UNM Stroke Program and Telehealth

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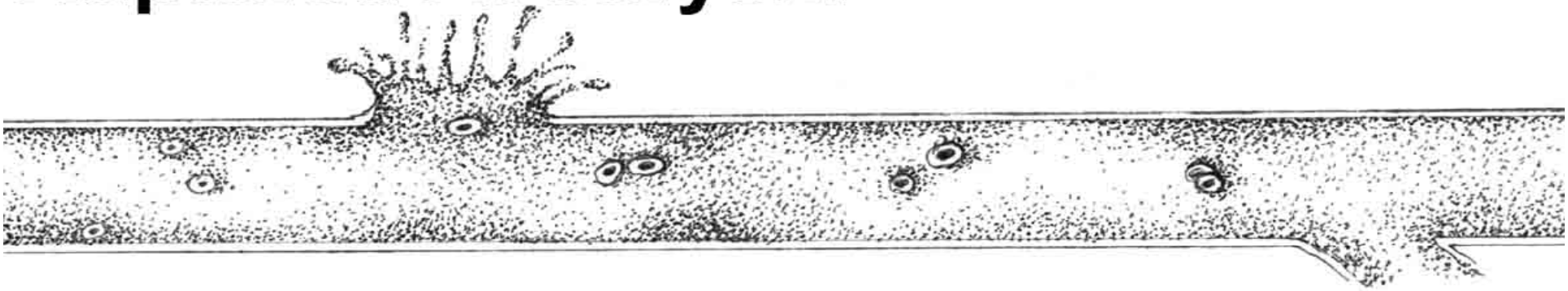
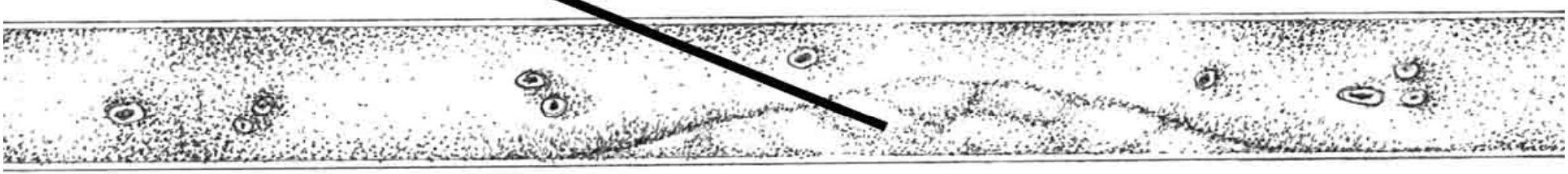
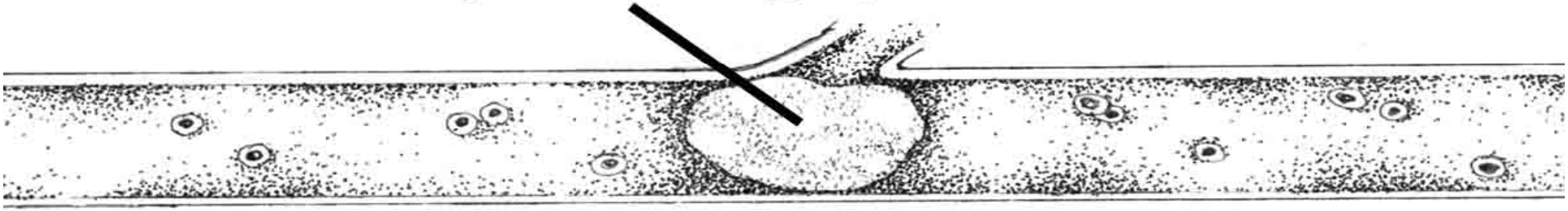
Ruptured Aneurysm



Thrombus



Embolism (blockage)



What Is The Impact Of Stroke ?

- Stroke is the No. 3 Killer in the United States and in New Mexico
- Two people in New Mexico die every day from stroke
- Eight people in NM become stroke survivors every day
- Stroke is a leading cause of serious, long-term disability

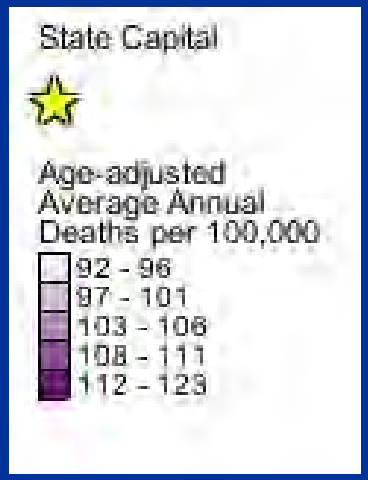
Gaps in the Stroke Chain of Survival in New Mexico

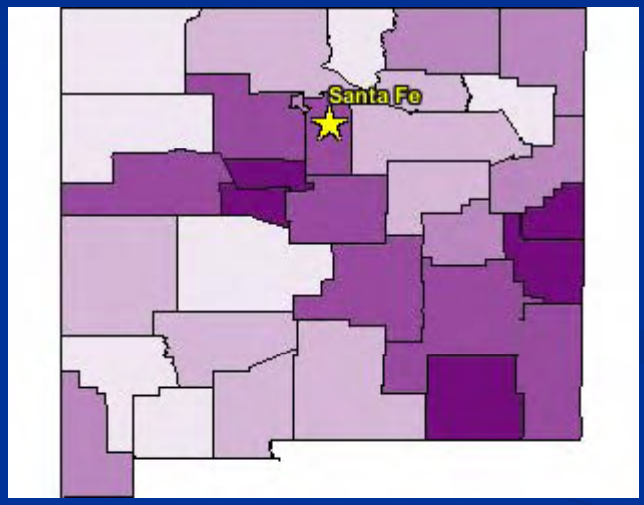
- 2 out of 3 people can not name a stroke warning sign
- About 50% of people do not know to call 911
- 47% of EMS providers believe their stroke knowledge is inadequate
- 68% of surveyed hospitals do not have standing orders for stroke treatment
- Only 0.4% of eligible patients received tPA (2007)

tPA: What is it and why do we care?

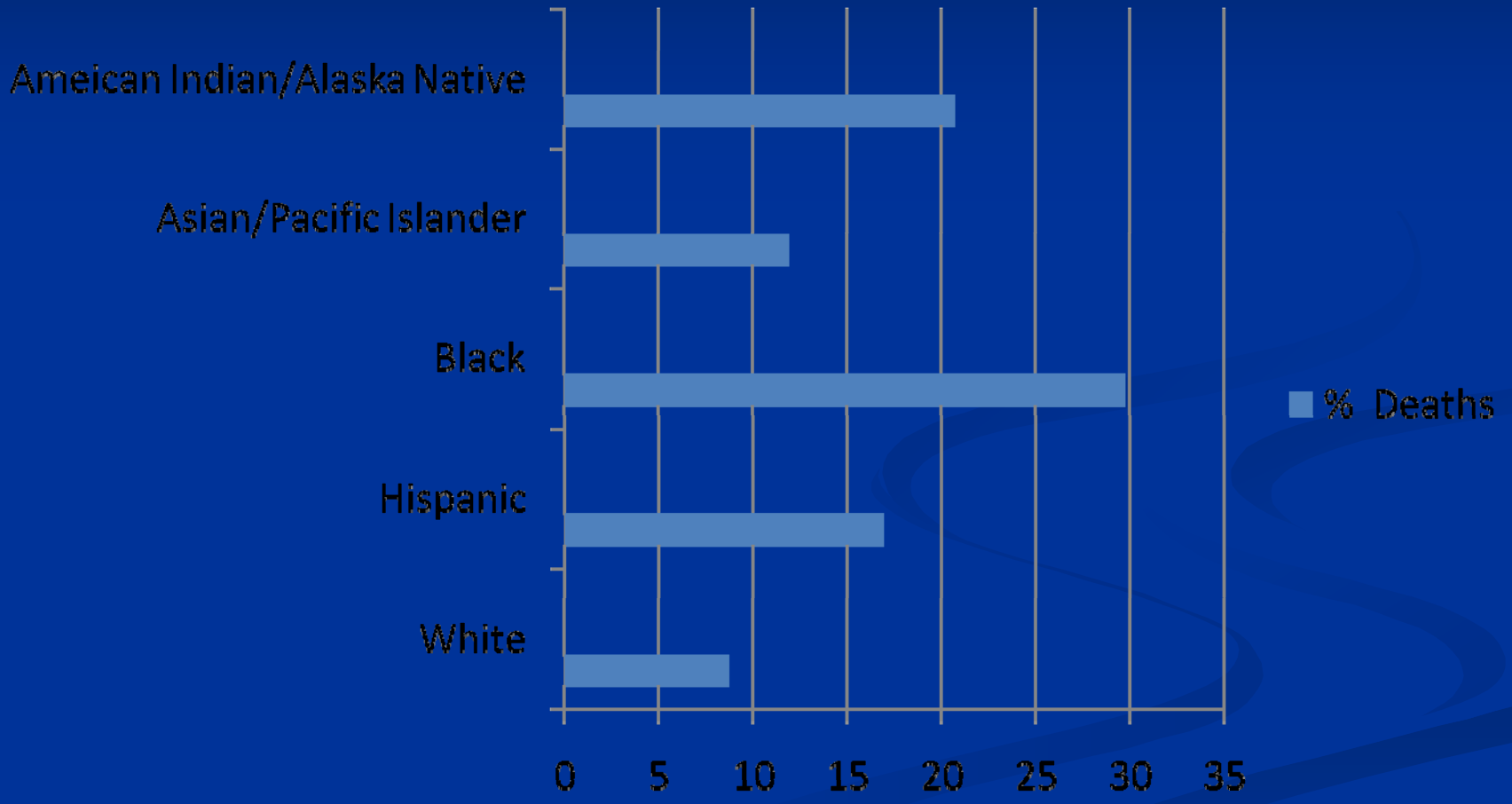
- tPA: FDA approved in 1996
- tPA: 4.5 hour time window
- tPA in New Mexico
  - Lack of public and EMS knowledge
  - Few hospital stroke orders for tPA usage and few patients receive tPA

Stroke and Death Rates 1998

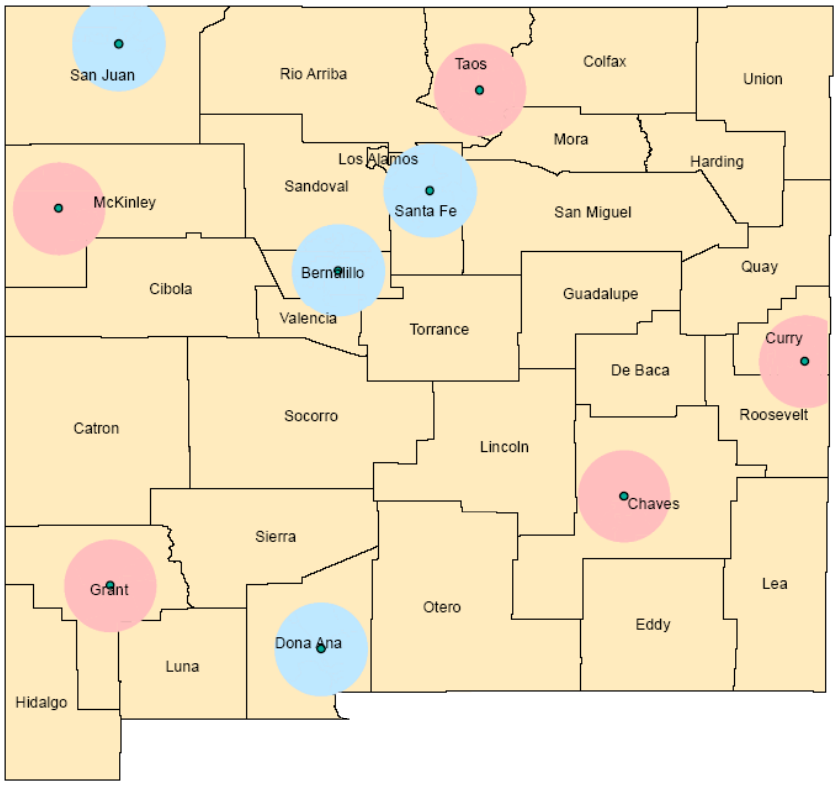




% deaths under 65 due to Stroke



Recommendations (non-recurring)



New Mexico Stroke Task Force
2004

Potential Stroke Center Locations

Other Recommendations

Helicopter Transport from Scene Improves Access to Stroke Care

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INTRODUCTION

Helicopter transport has been advocated as a method to improve access to care and decrease total out-of-hospital time (OHT) for patients experiencing acute stroke.

METHODS

GIS software was used to model system performance under various configurations. The model used NM stroke incidence rates, US Census Bureau demographic data, NM specific EMS performance data, as well as response time regression models for ground and helicopter ambulances. The percentage of state population and stroke patients within 60 and 90 minutes of stroke referral centers was determined. Wing standard dispatch (average delay of 13 minutes after ground dispatch) as well as simultaneous air and ground ambulance dispatch.

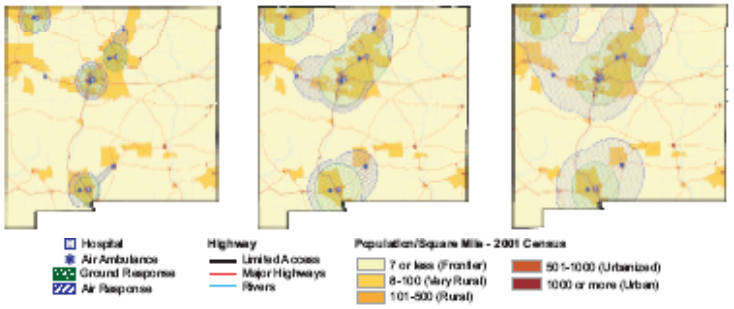
OBJECTIVE

Using various dispatching policies, we sought to determine the impact on access to care using a helicopter to transport patients directly from the scene to potential stroke referral centers in New Mexico.

Model 1: 60 Min Out of Hospital Time Simultaneous Air Dispatch

Model 2: 90 Min Out of Hospital Time Standard Air Dispatch

Model 3: 90 Min Out of Hospital Time Simultaneous Air Dispatch



Model	Description		Area Sq. Miles	Area % Total	2001 Population N	2001 Population %	2001 Stroke Patients N	2001 Stroke Patients %
1	60 min OHT, simultaneous air dispatch	Ground	5,614	4.6	921,767	50.1	2,170	48.2
		Ground + Air	8,417	6.9	1,007,452	54.8	2,303	51.2
		Improvement	2,803	2.3	85,685	4.7	133	3.0
2	90 min OHT, standard air dispatch	Ground	18,457	15.2	1,209,923	65.8	2,728	60.7
		Ground + Air	29,955	24.6	1,331,743	72.4	3,033	67.4
		Improvement	11,498	9.5	121,820	6.6	305	6.8
3	90 min OHT, simultaneous air dispatch	Ground	18,457	15.2	1,209,923	65.8	2,728	60.7
		Ground + Air	47,696	39.2	1,426,880	77.6	3,226	71.7
		Improvement	29,239	24.0	216,957	11.8	498	11.1

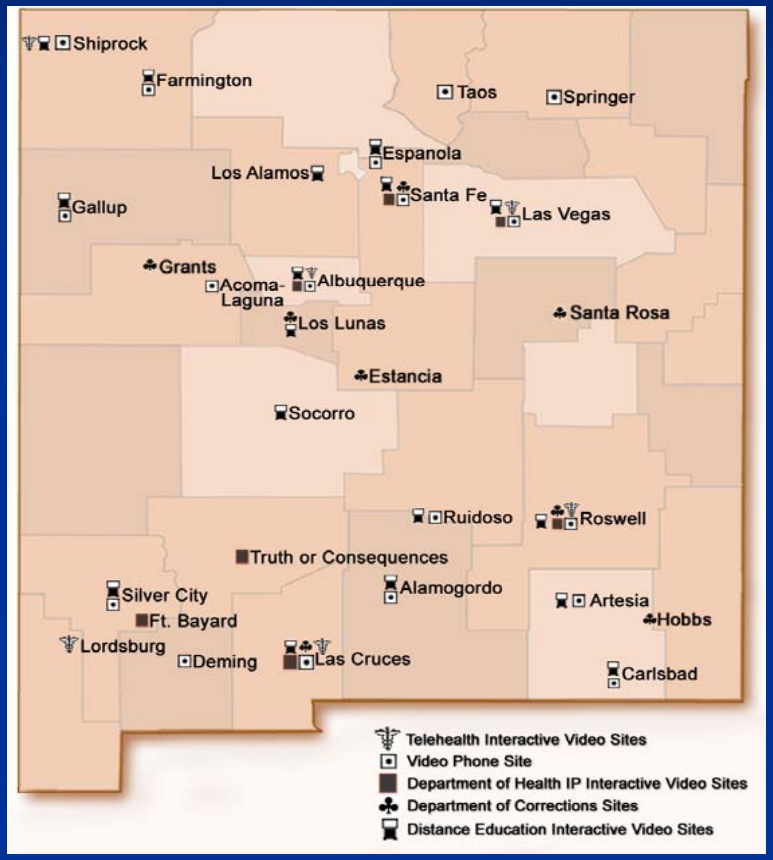
RESULTS

System performance averages included: ground response time 9 min (±8), ground scene time 16 min (±12), air ambulance launch time 9 min (±6), and air ambulance scene time 19 min (±10). For standard air ambulance dispatch, ground transport was faster for all patients within the 60 minute OHT standard. Results for other configurations are presented in the table.

CONCLUSION

Air ambulance scene response using standard dispatch procedures for acute stroke did not increase access to stroke referral centers within 60 minutes. Utilizing simultaneous air and ground ambulance dispatch did demonstrate the potential for increased access at both 60 and 90 minutes.

Other Recommendations



TeleMedicine

ASA South Central Affiliate Region Data 2009

State	Population	Covered (60 minutes)	Uncovered	% Covered	%Uncovered	PSC
Ark	2,913,521	1,117,733	1,795,748	38.4	61.6	2
NM	2,058,296	1.088,709	969,587	52.9	47.1	1
Ok	3,692,249	2,378,608	1,313,641	64.4	35.6	7
Tx	24,896,267	20,392,994	4,503,273	81.9	18.1	49
Total	**33,560,333**	**24,978,084**	**8,582,249**	**74.4%**	25.6	59

Stroke in New Mexico

- Only 0.4% of eligible stroke patients received thrombolytic (clot dissolving) therapy
  - DOH statistics for 2007
- 2009 UNMH obtains TJC certification
- In 2009 UNM alone gave more than triple 2007 doses and 75 % of TPA in the state
- UNMH treatment rate through the Ed ~15%
  - Only 1 symptomatic bleed in 2 years

The Hospital Situation

- 68% of NM hospitals surveyed have no standing orders for stroke patients in 2007

Requirements for TPA

- ED physician
- Stat laboratory
- CT scanner
- Most acute care hospitals in the state meet these criteria including HIS hospitals
- Also drug availability
- Decision maker usually a neurologist

Issues

- Shortage of neurologists
  - 68 in the state
  - 42 in Albuquerque
  - 22 at UNM, but only 9 FTEs
  - Equivalent of <1 FTE certified vascular neurologist
- Shortage of beds
  - Albuquerque needs 600-700 additional
- Shortage of neurosurgeons and neurosurgical support

The TelemedicineSolution

- Web based decentralized system with video and image transfer
  - Allows patient physician history and exam
  - Allows treating physician to review images
- Technology is available in almost every hospital in the state (and compatible with neurosurgery imaging system used for trauma)
- Leverages lack of neurologists
  - 1 /day can cover entire state
- Recommended by national guidelines
- Enforcement starting by CMS and TJC

Plan

- Web based call from UNM and private neurologists
- UNMH will become the states only comprehensive stroke center with 24/7 endovascular and neurosurgical services
- Multiple primary centers
  - Local MDs
  - With or without telemedicine follow-up and medical direction
- System will assist with transfers as needed

Barriers

- Cost
  - Equipment $4000/yr/site in 1st then $2000
  - Bandwidth (likely present from internet access, otherwise $2-6000/yr)
  - $80/hr connection/medical records
  - Physician call
- Physician Time
  - On call fee
  - Billings inadequate for time under CMS rules and Trailblazers
  - 1 Physician /day could cover the entire state
    - Diluting call fee exponentially
- Administration

Barriers 2

- Local resistance
- Physician credentials
  - Currently must apply at each site

Benefits

- Treatment rate would improve dramatically
- Quality would improve
  - Standardization
- Would prevent 80-100 patients from institutionalization/yr
- Increased revenue from DRG would offset some hospital cost
- System is portable and flexible and can be used for any telemedicine needs
- Roughly 40% of commercial service cost

Status

- Grant application to HRSA unsuccessful
- Rural hospitals and Lovelace remain interested
- UNM is reworking its business model for this telemedicine
- Expansion of endovascular service will double potential window of time to treatment