Racial Disparities in the Identification of Emergency Department Diagnosed Stroke in the Florida EMS System

Florida Department of Health

BACKGROUND

- Every year more than 795,000 people in the United States have a stroke and it kills nearly 130,000 Americans.

- Stroke is the fourth leading cause of death and a leading cause of disability in Florida.

- The risk of having a stroke varies with race and ethnicity.

BACKGROUND(cont.)

•Risk of having a first stroke is nearly twice as high for blacks than for whites, and blacks are more likely to die following a stroke than are whites.

• Hispanics' risk for stroke falls between that of whites and blacks.

• Stroke is an acute and severe medical condition which require urgent intervention, a quick and accurate diagnosis/ recognition plays a crucial role in the treatment of stroke.

OBJECTIVE

- To investigate the racial/ethnic disparities on the identification of stroke during an emergency medical services.

METHODS

- Data Source: 2011-2015 EMS data and AHCA data

- Target Population: Patients with diagnosed stroke

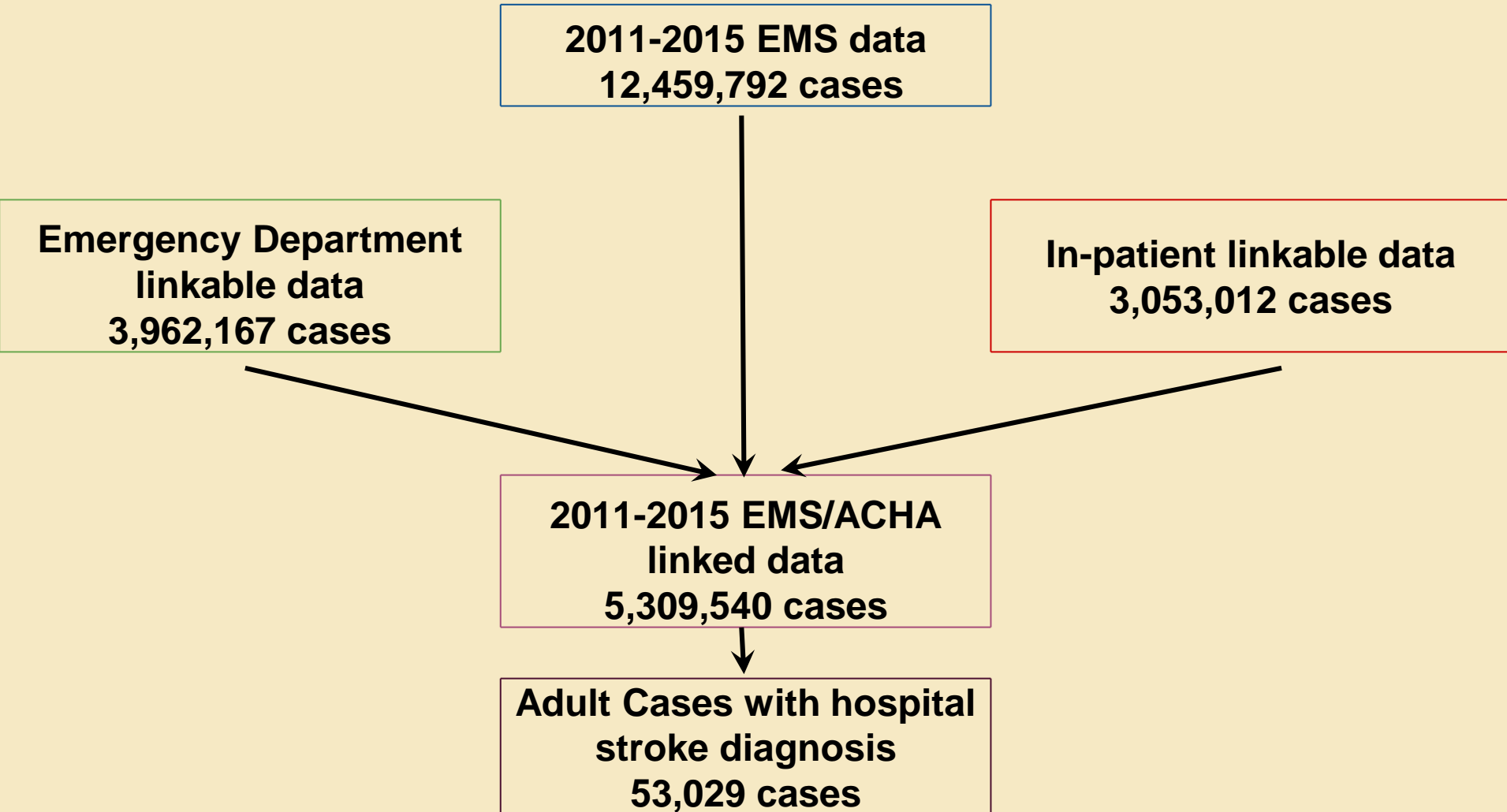- AHCA data was linked to the EMS data.

METHODS(cont.)

- EMS personnel's primary and secondary impression, as well as whether or not a stroke alert was activated (from both the procedure and the alert field) was used to verify a EMS stroke suspicion.

- Multivariate regression was performed to establish the association between race/ethnicity and stroke identification; age and sex were examined for potential confounders.

- Percentages and odds ratios were used to present the results

RESULTS

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│   2011-2015 EMS data            │
│   12,459,792 cases              │
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┌─────────────────────────────┐         ┌─────────────────────────────┐
│  Emergency Department       │         │  In-patient linkable data   │
│  linkable data              │         │  3,053,012 cases            │
│  3,962,167 cases            │         └─────────────────────────────┘
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              ┌─────────────────────────────┐
              │   2011-2015 EMS/ACHA        │
              │   linked data               │
              │   5,309,540 cases           │
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              │  Adult Cases with hospital  │
              │  stroke diagnosis           │
              │  53,029 cases               │
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RESULTS (cont.)

- Among the 53,029 cases, 37,546 were Non-Hispanic Whites, 8,937 were Non-Hispanic Blacks, 4,484 Hispanics and 2,062 other races.
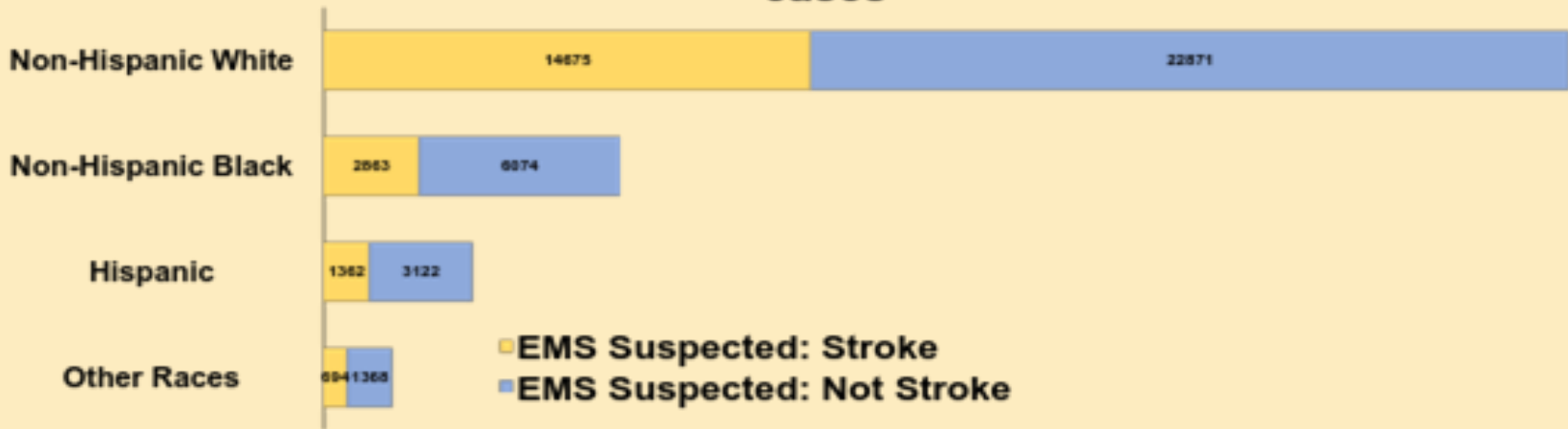
RESULTS (cont.)

	EMS Suspected: Stroke	EMS Suspected: Not Stroke
Male	37.18%	62.82%
Female	36.70%	63.30%

	Average Age	Standard Deviation	Minimum Age	Maximum Age
EMS Suspected: Stroke	72.93	14.287	18	110
EMS Suspected: Not Stroke	72.64	14.283	18	115

RESULTS (cont.)

ems suspected: stroke, among hospital or ed confirmed cases

Bar chart data:
- Non-Hispanic White: EMS Suspected: Stroke 14675, EMS Suspected: Not Stroke 22871
- Non-Hispanic Black: EMS Suspected: Stroke 2863, EMS Suspected: Not Stroke 6074
- Hispanic: EMS Suspected: Stroke 1362, EMS Suspected: Not Stroke 3122
- Other Races: EMS Suspected: Stroke 694, EMS Suspected: Not Stroke 1368

☐ EMS Suspected: Stroke
■ EMS Suspected: Not Stroke

	EMS Suspected: Stroke	EMS Suspected: Not Stroke
Non-Hispanic White	39.09%	60.91%
Non-Hispanic Black	32.04%	67.96%
Hispanic	30.37%	69.63%
Other Races	33.66%	66.34%

RESULTS (cont.)

ADJUSTED ODDS RATIO
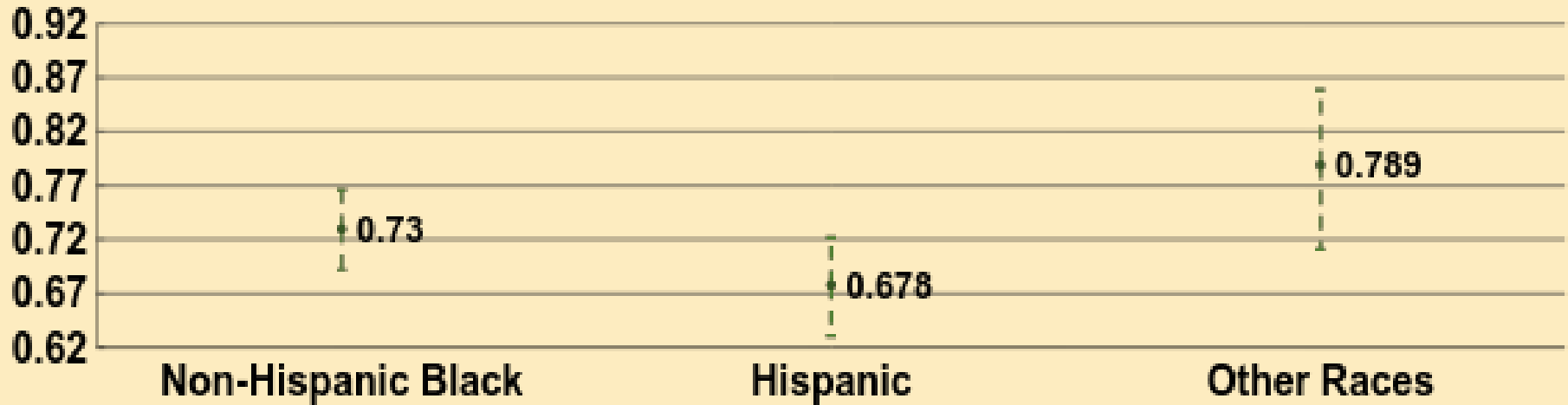
	Adjusted Odds Ratio	95% Confidence Interval	P-value
Non-Hispanic Black	0.73	0.694-0.768	<0.0001
Hispanic	0.678	0.634-0.725	<0.0001
Other Races	0.789	0.719-0.867	<0.0001
Non-Hispanic White	Ref	-	-

- Non-Hispanic Whites was used as reference.

- After controlling sex and age for confounding and interaction effects, all other races and ethnicities had a lower odd of being diagnosed as stroke during the emergency medical services.

- The adjusted odds ratio (aOR) for Non-Hispanic Blacks was 0.730 (CI: 0.694-0.768), for Hispanic was 0.678 (CI: 0.634-0.725) and 0.789 (CI: 0.719-0.867) for other races.

CONCLUSIONS

- Racial/ethnic disparities exist in the EMS stroke case diagnosis.

- Even though Non-Hispanic Blacks and Hispanic often have poor outcomes from stroke when compared to Whites, quick recognitions during emergency medical service are lower than the Non-Hispanic White.

- Interventions are needed to diminish disparities and increase health equity.

Thank you!

CONTACT INFORMATION

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