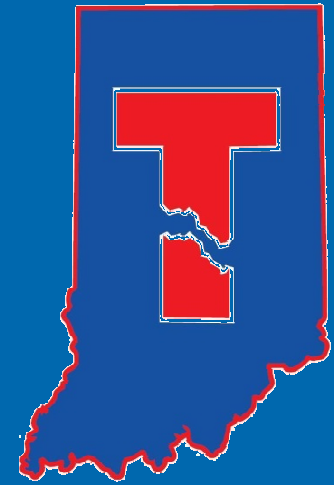


Trauma System Development: The State of Trauma in Indiana



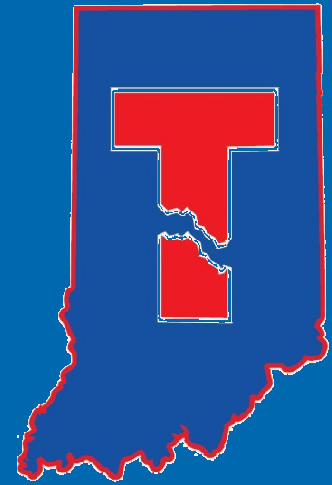
Susan Perkins, RN, BSN, CCRC

Tracie Pettit, RN

June 17, 2009



Outline:



- Indiana Trauma Registry
- Brief history of trauma system development in Indiana
- Citizen involvement
 - Who is involved? Who needs to be involved?
- Why is trauma system important?
 - Why is it especially important for rural Indiana?
- How can you participate?

Indiana Trauma 

Trauma Registry

June, 2009

www.indianatrauma.org

The ImageTrend Patient Registry is a mult-disciplinary data collection, analysis and reporting system for a variety of state and national registries including trauma, stroke, STEMI and burn.



INTEGRATIVE INFORMATION

ImageTrend Patient Registry integrates information across the entire medical community, allowing data to flow from the ambulance to the hospital to state and national registries. Hospitals have secure access to their own patient registry information.

Working with the medical community, ImageTrend has kept its focus on simplifying and streamlining data collection, so that a wealth of data can quickly and easily be collected and made available for in-depth analysis at all levels.



SYSTEM LOGIN

Username:

Password:

Submit

[Forgot your password?](#)

Why Does the Registry Matter?

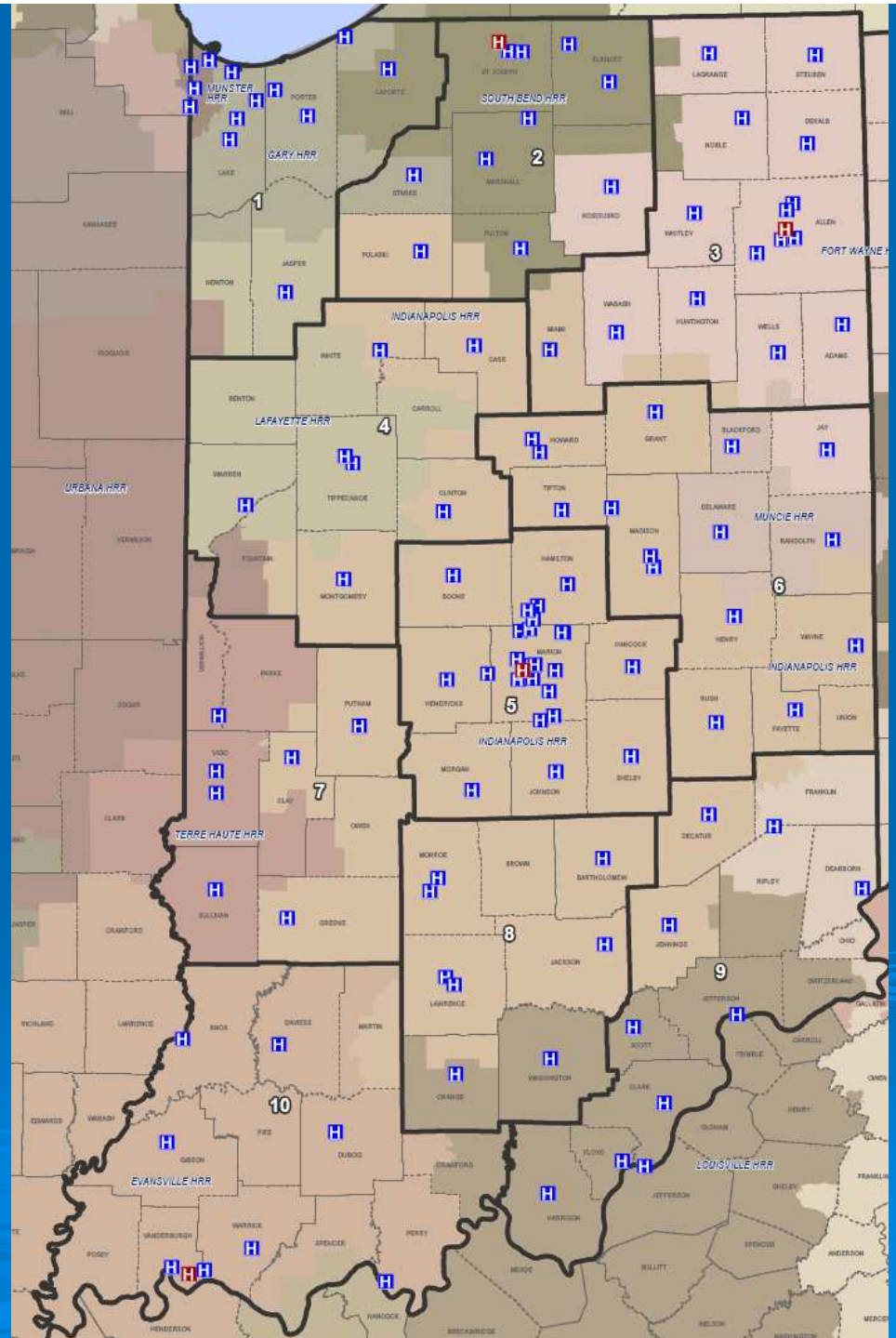
- Verification by numbers the need within the state for:
 - Funding
 - Job Creation
 - Legislation
 - Public Education
 - Medical Education
 - Safety and Prevention Programs

Rural Hospital Involvement

- Trauma Registry pilot project w/ 15 CAHs – entered data on trauma patients transferred to higher level of care.



Indiana Hospitals & Referral Regions





Indiana

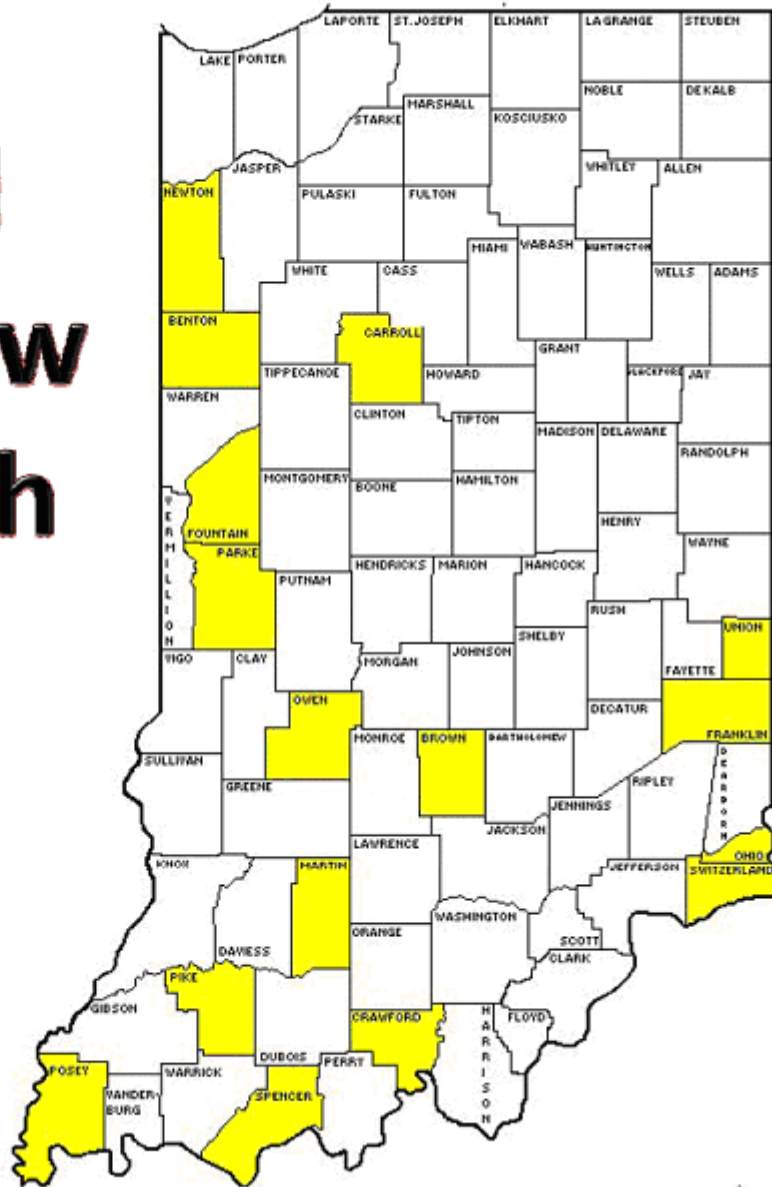


- Hoosier State
- Area about 36,418 square miles
- Population about 6,345,000
- Population density 169/sq mi = 17th
- **First among states for miles of interstate highway per land area**
- **50th among states for per capita public health funding**

Indiana Facts

- Indiana: ~129 acute care hospitals with EDs.
- 16 of 92 counties do not have a hospital: Newton, Benton, Carroll, Fountain, Parke, Owen, Brown, Union, Franklin, Ohio, Switzerland, Martin, Pike, Crawford, Spencer, and Posey.
- 46 of the 129 acute care hospitals are considered rural (by Federal definition)
- 35 Indiana Hospitals are designated as Critical Access Hospitals.
- Areas that are rural, such as much of Indiana, have special considerations in terms of trauma care.

**Highlighted
Counties show
counties with
no hospital
July 2008**



Most Recent Milestones

- 2008 - Tracie Pettit, RN hired as state trauma registry manager
- 2008, December- ACS Trauma System Consult
- 2009 – Attempts at legislation for trauma advisory board and funding for trauma centers (SB464 & HB1215)
- 2009 – Trauma system needs assessment begins

Task Force Participation – now more than 100 members

- Trauma Centers, Non-trauma center hospitals & CAH's
- Surgeons, Nurses, Prehospital, MDs, rehab, injury prevention, administrators
- State legislators, IHA, IRHA, EMS Commission
- Professional organizations: ACEP, ISMA, ENA, ACS-COT
- State agencies: ISDH, IDHS, ICJI
- IN Farm Bureau Ins., AAA, IU School of Nursing & IUSOM Div. of Public Health, Safe Kids, ISU School of Nursing

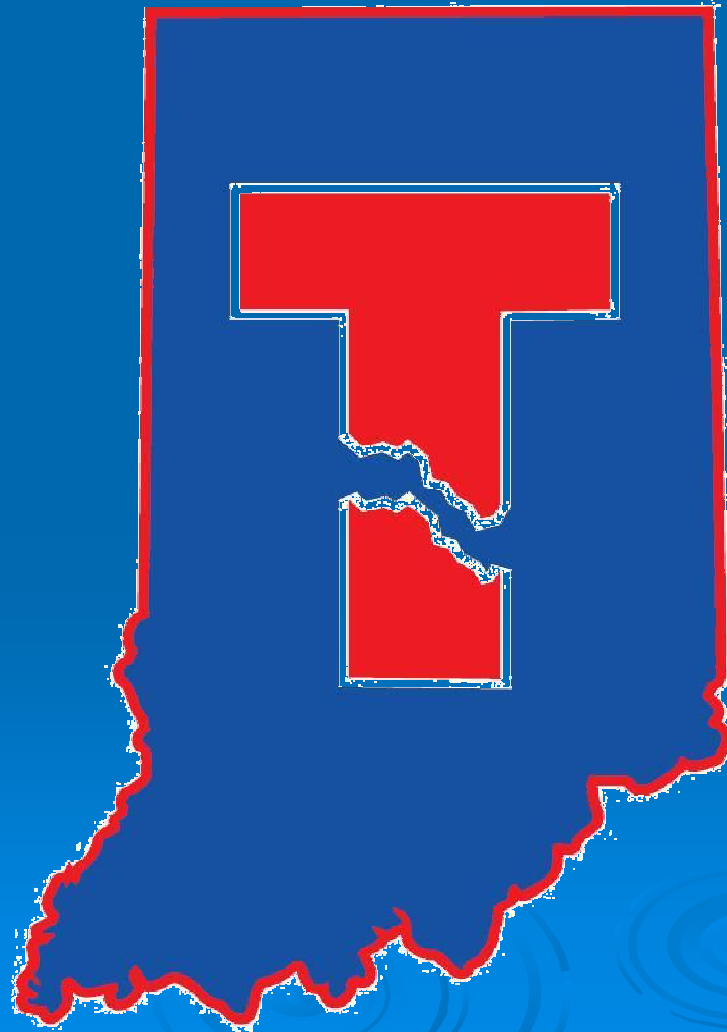


When in danger or in doubt
run in circles and scream

ironydesign.com

What is a Trauma System?

INDIANA TRAUMA SYSTEM



Team members are strategically placed around the stretcher based on their tasks. They are coordinated with equipment placement within the resuscitation bay (see Figure 1).

Airway Control/MD (may be a surgeon, anesthesiologist/anesthetist, or emergency physician) or RN

- Establishes clear airway
- Intubates
- Performs or assists with procedure

Trauma Surgeon/Team Leader

- Initial assessment and survey
- Coordinates all team activities
- Performs or assists with procedures

Registered Nurse/Primary Nurse

- Calls alert
- Prepares area
- Records vital information
- Assists with procedures

Blood Bank or Laboratory

- Brings blood from blood bank
- Carries samples to laboratory

Radiographer

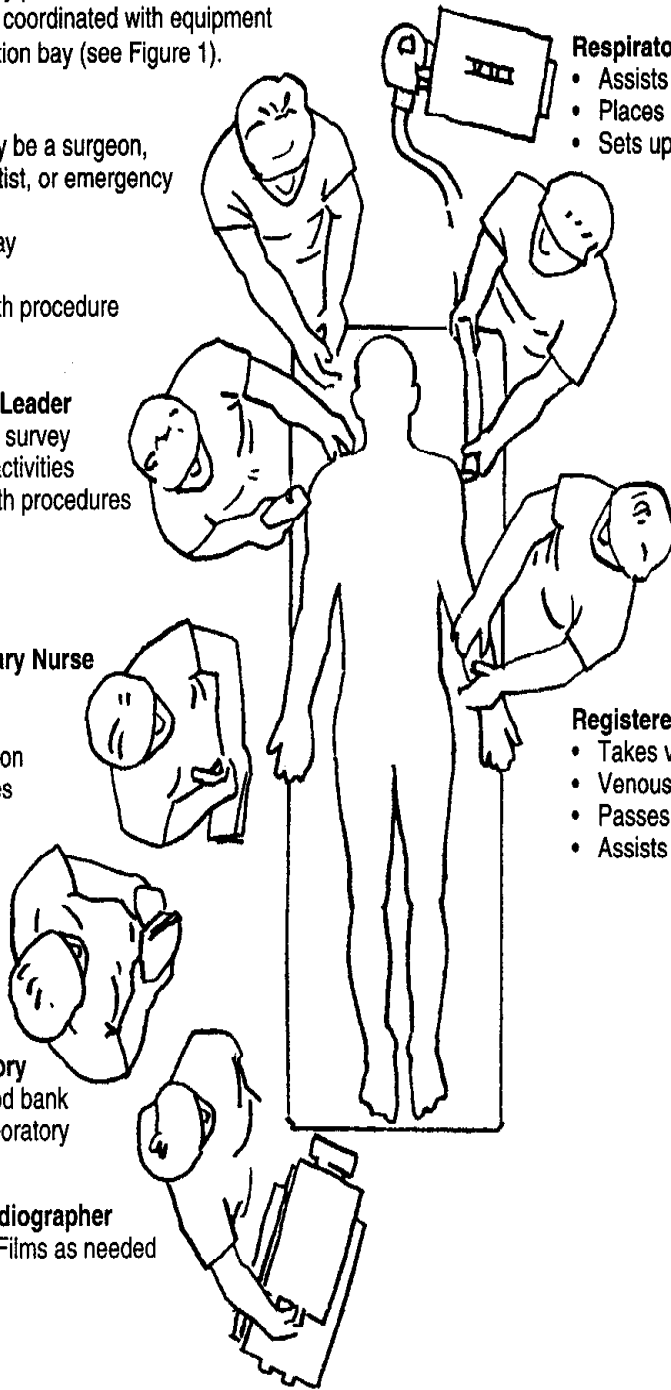
- Films as needed

Respiratory Therapist

- Assists with airway control
- Places monitoring devices
- Sets up ventilator

Registered Nurse

- Takes vital signs
- Venous access/blood drawing
- Passes equipment
- Assists with procedures



Organized Care

Trauma system standardizes the formulation of a trauma team that is activated prior to patient arrival based upon patient injuries.

Trauma Resuscitation

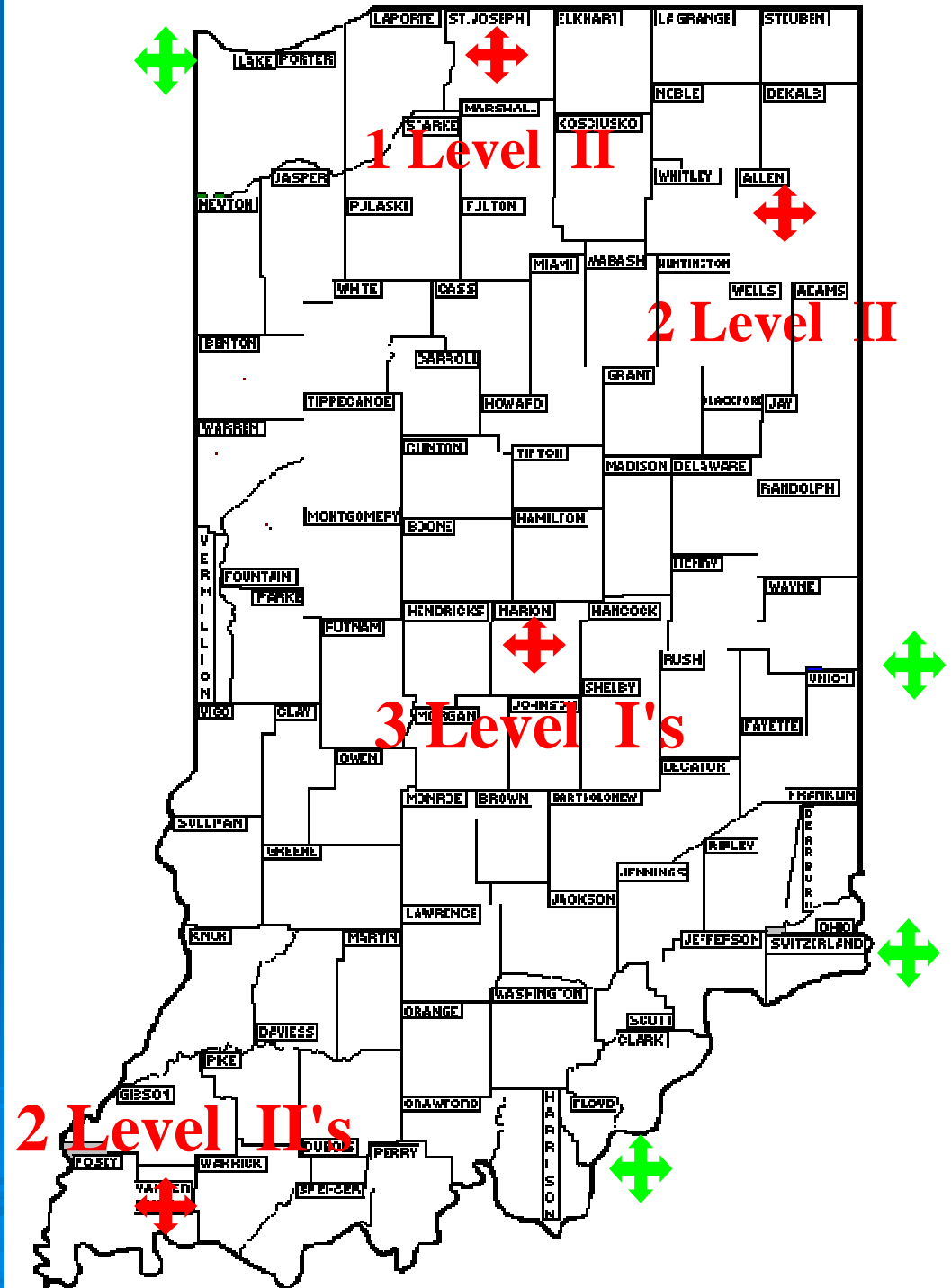
Our Trauma Centers in Indiana

Level I: Methodist, Wishard, Riley (Indianapolis)

Level II: Memorial (South Bend), Parkview & Lutheran (Fort Wayne), Deaconess & St. Mary's (Evansville)

 In Indiana

 Serving Indiana



Why Is A Trauma System Important for Indiana?



In a Word: Injuries

- Trauma is the leading cause of death in the US ages 1-34
- Trauma is the third leading cause of death in the US ages 34-44
- Trauma is the fifth leading cause of death in all age groups

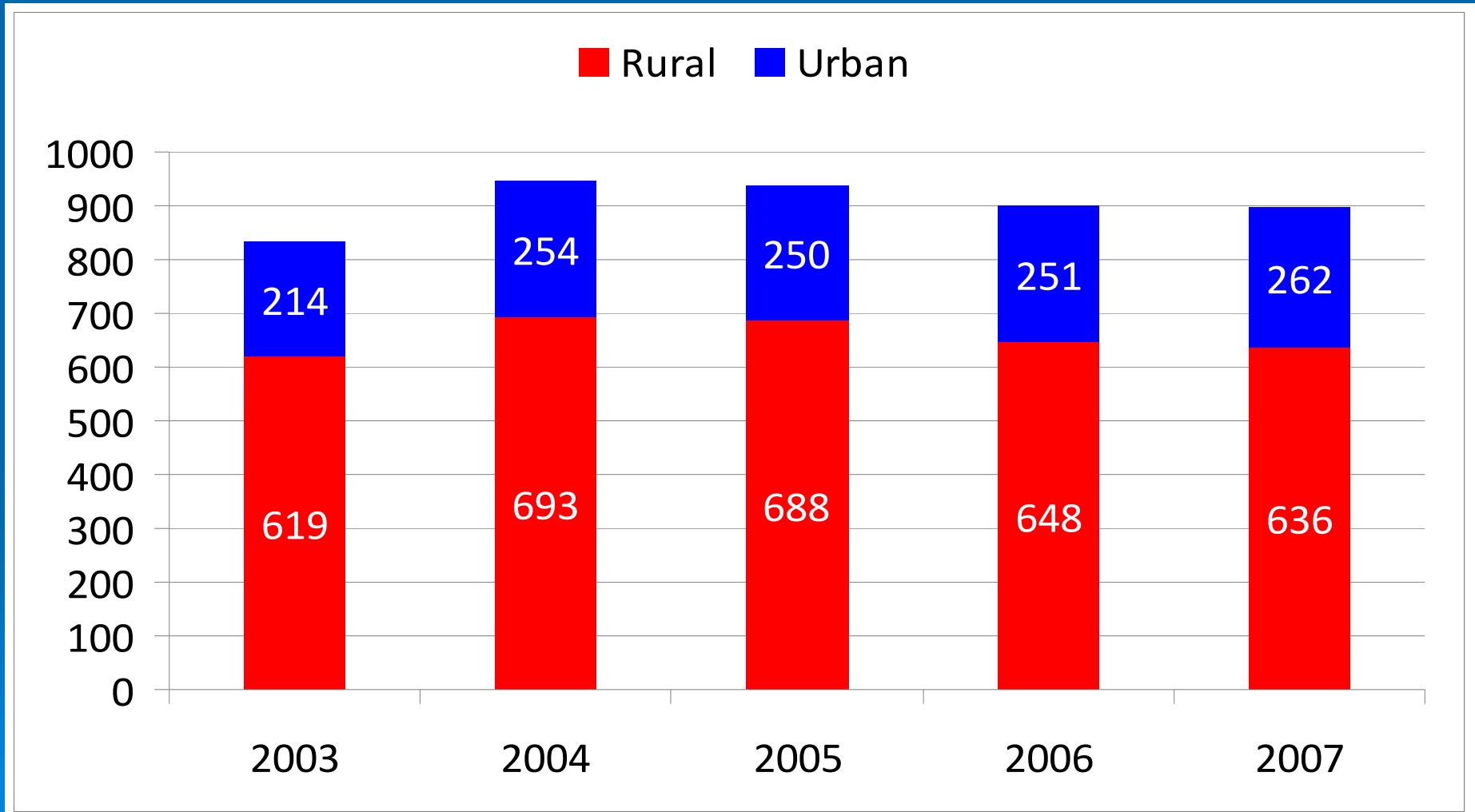


In a Word: Injuries (Indiana)

- Injuries are the leading cause of death for Hoosiers aged 1-34
- More than 95,000 Hoosiers are hospitalized and more than 5,000 die from injuries each year.
- Between 2002 and 2005, 14,316 people in Indiana died because of injuries.

Fatalities in collisions by locality, 2003 – 2007

Indiana Crash Facts 2007 – available on line at: www.criminaljustice.iupui.edu ; www.in.gov/cji



INDIANA TRAFFIC SAFETY QUICK FACTS - 2007

- 205,005 traffic-related collisions resulting in injury or property damage occurred, a 6.4 percent increase from 2006.
- 898 people were killed in 804 fatal traffic collisions.
- 52,468 people were known to have suffered incapacitating, non-incapacitating or possible injuries in traffic collisions.
- 9 percent (18,491) of all collisions were speed-related; 20.5 percent (165) of fatal collisions were speed-related.
- 4.8 percent (9,942) of all collisions were alcohol-related, a decrease of 1.3 percentage points from 2006 (6.1 percent).
- 28.9 percent (232) of fatal collisions were alcohol-related, a decrease of 1.6 percentage points from 2006 (30.5 percent).
- 253 people were killed in alcohol-related collisions; 187 people were killed in speed-related collisions.
- 64.6 percent of all collisions were known to have occurred in urban areas; 70.4 percent of fatal collisions occurred in rural areas.
- December had the highest frequency of collisions among all months (20,800, or 10.2 percent of all collisions in 2007).

INDIANA TRAFFIC SAFETY QUICK FACTS - 2007

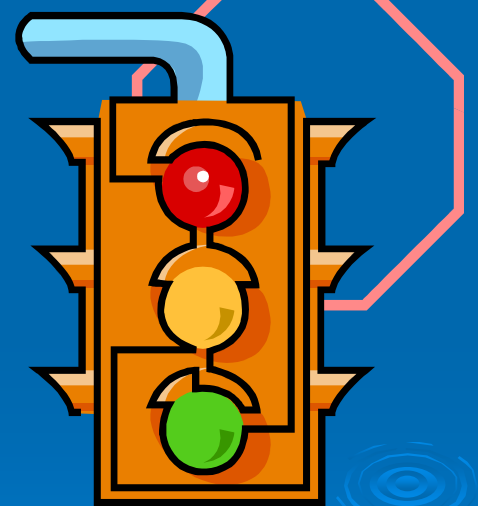
- ▶ The 18 to 20 year old age group had the highest rate of drivers killed in 2007 (2.3 per 10,000 licensed).
- ▶ 73 non-motorists were killed in collisions in 2007 (60 pedestrians and 13 pedalcyclists).
- ▶ 43.4 percent of persons killed in motor vehicle collisions were known to be restrained.*
- ▶ There were 356,540 vehicles involved in collisions in 2007, a six percent increase from 2006.
- ▶ The number of registered vehicles in Indiana increased 2.7 percent from 6,309,100 in 2006 to 6,482,078 in 2007.
- ▶ There were 5,470,429 licensed drivers in Indiana in 2007, a 2.8 percent increase from 2006.
- ▶ In 2007, the economic costs of motor vehicle crashes in Indiana exceeded \$4.5 billion.

*excludes bicycles, pedestrians, farm vehicles, motorcycles and mopeds.

Source: Indiana State Police Automated Reporting Information Exchange System, as of May 4, 2008.

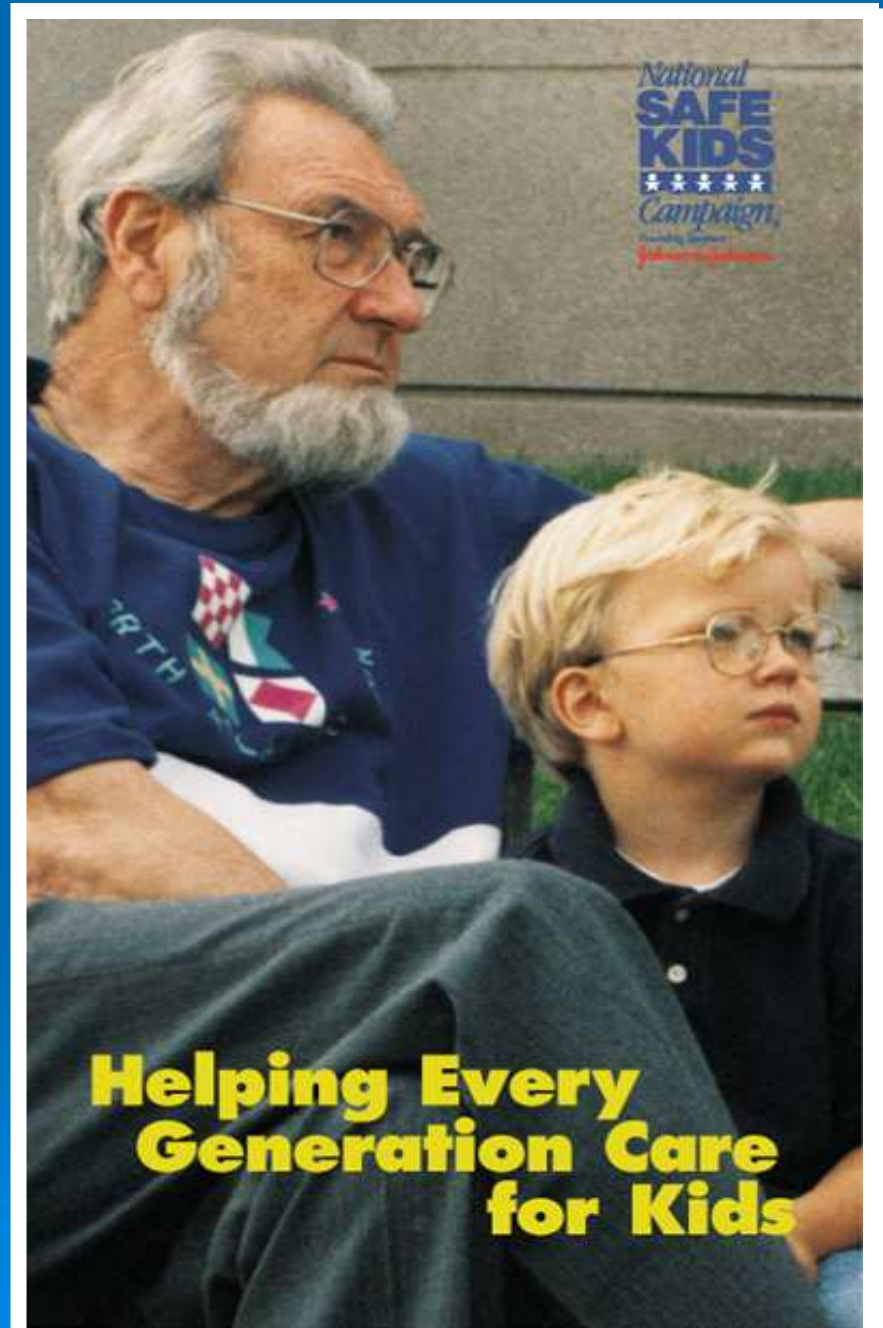
Injuries – Children & Teens

- MVCs were by far the leading cause of injury/death among children and teens (aged 10 to 19 years).
- 76% of unintentional injury deaths and 42% of all hospital admissions resulted from traffic crashes.
- Unintentional injuries kill more children under the age 14 than all diseases combined



➤ “If a disease were killing our children at the rate unintentional injuries are, the public would be outraged and demand that this killer be stopped.”

C. Everett Koop, MD, ScDC. ScD
Former US Surgeon General
Former General Chairman, The National
SafeKids Campaign



National Data



- Nearly 60% of all trauma deaths occur in rural areas despite the fact that only 20% of the nation's population live in these areas
(Report on Injuries in America National Safety Council – 2003)
- Death rate in rural area is inversely related to the population density (Baker et al, *NEJM* 1987)
- 87% of rural pediatric trauma patients who died did not survive long enough to reach the hospital (Vane, *J Trauma* 1995)

National Data...



- Rural patients are more likely to die at the scene, are less severely injured and are older...Rural patients surviving 24 hours before death are older, less severely injured, have more co-morbidities and are more likely to die of MSOF compared to urban patients (Rogers et al, Arch Surg 1997)
- 84% of U.S. residents can reach a Level I or Level II trauma center within an hour, but only 24% of residents in rural areas have access within one hour (Branas et al. *Health Services Research* 2000)



Costs of Injuries



- Alcohol-related MVC's (24% of Indiana's crash costs) cost an estimated \$2.4 billion (1998) – including \$1.1 billion in monetary costs & nearly \$1.3 billion in Quality Of Living losses. (Source: NHTSA)
- Add the remaining MVC's + all of the other causes of injuries, and the cost to Hoosiers is estimated to be in the \$10's of billions. (Source: NHTSA)

Uncompensated Trauma Care in Indiana

- **Based on numbers from other states & having no uncompensated trauma care data for Indiana: Estimated need of \$20-\$30 million per year.**



Benefits of a Trauma System

- ↓ costs associated with initial treatment and continued rehab. of victims
- For every \$1 spent on a child safety seat \$32 in direct medical costs are saved*;
- For every \$1 spent on bicycle helmets \$30 in direct medical costs are saved*, and
- For every \$1 spent on a smoke alarm \$69 in fire related costs and \$21 in direct medical costs are saved*

*(Source: Safe Kids)

Benefits?

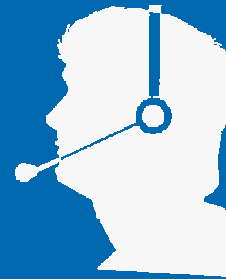
- ↓ deaths caused by trauma
- ↓ number and severity of disabilities caused by trauma (+ reduced support burden)
- Increased productivity (working years) through reduced death and disability
- ↓ costs associated with initial treatment and continued rehabilitation of victims
- ↓ impact of trauma on family members

The Goals of a Trauma System

- Prevent as many injuries as possible
- Get the severely injured patient to the best source of care as quickly as possible
- Immediate response/care at the scene
- Rapid transport from the scene to a qualified trauma hospital
- Qualified trauma hospitals capable of delivering immediate medical care and ongoing treatment for the injured

How to Reach the Goals

- An organized and coordinated response
- Public access (911)
- Ground or air EMS services
 - Timely triage and transport to definitive hospital care
- Emergency department staffed and equipped for trauma
- Education is key



..LUIHHH DOCTOR, THE PATIENT WAS
WONDERING IF YOU COULD MAKE HIS
EXAM KINDA QUICK ...HE SAYS HE
HASN'T EATEN IN FOURTEEN DAYS



An ER is NOT a TRAUMA CENTER

EMERGENCY ROOM


- Broken Leg
- Concussion
- Back Sprain
- Laceration
- Rear End Crash
- BB Gun Shot
- Trip on Sidewalk

TRAUMA CENTER

- Multiple Fractures
- Brain Injury
- Paralysis
- Punctured Lung
- Stab Wound
- Car Rollover/Ejection
- Handgun /Rifle Wound
- 30' Fall From Window

What is a Trauma Center?

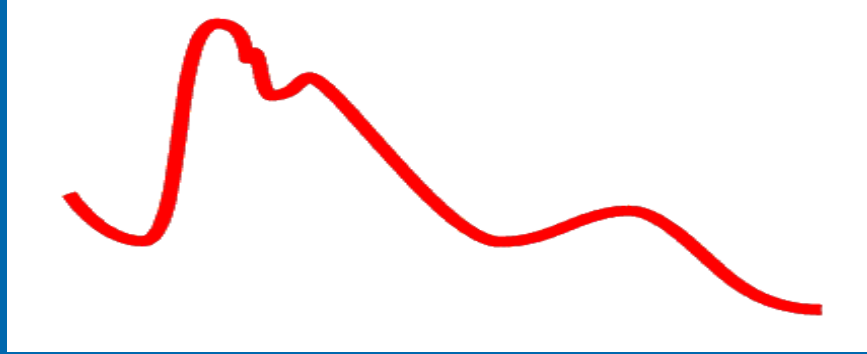
A trauma center is a hospital committed to the advanced care of patients with severe multiple injuries.



Trauma Center

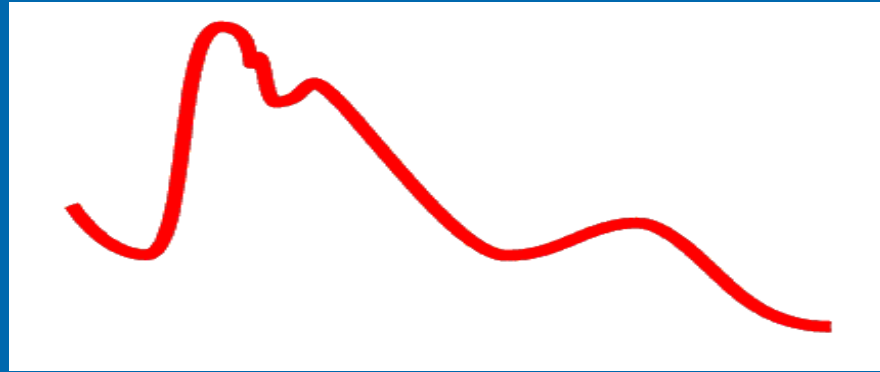
- A hospital equipped to provide comprehensive emergency services to patients suffering traumatic injuries
 - Traumatic injuries often require complex and multi-disciplinary treatment, including surgery in order to give the patient the best possible chance for survival and recovery
 - Have an entire trauma team available, including diagnostic services, surgical suites, critical care and specialists in neurosurgery, orthopedics, and more

Level I Trauma Centers



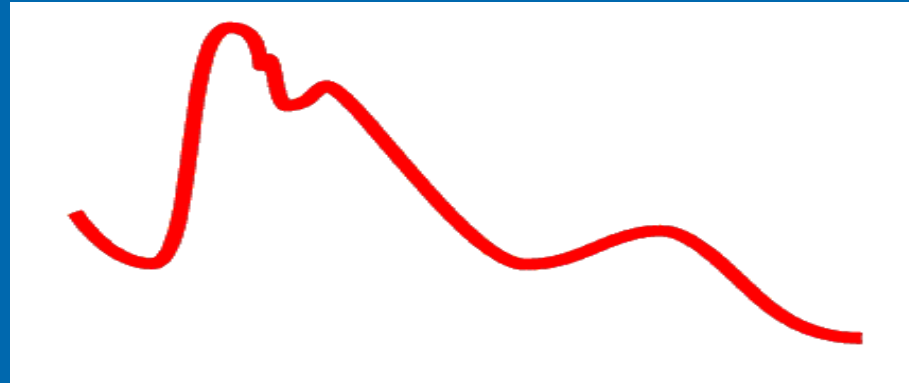
- *Tertiary care hospital that maintains a leadership role in:*
 - Systems development
 - A referral center for other trauma centers
 - Provides trauma care, evaluation, training, prevention & research.
 - Has the capacity to provide total care for every type of injury.
 - Level I centers are usually affiliated with a university medical school as a teaching hospital

Level II Trauma Centers



- *Expected to be able to provide definitive care to injured patients regardless of the severity of injury:*
 - More complex, multiple systems injuries may require transfer to Level I centers
 - Level II centers are usually community hospitals that handle the majority of trauma patients.
 - Serve as a resource for the Level III & Level IV centers as well as non-designated hospitals.

Level III Trauma Centers



- *Provide services in mostly rural areas where Level I & II trauma centers are not available.*
 - Expected to be able to provide prompt assessment, resuscitation, emergency surgery & stabilization while rapidly arranging transfer to higher level of care.
 - Demonstrate the maximum commitment to trauma care within the limited resources of the hospital, including providing prevention activities to the community.

Level IV Trauma Center



- *Found in less populated & remote areas.*
 - Provides initial care to severely injured patients despite very limited resources.
 - Surgical interventions may be absent, but here is skillful use of professional resources within the area.
 - Standardized treatment protocols & established transfer agreements are used to help facilitate care and transfer to higher levels of care.

Where Are We Now?



Funding Sources

- Trauma System Manager
 - ISDH Office of Rural Health (until August, 2009)
- Trauma Registry Manager
 - NHTSA funding until 2010
- Injury Prevention Epidemiologist
 - ISDH Office of Rural Health (until August, 2009)
- No trauma - specific federal funding source known at this time
- No state funding - needed for stability



ACS Consultation
Initial
Recommendations

& Task Force 2009 Activities

Advantages & Assets

- Well-organized EMS resources, EMT training, Breadth of aero-medical coverage
- Current trauma centers fairly well-distributed, Informal statewide trauma system
- Adequate rehabilitation facilities/resources already available
- Substantial sources of data
- Strong existing injury prevention programs/agencies/committees/framework

Challenges and Vulnerabilities

➤ **Special Needs: Pediatrics and Geriatrics**

- Lack of education pediatric and geriatric needs
- Not enough pediatric surgeons and PICU's

➤ **Trauma Registries**

- Existing databases not linked
- Lack of clear mission/authority/leadership by state agencies & Cost/lack of funding

Challenges and Vulnerabilities

➤ Injury Prevention

- Lack of legal immunity for providers of data, potential loss of confidentiality, Competition among providers
- Data insufficient, incomplete, or uncoordinated
- Agencies/programs uncoordinated and or/duplicative
- Inadequate funding / Lack of usable E-code data
- Lack of statewide “system”

Statutory Authority and Administrative Rules:

- Amend PL 155-2006, trauma system law, to include establishment of a Governor appointed state trauma advisory board (STAB) that is multidisciplinary to advise the Department of Health in developing, implementing and sustaining a comprehensive statewide trauma system.
- **SB 464 introduced during 2009 legislative session (defeated); Task Force moving forward with Executive Committee**

Financing:

- Develop a detailed budget proposal for support of the infrastructure of the state system within the trauma system plan.
 - **Draft of budget for basic staffing needs**
 - **HB1215: Funding support for trauma centers and hospitals pursuing a trauma center verification/designation (defeated).**
 - **Task Force exploring possible fiscal agents for trauma system donations**

Trauma System Plan:

- Develop a plan for statewide trauma system implementation using the broad authority of the 2006 trauma system legislation.
 - **3-year trauma system plan in development**
 - **Workgroup organized to develop plan (includes rural, EMS)**

Definitive Care:

- Perform a needs assessment to determine the number and level of trauma hospitals needed within the state. All hospitals should have a role in the inclusive trauma care system.
 - **IUSOM, Division of Public Health students are here assisting with this needs assessment & will be asking you questions. The Trauma Task Force is assisting with this assessment.**

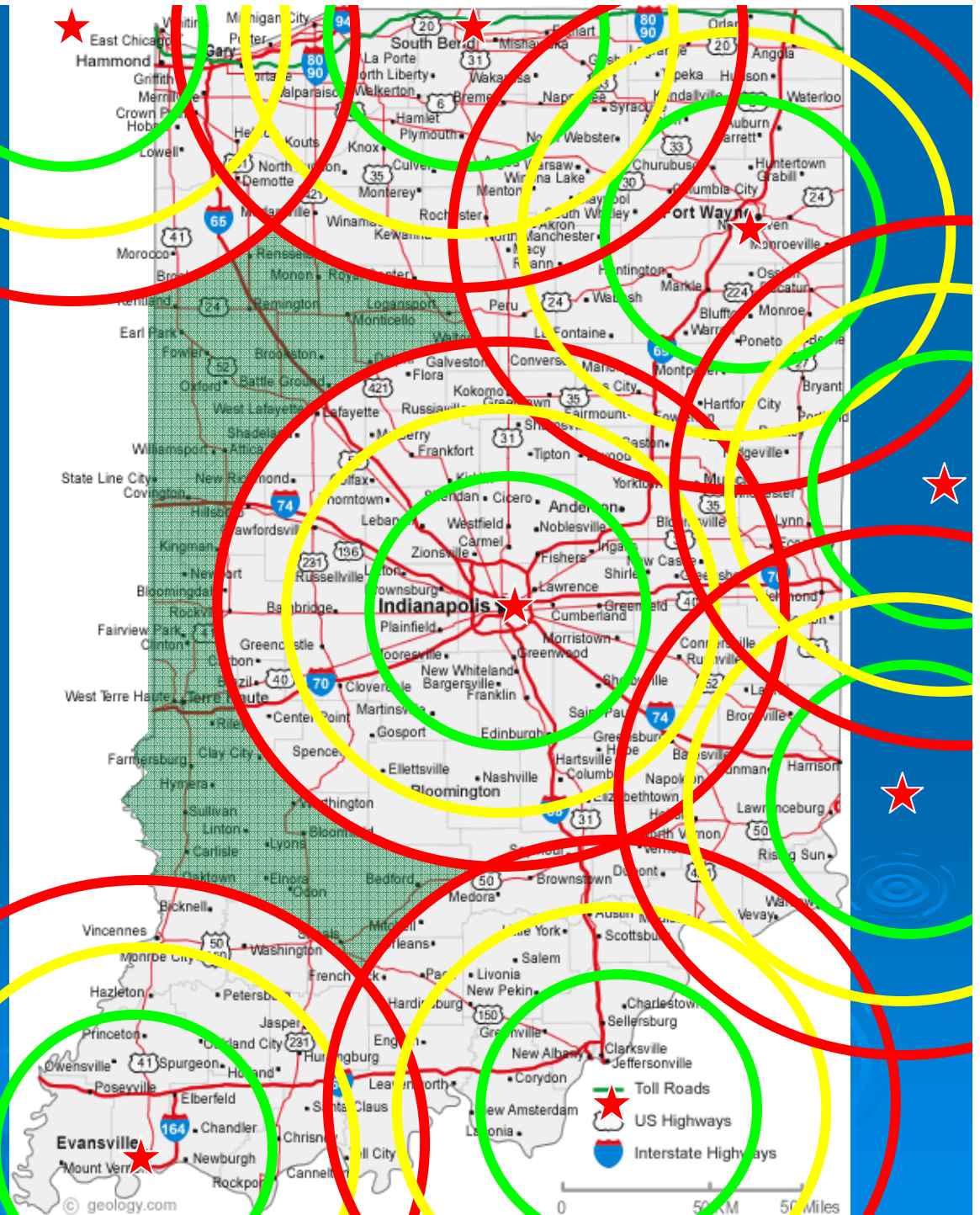
Indiana Trauma Center Coverage

★ ACS Verified Trauma Center(s)

■ 30 mile radius

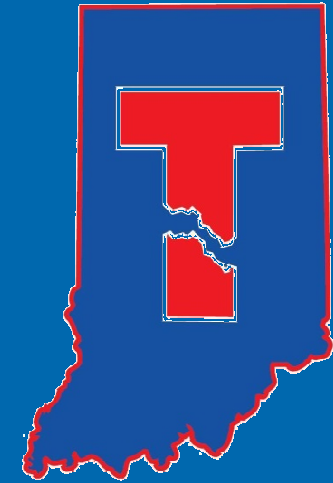
■ 45 mile radius

■ 60 mile radius



Needs Assessment Surveys

INDIANA TRAUMA SYSTEM



- Survey Monkey Survey
- Level III Trauma Center Survey
- Level IV Trauma Center Survey
- IP Advisory Council/IP Subcommittee of Task Force – GAP analysis; E-code project

System Coordination and Patient Flow:

Develop, approve, and implement prehospital trauma triage guidelines as well as inter-facility transfer criteria

- Legislation in place to allow for creation of the prehospital trauma triage guidelines
- Workgroup in progress; EMS Commission reviewing draft rules.

Disaster Preparedness:

- Involve the State Trauma/EMS Medical Director in statewide disaster planning initiatives.
- How are hospitals currently submitting their preparedness plan to the state?
- How does the hospital preparedness plan coordinate with the trauma system?

Trauma Management Information Systems:

- Amend or create a Statute with specific language to protect the confidentiality and discoverability of the Trauma Registry and of trauma system performance improvement activities.
 - **Request for legal advice to determine if the statute already protects the discoverability of the data.**
 - **Draft rules being reviewed by legal also**

Administrative Rules:

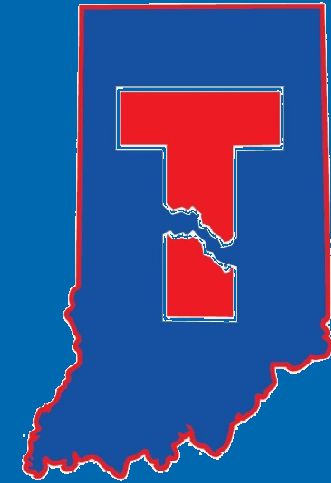
- Draft administrative rules for state trauma center designation have been created; they now need to go before the Trauma Task Force Executive Committee for refinement, then approval by the Task Force. After Task Force approval, they will go through the rules promulgation process with public hearings.

How to Make a Difference

- Join the Trauma Task Force
- Educate all EMT/PM's , RN's and MD's and Registrars – trauma training
- Contact your legislators
- Encourage participation in Trauma Registry by every Hospital in Indiana
- Spread the News and Share the Wealth

Themes

- You are closer than you think.
- You have more resources than you think and many are underutilized.
- Timing is right for system development efforts
- In the current fiscal climate, system implementation can begin with redirection of current assets
- Public perspective and those of elected representatives about the role of EMS and trauma care can and should be improved.
- Indiana is poised to develop a model trauma system



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Thank You
for Your
Attention

Any
Questions?



“We are all in this together”

Merry Addison, RN