INDIANA TRAUMA SYSTEM

Trauma System Development: Bringing Trauma Care to the Heart of Indiana

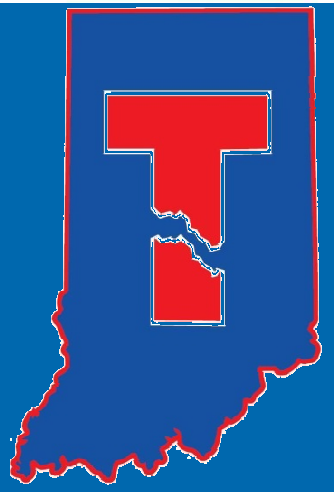
Susan Perkins, RN, BSN, CCRC

Tracie Pettit, RN

Debbie Poole, RN, MSN, NEA-BC

Matthew S. Howard, RN, MSN, FNE

Outline



- Brief history of trauma system development in Indiana
  - Milestones reached in the current effort
- 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

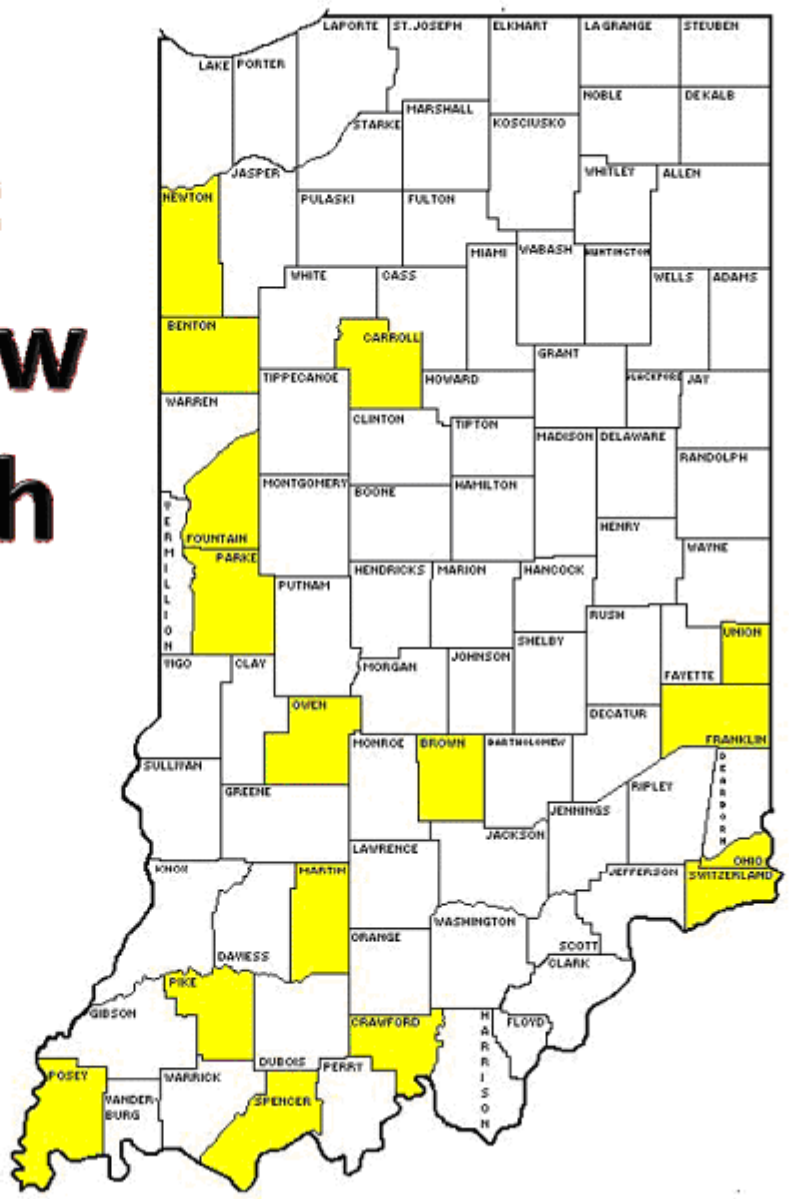
- Hoosier State
- Area about 36,418 square miles
- Population about 6,345,000
- Population density 169/sq mi = 17th
- First among states for miles of interstate highway per land area
- 50th among states for per capita public health funding

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 (located in Non-Metropolitan Counties)
- 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



Early Milestones

- 2004 - ISDH Trauma System Advisory Task Force) - ~ 50 members
- 2006- SB 284, later PL 155 (Wyss, Broden) passes, naming ISDH as the lead agency for statewide trauma system, with rule-making authority
- 2006- “When Minutes Matter” - St. Mary’s Medical Center

Milestones...

- 2006- NHTSA 408 funding for trauma registry through ICJI/TRCC – registry launched (www.indianatrauma.org)
- 2007- Indiana Spinal Cord and Brain Injury Research Board and Fund
- 2007- UPPL (alcohol exclusion law) repealed (Deaconess)

Milestones…

- 2007- First Indiana RTTDC (Deaconess)
- 2007- SB 249 (Wyss): EMS trauma triage, transportation protocols
  - EMS protocol workgroup formed & in 2009 draft of rules to EMS Commission for approval
- 2008- Merry Addison (ENA) received grant award from the Christopher Reeve Paralysis Foundation for $15,000 for rural trauma education

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

Who is Involved?

- Trauma Task Force: more than 100 members
- Subcommittees
  - Legislation and Funding
  - System Development and Maintenance
  - Information Management/ Performance Improvement
  - Protocol Development
  - Education
  - Injury Prevention (new)

Task Force Participation

- 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

Rural Hospital Involvement

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

What is a 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).

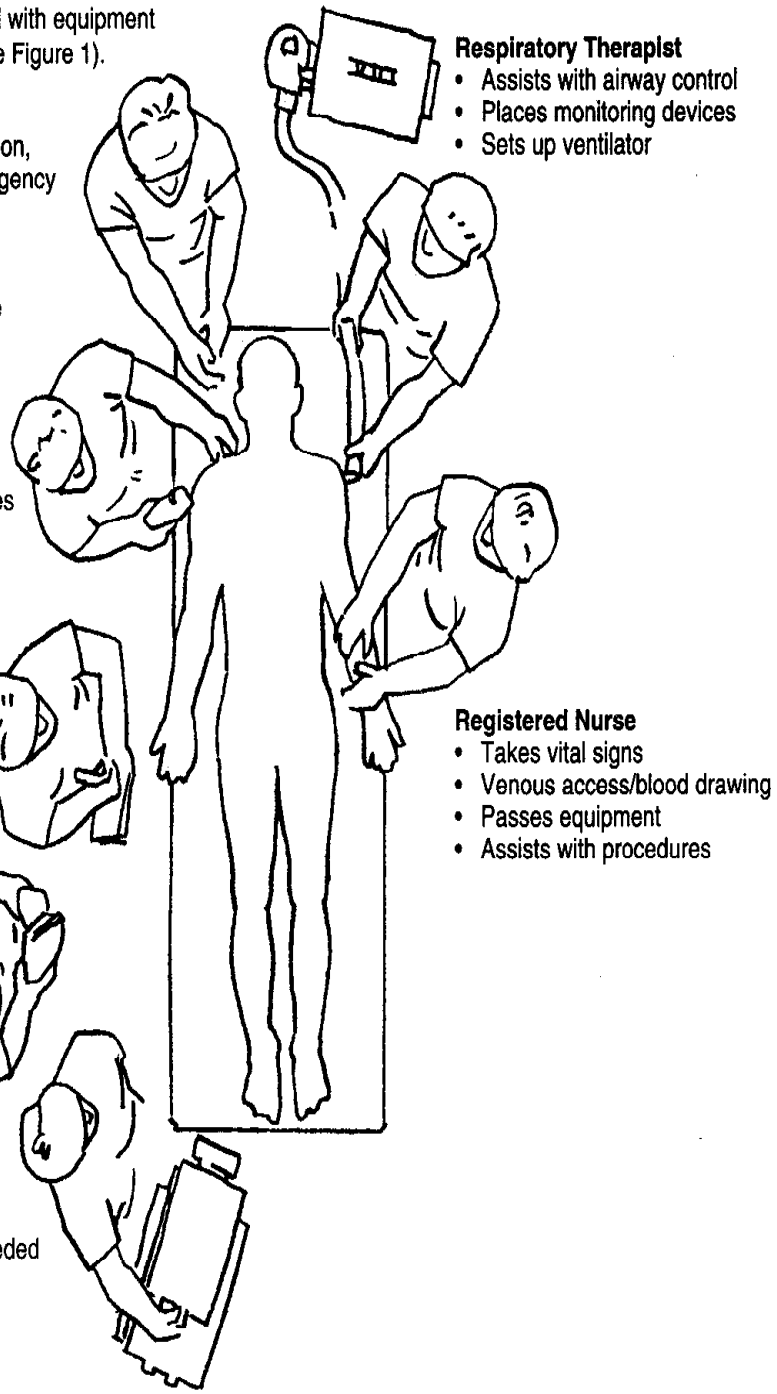
Airway Control/MD (may be a surgeon, anesthesiologist/anesthetist, or emergency physician) **or RN**
- Establishes clear airway
- Intubates
- Performs or assists with procedure

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

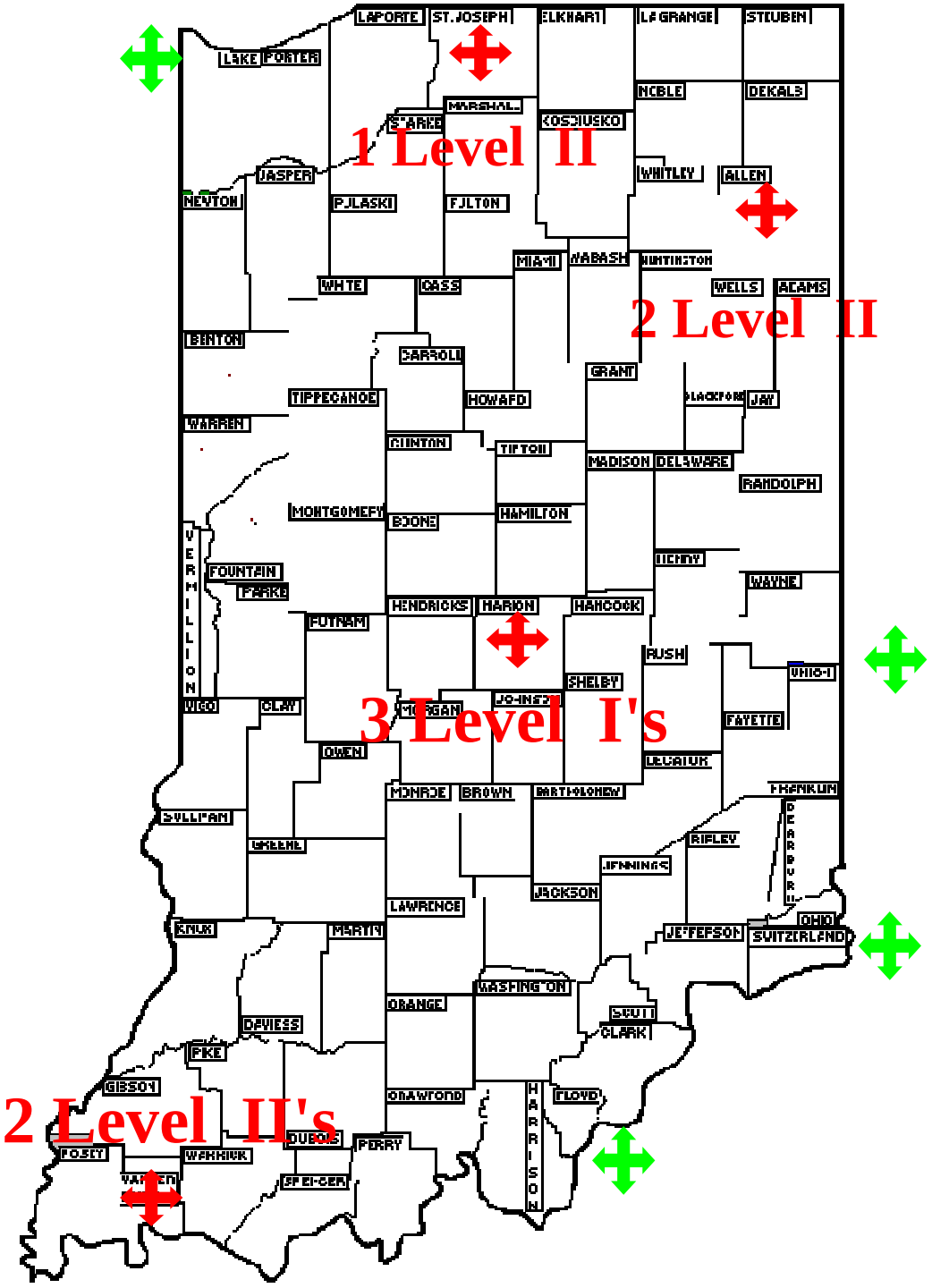
Trauma system standardizes the formulation of a trauma team that is activated prior to patient arrival based upon patient injuries.

Trauma Resuscitation

Our Trauma Centers in Indiana

In Indiana

Serving Indiana

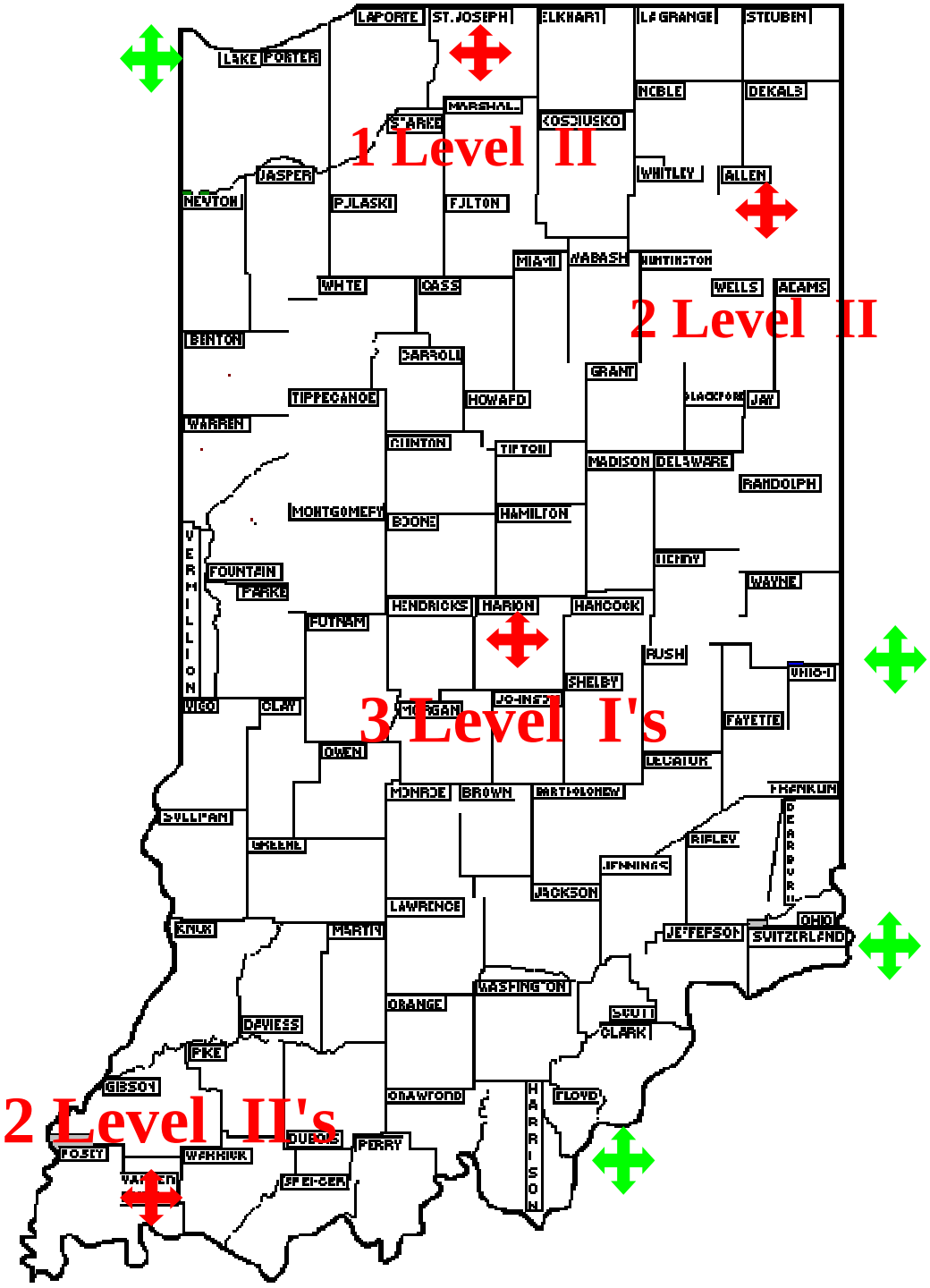


Level I Facilities (Indianapolis):

- Methodist Hospital
- IU/Wishard
- Riley Hospital for Children

Level II Facilities:

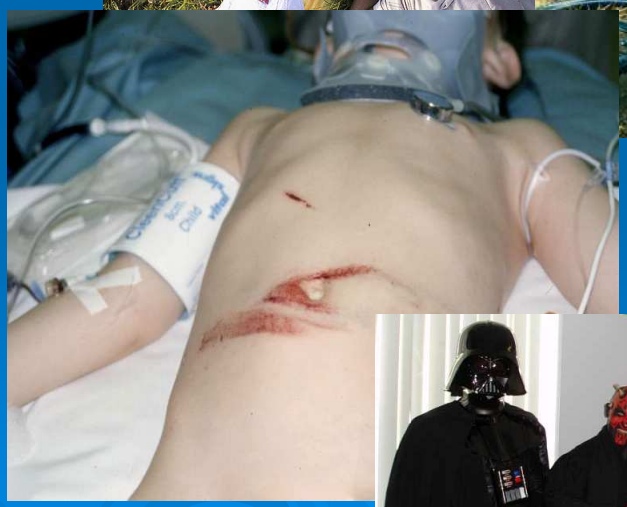
- Parkview Memorial Hospital - Fort Wayne
- Lutheran Hospital - Fort Wayne
- Memorial Hospital - South Bend
- St. Mary's Medical Center - Evansville
- Deaconess Hospital - Evansville



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

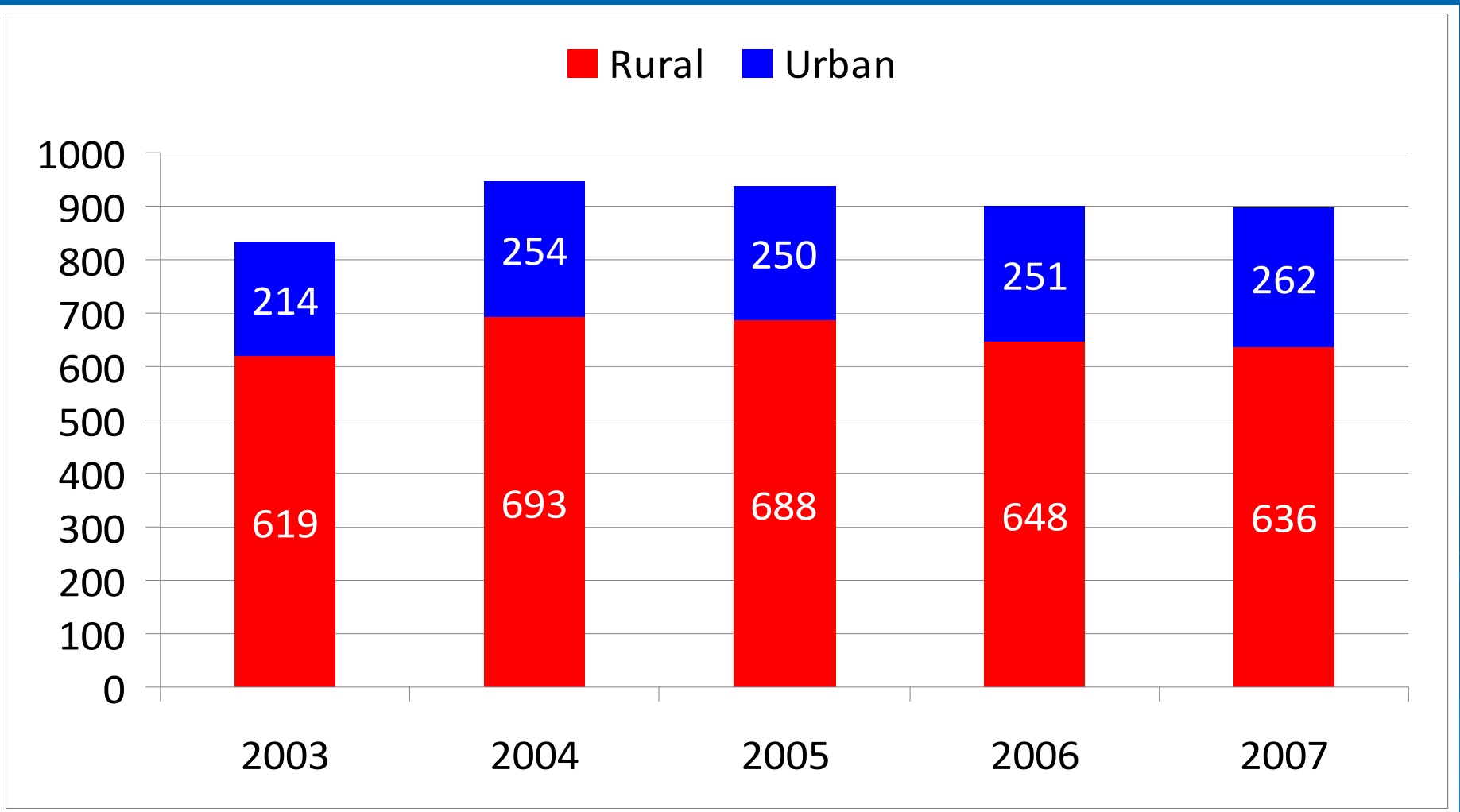


In a Word: Injuries (Indiana)

- 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.

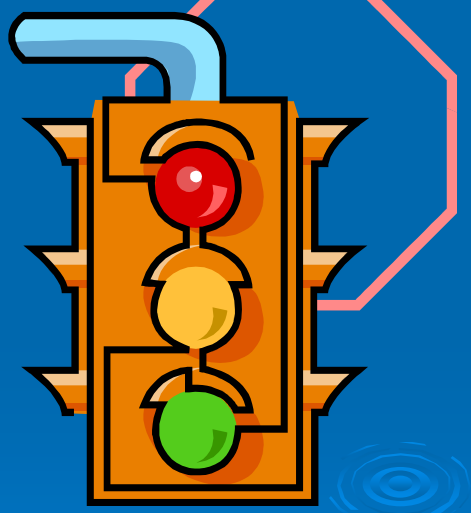
Fatalities in collisions by locality, 2003 – 2007

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



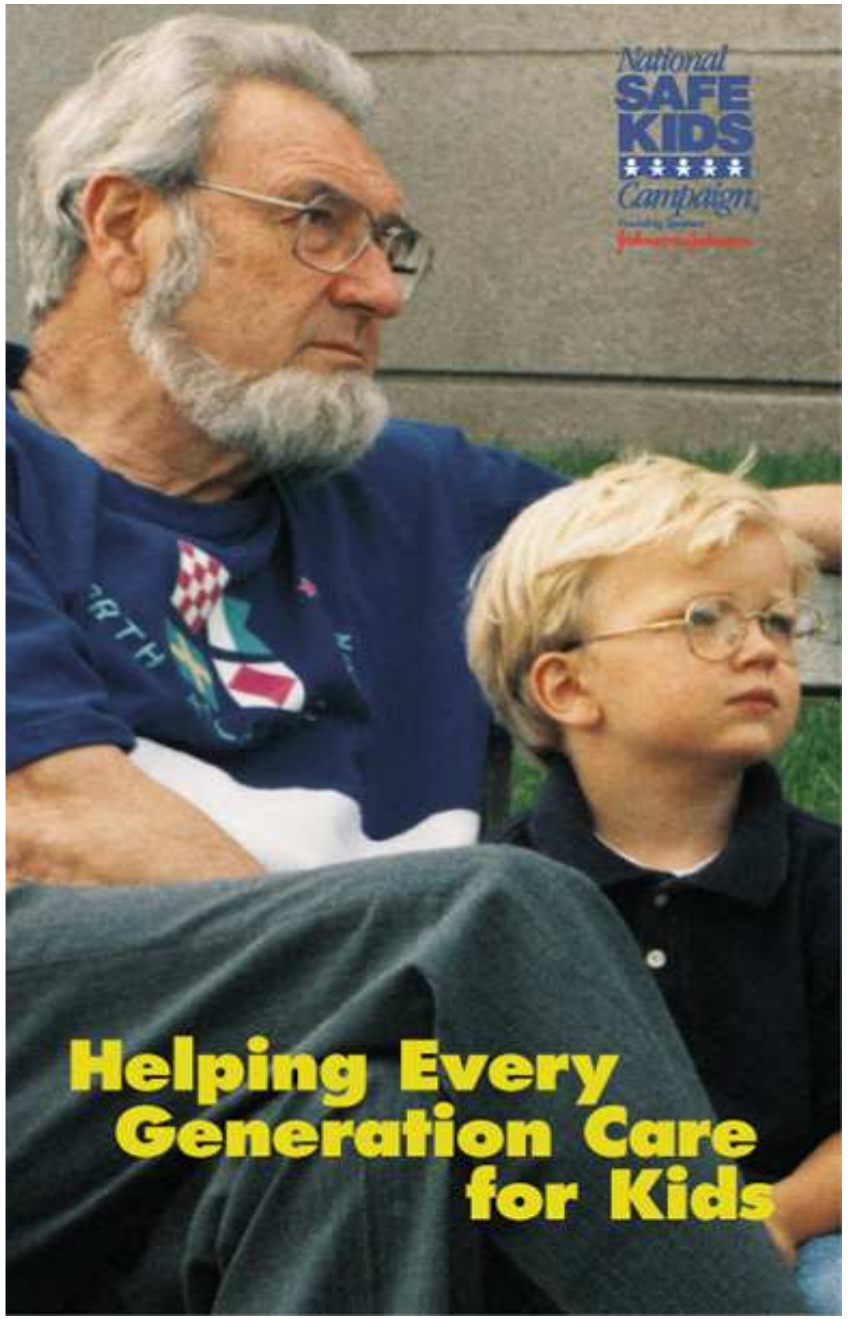
Injuries – Children & Teens

- 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

- Texas – dedicated funding through increases in fines for alcohol-related offenses; projections for fund: $59.3 million for FY04; Total uncompensated trauma care for Texas in 2004 was actually about $200 million.
- Washington – dedicated funding for the trauma system that provided $41.2 million for the 2003-2005 period; this was not enough - recommend that funding be increased by an additional $6 million for each biennium.

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?

- Reduced deaths caused by trauma
- Reduced number and severity of disabilities caused by trauma (+ reduced support burden)
- Increased productivity (working years) through reduced death and disability

Benefits...

- Decreased costs associated with initial treatment and continued rehabilitation of victims
- Decreased 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

An ER is NOT a TRAUMA CENTER

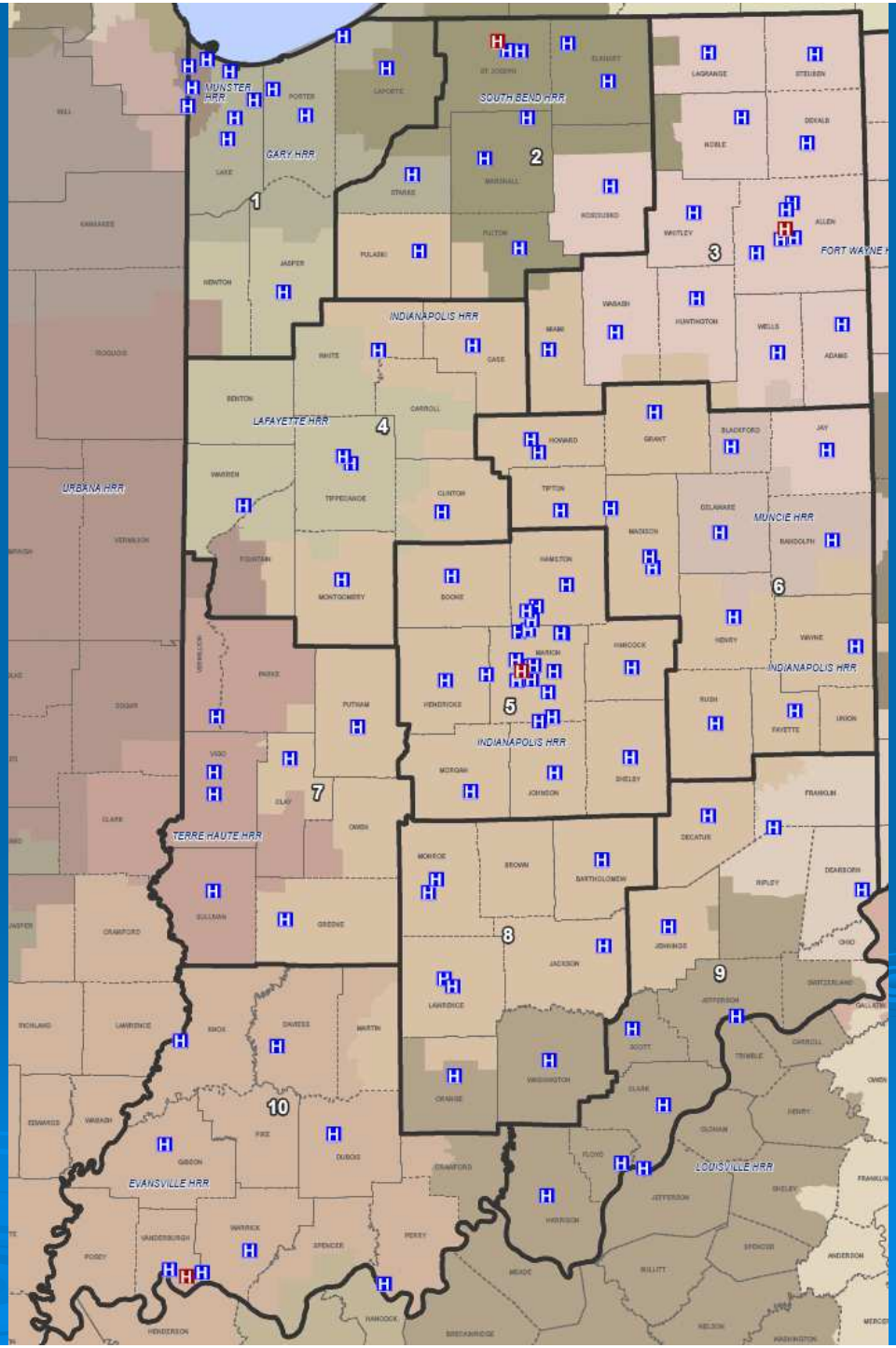
EMERGENCY ROOM

- 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

Indiana Hospitals & Referral Regions



What is a Trauma Center?

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

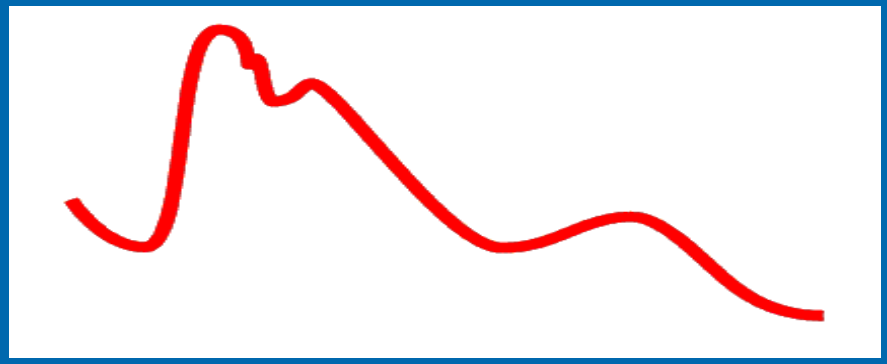
Trauma Center

- 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

Trauma Center

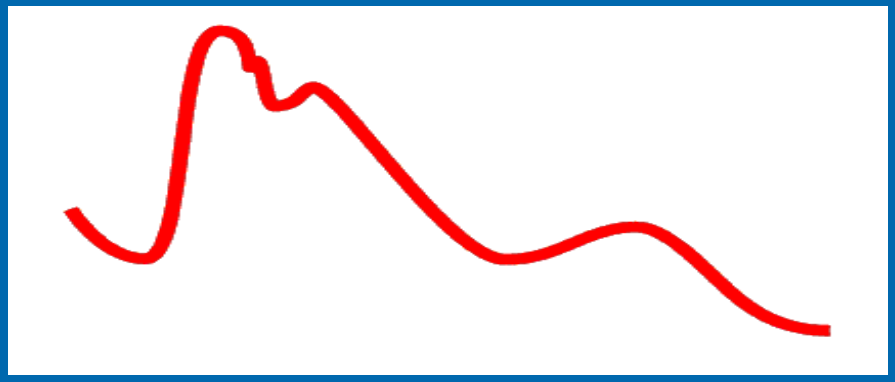
- Utilizes trauma team notification and response
- Availability of specialists, equipment, supplies, and ancillary support systems
- Definitive stabilization of injured patients
- Promotes patient rehabilitation

Level I Trauma Centers



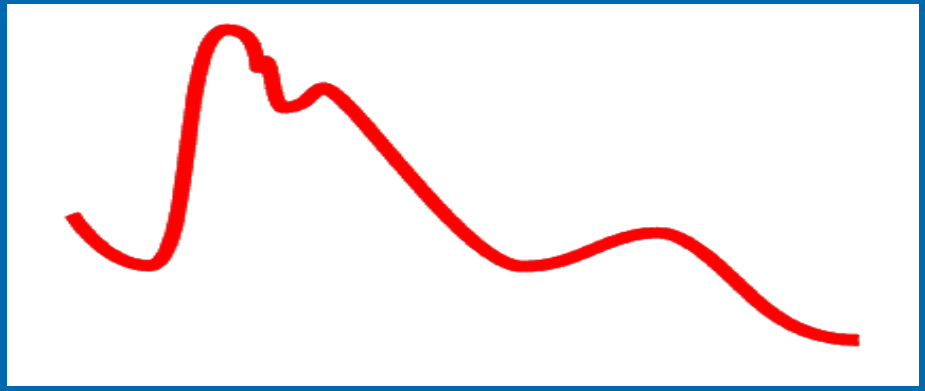
- *Tertiary care hospital that maintains a leadership role in:*
  - Systems development
  - A referral center for other trauma centers
  - Provides trauma care, evaluation, training, prevention & research.
  - Has the capacity to provide total care for every type of injury.
  - Level I centers are usually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

Level II Trauma Centers



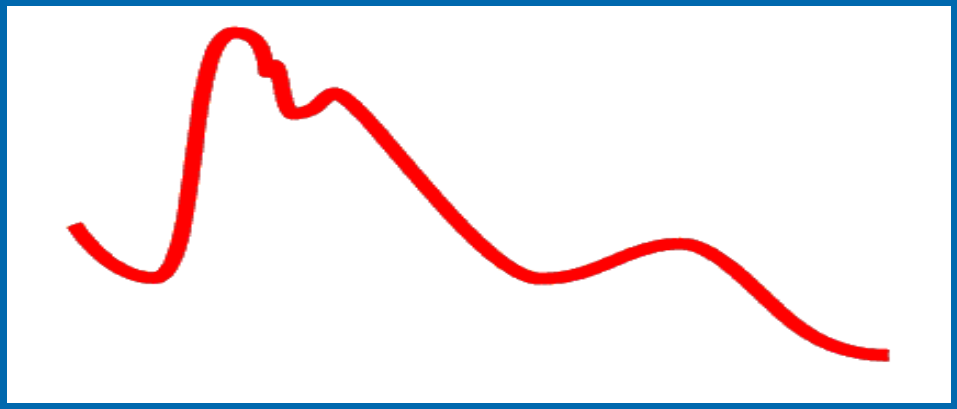
- *Expected to be able to provide definitive care to injured patients regardless of the severity of injury:*
  - More complex, multiple systems injuries may require transfer to Level I centers
  - Level II centers are usually community hospitals that handle the majority of trauma patients.
  - Serve 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?

Indiana Trauma

Trauma Registry

June, 2009

www.indianatrauma.org

Indiana Patient Registry

HOME | ABOUT | CONTACT US

The ImageTrend Patient Registry is a mult-displinary 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

Funding Sources

- Trauma System Manger
  - 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

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**

System Leadership:

- Develop an Office of Emergency Care within the Department of Health that includes both the trauma program and EMS.
  - Organizational chart at ISDH being reorganized/will now contain an Office of Emergency Care

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)**

Financing:

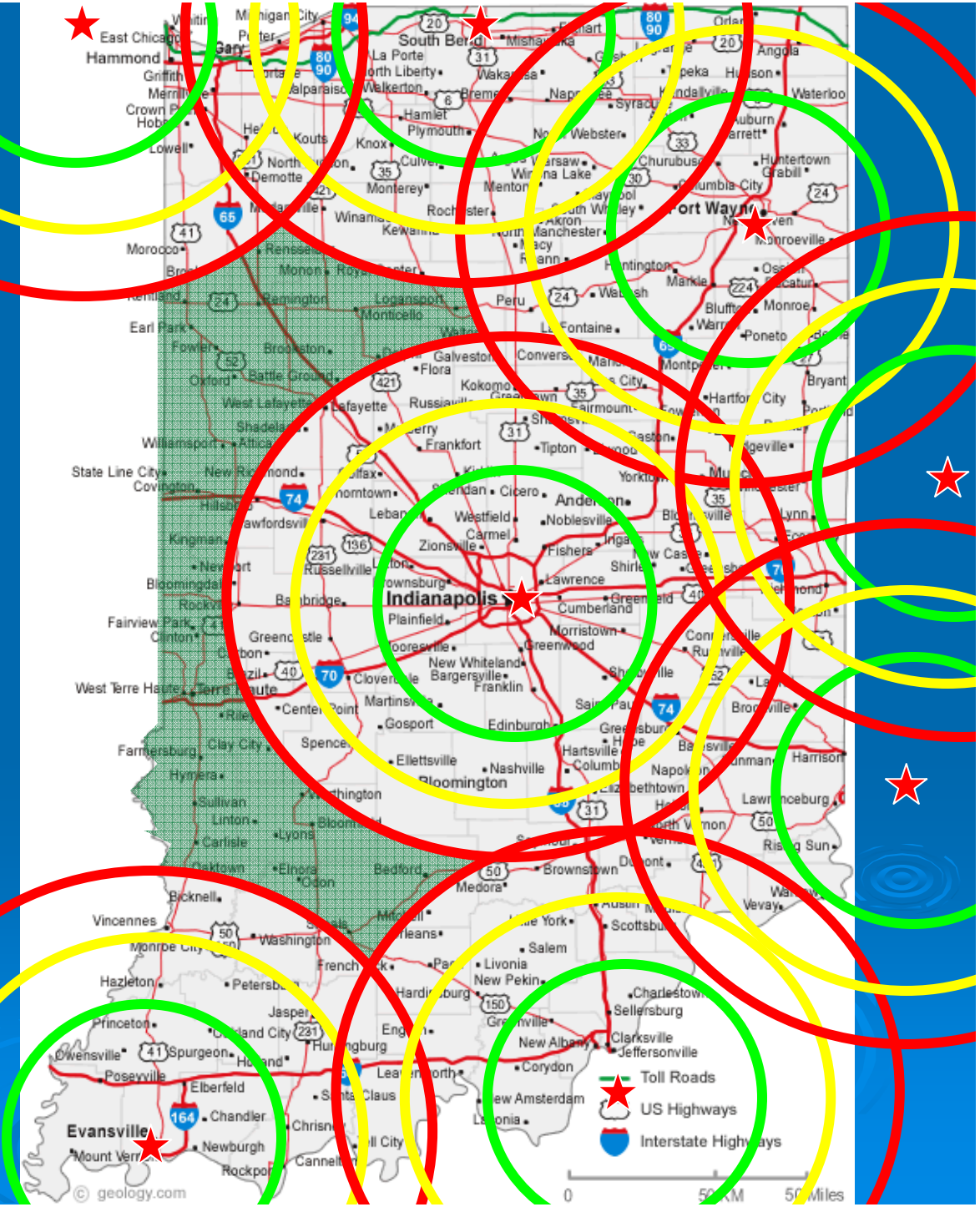
- Develop a detailed budget proposal for support of the infrastructure of the state system within the trauma system plan.
  - **Draft of budget for basic staffing needs**
  - **HB1215: Funding support for trauma centers and hospitals pursuing a trauma center verification/designation (defeated).**
  -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

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



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.

Injury Prevention

- The Injury Prevention Advisory Council/IP Subcommittee of the ISDH Trauma System Advisory Task Force are working together to define the problem of injury in Indiana, the role of these two groups in addressing injury prevention, and to develop solutions for the state using national models and strategies.

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

A Long Road Ahead

- Susan Perkins, RN, BSN, CCRC
  State Trauma System Manager/Rural Health Liaison
  Indiana State Department of Health
  Indianapolis, Indiana

- Tracie Pettit, RN
  State Trauma Registry Manager
  Indiana State Department of Health
  Indianapolis, Indiana

- Debbie Poole, RN, MSN, NEA-BC
  Executive Director of Trauma Services
  St. Mary's Medical Center
  Evansville, Indiana

- Matthew S. Howard, RN, MSN, FNE
  Manager, Riley Trauma Services
  Riley Hospital for Children
  Indianapolis, Indiana

Thank You for Your Attention

Any Questions

“We are all in this together”

Merry Addison, RN