

# Craniocerebral Trauma Related Road Accidents in Guinea: Impact of Delay to Access to Healthcare and the Ability to Finance Care on Length of Hospital Stay and Hospital Mortality.

Kezely Beavogui MD; Akoi Koivogui; Diankanagbe Camara; Vamala Guilavogui; Zeze Beavogui, Koue Goumou, Lamine Fantal Kaba, Rougui Diallo

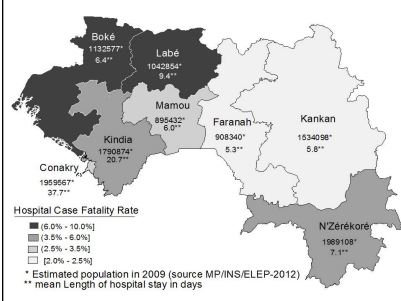
BEAVOGUI Kézely MD Ph.D, Neurosurgeon, Head of Neurosurgery Department, University Hospital of Conakry, Donka



## Introduction

In the context of medical and surgical care unevenly distributed on the extent of the national territory, the problem posed by the Craniocerebral trauma related to road accidents is a major challenge for all health systems in resource-insufficient. The objective of this study was to analyze the impact of delay to access to healthcare and the ability to finance care, on the long duration of hospital stay and hospital mortality.

**Figure 1 : Distribution of Hospital Case Fatality Rate, mean population and mean length of hospital stay in days by administrative region.**



## Keywords:

Craniocerebral trauma; Delay to access to healthcare; Ability to finance care; Length of hospital stay; Hospital mortality

## Methods

The study involved the public roads accident victims with a Craniocerebral trauma and admitted to a reference hospital (public or private) in Guinea, in 2009. The relationship between the factors studied (delay to access to healthcare and the ability to finance care) and long duration of hospital stay (> 21 days) was analyzed in a multivariate logistic regression model. Similarly, the relationship between the studied factors (delay to access to healthcare and the ability to finance care) and hospital mortality was analyzed in a multivariate logistic regression model.

**Table 1. Univariate associations of Delay to access to healthcare and Ability to finance the care with Long hospital stay.**

Variables	Long hospital stay		Odds Ratio [95% CI]	P
	Yes (n=594) Number (row %)	No(n=2072) Number (row %)		
<i>Delay to access to healthcare</i>				
<=6H	138(8.2)	1536(91.8)	1	
6 to 12H	138(31.3)	303(68.7)	5.1 [3.9, 6.6]	0.000
>12H	228(49.5)	233(50.5)	10.9 [8.5, 14.0]	0.000
<i>Ability to finance the care</i>				
Low capacity	222(23.3)	730(76.7)	1	
Capacity Medium	192(15.8)	1020(84.2)	0.6 [0.5, 0.8]	0.000
Capacity Normal	90(21.8)	322(78.2)	0.1 [0.7, 1.2]	0.55

## Results

The mean duration of hospital stay was 8.0 ± 8.1 days. In multivariate analysis, the risk of having a long length of hospital stay increased by 60% when the delay to access to care was more than 12 hours (adjusted OR = 1.6, CI = 1.0 - 2.6, p = 0.03). Compared with patients with a low capacity to finance care, patients with medium capacity (adjusted OR = 0.6, CI = 0.4 - 0.8, p = 0.001) and those with a normal capacity (adjusted OR = 0.6, CI = 0.4 - 0.9, p = 0.02) had a risk of long-term hospital stay decreased by 40%. The hospital mortality estimated at 3.8%. The risk of death during hospitalization based on results of the multivariate analysis, was 2.6 times higher in patients admitted 12 hours after the accident compared to those admitted within the first six hours after the accident (adjusted OR = 2.6, CI = 1.1 - 6.2 p = 0.03). Mortality was not related to the ability to fund care.

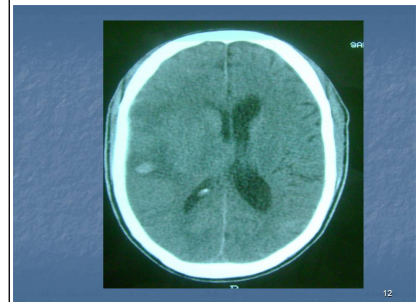
**Table 2. Univariate associations of Delay to access to healthcare and Ability to finance the care with Hospital Case Fatality.**

Variables	Hospital Case Fatality		Odds Ratio [95% CI]	P
	Yes (n=99) Number (row %)	No(n=2477) Number (row %)		
<i>Delay to access to healthcare</i>				
<=6H	47(2.8)	1627(97.2)	1	
6 to 12H	20(4.5)	421(95.5)	1.6 [1.0, 2.8]	0.07
>12H	32(6.9)	429(93.1)	2.6 [1.6, 4.1]	0.000
<i>Ability to finance the care</i>				
Low capacity	29(3.1)	923(96.9)	1	
Capacity Medium	48(4.0)	1164(96.0)	1.3 [0.8, 2.1]	0.26
Capacity Normal	22(5.3)	390(94.7)	1.8 [1.0, 3.2]	0.04

## Conclusions

The long duration of hospital stay and hospital mortality are often a result of delays in access to care. This delay is partly due to the difficult transportation of injured to the nearest hospital because of the dilapidated state of intercity roads and lack of emergency help medical service.

**Figure 2: CT scan, 49 years old patient admitted for Cranioencephalic trauma occurred by accident Public Way**



## Acknowledgements:

This survey is the result of a partnership between the Department of Neurosurgery of the University Hospital of Conakry, the National Programme for the Fight against Traffic Accidents and the World Health Organization to standardize and consolidate the management of craniocerebral trauma and spinal cord trauma in Guinea.

**Comment Figure 2:** 49 years old patient admitted for Cranioencephalic trauma occurred by accident Public Way. This is a CT scan performed on the 2nd day It shows: a focus of cerebral contusion supratentorial law; a perifocal hypodensity with mass effect on the ipsilateral ventricle; a disappearance of cortical sulci (more marked on the right) and the cisterns of the skull base; a slight deviation of the median structures.