

# History of Trauma System Development in Indiana

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# 1990's

- Indiana Trauma Assessment Group (ITAG) – led by Drs. Gomez, Rodman & State Emergency Management Agency
- No state and limited federal funding (DOT)
- Limited injury prevention activities at ISDH

## Early 2000's

- 2001-2002: HRSA funding provided for trauma system assessment - SWOT completed, led by Dr. Scherer
- 2003: Diana Fendya (HRSA Trauma Prog.) - ISDH to apply for an initial grant from that program for 2004-2005
- 2003: No statutory authority
- 2003: Wishard, Riley, Methodist, Parkview ACS verified Level I & II; Deaconess designated by Illinois

**INDIANA EMS-C TRAUMA  
ASSESSMENT CONFERENCE  
SWOT ANALYSIS**

JANUARY 31 – FEBRUARY 1,  
2002

# Strengths

- **Emergency Medical Services** - Well-organized EMS resources, EMT training, Breadth of aero-medical coverage
- **Trauma Care in Hospitals** - trauma centers fairly well-distributed, Informal statewide trauma system
- **Special Needs: Pediatrics and Geriatrics** - Addressing special needs
- **Post-Hospital Trauma Care: Rehabilitation & Support** - Adequate facilities/resources already available
- **Trauma Registries** - Substantial pre-hospital & hospital discharge data
- **Injury Prevention** - Strong existing programs/agencies/committees/framework, Availability of data - technical knowledge

# Weaknesses

- **Emergency Medical Services**
  - Uneven access to and quality of EMS throughout state, especially in rural areas (counties w/ no hospital/paramedics/911)
  - EMT & medical director training/continuing education is inadequate, inconsistent, inaccessible
  - Inadequate funding
  - Inadequate communications system
- **Trauma Care in Hospitals**
  - Cost/lack of funding/staffing shortages
  - Turf battles/competition/politics
  - Trauma centers currently concentrated in a few areas, especially for pediatrics

# Weaknesses

- **Special Needs: Pediatrics and Geriatrics**
  - Lack of education (public and pre-hospital) 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
- **Injury Prevention**
  - Data insufficient, incomplete, or uncoordinated
  - Agencies/programs uncoordinated and or/duplicative
  - Inadequate funding
  - Lack of usable E-code data
  - Lack of statewide "system" [injury prevention or trauma?]

# Opportunities

- **Emergency Medical Services**
  - Standard statewide protocols for dispatch (including aero-medical)
  - Strengthen EMT/EMD training
  - Public education
- **Trauma Care in Hospitals**
  - Data/trauma registry – assessment of system needs
  - Use lessons/data from other states
  - Legislation to establish/fund trauma system
- **Trauma Registries**
  - Better linkage of existing/future databases
  - QA/AI – improve quality of care and patient outcomes
- **Injury Prevention**
  - Improve data use – update data, make it more accessible, use for teaching, injury surveillance



# Threats/Obstacles

- **Emergency Medical Services** - Funding needs – recruitment and retention, Turf battles/competition>cooperation
- **Trauma Care in Hospitals** - Cost/lack of funding/healthcare professional shortages, Competition/politics
- **Post-Hospital Trauma Care: Rehabilitation and Support** - Cost/lack of funding, Lack of knowledge of how access/use system – burden on families
- **Trauma Registries** - Cost/lack of funding, Lack of legal immunity for providers of data, potential loss of confidentiality, Competition among providers
- **Injury Prevention** - Funding needs & priorities/geopolitical diversity, Lack of governmental leadership and support, Turf battles/competition/fear of competition

# 2004

- HRSA grant for 1-year obtained (8/04-7/05)
- ISDH Trauma System Advisory Task Force)  
- ~ 50 members (Charlene Graves, Spencer Grover, John Braeckel) met in May
- All 10 preparedness districts and trauma centers represented on Task Force
- HRSA consultation visit to the Task Force in July

# 2005

- HRSA Trauma-EMS grant for 3 years (but office defunded in 2006)
- Task Force Subcommittees formed
- 3 additional hospitals verified by ACS-COT as Level II trauma centers (St. Mary's & Deaconess in Evansville & Memorial in South Bend)
- Indiana Injury and Violence Prevention state plan & brief strategic plan for trauma system development
- Hospital preparedness survey on surge capacity

## 2005...

- MPH student (Alex Choi, MD) project/presentation “Overview of State Trauma Systems”
- State legislation explored (SB 396 re protocols not passed)
- Indiana ENA (Merry Addison) obtained funding to educate rural nurses in trauma assessment and skills
- Task Force Subcommittee on Education added; educational toolkit developed (fact sheet, ATS video)

# 2006

- SB 284, later PL 155 (Wyss, Broden) passes, naming ISDH as the lead agency for statewide trauma system, with rule-making authority.
- Resolutions of support came from the ISMA, the IN ENA, IN ACEP
- Trauma system list-serve created
- “When Minutes Matter” - St. Mary’s
- Injury prevention resource center added to website

## 2006...

- National Trauma Data Bank (NTDB) Data Cube Project - pilot state
- Susan Perkins hired contractually as the state Trauma System Manager in April
- HRSA Model Systems Plan self-assessment completed
- Vendor proposals solicited for state trauma registry - ImageTrend selected

# 2007

- NHTSA 408 funding for trauma registry through ICJI/TRCC – registry launched in May ([www.indianatrauma.org](http://www.indianatrauma.org))
- Contract with ImageTrend completed
- Registry data dictionary finalized (based on NTDS) – ITN, registrars
- Trauma system retreat – draft designation rules
- One-time ISDH funding for 20 mini grants

## 2007...

- Indiana Spinal Cord and Brain Injury Research Board and Fund
- UPPL repealed (Deaconess - Evansville)
- Draft trauma registry rules
- First Indiana RTTDC (Deaconess)
- Hospital Preparedness Program begins work on statewide bed-tracking system
- Task Force continues to grow



# Where Are We Now?

Susan Perkins, RN, BSN, CCRC  
ISDH Trauma System Manager, Rural  
Health Liaison, ISCBIRB Liaison



# 2008

- Basic SWOT analysis drafted for ISDH Trauma/Injury Prevention Program
- Decision made to pursue the state trauma system consultation by the ACS-COT
- NHTSA state traffic records assessment in March: overall good; recommend mandatory E-codes (CDC recommends also)
- Bed-tracking system implemented

## 2008...

- IN Farm Bureau Insurance pledges \$2,000 toward payment for consultation
- Trauma centers each pledge \$10,000 to support consultation
- Office of Rural Health includes consultation in Flex grant application
- Trauma Times Newsletter launched
- Injury Prevention legislation: Safe cigarette (self extinguishing), smoke detectors for rental properties

## 2008...

- SB 249 (Wyss): EMS trauma triage, transportation protocols
- EMS protocol workgroup formed:  
<http://protocols.fcems.net>;  
<http://groups.google.com/group/indiana-ems-trauma-protocol-workgroup?hl=en>
- ISCBIRB holds research symposium in April & also grants its first research awards - 14 projects awarded grants totaling almost \$1.7 million

## 2008...

- Indianapolis Woman June, 2008 Issue – Injury Prevention insert
- Merry Addison (ENA) received another grant award from the Christopher Reeve Paralysis Foundation, this time for \$15,000 for rural trauma education
- Tracie Pettit, RN hired as state trauma registry manager!! (September)

# Rural Hospital Involvement

- Trauma Registry pilot project w/ 16 CAHs - entered data on trauma patients transferred to higher level of care.



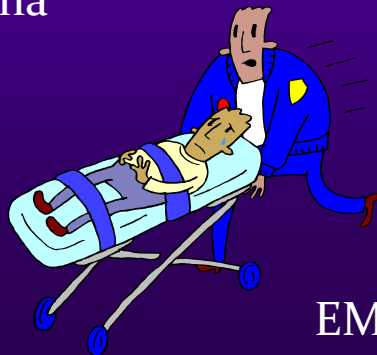
# Traffic Records Coordination

The future looks exciting:

- ability to interface with different databases presents many rich research possibilities



trauma



EMS



ARIES



E-Citation



Coroner



## 2008...

- PRQ completed & ACS visit confirmed!
- Statewide online IP survey
- Injury Prevention Subcommittee added to Task Force
- Injury Prevention Advisory Council gaining renewed interest & focus
- Proposed legislation for 2009: GDL, trauma center funding, ignition interlock law

# Trauma Task Force Now

- Meets quarterly
- More than 100 members
- Subcommittees
  - Legislation and Funding
  - System Development and Maintenance
  - Information Management/Data
  - Protocol Development
  - Education
  - Injury Prevention (new)

# Task Force Participation

- Trauma Centers, Non-trauma center hospitals & CAH's
- Surgeons, Nurses, Prehospital, MDs, rehab, injury prevention,
- 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 & School of Public Health, Safe Kids

# Funding Sources

- NHTSA funding for state trauma registry and trauma registry manager until 2010
- Office of Rural Health now funding Trauma System Manager position
- No trauma-specific federal funding source known at this time
- No State funding - needed for stability



**Why are we Here?**

Jack tried to be nimble.  
He tried to be quick.

He shot hoops with young guys  
And ruptured a disc.



# In a Word: Injuries

- 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.

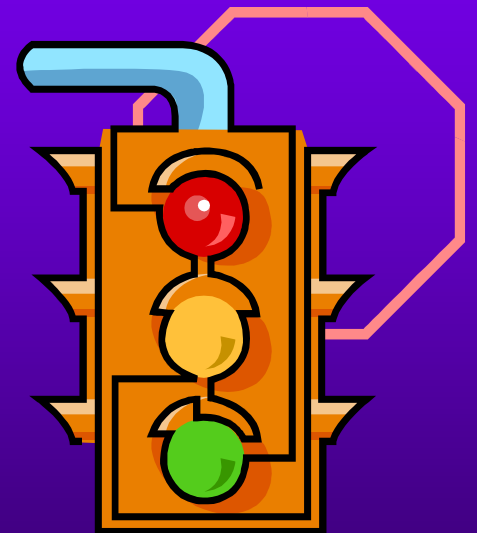
# Injuries – Children & Teens

- The leading cause of death for elementary school age children was unintentional injuries with 102 deaths.
- The leading cause of death for adolescents was unintentional injuries with 739 deaths.



# 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 percent of all hospital admissions resulted from traffic crashes.

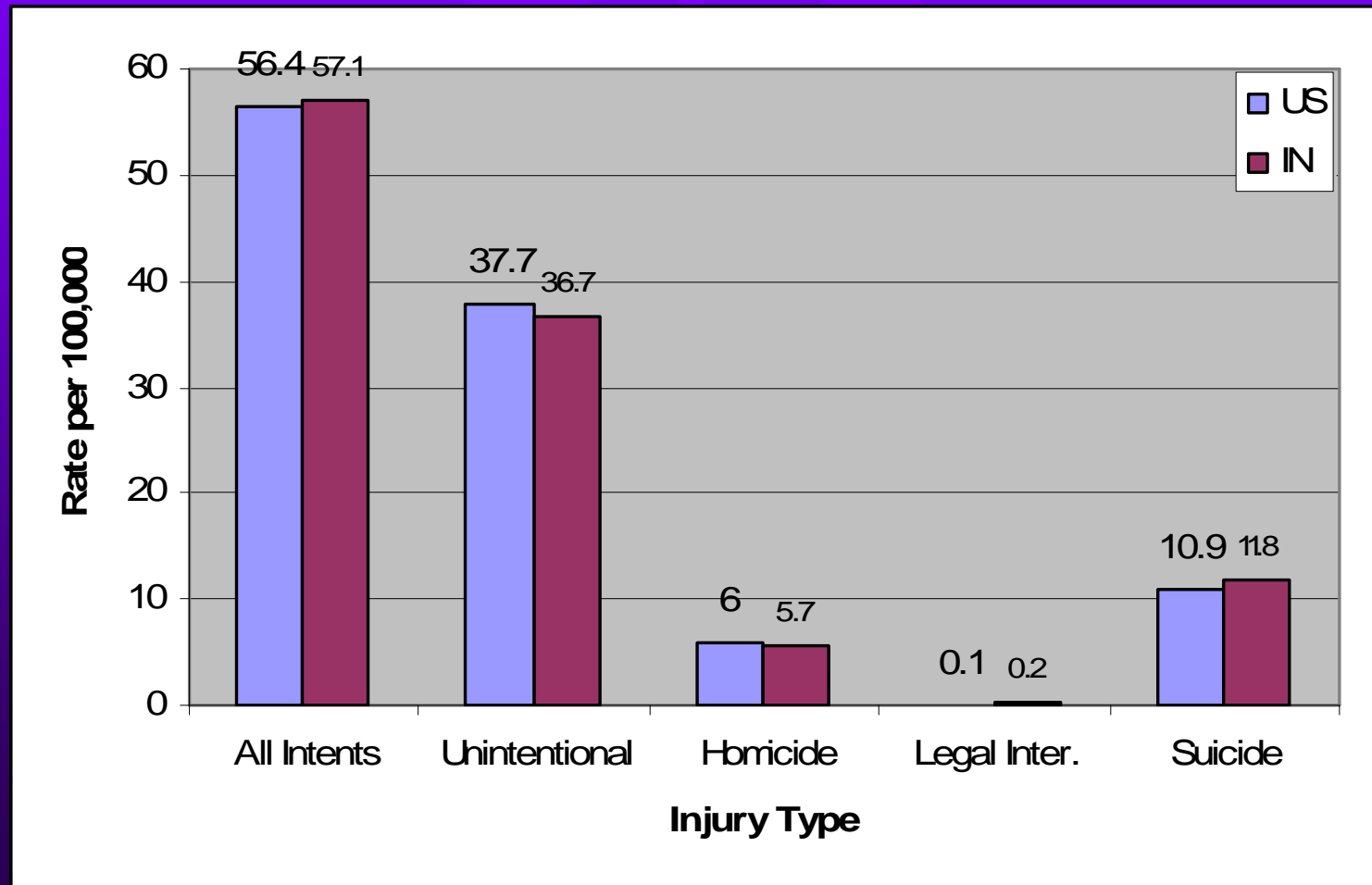


# Injuries – Elderly

- The rates of death due to injury for the elderly are 2 to 4 times higher than all other age groups. The next highest age group is 20 to 24 year olds.
- Falls accounted for an overwhelmingly 85 percent of all unintentional injury hospitalizations for the elderly.

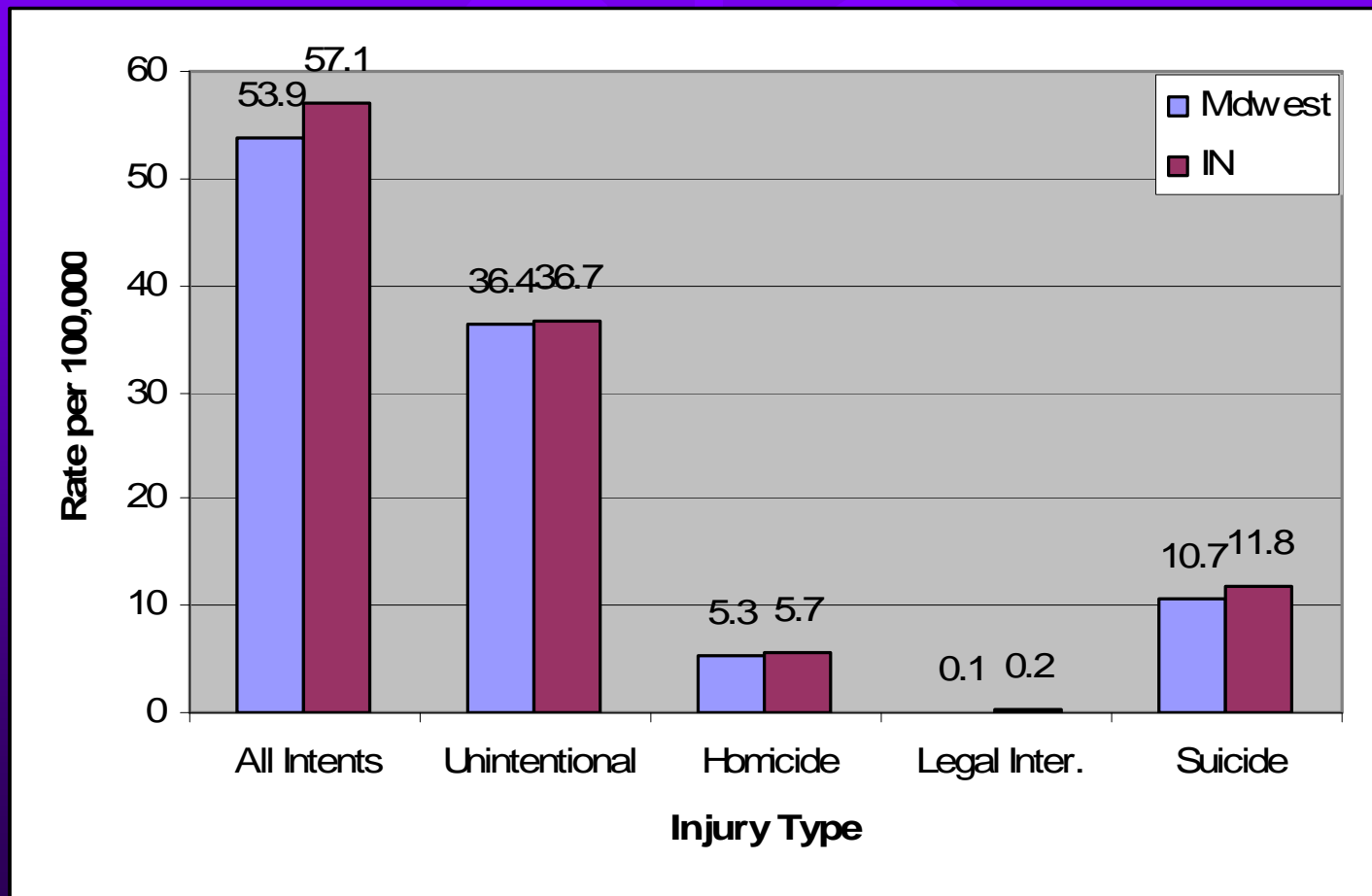
# Injury Death Rates, U.S. compared to Indiana, 2002-2005

CDC, WISQARS



# Injury Death Rates, Midwest compared to Indiana, 2002-2005

CDC, WISQARS





# 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 QOL losses. (Source: NHTSA)
- Add the remainder of the 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)

# Indiana

Although Indiana has a few bright spots within its emergency care environment, they are overshadowed by numerous problems, including poor Medicaid reimbursement rates for office visits, a shortage of specialists, and inadequate funding for key injury prevention programs.

**Strengths.** Despite implementing a number of policies to help improve the *Quality and Patient Safety Environment*, Indiana receives an average grade in this category. The state has mandatory quality reporting and hospital-based infections reporting requirements. Indiana maintains a statewide trauma registry and has a uniform system for providing pre-arrival instructions. In addition, more than half of the state's hospitals (52.9 percent) use electronic medical records.

In the *Disaster Preparedness* category, the state has made numerous efforts to increase its capacity to respond to a major public health tragedy or emergency. Indiana has the highest rate of physicians registered in the state-based Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) program, which allows for the advanced screening, credentialing, and registration of volunteer physicians, nurses, and other health professionals. In addition, Indiana has real-time systems in place for surveillance of common emergency department presentations and the ability to notify health care providers of a disaster event.

**Challenges.** Indiana's poor performance in *Public Health and Injury Prevention* reflects low rates of immunization for young children (79.6 percent) and older adults, among whom only 65.3 percent receive an annual influenza vaccine and just 63.8 percent have ever received a pneumococcal vaccine. Indiana also has among the lowest levels of funding for injury prevention programs (ranking 49<sup>th</sup>) and relatively high rates of fatal occupational injuries and unintentional fatalities. In addition,

Indiana's infant mortality rate (8.0 deaths per 1,000 live births) is significantly higher than the national rate (6.9 per 1,000 live births).

Indiana also fared poorly in the area of *Access to Emergency Care*. Indiana ranks among the bottom 12 states for its low rates of neurosurgeons; orthopedists and hand surgeons; plastic surgeons; and ear, nose, and throat specialists per 100,000 people. The state also has a low rate of physicians accepting Medicare (2.5 physicians per 100 beneficiaries).

Indiana ranks 29<sup>th</sup> for its *Medical Liability Environment* due to the state's failure to enact a number of liability reforms, such as additional liability protections for EMTALA-mandated emergency care and expert witness rules requiring witnesses to be of the same specialty as the defendant or licensed to practice medicine in the state. Perhaps reflective of this environment, the average malpractice award in the state is significantly higher than the average across the states (\$310,430 versus \$285,218, respectively).

**Recommendations.** Indiana's poor grade for *Public Health and Injury Prevention* suggests a pressing need for further state investment in programs, activities, or campaigns aimed at promoting immunizations, obesity prevention, injury prevention, and smoking prevention and cessation. By applying tested health promotion strategies and tools more widely, the state could potentially lower rates of injury and illness, improving health outcomes and reducing demand for emergency and acute care services.

The state should seek to encourage more physicians to accept Medicaid patients by increasing reimbursement rates, which for office visits are 69.5 percent of the national average. Additionally, increasing Medicaid payments across the board may be one incentive to help attract more needed specialists to the state.

	RANK	GRADE
ACCESS TO EMERGENCY CARE	29	D
QUALITY & PATIENT SAFETY ENVIRONMENT	26	C
MEDICAL LIABILITY ENVIRONMENT	29	D+
PUBLIC HEALTH & INJURY PREVENTION	41	D-
DISASTER PREPAREDNESS	31	C
OVERALL	40	D+

Emergency physicians in the state also report growing problems with emergency department and hospital crowding. The state's relatively low hospital occupancy rate (60.4 per 100 staffed beds) may provide an opportunity for addressing this problem. Crowding, however, may also be exacerbated by the lack of specialists to provide timely on-call emergency care. The state needs to focus efforts on improving access to specialty care, as well as primary and preventive care, by decreasing the rate of the uninsured and increasing the rate of physicians who will accept public insurance.

In addition, if Indiana can apply its success in enrolling physicians in the ESAR-VHP system to include nurses and other health professionals and improve its bed surge capacity, this will go far in boosting the state's level of preparedness for large-scale public health disasters or emergencies.

## • Indiana Receives a D+ for Its Support of Emergency Patients in National Report Card on the State of Emergency Medicine

## • State Receives D's in Three of Five Categories, Ranks 40th Nationally



- **Indiana Category Grades:**
- Overall: **D+**
- Quality/Patient Safety: **C**
- Medical Liability: **D+**
- Access: **D**
- **Public Health/Injury Prevention: D-**
- Disaster Preparedness: **C**

ACCESS TO EMERGENCY CARE	D
Board-certified emergency physicians per 100,000 pop.	7.3
Emergency physicians per 100,000 pop.	9.7
Neurosurgeons per 100,000 pop.	1.4
Orthopedists and hand surgeon specialists per 100,000 pop.	8.0
Plastic surgeons per 100,000 pop.	1.6
ENT specialists per 100,000 pop.	2.9
Registered nurses per 100,000 pop.	869.0
Additional primary care FTEs needed	86.7
Additional mental health FTEs needed	32.4
Level I or II trauma centers per 1M pop.	1.0
% of population within 60 minutes of Level I or II trauma center	90.9
Accredited chest pain centers per 1M pop.	2.8
% of population with an unmet need for substance abuse treatment	8.3
Pediatric specialty centers per 1M pop.	3.3
Physicians accepting Medicare per 100 beneficiaries	2.5
Medicaid fee levels for office visits as a % of the national average	69.5
% change in Medicaid fees for office visits (2004-05 to 2007)	NR
% of adults with no health insurance	13.1
% of children with no health insurance	7.8
% of adults with Medicaid	6.0
Emergency departments per 1M pop.	14.4
Hospital closures in 2006	1
Staffed inpatient beds per 100,000 pop.	332.6
Hospital occupancy rate per 100 staffed beds	60.4
Psychiatric care beds per 100,000 pop.	19.0
State collects data on diversion	No

MEDICAL LIABILITY ENVIRONMENT	D+
Lawyers per 10,000 pop.	11.5
Lawyers per physician	0.5
Lawyers per emergency physician	11.7
ATRA judicial hellholes (range 0 to -7)	0
Malpractice award payments/100,000 pop.	1.2
Average malpractice award payments	\$310,430
Databank reports per 1,000 physicians	21.3
Patient compensation fund	Yes
Health court pilot project grant	No
Number of insurers writing medical liability policies per 1,000 physicians	5.3
Average medical liability insurance premium for primary care physicians	\$11,161
Average medical liability insurance premiums for specialists	\$59,076
Pretrial screening panels	Mandatory
Are pretrial screening panels' findings admissible as evidence?	Yes
Periodic payments	At judge's or court's discretion
Medical liability cap on non-economic damages	>\$500,000
Additional liability protection for EMTALA-mandated emergency care	No
Joint and several liability abolished	No
State provides for case certification	No
Expert witness required to be of the same specialty as the defendant	No
Expert witness must be licensed to practice medicine in the state	No

QUALITY & PATIENT SAFETY ENVIRONMENT	C
Funding for quality improvement within the EMS system	No
Funded state EMS medical director	No
Emergency medicine residents per 1M pop.	8.2
Adverse event reporting required	Yes
Hospital-based infections reporting required	Yes
Mandatory quality reporting requirement	Yes
% of counties with E-911 capability	98.9
Uniform system for providing pre-arrival instructions	Yes
State has or is working on a stroke system of care	No
State has or is working on a PCI network or a STEMI system of care	No
Statewide trauma registry	Yes
% of hospitals with computerized practitioner order entry	24.2
% of hospitals with electronic medical records	52.9
% of patients with acute myocardial infarction given PCI within 90 minutes of arrival	57
Number of Joint Commission reviewed sentinel events per 1M pop. (1995-2006)	13

PUBLIC HEALTH & INJURY PREVENTION	D-
Traffic fatalities per 100,000 pop.	14.2
% of traffic fatalities alcohol related	36.0
Front occupant restraint use (%)	87.9
Helmet use required for all motorcycle riders	No
Child safety seat/seat belt legislation (10 points possible)	8
% of children immunized, aged 19-35 months	79.6
% of adults aged 65+ who received flu vaccine in the last 12 months	65.3
% of adults aged 65+ who ever received pneumococcal vaccine	63.8
Fatal occupational injuries per 1M workers	50.4
Homicides and suicides (non-motor vehicle) per 100,000 pop.	17.8
Unintentional fall-related fatal injuries per 100,000 pop.	4.8
Unintentional fire/burn-related fatal injuries per 100,000 pop.	1.5
Unintentional firearm-related fatal injuries per 100,000 pop.	0.3
Gun-purchasing legislation (8 points possible)	0.5
% of tobacco settlement funds spent on health-related services and programs	78.2
Total injury prevention funds per 1,000 pop.	\$5.67
Unintentional injury prevention funds per 1,000 pop.	\$3.31
Intentional injury prevention funds per 1,000 pop.	\$2.36
Fall injury prevention funds per 1,000 pop.	\$0.00
Infant mortality rate per 1,000 live births	8.0
% of adults with BMI > 30	27.8
Current smokers, % of adults	24.1
Binge alcohol drinkers, % of adults	16.0

DISASTER PREPAREDNESS	C
Per capita federal disaster preparedness funds	\$7.69
Disaster preparedness funds used specifically for health care-related preparedness are tracked	Yes
All-hazards medical response plan or ESF-8 plan?	Yes
Plan shared with all EMS and essential hospital personnel?	Yes
Public health and emergency physician input into the state planning process	Yes, Yes
Public health and emergency physician input into the daily operations of the SEOC	Yes, Yes
Written plan for the coordination of the SEOC or local EMAs to provide security to hospitals in case of emergency events	No
Number of drills and exercises conducted involving hospital personnel, equipment, or facilities	776
Accredited by the Emergency Management Accreditation Program	No
Written plan specifically for special needs patients	NR
Written plan to supply medications for chronic conditions	NR
Written plan to supply dialysis for patients	NR
Real-time notification system in place to notify identified health care providers of an event	Yes
"Just-in-time" training systems in place	NR
Statewide medical communication system with one layer of redundancy	Yes
Statewide patient tracking system	No
Statewide victim tracking system	No
Statewide real-time or near real-time syndromic surveillance system	Yes
Real-time surveillance system in place for common ED presentations	Yes
Bed surge capacity per 1M pop.	0.0
Burn unit beds per 1M pop.	3.8
ICU beds per 1M pop.	314.5
Verified burn centers per 1M pop.	0.5
State able to verify credentials and assign volunteer health professionals to four ESAR-VHP levels	Yes
Nurses registered in ESAR-VHP per 1M pop.	0.0
Physicians registered in ESAR-VHP per 1M pop.	467.6
Training required in disaster management and response to bio- and chem terrorism for essential hospital personnel, EMS personnel	Yes, Yes
State or regional strike teams or medical assistance teams	Yes
Additional liability protections for health care workers during a disaster	Yes, civil
% of RNs that received any emergency training	34.9
State requires EMS and essential ED personnel to be NIMS compliant	Yes

Improved since 2006  
 Worsened since 2006  
 No change since 2006  
 NR Not reported  
 N/A Not applicable  
 See Summary Statistics for State Comparisons

# Indiana

United Health Foundation

AMERICA'S HEALTH RANKINGS™ 2008

Overall Rank: 34  
Change: ▼ 2

## Strengths:

- Low rate of uninsured population
- Low incidence of infectious disease
- Low geographic disparity within the state

## Challenges:

- High prevalence of smoking
- High levels of air pollution
- Low per capita public health funding

## Significant Changes:

- In the past year, the percentage of children in poverty increased by 32%
- In the past year, the rate of uninsured population declined by 9%
- In the past five years, the percentage of children in poverty increased by 66%
- Since 1990, the incidence of infectious disease decreased by 50%

**Ranking:** Indiana is 34th this year; it was 32nd in 2007.

**Strengths:** Strengths include a low rate of uninsured population at 11.6 percent, a low incidence of infectious disease at 9.0 cases per 100,000 population and a low geographic disparity within the state at 8.6 percent.

**Challenges:** Challenges include a high prevalence of smoking at 24.1 percent of the population, high levels of air pollution at 15.3 micrograms of fine particulate per cubic meter, low public health funding at \$33 per person, a high rate of preventable hospitalizations with 83.2 discharges per 1,000 Medicare enrollees and low immunization coverage with 76.8 percent of children ages 19 to 35 months receiving complete immunizations. Indiana ranks lower for health determinants than for health outcomes, indicating that overall healthiness may decline over time.

## Significant Changes:

- ▲ In the past year, the percentage of children in poverty increased from 14.3 percent to 18.8 percent of persons under age 18.
- ▼ In the past year, the rate of uninsured population decreased from 12.7 percent to 11.6 percent.
- ▲ In the past five years, the percentage of children in poverty increased from 11.3 percent to 18.8 percent of persons under age 18.
- ▼ Since 1990, the incidence of infectious disease decreased from 18.0 to 9.0 cases per 100,000 population.

**Health Disparities:** In Indiana, low birth weight babies are more common among non-Hispanic blacks at 13.5 percent than Hispanics at 6.3 percent. Access to health care varies significantly by race and ethnicity in the state; 46.7 percent of Hispanics lack health insurance compared to 15.3 percent of non-Hispanic whites.

**State Health Department Web Site:** [www.in.gov/isdh](http://www.in.gov/isdh)





DETERMINANTS	2008		2007		2003		1990	
	VALUE	RANK	VALUE	RANK	VALUE	RANK	VALUE	RANK
<b>PERSONAL BEHAVIORS</b>								
Prevalence of Smoking (Percent of population)	24.1	45	24.1	46	27.6	46	32.8	43
Prevalence of Binge Drinking (Percent of population)	15.8	26	15.1	27	14.9*	18	—	—
Prevalence of Obesity (Percent of population)	27.4	30	27.8	41	24.1	41	14.5	48
<b>COMMUNITY &amp; ENVIRONMENT</b>								
High School Graduation (Percent of incoming ninth graders)	73.2	36	73.5	33	67.9*	33*	75.9*	30
Violent Crime (Offenses per 100,000 population)	334	24	315	22	372	25	329	18
Occupational Fatalities (Deaths per 100,000 workers)	6.7	32	6.8	33	6.4	37	10.8*	31
Infectious Disease (Cases per 100,000 population)	9.0↓	14	10.6	17	11.6	14	18.0	11
Children in Poverty (Percent of persons under age 18)	18.8↑	34	14.3	21	11.3	14	20.8	30
Air Pollution (Micrograms of fine particles per cubic meter)	15.3	45	15.0	43	16.4	45.0	—	—
<b>PUBLIC &amp; HEALTH POLICIES</b>								
Lack of Health Insurance (Percent without health insurance)	11.6	16	12.7	21	11.7	22	10.9	22
Public Health Funding (Dollars per person)	\$33	50	\$33	49	—	—	—	—
Immunization Coverage (Percent of children ages 19 to 35 months)	76.8↓	43	79.5	34	76.0	27	—	—
<b>CLINICAL CARE</b>								
Adequacy of Prenatal Care (Percent of pregnant women)	70.1**	—	73.2	32	73.56*	31	72*	19
Primary Care Physicians (Number per 100,000 population)	101.9	37	101.1	39	—	—	—	—
Preventable Hospitalizations (Number per 1,000 Medicare enrollees)	83.2	36	83.2	36	85.0	36	—	—
<b>ALL DETERMINANTS</b>	-1.9	34	1.2	28	4.9	22	2.1	28
<b>HEALTH OUTCOMES</b>								
Poor Mental Health Days (Days in previous 30 days)	3.4	28	3.6	39	3.6	40	—	—
Poor Physical Health Days (Days in previous 30 days)	3.4	18	3.5	31	3.4	33	—	—
Geographic Disparity (Relative standard deviation)	8.6	12	9.5	18	—	—	—	—
Infant Mortality (Deaths per 1,000 live births)	7.7	37	7.8	36	7.7	36	10.7	35
Cardiovascular Deaths (Deaths per 100,000 population)	317.9	37	327.0	37	362.7	0	425.0	35
Cancer Deaths (Deaths per 100,000 population)	209.0	40	210.7	41	215.2	43	204.1	34
Premature Death (Years lost per 100,000 population)	7,972	35	7,890	32	7,964	32	8,242	21
<b>ALL HEALTH OUTCOMES</b>	1.2	28	-1.9	36	-2.2	37	1.8	20
<b>OVERALL</b>	-0.6	34	-0.7	32	1.9	27	3.9	25

↓ and ↑ indicate major increases and decreases in the last year. — indicates data not available. \*Data may not be comparable. \*\*See measure description for full details.

# Benefits of a Trauma System

- 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
- ↓ impact of trauma on family members

# Benefits...

- ↓ 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)

# Questions for Indiana

- How have other states given pre-hospital providers the authority to transport to trauma center destinations?,
- What are the roles of local hospitals in cases where they are closer than a level I and II center from a pre-hospital perspective?
- How have other states with limited resources for public health funding addressed the financing of their trauma system?

# Questions for Indiana...

- Are there states that have successfully included third party payers including CMS into their trauma system to improve reimbursement, patient care, patient safety and injury surveillance?
- What are the strength and weaknesses of multiple regionalized trauma systems versus a statewide system?
- What are the strength and weaknesses of a governmental agency oversight versus a separate not for profit foundation with state authority?

How Do We Get To Where  
We Need to Be?

