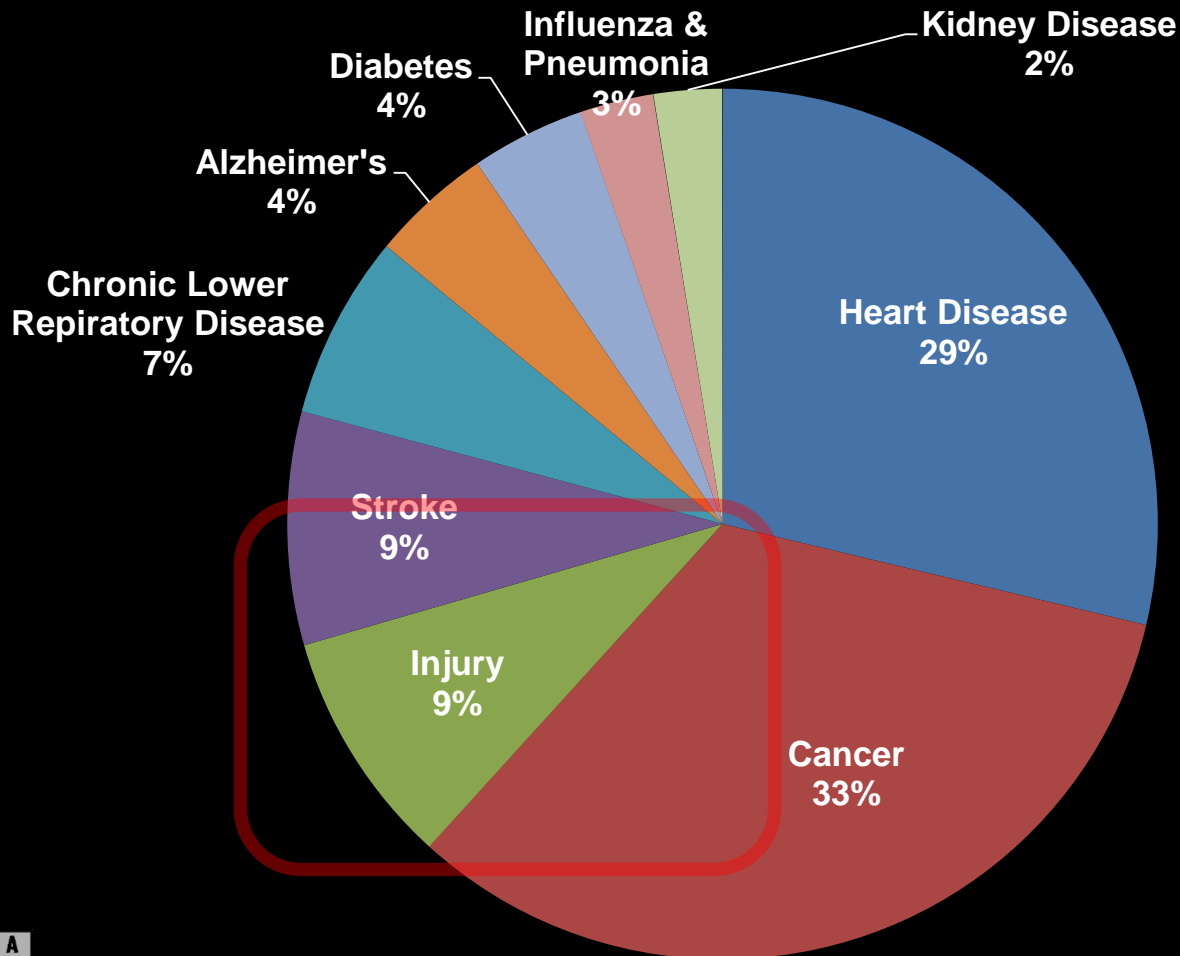


# Surviving the Crash: The Fourth E

Well, not so much this one,  
but the next.

# Leading Causes of Death in Minnesota



Source: MDH Injury and Violence Prevention Unit

MINNESOTA STATEWIDE  
TRAUMA SYSTEM



# Designation Levels



**1** adult & ped.

Definitive care for all  
trauma patients



**2** adult & ped.

Definitive care for most  
patients



**3**

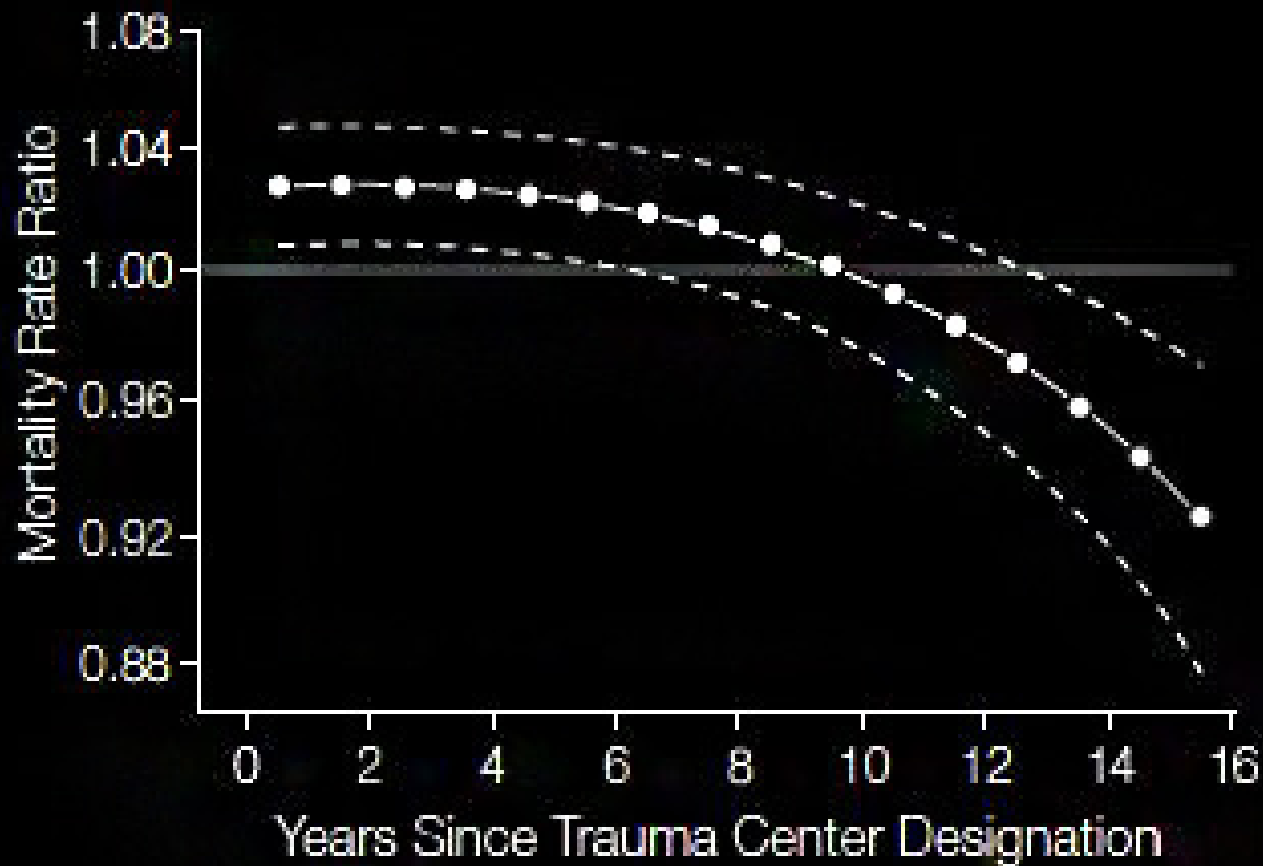
Definitive care for some;  
most major trauma  
stabilized and  
transferred



**4**

Major trauma stabilized  
and transferred

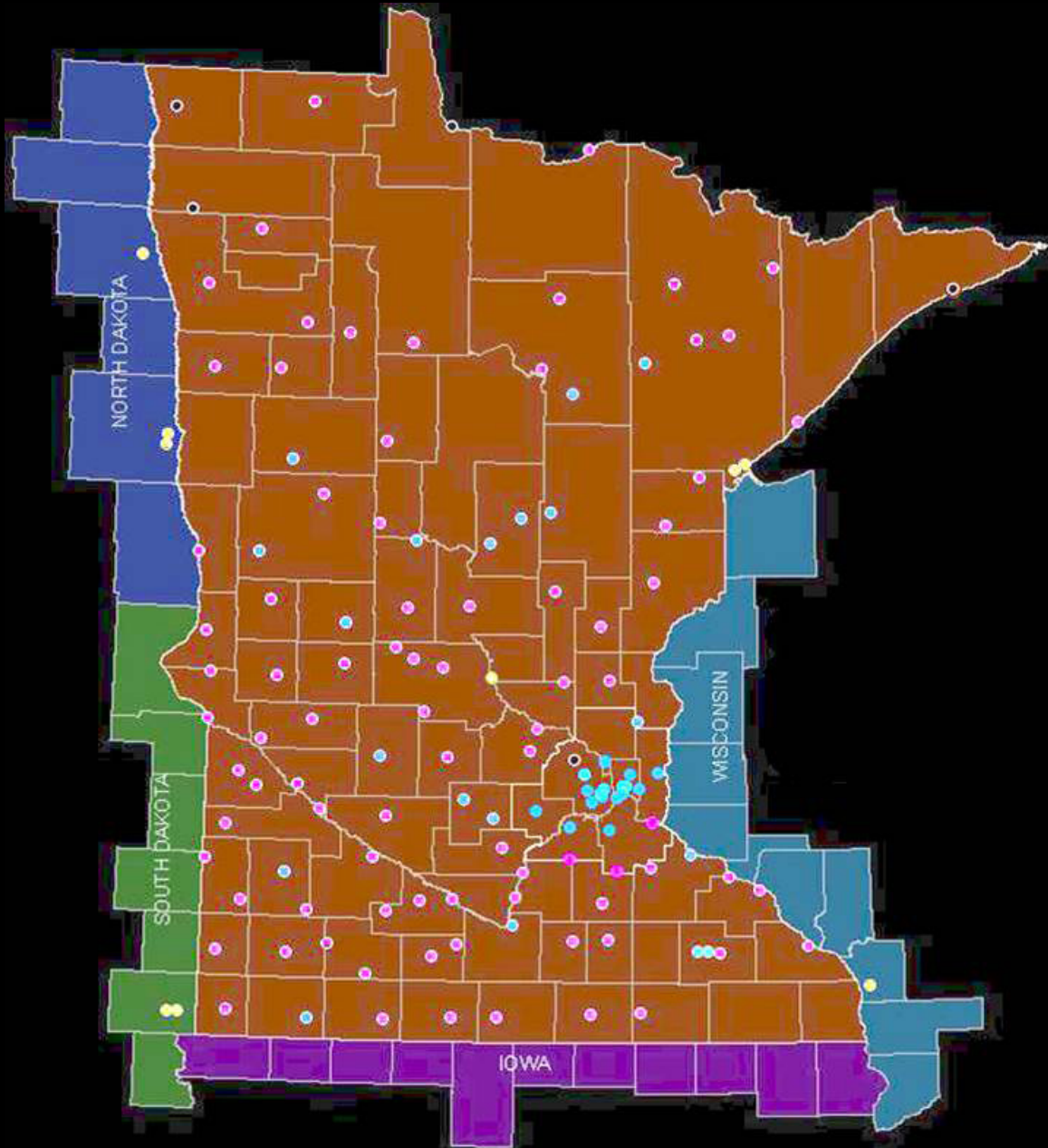
# Crash Mortality



Source: Nathens, et al;  
JAMA 2000.

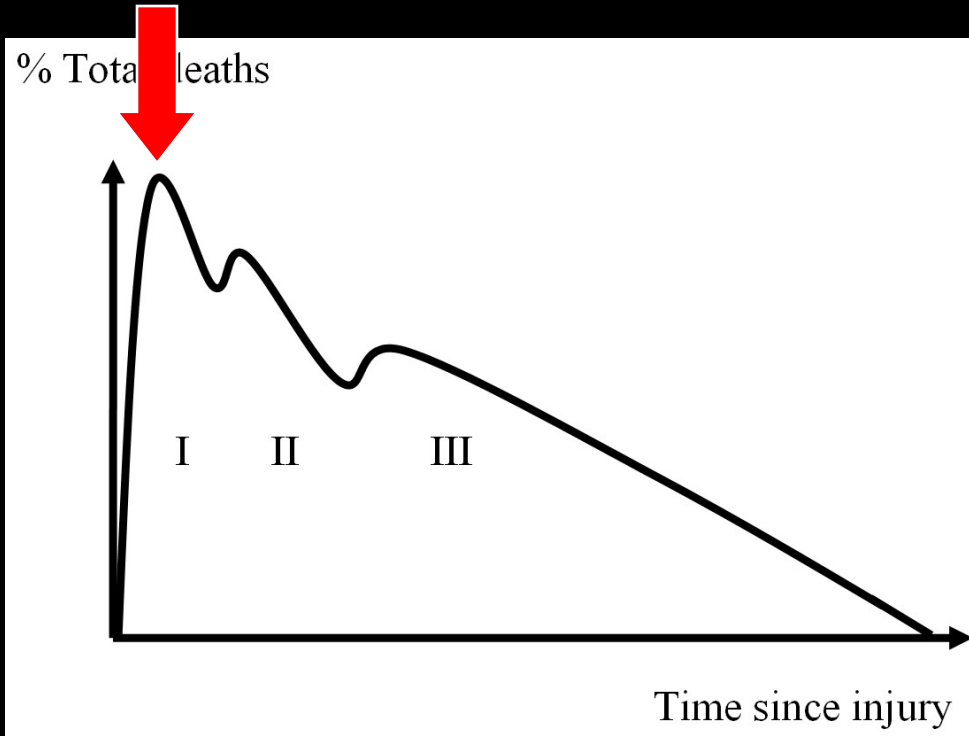
**MINNESOTA STATEWIDE  
TRAUMA SYSTEM**





# Tri-modal Death Distribution

## 1<sup>st</sup> Peak

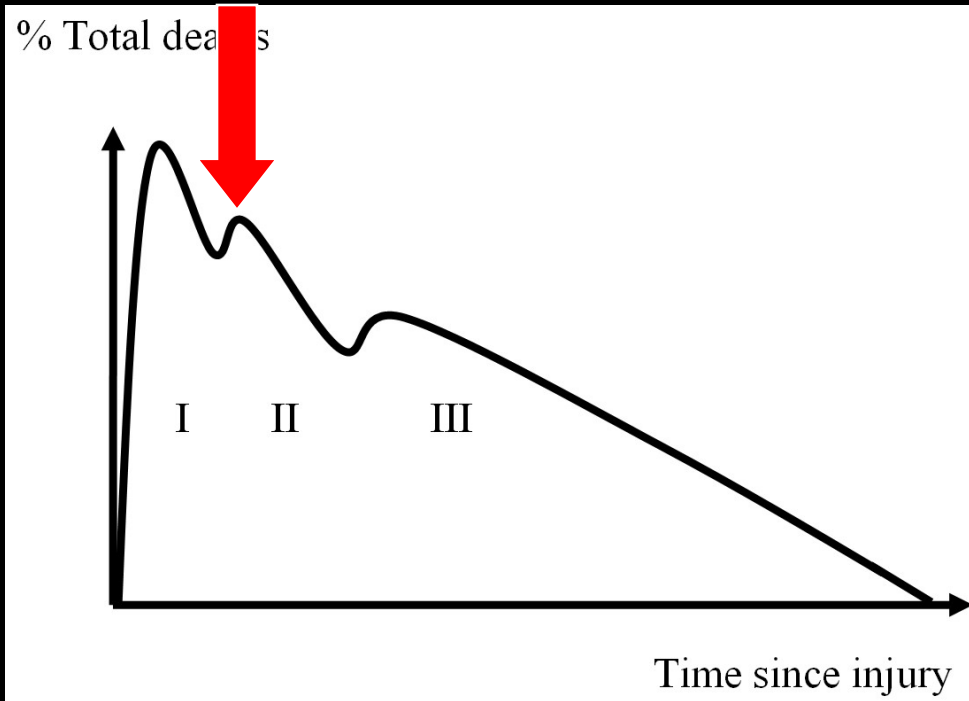


- Massive brain injury
- High spinal cord injury
- Major vessel disruption

Remedy: Injury prevention

# Tri-modal Death Distribution

## 2<sup>nd</sup> Peak

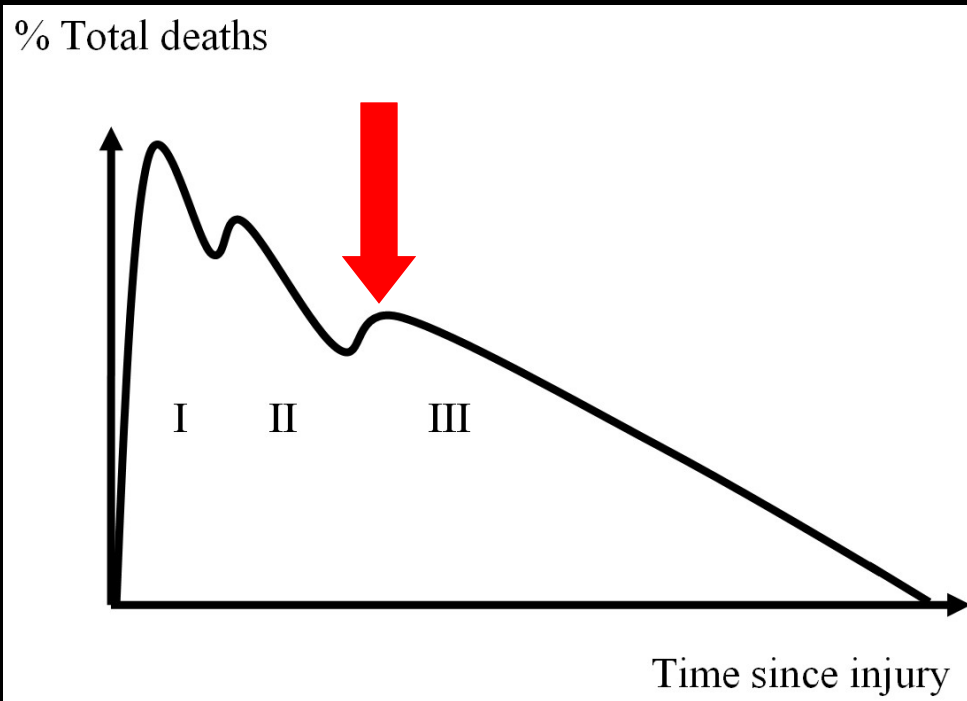


- Brain injury
- Major chest injury
- Massive blood loss
- Ruptured spleen/liver
- Fractured pelvis

Remedy: Rapid recognition,  
Immediate care

# Tri-modal Death Distribution

## 3<sup>rd</sup> Peak

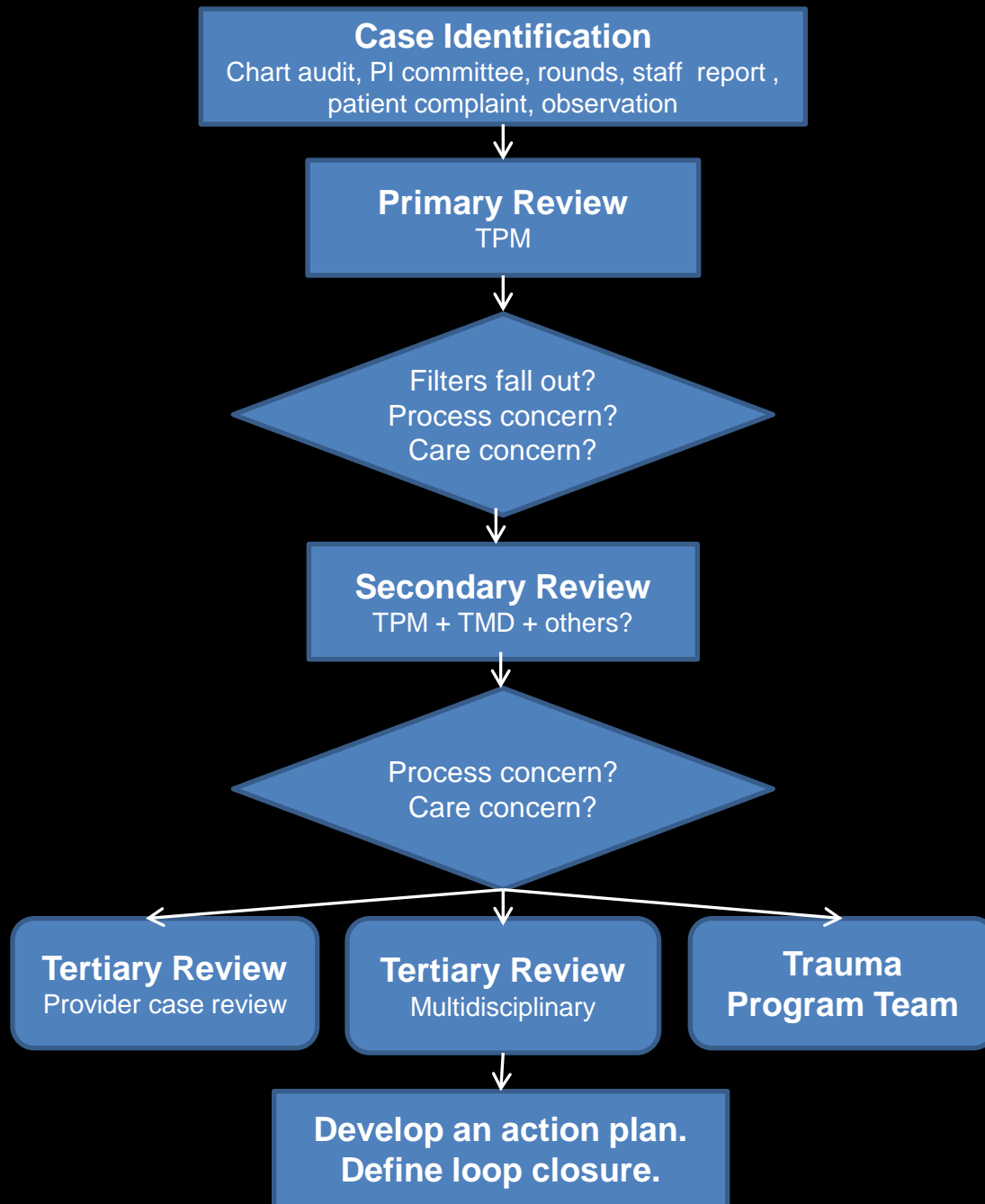


- Infection
- Organ failure

Remedy: Effective system of care

**Performance Improvement**



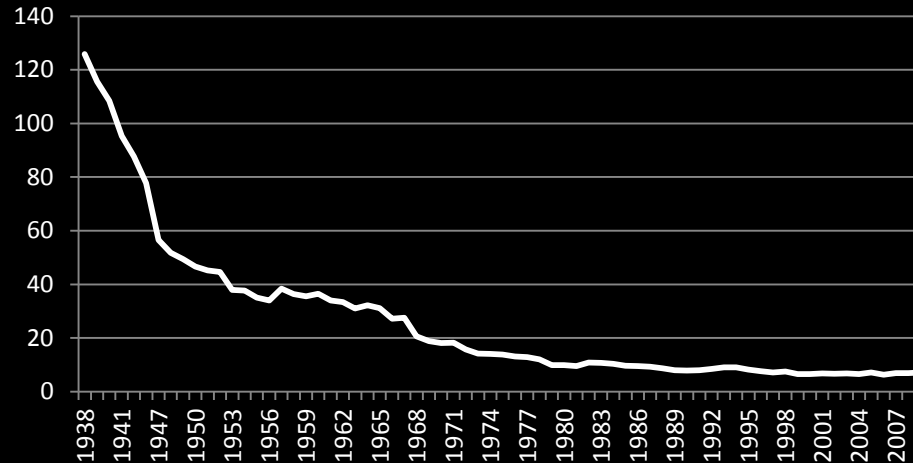


# Performance Standards

## Hours Flown



## Accident Rate



Source: Aircraft Owners  
and Pilots Association

**MINNESOTA STATEWIDE  
TRAUMA SYSTEM**



- T-bone crash
- 2 vehicles
  - Vehicle #1: 3 injured
  - Vehicle #2: Fatal



- 22 year old female
- Belted driver
  - Estimated 40 mph

# Observations & Assessment

- Alert, anxious
- Short of breath, painful respirations
- R side chest pain
- R lung sounds diminished
- Belly soft, diffusely tender

BLOOD PRESSURE (mm/Hg)	SpO <sub>2</sub> %
142 / 88	96
HEART RATE	RESPIRATIONS
126	20

# Treatments

- IVs, O<sub>2</sub>
- Collar, spine board
- Code 3 to local level 4 trauma center

# At the local trauma center...

- Anxious
- Pale, sweaty
- Short of breath
- Trauma Team Activation
- Warm
- Blood draw
- X-rays



BLOOD PRESSURE (mm/Hg)

SpO<sub>2</sub>%

142 / 88

96

HEART RATE

RESPIRATIONS

126

20

BLOOD PRESSURE (mm/Hg)

SpO<sub>2</sub>%

112 / 78

98

HEART RATE

RESPIRATIONS

136

24

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

142 / 88

96

HEART RATE

126

RESPIRATIONS

20

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

112 / 78

98

HEART RATE

136

RESPIRATIONS

24

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

96 / 68

89

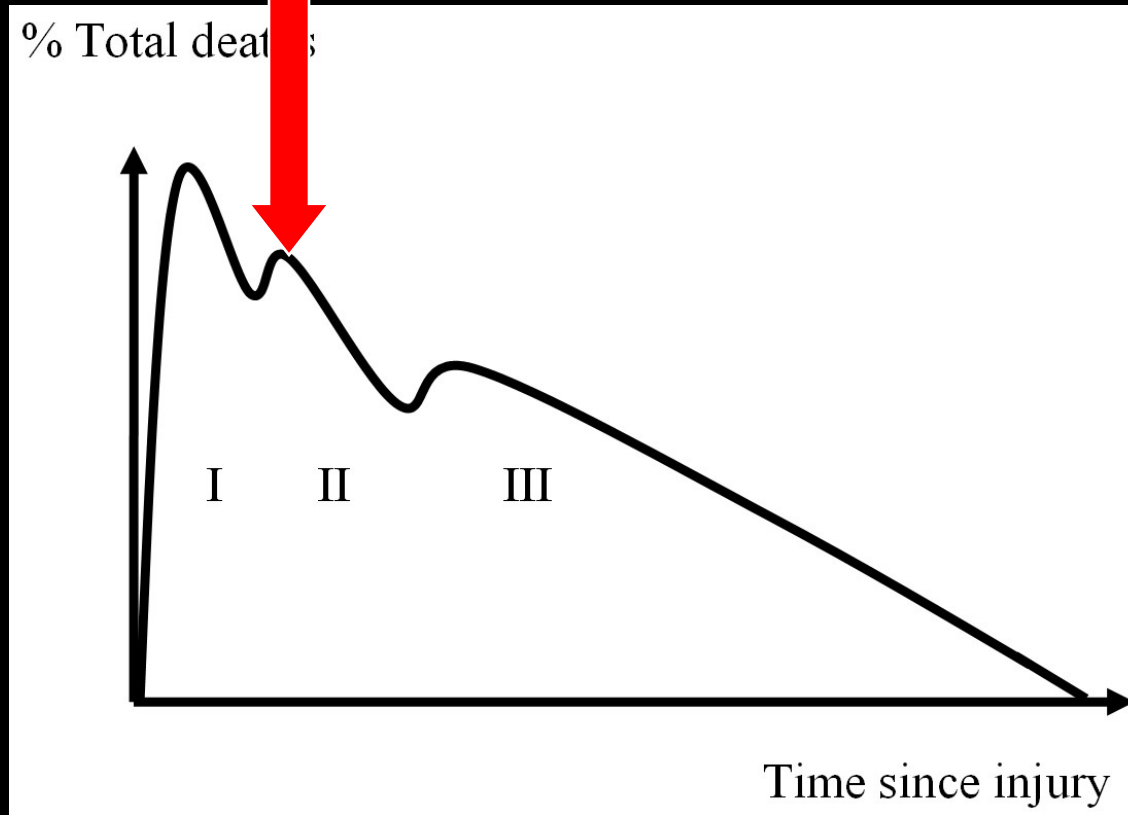
HEART RATE

142

RESPIRATIONS

28

# You are Here



Remedy: Rapid recognition,  
Immediate care

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

142 / 88

96

HEART RATE

126

RESPIRATIONS

20

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

112 / 78

98

HEART RATE

136

RESPIRATIONS

24

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

96 / 68 89

HEART RATE

142

RESPIRATIONS

28

BLOOD PRESSURE (mm/Hg) SpO<sub>2</sub>%

108 / 78

94

HEART RATE

110

RESPIRATIONS

20

- Air-lifted to level 1 trauma center
- Discharged home after 5 days

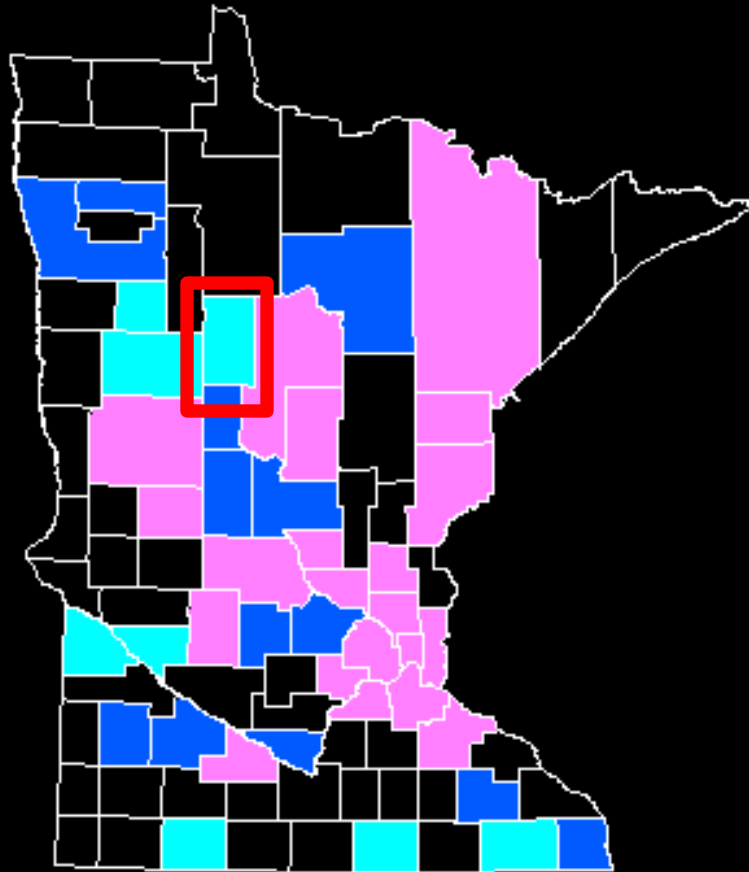


# Performance Improvement




Review the care

Review the crash

Fatalities in Crashes Involving an Alcohol-Impaired Driver (BAC = .08+) per 100,000 Population



Compare Individual County Rate to the Rates of all US Counties

 0	 Lower Third [Under 4.25]
 Middle Third [4.25-9.12]	 Upper Third [9.12+]