# Trauma registry of acute care (TRAC) – CHUV

## Annual Report 2013

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# Summary

# 1. Introduction

This report aims at presenting an overview of the characteristics of trauma patients admitted to the Lausanne University Hospital (CHUV) from the 1st of January to the 31st of December 2013. Analysis of data is performed based on data from the institutional Traumaregistry "TRAC".

# 2. Methodology

## Inclusion criteria

This report includes all the patients admitted to CHUV shock room during the year 2013 after having sustained a physical injury. For comparison, values from the period 2008-2012, as stated in the previously edited 4-year report, are either mentioned in the text or inserted in brackets ([ ]).

## Data collection and codification

Data collection and entry is performed by a trained data-manager on the basis of patients' electronic files. About 30% of the items are entered via automatic links with hospital databases; the remaining items are manually gathered from patient files. On this subject, it is necessary to underline that 27.9% are incomplete patients' file: in most cases (55.3%), the medical report from shock room, usually filled out by either the surgical or ED registrar, is lacking.

Codification of patients' injuries is done following AIS/ISS 2008 international standards by a AAAM-trained nurse (Association for the Advancement of Automotive Medicine) (1).

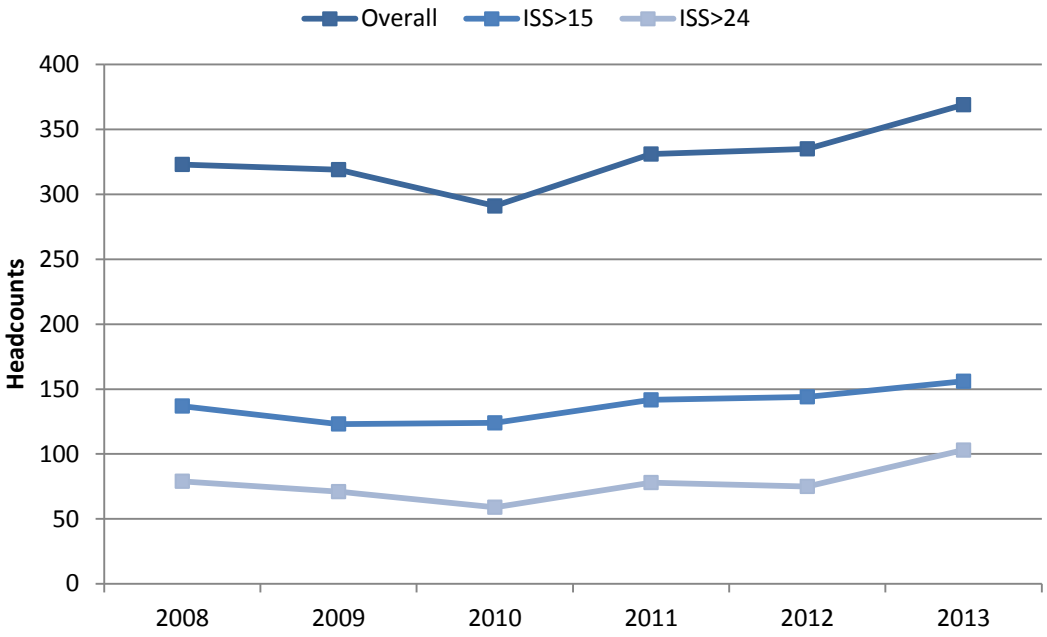
## Statistics

Statistics and graphics were performed using Microsoft Office 2008 Excel©. Results are expressed in percentages for frequencies. When necessary, a measure of dispersion was given using median, lower and upper interquartile ranges (IQR1/IQR3), representing respectively 25% and 75% of the headcounts.

# 3. Results

## Patients' characteristics

During 2013, 369 patients were admitted to CHUV shock room: their median age was 39 years (23/57). The graphic below shows the trends in admission rates – overall and considering ISS – over the last five years:




## Severity of injury

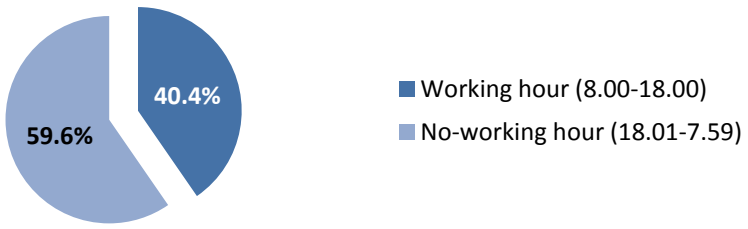
Of all admitted patients, median injury of severity score (ISS) was 13 (5/25). Severely injured patients, defined as an ISS>15 accounted for 42.3%. 27.9% presented with critical injuries (ISS > 24).

The table below display ASA-classes[1] according to identified co-morbidities as listed in patient's discharge letter:

| | | |
|---|---|---|
| **ASA-Class** | ASA 1 | 60.7% |
| | ASA 2 | 24.4% |
| | ASA 3 | 8.1% |
| | ASA 4 | 0.5% |
| | Unknown | 3.0% |

## Admission time

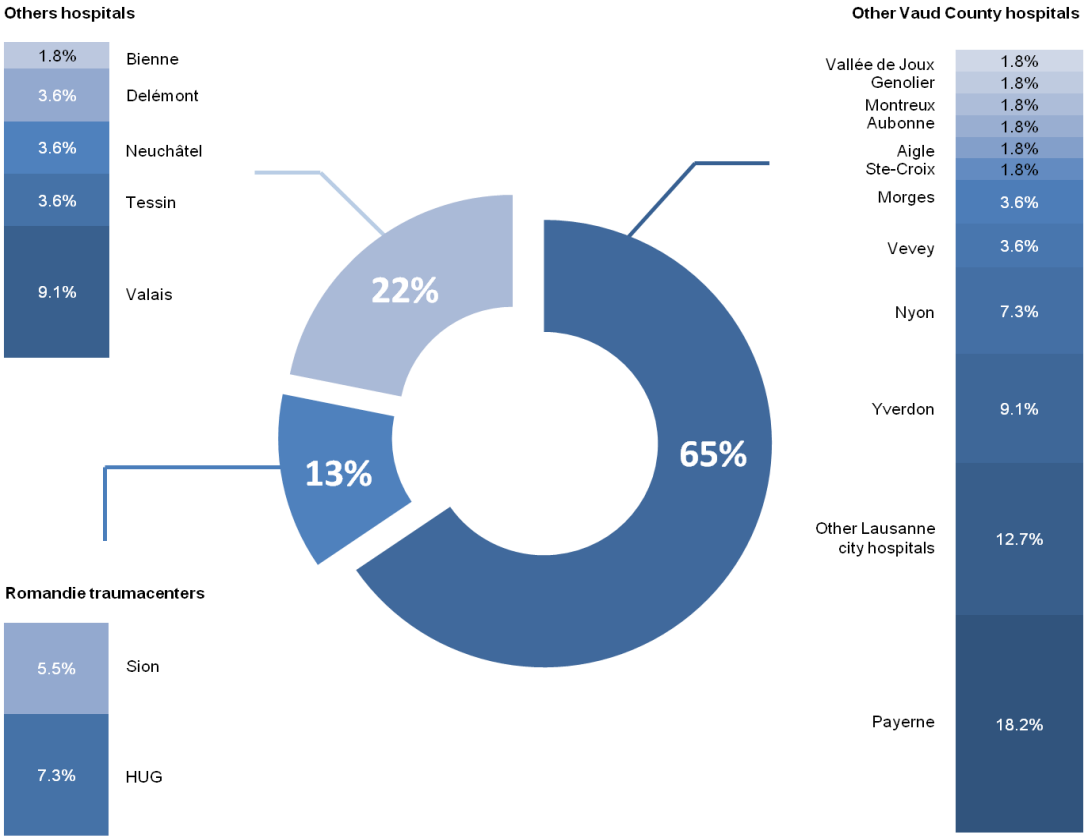
The median patients' admission time is 15.15h (10.35/18.40). Admission time frequencies within 24 hours are displayed in the graphic below:




[1] The ASA score, or « the physical status score », was developed by the American Anaesthesiology Society in 1941 in order to assess the pre-operatory health status of a patient and the risk he dies during a surgery.

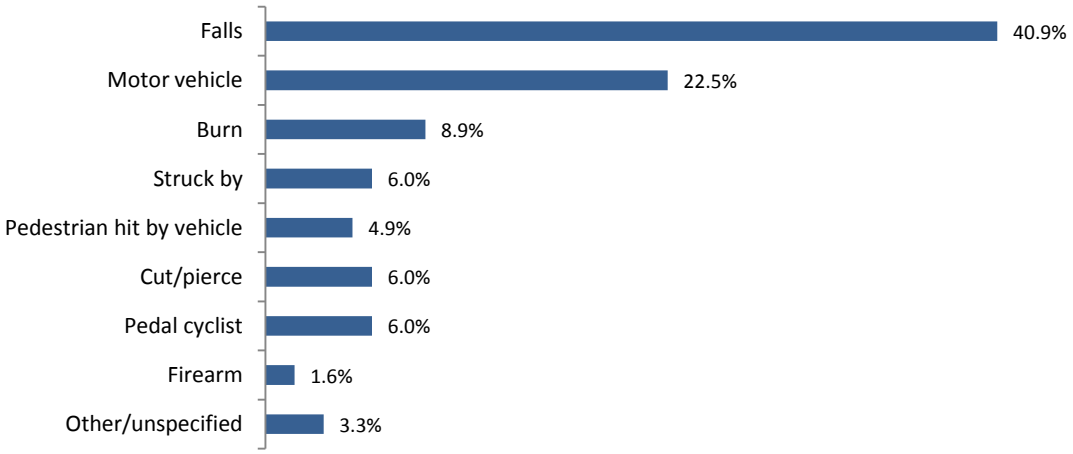
## Inter-hospital transfers

14.9% [16.6%] of the patients were initially treated in a different hospital and secondarily transferred to CHUV shock room:




## Trauma characteristics

### Mechanism of injury



In 2013, 33.3% of admitted patients were injured during a road traffic accident. Over the period from 2008 to 2012, road traffic incidents were the main mechanism of injury [41.2%], followed by falls [34.2%].

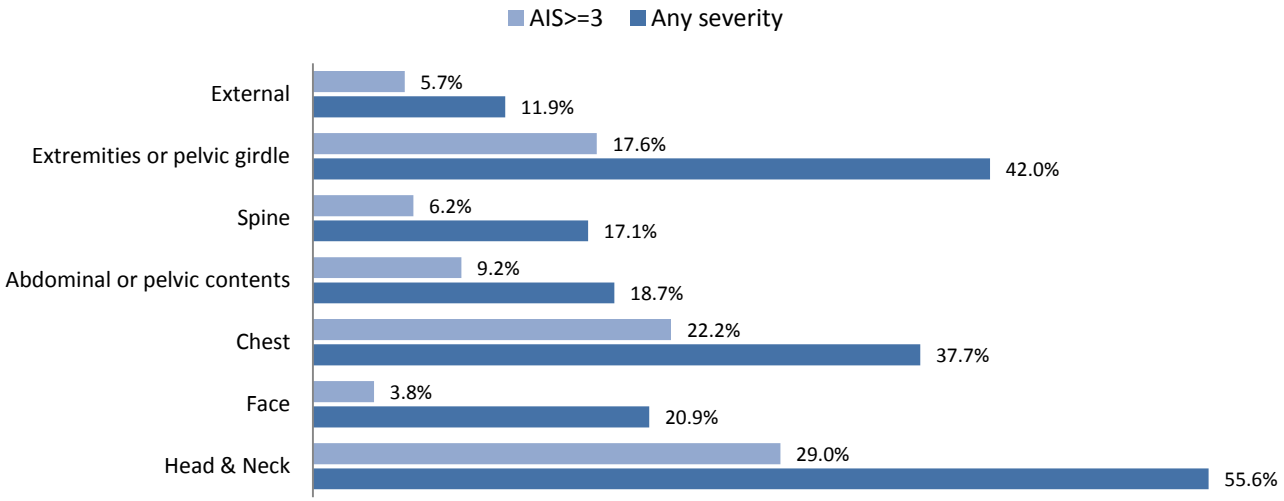
### Injury intent (as based on clinical judgement)


### Type of trauma

The rate of penetrating trauma during 2013 was 8.1% as compared to 8.7% in 2008-2012.

### Injured body regions

Incidence of overall injuries per body region and serious injuries per body region, defined as a score of AIS≥3, are shown in the graph below:

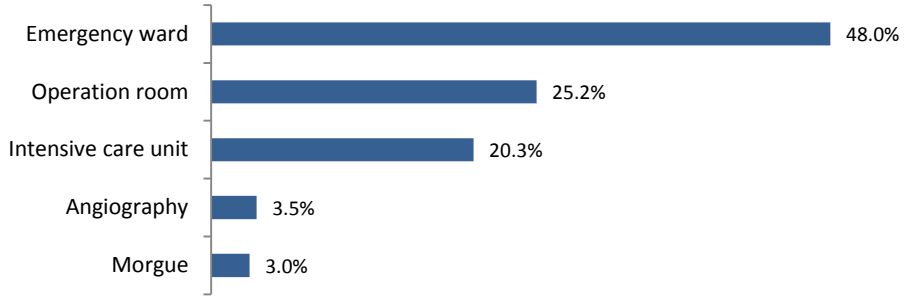



Head injuries account for 84.4% of all listed within the category “Head and neck”. Among them, 65.8% are considered being serious with a score of AIS.≥3.

## Medical support after shock room care

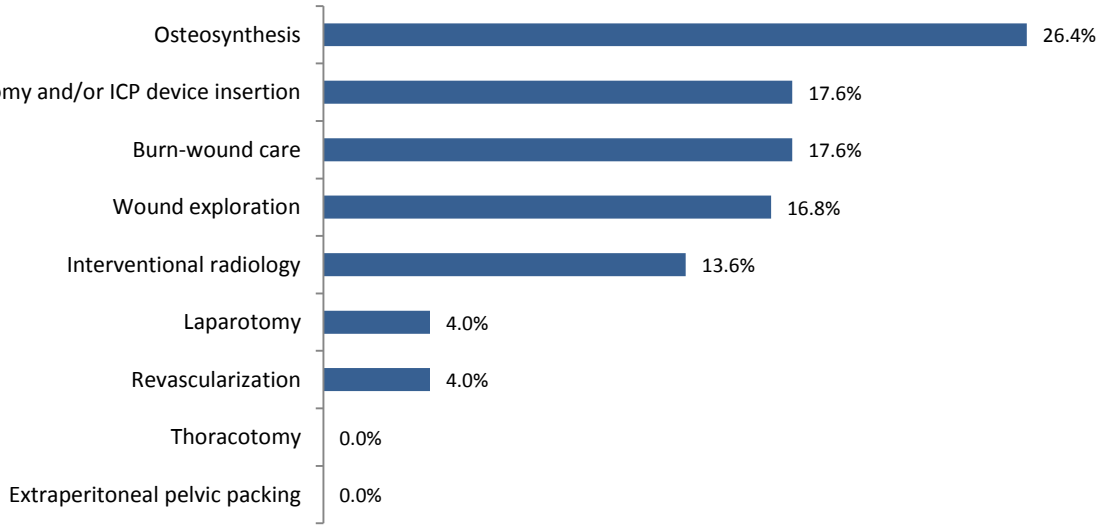
### Transfer destination from shock room

28.7% [29.6%] of patients were directly admitted to the operating room or the angiography suite whereas 48.0% [48.9%] were transferred to the emergency ward.




### Emergency interventions

Emergency interventions are defined as surgical or interventional-radiological proceedings initiated directly after the initial assessment in the shock room. In our sample, 28.7% of the patients underwent an emergency intervention, including interventional radiology. The graphic below displays the type of emergency interventions. Some may have been performed combined within the same operative procedure:




## Length of stay

Length of stay (LOS) in hospital is summarized as the following:

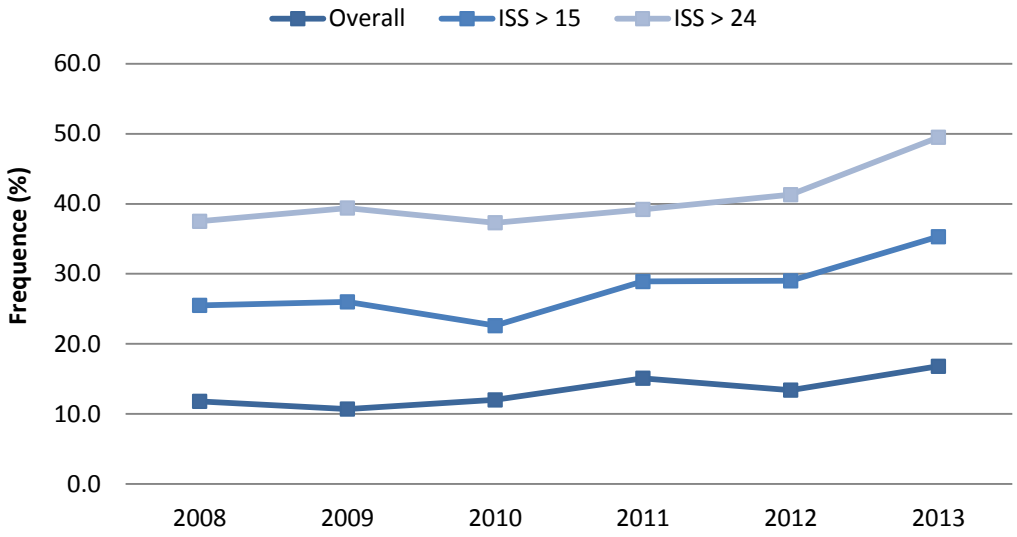
| | Hospital LOS (days) | |
|---|---|---|
| | **Overall** | **ISS > 15** |
| Median (IQR) | 5 (1/17) | 9 (2/3) |

Within their hospital stay, 40.7% of the included patients were admitted to the intensive care unit (ICU) at a given time. The length of stay in ICU with regard of the severity of injury is distributed as the follwing:

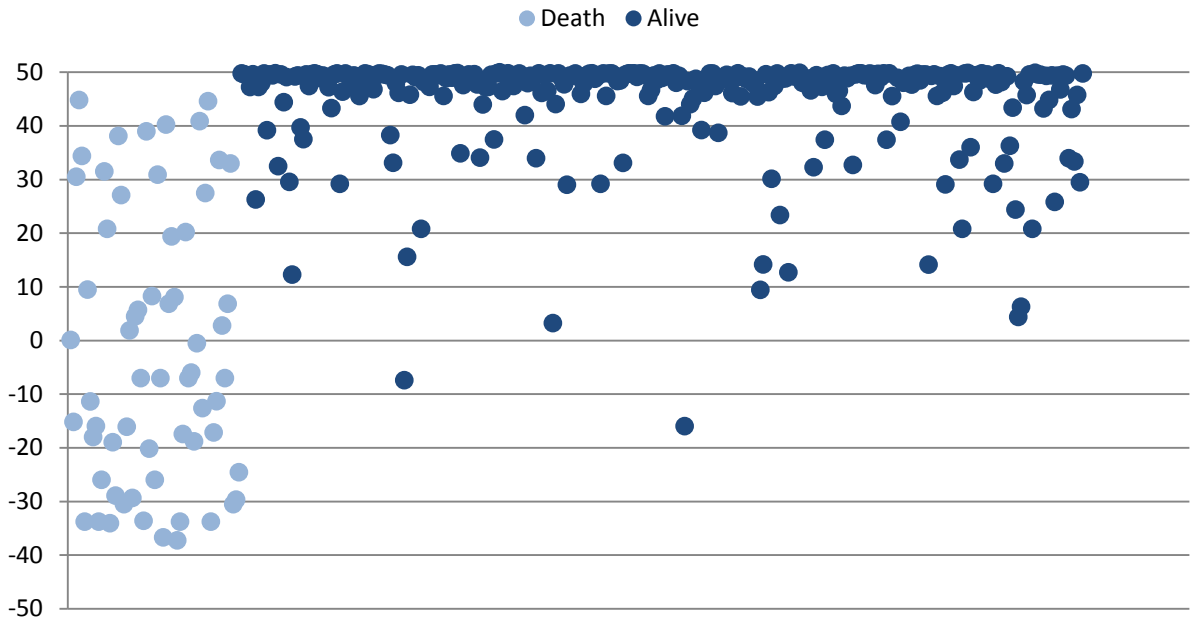
| | ICU LOS (days) | |
|---|---|---|
| | **Overall** | **ISS > 15** |
| Median (IQR) | 4 (2/11.75) | 5 (2/13) |

## Mortality

Mortality rate for all trauma patients admitted to shock room was 16.8%. For severely injured (ISS>15) and critically injured (ISS>24) patients, mortality rates were 35.3% and 49.5% respectively. The graphic below shows a significant increase over the last 5 years (p= 0.035):




The following graph represents the correlation of calculated probability of survival and the outcome of patients included in the registry. Each dot represents a patient. The 0-line represents the cut-off of 50% of calculated probability of survival (PS). According to this calculation, each dot above the 0-line represents a patient which statistically should have survived.



## 4. Acknowledgments

We would like to thank all participating staff and departments that contributed to data-collection within TRAC. A special thank goes to the departments of Anaesthesiology, Emergency Medicine, Intensive care, Orthopaedic surgery, Visceral Surgery as members of the steering committee of the “Filière Trauma” and to Prof. J.-B. Wasserfallen, medical director of CHUV.

## 5. References

(1) Committee on Medical Aspects of Automotive Safety. Rating the severity of tissue damage. I. The abbreviated scale. JAMA. 1971; 215(2):277-80. doi:10.1001/jama.1971.03180150059012