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CASE REPORT
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First Year Experience of the Neurointervention Program at Paul L. Foster School of Medicine, Texas Tech University Health Sciences Center and University Medical Center of El Paso

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Key Words: Neurointervention, Stroke, Primary Stroke Center, Neurovascular, angiography.

Abbreviations, in the order used in this report.
TTUHSC: Texas Tech University Health Science Center
PLFSOM: Paul L. Foster School of Medicine
UMC: University Medical Center
CNS: Central Nervous System
rtPa: recombinant tissue plasminogen activator
AVM: arteriovenous malformation
AVF: arteriovenous fistula

ABSTRACT
Stroke is one of the commonest causes of death and disabling related condition worldwide, with approximately 800,000 annually experiencing a new or recurrent stroke.[1] The incidence rate has decreased in 42% in high income countries with stroke centers, compared with a 100% increase in low and middle income countries.[2,3] This worldwide medical problem and its social, medical and economic consequences justify the establishment of primary stroke centers to offer a systematic approach that have been demonstrated to improve the care of stroke patient, as proposed by The Brain Attack Coalition.[4] The Stroke and Neurointervention program at Texas Tech University Health Science Center (TTUHSC), Paul L. Foster School of Medicine (PLFSM) in conjunction with the University Medical Center of El Paso has been in place since the beginning of 2011. Here we present an outline of our experience to date.

INTRODUCTION
The creation and support of Stroke Centers with the capacity of fast and effective neurointerventional procedures, is one of the most recommended actions in primary management of patients with cerebrovascular disorders.[4,5] Even though recent studies demonstrated this goal should be one of the priorities of most Health Institutes worldwide, in the United States only a minority of hospitals meet the neurointerventional procedural volume criteria for all endovascular procedures recommended for a comprehensive stroke centers.[5] In an effort to achieve this goal, TTHUSC/PLFSM in conjunction with UMC of El Paso has been working to offer our local population rapid access to neurointerventional procedures that may help to improve the outcome of patients with cerebrovascular disorders. The initiative in our center has focused on rapid diagnosis; and quick access to endovascular therapy. In the first year of formal clinical practice, the Stroke Neurointervention Program has treated patients with a variety of disorder specific protocols. The stroke neurointervention program consists with a multidisciplinary team consisting of vascular neurologist, neurointerventionalist, neurointerventional radiology technicians, neurointerventional nurses, stroke coordinator, speech pathologist, occupational therapist, physical therapist, and social workers. The Department of Medicine, the cardiovascular service, the neurotrauma team, medical intensive care unit and the department of anesthesiology at UMC of El Paso and TTUHSC PLFSM all support the program.

SCOPE OF PRACTICE OF THE NEUROINTERVENTIONAL PROGRAM
The most common procedures provided at UMC of El Paso include: intra arterial thrombolysis and mechanical clot extraction during the first 6 hours of acute ischemic stroke, carotid angioplasty and stenting, vertebral artery angioplasty and stenting, intracranial stenting, intracranial aneurysm coiling embolization, arteriovenous malformation embolization, intracranial angioplasty for vasospasm, balloon test occlusion, intracranial venous cerebral thrombolysis and embolectomy, and cervical and cranial tumor embolization. The program encompasses approved protocols for the diagnostic and therapeutic approaches, in order to offer the patient the most appropriate evidence based options.

RESULTS
The data for our analysis was obtained from a prospectively maintained neurointerventional database. The analysis includes a full year's experience at our center. The total number of neurointerventional procedures performed in the first year of the program was 227 (including diagnostic cerebral and spinal angiography plus neurointerventional procedures) (Table 1). The majority of the cases in the first six months (75 8%) were diagnostic cerebral angiograms. However, in the second half of the first year, the balance shifted to a 50:50 mix of neurointerventional and neurodiagnositic procedures (Graph 1). A total of 88 neurointerventional therapeutic procedures were performed.

Table 1. Amount of procedures. Stroke and Neurointerventional Dep. TTHUSC/PLFSM, 2011-2012

Period	Amount of Procedures
Mar 31 2011 - Sep 30 2011	115
Oct 1 2011 - Mar 31 2012	112
Total	**227**

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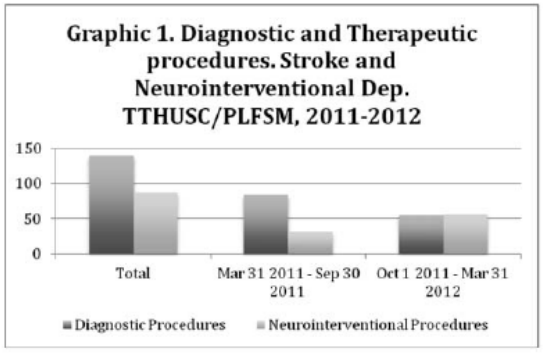
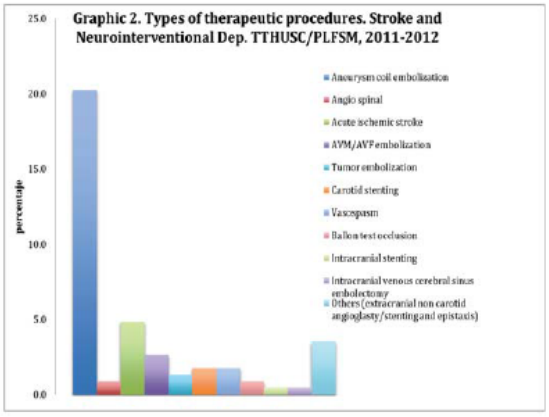


The vast majority of neurointerventional therapeutic procedures were intracranial aneurysm embolization and acute ischemic stroke interventions (acute intra-arterial thrombolysis and endovascular mechanical clot extraction) (Graphic 2).



The outcome of the procedures reveals no intraprocedural mortality for this year period, with a specific morbidity percentage of 1.3% for the diagnostic group and 4.4% for the neurointerventional group. (Table 2)

Table 2. Mortality and Morbidity outcome (number of cases). Stroke and Neurointerventional Dep. TTHUSC/PLFSM, 2011-2012

Procedure	Morbidity	Mortality
Diagnostic	3	0
Neurointervention	10	0
Total	**13**	**0**

CONCLUSION

The first year experience of the neurointerventional program at the TTUHSC Paul L. Foster School of Medicine and UMC demonstrates that neurointervention in El Paso is feasible and can be performed according in a manner consistent national standards with an acceptable rate of morbidity and mortality. The exponential growth of the neurointerventional program during its first year highlights the high incidence of cerebrovascular disease in our area. It will be crucial for the future growing of the neurointervention in our region to have a community effort that can lead in an organized fashion the development of a regional program (West Texas and Southern New Mexico) with the ultimate goal of improving the outcome of our patients with cerebrovascular disease.

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