



# Indiana State Trauma Care Committee

October 20, 2017



Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)

# Welcome Dr. Box!



Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)



# Updates

**Katie Hokanson**, *Director of Trauma and Injury Prevention*



Indiana State  
Department of Health

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# Trauma Center Verifications

- Reid Health
- Terre Haute Regional
- Union Hospital



Indiana State  
Department of Health

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# 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



# Division openings

- Injury prevention epidemiologist
- Naloxone program manager

Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)

# Public Health Public Safety Conference

**Public Safety + Public Health Opioid Conference**  
Partners in combatting opioid misuse

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


Ritz Charles  
12156 North Meridian Street  
Carmel, IN 46032

Indiana State Department of Health  
INDIANA STATE POLICE  
INDIANA FAMILY & SOCIAL SERVICES ADMINISTRATION



Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)

# 2017 Labor of Love Infant Mortality Summit

  
Labor of Love  
Helping Indiana Reduce Infant Death

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](mailto:indianatrauma@isdh.in.gov)

# 2018 EMS Medical Director's Conference



5<sup>th</sup> 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](mailto:indianatrauma@isdh.in.gov)



Email questions to: [indianatrauma@isdh.in.gov](mailto: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



# 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).



# 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.

# Peer recovery coach program (continued)

Point of Contact:

Becky Buhner

DMHA - Policy, Planning & Regional Services

[Rebecca.Buhner@fssa.IN.gov](mailto:Rebecca.Buhner@fssa.IN.gov)

[http://www.in.gov/recovery/files/LOI\\_Peers\\_ED  
U.pdf](http://www.in.gov/recovery/files/LOI_Peers_ED_U.pdf)

# Naloxone Kit Distribution Program for Local Health Departments

As of: September 12, 2017

- Orange = Naloxone Kits Round 1
- Yellow = Naloxone Kits Round 2
- Green = Naloxone Kits Round 3
- Red = Naloxone Kits Rounds 1 & 2
- Blue = Naloxone Kits Rounds 1 & 3
- Lavender = Naloxone Kits Rounds 2 & 3
- Teal = Naloxone Kits Rounds 1, 2 & 3



# 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

# Injury prevention updates

**Preston Harness, *Injury Prevention Program Coordinator***



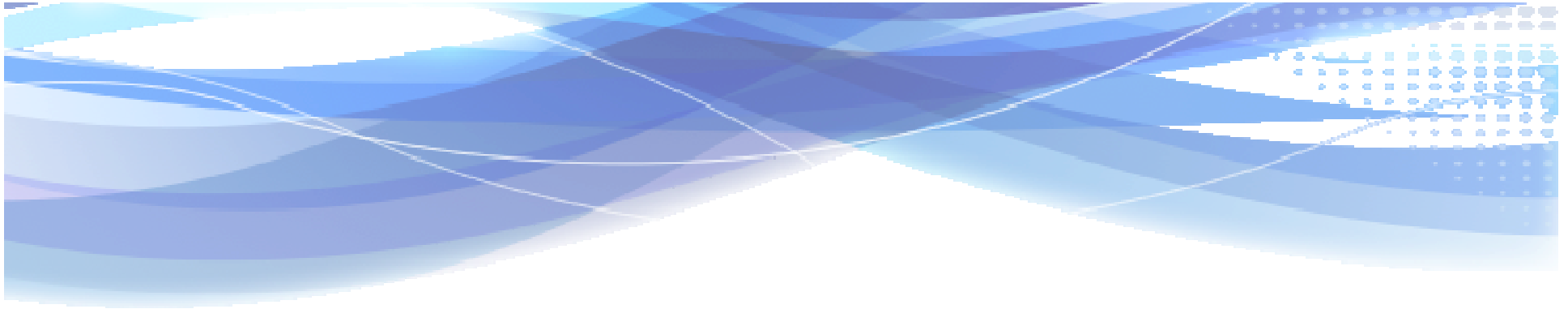
Indiana State  
Department of Health

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# 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

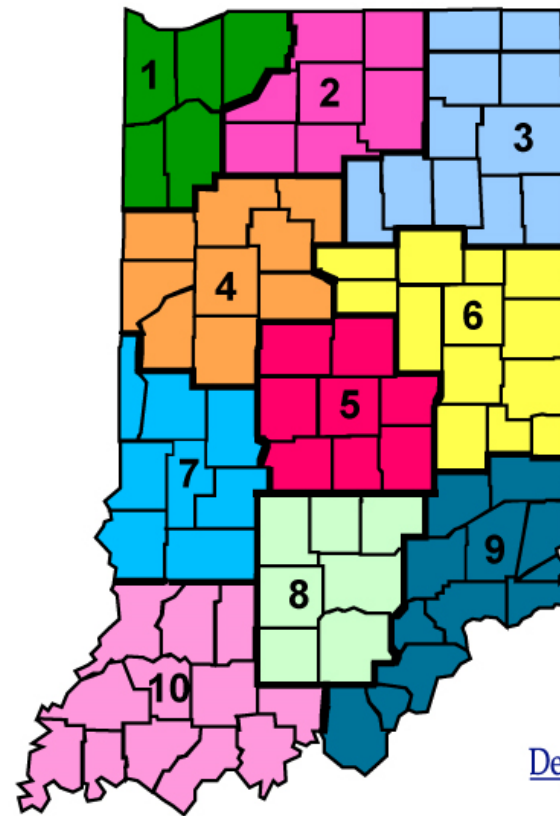


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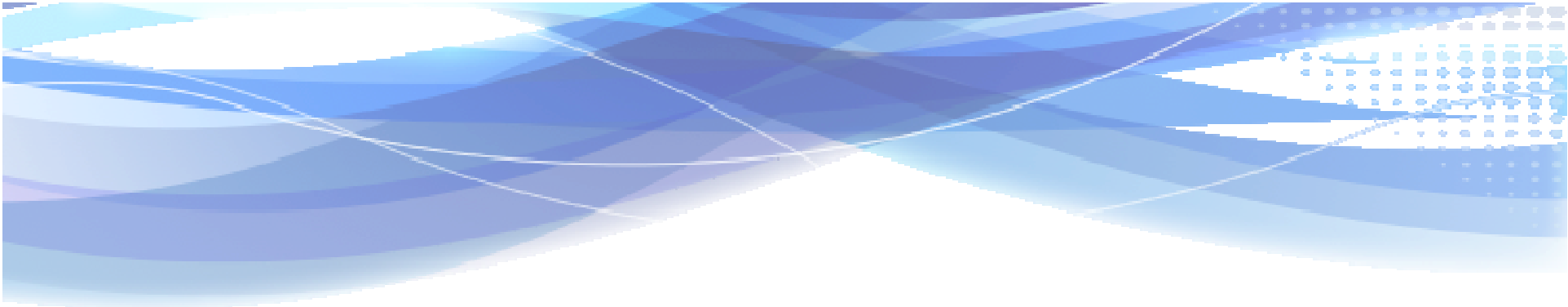
# Regional updates

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



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# Subcommittee Update

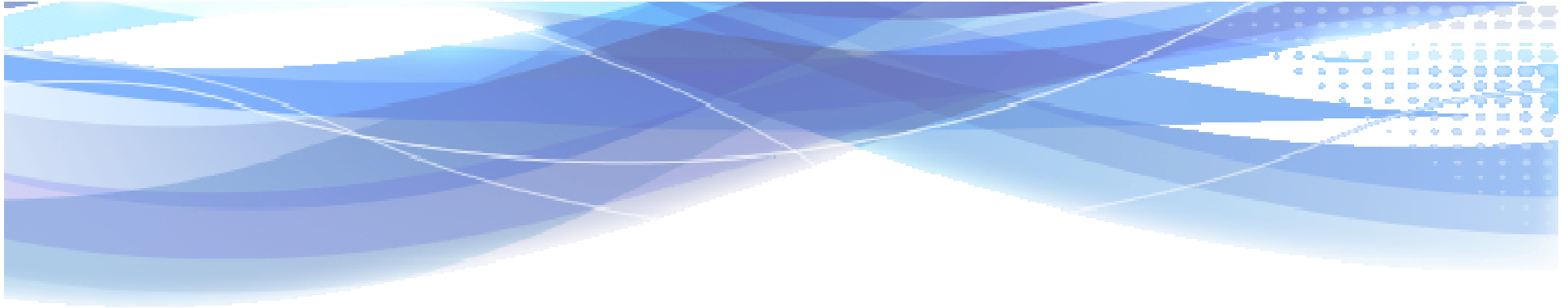
## Designation Subcommittee

**Judi Holsinger**, *Trauma Services Director*  
St. Vincent Indianapolis Hospital



Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto: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**

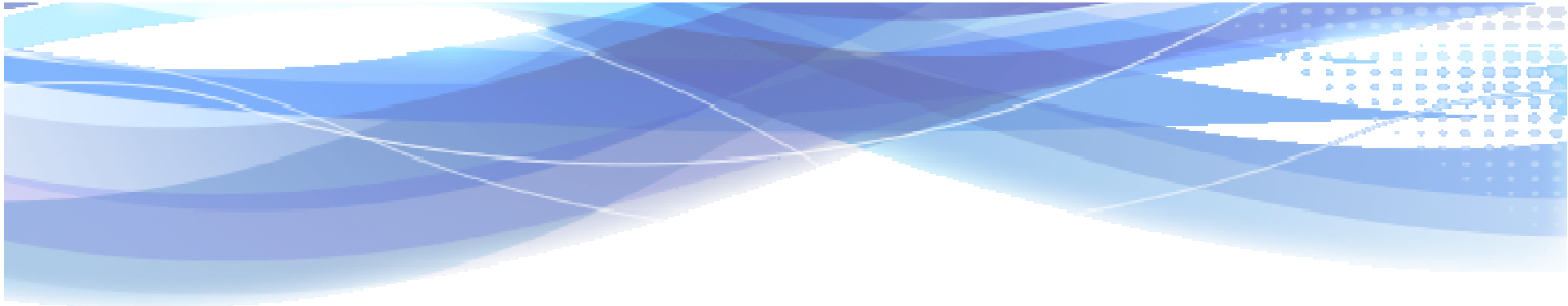
***10/10/17***

## **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

<b>Facility Name</b>	<b>City</b>	<b>Level</b>	<b>Adult / Pediatric</b>	<b>“In the Process” Date*</b>	<b>1 Year Review Date**</b>	<b>ACS Consultation Visit Date</b>	<b>ACS Verification Visit Date</b>
Franciscan Health Crown Point	Crown Point	III	Adult	12/18/2015	February 2017	09/26-09/27, 2016	12/04-12/05, 2017
Memorial Hospital & Health Care Center	Jasper	III	Adult	08/24/2016	October 2017	05/16-05/17, 2017	May 2018

\*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

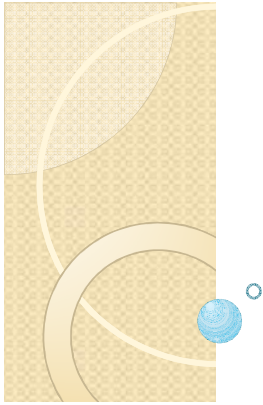
## Performance Improvement Subcommittee

**Dr. Stephanie Savage**, *Trauma Medical Director*  
IU Health Methodist



Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)

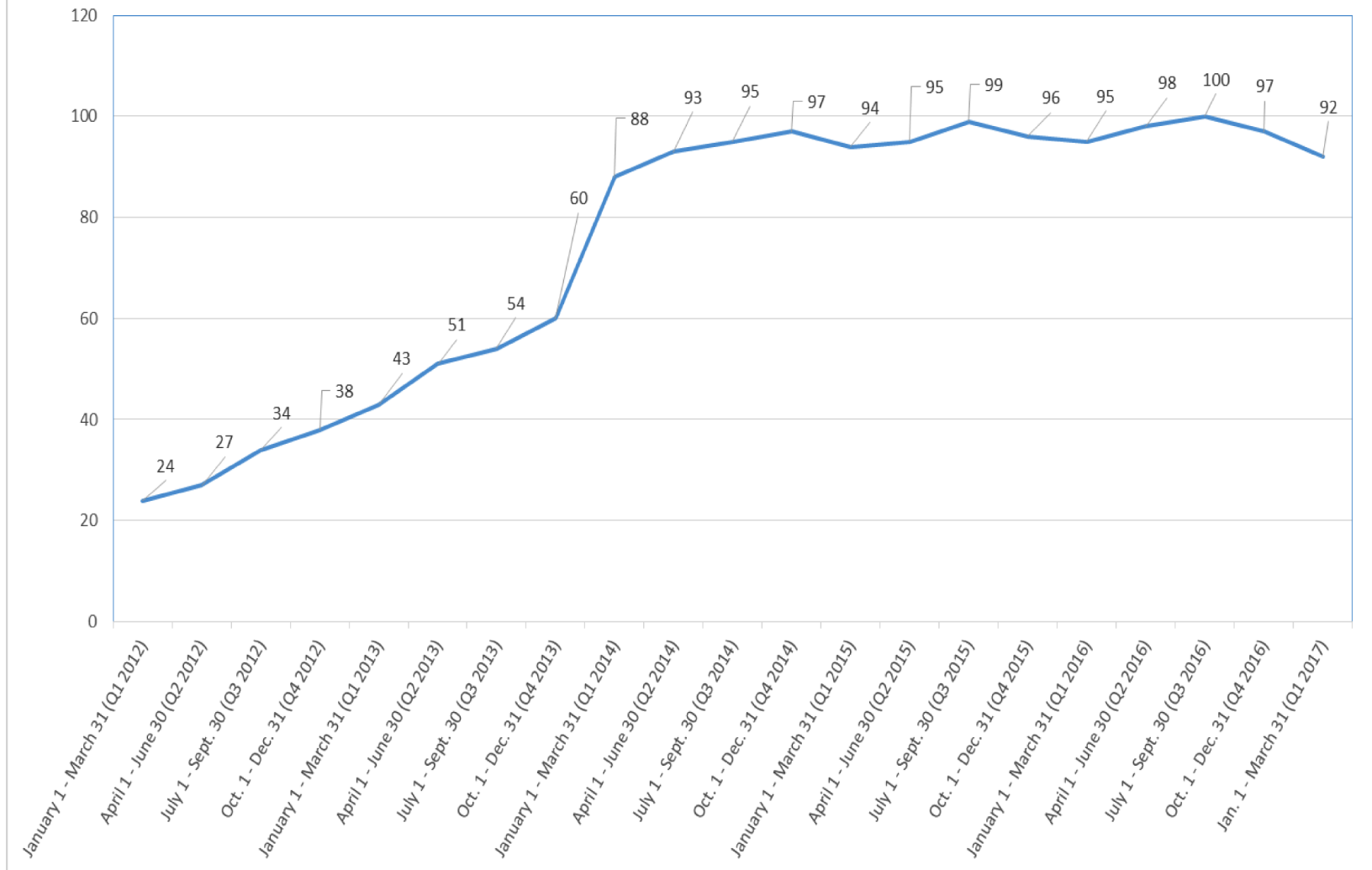


# ISDH Performance Improvement Subcommittee October 2017 update

Amanda Rardon-D4	Jennifer Mullen-D1	Melissa Smith-D5	Tracy Spitzer-D5
Amelia Shouse-D7	Jodi Hackworth-D5	Merry Addison	Wendy St. John-D5
Andy VanZee- IHA	Kelli Vannatter-D6	Michele Jolly-D10	
Angela Cox-Booe-D5	Kelly Blanton-D5	Michelle Moore-D6	
Annette Chard-D3	Kelly Mills-D7	Michelle Ritchey-D7	
Bekah Dillon-D6	Kristi Croddy-D5	Missy Hockaday-D5	
Brittanie Fell-D7	Latasha Taylor-D1	Olivia Roloff-D7	
Carrie Malone-D7	Lesley Lopossa-D8	Dr. Peter Jenkins	
Christy Claborn-D5	Lindsey Williams-D8	Regina Nuseibeh-D4	
Chuck Stein-D5	Lisa Hollister-D3	Rexene Slayton-D8	
Dawn Daniels-D5	Lynne Bunch-D6	Sarah Quaglio-D6	
Dusten Roe-D2	Marie Stewart	Spencer Grover-IHA	
Emily Grooms-D2	Mark Rohlfing-D6	Dr. Stephanie Savage (Chair)	
Jennifer Homan-D1	Mary Schober-D5	Tammy Robinson-D7	
<b>ISDH STAFF</b>			
Camry Hess	Katie Hokanson	Ramzi Nimry	Pravy Nijjar

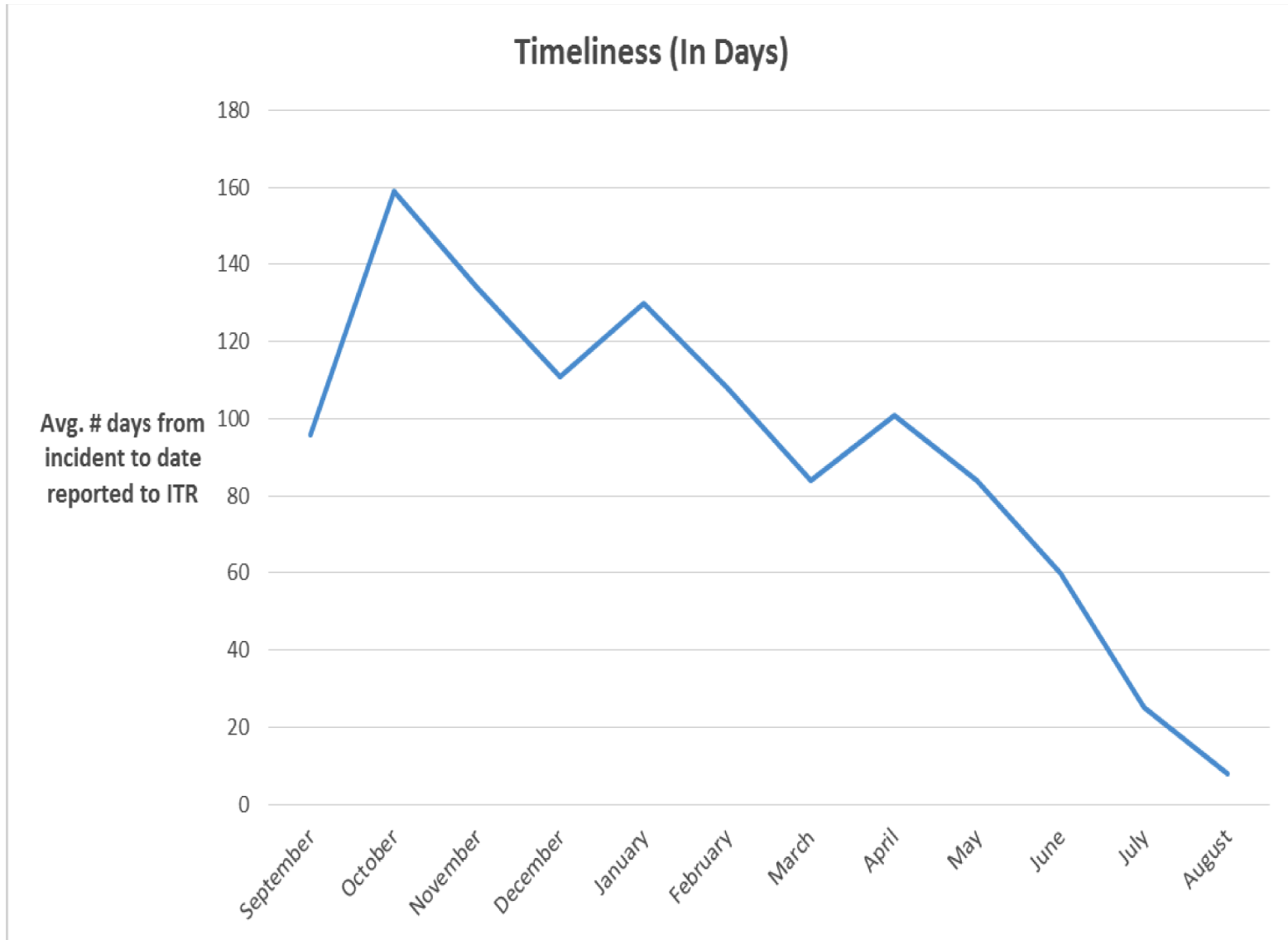
# PI Update – September 2017

Trauma Registry, Total Number of Hospitals Reporting Quarterly (since 2012)





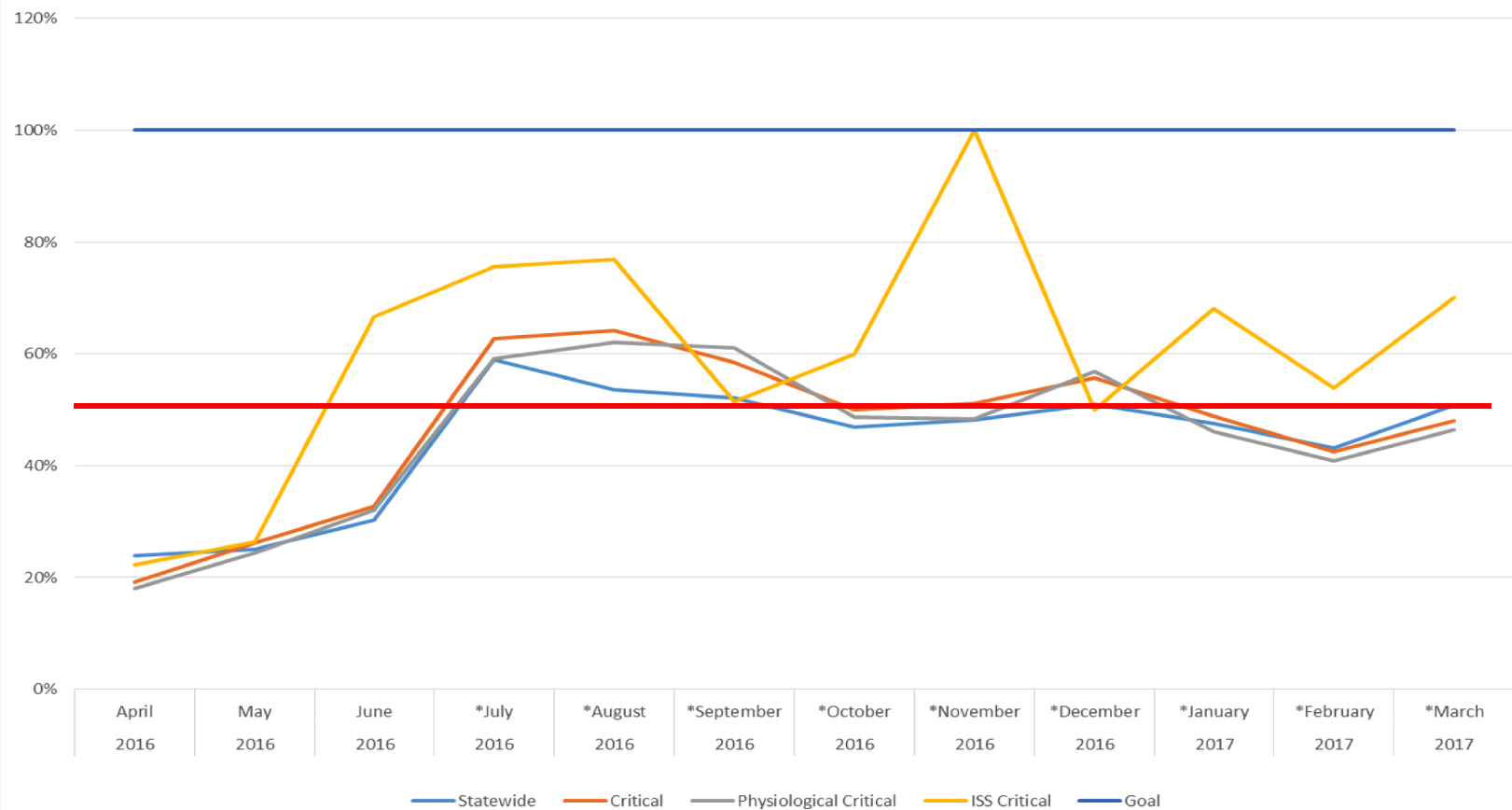
# PI Update – September 2017



# 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

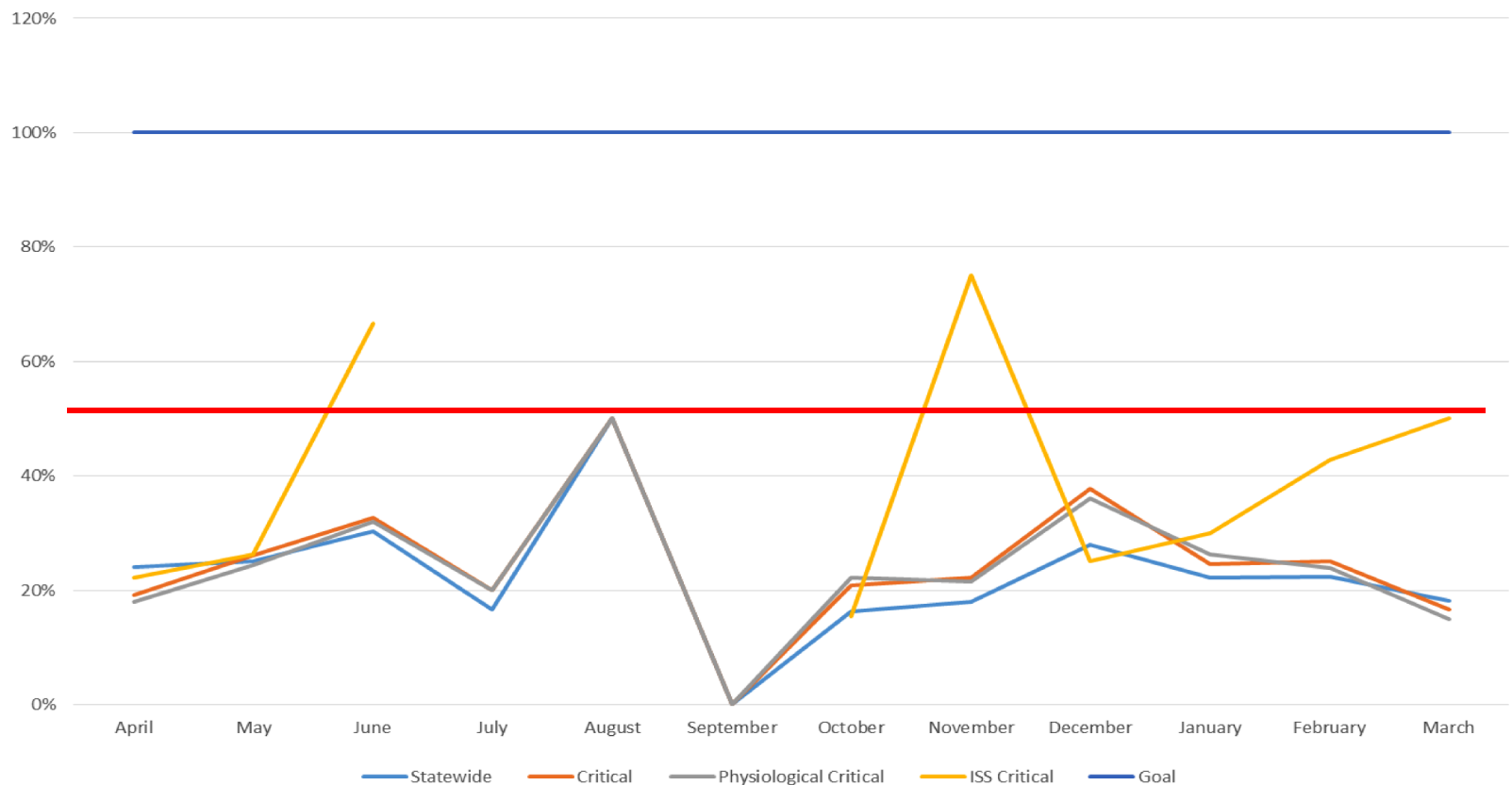


\*ED LOS was calculated using ED/Acute Care Discharge (Orders Written) for July 2016 and later.

# 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

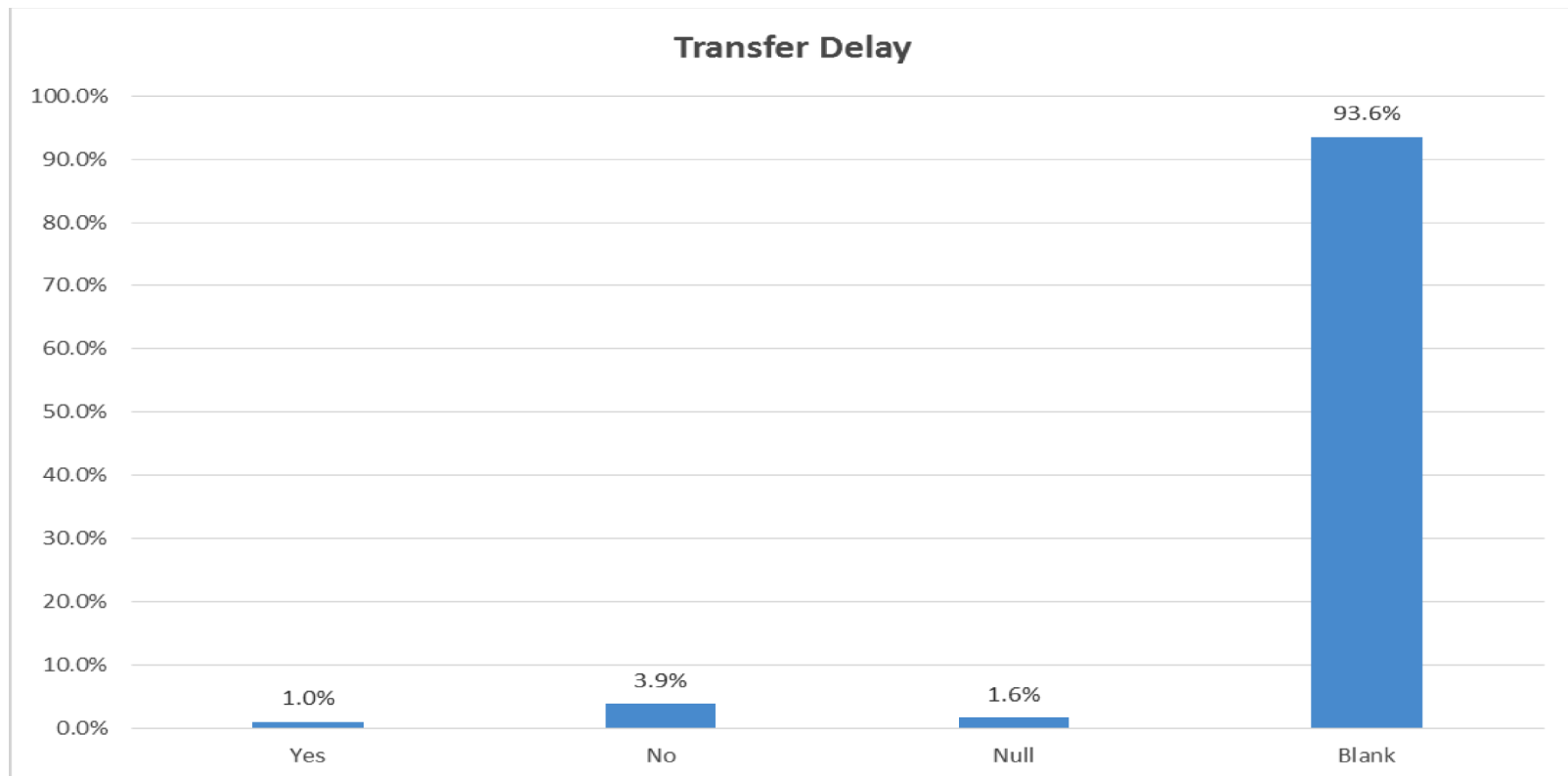


\*ED LOS was calculated using ED/Acute Care Discharge (Physical Exit) for July 2016 and later.

# PI Update – September 2017

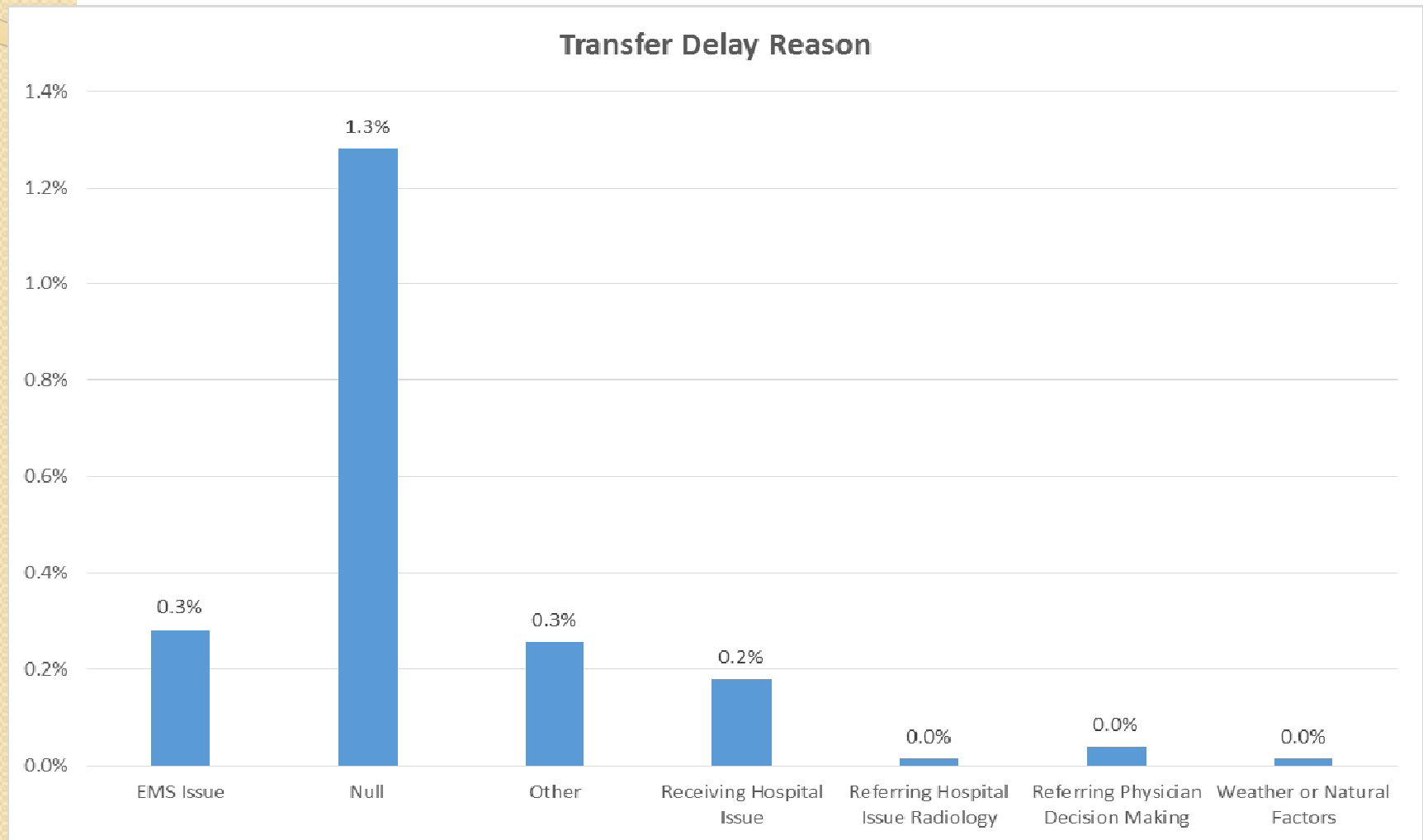
## Transfer Delays

- of 7,805 entries, 78 were marked 'yes' for transfer delays (1%)



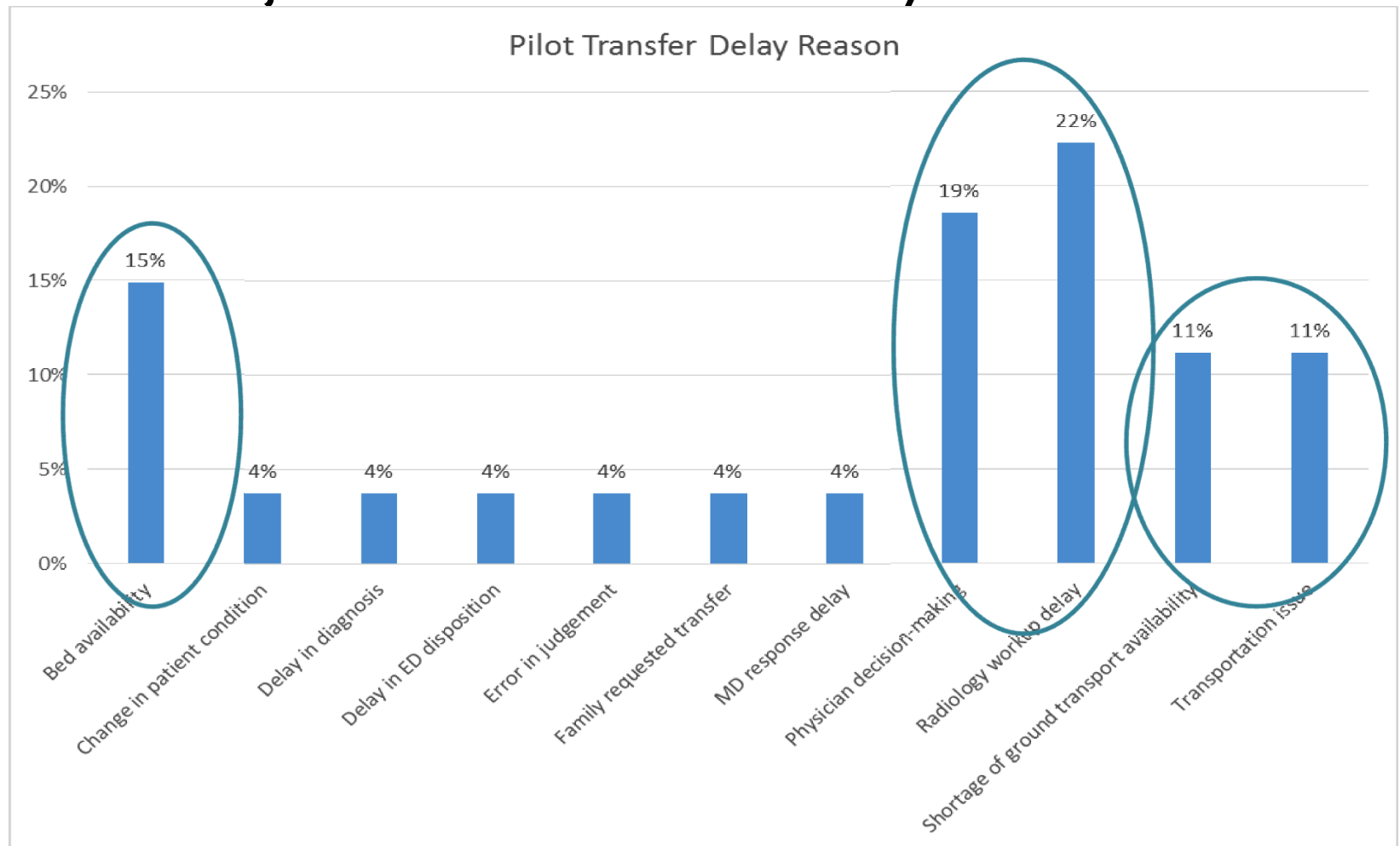
# PI Update – Septmeber 2017

## Transfer Delays



# PI Update – September 2017

## Pilot Project Data – Transfer Delays





# 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




Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto: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.



# American College of Surgeons - Committee on Trauma Update

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



Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto: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

Economic Impact of Resource Facilitation: Workforce Re-entry Following Traumatic Brain Injury, Srikant Devaraj, PhD, Michael Hicks, PhD, Brandon Patterson Graduate Research Assistant, Center for Business and Economic Research, Miller College of Business, Ball State University, February 21, 2017.



# 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

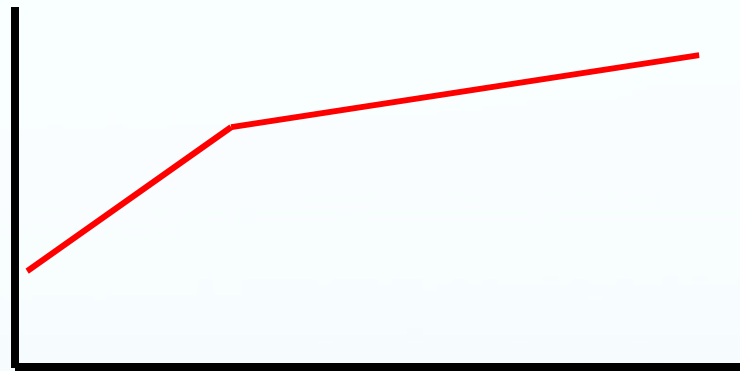
Moderate to severe traumatic brain injury is a lifelong condition. Center for Disease Control and Prevention. [https://www.cdc.gov/traumaticbraininjury/pdf/moderate\\_to\\_severe\\_tbi\\_lifelong-a.pdf](https://www.cdc.gov/traumaticbraininjury/pdf/moderate_to_severe_tbi_lifelong-a.pdf)

# 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)

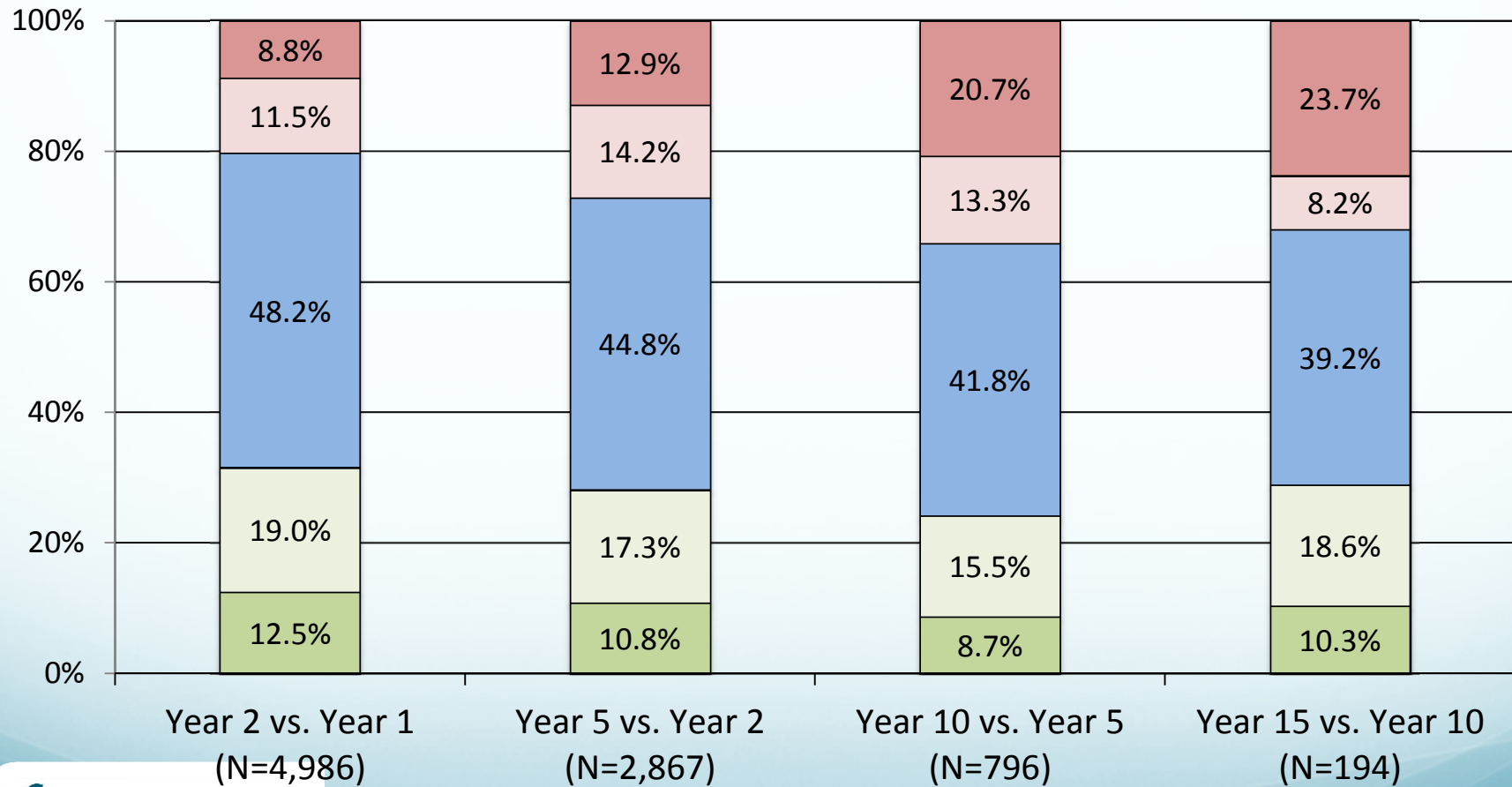
The Glasgow Outcome Scale (GOS) is a global scale for functional outcome that rates patient status into one of five categories: Dead, Vegetative State, Severe Disability, Moderate Disability or Good Recovery. The Extended GOS (GOSE) provides more detailed categorization into eight categories by subdividing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

1	Death
2	Vegetative state
3	Lower severe disability
4	Upper severe disability
5	Lower moderate disability
6	Upper moderate disability
7	Lower good recovery
8	Upper good recovery

# Change in Function over Time: Glasgow Outcome Scale-Extended (GOS-E)

TBI Model System National Data & Statistical Center

■ % 2 categ. Declined   
 ■ % 1 categ. Declined   
 ■ % no change   
 ■ % 1 categ. Improved   
 ■ % 2 categ. Improved



Change is more common than  
stability

2012 Indiana Vocational  
Rehabilitation Services return to  
work rate for brain injury = 18%

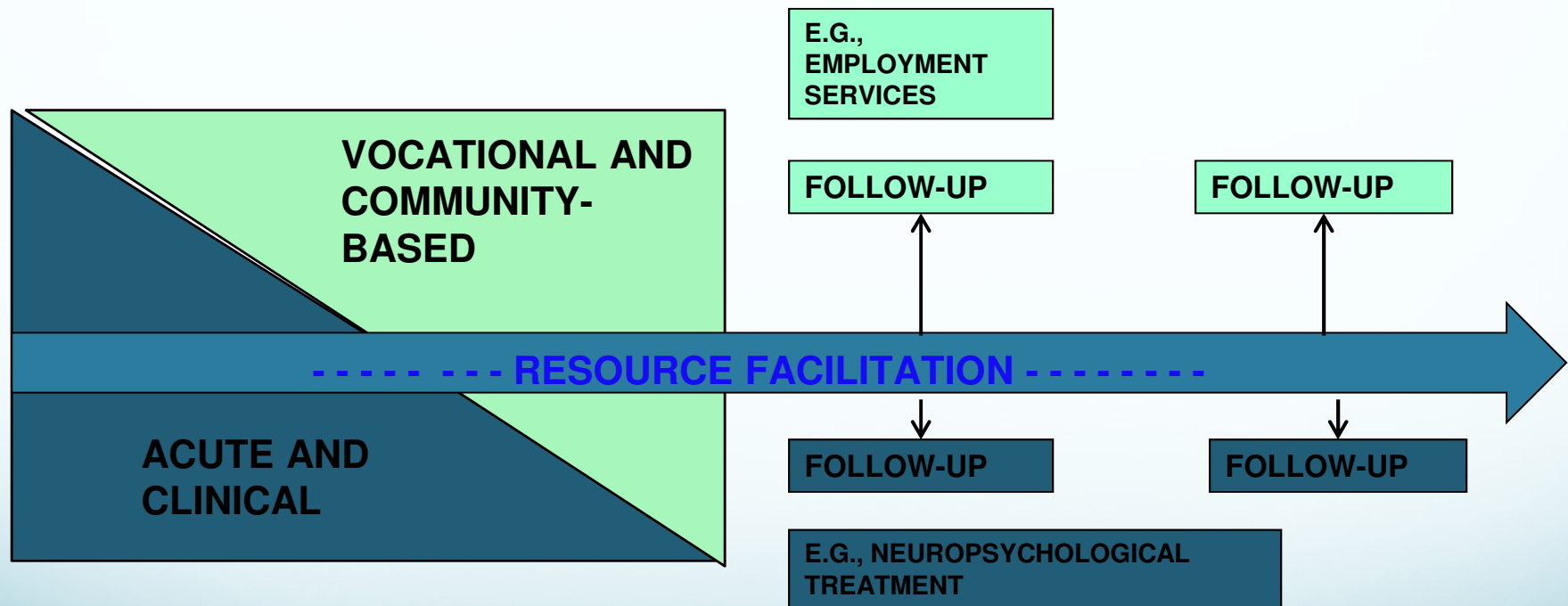


# Acute Care - - - - - Return to Work





# Resource Facilitation and the Post-Acute Continuum



# 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.

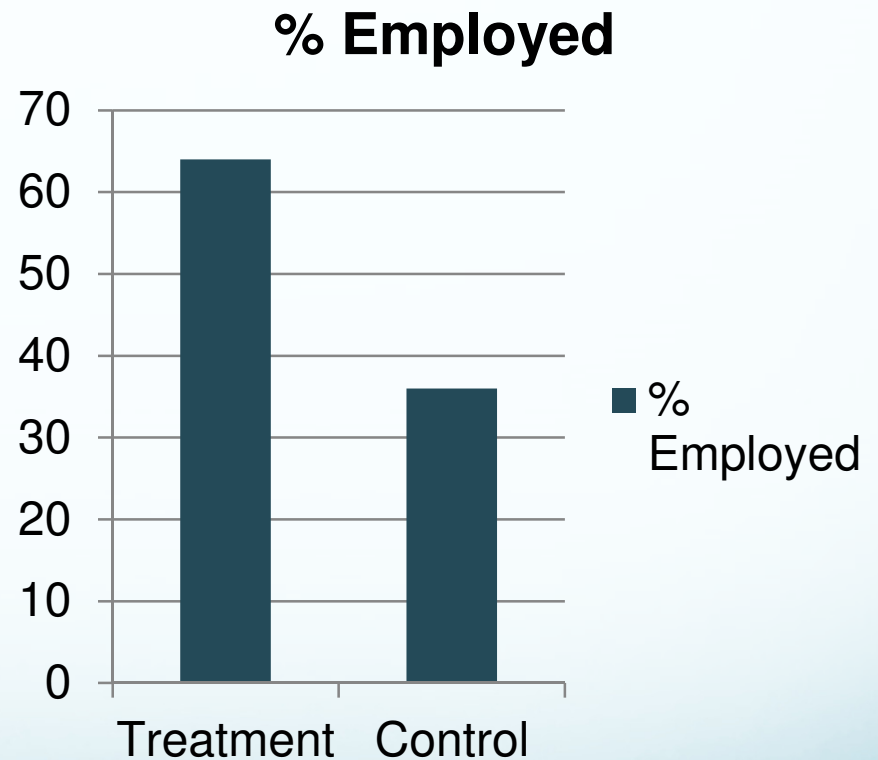
# First Randomized Controlled Trial of Resource Facilitation

(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

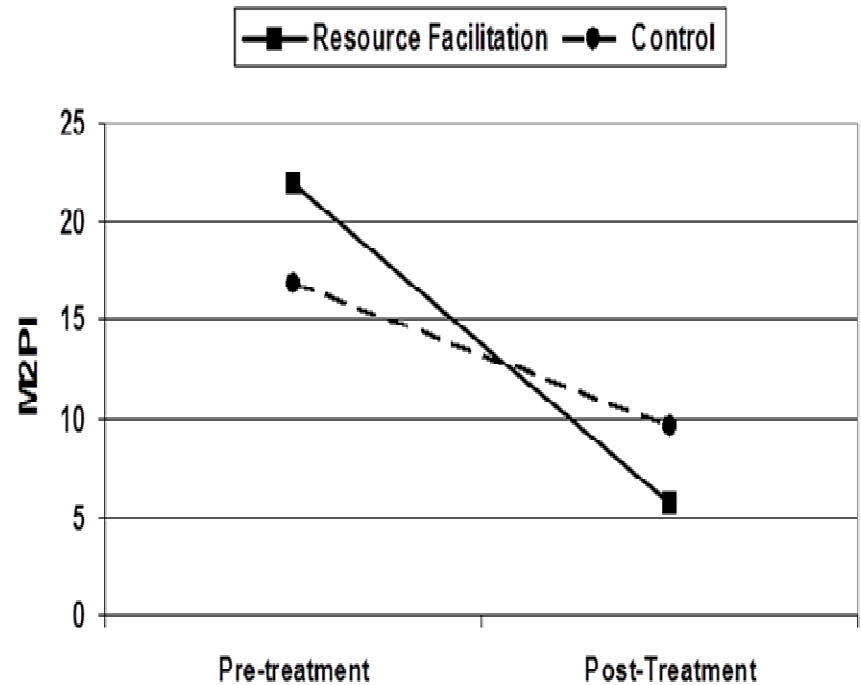
64% of the RF group was employed at follow-up compared to 36% of the control group (Wald-Wolfkowitz  $Z = -3.277$ ,  **$p < .0001$** )



# Results

Interaction between groups and time demonstrated greater improvement for the RF group relative to controls ( $F = 9.11, p < .007$ ).

Figure 1: M2PI by Group and Time





## ORIGINAL RESEARCH

# Replication of a Prospective Randomized Controlled Trial of Resource Facilitation to Improve Return to Work and School After Brain Injury

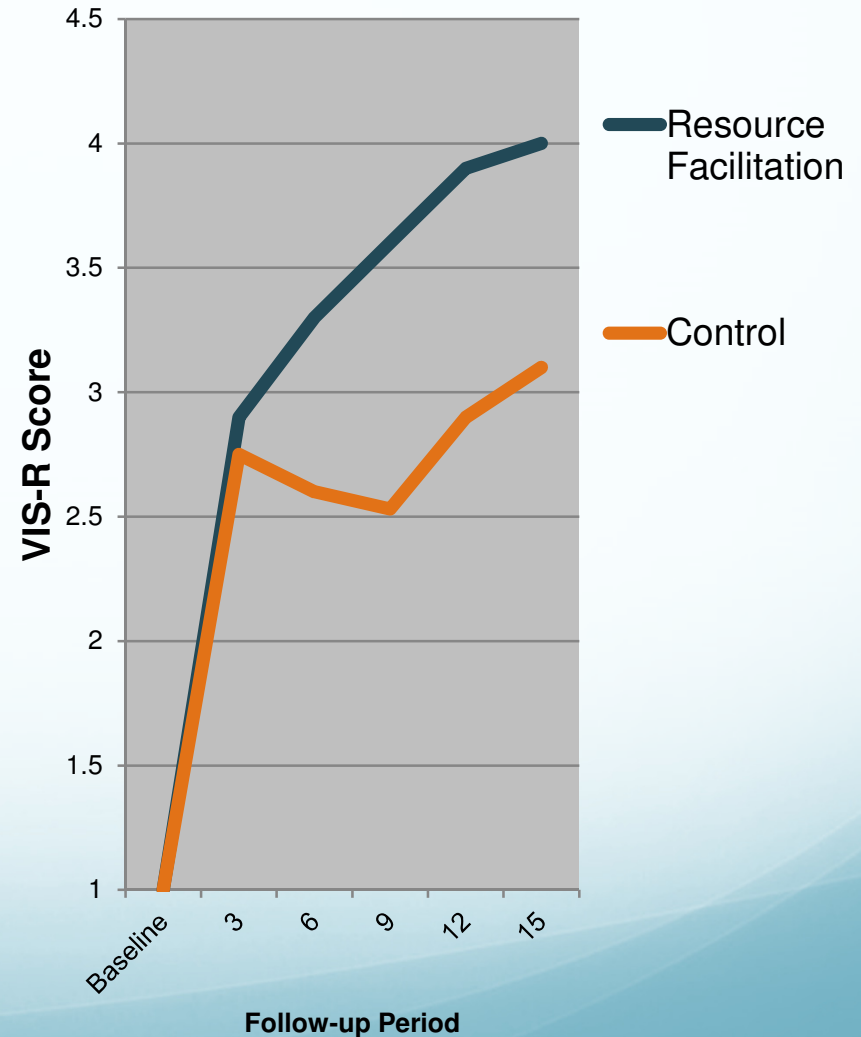


Lance E. Trexler, PhD,<sup>a,b</sup> Devan R. Parrott, MS,<sup>a</sup> James F. Malec, PhD<sup>a,b</sup>

- 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



	<b>Prospective Clinical Cohort 2</b>	<b>RCT 1</b>	<b>RCT 2</b>	<b>Prospective Clinical Cohort 1</b>
<b>Sample Size</b>	<b>141</b>	<b>12</b>	<b>22</b>	<b>69</b>
<b>% Employed Pre-Injury</b>	<b>67</b>	<b>100</b>	<b>100</b>	<b>59</b>
<b>Time Since Injury</b>	<b>10.10 years</b>	<b>64.50 days</b>	<b>63.21 days</b>	<b>9.28 years</b>
<b>% RTW</b>	<b>70</b>	<b>64</b>	<b>69</b>	<b>65</b>

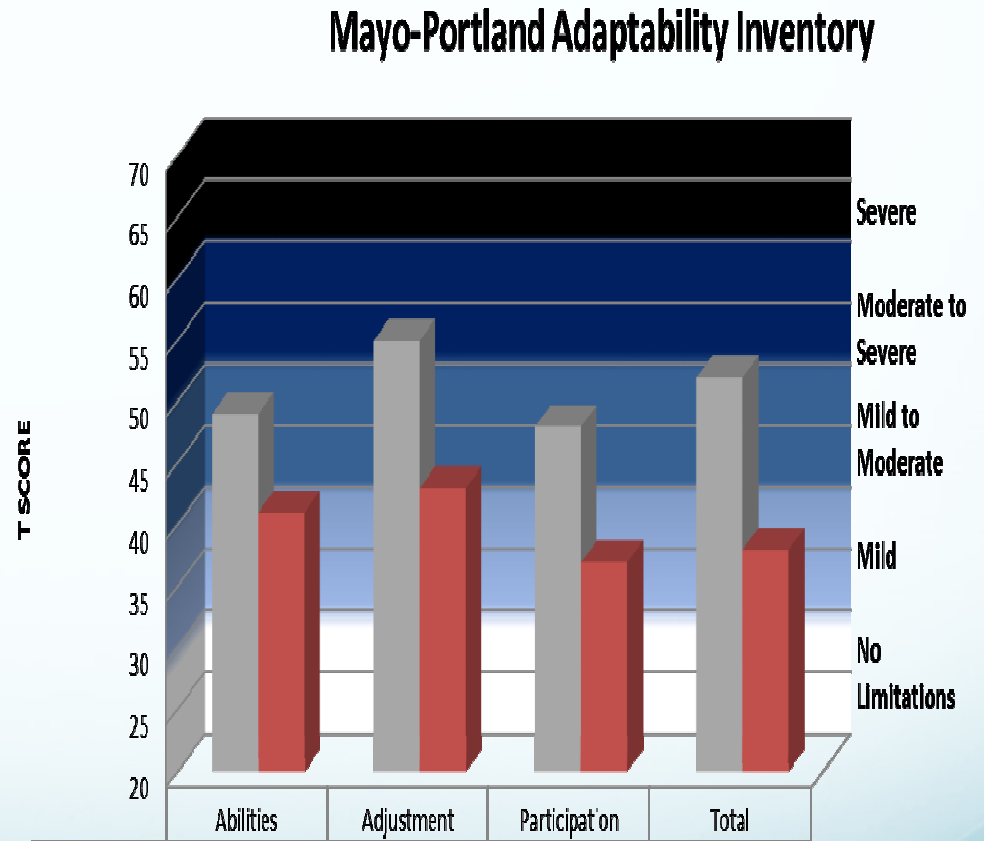
## Resource Facilitation and Level of Disability Outcomes

- 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

# Mayo-Portland Results

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

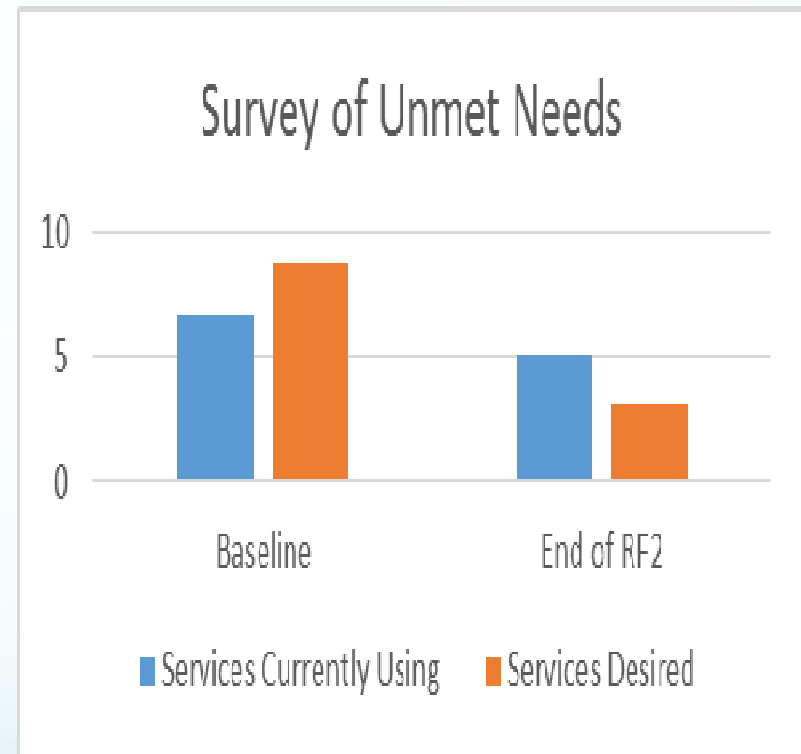
Heinemann, A.W. et al. (2002). Measuring unmet needs and services among persons with traumatic brain injury. *Archives of Physical Medicine and Rehabilitation*, 83, 2052-1059

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

Receive	Need/ want
help now	help
_____ traveling in my community	_____
_____ finding housing that is affordable and accessible	_____
_____ controlling alcohol and/or drug use	_____
_____ improving my memory, solving problems better	_____
_____ controlling my temper	_____

# 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.



# 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

Economic Impact of Resource Facilitation: Workforce Re-entry Following Traumatic Brain Injury.  
Srikant Devaraj, PhD, Michael Hicks, PhD, Brandon Patterson Graduate Research Assistant, Center for Business and Economic Research, Miller College of Business, Ball State University, February 21, 2017.

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 4<sup>th</sup> leading cause of death in Indiana, while it is the 5<sup>th</sup> 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 41<sup>st</sup> 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

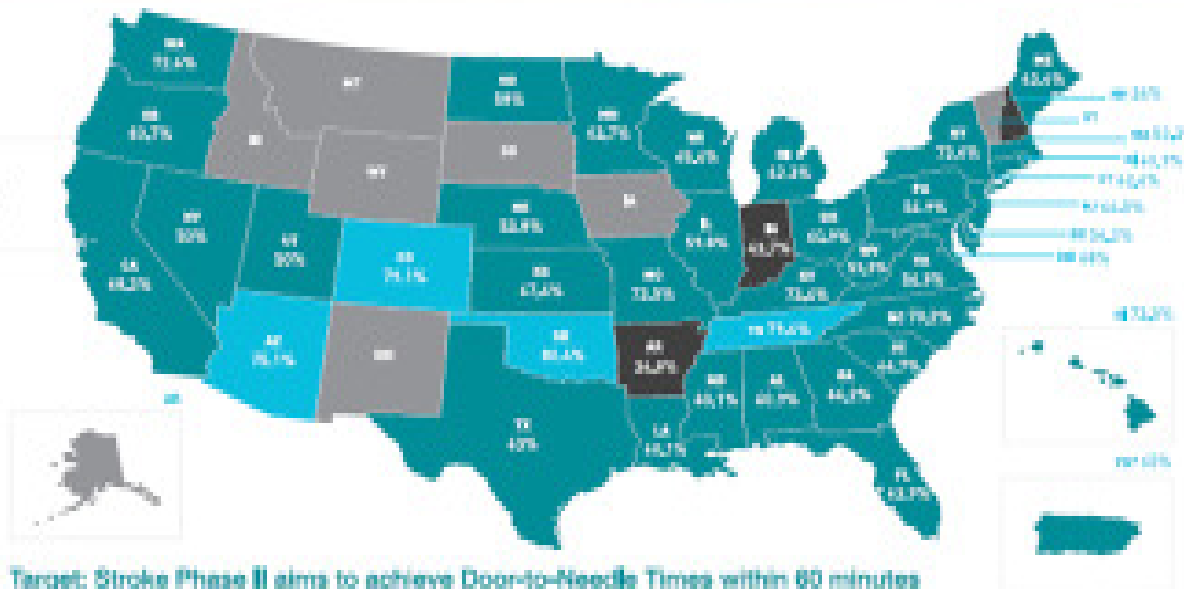


GET WITH THE GUIDELINES  
STROKE



GET WITH THE GUIDELINES  
STROKE

TARGET:  
STROKE



**GOAL**  
75%

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.\*

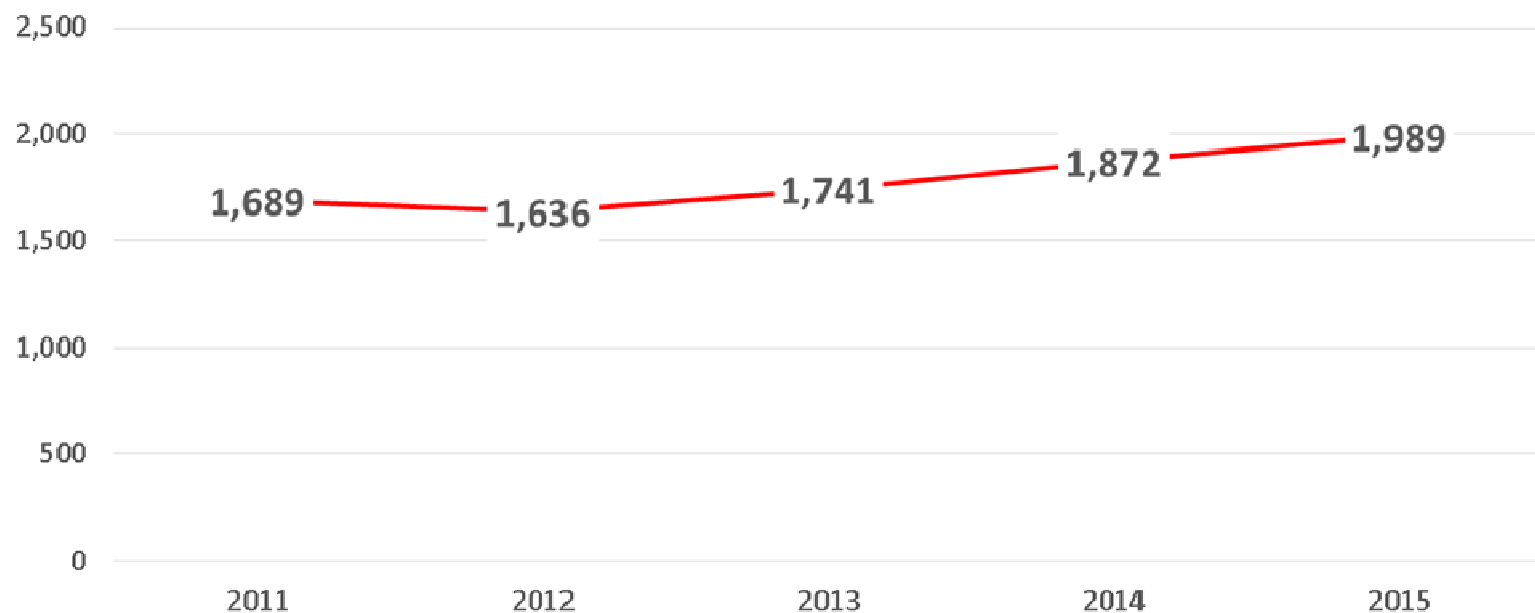
\*Eligible Get With The Guidelines/Stroke/Target: Stroke acute ischemic stroke patients treated between January 2014 to December 2014



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## 5 Year Trend for Stroke-Related, Emergency Department Visits Primary Diagnosis



**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

Elizabeth Kim<sup>1</sup>, Christopher T. Richards<sup>2</sup>, Shyam Prabhakaran<sup>2</sup>, Tracy Love<sup>3</sup>, Lesley Cranick<sup>4</sup>, Kathleen O'Neill<sup>5</sup>, Mark Peysakhovich<sup>5</sup>, Alex Meixner<sup>5</sup>, Julie Mirostaw<sup>5</sup>, Renee Sednew<sup>5</sup>, Kathie Thomas<sup>6</sup>, Peggy Jones<sup>7</sup>, Mark J. Alberts<sup>7</sup>

<sup>1</sup> Stanford University Medical Center, <sup>2</sup> Northwestern University Feinberg School of Medicine, <sup>3</sup> Freeport Hospital, <sup>4</sup> Southern IL Healthcare, <sup>5</sup> American Heart Association/American Stroke Association, <sup>6</sup> IL Critical Access Hospital Network, <sup>7</sup> 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 11 EMS Regional Stroke Advisory Subcommittees. Primary Stroke Centers and Emergent 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.

## 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 ascertained from the Illinois Get With the Guidelines (GWTG) stroke registry from 2009-2015.
- Ninety two unique hospitals entered data 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

## Results

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

Year	Total IL Hospitals Participating in GWTG	Total GWTG stroke patient records	Acute Ischemic Stroke (AIS) Patients Entered into GWTG	AIS patients eligible for IV Alteplase
2009	27	10530	6193	289
2010	38	13077	8094	411
2011	52	14201	9109	628
2012	60	15385	9964	598
2013	73	29288	9977	570
2014	76	19633	10719	650
2015	82	21779	12981	864

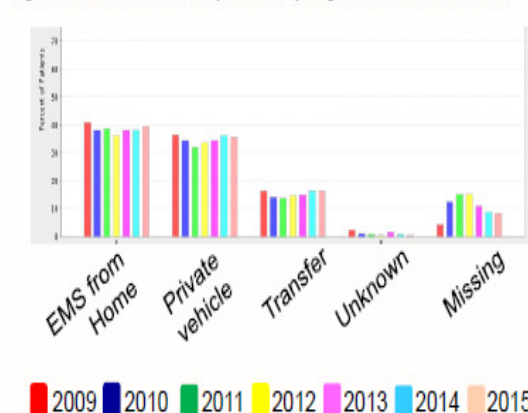
Table 2. Types of Hospitals Participating in GWTG-Stroke in Illinois

Year	Total IL Hospitals Participating in GWTG	ASRHs	PSCs	CSCs	Not Certified as Stroke Center
2009	27	0	14	0	13
2010	38	0	27	0	11
2011	52	0	35	0	17
2012	60	0	36	0	24
2013	73	0	44	0	29
2014	76	1	45	4	26
2015	82	19	46	5	12

Table 3. Performance Metrics for Hospitals Participating in GWTG-Stroke in Illinois

Year	Median Door-to-Needle Times (minutes)	% DTN times $\leq$ 60 min	Discharge to Home
2009	85	18%	38.0%
2010	84	18.5%	36.8%
2011	81	26.1%	32.9%
2012	73	33.9%	43.8%
2013	63	47.4%	45.4%
2014	56	60.9%	45.3%
2015	56	62.4%	44.1%

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



36-41% of patients arrived by EMS from home/scene  
31-36% of patients arrived by private transportation

DTN times for IV Alteplase went from 85 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  
 $P < 0.0001$

## Limitations

- Data are limited to GWTG facilities
- Definite causation between the stroke legislation and these results cannot be firmly established, as other changes in patient care might have accounted for some or all of these changes
- An increase in the number of certified stroke centers may have also played a role in the improved care metrics
- The definitions for discharge destinations changed during the course of the study

## 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 on a state level

For more information, contact Kathleen O'Neill at [kathleen.oneill@heart.org](mailto:kathleen.oneill@heart.org)  
Quintiles is the data collection coordination center for the AHA/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

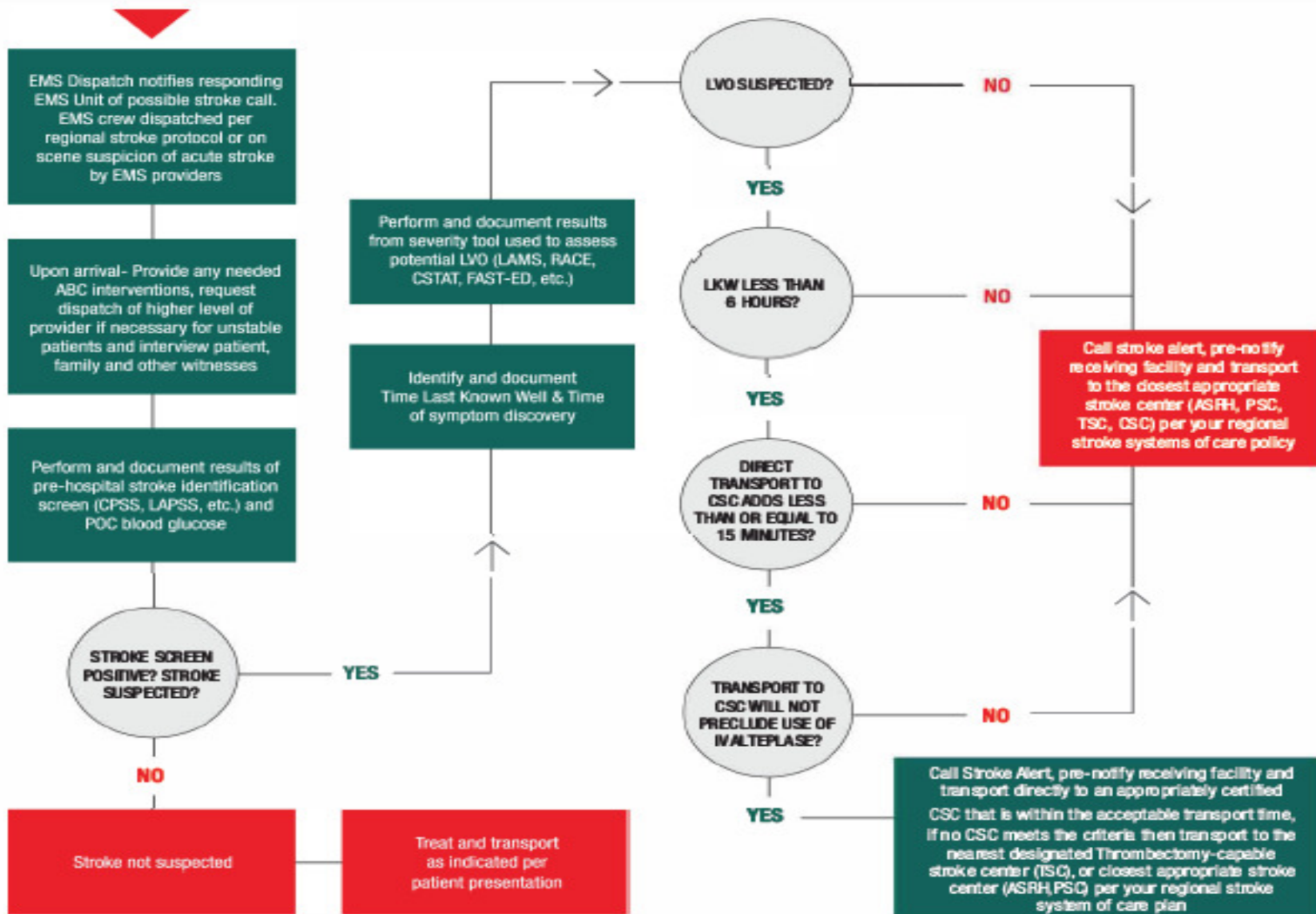
- The IN Dept. of Homeland Security is managing the administrative rule-writing process for the EMS-focused components of the new stroke law, and has created a stakeholder group to begin the drafting/formulation process
- Once complete, the draft rule will be sent to the IN EMS Commission for approval
- 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

# SEVERITY-BASED STROKE TRIAGE ALGORITHM FOR EMS



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# 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

Alex Meixner, RVP of Advocacy

American Heart Association & American Stroke Association

[alex.meixner@heart.org](mailto:alex.meixner@heart.org)

202-375-0936

# Other Business



Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)



# Committee Meeting Dates for 2017

- December 15



Indiana State  
Department of Health

Email questions to: [indianatrauma@isdh.in.gov](mailto:indianatrauma@isdh.in.gov)