PRE-HOSPITAL AND HOSPITAL TRAUMA CARE

November 2010

Washington State Department of Health

Objectives: To Discuss,

1. Completeness of pre-hospital (EMS) data.
2. What the Trauma Registry tells us about pre-hospital care.

PART I: PRE-HOSPITAL CARE

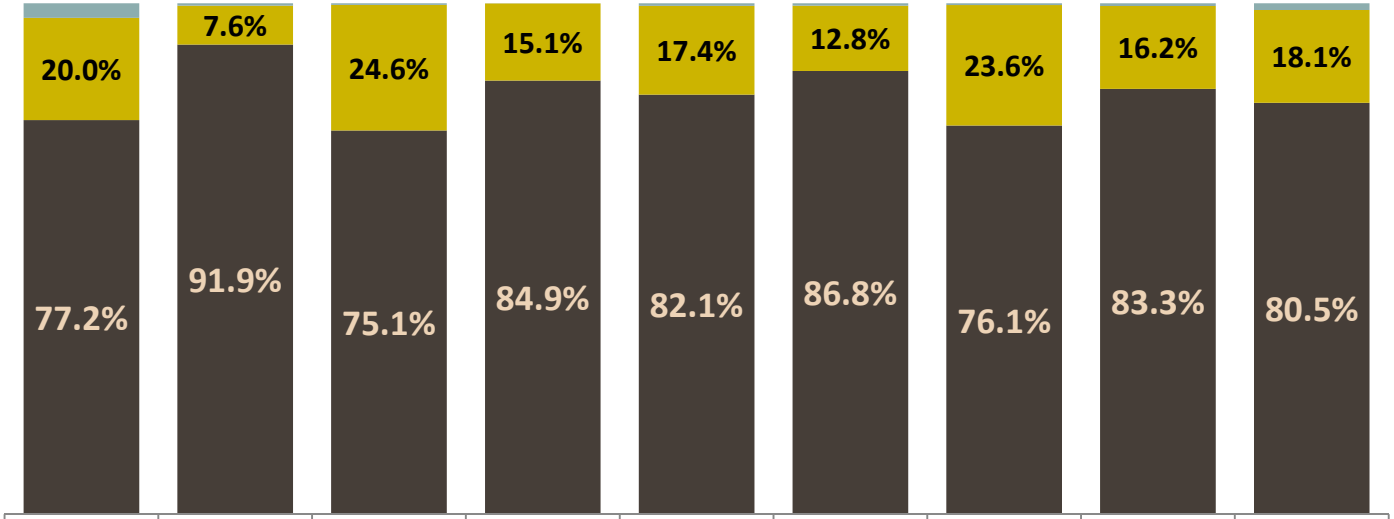
Washington State Department of Health

Main Findings

1. Only 18% of Washington trauma patients transported by EMS from the scene have missing run-forms.
2. Availability of Pre-hospital Run Forms:

   Highest Availability: North Lowest Availability: North Central

Run-Form Availability By Region

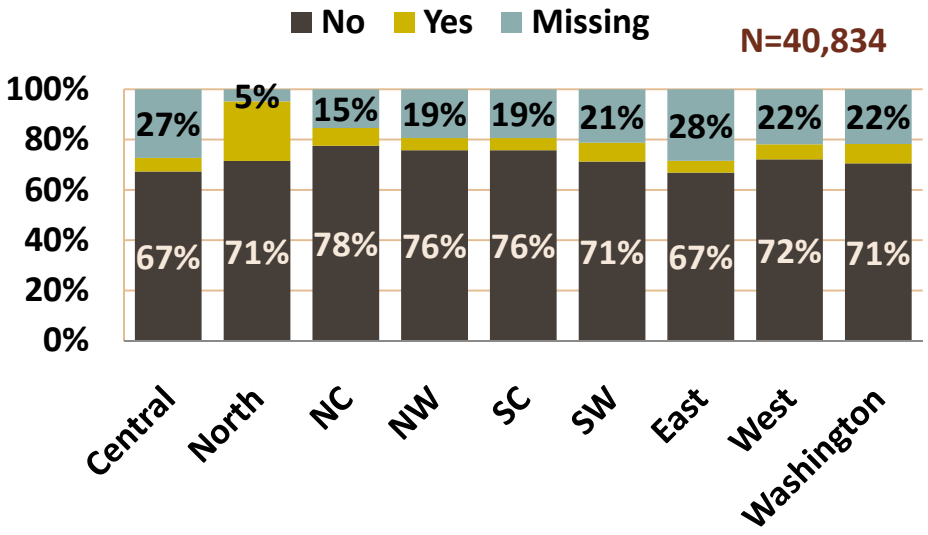


	Central	North	NC	NW	SC	SW	East	West	Washington
Empty Data Point	2.8%	0.5%	0.3%	0.0%	0.5%	0.5%	0.3%	0.5%	1.3%
No Run Form	20.0%	7.6%	24.6%	15.1%	17.4%	12.8%	23.6%	16.2%	18.1%
Run Form Available	77.2%	91.9%	75.1%	84.9%	82.1%	86.8%	76.1%	83.3%	80.5%

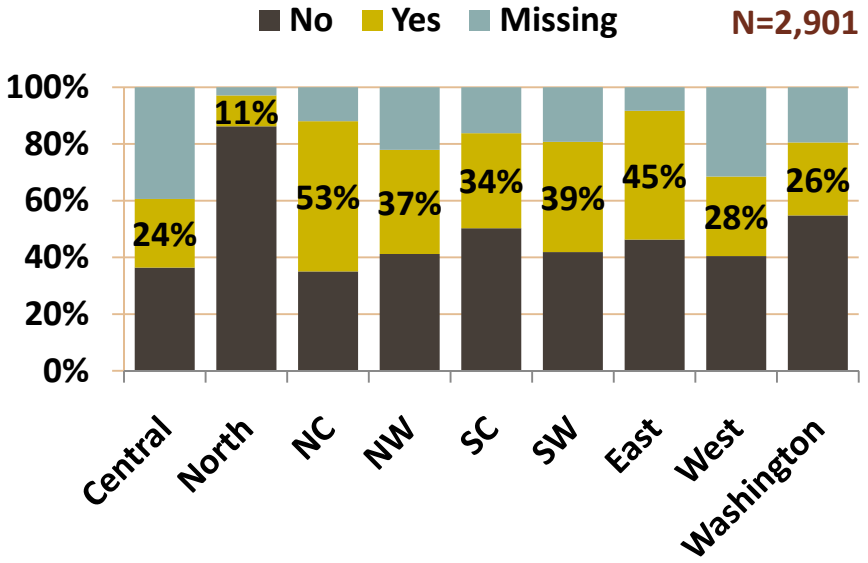
Main Findings

1. Statewide only about 7% (n=2,901) of EMS transports required extrication while the extrication information was missing in 22% (n=8,880) of cases.
2. Statewide, only about 26% (n=747) of extrications took longer than 20 minutes.
3. 62% (n=1,926) of extrications were accidents involving MV occupants.
4. 15% (n=514) of extrications were patients who fell.

Patients Requiring Extrication



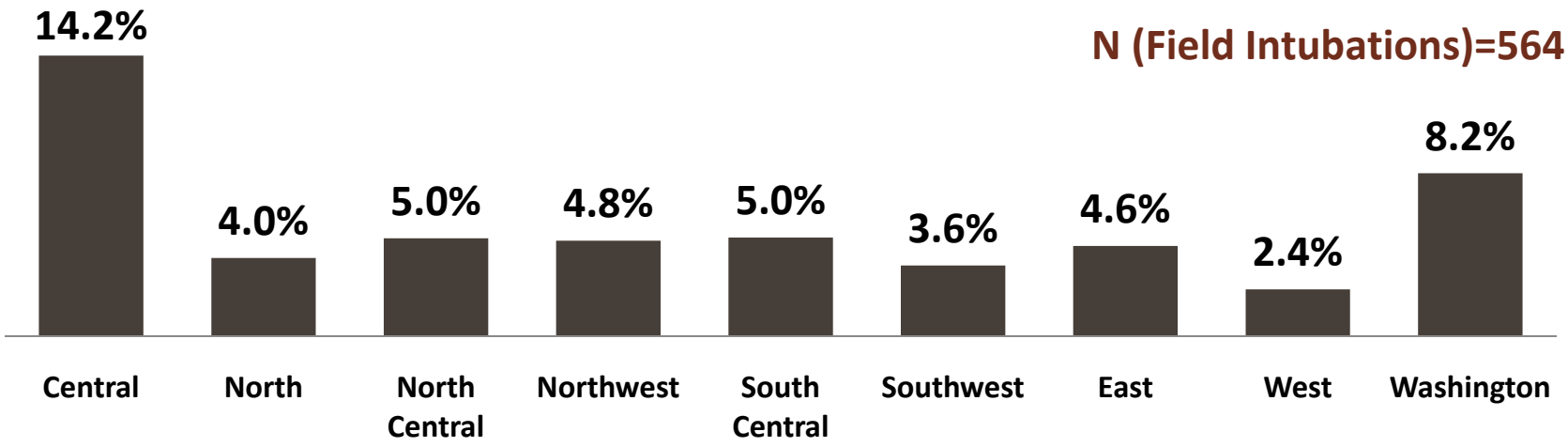
Extrication Time > 20 Minutes



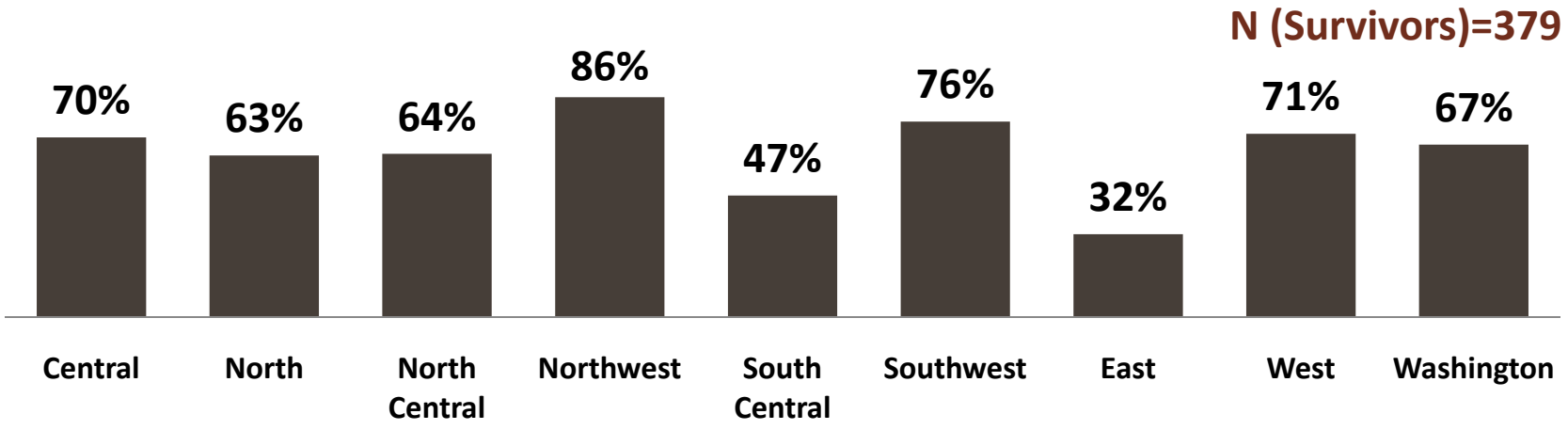
Field Extrications

(DOH Criteria, Transported by EMS from Scene, 2007-2009)

ALS Transports Reporting Field Intubations (Major Trauma ISS>=16)



ALS Transports Reporting Field Intubations (Major Trauma ISS>=16): Survival Outcomes



Main Findings: Out of 185 major trauma (ISS 16+) deaths that reported field intubations, 1 was DOA, 52 died in ED, 9 died in OR, and 123 died later in the hospital.

TRANSPORTS INVOLVING FIELD INTUBATIONS
(DOH Criteria, Transported by EMS from Scene, 2007-2009)

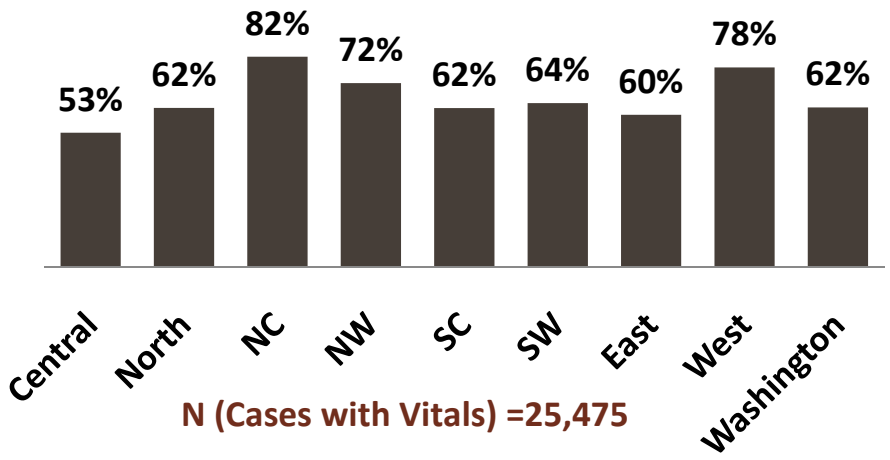
Vitals From First EMS Agency on Scene

(DOH Criteria, Transported by EMS from Scene, 2007-2009)

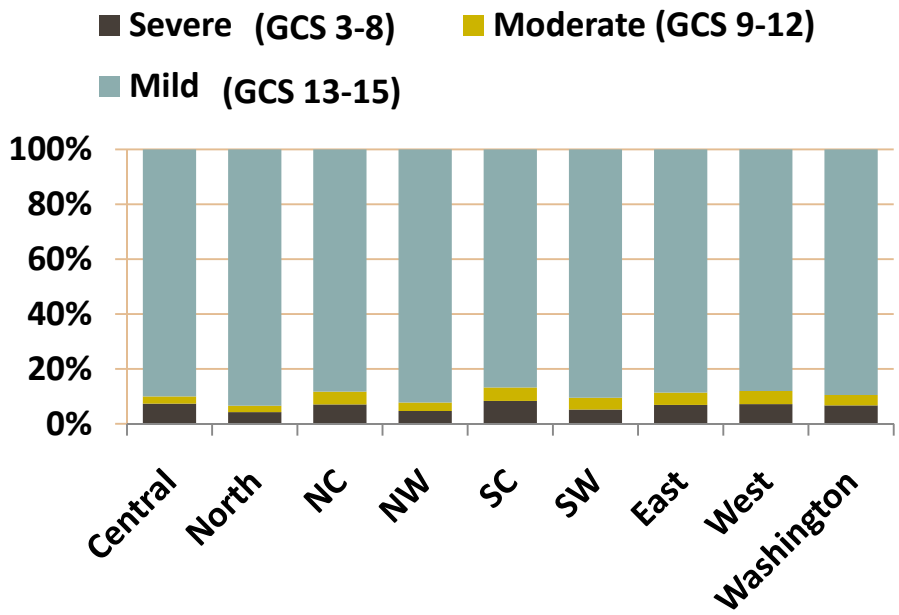
Main Findings

1. 38% of EMS transports statewide did not have any vital signs reported.
2. GCS is developed to describe the consciousness level by measuring the best eye, motor, and verbal responses. Only a small percentage of EMS transport patients had GCS<9 indicating decreased consciousness.
3. ISS sums up anatomical severity of multiple injuries. The regional distribution of severe injuries (ISS 16+) concentrates around 20%. Central region hospitals report a slightly higher percentage of severely injured patients (ISS 16+).

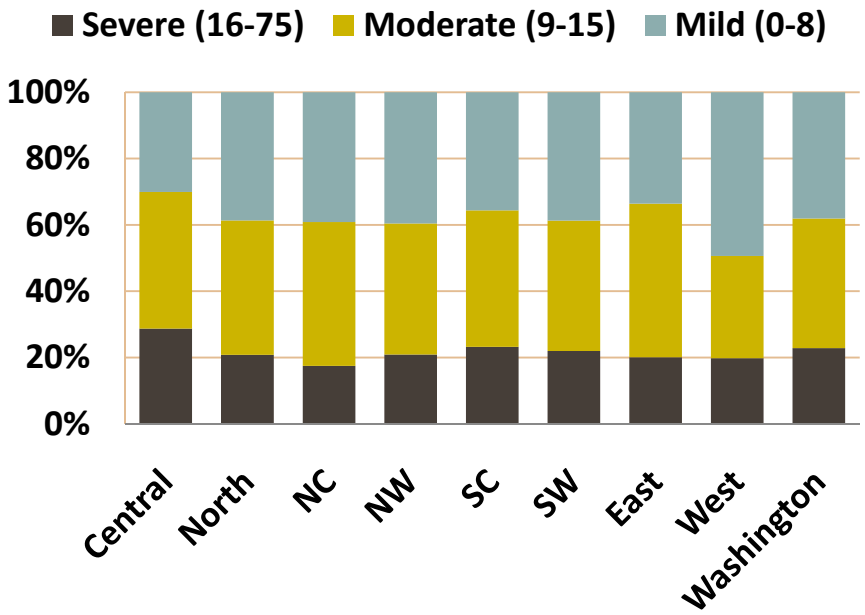
Vitals Came from the First EMS Agency



Vitals Came from the First EMS Agency by GCS



Vitals Came from the First EMS Agency by ISS



Objectives: To Discuss,

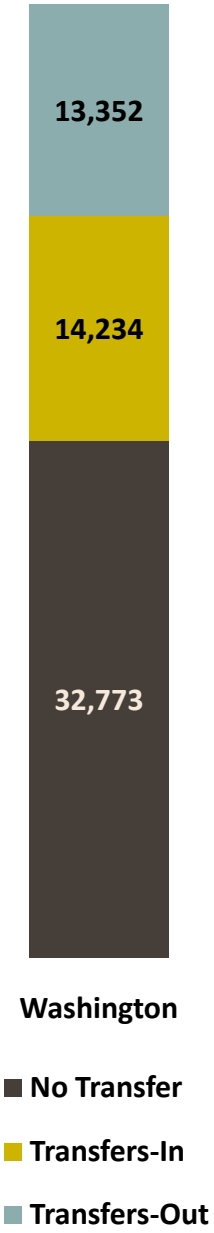
1. Hospital volumes by transfer status
2. Whether hospitals activate their full trauma team when necessary?
3. Hospital care of patients with penetrating injuries and with traumatic brain injuries.

PART II: HOSPITAL CARE

Washington State Department of Health

TRAUMA VOLUMES (DOH Criteria, Excluding Transfers-in)

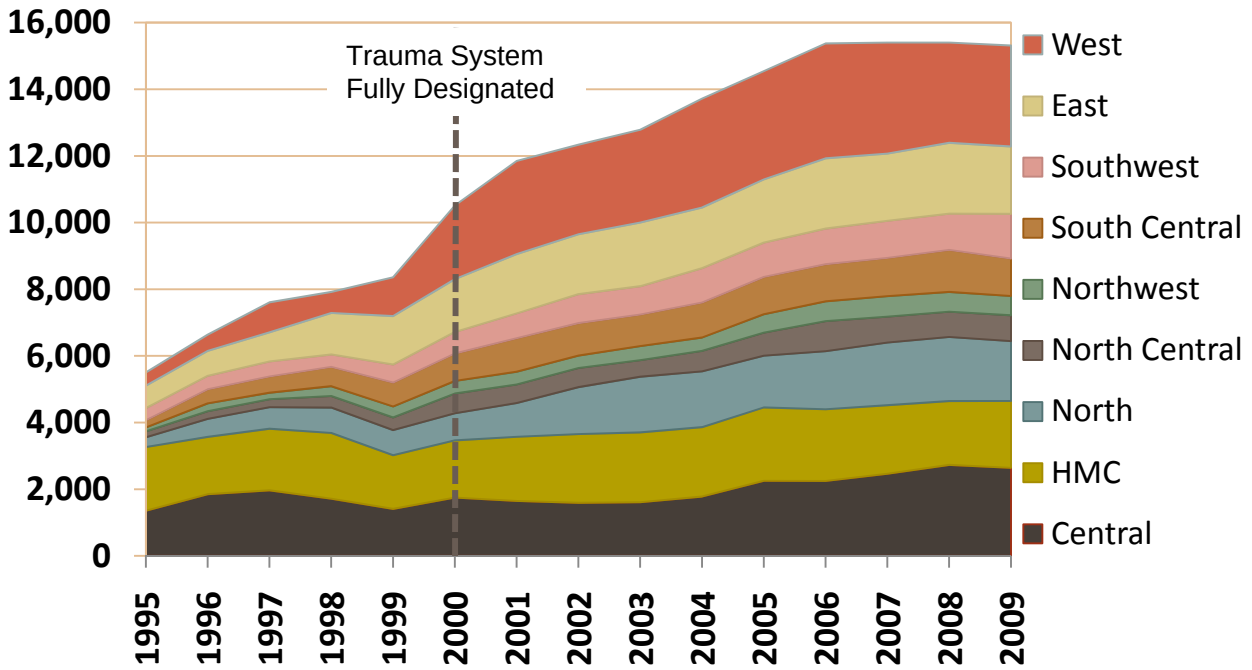
Transfer Status, 2007-2009



Main Findings

1. Excluding transfers-in and HMC, Washington's trauma volume increased three fold in 15 years.
2. Most of this increase happened during the first 10 years of the trauma system. Since 2006, this rapid rise in trauma volumes has stalled.
3. The West, East, and North regions showed the highest levels of volume increase during 1995-2005.
4. Patients coming from the scene constitute roughly half of Washington's trauma volume.

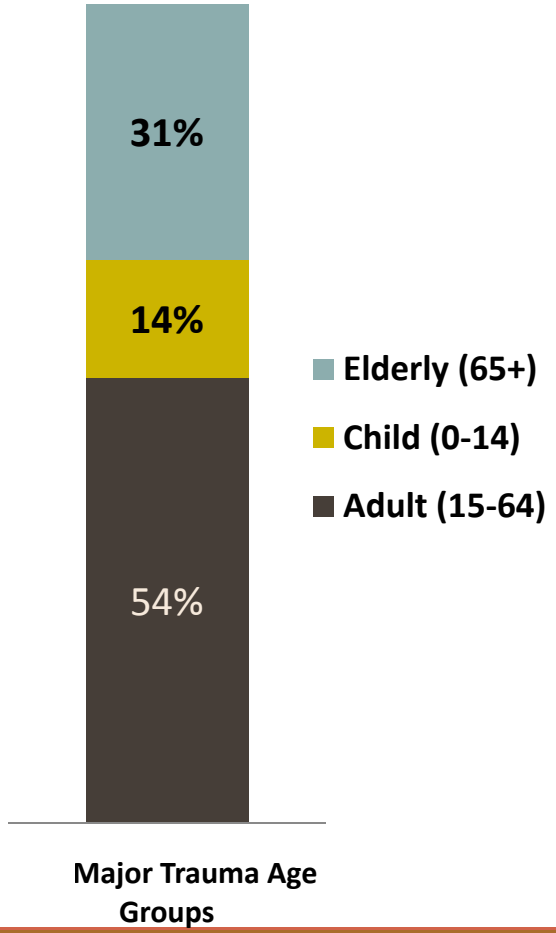
Trauma Volume Trends by Region



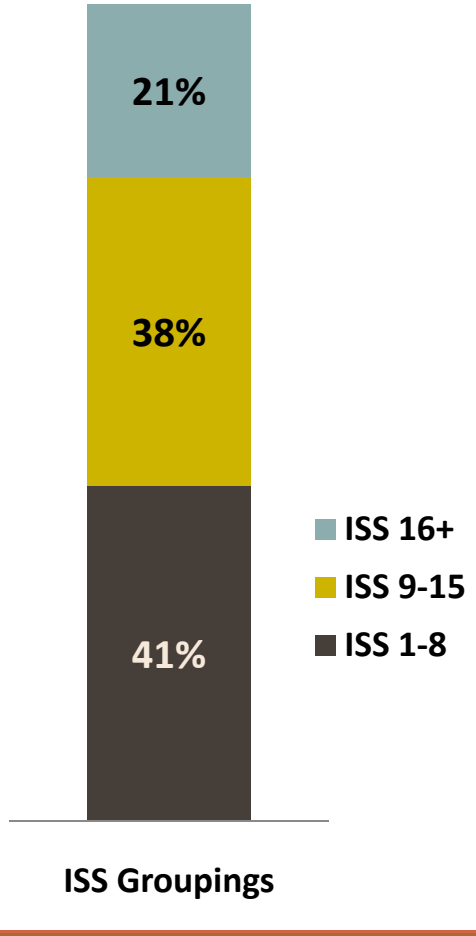
WASHINGTON TRAUMA VOLUMES

(DOH Criteria, Excluding Transfers in, 2007-2009)

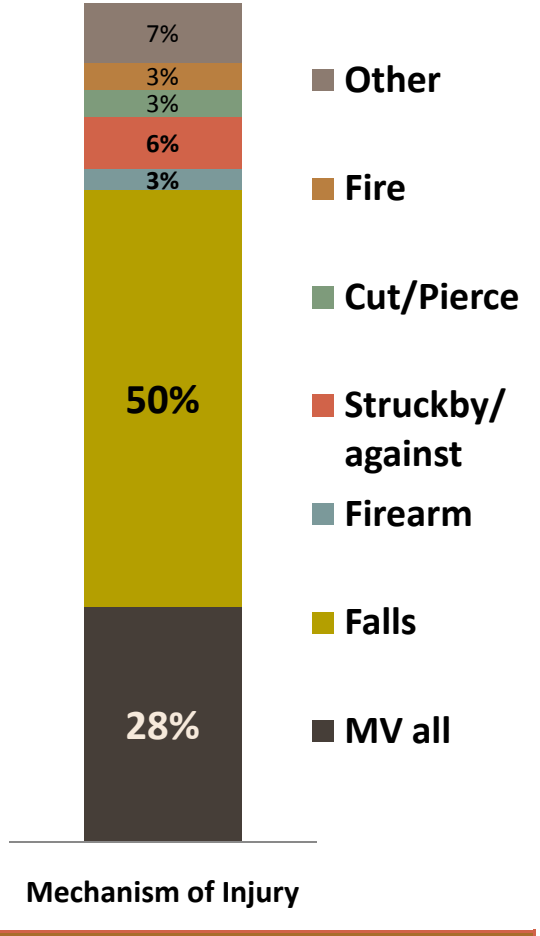
Trauma Volumes by Major Age Groups



Trauma Volumes by Injury Severity (ISS)



Trauma Volumes by Injury Mechanism



Age: The majority of trauma patients are adults age 15-64.

ISS: One in every five trauma patients experiences severe and potentially life threatening injuries.

Mechanism: Falls are now the number one cause of trauma in all regions.

FULL TRAUMA TEAM ACTIVATION in Level I-III Facilities
(DOH Criteria, BP < 90, excluding transfers-in, 2007-2009)

Full TTA: Hospital Outcomes

1,072 hypotensive patients received FTTA

450 patients died (42%)

(46 DOA, 229 ED, 41 OR, 134 Floor/ICU)

404 (60%) had surgery

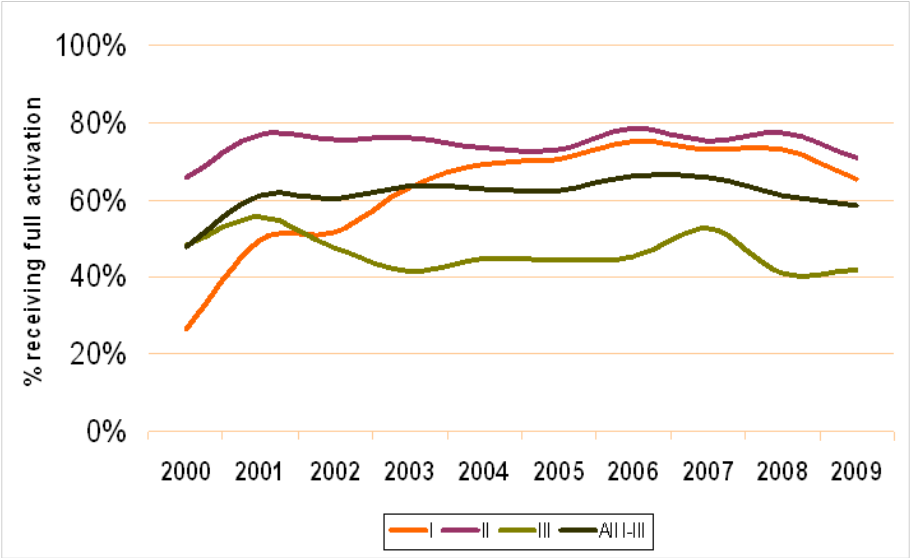
128 (12%) transferred to another ACF

299 (28%) discharged home

129 (12%) discharged to a facility

(52 rehab and 77 nursing home)

Full TTA Time Trend of Level I, II, and III Trauma Facilities



Modified TTA: Hospital Outcomes

258 hypotensive patients received modified TTA

30 patients died (12%)

(15 ED and 15 Floor/ICU)

93 (48%) had surgery

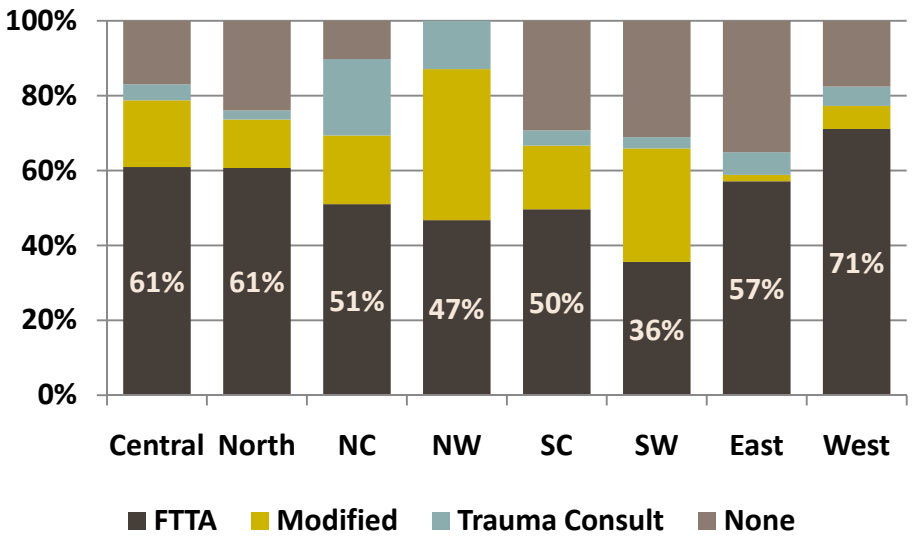
57 (22%) transferred to another ACF

115(45%) discharged home

42 (16%) discharged to a facility

(11 rehab and 31 nursing home)

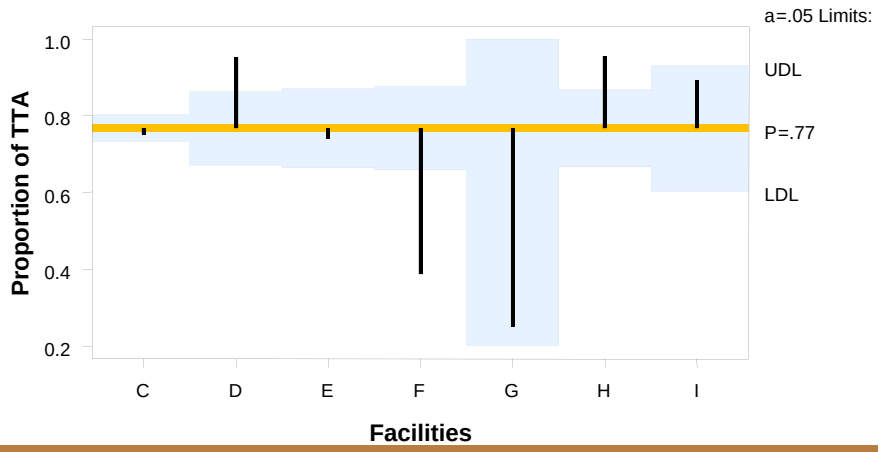
Regional Comparisons of Trauma Team Activations, Excluding HMC



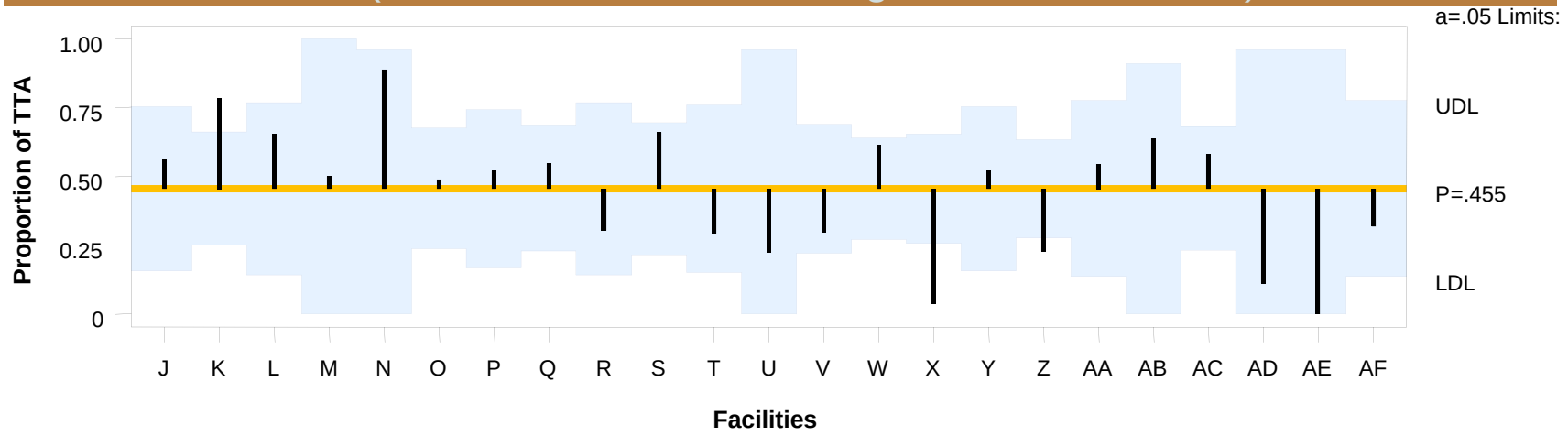
Main Findings

1. Statewide only one facility is performing significantly below the level I-II average while two are performing significantly better.
2. Two facilities are performing significantly worse than the level III average while only one facility is performing significantly better than the average.

Level I and Level II Hospital Comparisons
(DOH Criteria, BP < 90, Ages > 9, 2007-2009)



Level III Hospital Comparisons
(DOH Criteria, BP < 90, Ages > 9, 2007-2009)



HOW TO INTERPRET THE CHARTS: Vertical bars represent individual hospitals. Horizontal orange line shows the average of facility percentages of full TTA within each level of trauma care. Bars within the blue area show a performance similar to the average. Bars extending above the blue area are performing better than the average. Bars extending below the blue area are performing worse than the average.

FULL TRAUMA TEAM ACTIVATION (TTA) FOR HYPOTENSIVE PATIENTS

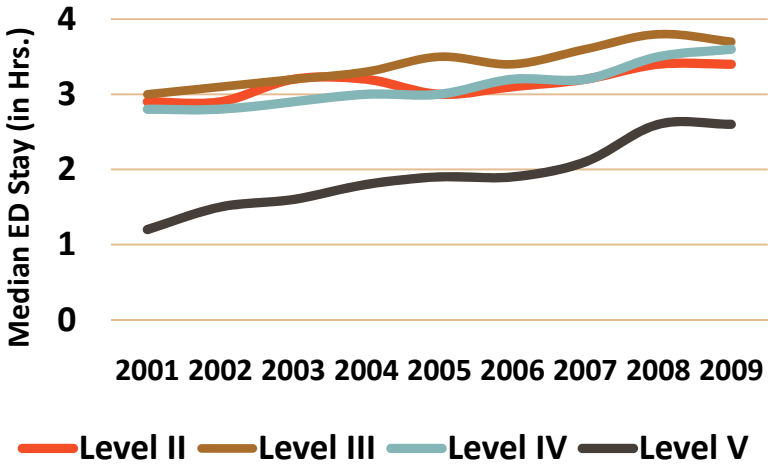
Median ED Length of Stay
(DOH Criteria, Excluding transfers in, 2001-2009)

Main Findings:

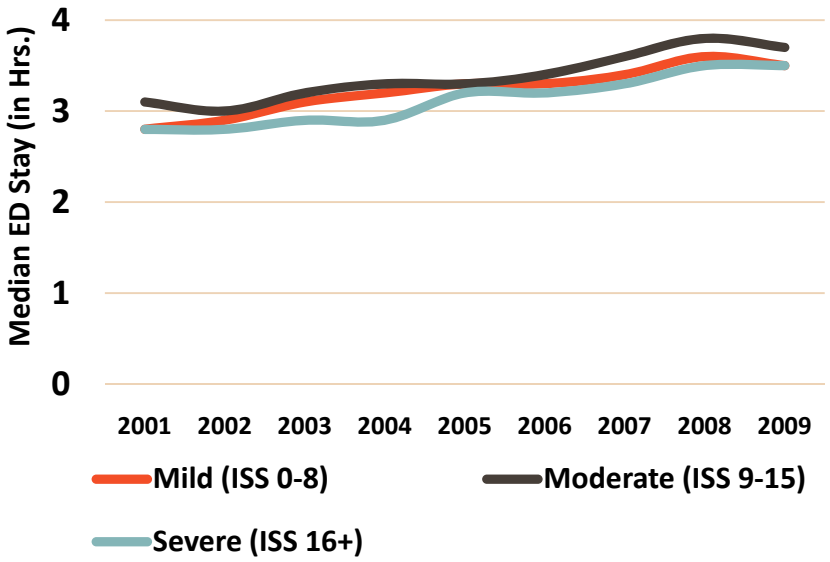
Median ED length of stay is on the rise in all:

1. ISS groups.
2. Levels of care.
3. Age groups even though the elderly (65+) tend to stay the longest in the ED

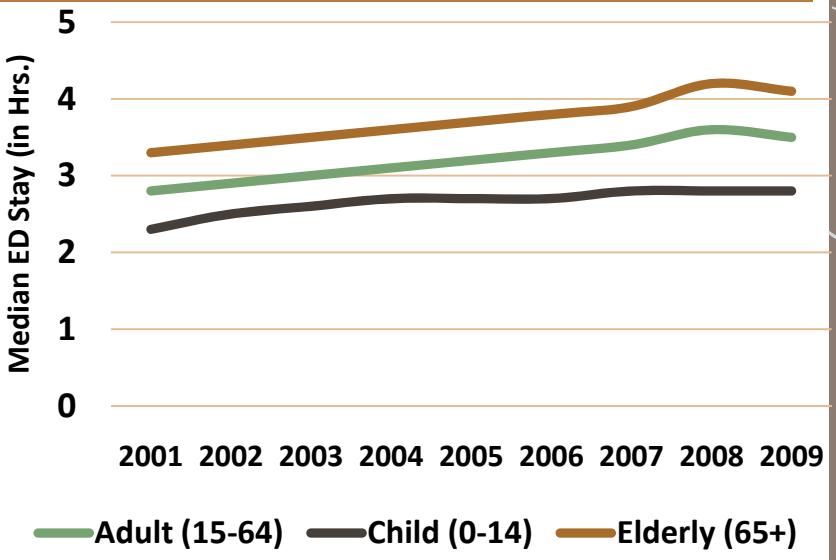
Time Trends by Level of Care



Time Trends By ISS



Time Trend by Age Groups



PENETRATING INJURIES
(DOH Criteria, Excluding Transfers in, 2007-2009)

Main Hospital Outcomes

684 patients died (20%)
(21 DOA, 162 ED, 204 OR, 297 Floor/ICU)

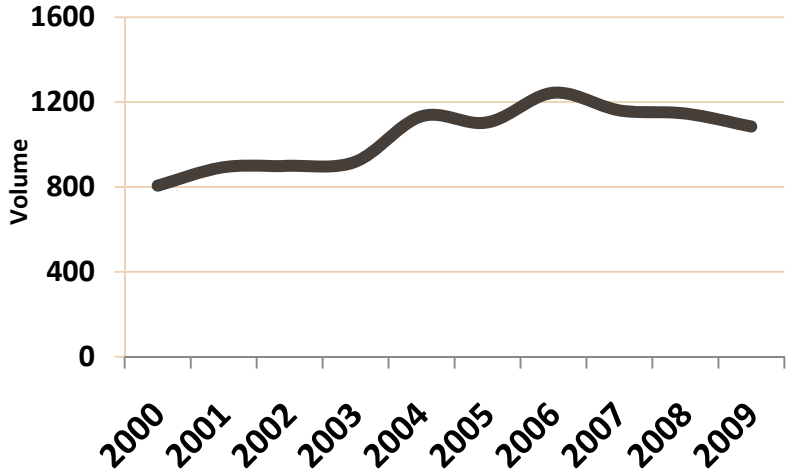
1,501 (69%) had surgery

950 (28%) transferred to another ACF

1,797 (53%) discharged home

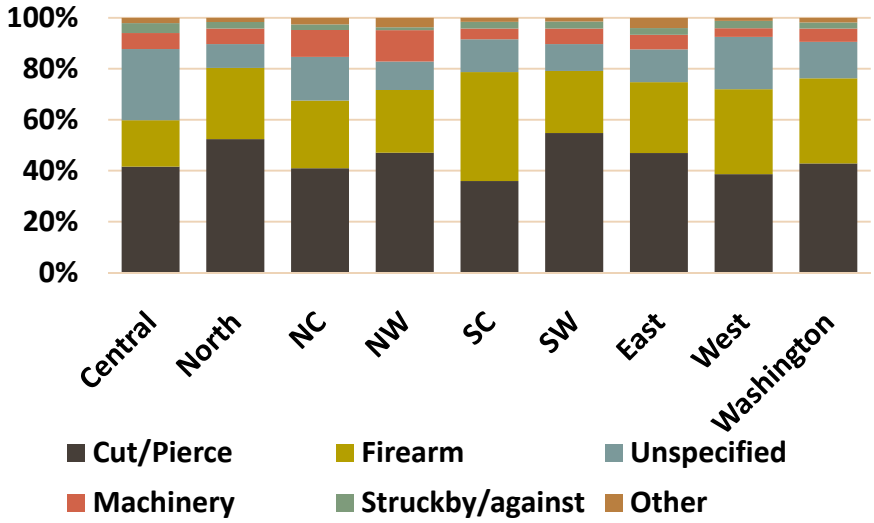
81 (2.4%) discharged to a facility
(51 rehab and 30 nursing home)

Time Trend of Penetrating Injuries



Regional Comparisons of Penetrating Injuries (Excluding HMC)

Regional Comparisons of Penetrating Injuries by Mechanism (Excluding HMC)



	Washington	Central	North	North Central	Northwest	South Central	Southwest	East	West
Median Age	28	27	29	26	38	24	33	29	27
Median ISS	4	1	4	4	4	4	4	4	4

TRAUMATIC BRAIN INJURY (TBI)

(DOH Criteria, Excluding Transfers, 2007-2009)

Main Hospital Outcomes

959 patients died (8%)

(26 DOA, 213 ED, 25 OR, 695 Floor/ICU)

2,731(34%) had surgery

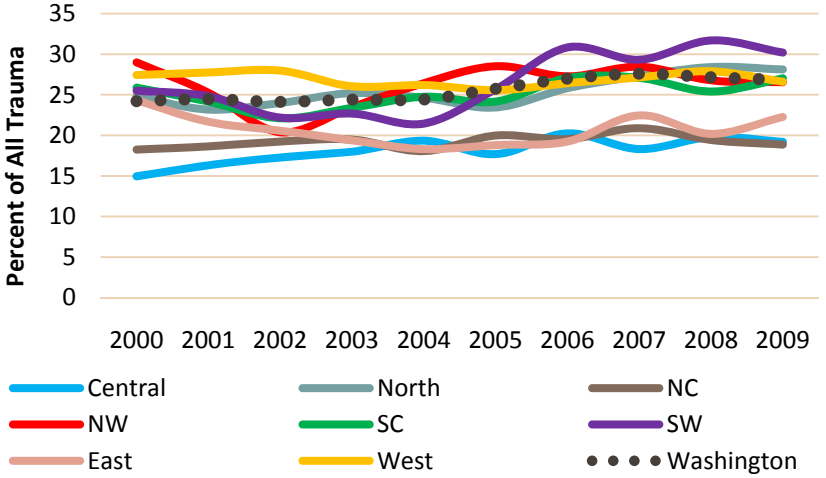
4,307 (34%) transferred to another ACF

4,900 (39%) discharged home

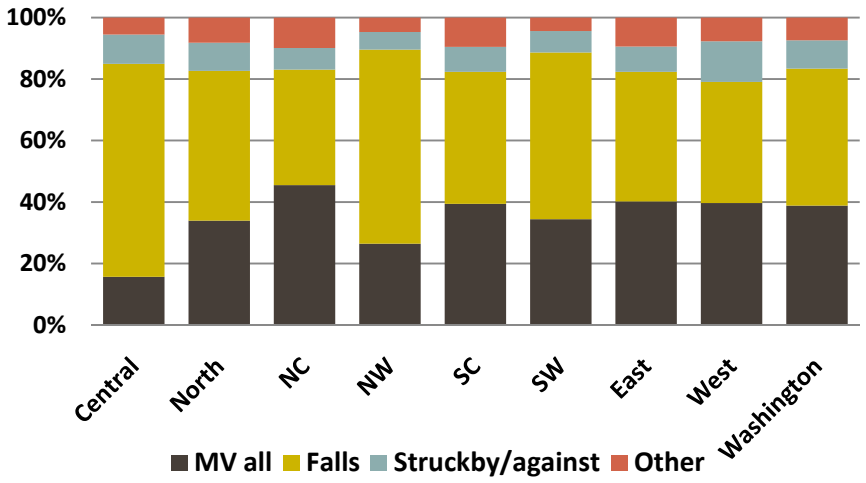
2,089 (17%) discharged to a facility

(774 rehab and 1,315 nursing home)

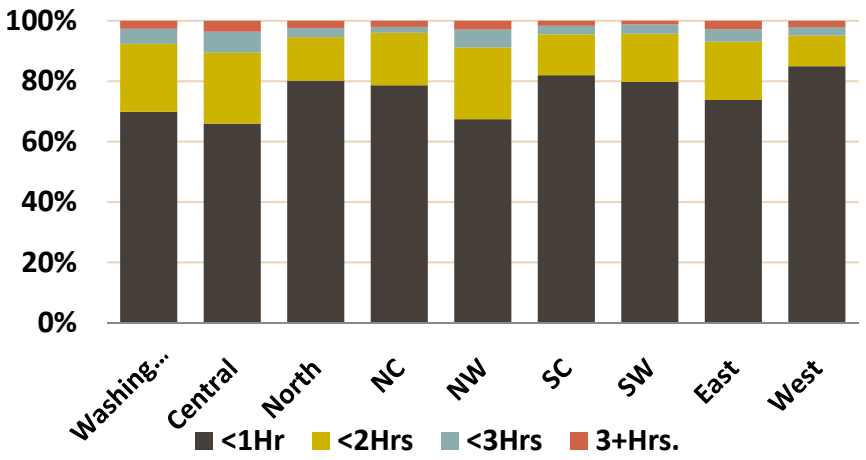
Time Trends of TBI Cases by Region



Regional Comparisons by Mechanism



% of TBI Patients Receiving a Head CT Scan within 1, 2, 3 Hours of ED Admission

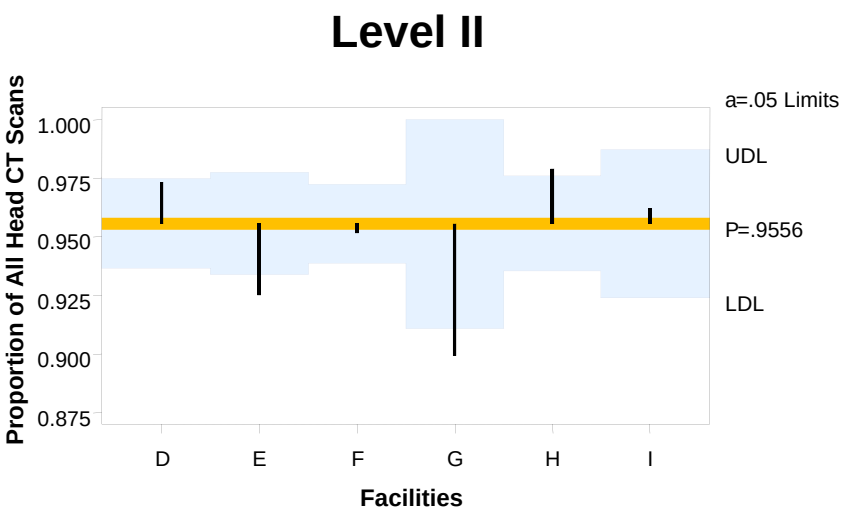


	Washington	Central	North	North Central	Northwest	South Central	Southwest	East	West
Median Age	45	61	43	39	59	36	49	44	40
Median ISS	16	16	16	16	16	16	13	16	13

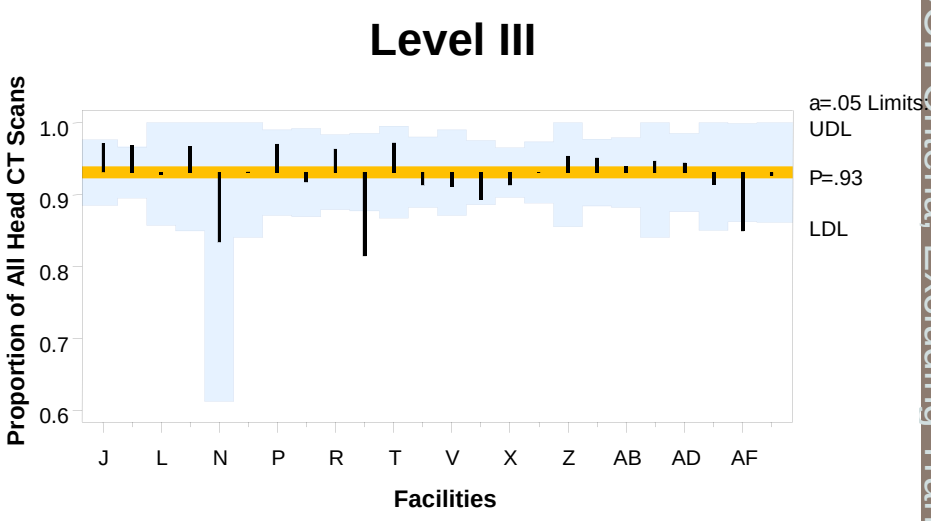
TBI Patients Receiving a CT Scan within 2 Hours of ED Admission

(DOH Criteria, Excluding Transfers in, 2007-2009)

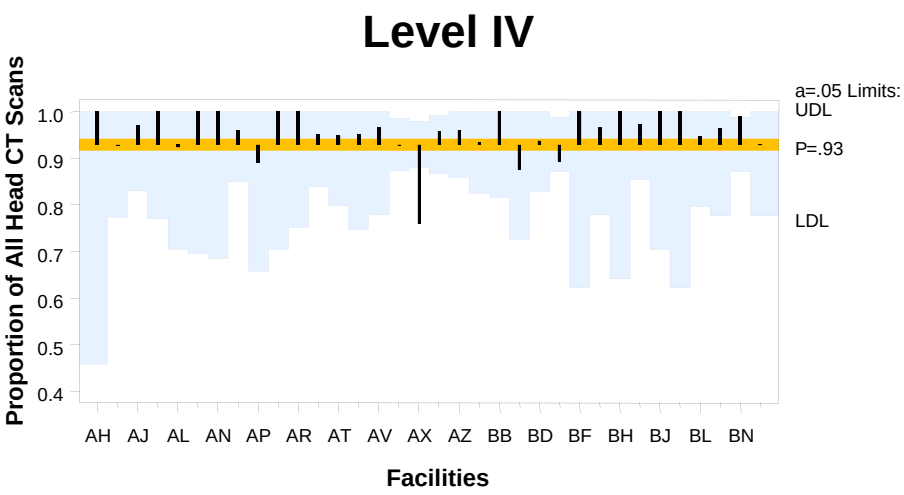
Level II: 2 facilities extending downward below the blue area are performing worse than the Level II



Level III: 2 facilities extending downward below the blue area are performing worse than the Level III



Level IV: 1 facility extending downward below the blue area is performing worse than the Level IV average.



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THANKS SO MUCH!!!

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