

Minnesota Statewide Trauma System

Est. 2005



www.health.state.mn.us/traumasystem



Major Trauma



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Characteristics of a Trauma System

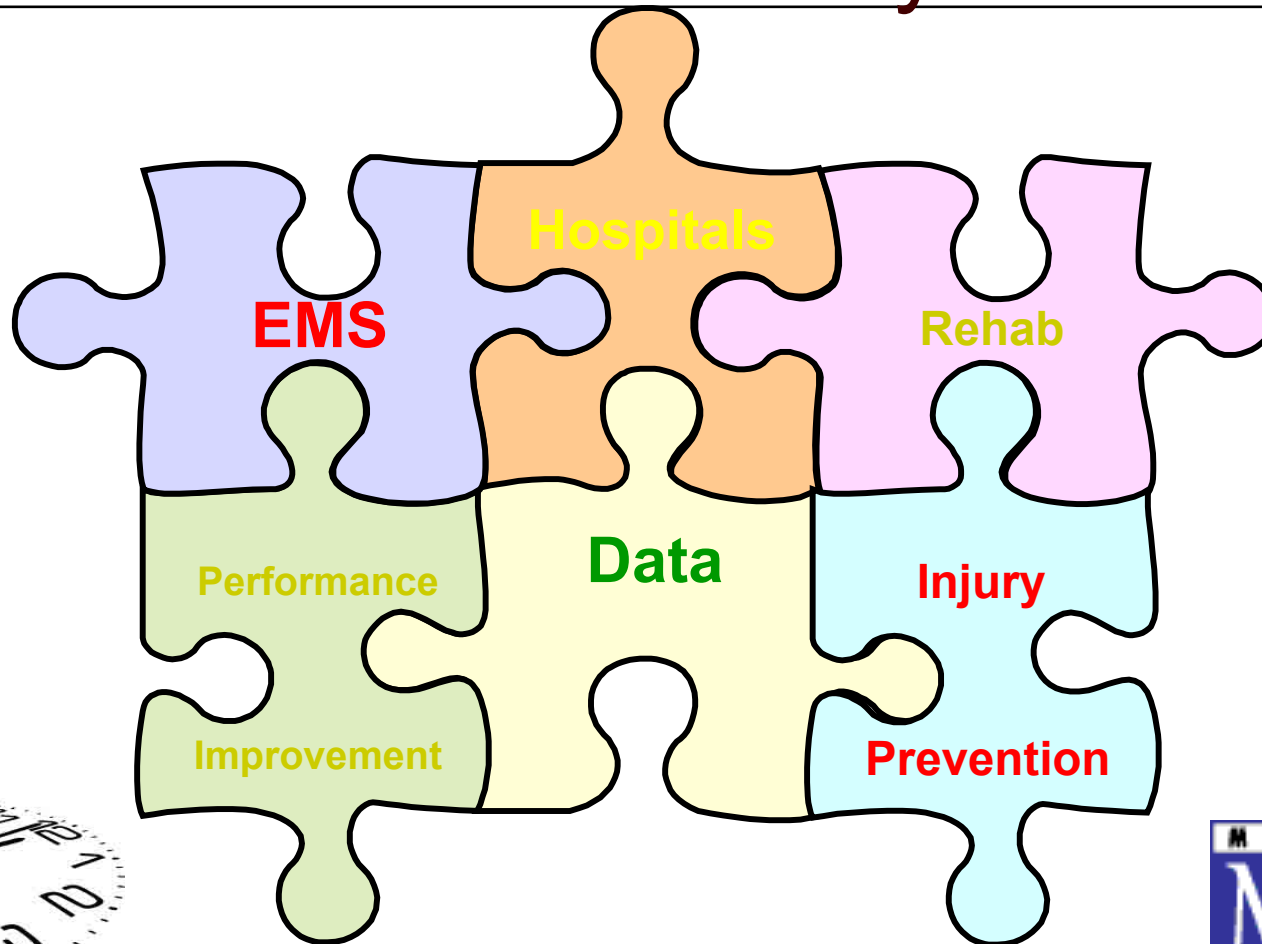
- Coordinated
- Prepared
- Fast
- Regionalized



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Elements of a Trauma System



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Goals

- Reduce
 - mortality
 - morbidity
 - cost
 - variations
 - time outside of definitive care
- Improve outcomes



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Strategies

- Identify resources
- Match patient w/ resources
- Equip providers
- Coordinate with partners
- Continuously improve

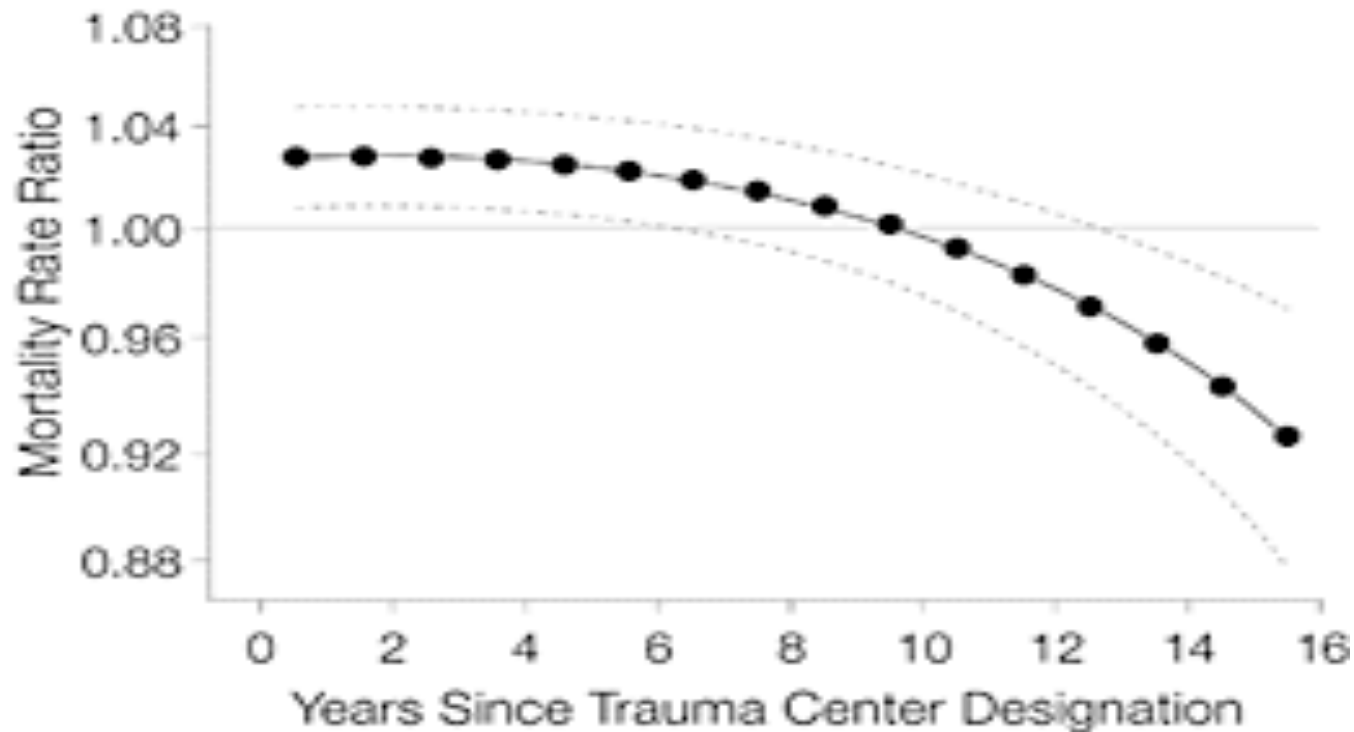


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	Age Groups										
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 100	Unintentional Injury 15	Unintentional Injury 15	Unintentional Injury 14	Unintentional Injury 203	Unintentional Injury 151	Unintentional Injury 198	Malignant Neoplasms 739	Malignant Neoplasms 1,534	Malignant Neoplasms 6,631	Malignant Neoplasms 9,176
2	Stillborn 68	Congenital Anomalies 9	Malignant Neoplasms 6	Malignant Neoplasms 10	Suicide 83	Suicide 92	Malignant Neoplasms 178	Heart Disease 382	Heart Disease 628	Heart Disease 6,295	Heart Disease 7,477
3	Unintentional Injury 28	Malignant Neoplasms 7	Congenital Anomalies 4	Congenital Anomalies 3	Homicide 36	Malignant Neoplasms 40	Suicide 116	Unintentional Injury 248	Unintentional Injury 208	Cerebrovascular 1,959	Cerebrovascular 2,193
4	SIDS 27	Heart Disease 5	Influenza & Pneumonia 3	Suicide 3	Malignant Neoplasms 31	Heart Disease 37	Heart Disease 110	Suicide 123	Diabetes Mellitus 133	Chronic Low Respiratory Disease 1,592	Unintentional Injury 2,066
5	Maternal Pregnancy Comp. 26	Influenza & Pneumonia 4	Heart Disease 2	Cerebrovascular 2	Heart Disease 11	Homicide 31	Liver Disease 45	Liver Disease 101	Chronic Low Respiratory Disease 120	Alzheimer's Disease 1,169	Chronic Low Respiratory Disease 1,758
6	Placenta Cord Membranes 23	Homicide 3	Homicide 1	Homicide 2	Cerebrovascular 5	Diabetes Mellitus 10	Diabetes Mellitus 25	Cerebrovascular 82	Cerebrovascular 116	Unintentional Injury 986	Alzheimer's Disease 1,179
7	Circulatory System Disease 14	Cerebrovascular 2	Measles 1	Chronic Low Respiratory Disease 1	Congenital Anomalies 5	Congenital Anomalies 5	Cerebrovascular 22	Diabetes Mellitus 79	Liver Disease 95	Diabetes Mellitus 836	Diabetes Mellitus 1,084
8	Respiratory Distress 10	Five Tied 1	Measles 1		Complicated Pregnancy 3	Chronic Low Respiratory Disease 4	HIV 21	Viral Hepatitis 33	Suicide 82	Nephritis 698	Nephritis 780
9	Bacterial Septic 9	Five Tied 1	Nephritis 1		Septicemia 3	HIV 4	Homicide 13	Chronic Low Respiratory Disease 28	Nephritis 47	Influenza & Pneumonia 537	Influenza & Pneumonia 603
10	Two Tied 8	Five Tied 1			Aortic Aneurysm 2	Three Tied 3	Chronic Low Respiratory Disease 12	Septicemia 25	Septicemia 40	Parkinson's Disease 428	Suicide 572

Crash Mortality as a Function of Time From First Trauma Center Designation



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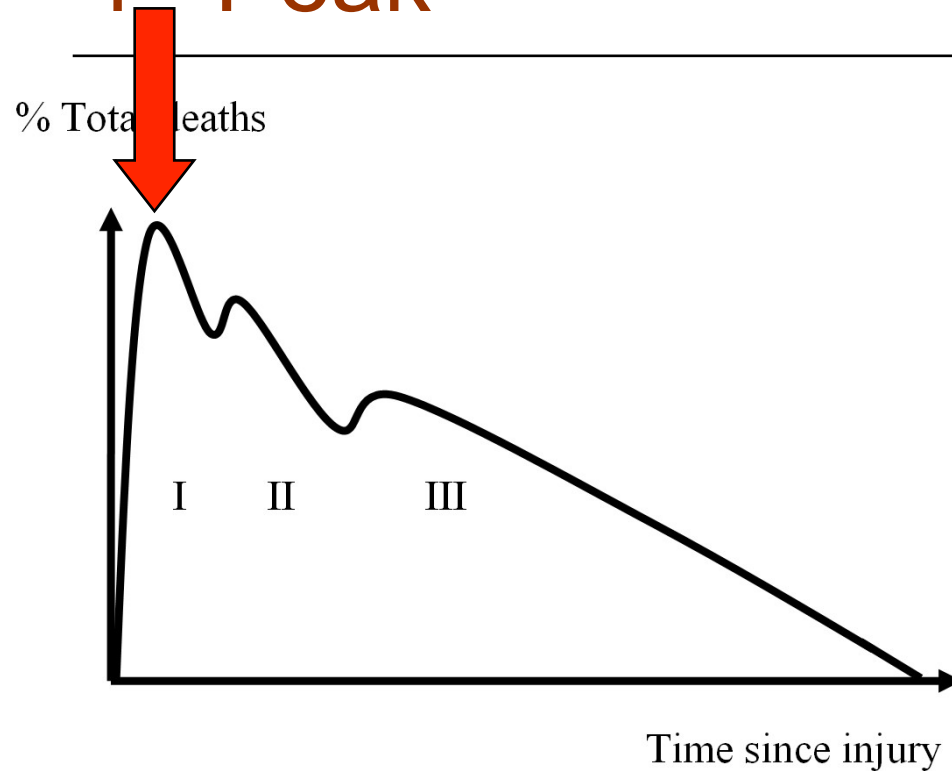
Nathens, A. B. et al. JAMA 2000;283:1990-1994.

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Tri-modal Death Distribution

1st Peak



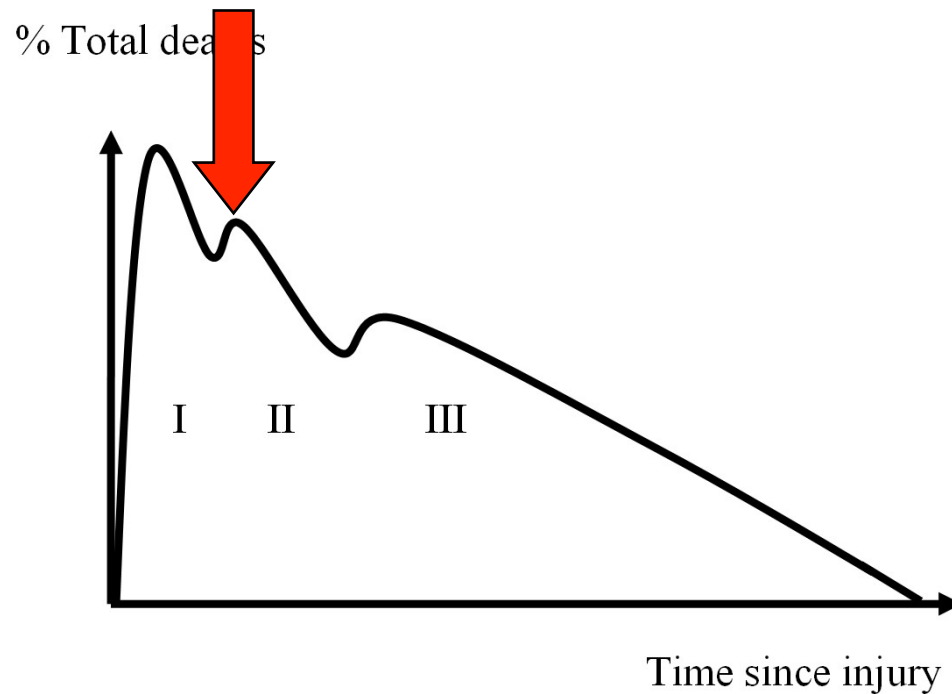
- Severe brain injury
- High cord injury
- Major vascular
 - Heart
 - Aorta/great vessel

Remedy: **Injury prevention**



Tri-modal Death Distribution

2nd Peak



- Cerebral hematomas
- Hemopneumothorax
- Ruptured spleen/liver
- Fractured pelvis
- Massive blood loss

Remedy: Immediate care, Injury Prevention



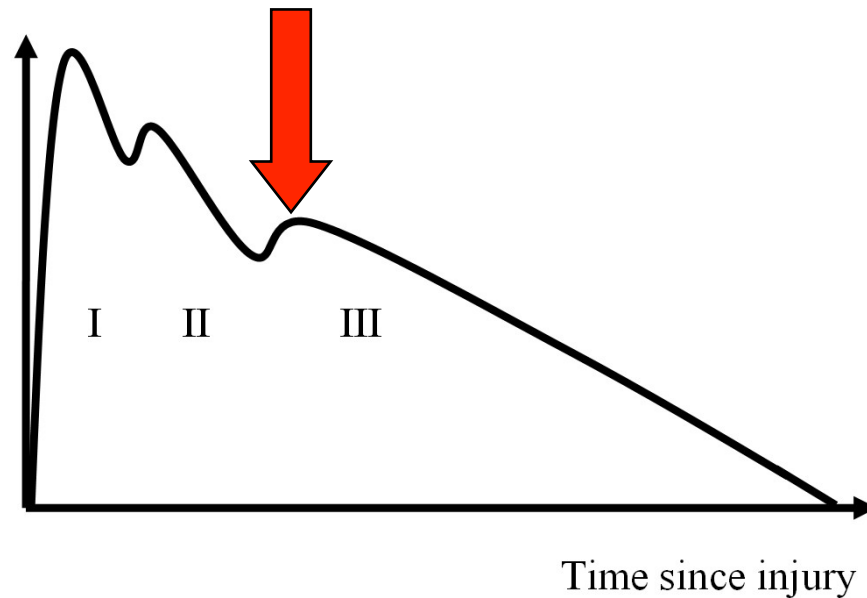
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Tri-modal Death Distribution

3rd Peak

% Total deaths



- Sepsis
- Multiple organ failure

**Remedy: Education,
Performance
improvement, Injury
Prevention**



Designation Levels

Level 1 + peds

Definitive care for all
trauma patients

Level 2 + peds

Definitive care for most
patients

Level 3

Definitive care for some;
most patients stabilized
and transferred

Level 4

Major trauma patients
stabilized and
transferred



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Phased Implementation

Phase 1: System infrastructure (2005 -)

- Hospital participation

Phase 2: Data-driven performance improvement (2009 -)

- Data analysis

Phase 3: Full system integration (2011 -)

- Regionalization

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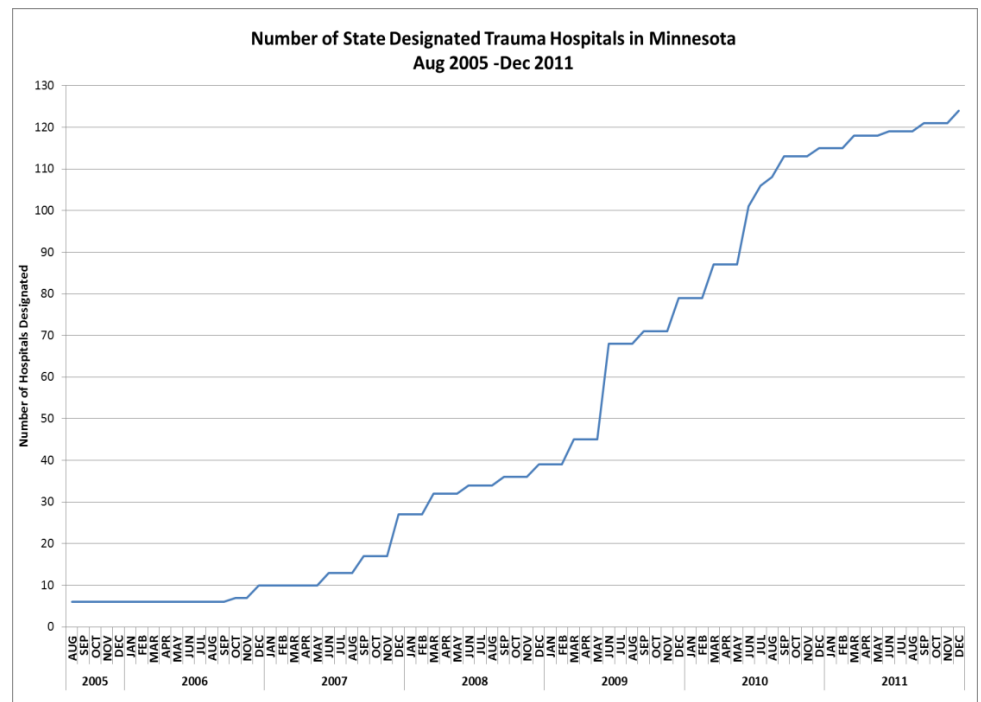


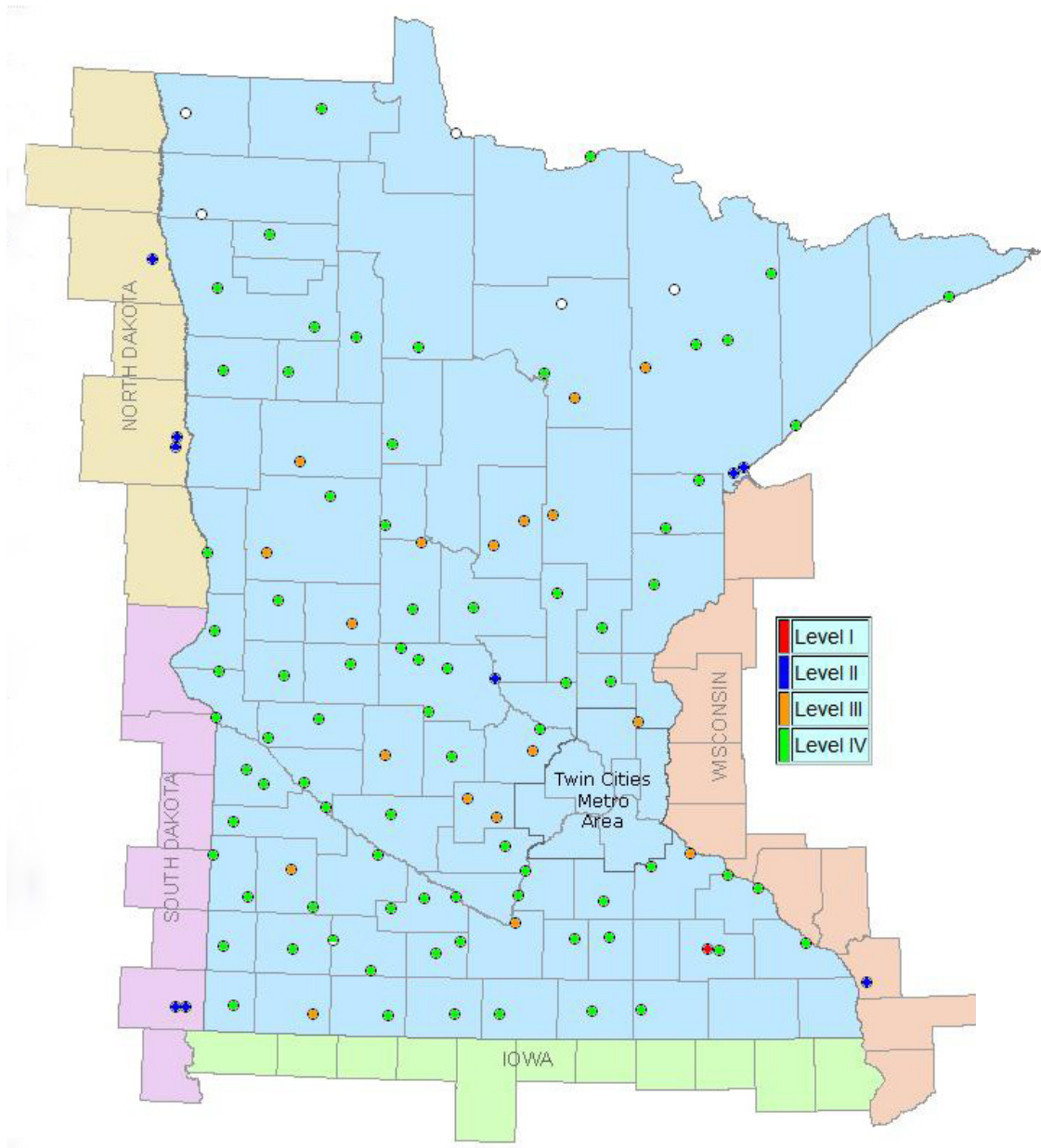
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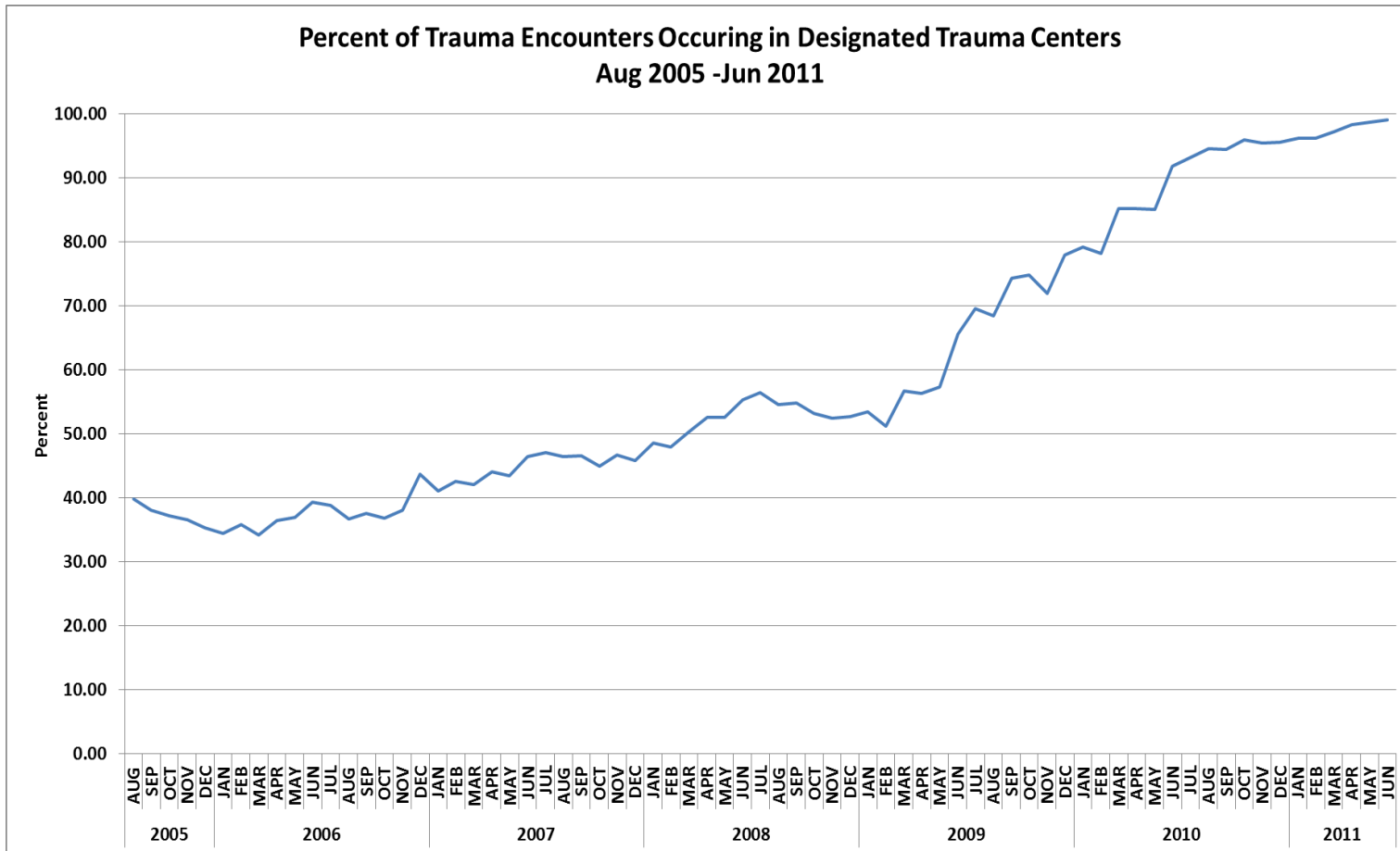


Current Status

- Designations
 - 130 eligible hospitals
 - 124 designated
 - 4 level I
 - 3 level II
 - 33 level III
 - 84 level IV



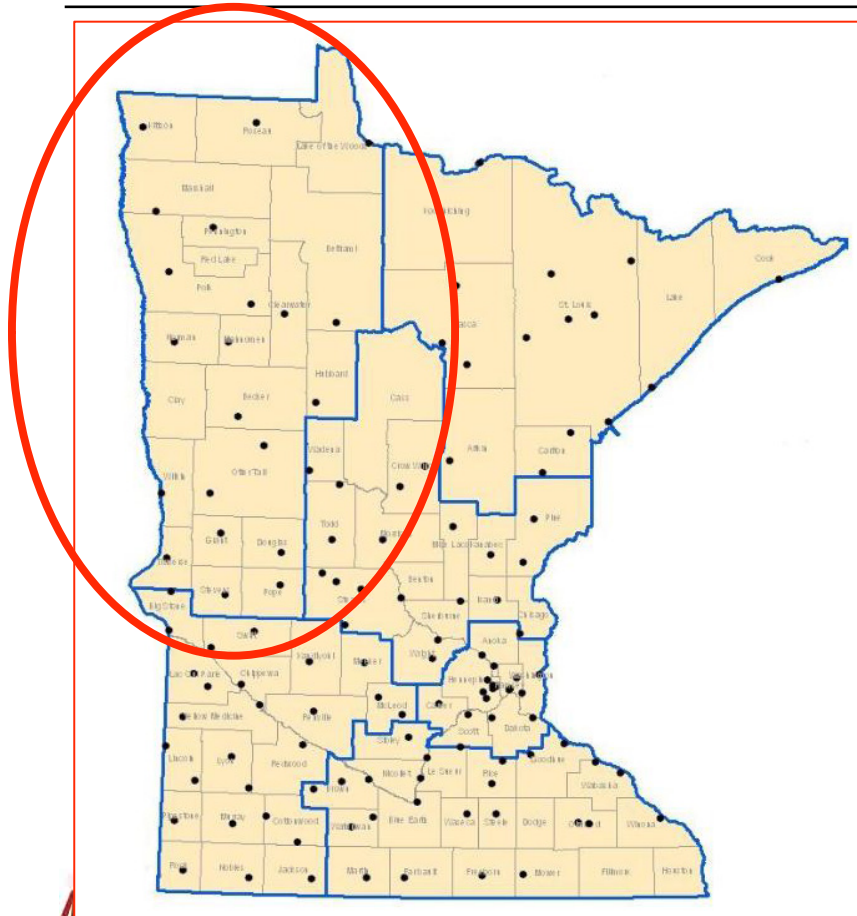




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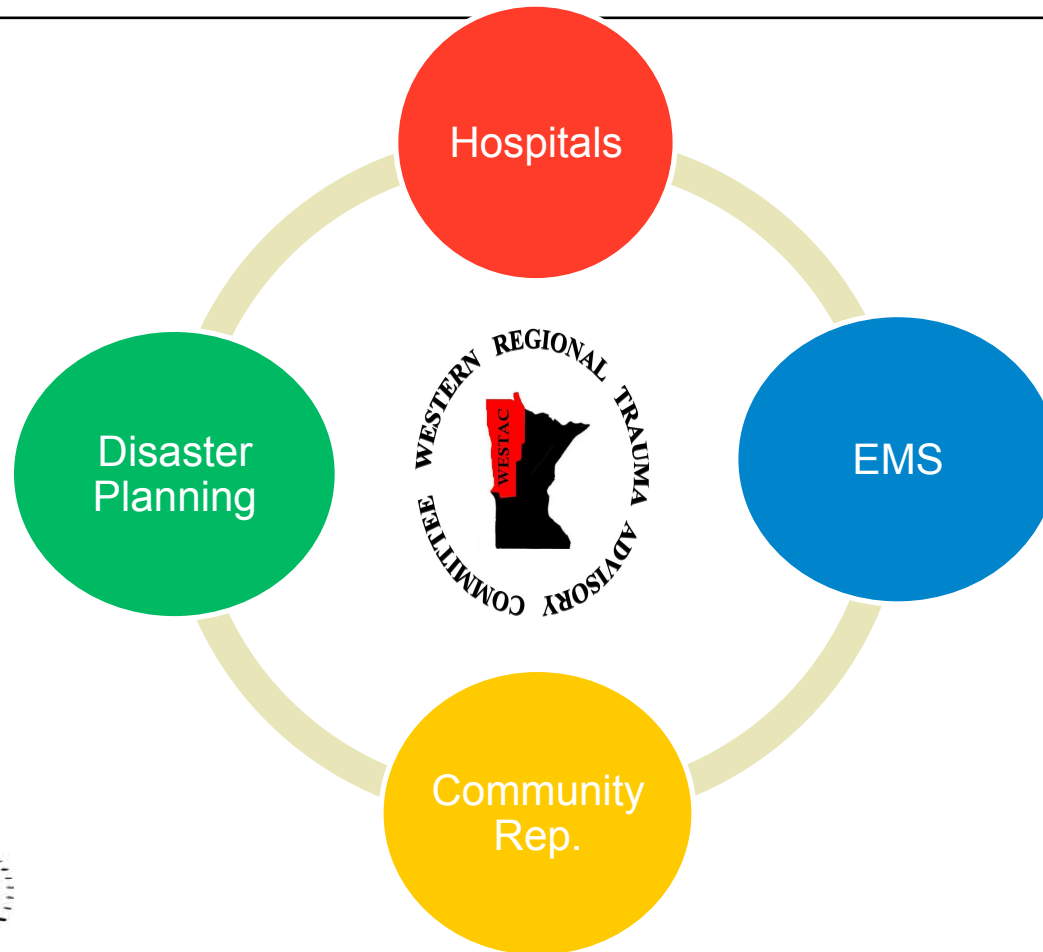


Western Minnesota Regional Trauma Advisory Committee (WESTAC)



- 21 counties
- Rural area
 - Access challenges

There's no "I" in WESTAC



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Organization

- AEMS – financial agent
- 2 – Level II
- 2 – Level III
- 3 – Level IV
- 1 – AEMS
- 1 – 1st Responder
- 1 - BLS / Med. Dir.
- 1 – ALS / Med Dir.
- 1 – Air / Med. Dir.
- 1 – Disaster
- 1 - Dispatcher
- 1- Community



Secondary Catchment




○ xxx,000

**MINNESOTA
STATEWIDE
TRAUMA SYSTEM**

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WESTAC - Purpose

- Guidance and recommendations to improve trauma care.
- Advise / consult STAC
 - Regional needs
 - Best practice
 - Data-driven evidence



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Goal

- o Decrease death and disability due to injury.



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Initial Challenges

- x out of xx undesignated (xx%)
 - PI difficult
 - Trauma triage / treatment inconsistent
 - Limited resources stretched

- Transport
 - Scene
 - Interfacility



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A Work in Progress...



- o Trauma Designation
 - n 21 eligible hospitals
 - o 18 designated
 - n 3 level III
 - n 15 level IV
 - n 3 ND level IIs



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WESTAC Trauma Centers

Level 2

- Altru Health System (Grand Forks)
- Essentia Health (Fargo)
- Sanford Medical Center (Fargo)

Level 3

- Essentia Health St. Mary's Hospital (Aitkin)
- Douglas County Hospital (Alexandria)
- Lake Regions Healthcare (Fergus Falls)

Level 4

- Essentia Health Ada
- Essentia Health Foston
- Essentia Health Bagley
- Glacial Ridge Health System (Glenwood)
- LifeCare Medical Center (Roseau)
- Mahnommen Health Center
- Perham Health
- Prairie Ridge Hospital (Elbow Lake)
- Riverview Health (Crookston)
- St. Francis Healthcare Campus (Breckenridge)
- St. Joseph's Area Health Services (Park Rapids)
- Sanford Bemidji Medical Center
- Sanford Medical Center-Thief River Falls
- Sanford Wheaton Medical Center
- Stevens Community Medical Center (Morris)



EMS Involvement

- xx Providers
 - xx – BLS
 - x – ALS
 - x CC/Air Med
- xx 1st Responder Agencies



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Process Improvement (PI)

- Baseline Education
- Providing Feedback
 - Diagnosis / treatments / education
 - “Job well done”
 - Opportunities for improvement
- Resources
 - System Development
 - Benchmarks
- Recommendations
 - Blunt C-Spine
 - Tier I



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Education

- Blunt C-spine
 - Poster
- TNCC \$
- Website

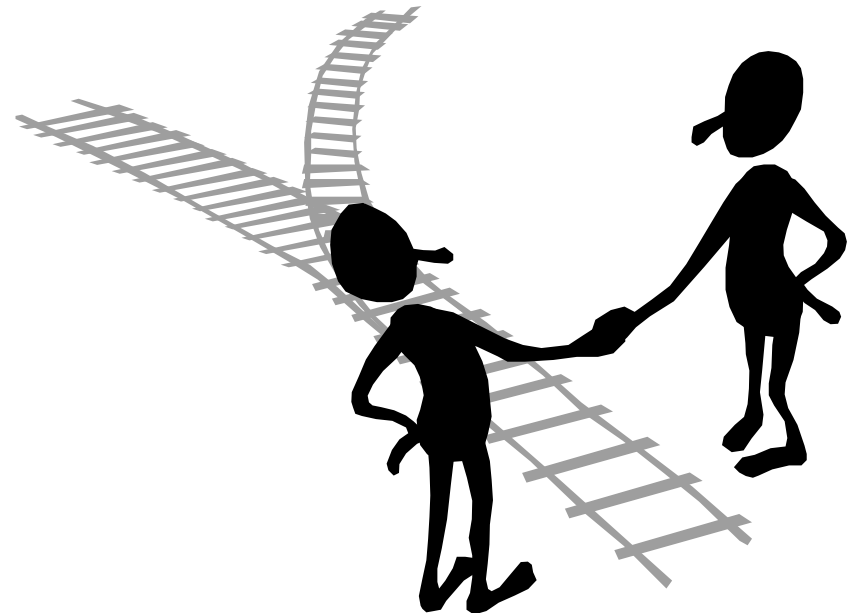


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TZD & WESTAC

- Mutual Goals
- Sharing Resources
 - One of the “E”
 - PI
 - IP
 - Media



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