DISPARITIES IN THE CARE OF CHILDREN WITH INJURIES IN THE UNITED STATES HEALTH SYSTEM

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Disclosure Statement

- Leticia Manning Ryan
  - Has documented that she has no relevant financial relationships to disclose or conflicts of interest (COIs) to resolve
  - Has documented that her presentation will not involve discussion of unlabeled or unapproved uses of drugs.
Objectives

Following this session, participants will be able to:

• *Discuss the disparities in the epidemiology of pediatric trauma and the impact of health disparities on care of the injured child*;

• Describe the potential sources of, and the levels at which, disparities are produced in the acute care delivery system;

• Summarize the existing intervention opportunities to improve equity for the emergency care of children in the United States.
Understanding health disparities

• Health disparities are preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations.

Centers for Disease Control and Prevention
Understanding health disparities

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*Centers for Disease Control and Prevention*
# Epidemiology of Pediatric Trauma

## 10 Leading Causes of Death by Age Group, United States – 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Congenital Anomalies 4,758</td>
<td>Unintentional Injury 1,316</td>
<td>Unintentional Injury 746</td>
<td>Unintentional Injury 11,619</td>
<td>Unintentional Injury 16,209</td>
<td>Unintentional Injury 15,354</td>
<td>Malignant Neoplasms 46,185</td>
<td>Malignant Neoplasms 113,324</td>
<td>Heart Disease 488,156</td>
<td>Heart Disease 611,105</td>
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<tr>
<td>2</td>
<td>Short Gestation 4,202</td>
<td>Congenital Anomalies 476</td>
<td>Malignant Neoplasms 448</td>
<td>Malignant Neoplasms 448</td>
<td>Suicide 4,878</td>
<td>Suicide 6,348</td>
<td>Malignant Neoplasms 11,349</td>
<td>Heart Disease 35,167</td>
<td>Heart Disease 72,588</td>
<td>Malignant Neoplasms 407,558</td>
<td>Malignant Neoplasms 584,881</td>
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<tr>
<td>3</td>
<td>Maternal Pregnancy Comp. 1,595</td>
<td>Homicide 557</td>
<td>Congenital Anomalies 179</td>
<td>Suicide 356</td>
<td>Homicide 4,229</td>
<td>Homicide 4,026</td>
<td>Heart Disease 10,341</td>
<td>Unintentional Injury 20,357</td>
<td>Unintentional Injury 17,057</td>
<td>Chronic Low Respiratory Disease 127,104</td>
<td>Chronic Low Respiratory Disease 149,205</td>
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<tr>
<td>4</td>
<td>SIDS 1,563</td>
<td>Malignant Neoplasms 328</td>
<td>Homicide 126</td>
<td>Congenital Anomalies 161</td>
<td>Malignant Neoplasms 1,496</td>
<td>Malignant Neoplasms 3,673</td>
<td>Suicide 6,551</td>
<td>Liver Disease 8,785</td>
<td>Chronic Low Respiratory Disease 15,942</td>
<td>Cerebrovascular 109,602</td>
<td>Unintentional Injury 130,557</td>
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<td>5</td>
<td>Unintentional Injury 1,156</td>
<td>Heart Disease 109</td>
<td>Chronic Low Respiratory Disease 75</td>
<td>Homicide 152</td>
<td>Heart Disease 941</td>
<td>Heart Disease 3,258</td>
<td>Homicide 2,251</td>
<td>Suicide 8,921</td>
<td>Diabetes Mellitus 13,061</td>
<td>Alzheimer’s Disease 3,786</td>
<td>Cerebrovascular 128,978</td>
</tr>
<tr>
<td>6</td>
<td>Placenta Cord, Membranes 953</td>
<td>Influenza &amp; Pneumonia 102</td>
<td>Heart Disease 73</td>
<td>Heart Disease 100</td>
<td>Congenital Anomalies 362</td>
<td>Diabetes Mellitus 604</td>
<td>Liver Disease 2,491</td>
<td>Diabetes Mellitus 5,999</td>
<td>Diabetes Mellitus 11,951</td>
<td>Diabetes Mellitus 53,751</td>
<td>Alzheimer’s Disease 84,767</td>
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<td>Bacterial Septis 578</td>
<td>Chronic Low Respiratory Disease 64</td>
<td>Influenza &amp; Pneumonia 67</td>
<td>Chronic Low Respiratory Disease 80</td>
<td>Influenza &amp; Pneumonia 197</td>
<td>Liver Disease 676</td>
<td>Diabetes Mellitus 1,982</td>
<td>Cerebrovascular 5,425</td>
<td>Cerebrovascular 11,304</td>
<td>Influenza &amp; Pneumonia 48,031</td>
<td>Diabetes Mellitus 75,578</td>
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<td>Respiratory Distress 522</td>
<td>Septicemia 53</td>
<td>Cerebrovascular 41</td>
<td>Influenza &amp; Pneumonia 61</td>
<td>Diabetes Mellitus 193</td>
<td>HIV 631</td>
<td>Cerebrovascular 1,687</td>
<td>Chronic Low Respiratory Disease 4,619</td>
<td>Suicide 7,135</td>
<td>Unintentional Injury 45,942</td>
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<td>Circulatory System Disease 458</td>
<td>Benign Neoplasms 47</td>
<td>Septicemia 35</td>
<td>Complicated Pregnancy 178</td>
<td>Cerebrovascular 508</td>
<td>HIV 1,246</td>
<td>Septicemia 2,445</td>
<td>Septicemia 5,345</td>
<td>Nephritis 39,080</td>
<td>Nephritis 47,112</td>
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<td>Neonatal Hemorrhage 389</td>
<td>Perinatal Period 45</td>
<td>Benign Neoplasms 34</td>
<td>Benign Neoplasms 31</td>
<td>Chronic Low Respiratory Disease 155</td>
<td>Influenza &amp; Pneumonia 440</td>
<td>Influenza &amp; Pneumonia 881</td>
<td>HIV 2,378</td>
<td>Nephritis 4,947</td>
<td>Nephritis 28,815</td>
<td>Suicide 41,149</td>
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Understanding health disparities

The **Healthy People 2020** Objectives identify injury and violence as leading health indicators.
Understanding health disparities

Population factors to consider:
• Race/ethnicity
• Gender
• Sexual identity
• Disability
• Socioeconomic status
• Geographic location
Epidemiology of pediatric trauma

- Trauma affects all population groups; however, significant disparities exist in the epidemiology of pediatric trauma and in the care of the injured child.
Pediatric trauma and health disparities

Racial/ethnic disparities:

• The overall drowning rate for African Americans is 1.4 times the rate for whites.
• Disparities were greatest in swimming pools.
  • Between ages 5-19 years, swimming pool drowning rates among African Americans are 5.5 times higher than those among whites. This disparity was greatest at ages 11-12 years; at these ages, African American children drown in swimming pools at 10 times the rate of whites.

*Morbidity and Mortality Weekly Report, 2014 (63)*
*Centers for Disease Control and Prevention*
Pediatric trauma and health disparities

Gender disparities:

- Boys and men are more likely than girls and women to die of injury.
  - Male-to-female age-adjusted rate ratio: 2.15 (unintentional injury) and 3.91 (violence-related injury)
- Excess male mortality existed in manner of death, cause of death, and within ethnic and age groups.

*Sorenson SB, Am J Public Health, 2011*
Pediatric trauma and health disparities

Sexual orientation-related disparities:

- Sexual minority youth experience significantly higher levels of self-injury and suicidality than do heterosexual youth.

Pediatric trauma and health disparities

Disability-related disparities:

- With control for sociodemographic variables, children with emotional or behavioral problems have a significantly higher risk of injury compared with children without a disability.

Pediatric trauma and health disparities

Socioeconomic disparities:

• In 1969-1971, children in the most deprived socioeconomic quintile had a 69% higher rate of unintentional injury mortality compared to children in the least deprived socioeconomic quintile.
• In 1998-2000, this differential widened to 177%.

Pediatric trauma and health disparities

Geographic disparities:

- Rural children were at higher risk of overall injury, motor vehicle crash injury and suicide, whereas urban children experienced higher rates of firearm-related homicides.
- Greater rural-urban injury disparities were likely to be found between more extreme rural and urban areas.

Factors that may influence health disparity in pediatric trauma epidemiology

Pre-event phase
• Factors that determine whether an event occurs

Event phase
• Factors in an event that lead to injury

Post-event phase
• Everything that determines the consequences of injuries received
Example: Haddon Matrix with Contributing Factors to Child Passenger Injury from an MVC

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<td>Behavior</td>
<td>Vehicle condition</td>
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<td>Driving attitudes and habits</td>
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Factors that may influence health disparity in pediatric trauma epidemiology

Example: Racial, ethnic and socioeconomic disparities in use of motor vehicle restraints for children

Possible contributing factors:
• Cultural differences
• Lack of appropriate cultural messages
• Socioeconomic gaps

Brown RL, Current Opinion in Pediatrics, 2010
Factors that may influence health disparity in pediatric trauma epidemiology

Example: Racial, ethnic and socioeconomic disparities in mortality outcomes for pediatric trauma

After controlling for Injury Severity Score and type of injury, mortality disparity exists for uninsured, African American and Hispanic pediatric trauma patients.

What are potential sources of disparities in care?

Populations with Equal Access to Health Care

Institute of Medicine, Unequal Treatment
What are potential sources of disparities in care of injured children?

PATIENT LEVEL
- Patient attitudes and preferences
- Health literacy

HEALTHCARE SYSTEM LEVEL
- Language barriers
- Availability of services

DISPARITIES ARISING FROM CLINICAL ENCOUNTERS
- Provider attitudes: potential for bias, uncertainty, stereotyping
Objectives

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