Welcome Dr. Box!

Email questions to: indianatrauma@isdh.in.gov
Updates

Katie Hokanson, Director of Trauma and Injury Prevention

Email questions to: indianatrauma@isdh.in.gov
Trauma Center Verifications

• Reid Health
• Terre Haute Regional
• Union Hospital

Email questions to: indianatrauma@isdh.in.gov
Coroners lacking Data Sharing Agreements for INVDRS

- Hendricks
- Jefferson
- Jennings
- Knox
- Miami
- Noble
- Owen
- Posey
- Sullivan
- Switzerland
- Vanderburgh
- Vigo
- Warren
- Warrick
- Wells
- White
Division staffing updates

• Tyler Gannon  
  – PDO Community Outreach Coordinator

• Klaudia Wojciechowska  
  – CDC Public Health Associate

• Jessica Schultz  
  – Now with Iowa Department of Health

Email questions to: indianatrauma@isdh.in.gov
Division openings

- Injury prevention epidemiologist
- Naloxone program manager

Email questions to: indianatrauma@isdh.in.gov
Public Health Public Safety Conference

Save the Date
Wednesday, September 27
8:30 a.m. - 4:30 p.m.

Ritz Charles
12156 North Meridian Street
Carmel, IN 46032

Email questions to: indianatrauma@isdh.in.gov
2017 Labor of Love Infant Mortality Summit

JW Marriott, 10 S. West Street, Indianapolis

Wednesday, November 15, 2017

Labor of Love Infant Mortality Summit

Addressing the Effect of Opioids for Indiana’s Moms and Babies

Email questions to: indianatrauma@isdh.in.gov
2018 EMS Medical Director’s Conference

5th annual
EMS Medical Directors’ Conference
Friday, April 27, 2018
Ritz Charles
12156 N. Meridian Street
Carmel, IN 46032
8am - 5pm

Get notified when registration opens!
Send your contact information to:
indianatrauma@isdh.in.gov

Email questions to: indianatrauma@isdh.in.gov
Grant activities

- National Violent Death Reporting System (NVDRS)
  - Awarded for year 4 (of 5)
- Prescription Drug Overdose: Prevention for States
  - Awarded for year 2 (of 3)
  - Awarded additional, one-time funds
- Enhanced State Surveillance of Opioids
  - Originally awarded but not funded, funding starts September 1
    - 2 year grant
    - Awarded for additional, one time funds
- First Responder Comprehensive Addiction and Recovery Act
  - Awarded – 4 year grant

Email questions to: indianatrauma@isdh.in.gov
Peer recovery coach program (continued)

- The Division of Mental Health and Addiction (DMHA) has allocated $600,000 from the 21st Century Cures budget to support Recovery Coaches in up to six ($100,000 each) hospital emergency departments (EDs).
  - The ISDH has allocated $400,000 from the first responder CARA budget to support four ($100,000 each) additional EDs.

- The goal of this project is based on the need for integrated treatment and recovery services, especially for patients who have overdosed on an opioid, and is expected to:
  - Increase the number of people who receive opioid use disorder (OUD) treatment
  - Increase the number of people who receive OUD recovery services and;
  - Increase the number of providers implementing medication assisted treatment (MAT).

Email questions to: indianatrauma@isdh.in.gov
Peer recovery coach program (continued)

- Proposals should be submitted by November 30, 2017 and include the following information:
  - Data/information to support need in your community.
    - ISDH can help with the data!
  - Identify lead agency for the project as well as any partnerships.
  - Describe plan to recruit, train and integrate peer support into agency’s infrastructure.
  - Identify goals and timeline for implementation.
  - Include budget for project.

Email questions to: indianatrauma@isdh.in.gov
Peer recovery coach program (continued)

Point of Contact:

Becky Buhner
DMHA - Policy, Planning & Regional Services

Rebecca.Buhner@fssa.IN.gov

http://www.in.gov/recovery/files/LOI_Peers_EDU.pdf

Email questions to: indianatrauma@isdh.in.gov
2018 ISTCC & ITN Meetings

- *NEW* Location: Indiana Government Center – South, Conference Room B.
- Webcast still available.
- Time: 10:00 A.M. EST.

- Dates:
  - February 16
  - April 20
  - June 15
  - August 17
  - October 19
  - December 14

Email questions to: indianatrauma@isdh.in.gov
Injury prevention updates

Preston Harness, Injury Prevention Program Coordinator

Email questions to: indianatrauma@isdh.in.gov
Injury Prevention Update

- Stepping On program.
- Child Passenger Safety.
- Injury Prevention Advisory Council (IPAC).
- Reports releasing on the division website soon:
  - Preventing Injuries in Indiana Resource Guide.
  - Child Injury.
  - School Age 6-11.
  - Older Kids 12-18.
  - Indiana Firework-related Injury Report.
Regional Updates
Regional updates

• District 1
• District 2
• District 3
• District 4
• District 5
• District 6
• District 7
• District 10

Email questions to: indianatrauma@isdh.in.gov
Subcommittee Update
Designation Subcommittee

Judi Holsinger, Trauma Services Director
St. Vincent Indianapolis Hospital

Email questions to: indianatrauma@isdh.in.gov
Trauma Designation
Subcommittee Update

October 10, 2017
Lewis Jacobson, MD, FACS
Committee Chair

Spencer Grover, Dr. Stephanie Savage, Jennifer Konger, Judi Holsinger, Kelly Blanton, Missy Hockaday, Wendy St. John, Katie Hokanson, Ramzi Nimry
ISDH Trauma Designation
Subcommittee Meeting Agenda
10/10/17

1. One Year Review
   a. Memorial Hospital & Health Care Center
Memorial Hospital & Health Care Center

• Located: Jasper, Indiana
• Seeking: Level III adult trauma center status
• The one year review was reviewed and the following issues were identified:
  • Lacking external trauma-related CMEs for trauma surgeons – DUE December 1.
  • Operational process performance committee and trauma peer review committee meetings had wrong dates.
    • Need to address emergency medicine attendance at trauma peer review committee meetings by December 1.
• Consultation Visit: May 2017
• Verification visit scheduled for: May 2018
### In the Process of ACS Verification Trauma Centers

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>City</th>
<th>Level</th>
<th>Adult / Pediatric</th>
<th>“In the Process” Date*</th>
<th>1 Year Review Date**</th>
<th>ACS Consultation Visit Date</th>
<th>ACS Verification Visit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial Hospital &amp; Health Care Center</td>
<td>Jasper</td>
<td>III</td>
<td>Adult</td>
<td>08/24/2016</td>
<td>October 2017</td>
<td>05/16-05/17, 2017</td>
<td>May 2018</td>
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</table>

*Date the EMS Commission granted the facility “In the process” status
**Date the Indiana State Trauma Care Committee (ISTCC) reviewed reviews the 1 year review documents. This date is based on the first ISTCC meeting after the 1 year date.

Facility is past the two year mark for their “in the Process” status.
Subcommittee Update
Performance Improvement Subcommittee

Dr. Stephanie Savage, Trauma Medical Director
IU Health Methodist

Email questions to: indianatrauma@isdh.in.gov
### ISDH Performance Improvement Subcommittee October 2017 update

<table>
<thead>
<tr>
<th>Member Name</th>
<th>Department</th>
<th>Contact Person</th>
<th>Department</th>
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<tbody>
<tr>
<td>Amanda Rardon</td>
<td>D4</td>
<td>Jennifer Mullen</td>
<td>D1</td>
</tr>
<tr>
<td>Amelia Shouse</td>
<td>D7</td>
<td>Jodi Hackworth</td>
<td>D5</td>
</tr>
<tr>
<td>Andy VanZee- IHA</td>
<td></td>
<td>Kelli Vannatter</td>
<td>D6</td>
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<tr>
<td>Angela Cox-Booe</td>
<td>D5</td>
<td>Kelly Blanton</td>
<td>D5</td>
</tr>
<tr>
<td>Annette Chard</td>
<td>D3</td>
<td>Kelly Mills</td>
<td>D7</td>
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<tr>
<td>Bekah Dillon</td>
<td>D6</td>
<td>Kristi Croddy</td>
<td>D5</td>
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<tr>
<td>Brittanie Fell</td>
<td>D7</td>
<td>Latasha Taylor</td>
<td>D1</td>
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<tr>
<td>Carrie Malone</td>
<td>D7</td>
<td>Lesley Lopossa</td>
<td>D8</td>
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<td>Christy Claborn</td>
<td>D5</td>
<td>Lindsey Williams</td>
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<tr>
<td>Chuck Stein</td>
<td>D5</td>
<td>Lisa Hollister</td>
<td>D3</td>
</tr>
<tr>
<td>Dawn Daniels</td>
<td>D5</td>
<td>Lynne Bunch</td>
<td>D6</td>
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<tr>
<td>Dusten Roe</td>
<td>D2</td>
<td>Marie Stewart</td>
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<td>Emily Grooms</td>
<td>D2</td>
<td>Mark Rohlffing</td>
<td>D6</td>
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<tr>
<td>Jennifer Homan</td>
<td>D1</td>
<td>Mary Schober</td>
<td>D5</td>
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<td>ISDH STAFF</td>
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<tr>
<td>Camry Hess</td>
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<tr>
<td>Katie Hokanson</td>
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<tr>
<td>Ramzi Nimry</td>
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<tr>
<td>Pravy Nijjar</td>
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</tbody>
</table>
Hospital Reporting Indiana Trauma Registry - overall excellent reporting, slight down-tick this report - continue to stress importance of submitting data
PI Update – September 2017

Timeliness (In Days)

Avg. # days from incident to date reported to ITR

- September
- October
- November
- December
- January
- February
- March
- April
- May
- June
- July
- August
PI Update – September 2017

ED Length of Stay – Time to Orders Written

Percent of Patients Transferred from ED at non-verified Trauma Center Hospitals in <2 Hours

*ED LOS was calculated using ED/Acute Care Discharge (Orders Written) for July 2016 and later.
PI Update – September 2017

ED Length of Stay – **Time to ED Departure**

Percent of Patients Transferred from ED at non-verified Trauma Center Hospitals in <2 Hours

*ED LOS was calculated using ED/Acute Care Discharge (Physical Exit) for July 2016 and later.*
PI Update – September 2017

Transfer Delays
- of 7,805 entries, 78 were marked ‘yes’ for transfer delays (1%)
Transfer Delays

- FMS Issue: 0.3%
- Null: 1.3%
- Other: 0.3%
- Receiving Hospital Issue: 0.2%
- Referring Hospital Radiology: 0.0%
- Referring Physician Decision Making: 0.0%
- Weather or Natural Factors: 0.0%
PI Update – September 2017

Pilot Project Data – Transfer Delays

Pilot Transfer Delay Reason

- Bed availability: 15%
- Change in patient condition: 4%
- Delay in diagnosis: 4%
- Delay in ED disposition: 4%
- Error in judgement: 4%
- Family requested transfer: 4%
- MD response delay: 4%
- Physician decision-making: 19%
- Radiology workup delay: 22%
- Shortage of ground transport availability: 11%
- Transportation issue: 11%
PI Update – September 2017

Trauma Registry Quiz
- Slightly improved participation (32% in April)
  - some issues with the platform

Continuing to work on increased EMS run sheet collection
Next Meeting

10:00-11:00am EST Larkin Conference Room
Trauma system planning subcommittee update

Dr. Scott Thomas, Trauma Medical Director
Memorial Hospital of South Bend

Email questions to: indianatrauma@isdh.in.gov
Trauma system planning subcommittee

- Identification, evaluation & enhancement of a needs based trauma assessment tool (NBATS) for the Indiana Trauma System.
- Identify and advocate for statewide trauma funding to support trauma system development for Indiana.
- Assessment of prehospital ground & air transport of critically injured patients with increased emphasis on lack of services, barriers and strategies to reduce transport times to definitive care across the state of Indiana.
- Identification of a formal selection process and provide recommendations to ISDH for membership on the Indiana State Trauma Care Committee.
- Serve as advocates and provide structure for interdisciplinary collaboration on statewide initiatives such as highway safety, emergency preparedness and data integration.

Email questions to: indiana-trauma@isdh.in.gov
American College of Surgeons - Committee on Trauma Update

Dr. Scott Thomas, Trauma Medical Director
Memorial Hospital of South Bend

Email questions to: indianatrauma@isdh.in.gov
Resource Facilitation as a Proactive Model for Managing Health and Social Outcomes following TBI

Lance E. Trexler, PhD, FACRM
Rehabilitation Hospital of Indiana
Indiana University School of Medicine
US Incidence & Prevalence of TBI

- 1.74 million/year requiring a physician visit
- Severity ranges from mild (80%) to moderate to severe (20%)
- 3.32-5.3 million have long-term disability
- People with history of TBI are 66% more likely to receive welfare or disability payments

Costs Associated with TBI

- $13.1 Billion in 2013 dollars are direct costs
- $64.7 Billion in lost productivity
- $63.4-79.1 Billion in medical costs

Childhood TBI

- 35,000 hospitalizations a year for children aged 0-14
- 145,000 children living with chronic TBI-disability, but only 24,878 are in the TBI category for special education
- Under- and mis-identification significant obstacle to effective services and education


Indiana Incidence - Prevalence of TBI

- 2,472 annual hospitalizations for TBI
- 66,410 Hoosiers living with disability secondary to TBI
Indiana Public Health Implications

- 18% return to work
- 50% return to hospital at least once
- 33% rely on others for help with everyday activities
- 29% are not satisfied with life
- 29% use illicit drugs or misuse alcohol
- 22% reside in nursing homes

Health services utilization over first 10 years

Cameron, et al *Brain Injury* 2008

- Inception cohort (1988–1991) hospitalized with TBI aged 18–64 years (n = 1290) and matched to a non-injured comparison group (n = 1290) and followed for 10 years post TBI
- 1.5 x more post injury hospitalizations
- 5.1 x more post injury days in the hospital
- 1.4 x more post injury physician claims
Myth About Recovery
Glasgow Outcome Scale-Extended (GOS-E)

The Glasgow Outcome Scale (GOS) is a global scale for functional outcome that rates patient status into one of five categories: Dead, Vegetative State, Severe Disability, Moderate Disability or Good Recovery. The Extended GOS (GOSE) provides more detailed categorization into eight categories by subdividing the categories of severe disability, moderate disability and good recovery into a lower and upper category.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Death</td>
</tr>
<tr>
<td>2</td>
<td>Vegetative state</td>
</tr>
<tr>
<td>3</td>
<td>Lower severe disability</td>
</tr>
<tr>
<td>4</td>
<td>Upper severe disability</td>
</tr>
<tr>
<td>5</td>
<td>Lower moderate disability</td>
</tr>
<tr>
<td>6</td>
<td>Upper moderate disability</td>
</tr>
<tr>
<td>7</td>
<td>Lower good recovery</td>
</tr>
<tr>
<td>8</td>
<td>Upper good recovery</td>
</tr>
</tbody>
</table>

http://www.tbi-impact.org/cde/mod_templates/12_F_01_GOSE.pdf
Change in Function over Time:
Glasgow Outcome Scale-Extended (GOS-E)
TBI Model System National Data & Statistical Center

Year 2 vs. Year 1
(N=4,986)
- % 2 categ. Declined: 8.8%
- % 1 categ. Declined: 11.5%
- % no change: 48.2%
- % 1 categ. Improved: 19.0%
- % 2 categ. Improved: 12.5%

Year 5 vs. Year 2
(N=2,867)
- % 2 categ. Declined: 12.9%
- % 1 categ. Declined: 14.2%
- % no change: 44.8%
- % 1 categ. Improved: 17.3%
- % 2 categ. Improved: 10.8%

Year 10 vs. Year 5
(N=796)
- % 2 categ. Declined: 20.7%
- % 1 categ. Declined: 13.3%
- % no change: 41.8%
- % 1 categ. Improved: 15.5%
- % 2 categ. Improved: 8.7%

Year 15 vs. Year 10
(N=194)
- % 2 categ. Declined: 23.7%
- % 1 categ. Declined: 8.2%
- % no change: 39.2%
- % 1 categ. Improved: 18.6%
- % 2 categ. Improved: 10.3%

Change in GOS-E

Slide courtesy of Flora Hammond, M.D.
Change is more common than stability
2012 Indiana Vocational Rehabilitation Services return to work rate for brain injury = 18%
Acute Care - - - - - Return to Work
Resource Facilitation and the Post-Acute Continuum

- Vocational and Community-Based
  - E.G., Employment Services
  - Follow-Up

- Acute and Clinical
  - E.G., Neuropsychological Treatment
  - Follow-Up
  - Follow-Up
Resource Facilitation Defined

- individualized assessment
- provide brain injury specific education and promote awareness of resources
- proactive navigation to community-based supports, resources and services
- remove instrumental barriers (e.g., housing) as well as brain injury-specific barriers (e.g., memory impairment) to successful community re-integration and return to work.
First Randomized Controlled Trial of Resource Facilitation
(Trexler, Trexler, Malec et al., (2010) JHTR, 25; 440-446)

- 22 people with acquired brain injury recruited from RHI (11 RF, 11 Con)
- Six months of Resource Facilitation (Conners, 2001)
- Team= Neuropsychologist, VR TBI Specialist, Resource Facilitator, BI Therapist
Results

64% of the RF group was employed at follow-up compared to 36% of the control group (Wald-Wolfkowitz $Z = -3.277$, $p < .0001$)
Results

Interaction between groups and time demonstrated greater improvement for the RF group relative to controls ($F = 9.11$, $p < .007$).
Replication Study with larger sample size and longer treatment duration

- 44 people with acquired brain injury recruited from RHI (22 RF treatment, 22 Control)
- 15 months of Resource Facilitation Services
VIS-R by Group

- Significant group by time interaction ($p = .027$)
- On average, the treatment group was 0.13 points higher than the control group on the VIS-R
- On average, the treatment group improved 0.17 points at each measurement while the control group only improved by 0.10 points
Results: Community-Based Work

- The odds ratio from the logistic regression found that RF participants were **7.0 times** more likely to participate in productive community-based work than the control group.

- Relative risk analysis showed that **the risk of no productive community-based work was 75% higher in the control group** than the treatment group.
<table>
<thead>
<tr>
<th></th>
<th>Prospective Clinical Cohort 2</th>
<th>RCT 1</th>
<th>RCT 2</th>
<th>Prospective Clinical Cohort 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>141</td>
<td>12</td>
<td>22</td>
<td>69</td>
</tr>
<tr>
<td>% Employed Pre-Injury</td>
<td>67</td>
<td>100</td>
<td>100</td>
<td>59</td>
</tr>
<tr>
<td>Time Since Injury</td>
<td>10.10 years</td>
<td>64.50 days</td>
<td>63.21 days</td>
<td>9.28 years</td>
</tr>
<tr>
<td>% RTW</td>
<td>70</td>
<td>64</td>
<td>69</td>
<td>65</td>
</tr>
</tbody>
</table>
Resource Facilitation and Level of Disability Outcomes

- Significant improvement ($p = .000$) in ADL’s
  - self-care,
  - household care,
  - shopping and money management,
  - travel, and
  - communication pre-post comparison 10 years post-injury
MPAI-4 results show a significant decline in level of disability across all subscales after RF:

- abilities (e.g., mobility, memory) \( t = 2.49, p = .014 \),
- adjustment (e.g., depression social interaction) \( t = 3.47, p = .001 \),
- participation (e.g., managing money, transportation) \( t = 3.54, p = .001 \), and
- Total \( t = 4.07, p = .000 \)
Resource Facilitation and Service Utilization


- Developed specifically for brain injury
- Variety of instrumental and service needs
- Addresses both what they are receiving and perceived needs

<table>
<thead>
<tr>
<th>Receive help now</th>
<th>Need/want help</th>
</tr>
</thead>
<tbody>
<tr>
<td>traveling in my community</td>
<td></td>
</tr>
<tr>
<td>finding housing that is affordable and accessible</td>
<td></td>
</tr>
<tr>
<td>controlling alcohol and/or drug use</td>
<td></td>
</tr>
<tr>
<td>improving my memory, solving problems better</td>
<td></td>
</tr>
<tr>
<td>controlling my temper</td>
<td></td>
</tr>
</tbody>
</table>
Survey of Unmet Needs

- Number of services used declined significantly from baseline to discharge ($t=2.83$, $p=.005$).
- Desired services declined significantly from baseline to discharge ($t=13.53$, $p=.000$).
- Examples of needs that were met through RF:
  - controlling alcohol and/or drug use,
  - increasing independence in eating, dressing, and bathing, and
  - finding housing that is affordable and accessible.

![Survey of Unmet Needs](image-url)
Annual Aggregate Lifetime Economic Impact of Resource Facilitation

- Wages and benefits = $249.1 million
- Revenue from taxes = $30.97 million
- Savings to SSDI/private disability = $80.1 million
- SNAP = $6.6 million
- Total = $366.77 million/year
This presentation is funded - in part - by

US Department of Health & Human Services, Health Resources and Services Administration Maternal and Child Health Bureau Traumatic Brain Injury Implementation Partnership Grants
Grant Number H21MCO6756: 2009 - 2013
Grant Number 5 H21MC269140200: 2014 - 2019

And with funding from the
Rehabilitation Hospital of Indiana Foundation
Moving Stroke Care Forward in Indiana

Alex Meixner, Regional Vice President of Advocacy
American Heart Association & American Stroke Association
Indiana’s Stroke Snapshot

• Approximately 120 emergency-admitting hospitals (non VA or pediatric) in the state

• 1 Comprehensive Stroke Center; 34 Primary Stroke Centers; 1 Acute Stroke Ready Hospital

• Indiana’s stroke mortality rate in 2014 was 41.7%, versus the national rate of 36.5%

• Stroke remains the 4th leading cause of death in Indiana, while it is the 5th leading cause of death nationally

• Stroke remains the leading cause of severe adult disability nationally
The Problem: Inefficiency of Care

• Under current law, Hoosiers who suffer a stroke are too often taken via EMS to hospitals unable to provide sufficient acute stroke care

• These patients are often then processed and sent right back out the door on a second ambulance to a second hospital with the necessary capabilities, or they forego more advanced care entirely

• Minutes count during a stroke, and this type of delay can mean the difference between returning to work or permanent disability; between life and death
How big a problem is this in Indiana?

• According to a state-by-state Get With The Guidelines Target: Stroke review of door-to-needle times using 2014 data, Indiana came in 41st out of the 43 states and territories that participated.

• Specifically, Indiana hit the target of door-to-needle within 60 minutes just 43.7% of the time, outpacing Arkansas and New Hampshire, but falling behind everyone else.

• This is not exhaustive data and Indiana’s numbers have likely improved somewhat, but it is a telling example of just how serious a challenge we face.
Performance Improvement & Target Stroke

Target: Stroke Phase II aims to achieve Door-to-Needle Times within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA.*


GOAL 75%

<table>
<thead>
<tr>
<th>State</th>
<th>Goal Percentage</th>
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<tbody>
<tr>
<td>Alaska</td>
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</tr>
<tr>
<td>Arizona</td>
<td>50-74%</td>
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<tr>
<td>Arkansas</td>
<td>25-49%</td>
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<td>California</td>
<td>50-74%</td>
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<td>Colorado</td>
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<td>District of Columbia</td>
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<td>Maine</td>
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<td>Maryland</td>
<td>50-74%</td>
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<tr>
<td>Massachusetts</td>
<td>50-74%</td>
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</tbody>
</table>
Source: Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team. 2017

*The emergency department visits do not represent the number of people who had a stroke within that year. Hospital discharge data are de-identified, which hinders the unduplication of patient visits.
How to Fix it – Stroke Legislation

Looking at national science and the experiences of other states that have successfully addressed similar issues, we worked with Rep. Denny Zent (R-Angola) to introduce HB 1145 this past January, a bill designed to:

• Ensure that Indiana’s EMS regions develop and adopt stroke-focused EMS protocols based on national standards and written with a focus on local needs and resources

• Ensure that the Dept. of Health maintains a list of designated stroke centers based on national stroke certification at CSC, PSC, and ASRH levels, as well as a list of non-certified network hospitals with written transfer agreements to higher levels of care
Impact of Stroke Legislation on Developing Stroke Systems of Care and Improving Acute Therapy: The Illinois Experience

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1 Stanford University Medical Center, 2 Northwestern University Feinberg School of Medicine, 3 Feinberg Hospital, 4 Southern Illinois Healthcare, 5 American Heart Association/American Stroke Association, 6 Critical Access Hospital Network, 7 Hartford Hospital and Hartford HealthCare

Background

Stroke is a leading cause of death and disability. In 2009, Illinois passed stroke legislation that established a Stroke Advisory Subcommittee to advise the State EMS Advisory Council. The legislation also created the Illinois Regional Stroke Advisory Subcommittees. Primary Stroke Centers and Emerging Stroke Ready Hospitals were formally recognized, and EMS routing protocols were updated. Comprehensive Stroke Centers were recognized in 2014, and EMS routing protocols were further updated.

Results

Table 1. Hospitals and Patients Enrolled in GWTG-Stroke in Illinois 2009-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Total HL Hospitals Participating in GWTG</th>
<th>Total GWTG stroke patient records</th>
<th>Acute Ischemic Stroke (AIS) Patients Entered into GWTG</th>
<th>AIS patients eligible for IV Alteplase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>27</td>
<td>10530</td>
<td>6193</td>
<td>289</td>
</tr>
<tr>
<td>2010</td>
<td>38</td>
<td>13077</td>
<td>8094</td>
<td>411</td>
</tr>
<tr>
<td>2011</td>
<td>52</td>
<td>14291</td>
<td>9109</td>
<td>628</td>
</tr>
<tr>
<td>2012</td>
<td>60</td>
<td>15385</td>
<td>9964</td>
<td>598</td>
</tr>
<tr>
<td>2013</td>
<td>73</td>
<td>29398</td>
<td>9777</td>
<td>570</td>
</tr>
<tr>
<td>2014</td>
<td>76</td>
<td>19633</td>
<td>10719</td>
<td>650</td>
</tr>
<tr>
<td>2015</td>
<td>82</td>
<td>21772</td>
<td>12891</td>
<td>664</td>
</tr>
</tbody>
</table>

Figure 1. Arrival Mode of All Hospitals Participating in GWTG-Stroke in Illinois.

<table>
<thead>
<tr>
<th>Year</th>
<th>EMS from Home</th>
<th>Private Vehicle</th>
<th>Transfer</th>
<th>Unknown</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>36%</td>
<td>34%</td>
<td>14%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>2010</td>
<td>35%</td>
<td>33%</td>
<td>12%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>2011</td>
<td>34%</td>
<td>32%</td>
<td>12%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>2012</td>
<td>33%</td>
<td>31%</td>
<td>10%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>2013</td>
<td>32%</td>
<td>30%</td>
<td>10%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>2014</td>
<td>31%</td>
<td>28%</td>
<td>9%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>2015</td>
<td>30%</td>
<td>26%</td>
<td>8%</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Hypothesis

Implementation of the Illinois stroke legislation by EMS regions enhances stroke systems of care, improves collaboration between hospitals and EMS, and improves intervention times and outcomes.

Methods

- Data were ascertainment from the Illinois Get With The Guidelines (GWTG) stroke registry from 2009-2015.
- Data points included number of patients, arrival mode, those treated or eligible for IV Alteplase, median door to needle (DTN) times, DTN times of 60 minutes or less, and discharge to home.
- Statistical analyses were performed using chi-square testing.

Conclusions

- Illinois observed a clear and significant improvement in several care metrics for patients with acute ischemic stroke.
- These changes occurred after the passage of state legislation related to the identification of stroke centers and routing of stroke cases.
- This experience is a good example of stakeholders working in a cooperative manner to improve stroke care at a state level.

DTN times for IV Alteplase went from 86 minutes in 2009 to 56 minutes in 2015, a 34% relative decrease. P < 0.0001

Percent of patients with DTN times of 60 minutes or less increased from 18% in 2009 to 63% in 2015. P < 0.0001

For more information, contact Kathleen O'Neill at kathleen.o'neil@heart.org

Guidelines is the data collection coordination center for the ANA/ASA Get With The Guidelines programs.

Dr. Alberts is a speaker for Genentech, which markets Alteplase.
Stroke Legislation Process

• The AHA/ASA worked with stakeholders including the IN Hospital Assoc., the Stroke Consortium of IN, the IN EMS Assoc., the IN State Medical Assoc., and the IN Depts. of Health and Homeland Security to fine-tune the bill via amendment language

• Once all parties were on board, HB 1145 moved quickly through the House and Senate and was signed by Gov. Holcomb on April 24

• HB 1145 will go into full effect on July 1, 2018, allowing time for the IN Dept. of Homeland Security and the IN EMS Commission to lead the protocol development and training process, and for the IN Dept. of Health to create the list of certified stroke centers and network hospitals
Implementing the New Stroke Law: EMS-focused Administrative Rules

• The IN Dept. of Homeland Security is managing the administrative rule-writing process for the EMS-focused components of the new stroke law, and has created a stakeholder group to begin the drafting/formulation process

• Once complete, the draft rule will be sent to the IN EMS Commission for approval

• If approved by the EMS Commission, the draft rule will then go to an initial review by the Governor’s office before it’s formal public comment period begins
Implementing the New Stroke Law: Hospital Designation

• The Indiana Dept. of Health will create and maintain a regularly updated list of Comprehensive Stroke Centers, Primary Stroke Centers, and Acute Stroke Ready Hospitals, and will update the IN Dept. of Homeland Security promptly of any change in hospital certification status.

• Stroke-certified hospitals would provide ISDH with proof of their current certification as a CSC, PSC, or ASRH from an approved national certifying body.

• Non-certified hospitals wishing to be on the network hospital list would provide ISDH with a copy of their transfer agreement/s with certified stroke centers.
A New Development: Thrombectomy-Capable Stroke Centers

- The Joint Commission will begin certifying Thrombectomy-Capable Stroke Centers (TSCs) in January, 2018 as a new level of care between Primary Stroke Centers and Comprehensive Stroke Centers.

- It is possible that additional certifying bodies such as HFAP and DNV may eventually offer TSC certification as well.

- TSCs will have to meet criteria laid out by The Joint Commission (or other potential certifying bodies) focused on providing endovascular thrombectomies for large vessel occlusions.
Thrombectomy-Capable Stroke Center Paper Expected from Brain Attack Coalition

• A new paper is expected soon from the Brain Attack Coalition which will provide national guidelines for how to integrate TSCs into EMS stroke protocols

• The Brain Attack Coalition serves as the keeper of national guidelines with regard to stroke, and is comprised of 16 national nonprofit, professional, and governmental stakeholders including the American Stroke Association, the American College of Emergency Physicians, the American Academy of Neurology, and the CDC

• This paper may necessitate that steps be taken to include TSCs on the ISDH-maintained list of certified stroke centers
Potential Next Step: A Statewide Stroke Registry

• Once a stroke systems law is in place, many states have then taken the additional step of establishing a statewide stroke registry to better understand and improve stroke outcomes, because as the saying goes, “you can’t improve what you don’t measure”

• Ideally a state stroke registry would make use of hospital’s existing data collection tools and processes, minimizing the burden to hospitals and the cost to the state while ensuring the collection of at least the 8 CMS-recognized core measures, and preferably the 10 Coverdell/AHA recommended stroke performance measures
Questions?

Thanks for your time!

Contact info
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American Heart Association & American Stroke Association
alex.meixner@heart.org
202-375-0936
Committee Meeting Dates for 2017

• December 15

Email questions to: indianatrauma@isdh.in.gov