

**Survival of major and severe trauma patients
transferred to tertiary care hospital
by aeromedical transport**

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Disclosure

Ekkrit Surakarn, M.D.

Relevant Financial Relationship

- Trauma surgeon, employee of Bangkok Hospital Headquarters

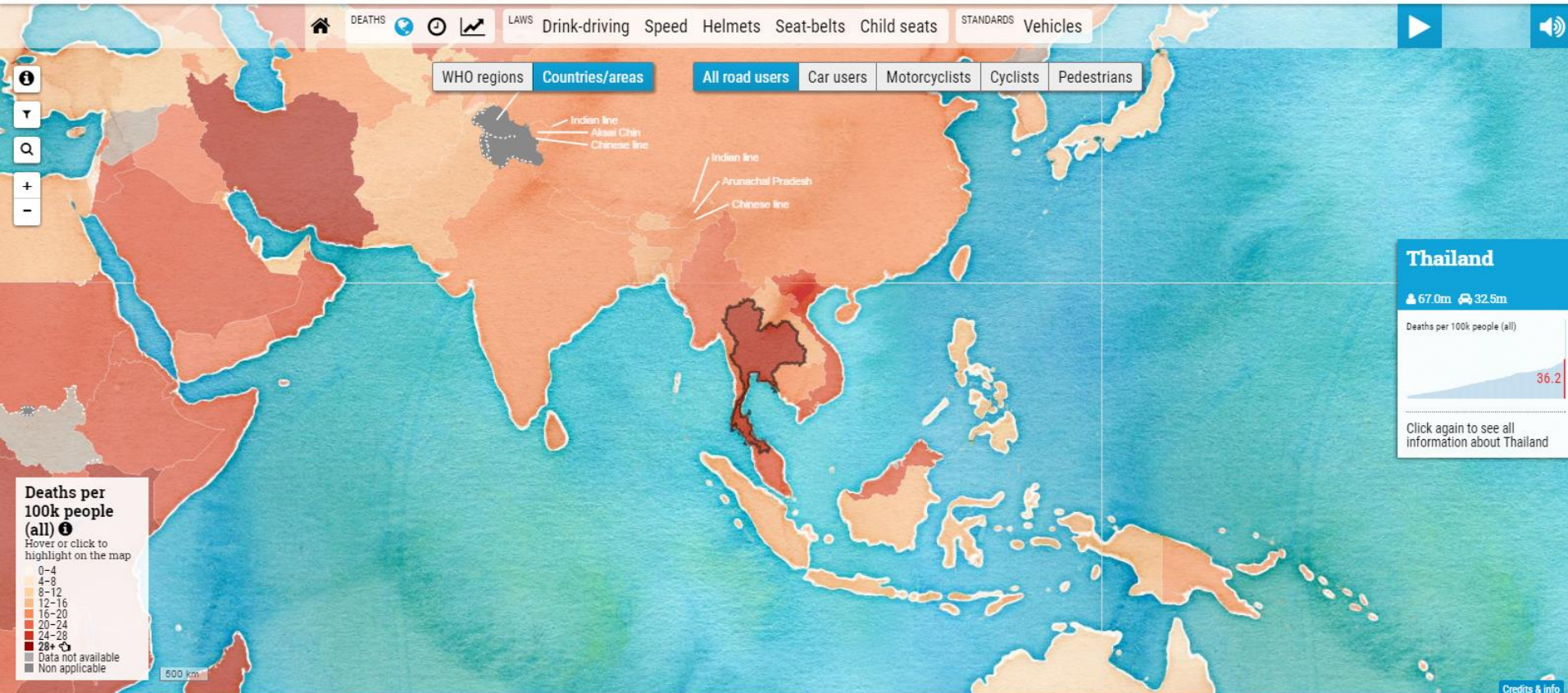
Relevant Nonfinancial Relationship

- I have no relevant non-financial relationship to disclose.

Introduction

Death on the roads

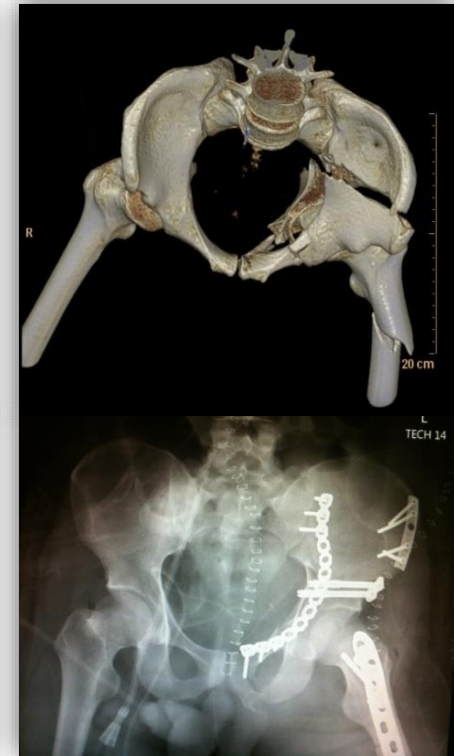
Based on the WHO Global Status Report on Road Safety 2015



We are the world leader in death on the roads.

Introduction

Major and severe trauma patients need timely management in the designated trauma center for the best possible outcome.



Rural accidental injury and death: The neglected disease of modern trauma systems?

Richard Keith Simons, MB BChir

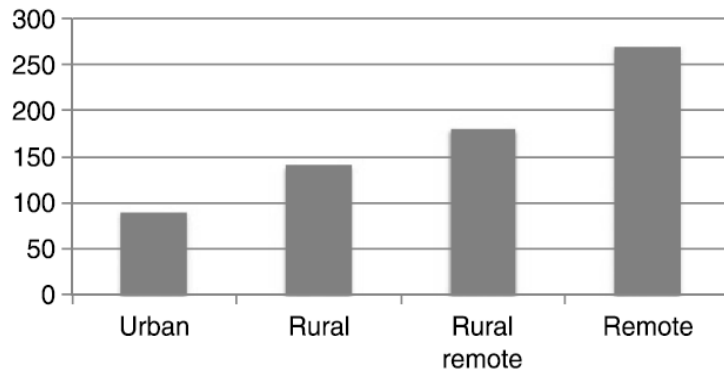


Figure 2. Urban jurisdictions in BC have much lower injury-related hospitalization rates than those in rural and remote jurisdictions. (Source: Canadian Institute for Health Information).

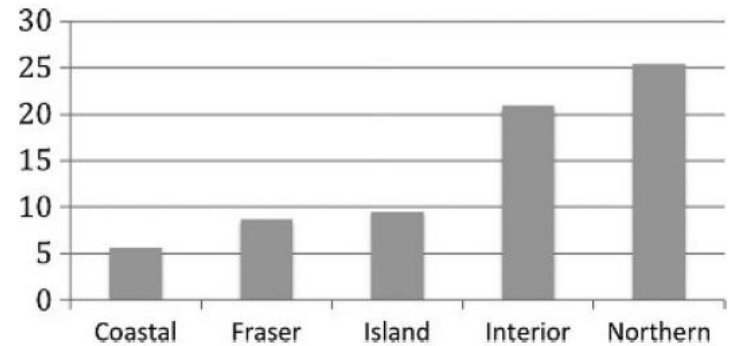


Figure 4. MVC-related death rates in BC by Health Region. The predominantly remote Northern Region has 4 to 5 times the rate of the more urban regions (Fraser and Coastal).⁶

Bottom line, rural remote populations in BC, Canada, North America and all jurisdictions studied to date are being injured more often, are more likely to die from injury



Role of aeromedical transport for trauma care in Thailand

Timely transport injured patients from remote facilities to trauma centers for higher level of care.



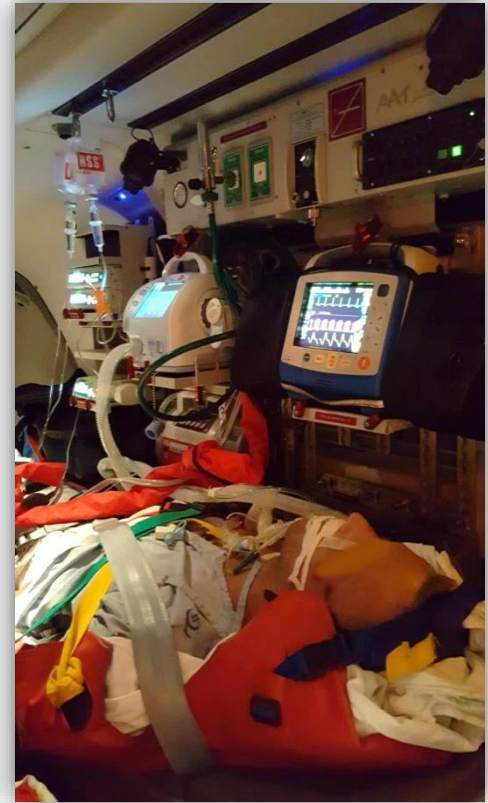
Aeromedical team configuration in Thailand

- Doctor & Registered nurses
- Fixed-wing and rotorwing aircrafts



Aeromedical team configuration in Thailand

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- Fixed-wing and rotorwing aircrafts



Level of care for severe and major trauma

- Advanced life support
- Preflight evaluation and stabilization



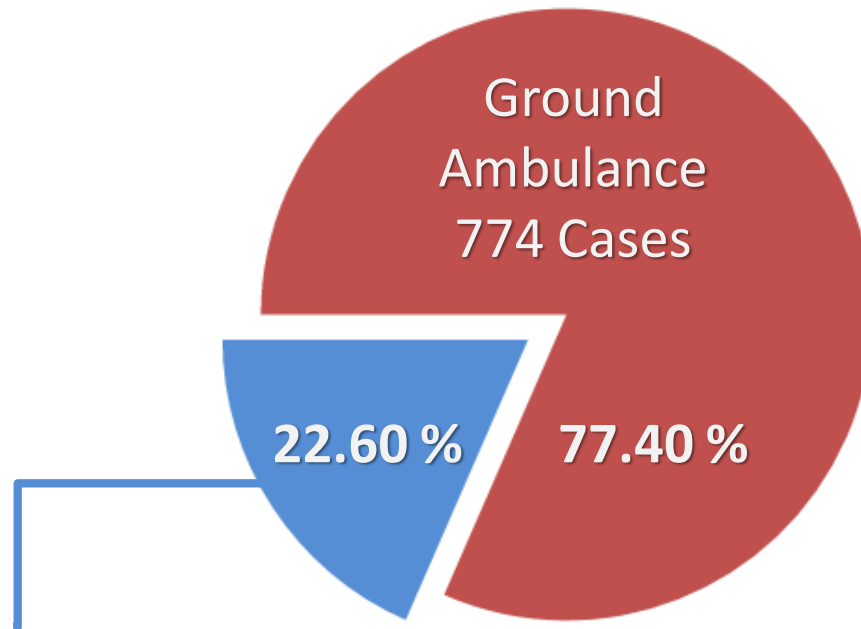
We studied the outcome of major and severe trauma patients transferred by air ambulance to Bangkok Hospital during 4 years period, 2014-2017.

Methods

- Medical records and trauma registry of trauma patients transferred to Bangkok Hospital during 2014-2017 were reviewed.
- The severity was classified by Injury Severity Score(ISS).
 - Major trauma : ISS 16-24
 - Severe trauma: ISS > 24
- The primary outcome is survival of major and severe trauma patients transferred by aeromedical transport.

Results

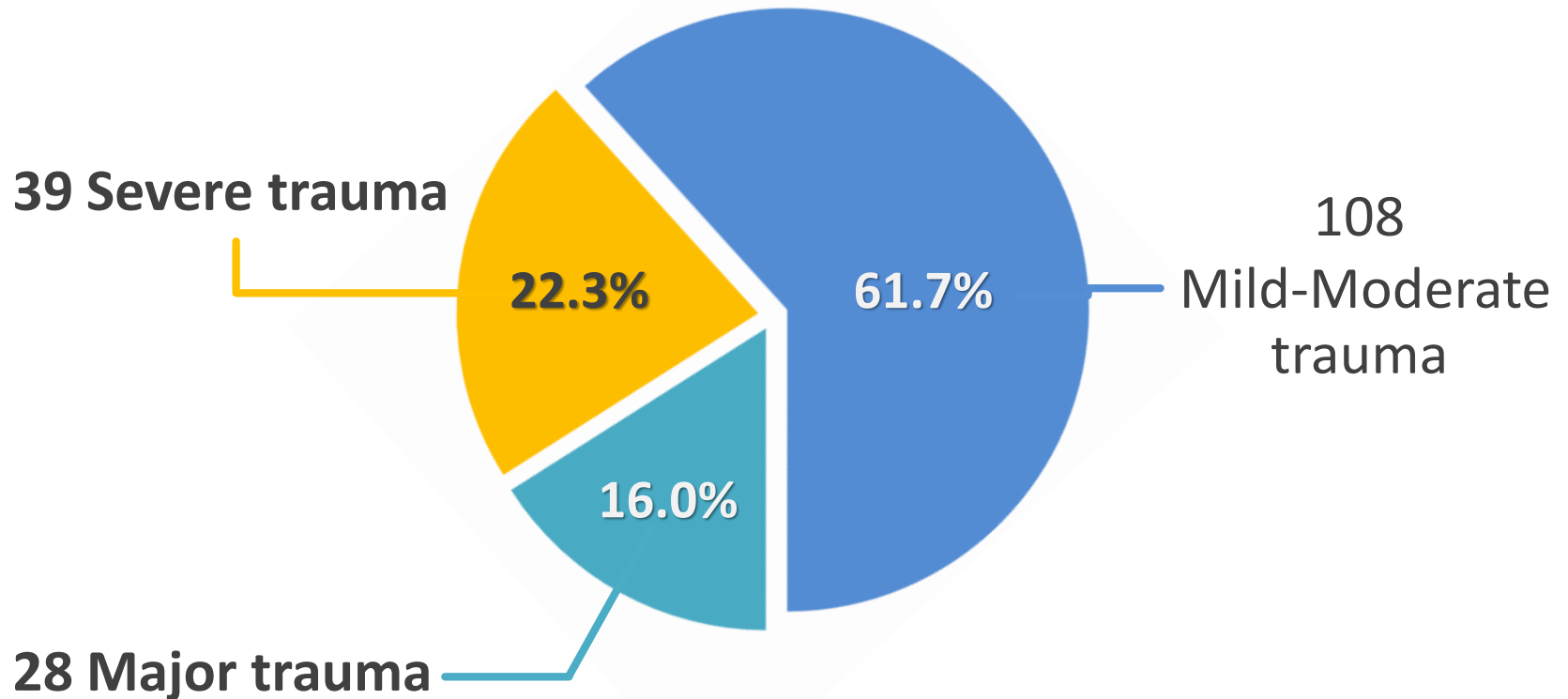
949 Trauma patients transferred during 2014-2017



175 Patients were transferred by air ambulance as the secondary mission or interfacility transfer.

Results

175 Trauma patients transferred by air ambulance



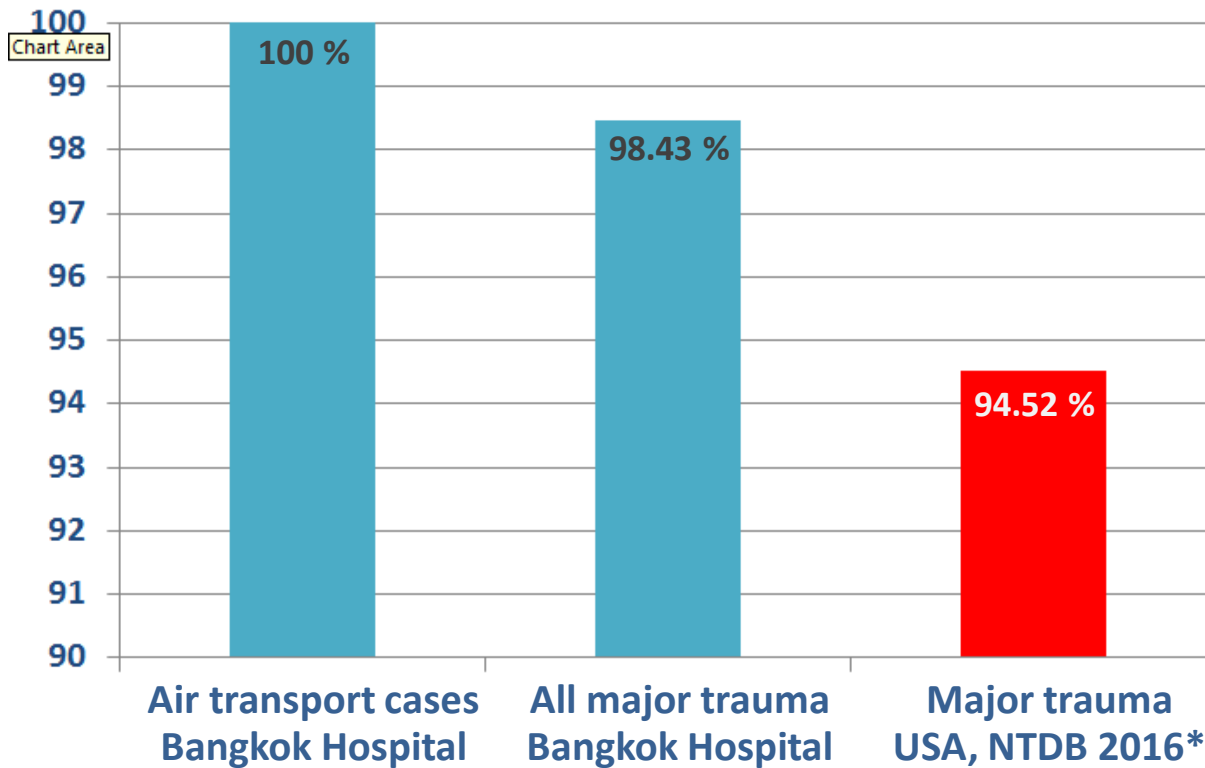
Results

Survival rate

- **Major trauma: All of 28 patients survived.**
- **Severe trauma: 32 of 39 patients survived, 82.06%.**
- Overall survival in both groups, major and severe trauma patients transferred by air ambulance to Bangkok Hospital during 4 years period (2014-2017) was 89.55% .

Results

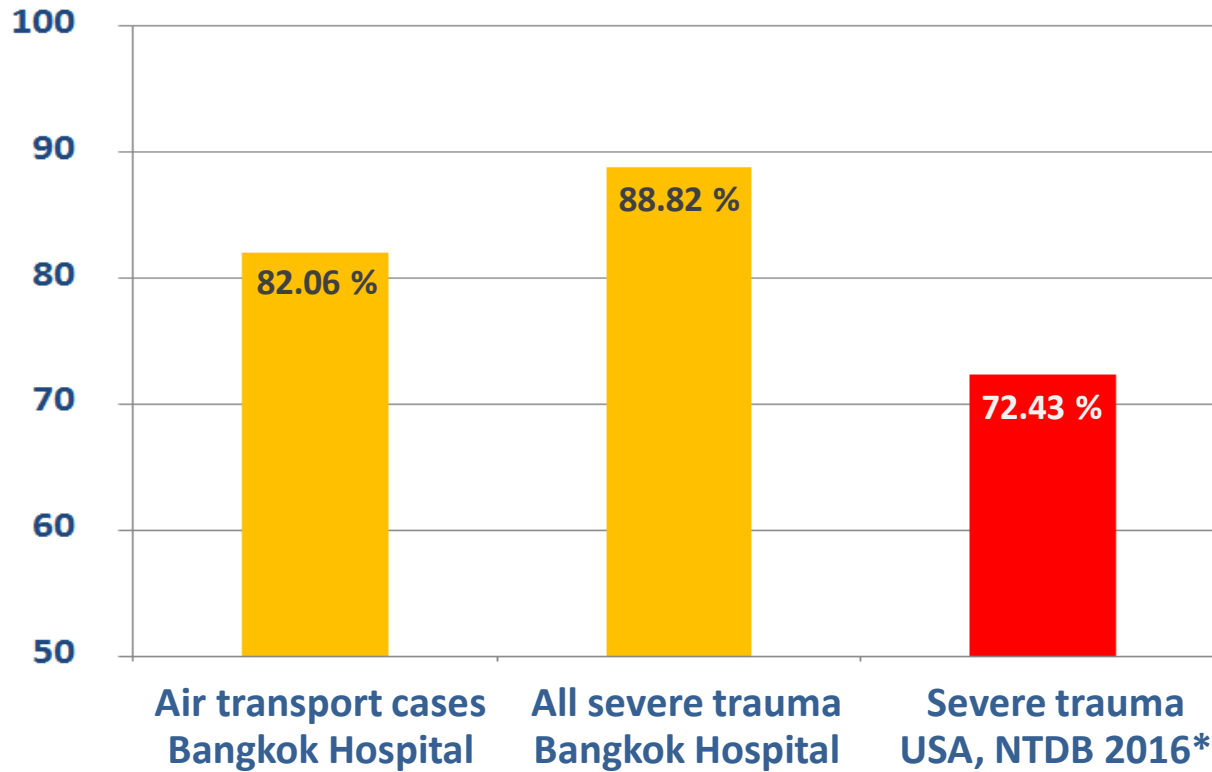
Survival rate of MAJOR TRAUMA in 2014-2017



NTDB 2016*: National Trauma Data Bank 2016, USA

Results

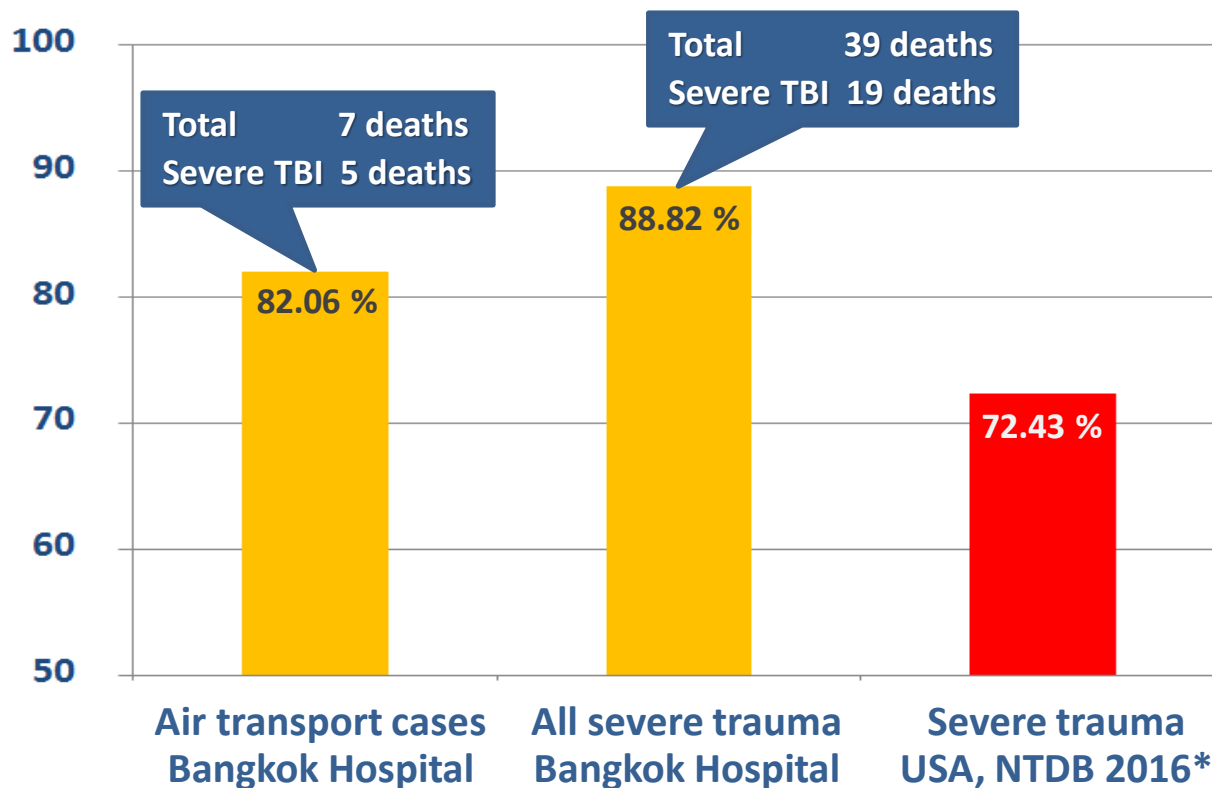
Survival rate of SEVERE TRAUMA in 2014-2017



NTDB 2016*: National Trauma Data Bank 2016, USA

Results

Survival rate of SEVERE TRAUMA in 2014-2017



NTDB 2016*: National Trauma Data Bank 2016, USA

Discussion

DEATH

Injury patterns that result in 7 deaths which were also the leading causes of all deaths in severe trauma group are

- *Severe traumatic brain injury, 5 cases*
- *Massive bleeding with unstable hemodynamic, 1 Case*
- *Severe burns with unstable hemodynamic, 1 Case*

Discussion

SURVIVAL

- Most of trauma patients receiving interfacility transfer in this study were stabilized. Life-threatening injuries were initially detected and managed prior to transfer.
- Preflight evaluation and pretransport management play important role in patient safety.
- Advanced life support provided by flight physician and flight nurses may be of advantage.

Conclusions

Survival rate of major and severe trauma patients receiving aeromedical transport to trauma center in this study is acceptable.

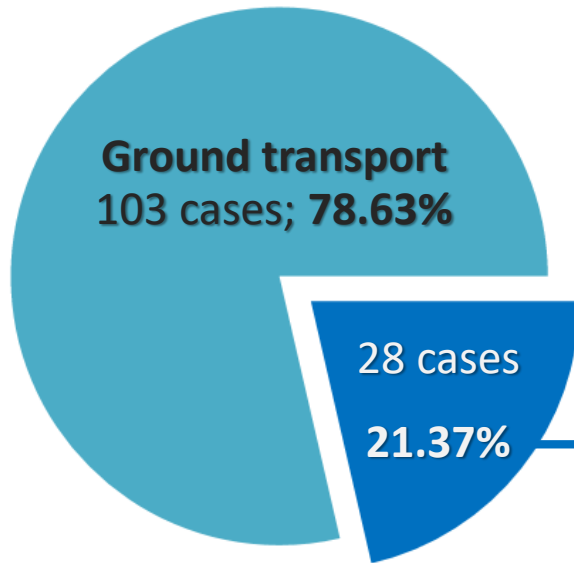
Survival of major trauma patients was significantly higher than severe trauma patients.

The mortality in severe trauma group correlates with higher injury severity score, severe TBI and multiple organ failure.

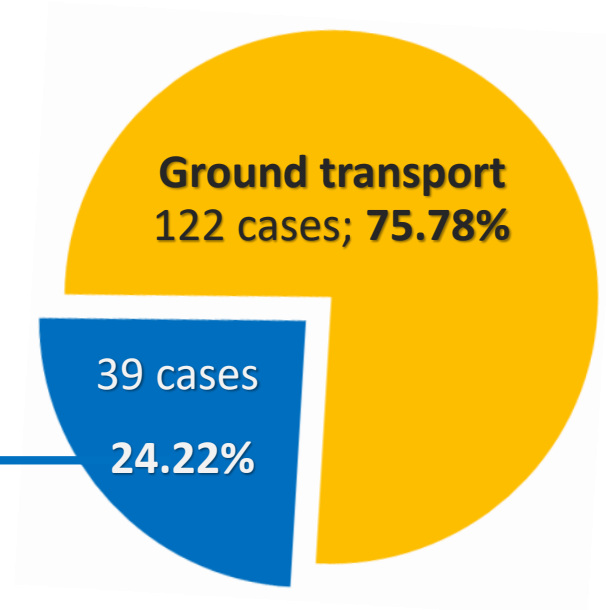
Limitation: Observation, Lack of systematic comparison

Addendum

Major trauma
131 cases



Severe trauma
161 cases



Air transport