Uneven Distribution of Stroke Patients and Stroke Resources in Texas

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Background

˜ Due to the time sensitivity of stroke treatment and its public health implications, it is important to optimize the location of high risk patients with stroke care resources.

˜ This co-localization is especially important in a large state such as Texas, with a large but diverse population.

˜ Our hypothesis was that in Texas, resources and patient populations oftentimes are not co-localized.

Methods

˜ Texas 2013 demographic and population data were obtained from the Vital Statistics Unit within the Texas Department of State Health Services (DSHS).

˜ Stroke related age-adjusted hospital discharge rates by county were analyzed using 2013 Texas Inpatient Public Use Data at DSHS.

˜ Counties with 12 or more discharges due to stroke were reported.

˜ The number of Texas hospitals and licensed beds were obtained from the Texas Hospital Association.

˜ The number and locations of stroke designated facilities were provided by Office of EMS/Trauma Systems at DSHS. Hospital designation in Texas is based on state-based criteria, but largely follows the definitions used by the Joint Commission and other credentialing organizations.

˜ We used Medicare beneficiary data as a surrogate for a high-risk population.

˜ Medicare beneficiary data related to stroke were available from 233 of 254 counties in Texas.
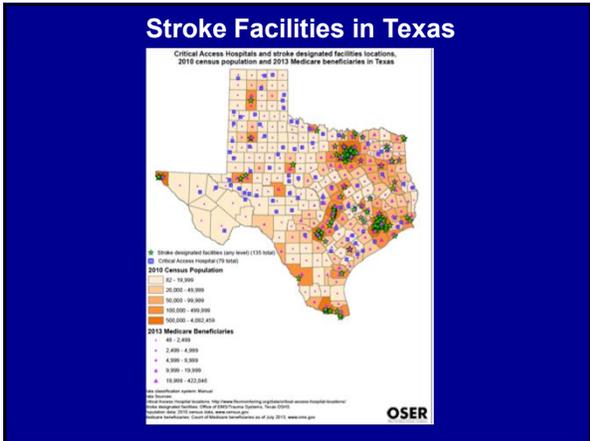
Results-1
Texas Demographics

˜ Texas has approximately 26.4 million people (43% white, 39% Hispanic, 12% black, and 6% other).

˜ As of July 2013, there were almost 3.3 million Medicare beneficiaries in Texas, of whom 94,071 have had a stroke.

˜ Texas has 649 hospitals with 84,000 licensed beds.

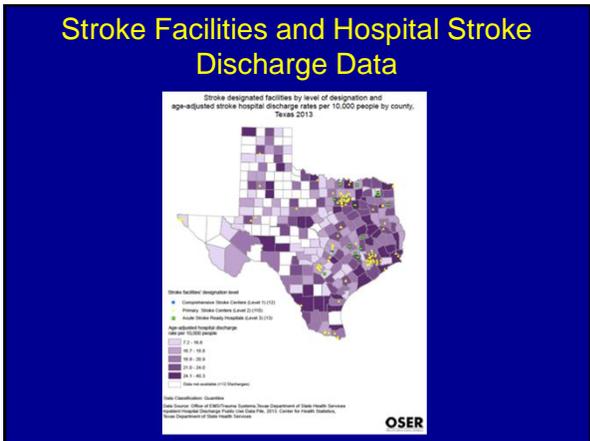˜ There are 135 stroke certified facilities in 49 counties; 205 counties have no designated stroke facilities.

Results-2
Stroke Hospital Data

˜ To assess the distribution of all stroke patients, we analyzed the hospital discharge data by county for 2013 and overlaid with locations of stroke centers by their designation levels (see map 2).

˜ Hospital discharge data for stroke were available for 201 counties out of a total of 254 in Texas.

˜ Among reporting counties, the number of stroke related discharges varied from 12 to 7,592. There were a total of 50,500 stroke discharges and the overall age-adjusted rate was 20.5 per 10,000 adults in Texas.

Results-3
Stroke Center Data

˜ Stroke designated hospitals include 12 Comprehensive Stroke Centers (Level 1), 110 Primary Stroke Centers (Level 2), and 13 Acute Stroke Ready Hospitals (Level 3). There are 79 Critical Access Hospitals (CAH) that provide varying degrees of stroke care but have diverse locations (see map 1).

˜ The majority of Stroke Centers are located in or around large urban areas.

˜ Among Medicare beneficiaries, the number of stroke patients varied significantly by county, with as few as 11 and as many as 12,844 in some counties.

˜ Many counties with large Medicare populations have few or no stroke centers.

Stroke Facilities in Texas

Critical Access Hospitals and stroke designated facilities locations, 2010 census population and 2013 Medicare beneficiaries in Texas

Stroke Facilities and Hospital Stroke Discharge Data

Stroke designated facilities by level of designation and age-adjusted stroke hospital discharge rates per 10,000 people by county, Texas 2013

Stroke Centers and EMS

1. Hospital must first be certified by appropriate agency
   . JC, HFAP, DNV
2. State will then designate hospital as a stroke center
3. Only then can the facilitate advertise and market itself as a stroke center
4. Then the facilitate can be part of EMS diversion plan
5. This is largely controlled by RAC (regional advisory councils)
   1. The RAC reports directly to the governor
   2. RAC can set policies and monitor performance
   3. RAC meetings involve testimony, speakers, etc.

Conclusions

˝ **Texas is a populous, large, and diverse state.**

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˝ **Texas has a large stroke population and a moderate number of stroke centers.**

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˝ **In many counties there is a significant mismatch between stroke patients and stroke resources**.

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Implications

˝ Improved planning, coordination, and communication among local, regional, and state officials and healthcare providers might be one approach to better align health resources and at-risk populations.

Specific steps might include:

˝ identify reasons for the mismatch of stroke patients with care resources

˝ incentivizing hospitals to locate more stroke centers in high-risk counties,

˝ encouraging EMS to implement preferential triage across county lines if local stroke resources are sub-optimal

˝ target high risk areas for more intensive primary prevention interventions and education