

Trauma Registries for injury surveillance and quality of care

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- Purpose of trauma registry
- Scope and opportunities
- Challenges in implementation
- Lessons learnt in local context

- Trauma registries (TRs) are databases used to monitor and enhance the quality of trauma care
- Public health programs related to injury prevention and research
- “Minimal dataset” vs. “Comprehensive dataset”

- **Lack of comprehensive data source of injury surveillance**
 - Most of trauma data is based on Medico-legal records
 - Lack of pre-hospital data
 - Inter-hospital transfers result in loss of valuable information
 - Non-standardized formats for data collection

A trauma registry is a file of uniform data describing ***individuals*** ***who meet specific case criteria*** in which medical and demographic information is collected in an ***ongoing, systematic and comprehensive way*** in order to serve predetermined purposes

- To provide information that could be used to improve efficiency and quality of trauma care
- Evaluation of trauma care through risk adjustment
- To provide a framework for injury prevention strategies
- Analysis of outcomes based on access to care
- Planning of resource allocation

- Case definition
- Data capture
- Software and hardware requirements
- Implementation strategy
- Funding
- Personnel and training

- In addition to evaluating EMS and trauma patient outcomes, a nation wide trauma registry could serve as a benchmark to:
 - facilitate research efforts
 - determine national trends in trauma care
 - address resources for disaster and domestic preparedness

- All the information needs to be coded to facilitate rapid and easy retrieval of the data as well as to avoid differences in terminology
- Also allows for comparison of treatment and outcomes according to national and international norms
- Recognized coding standards include Revised Trauma Score, International Classification of Disease- Clinical Modification and Abbreviated Injury Scale

■ Electronic:

- Modifying hospital main database
- Server based data base
- Stand alone PCs
- Handheld devices

■ Paper based

- Analytic and reporting systems should be strong and reliable
- Standardization of software and hardware across hospitals is beneficial in generating regional data
- Expenses should be limited to the essentials
- Well thought out implementation plan

- Inclusion in the registry is selective, based upon the case definition
- The injuries included in trauma registries are not representative of all injuries in the population
- Incomplete findings and incomplete data may limit the utility and value of registry as a surveillance tool

Few examples:

- Kampala Trauma registry
- Haiti- Pilot test of trauma registry
- Cape town Registry
- Chinese maxillofacial registry
- Kenya Trauma Registry

- Collector©, Trauma One© and NTRACS© are expensive products
 - Collector© which has over 1500 clients in 10 countries, costs about 7500 USD for application and 2500 USD for yearly license.

- The cost of training and updates are in addition to maintenance

Case Study from Pakistan

- No formal injury related data base
- Single institution based case series
- Road traffic injury surveillance data
- Single institution reports of risk adjusted outcome comparison

- Need of hospital based injury data
- Assessment of quality of care
- Outcomes should be adjusted for severity of injury and patient related factors
- Collate this data into easily accessible and readily retrievable form.

- Locally developed, customized, electronic trauma registry
- Based on open source software designed by local software developers in Karachi.
- The development of the software required multiple iterations
- Patient confidentiality
- Named: Karachi Trauma Registry- KITR

KITR Snapshot

Pak-Trauma Registry - [Patient Record : 3211]

Windows Help

 New Patient

 Save Trauma

 Close

 Search

 Report


 Import/Export

 Help

 LogOff

 Patient Details

 Injury Details

 Emergency

 Monitoring and Support

 Discharge

ED Notified: 17-Aug-2009 03:21 P.

Next Phase from ED:

Time of exit from ED 14-Oct-2008 01:00 P.


Initial Vital Signs

Assisted breathing

BP (mmHg): HR (beats/ min): RR (/minutes): RTS:


Weight (kgs): Temperature (C): GCS: Weighted RTS:

ED Diagnosis

	ICD-9 Category	ICD - 9 Code
	OPEN WOUNDS OF LOWER LIMB (890 - 897.7)	890.1 COMPLICATED
	INTERNAL INJURY OF CHEST, ABDOMENT AND P...	864.0 WITHOUT MENTION OF OPEN WOUND INTO CAVITY
	INTERNAL INJURY OF CHEST, ABDOMENT AND P...	865.0 WITHOUT MENTION OF OPEN WOUND INTO CAVITY
	OPEN WOUNDS OF LOWER LIMB (890 - 897.7)	890.1 COMPLICATED
	INTERNAL INJURY OF CHEST, ABDOMENT AND P...	864.0 WITHOUT MENTION OF OPEN WOUND INTO CAVITY

IV Fluids

Pre-Hospital (cc): ED IV Fluids (cc):

	Blood Product	# of transfusions
	PRBCs	4
	FFP's	6

Save Trauma
Close
Search
Report
Import/Export
Help
LogOff

Discharge Details

DC Date: 29-Dec-2008 01:54 DC Capacity: (None) Post Hospital: Morgue
 Reason for Transfer: (None) Facility Name: neurosurgery Autopsy (Yes)

	Body Region	AIS	AISValue	Comments
▶	HEAD (Cranium and Brai...	150400.2 - Vault fracture ...	2	
	HEAD (Cranium and Brai...	150202.3 - without CSF le...	3	
	HEAD (Cranium and Brai...	140650.3 - subdural NFS	3	
	HEAD (Cranium and Brai...	140672.4 - moderate; com...	4	
	HEAD (Cranium and Brai...	140611.3 - multiple NFS	3	
	HEAD (Cranium and Brai...	140630.3 - epidural or ext...	3	

ISS
 Head: 4 Face: 0 Chest: 0 Abdomen: 0 Extremity: 0 External: 0 ISS: 16

TRISS
 Blunt Penetrating RTS: 3.8672 ISS: 16 Age Index: 0 TRISS: 80.97 %

Complications:

- Age and sex distribution
- Outcome according to
 - TRISS (predicted and actual survival)
 - ISS
 - RTS
- Discharge capacity
- Mechanism of injury
- AIS distribution of injuries
- Distribution according to ICD coding
- Injury to arrival time
- ED length of stay
- Final disposition

Lesson Learnt

- 1- The fundamental importance of good patient records, patient identification and documentation of all relevant information
- 2- Training of personnel and availability of technical support to the staff
- 3- Sustainable funding, which is by far the most common reason for the lack of a long-term implementation plan for a registry
- 4- Finally, one of the most important factors which alone can impact these barriers is institutional buy-in from senior hospital management.

- Less resourceful settings
 - Paper based data
 - Less number of trained personnel
 - High volume of patients
 - Involvement of providers would be necessary

- More resourceful settings
 - Integrating existing electronic databases into the registry

- Provider based vs. Coordinator based system of data collection

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Thank you. **THANK YOU**