Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
9,990 Incidents

100 Total Hospitals Reporting

Level I and II:	10 facilities	40.2% of data
Level III:	12 facilities	14.8% of data
(Non-Trauma) Hospitals:	77 facilities	45.0% of data

For Quarter 2 2017 which spanned from April 1, 2017—June 30, 2017 there were 9,990 incidents reported to the Indiana Trauma Registry at the Indiana State Department of Health. There were 100 hospitals that reported data, of which 10 were level I or II trauma centers, 12 were level III trauma centers and 77 were non-trauma centers. There were 11 hospitals that either started to report again or were new to reporting during this quarter compared to the previous quarter, while 2 hospitals dropped off from reporting. A map of the state with the reporting hospitals can be found on page 17. Trauma centers represented 55% of the data. There were 3,081 incidents reported for April, 3,390 reported for May, and 3,519 incidents reported for June.

The content of this report has changed due to suggestions and additions requested by the Indiana State Trauma Care Committee at the April 21, 2017 meeting. Explanations of the changes requested and adapted from the ISTCC meeting can be found on page 18.

Some general reminders include that the blue columns represent an Indiana average, red columns represent level I and II trauma centers, green columns represent level III trauma centers and orange non-trauma centers. If a single percent is listed above a group of bars, the percent listed represents the average for Indiana. If a number is listed above a group of bars, it represents the count for Indiana. The category 'All Transfers' denotes the patient group where ED Disposition = Transferred to Another Hospital. **The category 'Linked Transfers' represents the patient group for whom the initial hospital and final hospital information could be linked.**

Definitions:
Direct Admit: Patient is admitted directly to the hospital and does not spend time in Emergency Department. The ED Length of Stay should reflect a direct admittance.
External Cause of Injury: ICD-10-CM codes that are used to describe the mechanism or external factor that caused the injury event.
Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.
Injury Severity Score: An anatomical scoring system defined as the sum of the three highest squared maximum Abbreviated Injury Scale (AIS) values to account for multiple injuries in the six body regions.

Formulas:

Acronyms:

ED: Emergency Department	MVC: Motor Vehicle Collision
ICU: Intensive Care Unit	OR: Operating Room
ISS: Injury Severity Score	Ps: Probability of Survival
LOS: Length of Stay	Level I, II and III: Verified and In Process Trauma Centers
NTC: Non-trauma Center	CAHs: Critical Access Hospital

Calculations:
$Ps = 1/(1+e^{-b})$ where $b=b_o+b1(RTS) + b2(ISS) + b3(Age\ Index)$
Total GCS = Verbal GCS + Motor GCS + Eye GCS
$RTS = 0.94*GCS+0.73*SBP+0.29*RR$
$ISS = (AIS)^2 + (AIS)^2 + (AIS)^2$

Indiana State Department of Health
Trauma and Injury Prevention

Indiana Trauma Registry
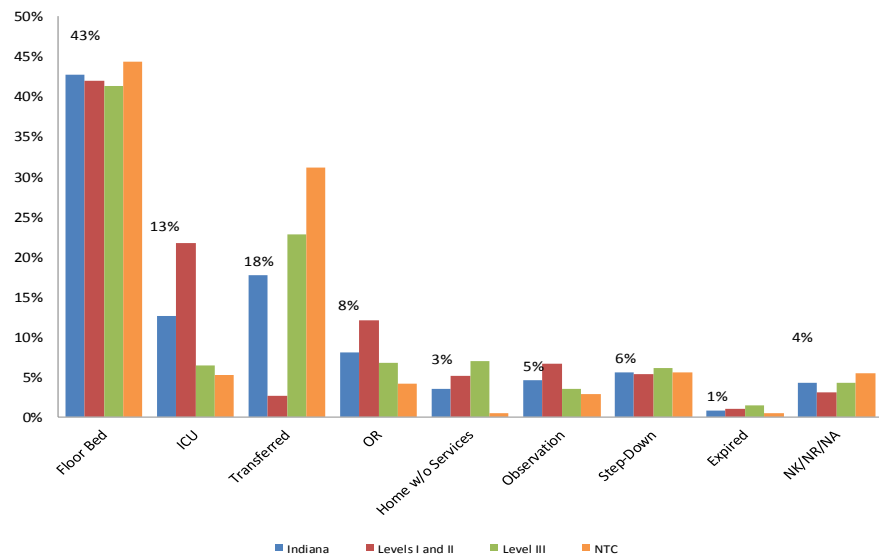
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ED Disposition by Percentage

ED Length of Stay (Hours)
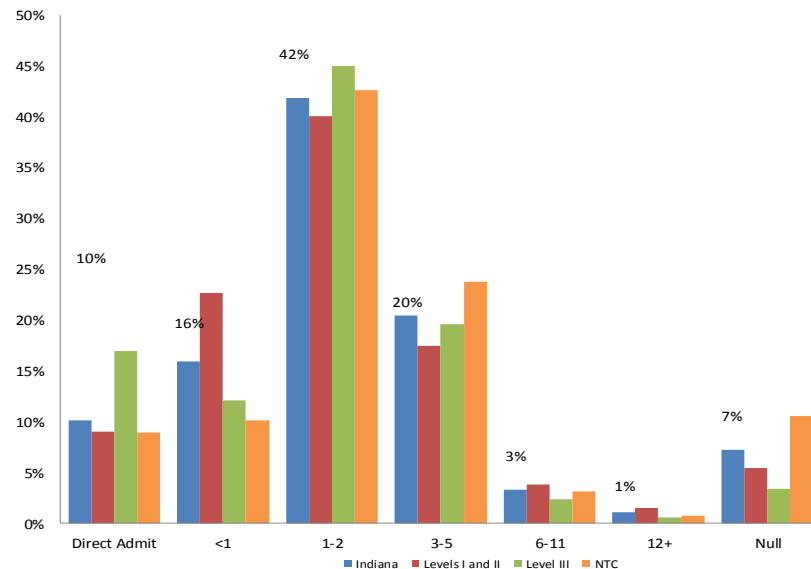
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ED Disposition for ED LOS >12 Hours
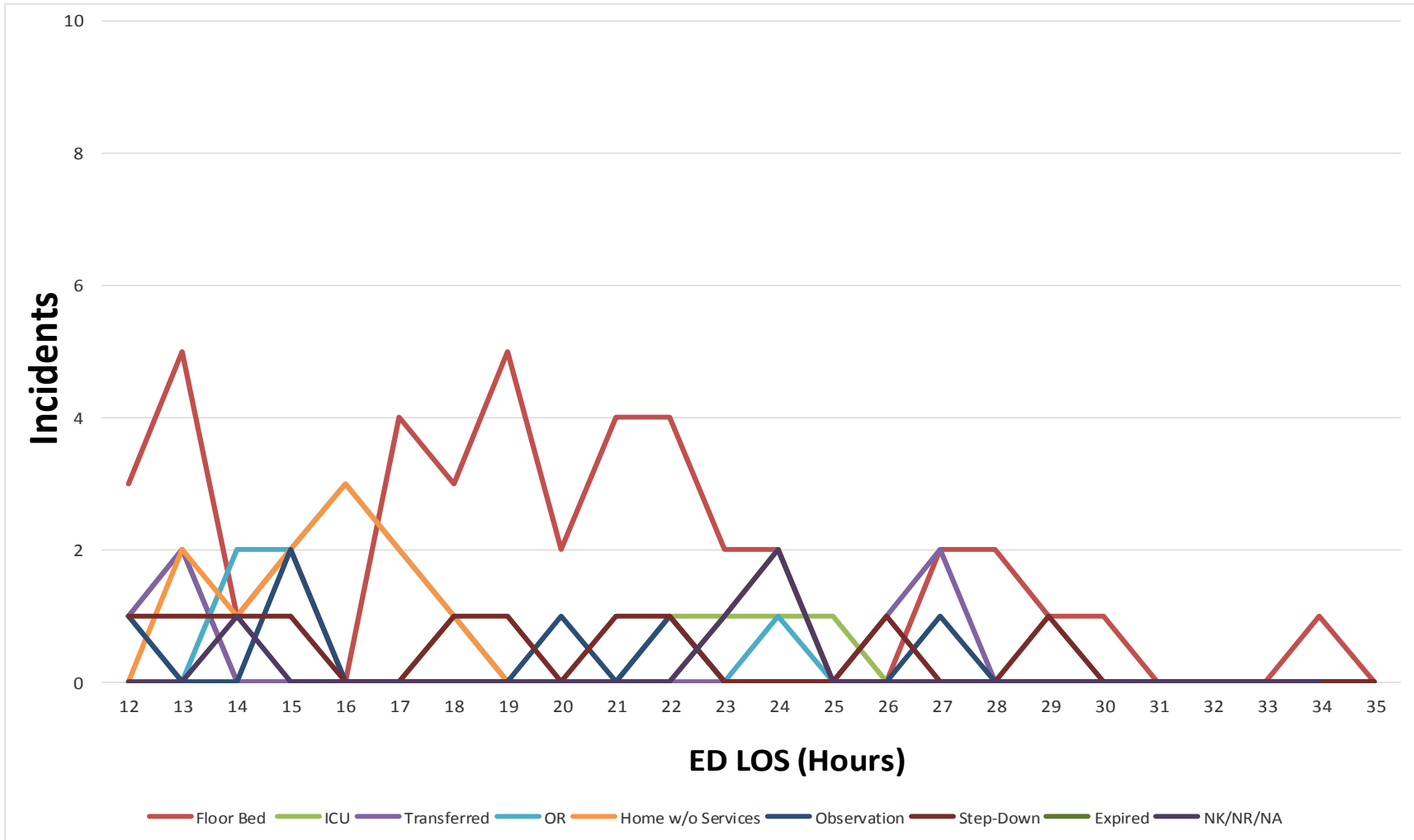
N=109   *No cases expired

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ED LOS > 12 Hours, N=109

Facilities	76 Level I and II 33 Non-trauma Centers	**Region**	14 North; 63 Central; 11 South; 21 Unknown/Out of State
Average Distance from Scene to Facility	22.9 Miles	**ISS**	71 (1-8 cat); 29 (9-15 cat); 7 (16-24), 2 (25-44)
Transport Type	80 Ambulance; 22 Private Vehicle; 1 Police ; 6 Unknown	**GCS Motor**	1 (2 cat); 1 (3 cat); 48 (4 cat); 59 (unknown)
Cause of Injury	29Transport; 56 Falls; Inanimate mechanical force 5; animate mechanical forces 2, drowning 1 16 Not Identified	**RTS—Systolic**	4 (2-3) ;100 (4)
Signs of Life	108 Yes 1 No	**RTS—Resp. Scale**	2 (0-1) ;103 (3)
Age	51.83 Years (3-98 Years)	**Resp. Assistance**	11 Yes; 94 No; 5 Unknown
Gender	59 Female; 50 Male	**ED LOS Hours**	109 (12-35)
Interfacility Transfer	26 Yes; 83 No	**ED Disposition**	44 Floor; 14 Home without services; 8 ICU; 6 Observation; 13 OR; 10 Step Down; 6 Transferred; 9 Unknown

-Region was created from injury zip code. Missing = no injury zip or injury zip from out of state.

-Numbers represent counts per category or mean with minimum and maximum in parentheses.

-No signs of life is defined as having none of the following: organized EKG activity, papillary responses, spontaneous respiratory attempts or movement, and unassisted blood pressure. This usually implies the patient was brought to the ED with CPR in progress (2015 Trauma Registry Data Dictionary, page 185).

Indiana Trauma Registry
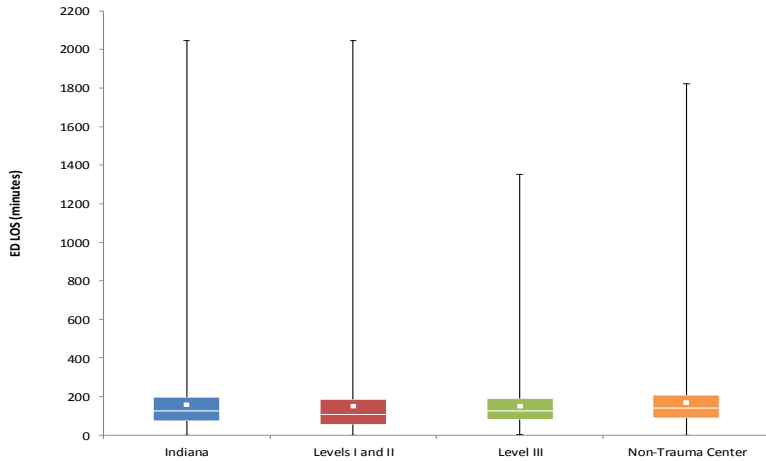
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ED LOS (Minutes) - All Patients
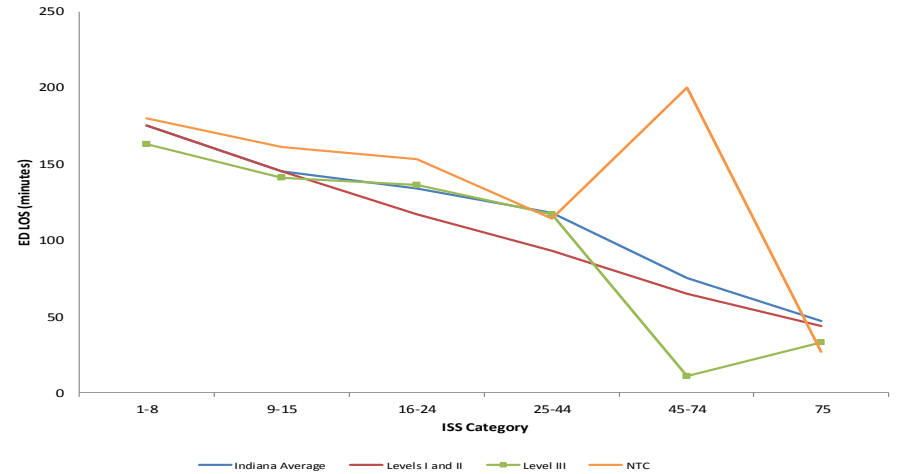
A table with all the values for ED LOS is found on page 52.

ED LOS (Minutes) by ISS

Note for EDLOS by ISS, there were 26 cases with ISS of 75; none were at a non-trauma center.

ED LOS (Minutes) by ISS
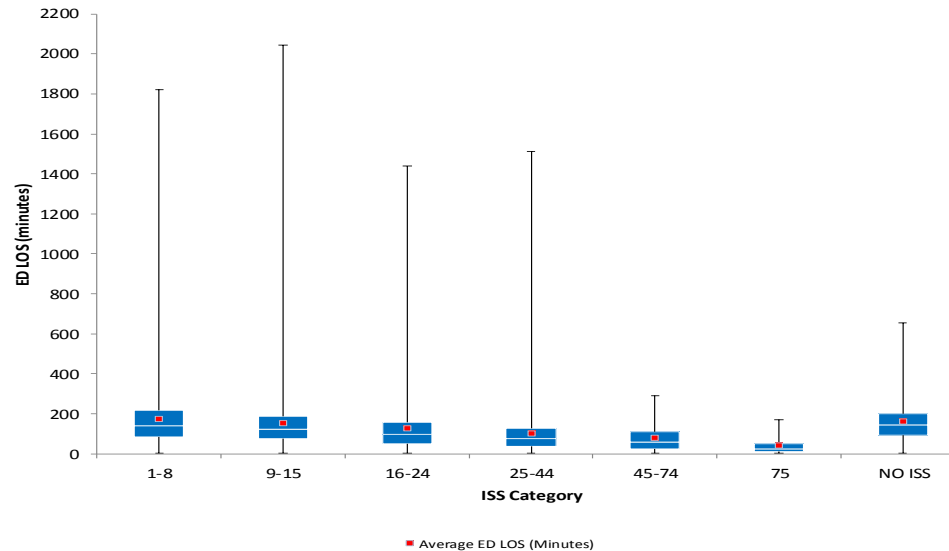
A table with values for ED LOS by ISS may be found on page 52

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Hospital Disposition
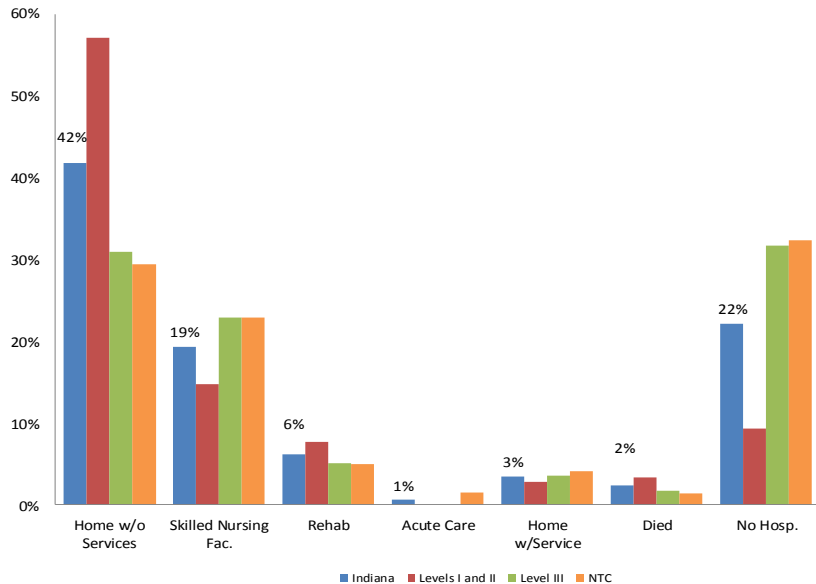
Hospital Length of Stay (days)
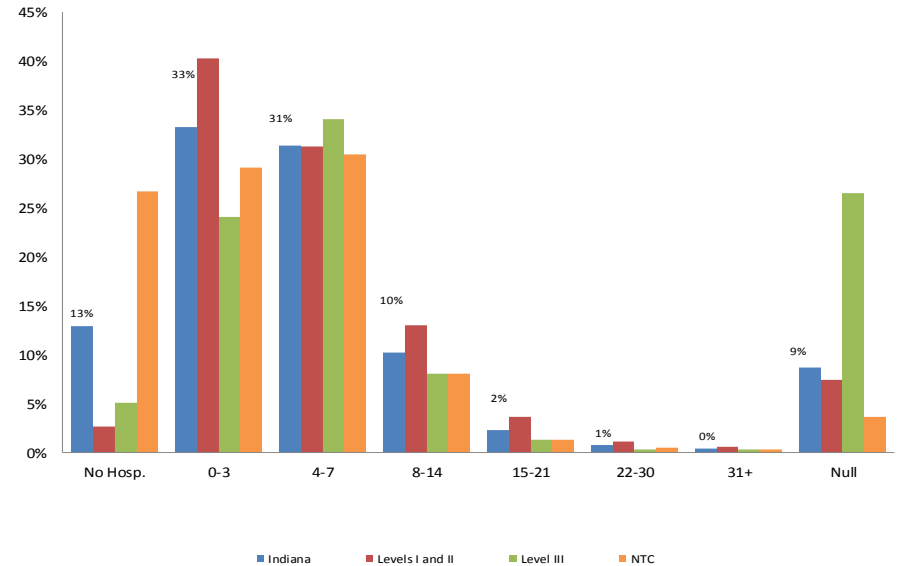
Hospital dispositions with <1% included: Another institution, Null, Psychiatric Hospital, Long-Term Care Hospital and Intermediate Care

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|		
Level I and II:	10 facilities	40.2% of data
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For Quarter 2 2017, of the 9,990 incidents reported to the Indiana Trauma Registry, 1,986 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 852 cases were probabilistically matched. The linked cases make up 8.5% of the Q2 2017 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,986 Incidents   Matched: 852 Incidents   Final Facility: 2,234 Incidents
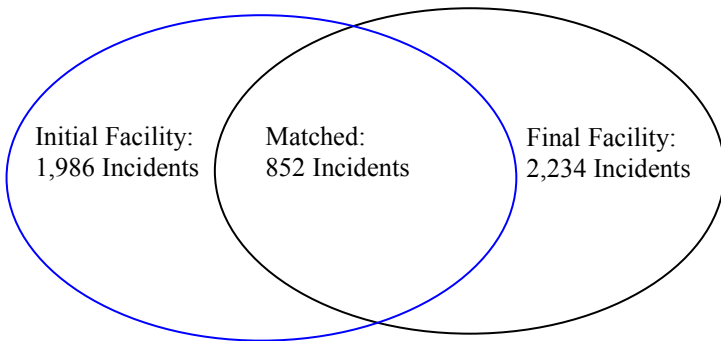
The initial facility in which transfers come from may be considered Critical Access Hospitals (CAHs). All Indiana CAHs are considered Rural, and must meet additional requirements to have a CAH designation, such as having no more than 25 inpatient beds and being located in a rural area. Facilities that are highlighted indicate that these facilities reported data for Quarter 4 2016.

Within this transfer data section, the purple columns represent the transfer cases and the single percentages represent the percent for the transfer cases. For two demographic variables, patient age groupings and gender, the Indiana average is included to provide more insight to this transfer population.

CAH List

Adams Memorial Hospital	Perry County Memorial Hospital
Cameron Memorial Community Hospital	Pulaski Memorial Hospital
Community Hospital of Bremen	Putnam County Hospital
Decatur County Memorial Hospital	Rush Memorial Hospital
Dukes Memorial Hospital	Scott Memorial Hospital
Gibson General Hospital	St. Vincent – Clay Hospital
Greene County General Hospital	St. Vincent – Dunn Hospital
Harrison County Hospital	St. Vincent – Frankfort Hospital
IU Health – Bedford Hospital	St. Vincent – Jennings Hospital
IU Health – Blackford Hospital	St. Vincent – Mercy Hospital
IU Health – Paoli Hospital	St. Vincent – Randolph Hospital
IU Health – Tipton Hospital	St. Vincent - Salem Hospital
IU Health – White Memorial Hospital	St. Vincent - Warrick Hospital
Jasper County Hospital	St. Vincent – Williamsport Hospital
Jay County Hospital	Sullivan County Community Hospital
Margaret Mary Community Hospital	Union Hospital Clinton
Parkview LaGrange Hospital	Woodlawn Hospital
Parkview Wabash Hospital	

Rural List

Columbus Regional Hospital	King's Daughters' Health
Daviess Community Hospital	Kosciusko Community Hospital
Fayette Regional Health System	Major Hospital
Franciscan Health-Michigan City	Marion General Hospital
Franciscan Health-Crawfordsville	Memorial Hospital (Logansport)
Good Samaritan Hospital	Memorial Hospital & Health Care Center (Jasper)
Henry Community Health	Parkview Noble Hospital
IU Health – La Porte Hospital	Reid Health
IU Health – Starke Hospital	St. Joseph's Regional Medical Center – Plymouth
Schneck Medical Center	

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Historical Links

Initial Facility: 1,891 Incidents — Matched: 734 Incidents — Final Facility: 2,162 Incidents

For Quarter 3, 2016, of the 8,916 incidents reported to the Indiana Trauma Registry, 1,891 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 734 cases were probabilistically matched. The linked cases make up 18% of the Q3 2016 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,484 Incidents — Matched: 685 Incidents — Final Facility: 1,756 Incidents
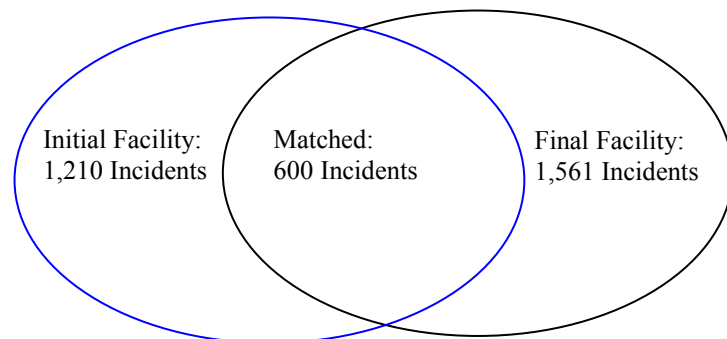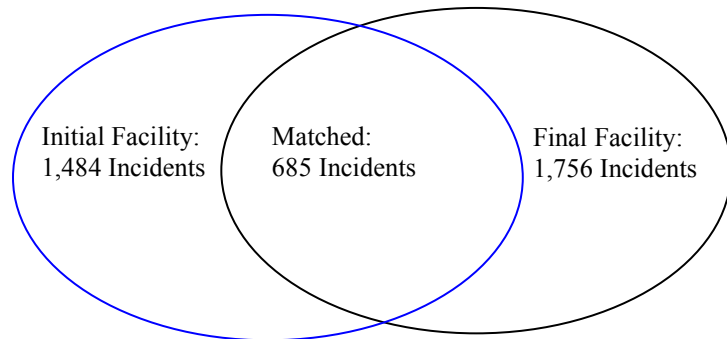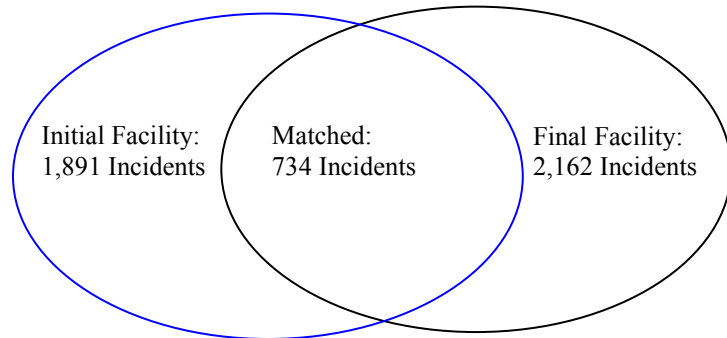
For Quarter 4, 2016, of the 8,916 incidents reported to the Indiana Trauma Registry, 1,484 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 685 cases were probabilistically matched. The linked cases make up 21% of the Q4 2016 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,210 Incidents — Matched: 600 Incidents — Final Facility: 1,561 Incidents

For Quarter 1 2017, of the 7.805 incidents reported to the Indiana Trauma Registry, 1,210 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 600 cases were probabilistically matched. The linked cases make up 21% of the Q1 2017 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

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Facility to Facility Transfers

For Transfer Patients:		
Initial Hospital Type	**Final Hospital Type**	**Incident Count**
Hospital	Hospital	99
Critical Access Hospital	Rural Hospital	43
Critical Access Hospital	Hospital	27
Critical Access Hospital	Trauma Center	96
Rural Hospital	Trauma Center	67
Trauma Center	Trauma Center	160
Hospital	Trauma Center	317

Facility Transfer Type

Rural = Rural Hospital; TC = ACS Verified or In Process Trauma Center;

CAH = Critical Access Hospital; Hospital = does not fall into above categories

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Indiana Trauma Registry

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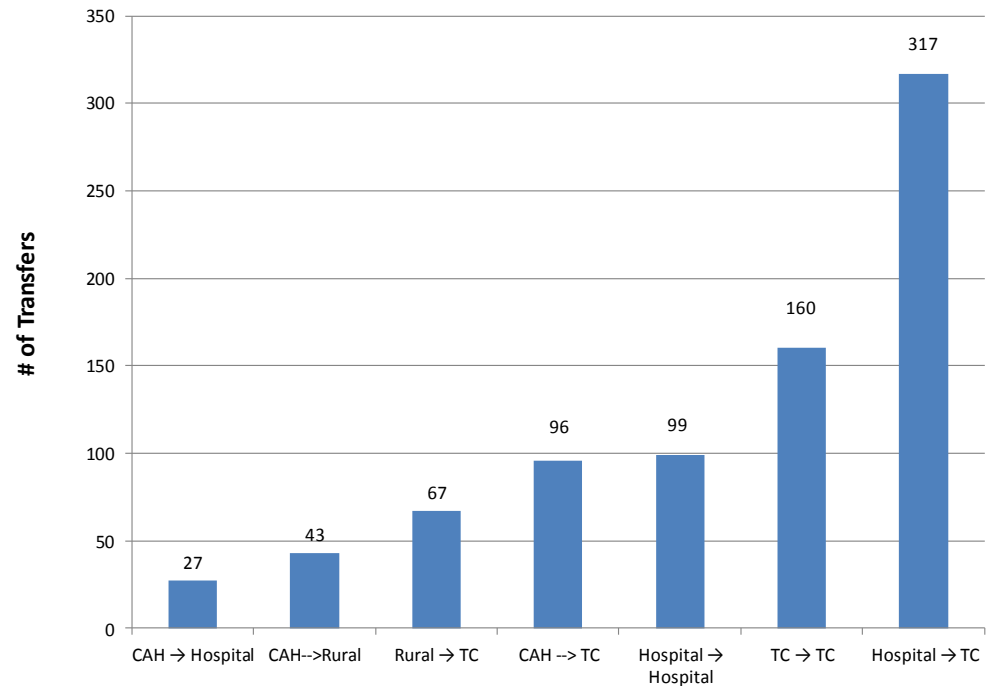**100 Total Hospitals Reporting**
Level I and II: **10 facilities   40.2% of data**
Level III: **12 facilities   14.8% of data**
(Non-Trauma) Hospitals: **77 facilities   45.0% of data**

For Linked Transfer Patients:

For Transfer Patients:				
	All Transfer Patients	Critical*	Physiological Critical**	ISS Critical***
Number of Patients	852	308	232	105
EMS Notified to Scene	8.2 minutes	8.02 minutes	7.4 minutes	8.6 minutes
EMS Scene Arrival to Departure	16.5 minutes	15.7 minutes	14.9 minutes	16.7 minutes
EMS Scene Departure to Initial Hospital ED Arrival	18.1 minutes	15.9 minutes	16.2 minutes	16.8 minutes
Initial Hospital ED Arrival to Departure	2 hours 2 minutes	1 hours 57 minutes	1 hours 52.8 minutes	2 hour
Initial Hospital ED Departure to Final Hospital ED Arrival	2 hours 3.9 minutes	1 hours 57 minutes	2 hours 2.7 minutes	1 hour 47.4 minutes
TOTAL TIME	4 hours 48.6 minutes	4 hours 33.6 minutes	4 hours 33.9 minutes	4 hours 29.4 minutes

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.

**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.

***ISS Critical Transfer patient is defined as having an ISS > 15 at the initial hospital

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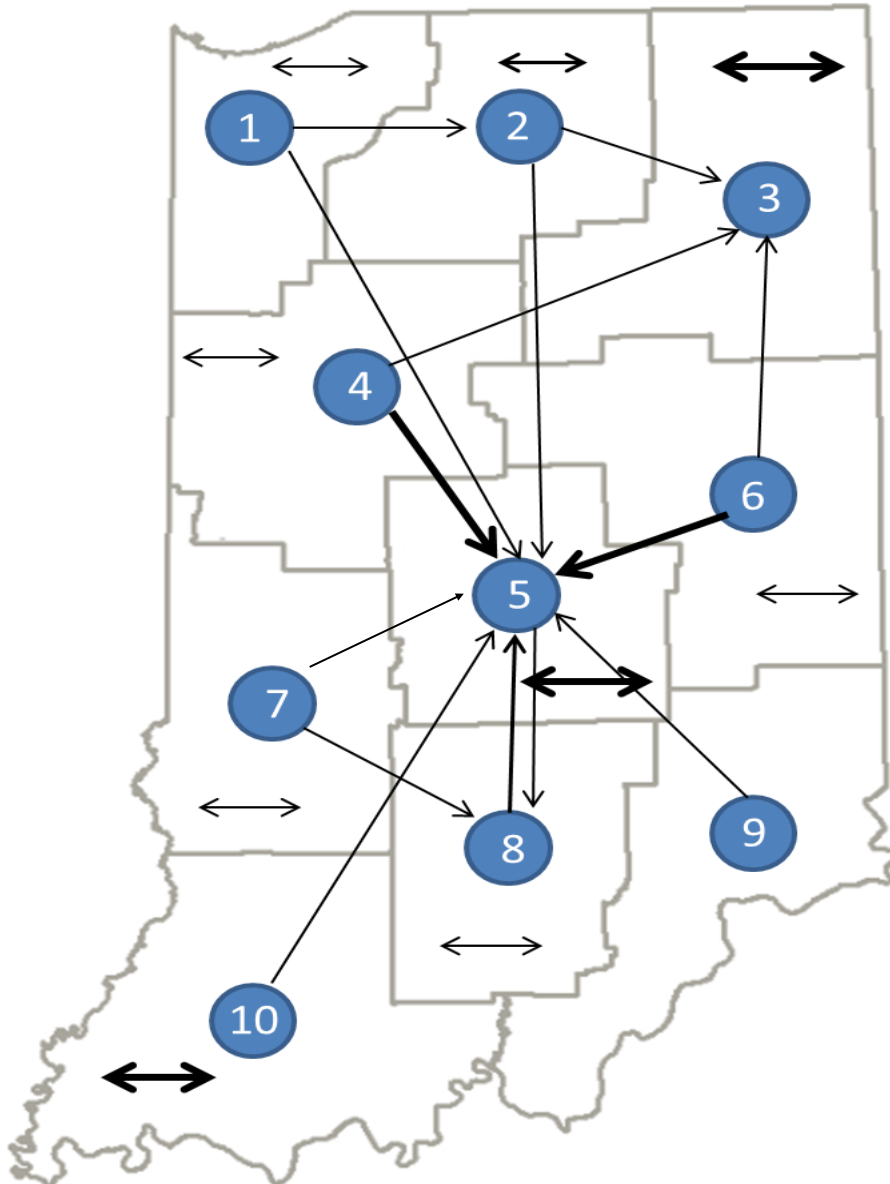
For Transfer Patients:		
Public Health Preparedness District Initial Hospital	**Public Health Preparedness District Final Hospital**	**Incident Counts**
1	2	17
1	5	16
2	2	7
2	3	1
2	5	9
3	3	160
3	5	1
4	3	0
4	4	4
4	5	30
5	5	103
6	3	11
6	5	64
6	6	3
7	5	51
7	7	7
8	5	49
8	8	10
8	10	0
9	5	2
9	9	0
10	5	14
10	10	67

*The thickness of the line indicates the frequency of transfers out of or within the public health preparedness district The circles represent transfers from a specific PHPD, not of a specific hospital or county.

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For Transfer Patients:

	All Transfer Patients	*Critical**	*Physiological Critical***	*ISS Critical****
Number of Patients	852	308	232	105
Total Time	4 hours 48.6 minutes	4 hours 33.6 minutes	4 hours 33.9 minutes	4 hours 29.4 minutes
Total Mileage	53.2	56.7	58.6	55.8
Injury Scene to Initial Hospital Mileage**	7.8	7.3	7.7	7.4
Initial Facility to Final Facility Mileage	45.4	49.4	50.8	48.4

Estimated Average Distance (miles) by Region (region of final hospital):

Region	Injury Scene to Initial Facility Mileage†	Initial Facility to Final Facility Mileage	Total Mileage	Drive Count	Air Count
Indiana Average	7.8	45.4	53.2	823	29
North Region	7	27.6	34.6	198	5
Central Region	7	55	63	482	24
South Region	8.4	36.3	44.7	143	0

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.

**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.

*** ISS Critical Transfer patient is defined as ISS > 15 at the initial hospital.

†Injury Scene to Initial Facility Mileage location estimated by zip code centroid

Statistics for Estimated Average Distance by Region calculated by Public Health Geographics, Epidemiology Resource Center, ISDH

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Patient Age Groupings
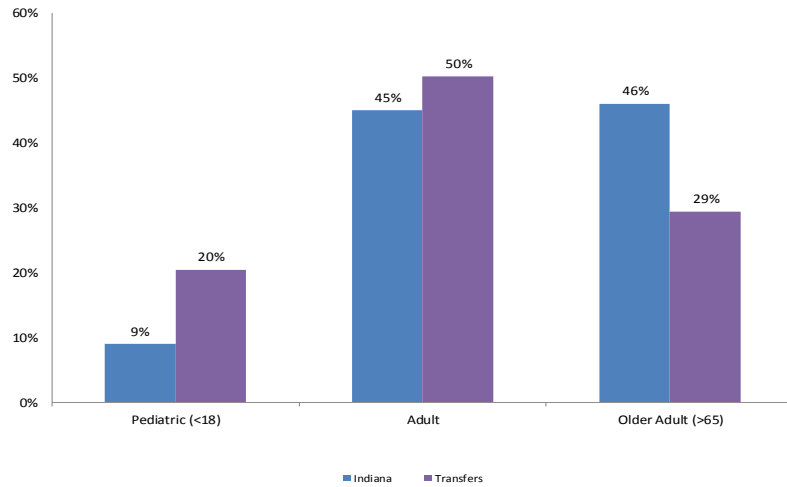
Patient Gender
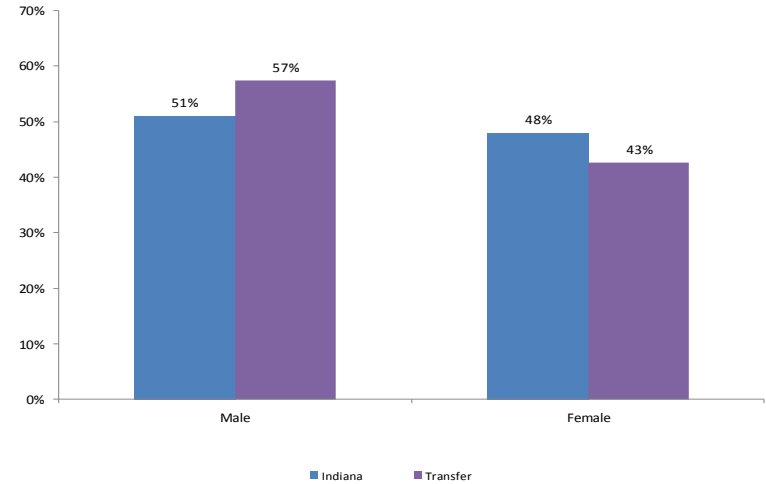
Injury Severity Score (ISS)

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Transport Mode– Final Hospital

Ground Ambulance: Indiana 44.5%, Transfer 95.4%
Helicopter: Indiana 17.2%, Transfer 3.4%
Private*: Indiana 17.4%, Transfer 1.1%
NK/NR/NA: Indiana 20.3%, Transfer 0.1%
Police: Indiana 0.7%, Transfer 0.0%
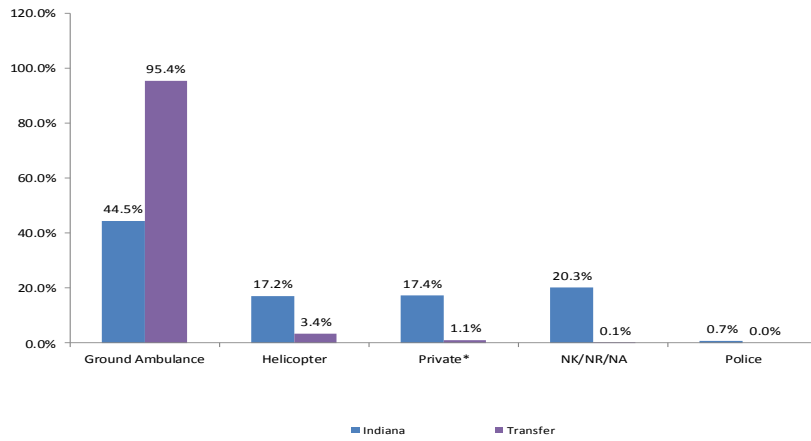
<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in

ED Disposition by Percentage- Final Hospital

Floor Bed 32.3%, ICU 21.9%, OR 11.7%, Home w/o Services 6.9%, Observation 9.0%, Step-Down 4.5%, NK/NR/NA 11.3%
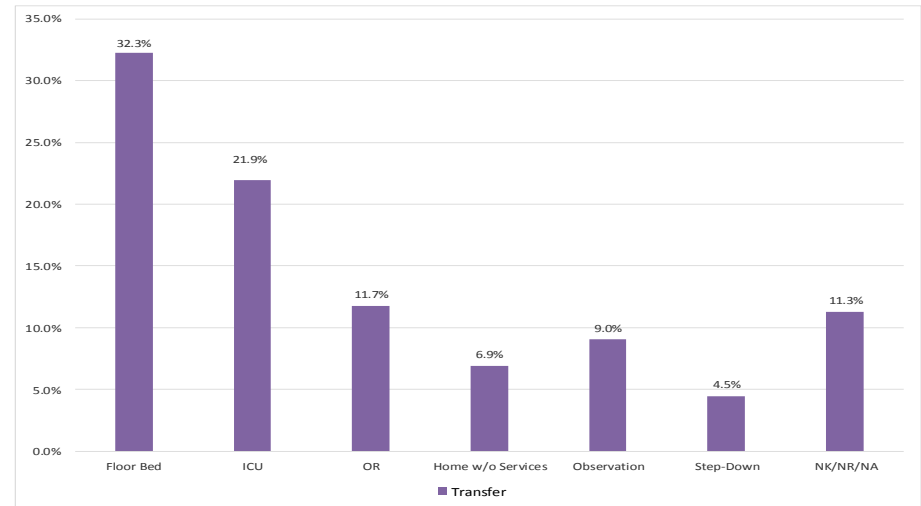
<1% : Transferred, Expired, AMA, Other

ED Length of Stay (hours)- Final Hospital

Direct Admit 14.9%, <1 30.4%, 1-2 30.8%, 3-5 10.1%, 6-11 1.9%, 12+ 0.7%, Null 11.3%
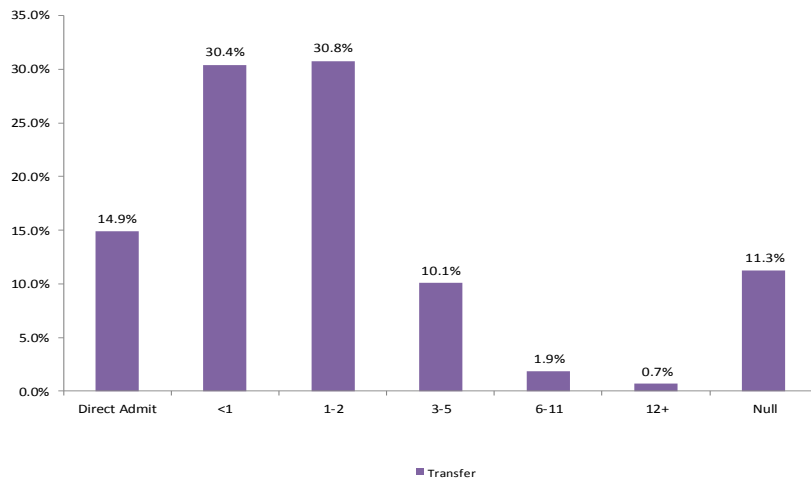
ICU Length of Stay (days)- Final Hospital
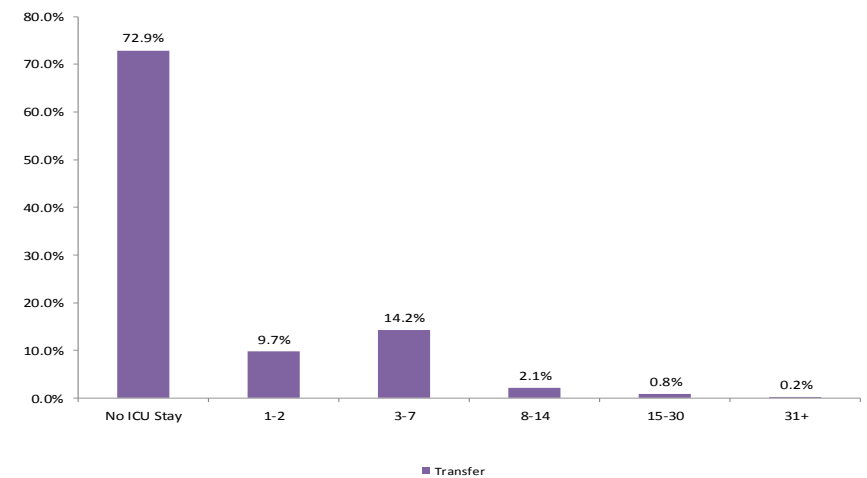
No ICU Stay 72.9%, 1-2 9.7%, 3-7 14.2%, 8-14 2.1%, 15-30 0.8%, 31+ 0.2%

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Discharge Disposition– Final Hospital
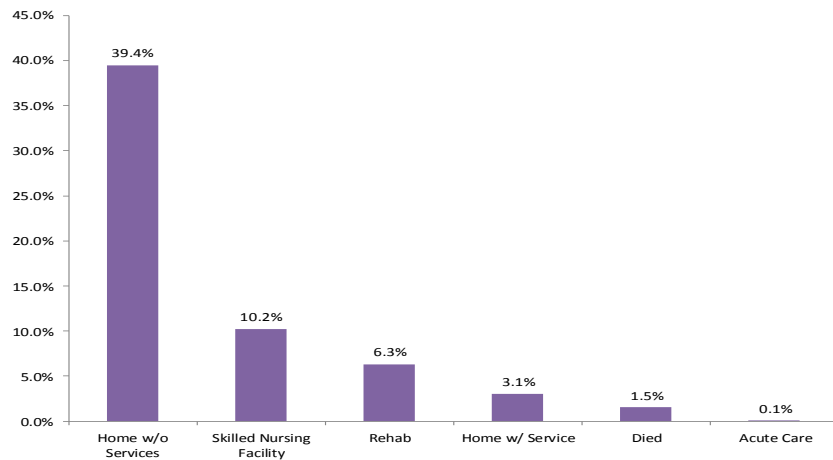
<1%: Acute care, AMA, another inst. Correctional, long-term care, hospice, psych hospital, no hospital stay

Helicopter Transfers by ISS– Final Hospital

■ All Transfers, N=852   ■ Helicopter Transfers, N=29

Transfer Delay Indicated- Initial Hospital
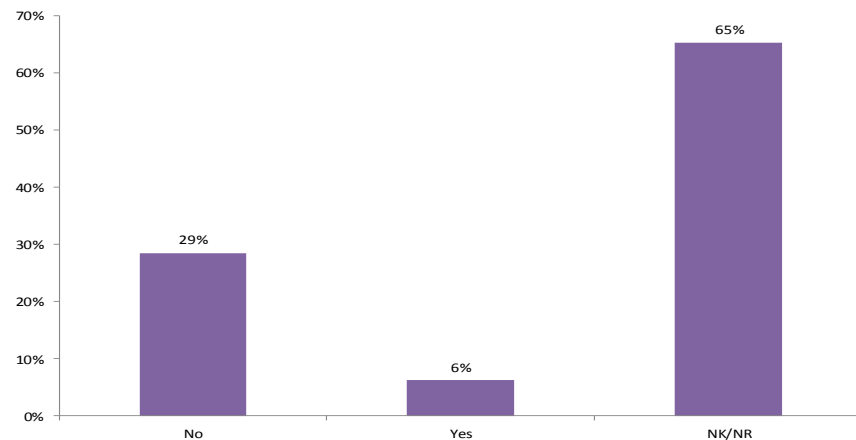
Initial Facility Transfer Delay Reason
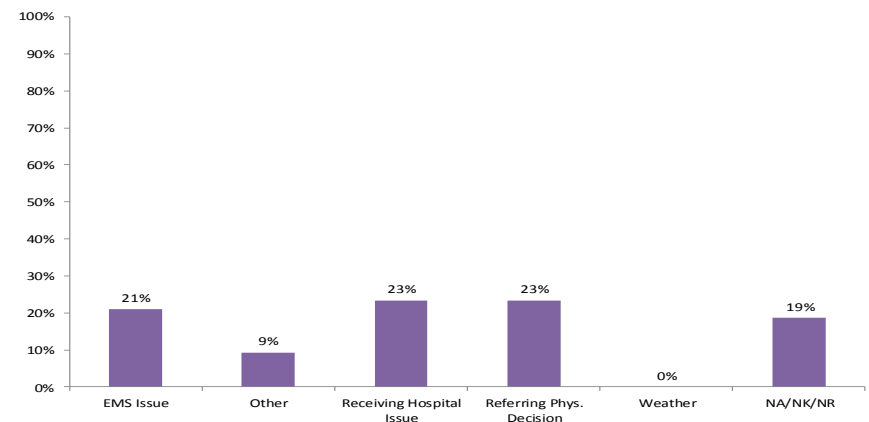
<1%: Receiving hospital radiology, missing

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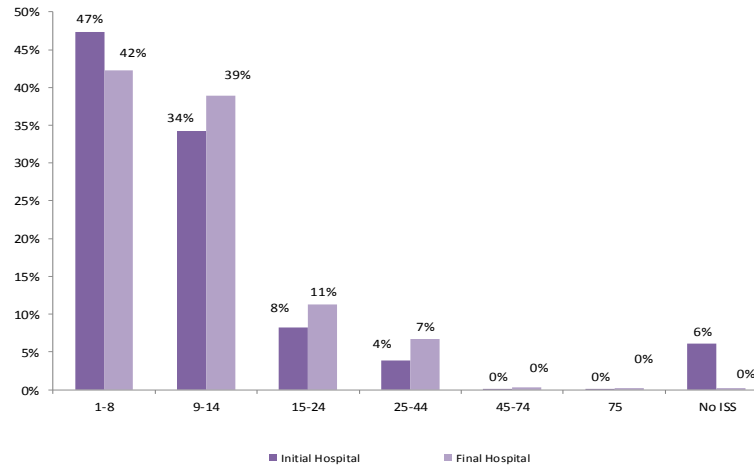|		
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Indiana State Department of Health
Indiana Trauma Registry
Hospitals Not Reporting Trauma Data to the Indiana Trauma Registry

Not reporting
04/01/2017 to 06/30/2017

Indiana State
Department of Health

Map Author: ISDH Trauma & Injury Prevention, ISDH PHG - Dec, 2017
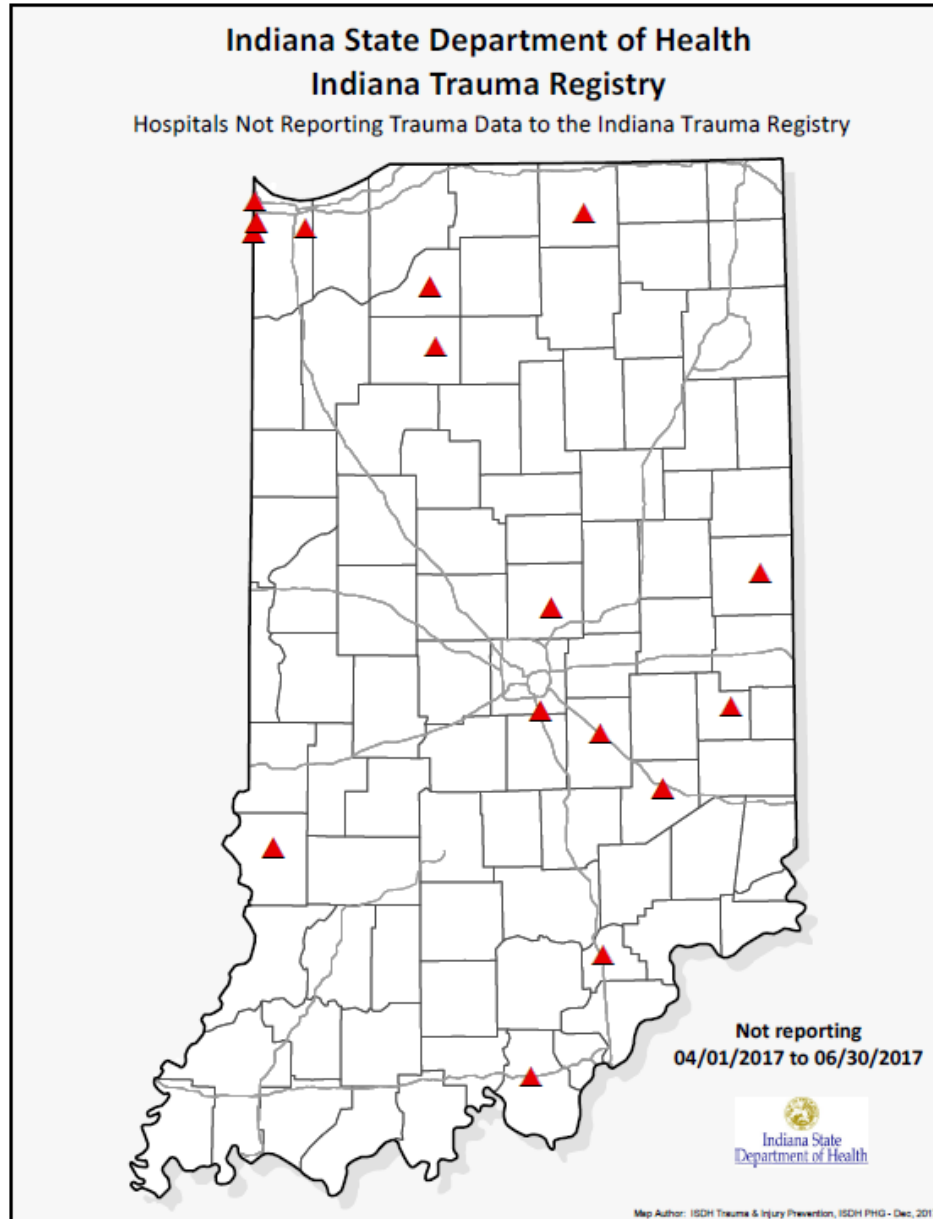
Hospital that did not report during Q2 2017:
-Decatur County Memorial
-Fayette Regional Health
-Franciscan Health Crown Point
-Franciscan Health Dyer
-Franciscan Health Hammond
-Franciscan Health Indianapolis
-Franciscan Health Munster
-Harrison County
-Goshen Health Hospital
-Starke Hospital
-Major Hospital
-Perry County Memorial
-Pulaski Memorial
-Riverview Health
-Rush Memorial
-St. Mary Medical Center—Hobart
-St. Vincent Randolph
-Sullivan County Community
-Woodlawn Hospital

Indiana State Department of Health
Indiana Trauma Registry

Hospitals Reporting Trauma Data Quarter 2
April 1, 2017 - June 30, 2017

I II Level I and II Trauma Centers

Deaconess Hospital
Eskenazi Health
IU Health Methodist Hospital
Lutheran Hospital of Indiana
Memorial Hospital of South Bend
Parkview Regional Medical Center
Riley Hospital for Children at IU Health
St Mary's Medical Center of Evansville
St Vincent Indianapolis Hospital & Health Services
Terre Haute Regional Hospital

III Level III Trauma Centers

Community Hospital of Anderson & Madison Co.
Franciscan St Anthony Health - Crown Point
Franciscan St Elizabeth Health - Lafayette East
Good Samaritan Hospital
IU Health Arnett Hospital
IU Health Ball Memorial Hospital
IU Health Bloomington Hospital
Memorial Hospital and Health Care Center
Methodist Hospitals - Northlake Campus
Reid Hospital & Health Care Services
St Vincent Anderson
Union Hospital Terre Haute

▲ Non-Trauma Hospitals

79 Non-Trauma Hospitals

Hospital categories include Verified and "In the Process"
Trauma Centers as of March 31, 2017.
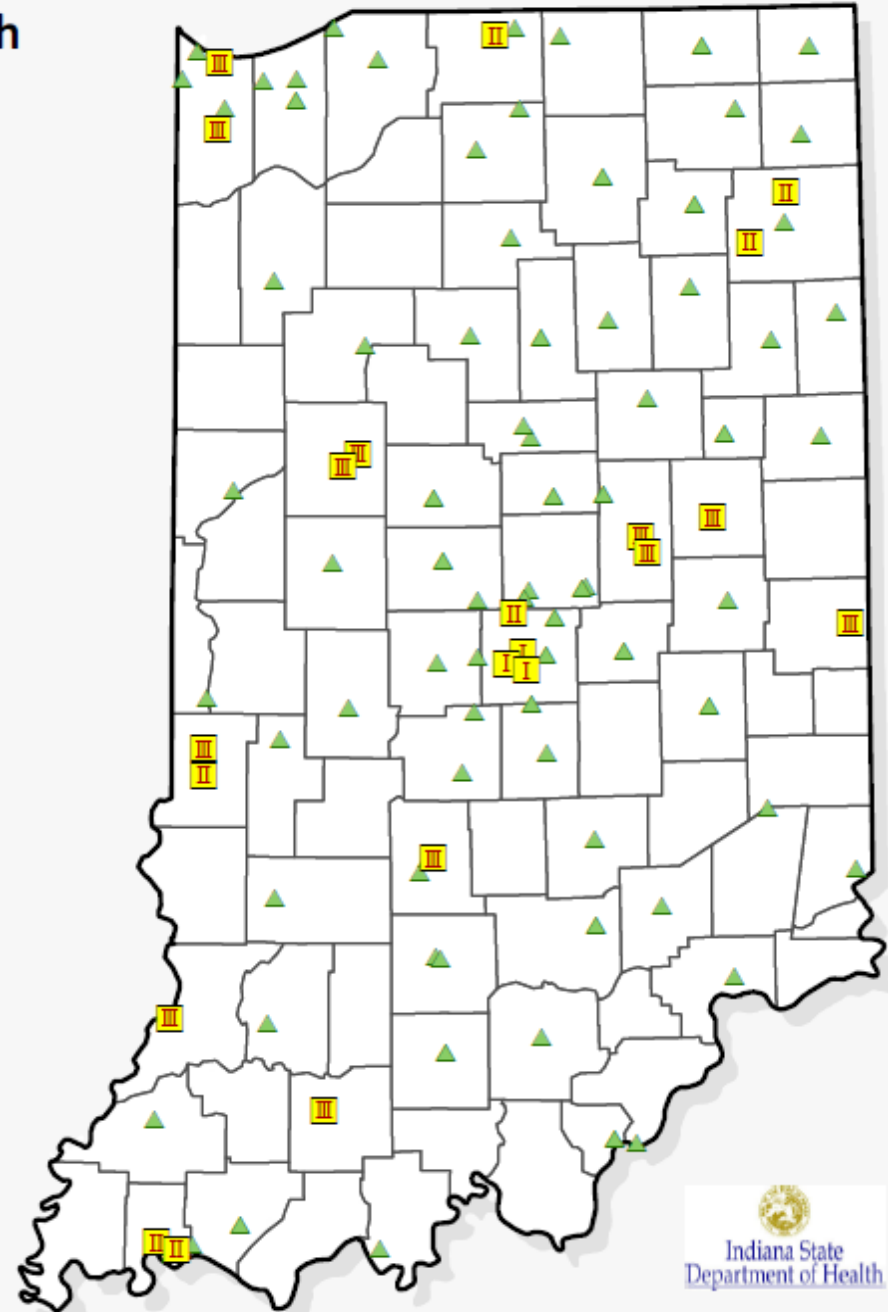
Map Author: ISDH Trauma & Injury Prevention, ISDH PHG - Dec, 2017

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9,990 Incidents

100 Total Hospitals Reporting

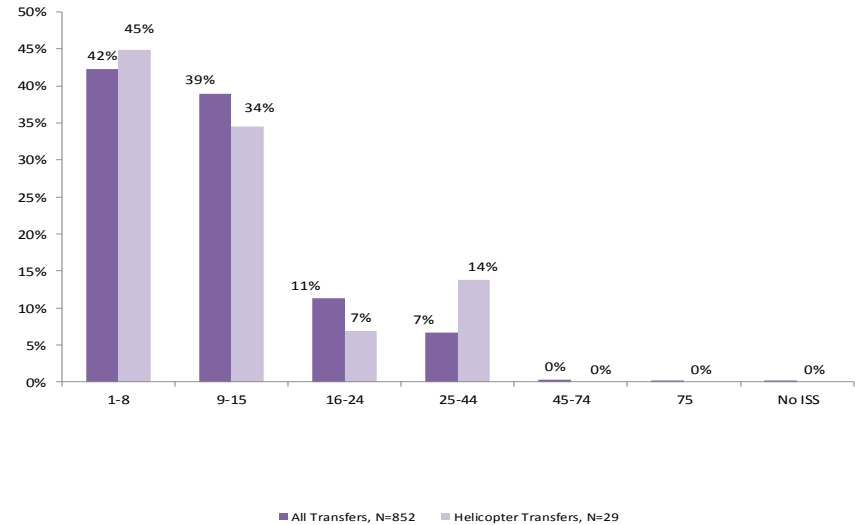|		
Level I and II:	10 facilities	40.2% of data
Level III:	12 facilities	14.8% of data
(Non-Trauma) Hospitals:	77 facilities	45.0% of data

Requests and Changes to the Report from Trauma Care Committee members at the February 2017 ISTCC meeting:

General Report:

-ED LOS is calculated using ED Acute Care Admission Date/Time and ED Acute Care Discharge Date/Time (Orders Written)

-Hospital LOS is calculated using Hospital Admission Date/Time and Hospital Discharge Date/Time (Orders Written)

-Trauma type and probability of survival will not be included in the statewide report until the CDC finalizes their guidelines on how to categorize those variables.

-Pages 45-51 have caterpillar plots with the ED LOS for critical transfer patients.

-Signs of Life: The two field values for this variable are: 1) Arrived with no signs of life, 2) Arrived with signs of life. A patient with no signs of life is defined as having none of the following: organized EKG activity, pupillary responses, spontaneous respiratory attempts or movement, and unassisted blood pressure. This usually implies the patient was brought to the ED with CPR in progress.

Example Bar and Whisker Plot:

-Bar and whisker plots were requested at the November 2013 ISTCC meeting in order to show more than just an average ED LOS and ED LOS by ISS. The bar and whisker plots represent the four quartiles of data, as illustrated on the example graph to the right. The blue boxes each contain 25% of the values and the error bars each represent where 25% of the values fell. The median is represented in the middle of the two blue boxes with the white line. The red dot in the center indicates the average for that category. The cap on the error bars indicates the minimum and maximum of each category and all the values fall within the two caps.

-For the ED LOS bar and whisker plots to the right, the average is represented by the white dot and the color boxes reflect the hospital type. The ED LOS by ISS plots on the next page follow the same layout and the red dots indicate the average for each of the ISS categories.
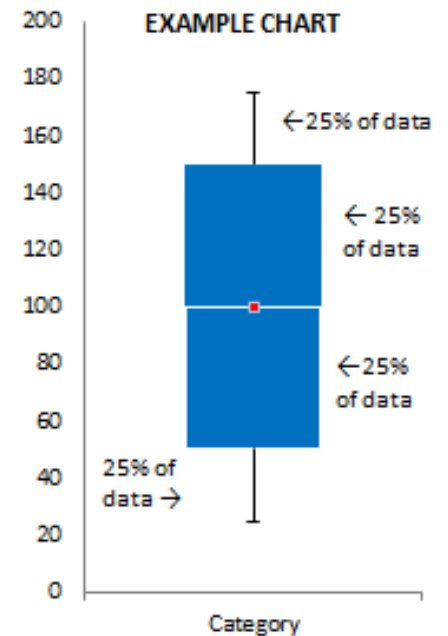
EXAMPLE CHART

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
9,990 Incidents

100 Total Hospitals Reporting

Level I and II:	10 facilities	40.2% of data
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Supplemental Report

The Supplemental Report (pages 19-55) contains demographic information, data that stays nearly constant from quarter to quarter, and reference tables and maps.

Definitions:

Emergency Department Length of Stay (ED LOS): The time from ED Admission to ED Discharge (Physical Exit). This changed to time from ED Admission to ED Discharge (Orders Written) beginning with Quarter 3 2016 data (July 1, 2016—September 30, 2016). There is a 120 minute performance improvement filter that is tracked for various hospital groups.

Direct Admit: Patient is admitted directly to the hospital and does not spend time in Emergency Department. The ED Length of Stay should reflect a direct admittance.

External Cause of Injury: ICD-10-CM codes that are used to describe the mechanism or external factor that caused the injury event.

Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.

Injury Severity Score: An anatomical scoring system defined as the sum of the three highest squared maximum Abbreviated Injury Scale (AIS) values to account for multiple injuries in the six body regions.

Signs of Life: The two field values for this variable are: 1) Arrived with no signs of life, 2) Arrived with signs of life. A patient with no signs of life is defined as having none of the following: organized EKG activity, pupillary responses, spontaneous respiratory attempts or movement, and unassisted blood pressure. This usually implies the patient was brought to the ED with CPR in progress.

Acronyms:

E-code: External Cause of Injury	MVC: Motor Vehicle Collision
ED: Emergency Department	OR: Operating Room
ICU: Intensive Care Unit	Ps: Probability of Survival
ISS: Injury Severity Score	CAHs: Critical Access Hospital
LOS: Length of Stay	

Calculations:

$Ps = 1/(1+e^{-b})$ where $b=b_o+b1(RTS) + b2(ISS) + b3(Age\ Index)$

Total GCS = Verbal GCS + Motor GCS + Eye GCS

RTS = 0.94*GCS+0.73*SBP+0.29*RR

$ISS = (AIS)^2 + (AIS)^2 + (AIS)^2$

Indiana State Department of Health
Trauma and Injury Prevention

Indiana Trauma Registry

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April 1, 2017—June 30, 2017
9,990 Incidents

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ED LOS ≥ 12 Hours
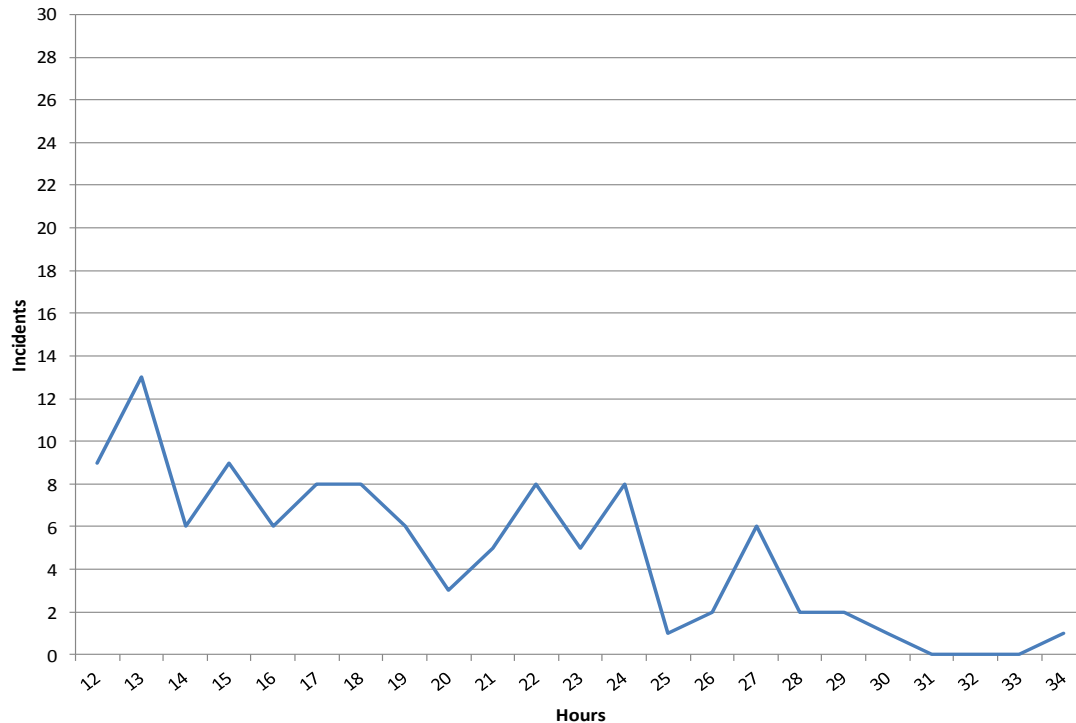
N=109

ED Length of Stay ≥ 12 Hours			
Hour	Count	**Hour**	Count
12th	9	**24th**	8
13th	13	**25th**	1
14th	6	**26th**	2
15th	9	**27th**	6
16th	6	**28th**	2
17th	8	**29th**	2
18th	8	**30th**	1
19th	6	**31st**	0
20th	3	**32nd**	0
21st	5	**33rd**	0
22nd	8	**34th**	1
23rd	5	**35th**	0

Indiana Trauma Registry

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9,990 Incidents

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Average ED LOS (Minutes)
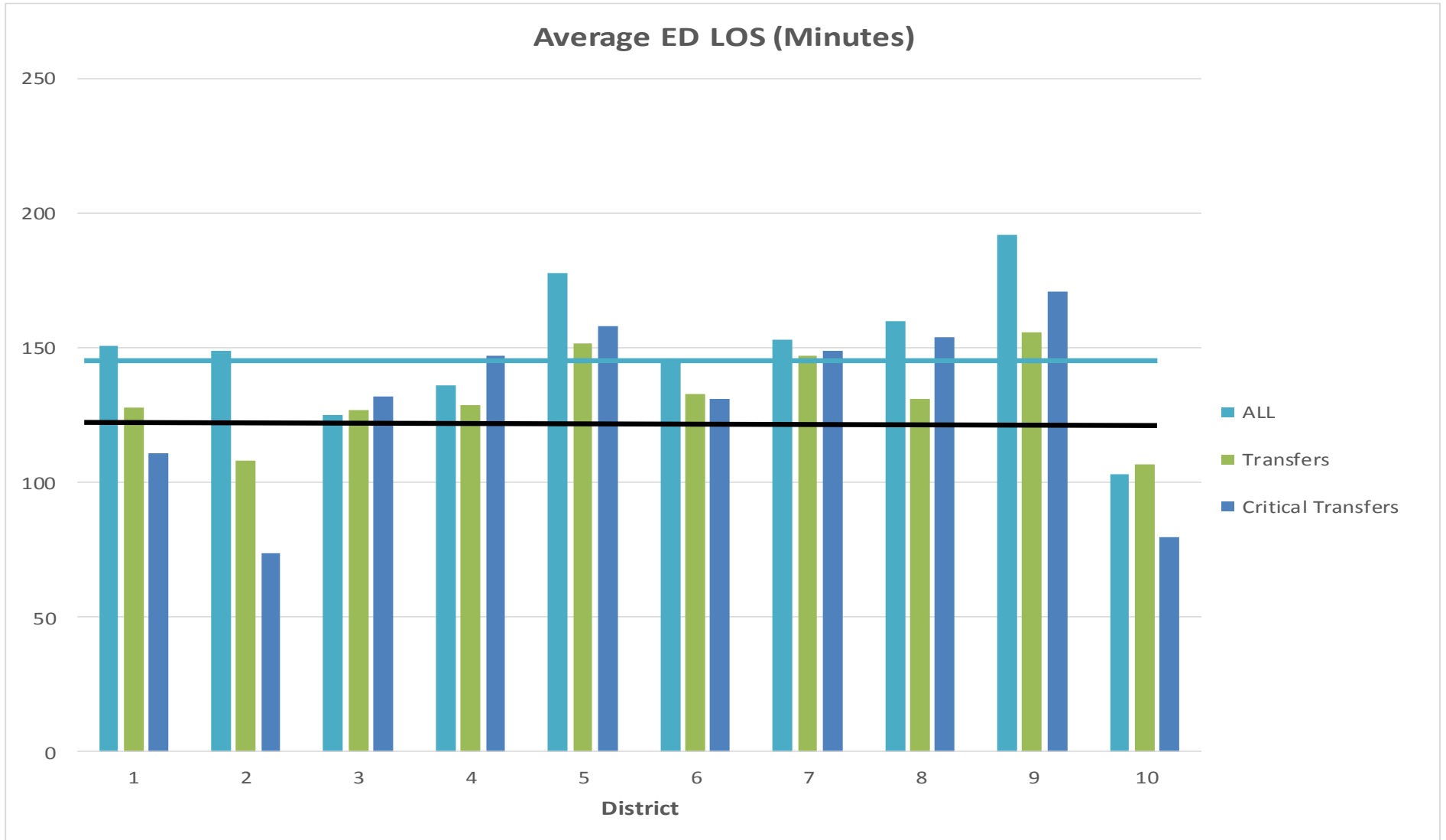
*Black line represents the 120 minute performance improvement filter
**Blue line represents the state average

Indiana Trauma Registry

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ED Disposition by ISS 1-15
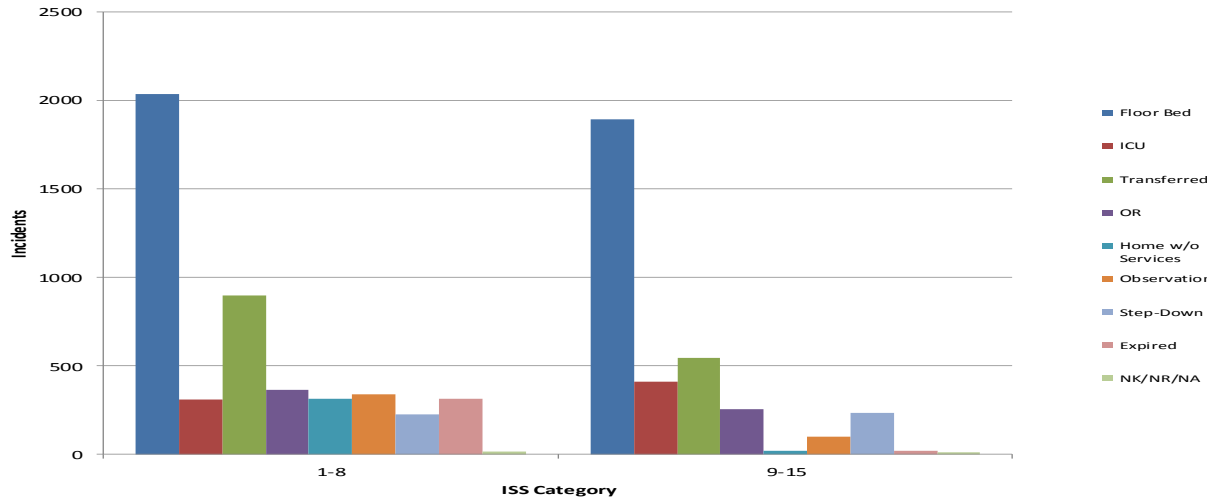
ED Disposition by ISS 16-75
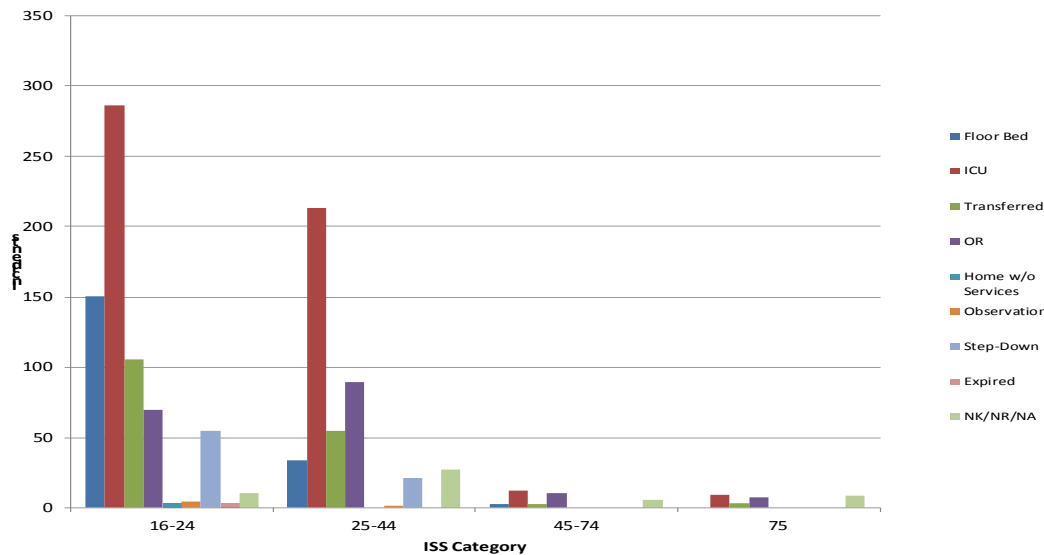
ED Disposition <1%: Expired, AMA; Home with services; Other (Jail, Mental Institution, etc.). Please note the difference in axis scale between the top and bottom graphs.
*A table with values for ED Disposition by ISS is found on page 54.

Indiana Trauma Registry

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9,990 Incidents

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Primary Payer Mix
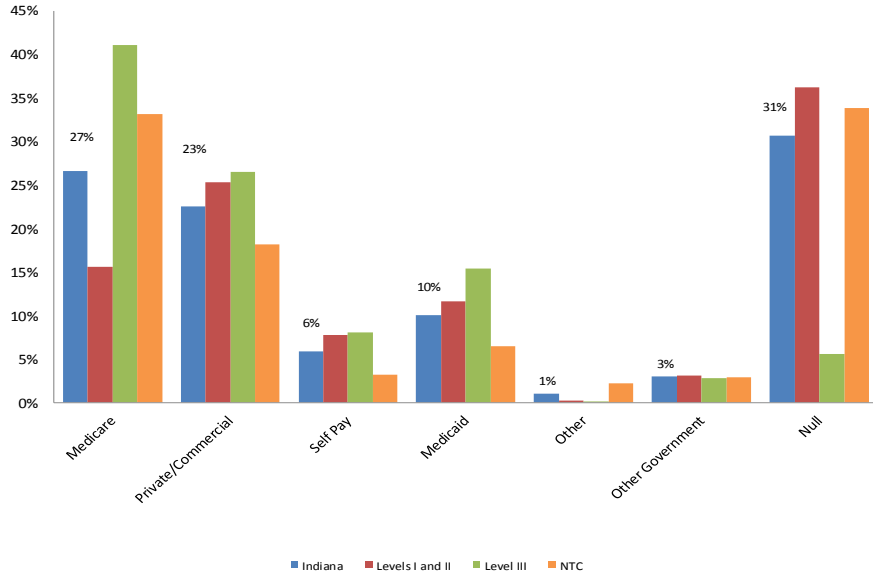
ICU Length of Stay (Days)
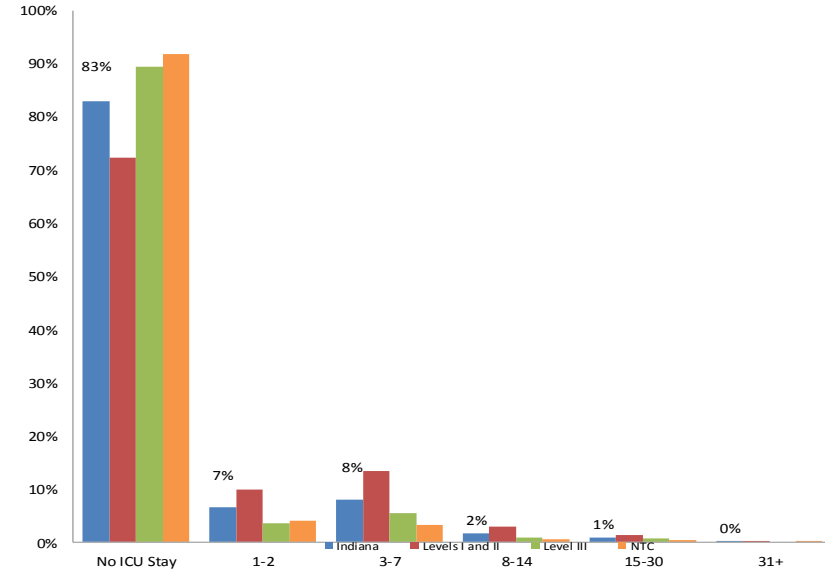
Indiana Trauma Registry

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April 1, 2017—June 30, 2017
9,990 Incidents

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Hospital Length of Stay > 15 days, N=347

Primary Payer Mix
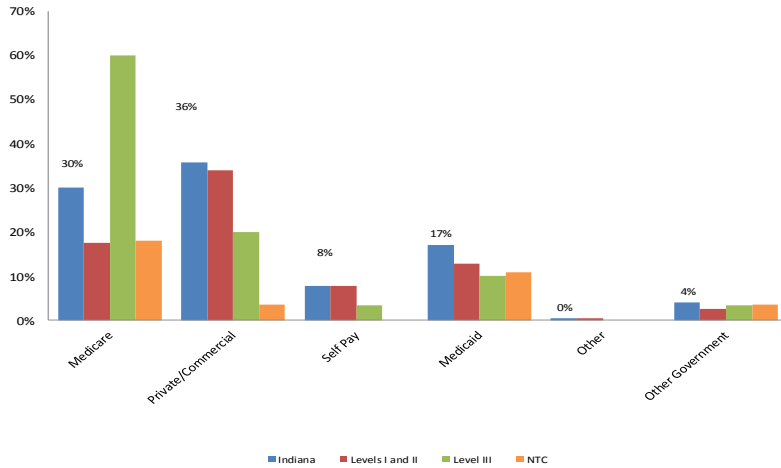
Hospital Disposition

Another Institution includes any other medical facility not defined in the other categories.

Cause of Injury
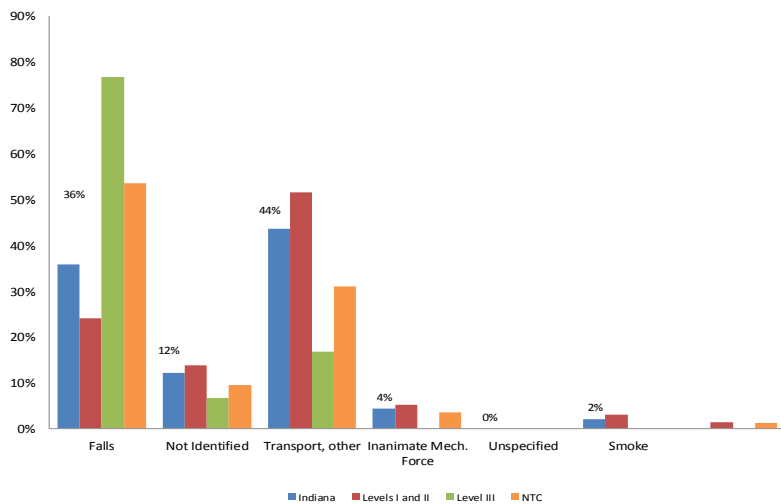
Cause of Injury is based on ICD-10-CM codes as of January 1, 2016. The categories for this variable include:

- Transport
- Falls
- Inanimate Mechanical Forces
- Animate Mechanical Forces
- Drowning
- Breathing
- Electricity/Radiation
- Smoke
- Heat
- Venom
- Forces of Nature

- Overexertion and Travel
- Unspecified
- Poisoning
- Not Identified

Indiana Trauma Registry

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Patient Age (Years)
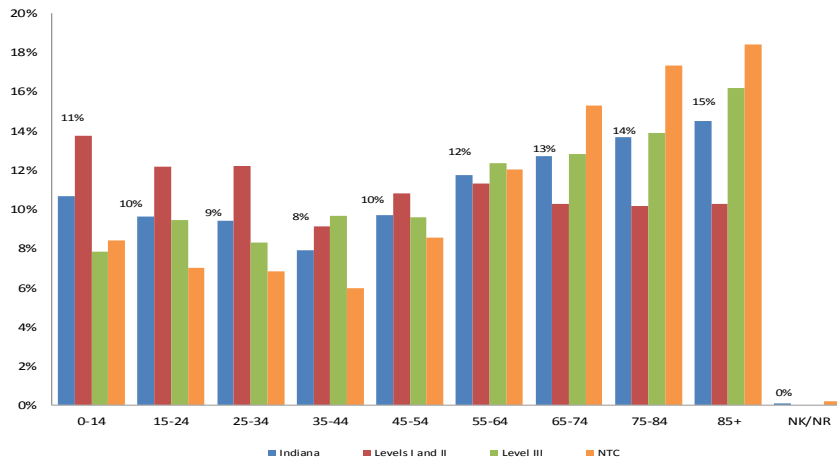
There were 18 unknown ages.
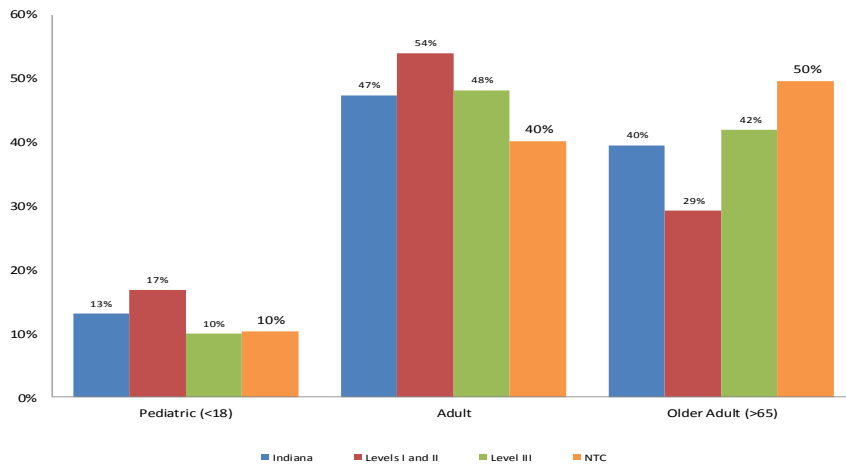
Age Group	Indiana	Level I and II	Level III	NTC
0-14	1065	601	116	348
15-24	961	531	140	290
25-34	939	533	123	283
35-44	788	398	143	247
45-54	968	472	142	354
55-64	1174	494	183	497
65-74	1271	448	190	633
75-84	1367	444	206	717
85+	1450	448	240	762
NK/NR	7	0	0	7
Total	9990	4369	1483	4138

Patient Age Groupings

Age Group	Indiana	Level I and II	Level III	NTC
Pediatric (<18)	1306	733	425	148
Adult	4730	2358	1659	713
Older Adult (>65)	3947	1278	2047	622
Total	9983	4369	4131	1483

Indiana Trauma Registry

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100 Total Hospitals Reporting

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Patient Gender
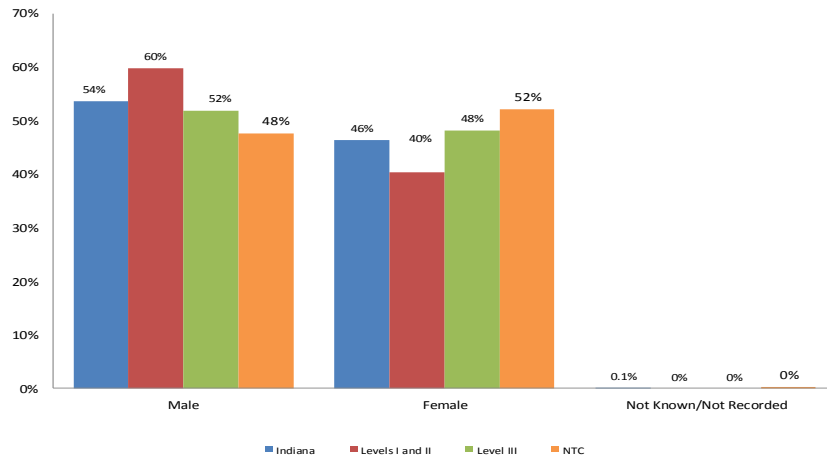
Gender	Indiana	Level I and II	Level III	NTC
Male	5349	2609	769	1971
Female	4630	1760	714	2156
Unknown	11	0	0	11
Total	9990	4369	1483	4138

Patient Race
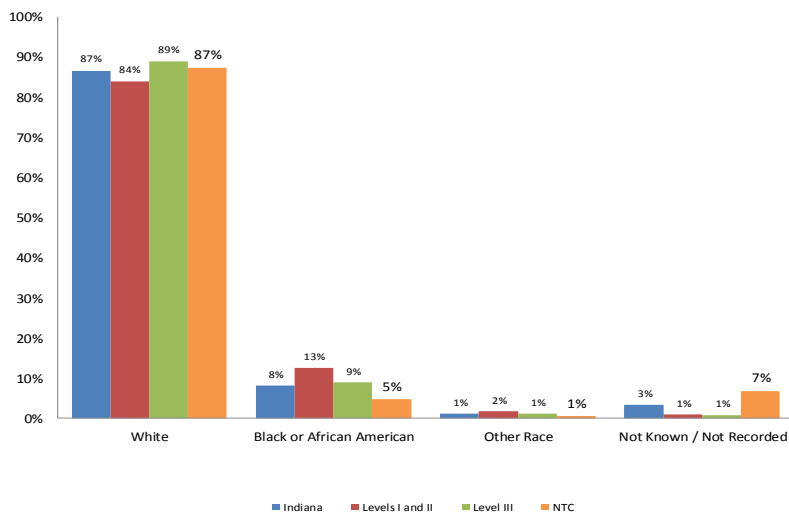
Race	Indiana	Level I and II	Level III	NTC
White	8594	3665	1319	3610
Black or African American	811	551	131	199
Other	112	72	18	22
Not Known/Not Recorded	339	45	12	282
American Indian or Alaska Native	9	7		2
Asian	50	26	3	21
Native Hawaiian or Pacific Islander	5	3		2
Total	9920	4369	1483	4138

<1% Race - Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native

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Indiana Trauma Registry

Statewide Quarter 2 Data Report
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9,990 Incidents

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Level I and II:	10 facilities	40.2% of data
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Injury Severity Score (ISS)
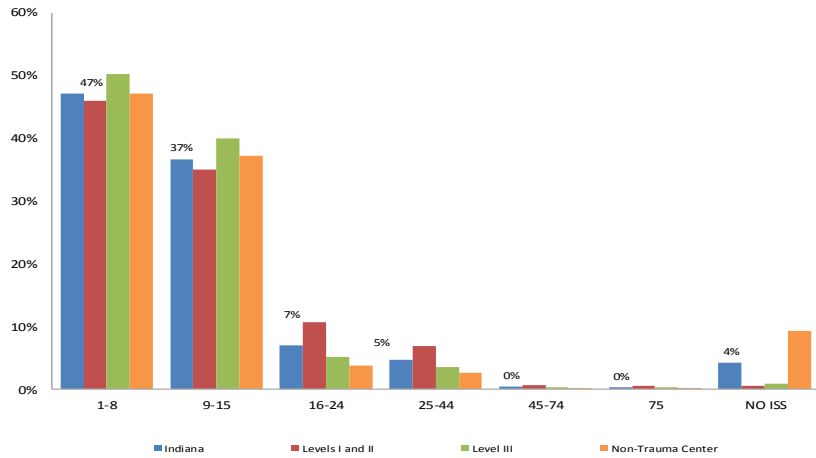
ISS Category	Indiana	Level I and II	Level III	NTC
1-8	4701	2007	744	1950
9-15	3661	1529	592	1540
16-24	694	466	76	152
25-44	458	300	52	106
45-74	32	25	3	4
75	28	23	3	2
No ISS	416	19	13	384
Total	9990	4369	1483	4138

There were 26 and 28 cases in the 45-74 and 75+ categories, respectively

Transport Mode
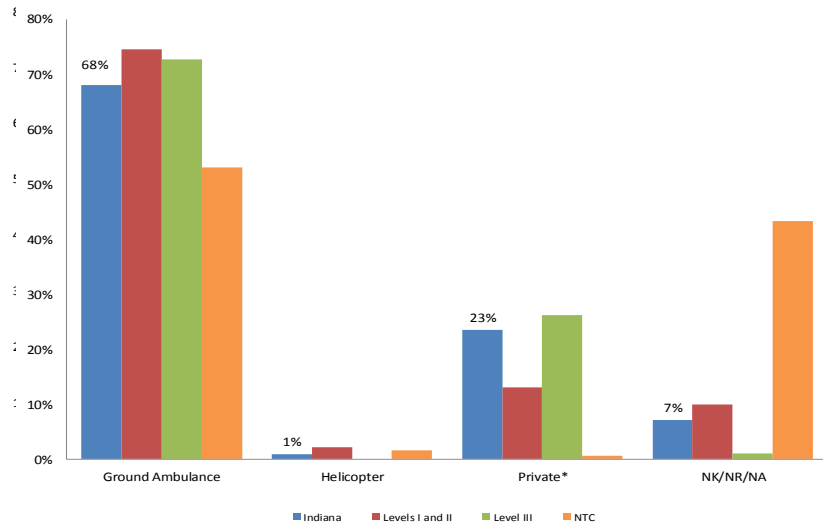
Transport Mode	Indiana	Level I and II	Level III	NTC
Ground Ambulance	6807	3257	1079	2471
Helicopter	95	95	0	0
Private	2347	570	388	1389
NK/NR/NA	716	437	16	263
Police	25	10		15
Other	0			0
Total	9990	4369	1483	4138

<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in

Indiana Trauma Registry

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9,990 Incidents

100 Total Hospitals Reporting

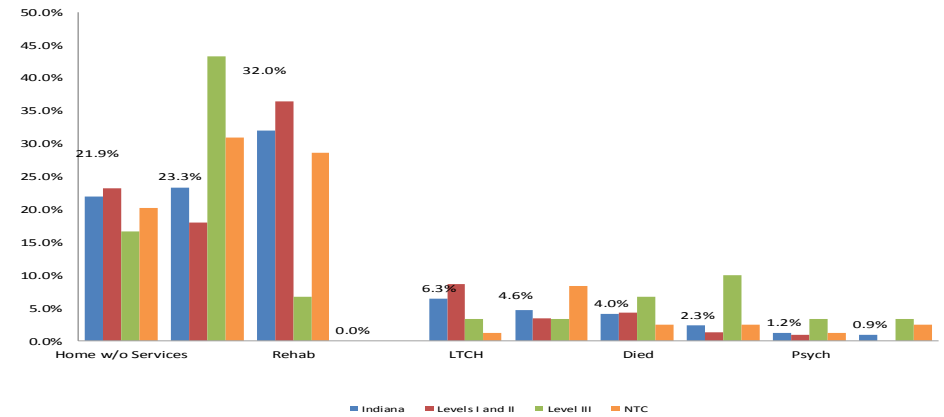|		
Level I and II:	10 facilities	40.2% of data
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Cause of Injury
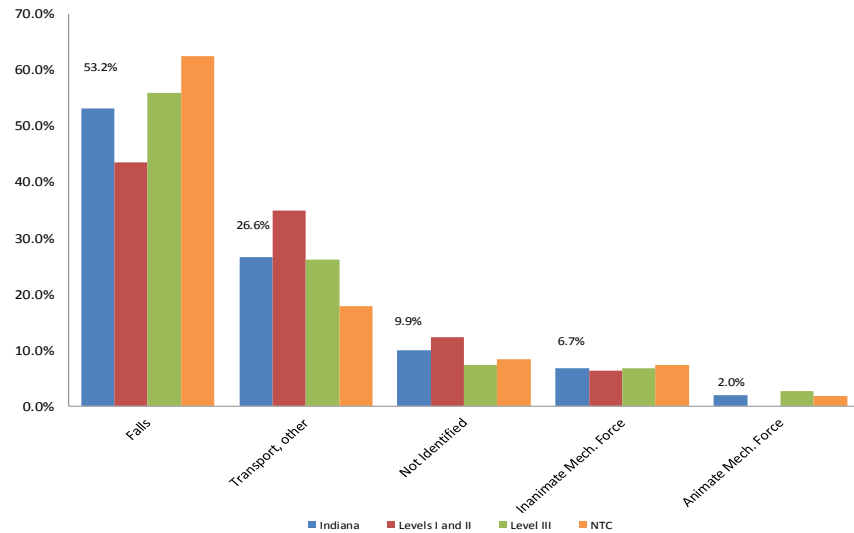
<1% Cause of Injury Categories: Smoke, Heat, Unspecified, Electricity/Radiation, Forces of Nature, Drowning, Breathing, Venom, Noxious Substances, Overexertion and Travel, and Poisoning

Cause of Injury	Indiana	Level I and II	Level III	NTC
Falls	5312	1897	828	2587
Not Identified	989	534	109	346
Transport	2653	1526	388	739
Inanimate Mech. Force	674	274	99	301
Animate Mech. Force	196	84	38	74
Smoke	66	34	10	22
Heat	35	8	7	20
Unspecified	31	1	3	27
Electric/ Radiation	5	2	0	3
Nature	2	1	0	1
Overexertion	20	7	0	13
Total	9990	4369	1483	4138

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
9,990 Incidents

All Patients
Average ED LOS (Hours)

	Indiana	Level I and II	Level III	Non-Trauma Centers
Upper CL	2.5	2.3	2.4	2.8
▲ Mean	2.4	2.2	2.3	2.7
Lower CL	2.4	2.1	2.2	2.6
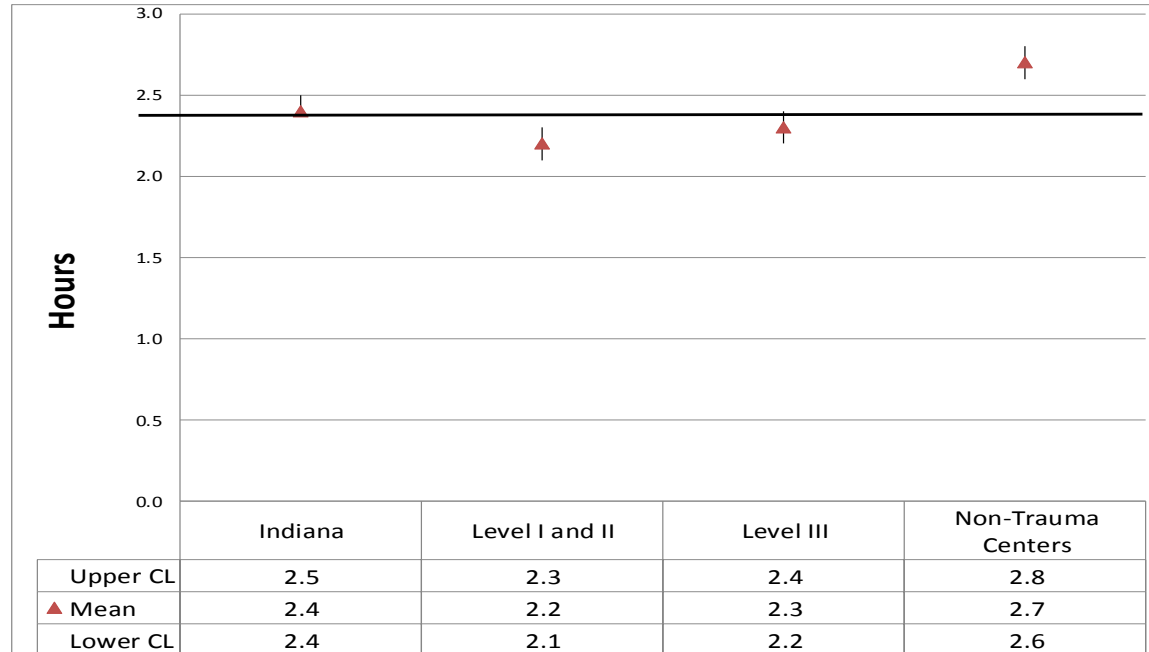
The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

The ED LOS for these graphs was modeled using time-to-event analysis. The purposes of using this analysis were to account for censoring (death) and to see how variables influence ED LOS. The outcome variable was ED LOS and the independent variables were total GCS and age. If total GCS was missing but manual total GCS was recorded, then the manual total GCS was used. These two variables were used because they were the most similar to variables used in the published, peer-reviewed literature on ED LOS. Both were significant in the model. Increasing total GCS and age led to a slightly shorter ED LOS. Hospitals that did not have enough incidents with total GCS or age could not be modeled.

In the chart on the left, note the trauma center average is above the mean and the non-trauma center is below the mean. The mean, 95% confidence limit and lower confidence limit are listed for each group.

In the chart on the right, the data is for the trauma centers. The trauma center average is in the first column on the left side. The information for each trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit are listed for each group.

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Indiana Trauma Registry

Statewide Quarter 2 Data Report
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9,990 Incidents

All Patients
Level I and II Trauma Centers ED LOS (Hours)

|	Levels I and II	ID 29	ID 67	ID 49	ID 61	ID 33	ID 97	ID 34	ID 85	ID 13
Upper CL	2.3	1.6	1.8	2.1	2.1	2.3	2.4	2.6	2.9	3.1
▲ Mean	2.2	1.5	1.7	2.0	2.0	2.1	2.3	2.4	2.7	2.9
Lower CL	2.1	1.4	1.5	1.8	1.8	1.8	2.1	2.3	2.5	2.7

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
9,990 Incidents

100 Total Hospitals Reporting

|		
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Level III:	12 facilities	14.8% of data
(Non-Trauma) Hospitals:	77 facilities	45.0% of data

All Patients
Level III Trauma Centers ED LOS (Hours)

	Level III	ID 48	ID 46	ID 70	ID 97	ID 103	ID 125	ID 29	ID 115	ID 93	ID 104
Upper CL	2.4	1.7	2.2	2.7	2.5	2.8	2.4	2.4	2.4	2.6	2.4
▲ Mean	2.3	1.1	1.9	2	2	2	2	2	2.1	2.1	2.2
Lower CL	2.2	0.5	1.7	1.3	1.4	1.1	1.5	1.6	1.7	1.6	2

Indiana Trauma Registry

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All Patients
Non-trauma Centers ED LOS (Hours)

Indiana Trauma Registry

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All Patients

Non-Trauma Centers-
Average ED LOS (Hours)

	NTC	ID 17	ID 104	ID 52	ID 93	ID 9	ID 46	ID 63	ID 80	ID 23	ID 78	ID 4	ID 103	ID 105	ID 16	ID 51	ID 14	ID 47
Upper CL	2.8	0.7	1.2	2.2	1.6	2.5	2.7	2.3	2.7	2.7	2	3.1	3.1	2.4	2.4	2.4	3.2	3
▲ Mean	2.7	0.7	1.2	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.9	2	2	2.1	2.1
Lower CL	2.6	0.7	1.2	1	1.6	0.9	0.8	1.1	0.6	0.9	1.5	0.7	0.7	1.4	1.6	1.6	1.1	1.1

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All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	NTC	ID 36	ID 47	ID 59	ID 84	ID 100	ID 118	ID 45	ID 114	ID 37	ID 39	ID 83	ID 91	ID 5	ID 11	ID 85	ID 66	ID 68
Upper CL	2.8	2.4	2.4	2.5	2.4	2.6	2.5	2.6	3	2.7	2.4	2.6	2.8	2.9	2.8	3.4	2.9	2.6
▲ Mean	2.7	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Lower CL	2.6	1.9	2	2	1.9	1.8	1.8	1.8	1.6	1.9	2.1	2.1	2.1	1.9	2	1.4	1.9	2.2

Indiana Trauma Registry

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All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	NTC	ID 10	ID 28	ID 36	ID 5	ID 7	ID 21	ID 45	ID 54	ID 30	ID 32	ID 111	ID 48	ID 12	ID 18	ID 41	ID 42	ID 56
Upper CL	2.8	3.8	3.2	3.1	3.1	3.5	3.1	4.2	4.1	3.3	3.1	3.5	4.4	3.8	4.6	3.7	3.7	5.1
▲ Mean	2.7	2.7	2.7	2.7	2.8	2.9	2.9	2.9	2.9	3	3	3	3.2	3.3	3.3	3.3	3.3	3.3
Lower CL	2.6	1.5	2.2	2.2	2.5	2.3	2.6	1.6	1.8	2.6	2.6	2.5	2	2.7	2	3	3	1.4

Indiana Trauma Registry

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(Non-Trauma) Hospitals:	77 facilities	45.0% of data

All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	NTC	ID 60	ID 109	ID 107	ID 110	ID 38	ID 100	ID 117	ID 84	ID 27	ID 114	ID 1	ID 90	ID 94	ID 118
Upper CL	2.8	5.1	4.1	3.8	4.9	4.7	5.5	5.4	4.5	4.2	7	4.9	12	13.2	6.4
▲ Mean	2.7	3.4	3.4	3.5	3.5	3.6	3.6	3.6	3.7	3.8	3.8	4.3	5.1	6.4	6.4
Lower CL	2.6	1.7	2.7	3.3	2.1	2.5	1.7	1.7	2.9	3.4	0.6	3.6	0	0	6.4

Indiana Trauma Registry

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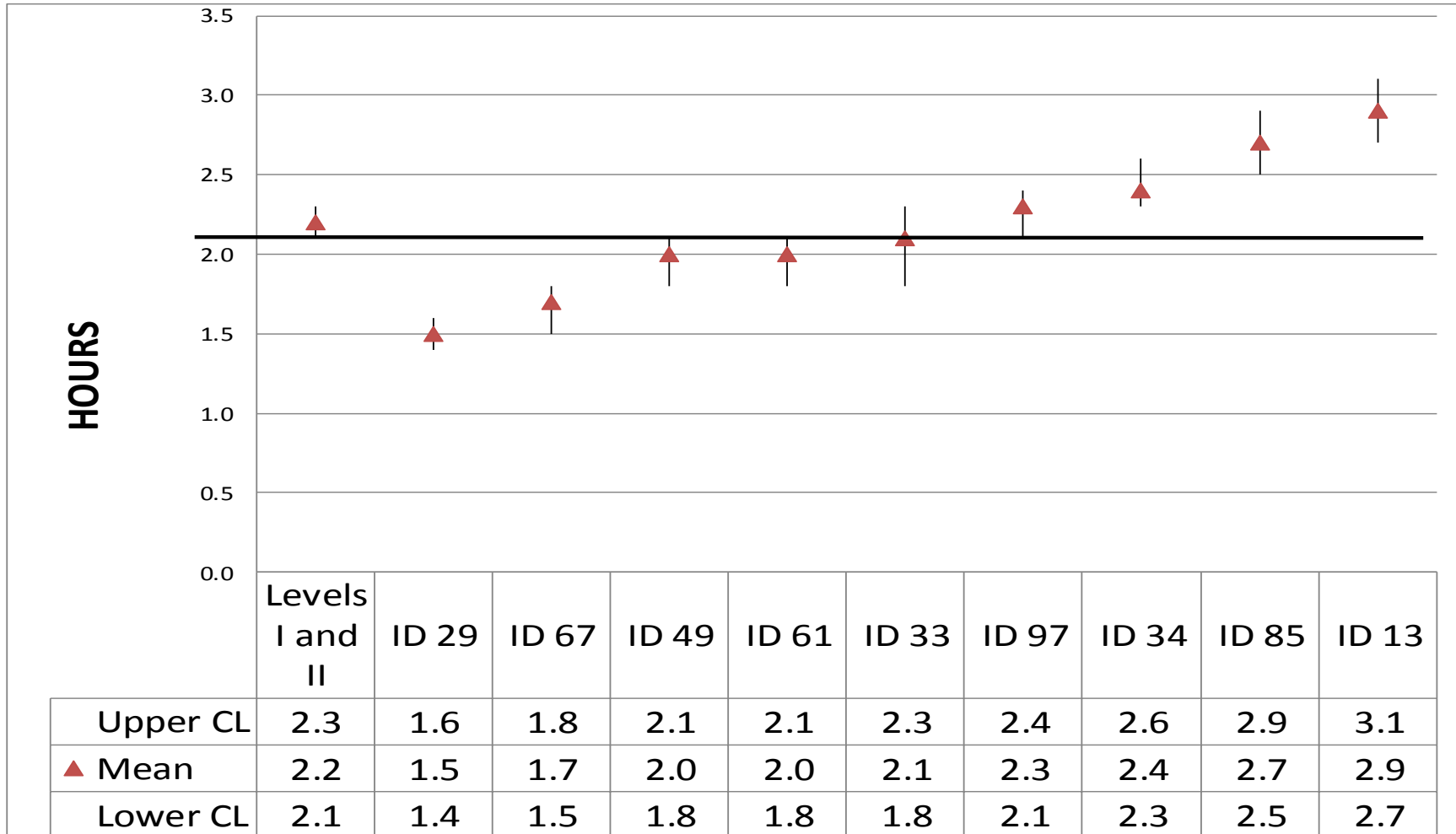**9,990 Incidents**

100 Total Hospitals Reporting

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ED Disposition = Transferred

Average ED LOS (Hours)

	Indiana	Levels I and II	Level III	Non-Trauma Centers
Upper CL	2.3	2.3	2.0	2.5
▲ Mean	2.2	2.0	1.9	2.3
Lower CL	2.1	1.7	1.7	2.2

Indiana Trauma Registry

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100 Total Hospitals Reporting
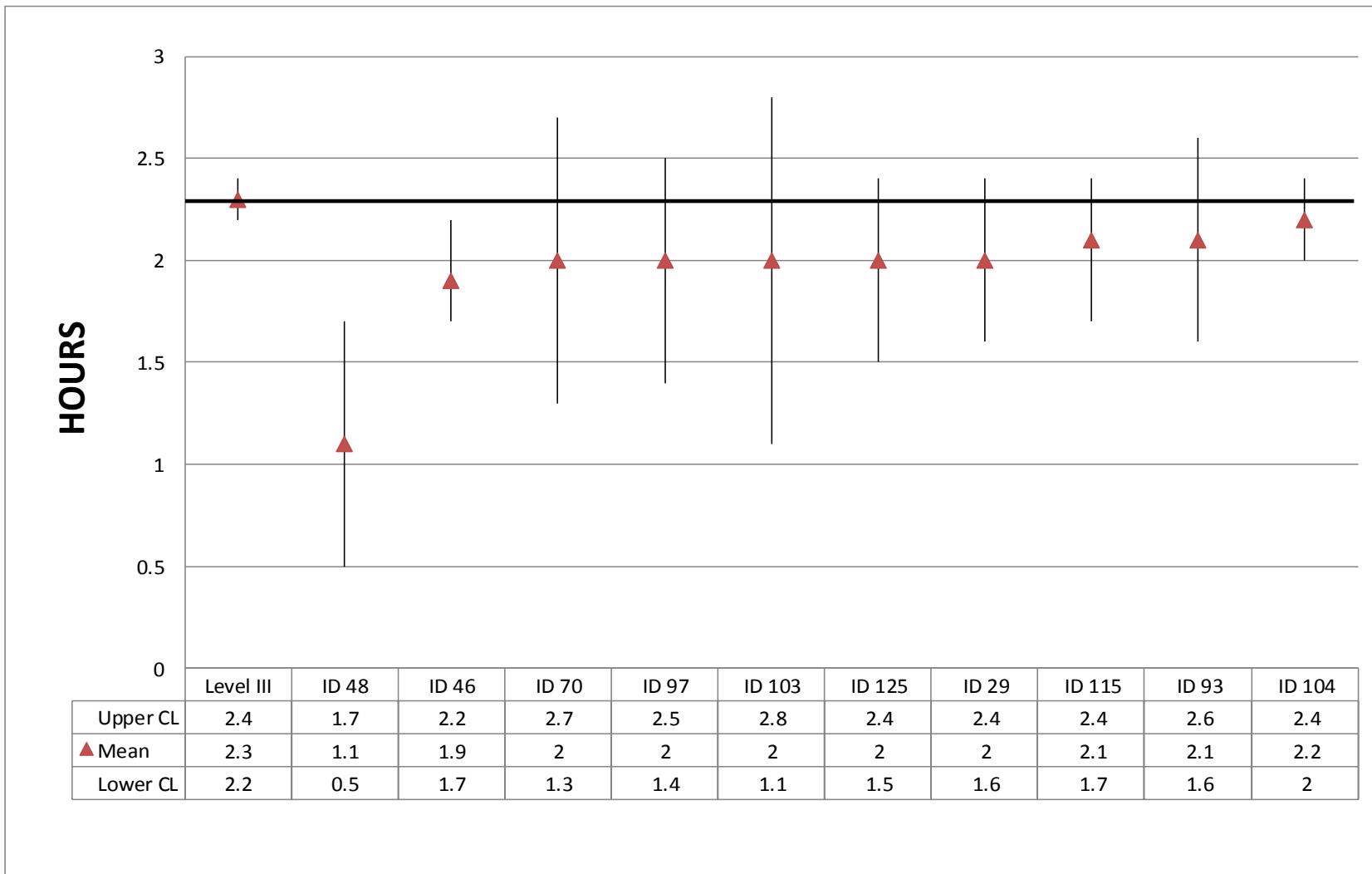|		
Level I and II:	10 facilities	40.2% of data
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(Non-Trauma) Hospitals:	77 facilities	45.0% of data

ED Disposition = Transferred

Level I and II Trauma Centers- Average ED LOS (Hours)

	Levels I and II	ID 29	ID 67	ID 49	ID 61	ID 33	ID 97	ID 34	ID 85	ID 13
Upper CL	2.3	1.6	1.8	2.1	2.1	2.3	2.4	2.6	2.9	3.1
▲ Mean	2.0	1.5	1.7	2.0	2.0	2.1	2.3	2.4	2.7	2.9
Lower CL	1.7	1.4	1.5	1.8	1.9	1.8	2.1	2.3	2.5	2.7

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
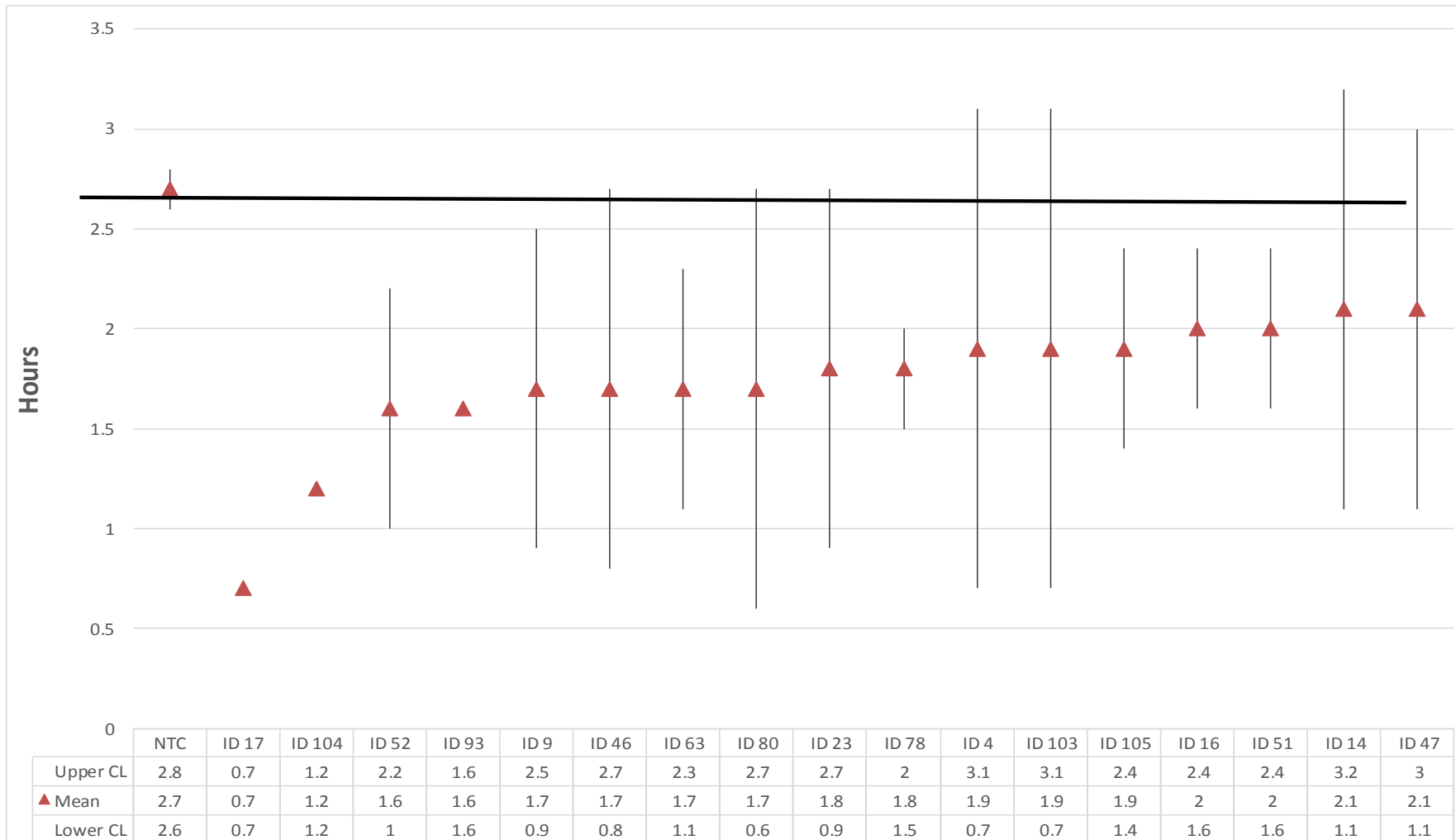9,990 Incidents

100 Total Hospitals Reporting

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(Non-Trauma) Hospitals:	77 facilities	45.0% of data

ED Disposition = Transferred

Level III Trauma Centers- Average ED LOS (Hours)

	Level III	ID 99	ID 95	ID 70	ID 11	ID 6	ID 43	ID 57	ID 125	ID 87	ID 40
Upper CL	2.0	2.0	2.2	2.4	2.4	2.5	2.5	2.5	2.5	3.3	3.3
▲ Mean	1.9	1.8	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.9	3.1
Lower CL	1.7	1.6	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.5	2.9

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
9,990 Incidents

ED Disposition=Transferred
Non-Trauma Centers
Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 2 Data Report
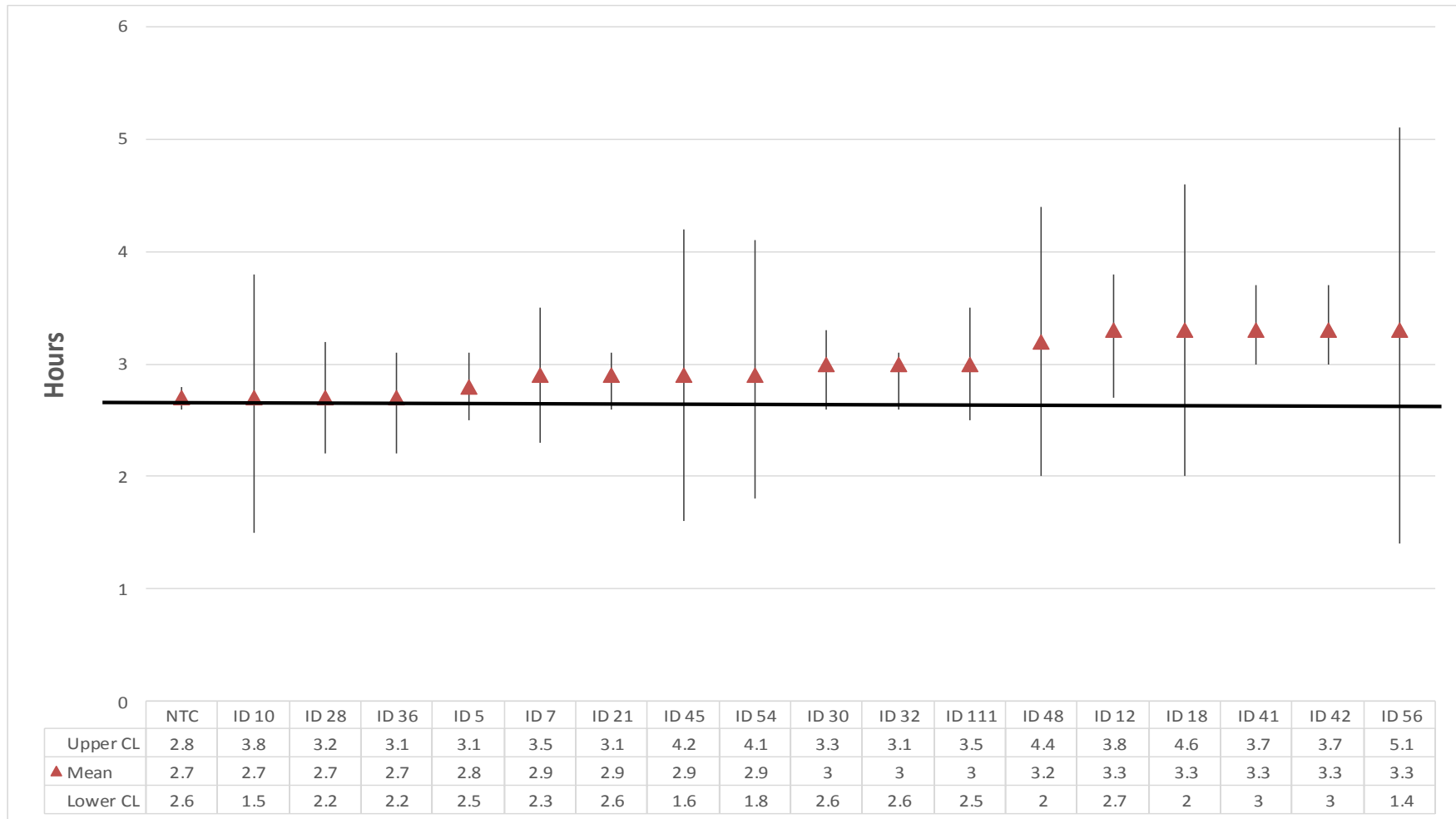**April 1, 2017—June 30, 2017**
9,990 Incidents

ED Disposition=Transferred
Non-Trauma Centers
Average ED LOS (Hours)

	NTC	ID 17	ID 106	ID 104	ID 18	ID 103	ID 63	ID 72	ID 83	ID 9	ID 41	ID 52	ID 46	ID 51	ID 80
Upper CL	2.5	0.7	10.6	1.2	1.3	2.4	2.1	1.9	2.6	2.4	2.2	2.2	2.7	2.4	2.7
▲ Mean	2.3	0.7	0.9	1.2	1.3	1.3	1.4	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7
Lower CL	2.2	0.7	0	1.2	1.3	0.2	0.8	1	0.4	0.8	1.1	1	0.8	1	0.6

Indiana Trauma Registry

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9,990 Incidents

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ED Disposition = Transferred
Non-Trauma Centers
Average ED LOS (Hours)

	NTC	ID 16	ID 23	ID 78	ID 4	ID 42	ID 74	ID 98	ID 27	ID 65	ID 105	ID 119	ID 120	ID 14	ID 47
Upper CL	2.5	2.3	2.7	2	3.1	2.4	2.3	2.2	2.7	2.4	2.6	2.7	2.6	3.2	3
▲ Mean	2.3	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2	2	2	2	2	2.1	2.1
Lower CL	2.2	1.4	0.9	1.5	0.7	1.4	1.5	1.5	1.2	1.6	1.3	1.3	1.3	1.1	1.1

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
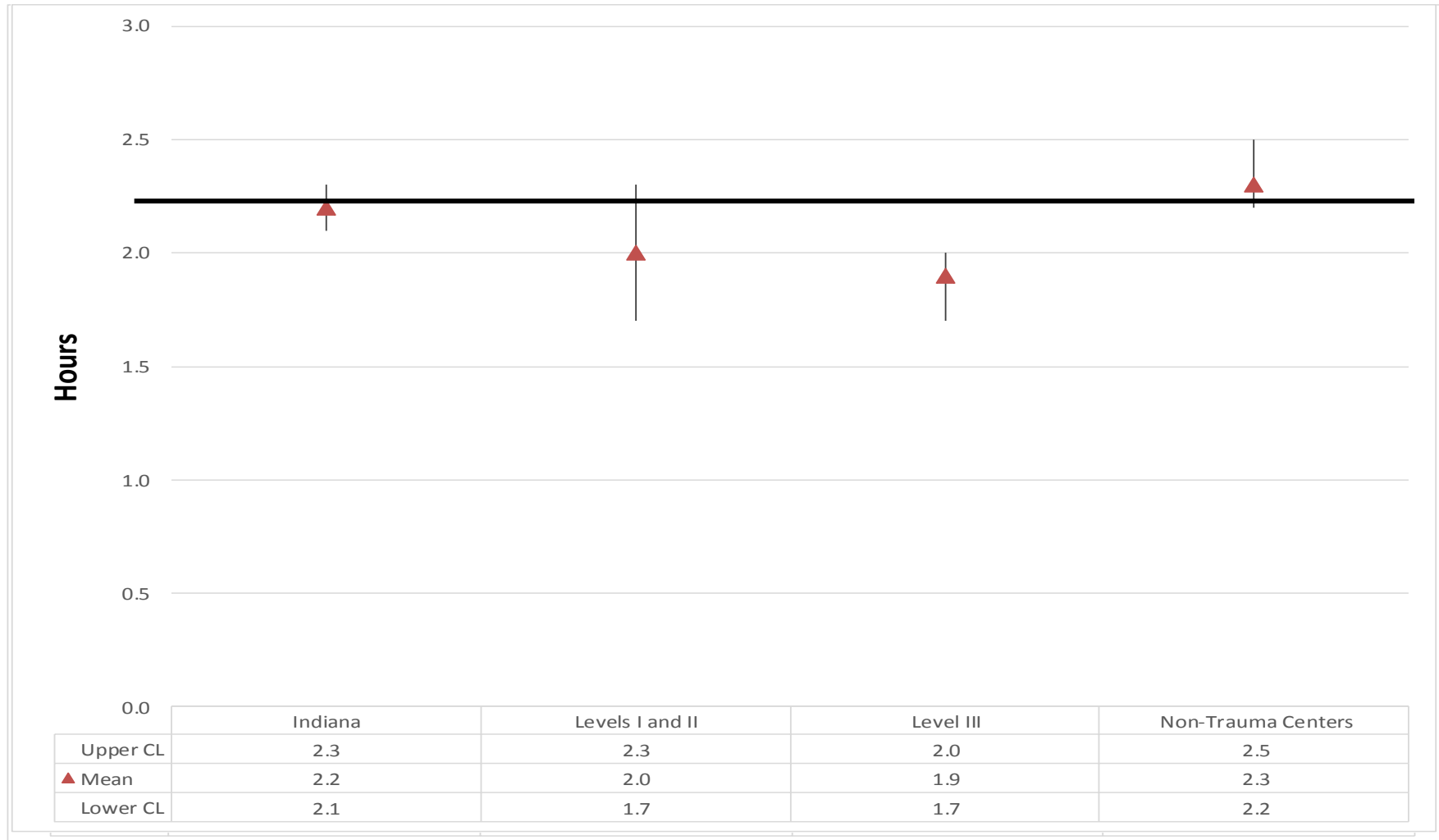**9,990 Incidents**

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ED Disposition = Transferred
Non-Trauma Centers
Average ED LOS (Hours)

	NTC	ID 108	ID 115	ID 36	ID 75	ID 123	ID 21	ID 38	ID 39	ID 111	ID 102	ID 122	ID 28	ID 24	ID 48
Upper CL	2.5	2.6	2.8	2.8	2.8	2.6	3	2.9	2.7	2.8	3.4	8.3	3	3.9	3.5
▲ Mean	2.3	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.6
Lower CL	2.2	1.5	1.4	1.5	1.5	1.8	1.5	1.8	1.8	1.7	1.4	0	2	1.3	1.7

Indiana Trauma Registry

Statewide Quarter 2 Data Report
April 1, 2017—June 30, 2017
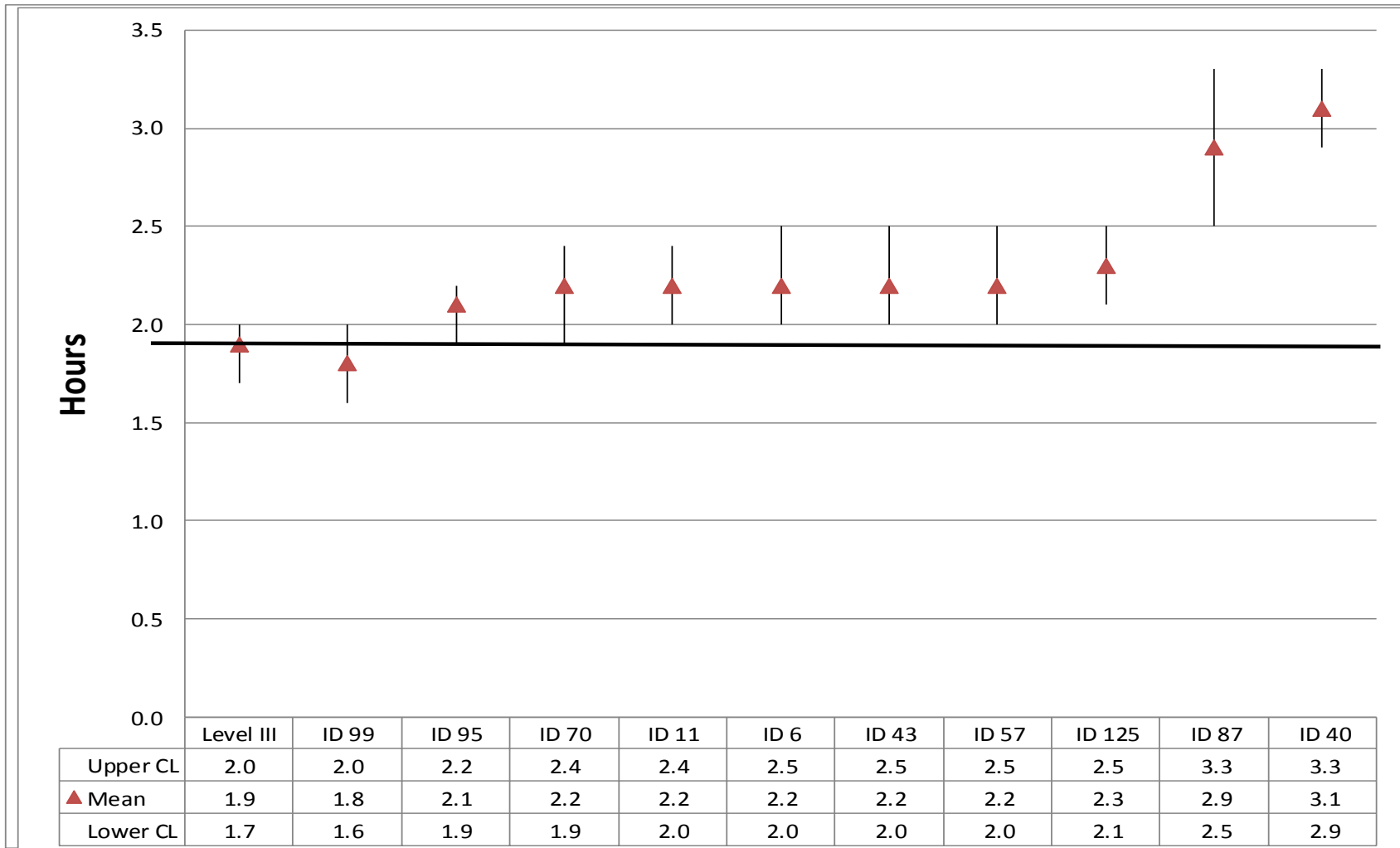**9,990 Incidents**

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ED Disposition = Transferred
Non-Trauma Centers
Average ED LOS (Hours)

	NTC	ID 107	ID 32	ID 7	ID 10	ID 12	ID 110	ID 45	ID 54	ID 109	ID 30	ID 84	ID 100	ID 1	ID 56
Upper CL	2.5	3.2	3.5	3.4	4.1	3.5	3.3	6.1	4.1	4	5.6	4.5	5.5	5.1	10.3
▲ Mean	2.3	2.6	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3	3.6	3.6	3.6	3.9	4.8
Lower CL	2.2	2.1	1.9	2.1	1.5	2.2	2.3	0	1.8	2.1	1.7	2.6	1.7	2.7	0

Indiana Trauma Registry

Statewide Quarter 2 Data Report
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100 Total Hospitals Reporting
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Critical Patients, ED Disposition = Transferred

Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 2 Data Report
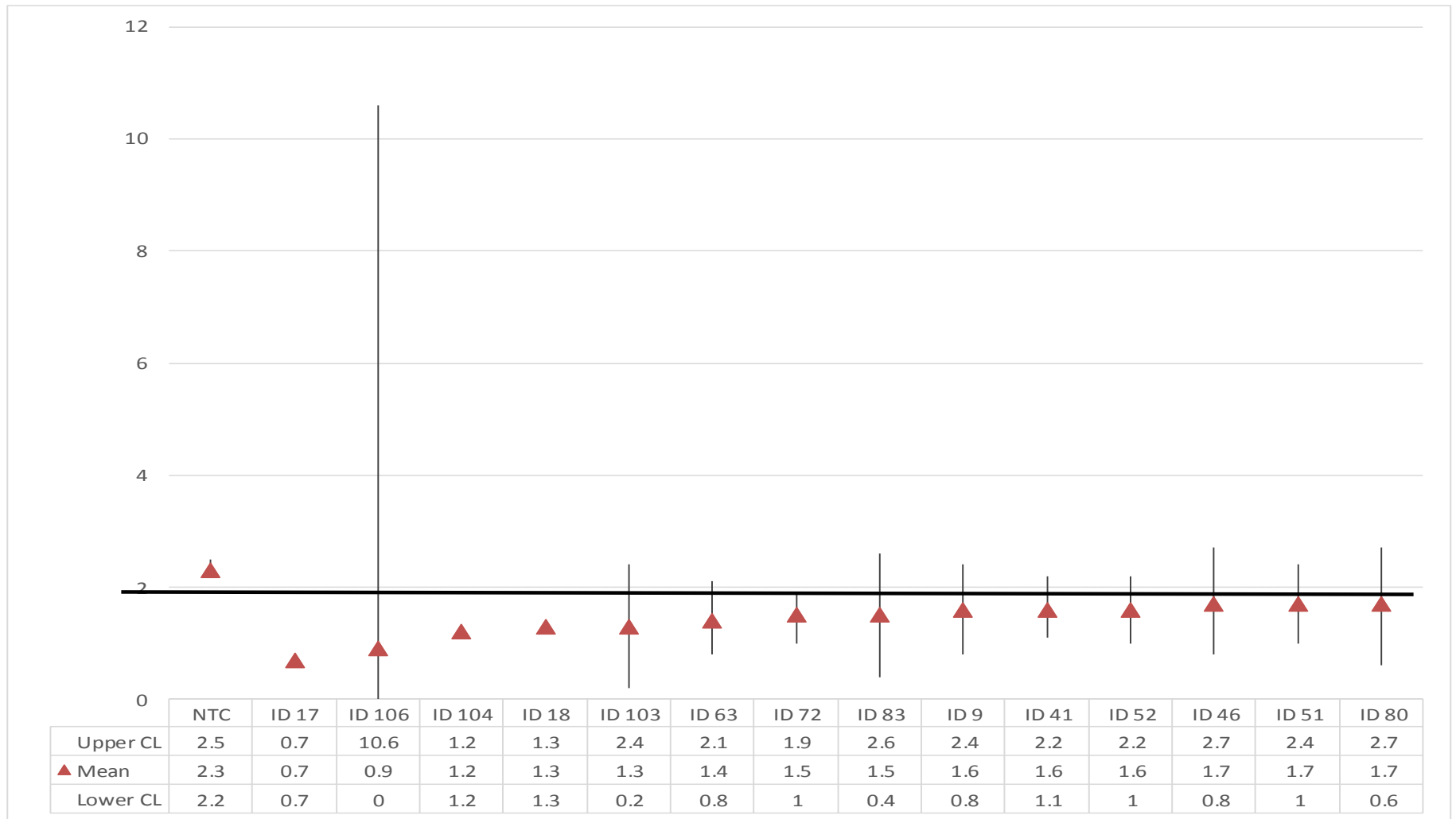April 1, 2017—June 30, 2017
9,990 Incidents

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Critical Patients, ED Disposition = Transferred
Level I and II Trauma Centers - Average ED LOS (Hours)

	Levels I and II	ID 13	ID 29	ID 33	ID 34	ID 49
Upper CL	2.7	4.4	1.3	4.9	1.7	4.6
▲ Mean	2.0	1.6	0.8	2.8	1.0	3.1
Lower CL	1.4	0.0	0.3	0.7	0.2	1.5

Indiana Trauma Registry

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Critical Patients, ED Disposition = Transferred

Level III Trauma Centers - Average ED LOS (Hours)

	Level III	ID 6	ID 40	ID 57	ID 70	ID 87	ID 95	ID 99	ID 125
Upper CL	2.1	2.0	4.3	2.7	3.2	3.6	1.5	1.7	2.0
▲ Mean	1.8	1.4	2.9	2.1	1.6	2.5	1.0	1.1	1.5
Lower CL	1.5	0.9	1.6	1.5	0.0	1.3	0.5	0.5	1.1

Indiana Trauma Registry

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Non-Trauma Centers - Average ED LOS (Hours)

Indiana Trauma Registry

Statewide Quarter 2 Data Report
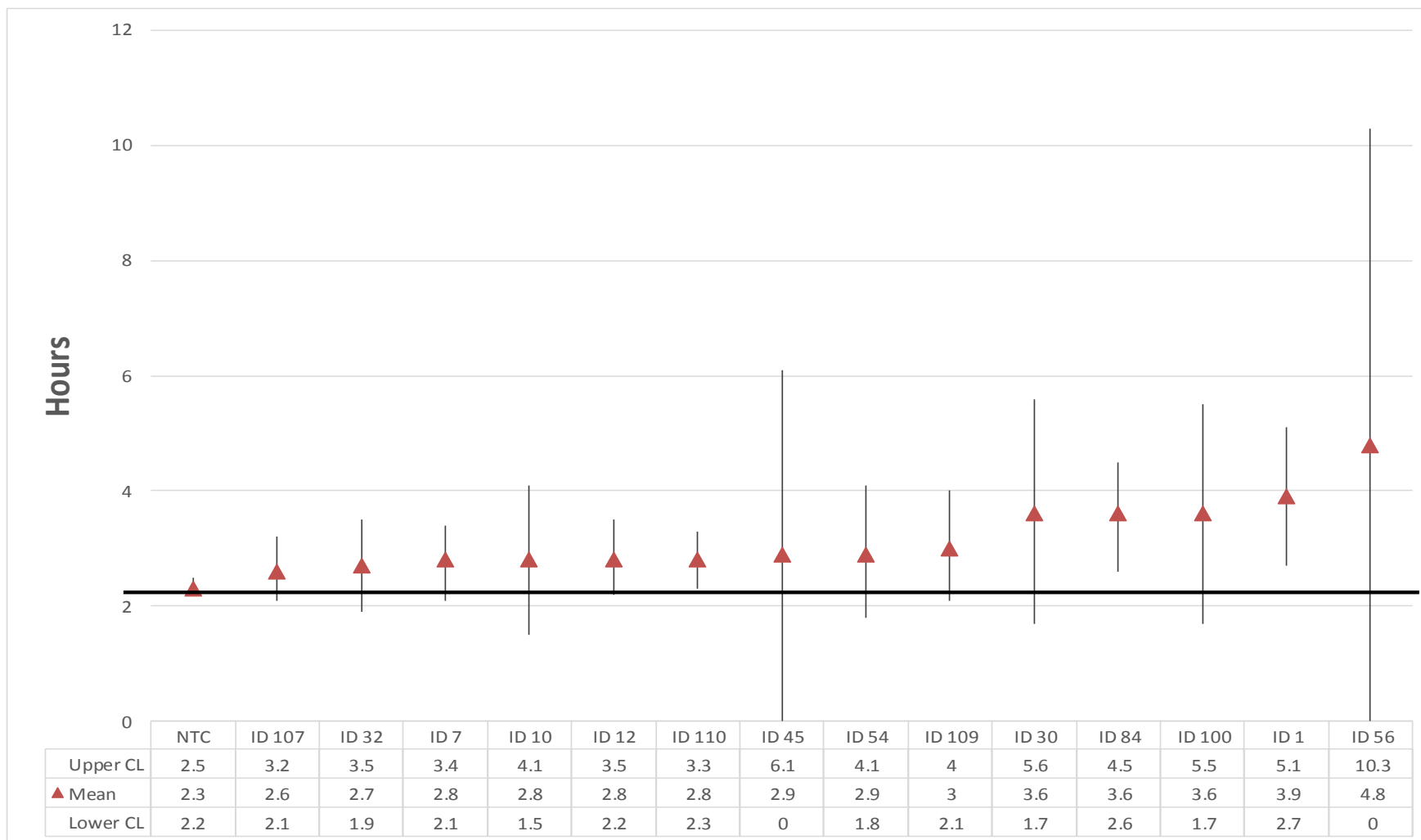April 1, 2017—June 30, 2017
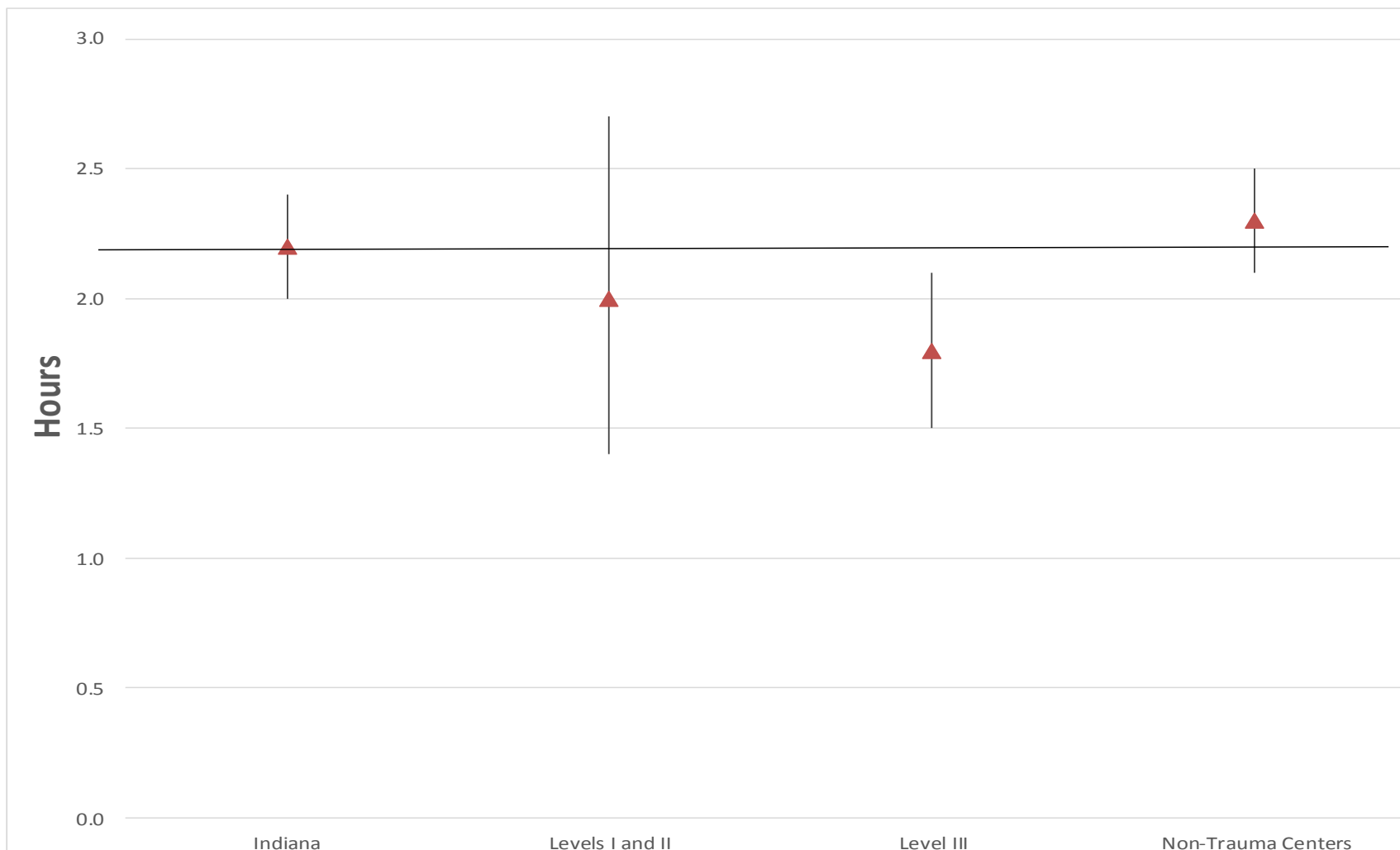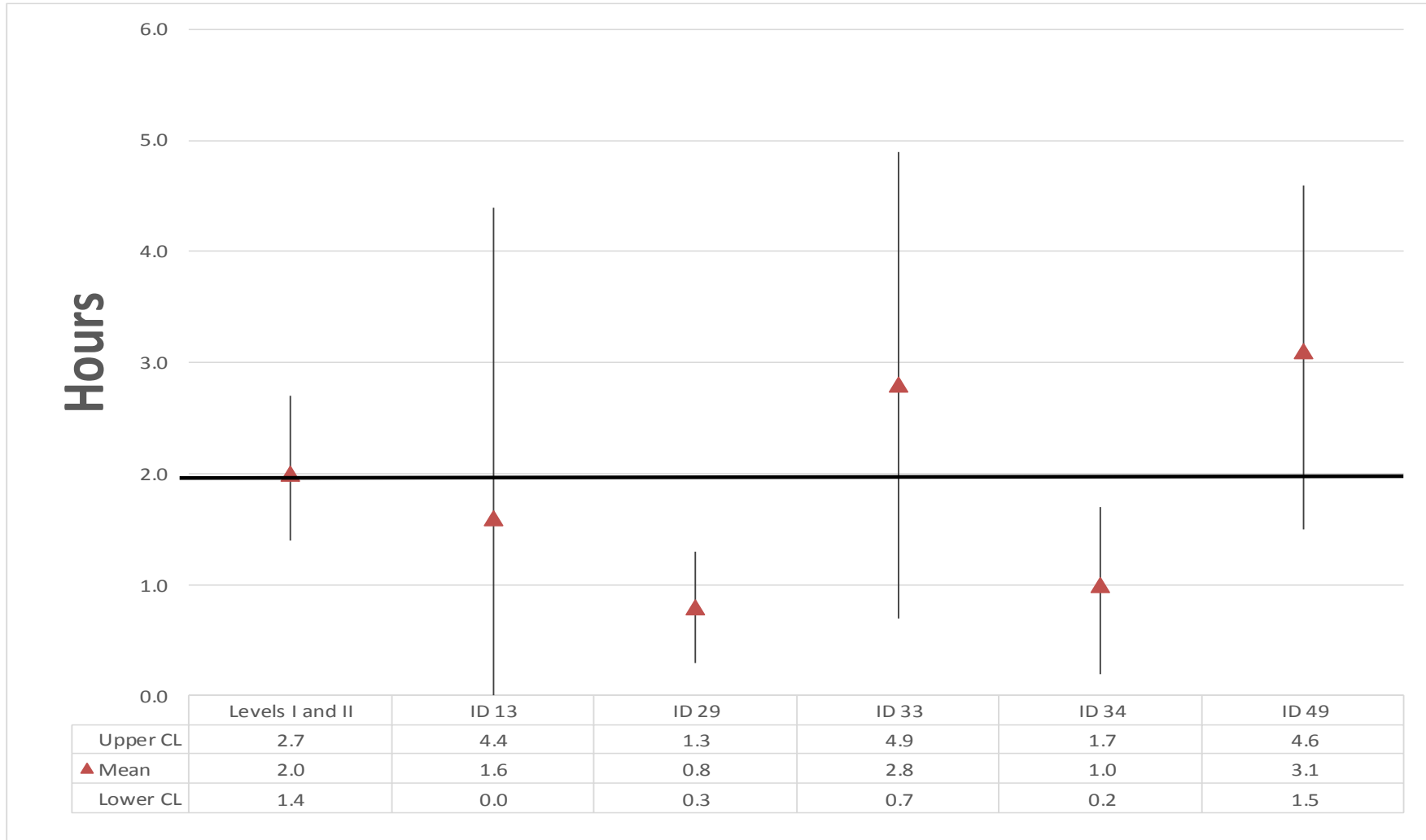9,990 Incidents

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Critical Patients, ED Disposition = Transferred
Non-Trauma Centers - Average ED LOS (Hours)

	NTC	ID 80	ID 117	ID 43	ID 41	ID 83	ID 16	ID 103	ID 51	ID 72	ID 11	ID 18	ID 115	ID 47	ID 63	ID 119	ID 27	ID 120
Upper CL	2.8	0.3	4.4	1.3	2	7.5	1.1	2.1	1.7	3.1	2.1	1.3	1.8	1.5	2.5	2.1	2.6	2.5
▲ Mean	2.7	0.3	0.4	0.8	0.9	0.9	1	1	1.1	1.1	1.3	1.3	1.4	1.5	1.5	1.5	1.6	1.6
Lower CL	2.6	0.3	0	0.3	0	0	0.9	0	0.5	0	0.6	1.3	1.1	1.5	0.6	0.9	0.6	0.7

Indiana Trauma Registry

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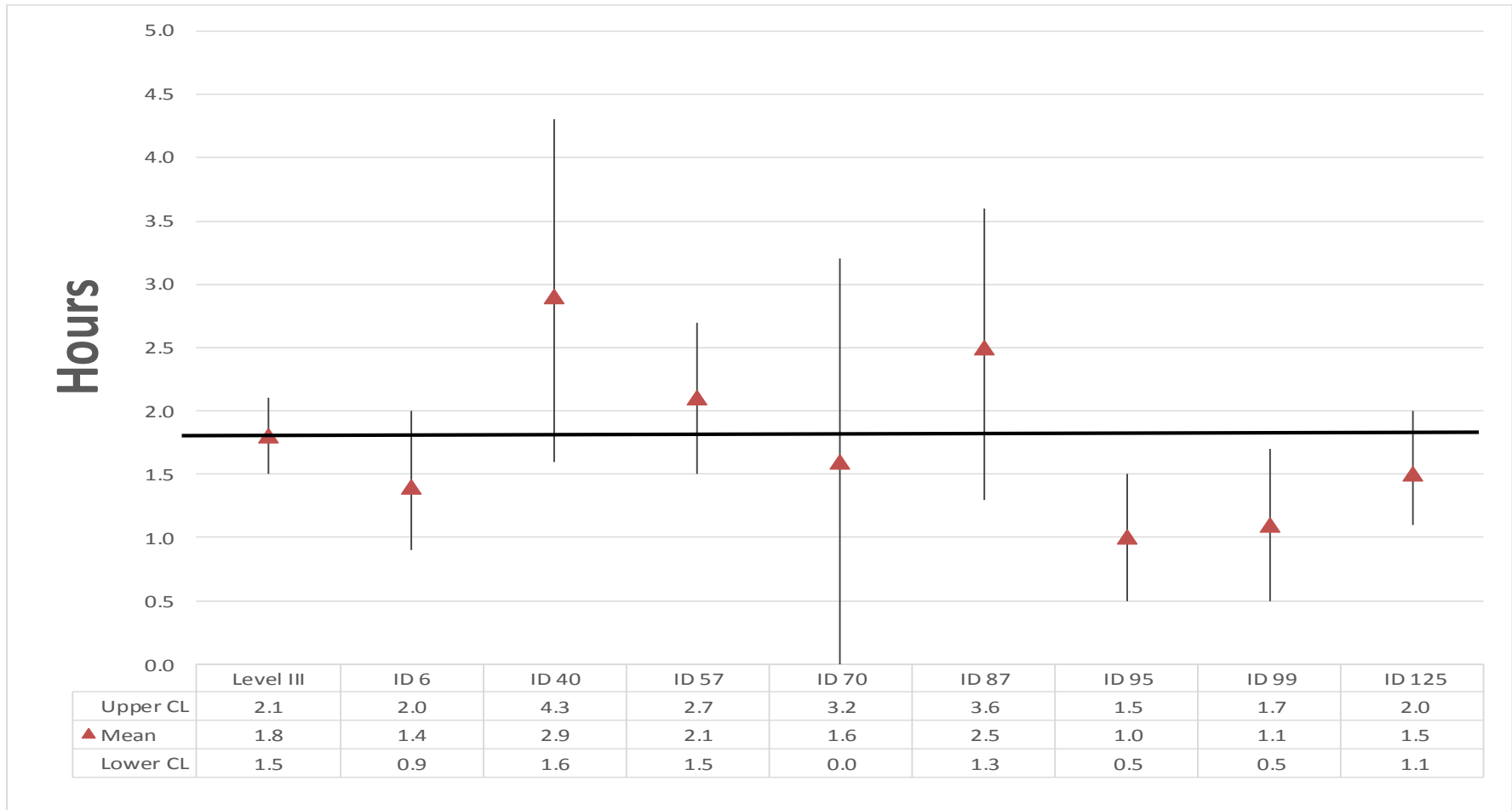**9,990 Incidents**

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Critical Patients, ED Disposition = Transferred
Non-Trauma Centers - Average ED LOS (Hours)

	NTC	ID 30	ID 52	ID 74	ID 106	ID 123	ID 24	ID 42	ID 46	ID 65	ID 75	ID 78	ID 98	ID 4	ID 9	ID 39	ID 109	NTC	ID 38
Upper CL	2.8	3.7	2.8	2.2	1.7	2.1	2.7	2.8	3.9	2.6	3.3	2	3.1	3.1	3.1	2.8	5.8	2.5	2.9
▲ Mean	2.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.2	2.2	2.3	2.3
Lower CL	2.6	0	0.7	1.1	1.7	1.2	1	0.8	0	1	0.3	1.5	0.4	0.7	0.7	1.7	0	2.1	1.8

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Critical Patients, ED Disposition = Transferred
Non-Trauma Centers - Average ED LOS (Hours)

	NTC	ID 45	ID 32	ID 105	ID 107	ID 111	ID 122	ID 12	ID 54	ID 100	ID 48	ID 110	ID 28	ID 7	ID 36	ID 21	ID 84	ID 1	ID 10
Upper CL	2.8	2.3	3.3	4.5	4.4	3.2	8.3	3.7	4.1	4.6	9.8	3.3	11.8	4.2	5.8	8.1	4.9	5.1	13.5
▲ Mean	2.7	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.7	2.8	2.9	3	3.5	3.7	3.9	5.8
Lower CL	2.6	2.3	1.4	0.2	0.4	1.5	0	1.4	0.9	0.7	0	2.2	0	1.6	0.1	0	2.5	2.7	0

Indiana Trauma Registry

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100 Total Hospitals Reporting
Level I and II: 10 facilities   40.2% of data
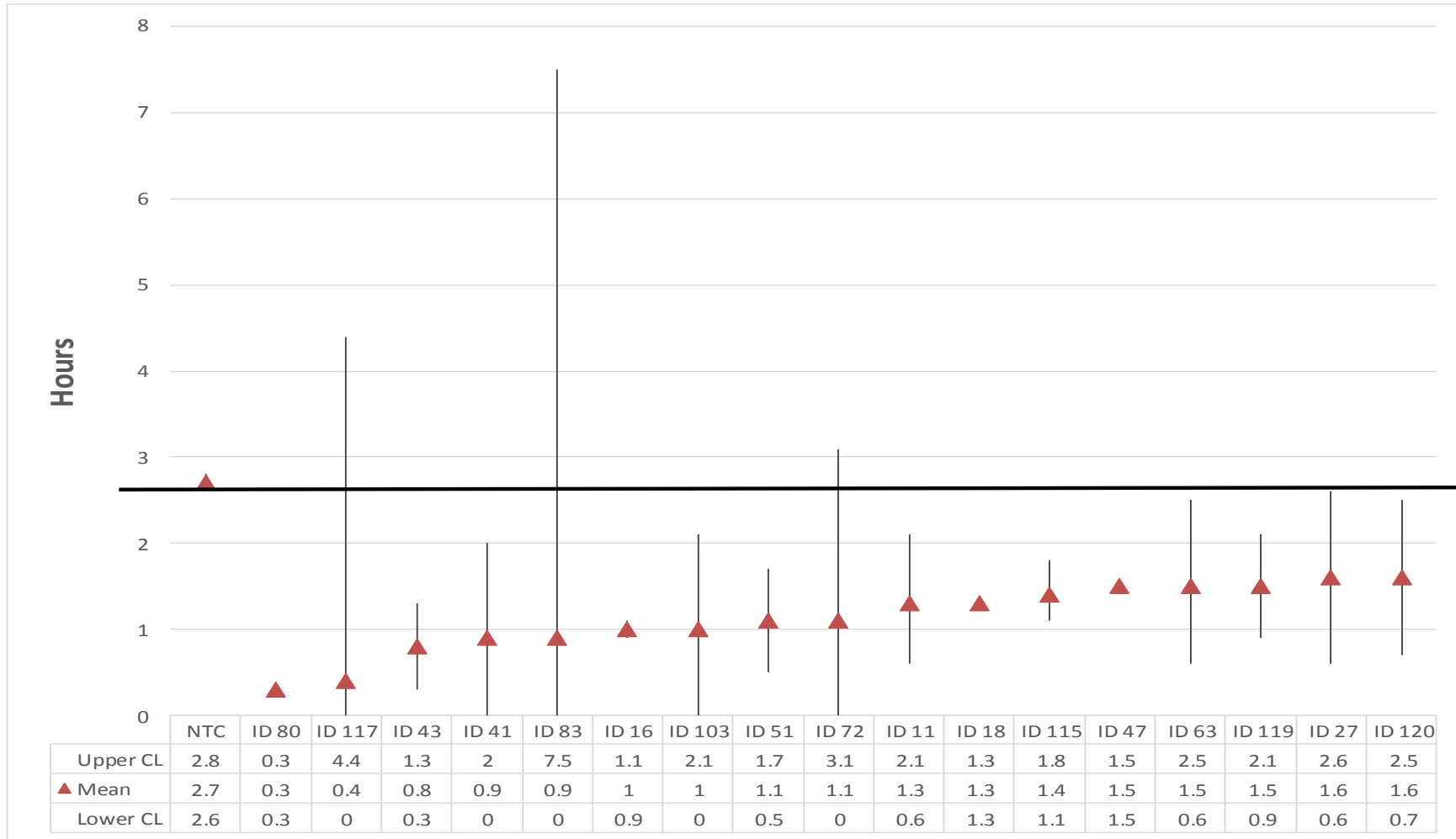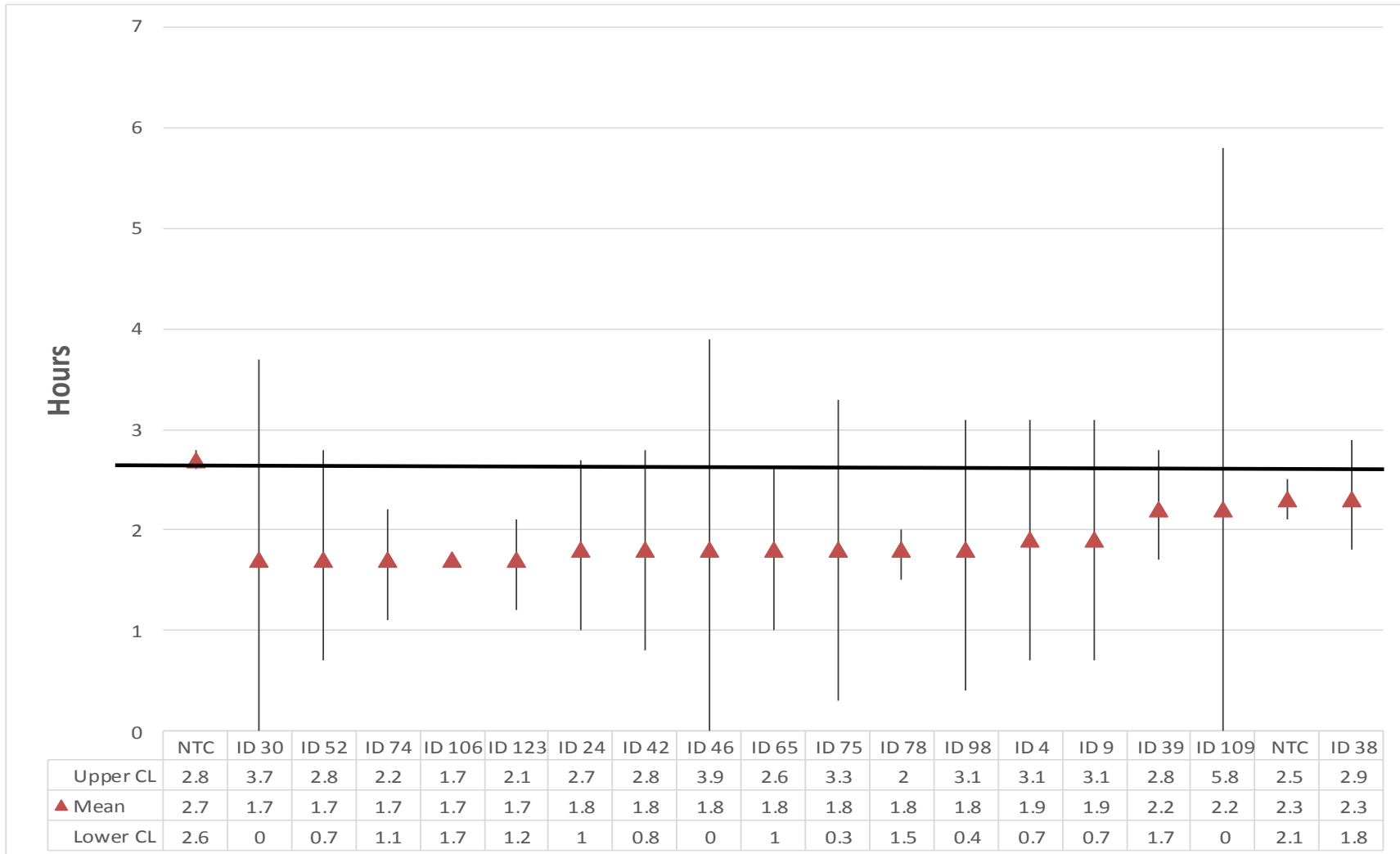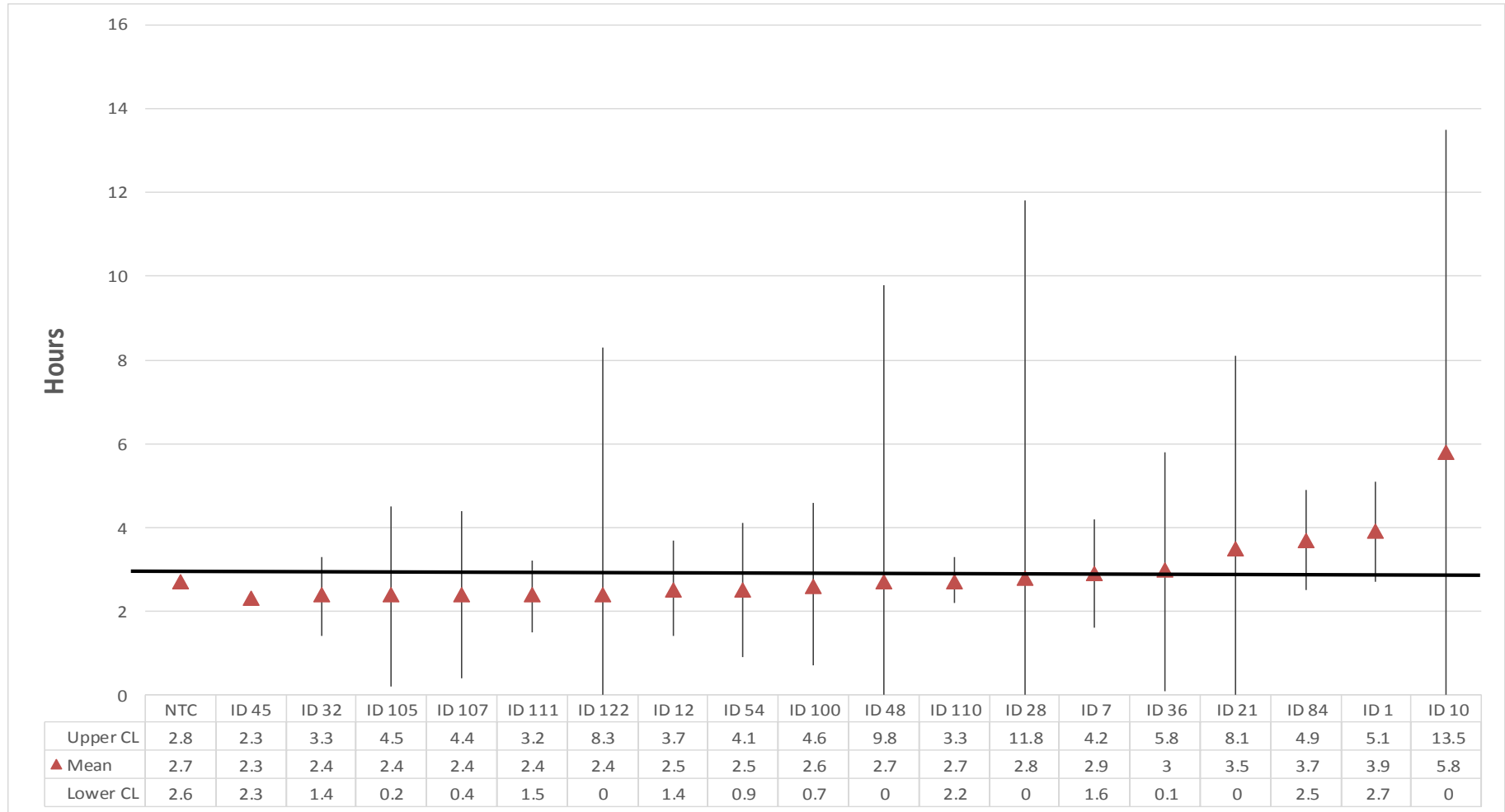Level III: 12 facilities   14.8% of data
(Non-Trauma) Hospitals: 77 facilities   45.0% of data

ED Length of Stay

ED Length of Stay (minutes)				
	Indiana Average	Level I and II	Level III	NTC
N=	8257	3742	1181	3334
Average	157	149	151	169
Std. Deviation	155	166	121	153
Minimum	0	0	2	0
Quartile 1	72	56	81	90
Median	125	109	127	142
Quartile 3	197	186	191	209
Maximum	2045	2045	1352	1821

ED Disposition

ED Disposition (count)				
	Indiana	Level I and II	Level III	NTC
Floor Bed	4282	1833	613	1836
ICU	1260	948	96	216
Transferred	1774	116	338	1290
OR	802	529	100	173
Home w/o Services	347	224	103	20
Observation	460	290	52	118
Step-Down	555	234	90	231
Expired	82	42	21	19
NK/NR/NA	423	135	63	225
AMA	7	5	1	1
Home w/ Services	2	1	1	
Other	26	12	5	9
Grand total	10020	4369	1483	4138

*A bar graph of ED Disposition is found on page 2.
*A bar graph of ED Length of Stay is found on page 2.

Indiana Trauma Registry

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ED Length of Stay by ISS

ED Length of Stay (minutes)							
ISS Category	Indiana Average	Indiana Average	Level I and II	Level I and II	Level III	Level III	Non-Trauma Centers	Non-Trauma Centers
	Counts	**Minutes**	**Counts**	**Minutes**	**Counts**	**Minutes**	**Counts**	**Minutes**
1-8	3823	175	1668	175	620	163	1624	180
9-15	3141	151	1376	145	455	141	1349	161
16-24	629	126	446	117	55	136	138	153
25-44	397	100	279	93	34	117	96	114
45-74	30	79	24	65	2	11	4	200
75	23	41	27	44	3	33	2	27
No ISS	207	160	16	71	13	119	213	213

*A Box and Whisker plot of ED Length of Stay by ISS is found on page 5.

Indiana Trauma Registry

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ED Disposition (count) by ISS Category

	Floor Bed	ICU	Transferred	OR	Observation	NK/NR/ NA	Step-Down	Home w/o Services	Expired	Other	AMA	Home w/ Services	Total
1-8	2037	309	899	366	340	170	227	313	16	16	6	2	4701
9-15	1892	413	547	255	99	185	236	21	11	1	1	0	3661
16-24	150	286	105	69	4	13	54	3	10	0	0	0	694
25-44	33	213	54	89	1	20	21	0	27	0	0	0	458
45-74	2	12	2	10	0	1	0	0	5	0	0	0	32
75	0	9	3	7	0	1	0	0	8	0	0	0	28
NO ISS	168	18	134	6	16	33	17	10	5	9	0	0	416
Total	4282	1260	1744	802	460	423	55	347	82	26	7	2	9990

*Bar graph of ED Disposition by ISS is found on page 22.

Indiana Trauma Registry

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General Report:

-The caterpillar plots with the anonymous ID's for all patients per hospital may be found on pages 30-36.

-The caterpillar plots with the anonymous ID's for transferred patients per hospital may be found on pages 37-44.

-The caterpillar plots with the anonymous ID's for critical transferred patients per hospital may be found on pages 45-51.

-Reference tables now accompany the graphs for demographic data on pages 25-28 and 52-54.