MSU and provide support

Off-Ambulance Team

- 1 on-call neurologist
- 1 on-call neuro-radiologist
- EMS dispatch through HFD and other groups



Mobile Stroke Operational Costs

| Clinical Operations | Staffing | Vehicle Operations | Indirect Expenses |
|--|--|---|--|
| <ul style="list-style-type: none">• Pharmacy• Laboratory• Radiation Health | <ul style="list-style-type: none">• Direct Labor• Telemedicine• Indirect Labor | <ul style="list-style-type: none">• Licensing• Fuel• Insurance• Maintenance• Technology | <ul style="list-style-type: none">• Training• Rent/Office |

*All costs are based on n=300 annually with assumption that 1 MSU runs 355 days a year (-10 for maintenance days) 1-12 hour shift per day.

MSU Clinical Operations Cost

- TNK
- Pharmacy
 - MSU Pharmacy
 - Advanced Stroke Protocols
 - Factor Xa Reversal agents
- Laboratory
 - Regulatory oversight
 - Disposables
- Radiation Health & Safety
 - Safety Officer
 - Preventative Maintenance
- Disposables
 - Patient care supplies
- Oxygen

| Clinical Operations | Cost |
|----------------------------------|----------------------|
| TNK | \$ 375,000.00 |
| Reversal Agents | \$ 120,000.00 |
| Pharmacy-excl TNK/Reversal | \$ 50,000.00 |
| Lab Supplies | \$ 4,000.00 |
| Radiation Health & Safety | \$ 6,000.00 |
| Disposables | \$ 10,000.00 |
| Oxygen | \$ 1,000.00 |
| Clinical Operations Total | \$ 566,000.00 |

MSU Staffing

- Clinical-Direct*
 - RNIVs
 - Paramedics
 - CT Technologists
- Telemedicine Coverage
- Indirect
 - Medical Director/Operations Leadership

| Staffing | Cost |
|-----------------------|------------------------|
| Clinical-Direct | \$ 1,150,000.00 |
| Telemedicine Coverage | \$ 250,000.00 |
| Indirect | \$ 250,000.00 |
| Staffing Total | \$ 1,650,000.00 |

*including Benefits

MSU Vehicle Operations

- Licensing
 - State/City Vehicle
 - Driver permitting
- Fuel
- Vehicle / Ambulance Maintenance
- Technology
 - Phones
 - Technology monthly expenses
- Vehicle Insurance
 - Increase Equipment coverage

| Vehicle Operations | Cost |
|---------------------------------|---------------------------|
| Licensing | \$ 5,000.00 |
| Fuel | \$37,000.00 |
| Maintenance | \$ 15,000.00 |
| Technology | \$ 8,000.00 |
| Insurance | \$ 9,000.00 |
| Vehicle Operations Total | <u>\$74,000.00</u> |

MSU Indirect Expenses

- Training
 - Clinical Training
 - EMS/Mutual Aid Training
- Rent/Office
 - Each unit is dispatched from the regional dispatch area
 - Office supplies and maintenance
- Incidentals

| Indirect Expenses | Cost |
|-----------------------|----------------------|
| Training | \$ 65,000.00 |
| Rent/Office | \$ 50,000.00 |
| Incidentals | \$ 5,000.00 |
| Indirect Total | \$ 120,000.00 |

Mobile Stroke Operational Costs

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| Oxygen | \$ 1,000.00 |
| Clinical Operations Total | \$ 566,000.00 |
| Staffing | Cost |
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| Telemedicine Coverage | \$ 250,000.00 |
| Indirect | \$ 250,000.00 |
| Staffing Total | \$ 1,650,000.00 |
| Vehicle Operations | Cost |
| Licensing | \$ 5,000.00 |
| Fuel | \$ 37,000.00 |
| Maintenance | \$ 15,000.00 |
| Technology | \$ 8,000.00 |
| Insurance | \$ 9,000.00 |
| Vehicle Operations Total | \$ 74,000.00 |
| Indirect Expenses | Cost |
| Training | \$ 65,000.00 |
| Rent/Office | \$ 50,000.00 |
| Incidentals | \$ 5,000.00 |
| Indirect Total | \$ 120,000.00 |
| | |
| Annual MSU Cost | \$ 2,410,000.00 |

Mobile Stroke Revenue

*Based on historical data 2019-2021

| | |
|---|----------------------|
| PATIENTS | 300 |
| AVG REV / PATIENT | \$ 2,680.00 |
| Total Historical Annual Revenue | \$ 804,000.00 |
| PATIENT TYPE % | |
| Medicare Net Patient Collections Transport only | 53% |
| Medicaid | 4% |
| Managed Care | 30% |
| Self Pay | 13% |
| PATIENT TYPE: | |
| Medicare Net Patient Collections Transport only | 159 |
| Medicaid | 12 |
| Managed Care | 90 |
| Self Pay | 39 |

Does not include payments for neurologist and radiologists – separate billing.

Does not include inpatient revenue

Does not include historical Houston TMC data related to decrease of LOS by 1.5 days

Mobile Stroke Operational Costs

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| Vehicle Operations | Cost |
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| Indirect Expenses | Cost |
| Training | \$ 65,000.00 |
| Rent/Office | \$ 50,000.00 |
| Incidentals | \$ 5,000.00 |
| Indirect Total | \$ 120,000.00 |
| | |
| Annual MSU Cost | \$ 2,410,000.00 |
| Total Historical Annual Revenue | \$ 804,000.00 |
| Current expected Annual cost | \$ 1,606,000.00 |

Tale of Three Cities

- **What are the lessons learned**
- Operationally?
- Economically?
- **Politically?**

Mobile Stroke Set Up

- One hospital system owns and operates mobile stroke unit(s)
- Desire to disposition patients to owner system
- Problem with more than one hospital system
 - Houston: 5 hospital systems - 44 hospitals possible disposition
 - Colorado Springs: 3 hospital systems – 5 possible disposition
- Owner system don't have EMS Medical Direction involved

EMS Medical Direction Control

- EMS Medical Direction is the keystone with all the power
- EMS Medical Direction controls 911 dispatch and destination protocols
 - Without this, mobile stroke cannot exist
- Owner system and all other hospital systems must agree to operations
 - Initially and continuously
 - No favoritism blame on Medical Direction

Thank You