Indiana Trauma Registry

Statewide Quarter 3 Data Report
July 1, 2013 to September 30, 2013
6,904 Incidents

54 Total Hospitals Reporting

Trauma Centers:	9 facilities	58.3% of data
(Non-Trauma) Hospitals:	45 facilities	41.7% of data

For Quarter 3 2013, which spanned from July 1, 2013 to Sept 30, 2013, there were 6,904 incidents reported to the Indiana Trauma Registry. There were 54 hospitals that reported, of which 9 were trauma centers and 45 were non-trauma centers. There were six hospitals that either started to report again or were new to report during this quarter compared to the previous quarter, while five hospitals dropped off from reporting. Trauma centers represented 58.3% of the data. There were 2,241 incidents reported for July, 2,407 reported for August, and 2,256 reported for September.

The content of this report has changed due to suggestions and additions requested by the Indiana State Trauma Care Committee at the November, 2013 meeting. Explanations of the changes requested and adapted from the November, 2013 ISTCC meeting can be found on page 19. We are continuing to do research about the Trauma Score and Injury Severity Score Analysis, also known as TRISS, as requested at the previous meeting. We plan to include this in the 2013 Q4 report.

Some general reminders include that the blue columns represent an Indiana average, red columns represent trauma centers, and green columns represent 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.

Due to changes in our SAS programming code, the "Not Categorized" cause of injury category changed significantly due to more flexibility to include E-codes. The E-codes used in this report follow the ICD-9 CDC matrix of external cause of injury. We also had a decrease in the "No E-code" category so that it is now less than one percent of the data reported.

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.
Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.
External Cause of Injury: ICD-9-CM codes that are used to describe the mechanism or external factor that caused the injury event.

Acronyms:

CAHs: Critical Access Hospital	LOS: Length of Stay
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	

Indiana Trauma Registry
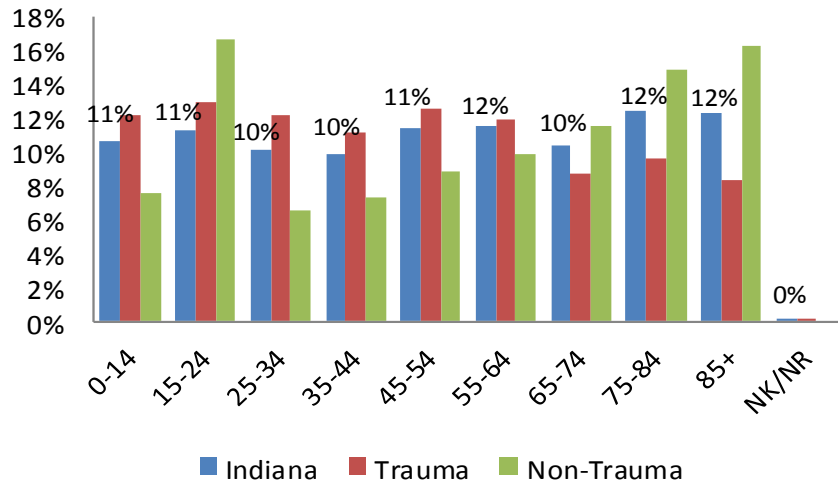
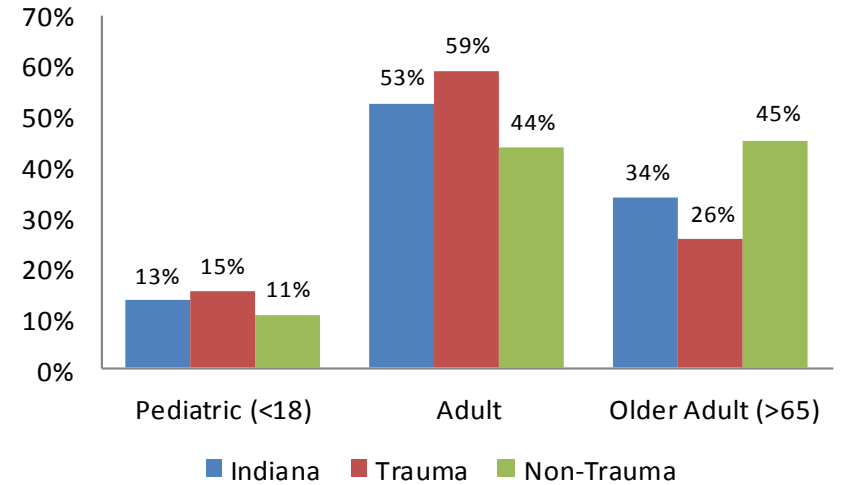## Statewide Quarter 3 Data Report
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Patient Age (Years)

Patient Age Groupings

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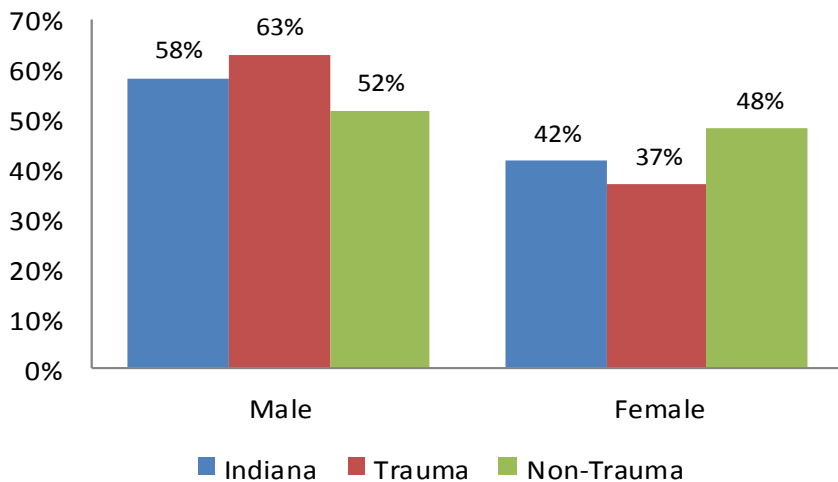
Patient Race
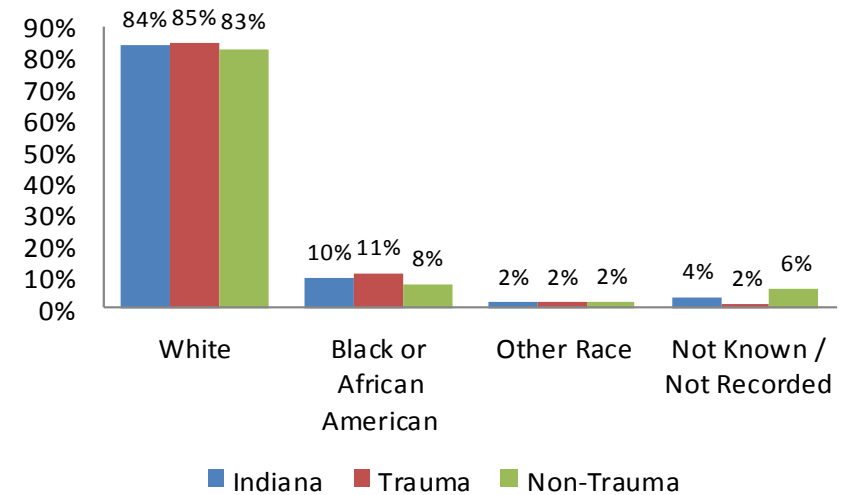
<1% Race - Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native

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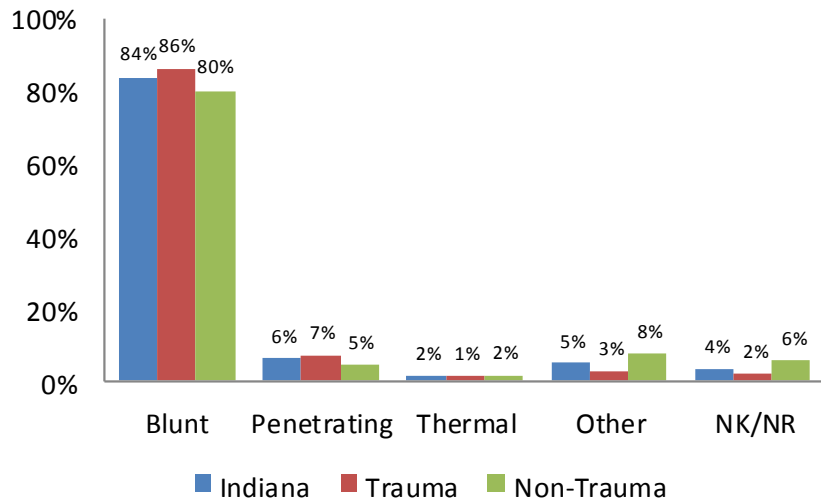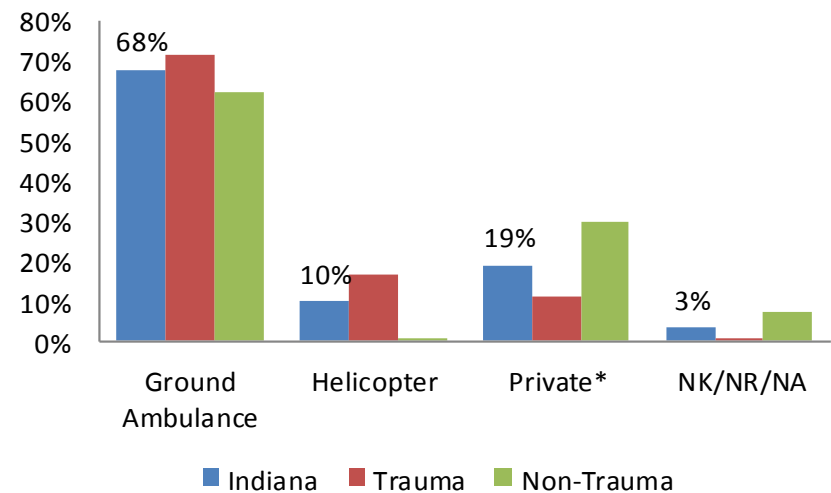## Injury Severity Score (ISS)
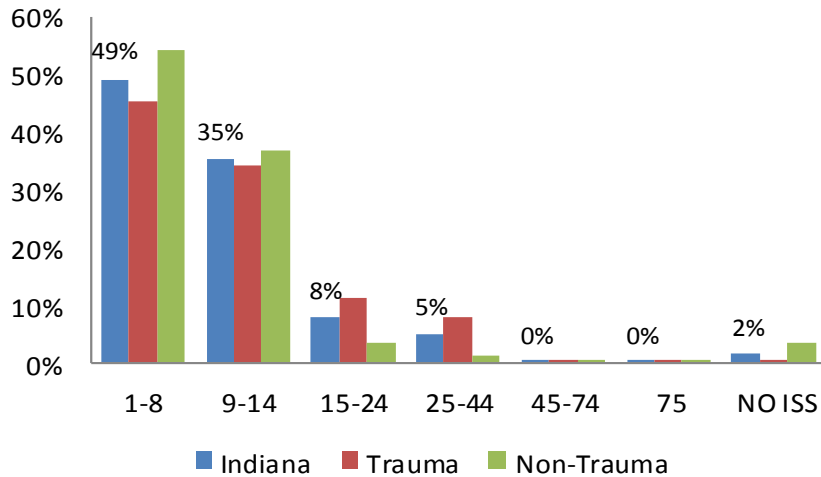
Cause of Injury
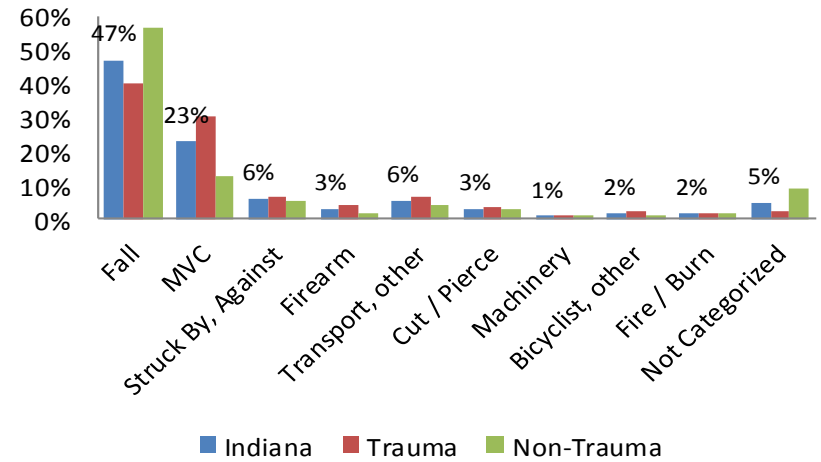
<1% COI: Pedestrian Traffic Accident, Natural/Environment, Fire/Burn, Overexertion, Bites/Stings, No E-Code

Trauma Type

Transport Mode

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

Indiana Trauma Registry
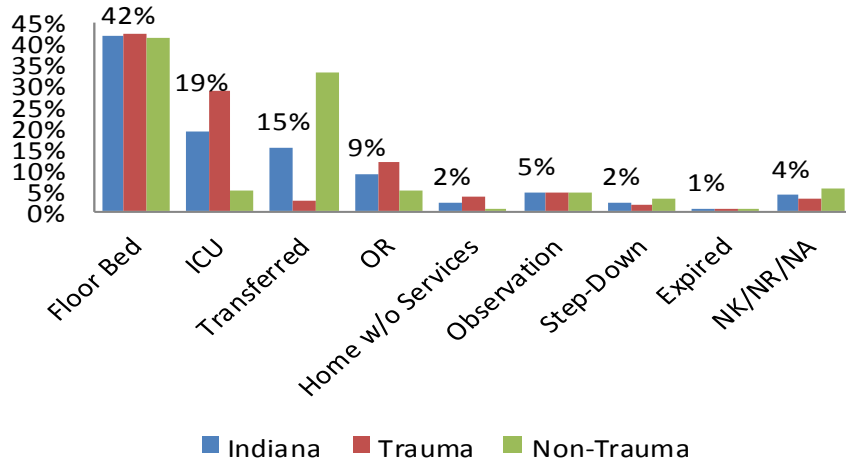
Statewide Quarter 3 Data Report
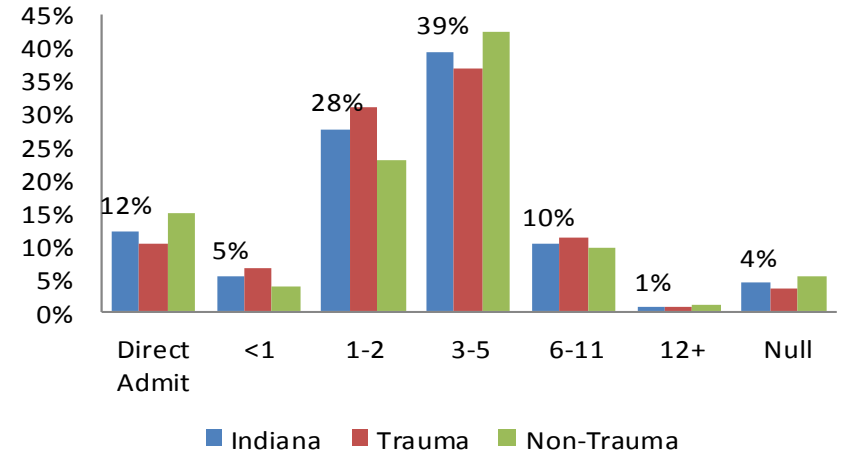**July 1, 2013 to September 30, 2013**
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ED Disposition by Percentage

Legend: Indiana, Trauma, Non-Trauma

<1% ED Disposition: AMA; Home with Services; Other

ED Length of Stay (Hours)

Legend: Indiana, Trauma, Non-Trauma
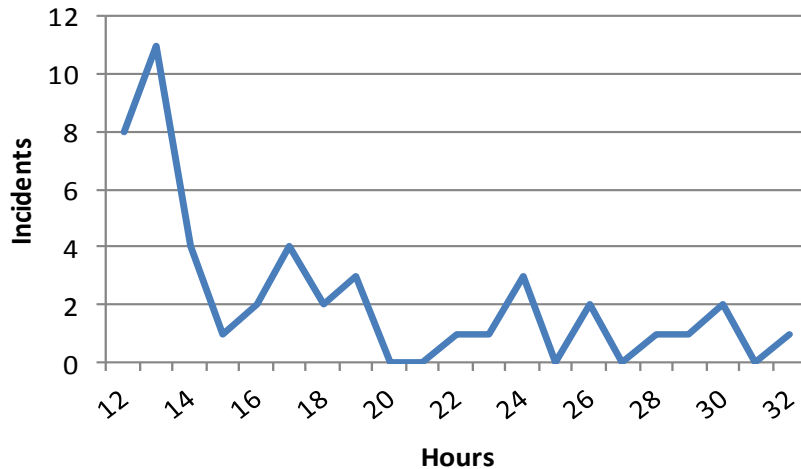
ED LOS >12 Hours

N=47

ED Disposition for ED LOS >12 Hours
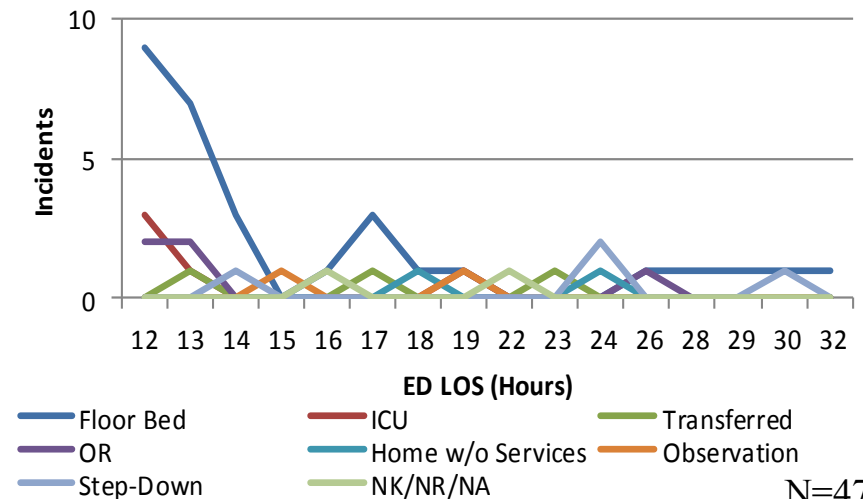
Legend: Floor Bed, ICU, Transferred, OR, Home w/o Services, Observation, Step-Down, NK/NR/NA

N=47

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ED LOS (Hours)
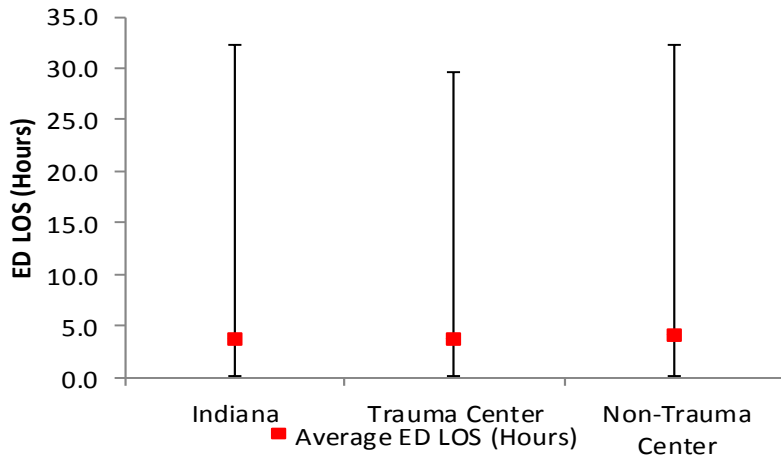
Bar and whisker plots were requested at the last ISTCC meeting in order to show more than just an average ED LOS and ED LOS by ISS. The bar and whisker plots represent the four quartiles of data, as illustrated on the example graph to the right. The blue boxes each contain 25% of the values and the error 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.
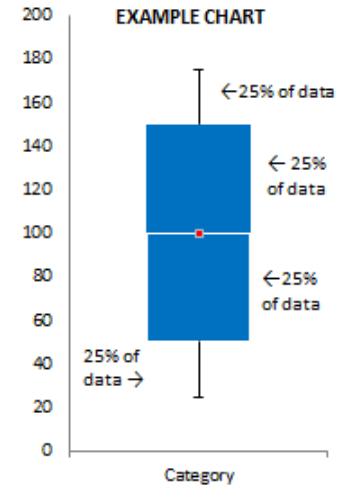
For the ED LOS bar and whisker plots below, the average is represented by the white dot and the color boxes reflect the hospital type. The ED LOS by ISS plots on the next page follow the same layout and the red dots indicate the average for each of the ISS categories.

EXAMPLE CHART

ED LOS (Hours)

ED LOS (Minutes)
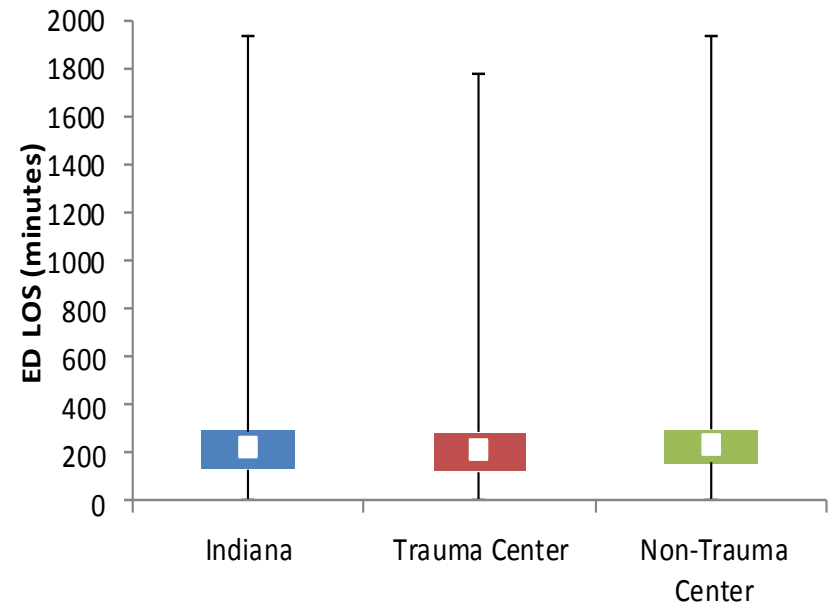
A table with all the values for ED LOS is found on page 17.

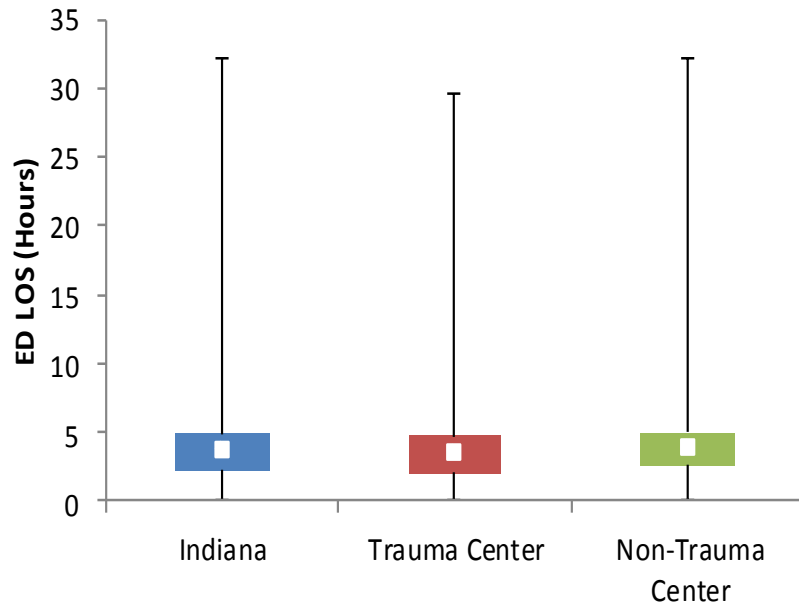# Indiana Trauma Registry

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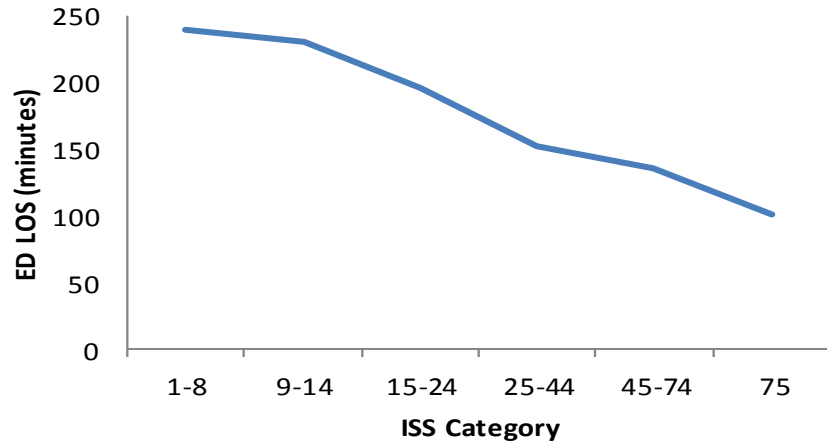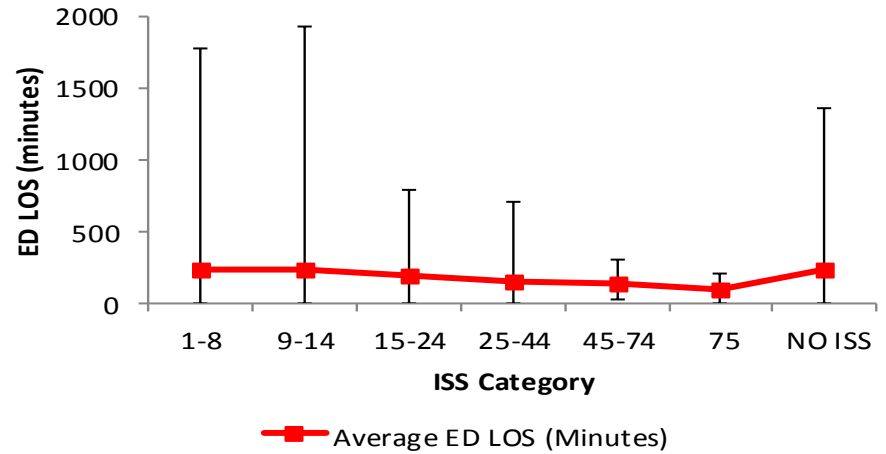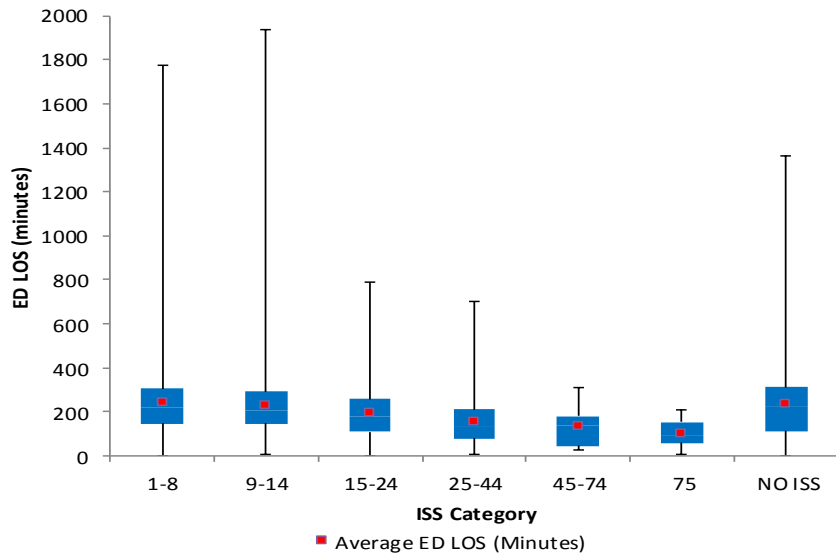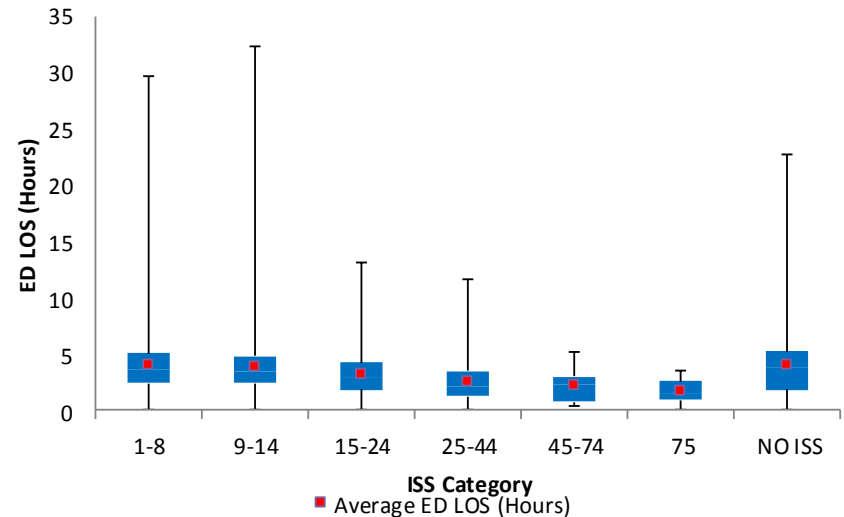
*A table with values for ED LOS by ISS is found on page 17.

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ED Disposition by ISS 1-14

ED Disposition by ISS 15-75
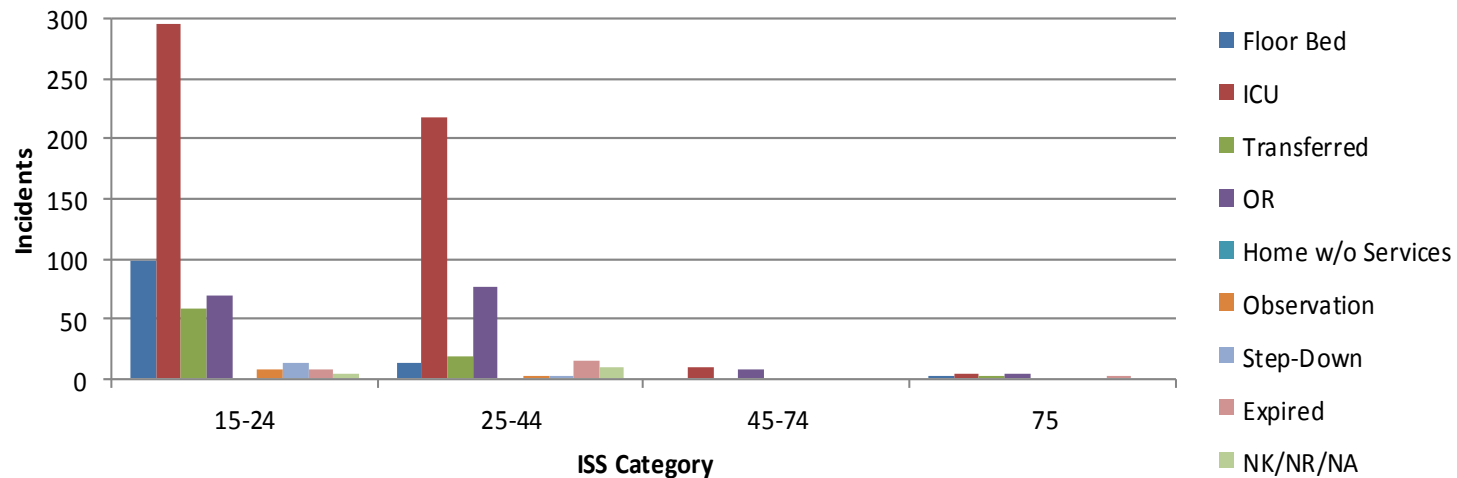
ED Disposition <1%: AMA; Home with services; Other (Jail, Mental Institution, etc.). Please note the difference in axis scale between the top and bottom graphs.
*A table with values for ED Disposition by ISS is found on page 18.

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Primary Payer Mix

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

Categories: Medicare (28%), Private/Commercial (18%), Self Pay (15%), Medicaid (10%), Blue Cross/Blue... (7%), Worker's Comp (3%), No Fault Auto (3%), Other (2%), Other Government (1%), Null (13%)

ICU Length of Stay (Days)

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

Categories: No ICU Stay (79%), 1-2 (10%), 3-7 (8%), 8-14 (2%), 15-30 (1%), 31+ (0%)
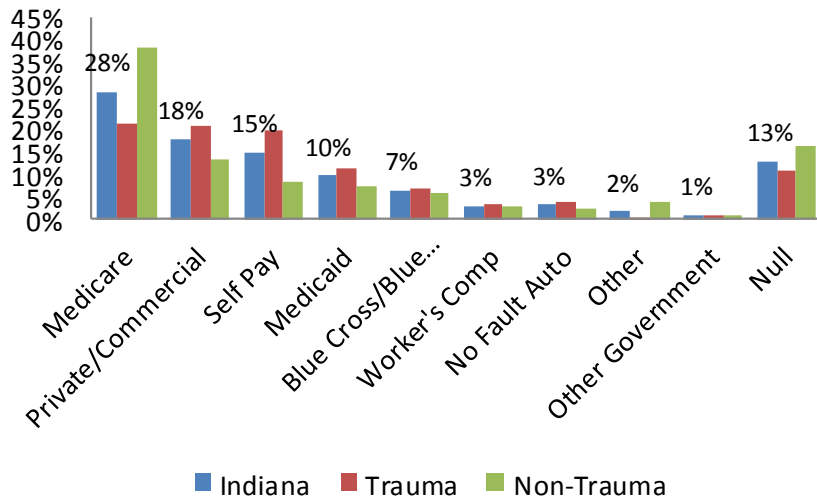
Probability of Survival (Ps) by Percent

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

Ps < 50%: 1%, 1%, 0%
Ps >= 50%: 63%, 71%, 51%
Unable to calculate Ps2: 36%, 27%, 49%

Probability of Survival (Ps) by Count

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

Ps < 50%: 63, 60, 3
Ps >= 50%: 4335, 2860, 1475
Unable to calculate Ps2: 2506, 1106, 1400
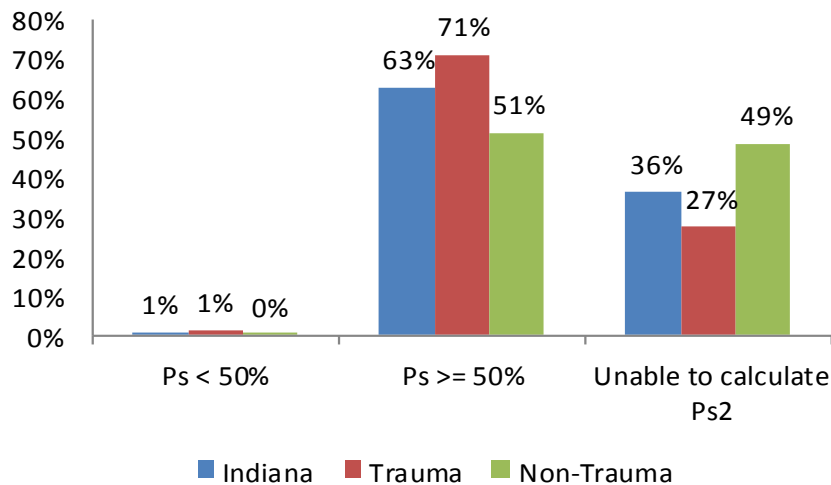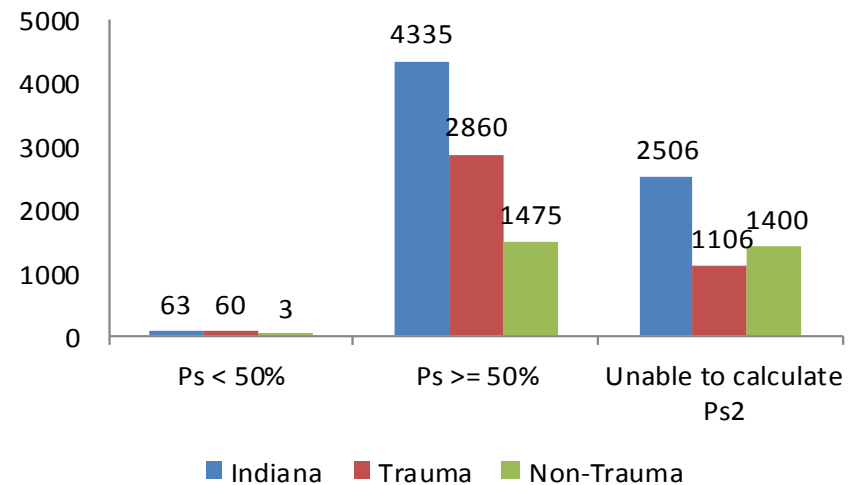
Due to the many data points required to calculate Ps, not every patient has a calculated Ps. These two graph represents the 4,398 incidents with calculated Ps.

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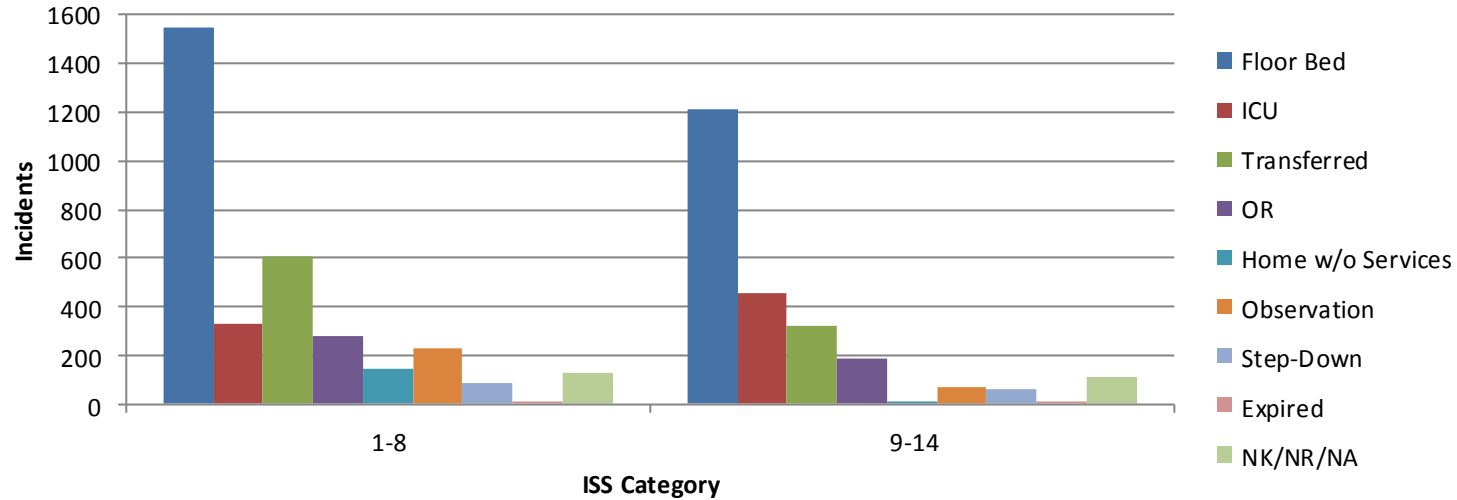|		
Trauma Centers:	9 facilities	58.3% of data
(Non-Trauma) Hospitals:	45 facilities	41.7% of data

UPDATED—ED Disposition of Expired for Ps ≥50%, N=4

Patients with Ps ≥50% Expired in ED, N=4	
Gender	3 Males 1 Females
Average Age	53.5 years (28-84 years)
Facilities	4 Trauma Center
Transport Type	1 by Helicopter Ambulance
Cause of Injury	3 MVC 1 Transport, Other
Inter-Facility Transfer	0 Transfers

Trauma Type
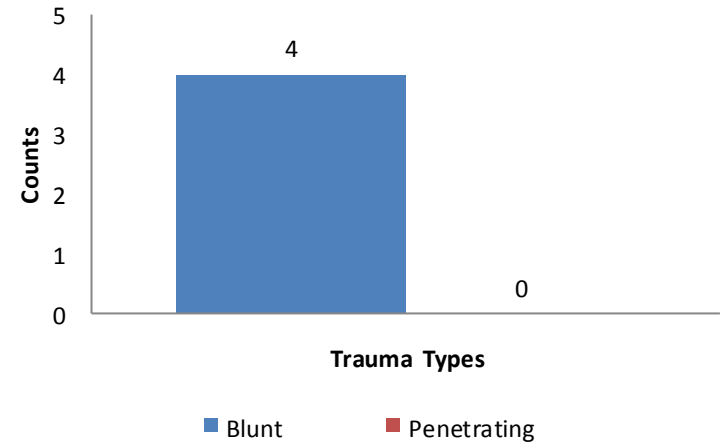
Patient Age Groupings
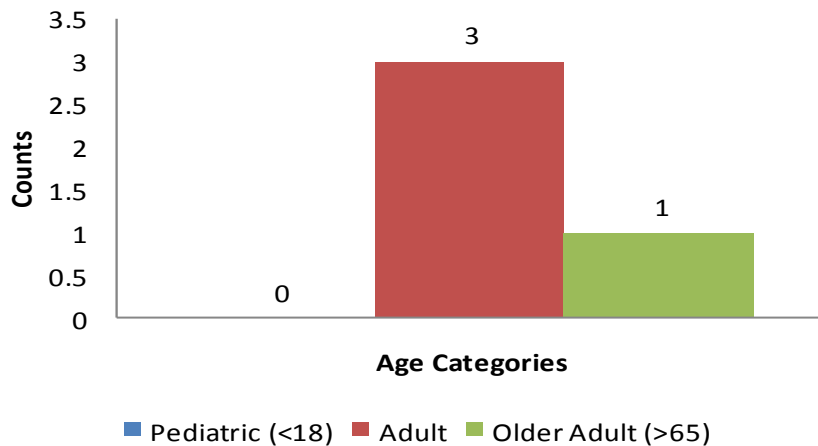
Injury Severity Score
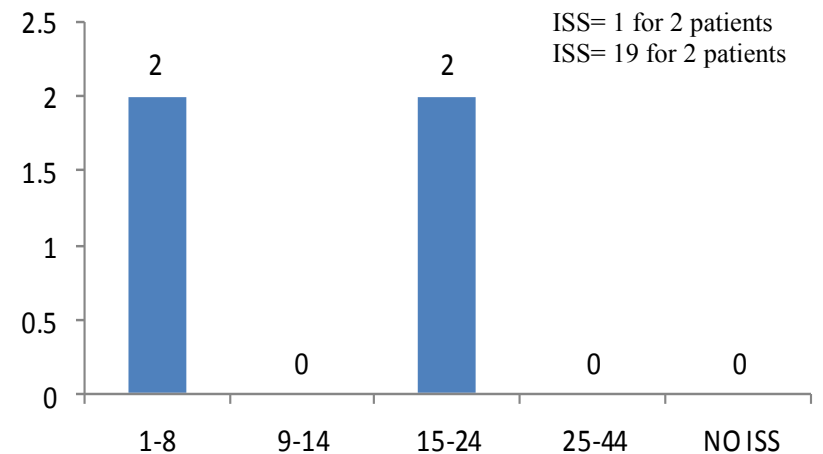
ISS= 1 for 2 patients
ISS= 19 for 2 patients

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Hospital Disposition

Categories: Home w/o Services 47%, Skilled Nursing Fac. 16%, Rehab 9%, Acute Care 1%, Home w/Service 3%, Died 3%, No Hosp. 19%

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

*<1% Hospital Disposition: Intermediate Care Center, Hospice Care, AMA

Hospital Length of Stay (days)

Categories: No Hosp. 13%, 0-3 38%, 4-7 31%, 8-14 12%, 15-21 3%, 22-30 1%, 31+ 1%, Null 2%

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

Hospital LOS (days) by Ps Trauma Centers

No Hosp. 5%/4%, 0-3 35%/41%, 4-7 15%/32%, 8-14 13%/15%, 15-21 10%/4%, 22-30 5%/1%, 31+ 8%/1%, Null 8%/2%

Legend: ■ Ps < 50%, N=60 ■ Ps >= 50%, N=2860
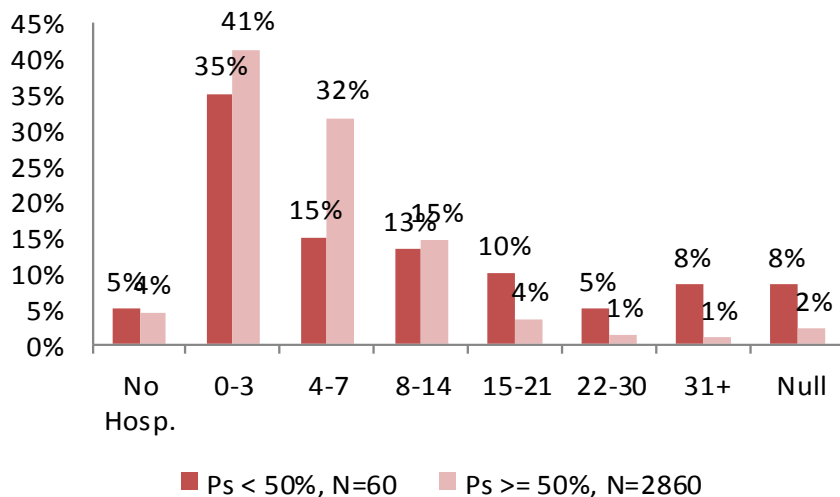
Hospital LOS (days) by Ps Non-Trauma Centers
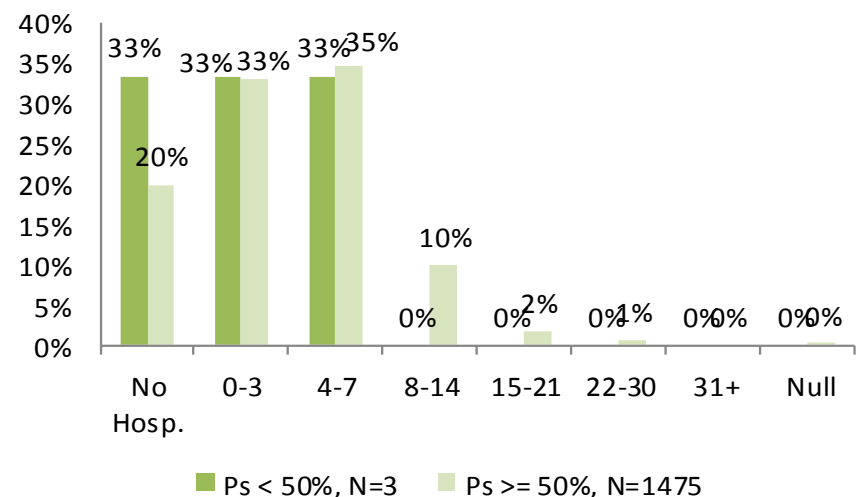
No Hosp. 33%/20%, 0-3 33%/33%, 4-7 33%/35%, 8-14 0%/10%, 15-21 0%/2%, 22-30 0%/1%, 31+ 0%/0%, Null 0%/0%

Legend: ■ Ps < 50%, N=3 ■ Ps >= 50%, N=1475

Indiana Trauma Registry

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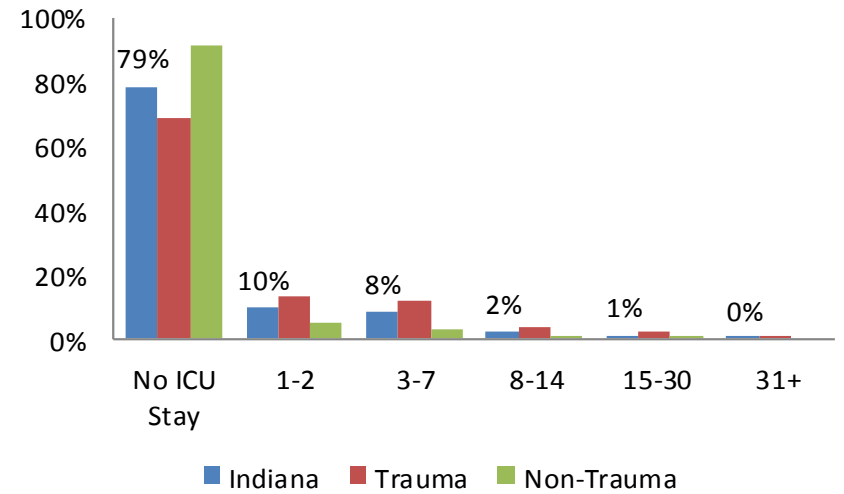### July 1, 2013 to September 30, 2013
6,904 Incidents—506 Linked Transfer Cases

54 Total Hospitals Reporting

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For Quarter 3 2013, of the 6,904 incidents reported to the Indiana Trauma Registry, 2,105 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, 506 cases were manually linked. The linked cases make up 17% of the Q3 2013 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 then be matched.

Initial Facility: 953 Incidents

Matched: 506 Incidents

Final Facility: 1651 Incidents
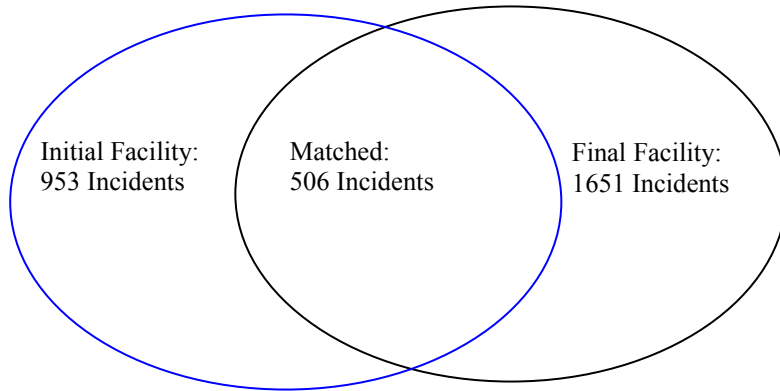
The initial facility in which transfers come from may be considered Critical Access Hospitals (CAHs). All Indiana CAHs are considered Rural, and must meet additional requirements to have a CAH designation, such as having no more than 25 inpatient beds and being located in a rural area. Facilities that are highlighted indicate that this facility reported data for Quarter 3 2013.

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.

Indiana Critical Access Hospitals (CAHs)

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	St. Mary's Warrick 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 – Williamsport Hospital
Jasper County Hospital	Sullivan County Community Hospital
Jay County Hospital	Wabash County Hospital
Margaret Mary Community Hospital	Woodlawn Hospital
Parkview LaGrange Hospital	

Indiana Rural Hospitals

|	
Columbus regional Hospital	Kosciusko Community Hospital
Fayette Regional Health System	Marion General Hospital
Franciscan St. Anthony Health – Michigan City	Memorial Hospital (Logansport)
Franciscan St. Elizabeth Health – Crawfordsville	Memorial Hospital & Health Care Center (Jasper)
Good Samaritan Hospital	Parkview Noble Hospital
Henry County Memorial Hospital	Reid Hospital & Health Care Services
IU Health – LaPorte Hospital	St. Joseph's Regional Medical Center – Plymouth
IU Health – Starke Hospital	Schneck Medical Center
King's Daughters' Health	

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Facility to Facility Transfers

For Transfer Patients:		
Initial Facility Type	**Final Facility Type**	**Incident Counts**
Rural Hospital	Hospital	1
Trauma Center	Trauma Center	13
Critical Access Hospital	Hospital	20
Hospital	Hospital	42
Critical Access Hospital	Trauma Center	44
Rural Hospital	Trauma Center	113
Hospital	Trauma Center	273
Total		506

Facility Transfer Type

Rural = Rural Hospital; TC = ACS Verified Trauma Center; CAH = Critical Access Hospital; Hospital = does not fall into above categories

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For Linked Transfer Patients:

For Transfer Patients:		
	All Transfer Patients	*Critical** Transfer Patients
Number of Patients	506	166
EMS Notified to Scene	9 minutes	9 minutes
EMS Scene Arrival to Departure	16 minutes	14 minutes
EMS Scene Departure to Initial Hospital ED Arrival	19 minutes	19 minutes
Initial Hospital ED Arrival to Departure	3 hours 10 minutes	2 hours 37 minutes
Initial Hospital ED Departure to Final Hospital ED Arrival	1 hour 50 minutes	1 hour 56 minutes
TOTAL TIME	5 hours 44 minutes	5 hours 15 minutes

*Critical patient is defined as having an ISS > 15, OR GCS ≤ 12, OR Shock Index > 0.9 at EITHER the initial hospital or the final trauma center.

Indiana Trauma Registry

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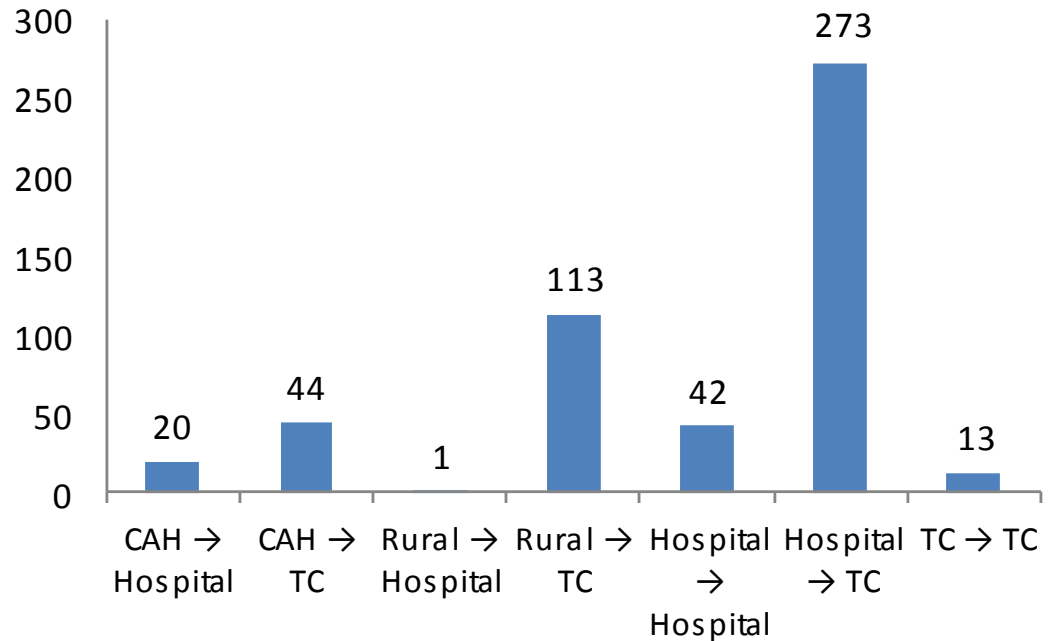July 1, 2013 to September 30, 2013
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Patient Age Groupings

Pediatric (<18): Indiana 13%, Transfers 21%
Adult: Indiana 53%, Transfers 52%
Older Adult (>65): Indiana 34%, Transfers 27%

■ Indiana ■ Transfers

Patient Gender

Male: Indiana 58%, Transfers 60%
Female: Indiana 42%, Transfers 40%
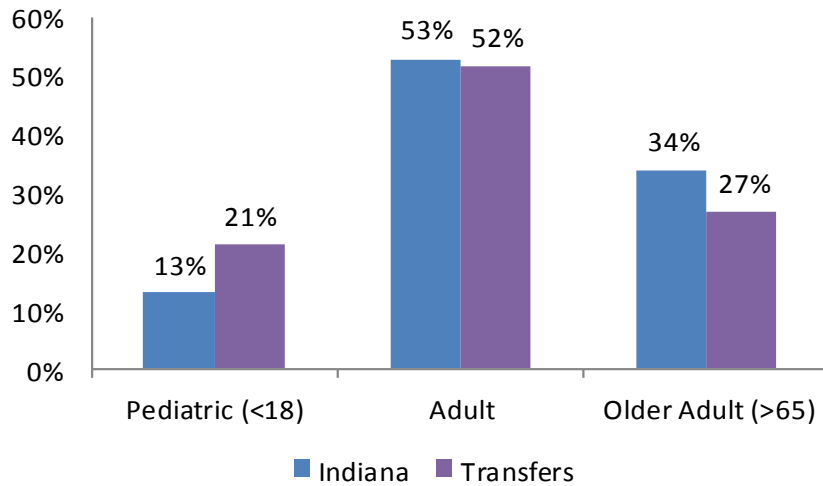
■ Indiana ■ Transfers

Injury Severity Score (ISS)- Final Hospital

1-8: 43%
9-14: 38%
15-24: 10%
25-44: 8%
45-74: 1%
75: 0%
No ISS: 0%
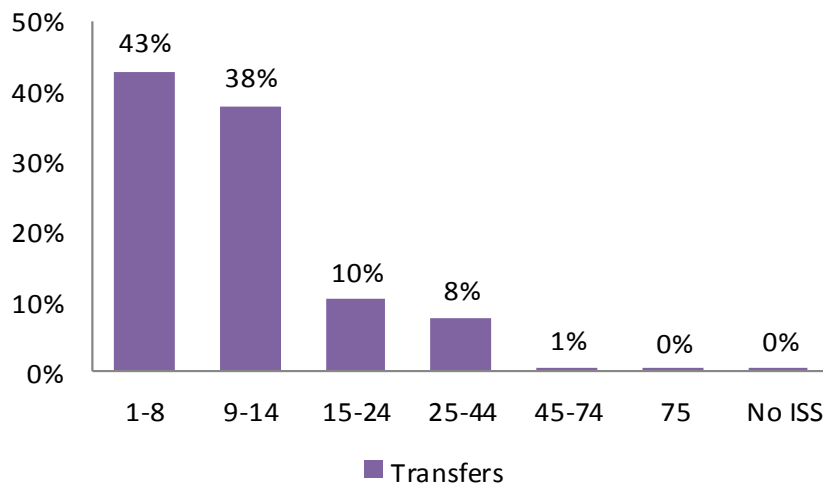
■ Transfers

Trauma Type- Final Hospital
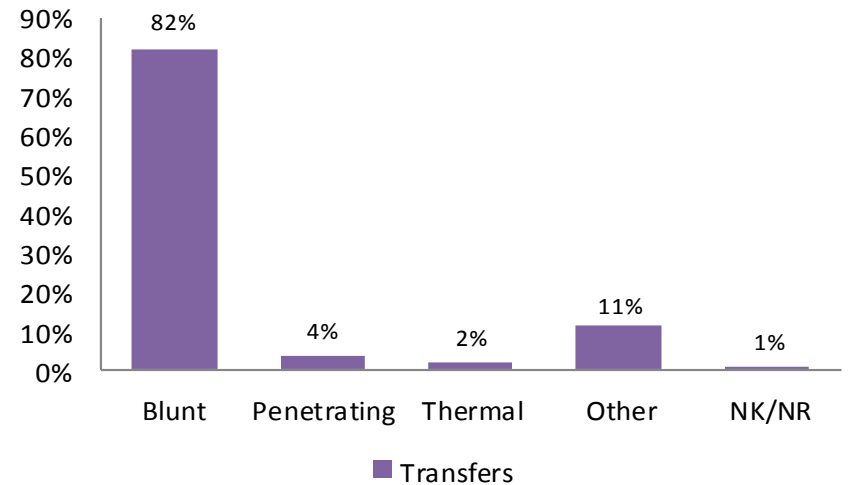
Blunt: 82%
Penetrating: 4%
Thermal: 2%
Other: 11%
NK/NR: 1%

■ Transfers

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Transport Mode– Final Hospital

■ Transfers

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

ED Disposition by Percentage- Final Hospital

■ Transfers

ED Length of Stay (hours)- Final Hospital
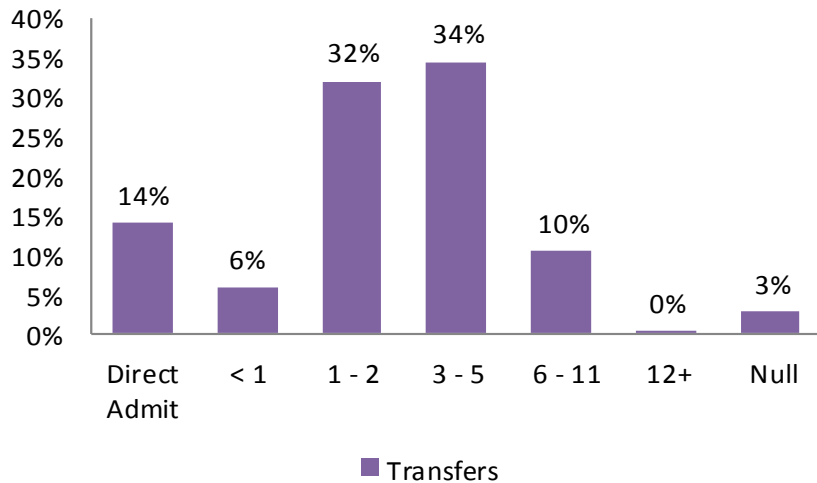
■ Transfers

ICU Length of Stay (days)- Final Hospital
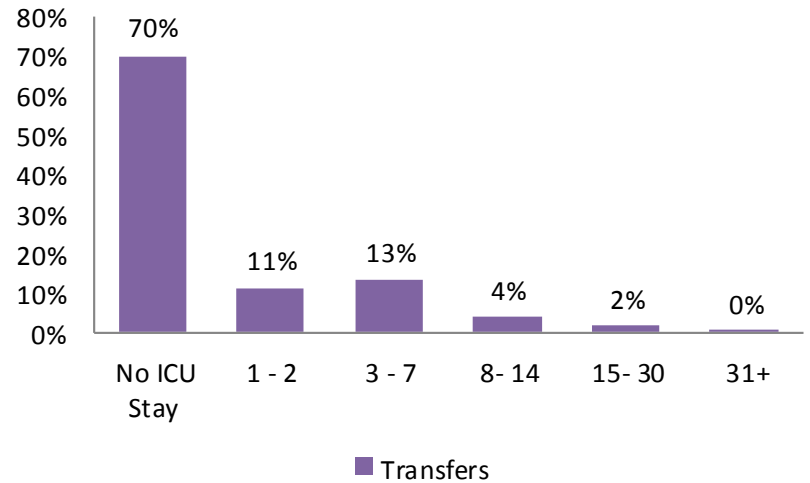
■ Transfers

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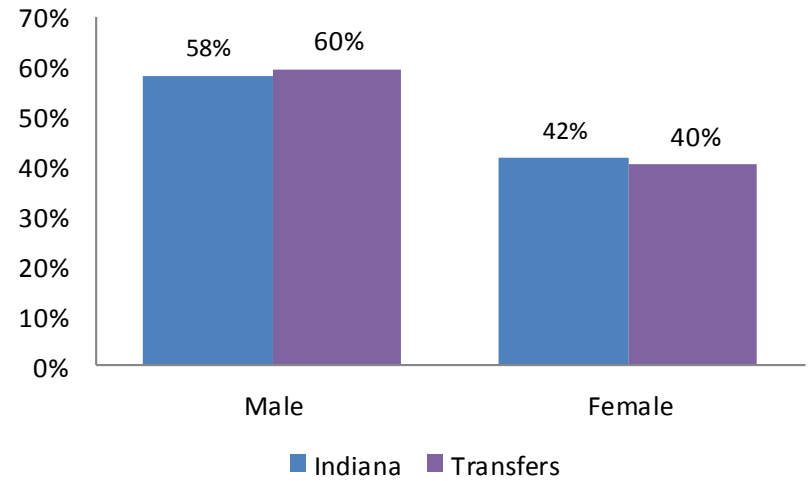**6,904 Incidents—506 Linked Transfer Cases**

Discharge Disposition– Final Hospital

Bar chart values: Home w/o Services 64%, Skill Nursing Facility 13%, Rehab or LTAC 11%, Home w/ Services 4%, N/A 4%, Expired 3%, Acute Care Hospital 1%, AMA 1%, NK/NR 0%.

■ Transfers

Helicopter Transfers by ISS

Bar chart values:
1-8: All Transfers 43%, Helicopter Transfers 21%
9-14: All Transfers 38%, Helicopter Transfers 31%
15-24: All Transfers 10%, Helicopter Transfers 25%
25-44: All Transfers 8%, Helicopter Transfers 19%
45-74: All Transfers 1%, Helicopter Transfers 3%
75: All Transfers 0%, Helicopter Transfers 1%
No ISS: All Transfers 0%, Helicopter Transfers 0%

■ All Transfers, N=506   ■ Helicopter Transfers, N=95

Initial Facility Transfer Delay Reason- Initial Hospital
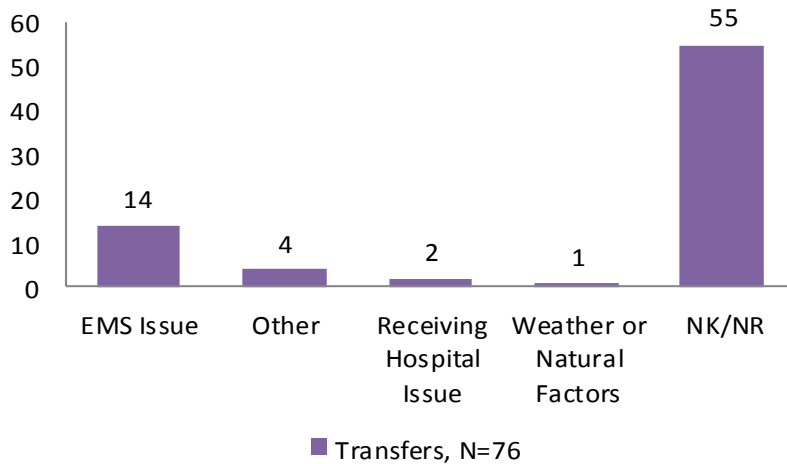
Bar chart values: EMS Issue 14, Other 4, Receiving Hospital Issue 2, Weather or Natural Factors 1, NK/NR 55.

■ Transfers, N=76

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6,904 Incidents

54 Total Hospitals Reporting

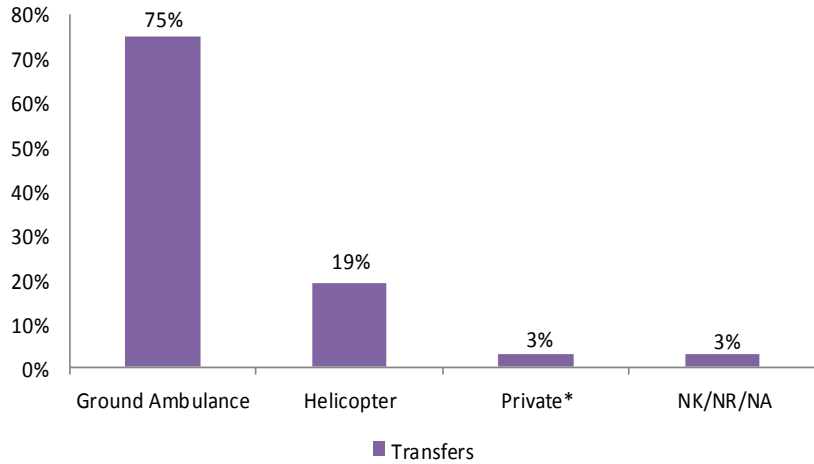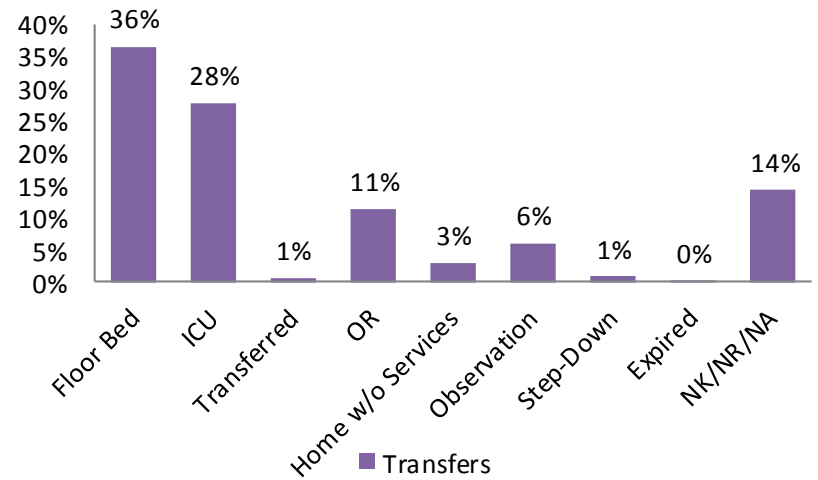|		
Trauma Centers:	9 facilities	58.3% of data
(Non-Trauma) Hospitals:	45 facilities	41.7% of data

ED Length of Stay

ED Length of Stay (minutes)			
	Indiana Average	Trauma Center	Non-Trauma Center
N=	5765	3469	2296
Average	227.8	219.6	240.1
Std. Deviation	144.2	138.8	151.0
Minimum	2.0	2.0	2.0
Quartile 1	136.0	124.0	158.0
Median	206.0	196.0	219.0
Quartile 3	292.0	285.0	298.0
Maximum	1936.0	1777.0	1936.0

ED Length of Stay by ISS

ED Length of Stay (minutes)			
ISS Category	Indiana Average	Trauma Center	Non-Trauma Center
1-8	239.8	237.0	243.3
9-14	231.5	223.5	243.2
15-24	195.9	192.8	211.3
25-44	152.7	154.3	140.7
45-74	136.2	133.7	179.0
75	101.4	109.9	34.0
No ISS	238.1	239.1	238.0

ED Disposition

ED Disposition (count)			
	Indiana	Trauma Center	Non-Trauma Center
Floor Bed	2911	1715	1196
ICU	1319	1168	151
Transferred	1058	105	953
OR	628	486	142
Home w/o Services	160	142	18
Observation	317	178	139
Step-Down	163	68	95
Expired	57	35	22
AMA	5	5	0
Home W/ Services	4	0	4
Other	9	7	2
NK/NR/NA	273	117	156

*A bar graph of ED Disposition is found on page 4.
*A bar graph of ED Length of Stay is found on page 4.
*A Box and Whisker plot of ED LOS is found on page 5.
*A Box and Whisker plot of ED Length of Stay by ISS is found on page 6.

Indiana Trauma Registry

Statewide Quarter 3 Data Report

July 1, 2013 to September 30, 2013

6,904 Incidents

54 Total Hospitals Reporting

Trauma Centers:	9 facilities 58.3% of data
(Non-Trauma) Hospitals:	45 facilities 41.7% of data

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	1546	332	610	282	232	132	88	148	15	9	5	4	3403
9-14	1216	454	325	187	71	115	60	6	10	0	0	0	2444
15-24	99	296	58	69	7	5	13	0	8	0	0	0	555
25-44	14	218	19	76	3	10	1	0	15	0	0	0	356
45-74	0	10	0	8	0	0	0	0	0	0	0	0	18
75	3	5	1	4	0	0	0	0	2	0	0	0	15
NO ISS	33	4	45	2	4	11	1	6	7	0	0	0	113
Total	2911	1319	1058	628	317	273	163	160	57	9	5	4	6904

*Bar graph of ED Disposition by ISS is found on page 7

Indiana Trauma Registry

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Requests from Trauma Care Committee members:

General Report:

-Page numbers have been added to the report on the bottom right corner.

-The ED LOS now includes the mean, median, quartiles 1 & 3, minimum, and maximum values in the table found on page 17.

-Several bar and whiskers plots of ED LOS is found on page 5.

-An explanation of the bar and whiskers plot is found on page 5.

-The ED LOS by ISS now includes the mean, median, quartiles 1 & 3, minimum, and maximum values in the table found on page 17.

-The bar and whisker plot of ED LOS by ISS is found on page 6.

-There are two Probability of survival (PS) graphs to include the percentages and counts, which are found on page 8.

-The TRISS graph is not included in this report, but information about ED disposition as death with PS $\geq$50% is found on page 9.

Transfer data:

-Total number of transfers is indicated in the table on page 13, the cover page on page 11, and on header in each transfer section page.

-A table and bar graph of includes the breakdown of rural, CAHs, hospitals, and trauma center transfers is found on page 12

-This table and bar graph indicates rural and CAHs as requested.

-Basic patient demographic information has been included on pages 14, 15, and 16.

-A bar graph to compare helicopter transfers to ground ambulance is found on page 16.

-A bar graph about reasons for transfer delay is found on page 16.