

**GiViTI**

Gruppo Italiano per la Valutazione degli Interventi In Terapia Intensiva

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**Report  
CREACTIVE project**








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**Year 2017**

**Overall population (51 ICUs)**



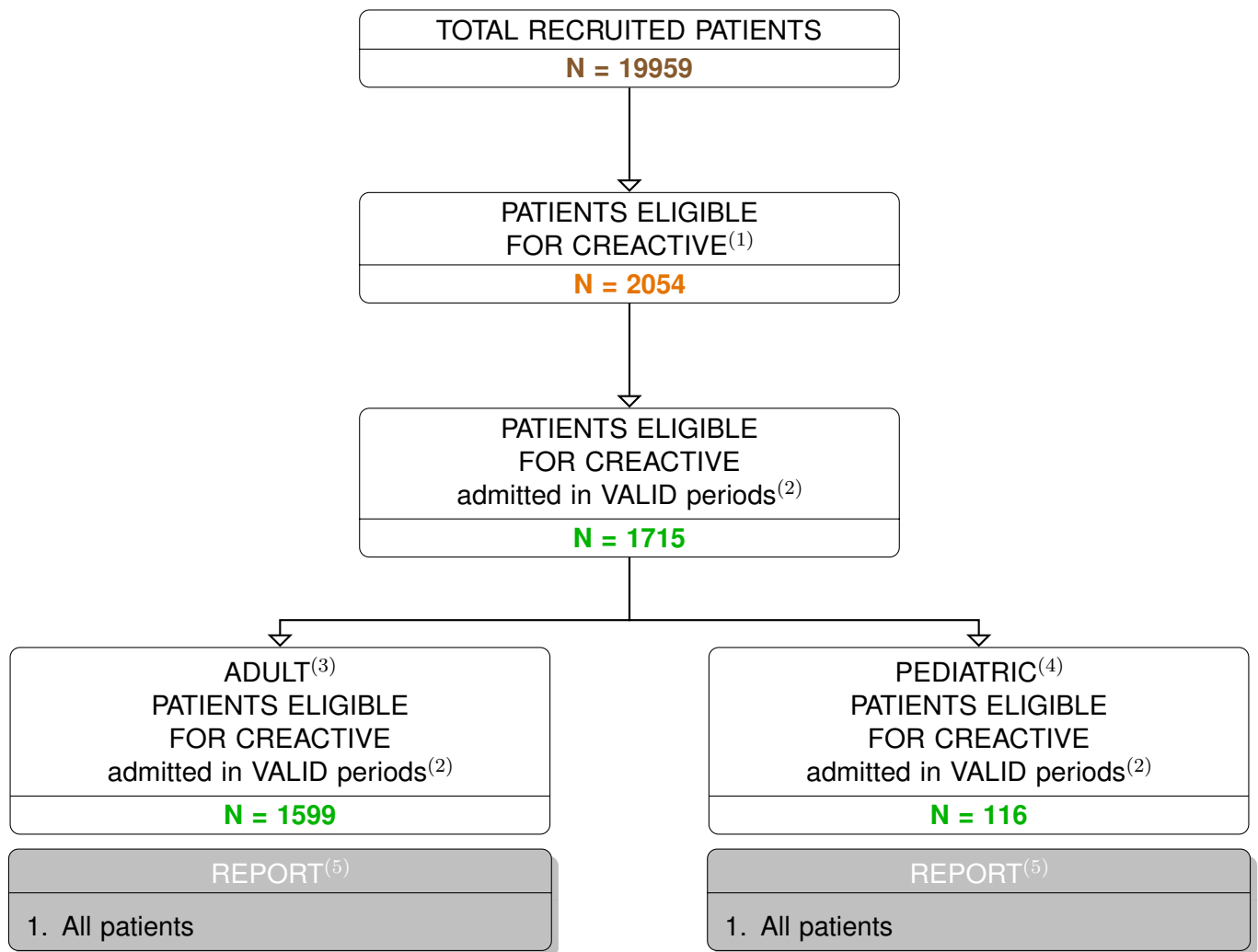
General report - Year 2017  
Project participation\*

Nation	ICUs	Adult Patients	Pediatric Patients	TBI Adult Patients	TBI Pediatric Patients	VALID TBI Adult Patients	VALID TBI Pediatric Patients
 Cyprus	1	649	5	46	0	46	0
 Greece	4	638	98	64	6	57	6
 Hungary	4	884	17	284	6	220	5
 Israel	2	47	1288	0	45	0	34
 Italy	31	13187	887	1150	72	910	62
 Poland	7	1135	194	181	9	175	9
 Slovenia	2	928	2	191	0	191	0
<b>Total</b>	<b>51</b>	<b>17468</b>	<b>2491</b>	<b>1916</b>	<b>138</b>	<b>1599</b>	<b>116</b>
		<b>19959</b>		<b>2054</b>		<b>1715</b>	

\*Only the ICUs providing valid data are included in the analysis.



Overall population with valid data (51 ICUs) - Year 2017  
Study flow-chart



(1) Patients with traumatic brain injury are eligible to participate in CReACTIVE (the petal is not activated for patients with maxillofacial fractures only).

(2) Periods are considered VALID when the % of complete data for core and petal are over the thresholds.

(3) Patients older than 17 years are considered ADULT patients.

(4) Patients under 17 years of age are considered PEDIATRIC patients.

(5) Statistics are only provided for categories of patients composed of at least 5 subjects.



## General report - Year 2017

## Characteristics on admission - Adult patients

Patients (N): 1599

Sex	N	%
Male	1210	75.7
Female	388	24.3
Missing	1	
Age (years)	N	%
17-45	538	33.6
46-65	429	26.8
66-75	255	15.9
>75	377	23.6
Missing	0	
Mean	55.7	
SD	21.1	
Median	58	
Q1–Q3	38–75	
Min–Max	17–97	
Race	N	%
White European	1536	96.2
White African	10	0.6
Black Afro-american	10	0.6
Asian	13	0.8
Arab	8	0.5
Nomad	0	0.0
Unknown	20	1.3
Missing	2	
Marital status:	N	%
Married	535	33.5
Unmarried / Single	327	20.5
Separated / Divorced	46	2.9
Cohabiting	52	3.3
Widowed	109	6.8
Unknown	528	33.1
Missing	2	
Education level	N	%
No schooling	23	1.4
Primary school/ Elementary school	300	18.8
High school diploma	269	16.8
University degree	58	3.6
Unknown	947	59.3
Missing	2	
Occupational status:	N	%
Worker	422	26.4
Student	450	28.2
Homemaker	22	1.4
Retired	67	4.2
Unemployed / Looking for work	70	4.4
Disabled / Not applicable / Sheltered employment	20	1.3
Unknown	546	34.2
Missing	2	

Body mass Index (BMI)	N	%
Underweight	55	3.5
Normal	797	50.4
Overweight	581	36.7
Obese	149	9.4
Missing	17	
Comorbidities	N	%
No	668	41.8
Yes	931	58.2
Missing	0	
Comorbidities (top 10)	N	%
Hypertension	558	34.9
Alcohol addiction	167	10.4
Arrhythmia	157	9.8
Antiplatelet therapy	134	8.4
Diabetes Type II without insulin tr.	130	8.1
Myocardial infarction	112	7.0
Cerebrovascular disease	105	6.6
Drug-induced coagulopathy	95	5.9
NYHA class II-III	77	4.8
Moderate COPD	66	4.1
Missing	0	
Multiple trauma	N	%
No	879	55.0
Yes	720	45.0
Missing	0	
Trauma (anatomical districts)	N	%
Spine	318	19.9
Vertebral fracture, without deficit	271	16.9
Tetraplegia	13	0.8
Cervical injury, incomplete deficit	11	0.7
Chest	497	31.1
Other injuries of the chest	257	16.1
Traum. haemothorax/pneumothorax	213	13.3
Severe lung contusion/laceration	161	10.1
Abdomen	134	8.4
Minor injuries of the abdomen	41	2.6
Liver: Moderate-Severe laceration	37	2.3
Spleen: Moderate-Severe laceration	30	1.9
Pelvis/bone/joint & muscle	333	20.8
Long bone fracture	251	15.7
Multiple fracture of the pelvis	123	7.7
Very severe or open fracture of the pelvis	13	0.8
Major vessels injury	33	2.1
Neck vessels: dissection/transection	13	0.8
Proximal limbs vessels: transection	8	0.5
Aorta: rupture/dissection	7	0.4
Miscellaneous	3	0.2
Inhalation injury	2	0.1
Burns (>30% BSA)	1	0.1
Missing	0	

## General report - Year 2017

## Timing of admission in ICU - Adult patients

Stay before ICU (days)	
Mean	0.8
SD	5.0
Median	0
Q1–Q3	0–1
Missing	0

Source of admission	N	%
Same hospital	1293	80.9
Other hospital	303	18.9
Long-term chronic care hospital	2	0.1
Directly from the community	1	0.1
Missing	0	

Ward of admission		
Same hospital (N=1293)	N	%
Medical ward	23	1.8
Surgical ward	258	20.0
Emergency room	941	72.8
Other ICU	39	3.0
High dependency care unit	32	2.5
Missing	0	

Ward of admission		
Other hospital (N=303)	N	%
Medical ward	21	6.9
Surgical ward	26	8.6
Emergency room	220	72.6
Other ICU	32	10.6
High dependency care unit	4	1.3
Missing	0	

Reason for transfer from		
Other ICU (N=71)	N	%
Specialist expertise	32	45.1
Step-up care	24	33.8
Logistical/organizational reasons	15	21.1
Step-down care	0	0.0
Missing	0	

Access type	N	%
Primary	1296	81.1
Secondary	303	18.9
Within 48 hours	257	88.6
Over 48 hours	33	11.4
Missing	13	
Missing	0	

Time of trauma available	N	%
No	460	28.8
Yes	1137	71.2
Missing	2	

## Hours between trauma and admission in ICU

Time of trauma available (N=1137)

Mean	13.2
SD	25.2
Median	5
Q1–Q3	3–9
Min–Max	0–171
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Same hospital (N=967)

Mean	12.9
SD	25.5
Median	4
Q1–Q3	3–8
Min–Max	0–171
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Other hospital (N=168)

Mean	15.0
SD	23.2
Median	7
Q1–Q3	4.8–15
Min–Max	0–169
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Same hospital - Emergency room (N=748)

Mean	8.2
SD	19.0
Median	4
Q1–Q3	2–6
Min–Max	0–171
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Other hospital - Emergency room (N=131)

Mean	12.0
SD	17.6
Median	6
Q1–Q3	4–11.5
Min–Max	0–122
Missing	0



## General report - Year 2017

## Characteristics of the trauma - Adult patients

Type of traumatic brain injury	N	%
Penetrating	55	3.4
Closed	1521	95.4
Unknown	19	1.2
Missing	4	

Workplace accident	N	%
No	1432	89.8
Yes	112	7.0
Unknown	51	3.2
Missing	4	

Home/domestic accident	N	%
No	999	62.6
Yes	518	32.5
Unknown	78	4.9
Missing	4	

Road traffic incident	N	%
No	927	58.1
Yes	668	41.9
Missing	4	

Means of transport	N	%
Road traffic incident (N=668)		
Truck/bus	13	1.9
Car/van	191	28.6
Motorcycle	176	26.3
Bicycle	103	15.4
Pedestrian	168	25.1
Other	17	2.5
Missing	0	

Sport/recreational accident	N	%
No	1444	90.5
Yes	83	5.2
Unknown	68	4.3
Missing	4	

Intention	N	%
Accidental	1387	87.0
Self-inflicted injury	59	3.7
Violence	35	2.2
Other	7	0.4
Unknown	107	6.7
Missing	4	

Trauma Dynamics	N	%
High energy impact with helmet	159	10.0
High energy impact without helmet	634	39.7
Low energy impact with helmet	43	2.7
Low energy impact without helmet	581	36.4
Blunt object	36	2.3
Crush	17	1.1
Blast	0	0.0
Gunshot	17	1.1
Acceleration/deceleration	85	5.3
Unknown	86	5.4
Missing	4	

## General report - Year 2017

## Type of trauma - Adult patients

Type of lesion °	Present [N (%)]	Main [N (%)]
Diffuse Injury *	247 (15.4%)	148 (9.3%)
Focal Damage **	1336 (83.6%)	1136 (71.2%)
<b>G:</b> Traumatic subarachnoid haemorrhage	728 (45.5%)	263 (16.5%)
<b>H:</b> Skull fracture	601 (37.6%)	48 (3%)

Marshall Classification	N	%
Diffuse Injury I (no visible pathology)	171	10.7
(D-II) Diffuse injury II	543	34.0
Diffuse Injury III (edema)	156	9.8
Diffuse Injury IV (shift > 5mm)	59	3.7
(5-EML) Evacuated mass lesion	504	31.6
Traumatic intraparenchymal hemorrhage	46	9.6
Contusion and/ or brain laceration	43	9.0
Extradural or epidural hematoma	96	20.1
Traumatic subdural hematoma	293	61.3
(6-NEML) Not Evacuated mass lesion	162	10.2
Traumatic intraparenchymal hemorrhage	37	25.5
Contusion and/ or brain laceration	45	31.0
Extradural or epidural hematoma	3	2.1
Traumatic subdural hematoma	60	41.4
Missing	4	

## Main lesion: DIFFUSE INJURY (N): 148

Diffuse Injury	N main	With focal	With G	With focal+G
<b>A:</b> Traumatic diffuse injury without oedema	61	5	12	3
<b>B:</b> Traumatic diffuse injury with oedema	87	22	8	30

Petechiae	N	%	Midline shift > 5 mm	N	%	Cistern conditions	N	%
No	45	30.4	No	122	82.4	Normal	81	54.7
Yes	103	69.6	Yes	26	17.6	Compressed or distorted	42	28.4
Missing	0		Missing	0		Absent	25	16.9
						Missing	0	

Presence of focal damage	N	%
No	88	59.5
Yes	60	40.5
Missing	0	

Focal lesion	N	%
<b>Presence of focal damage (N=60)</b>		
Traumatic Subdural haematoma	37	61.7
Cerebral contusion/laceration	32	53.3
Traumatic intraparenchymal bleeding	9	15.0
Extradural/epidural haematoma	6	10.0
Missing	0	

Lesion volume > 25ml (N=60)	N	%	Evacuated mass (N=60)	N	%
No	47	78.3	No	50	83.3
Yes	13	21.7	Yes	10	16.7
Missing	0		Missing	0	

° Where both are present, the clinician is requested to select and indicate the main injury.

\* Traumatic diffuse injury without oedema, Traumatic diffuse injury with oedema.

\*\* Cerebral contusion/laceration, Extradural/epidural haematoma, Traumatic Subdural haematoma, Traumatic intraparenchymal bleeding.

## General report - Year 2017

## Type of trauma - Adult patients

## Main lesion: FOCAL DAMAGE (N): 1136

Focal Injury		N main	With diffuse	With G	With diffuse+G
C: Cerebral contusion/laceration		382	11	142	18
D: Extradural/epidural haematoma		134	4	30	3
E: Traumatic Subdural haematoma		479	13	134	11
F: Traumatic intraparenchymal bleeding		141	4	53	8

Lesion volume > 25ml	N	%	Evacuated mass	N	%
No	613	54.0	No	658	57.9
Yes	523	46.0	Yes	478	42.1
Missing	0		Missing	0	

Petechiae	N	%	Midline shift>5 mm	N	%	Cistern conditions	N	%
No	704	62.0	No	639	56.2	Normal	513	45.2
Yes	432	38.0	Yes	497	43.8	Compressed or distorted	560	49.3
Missing	0		Missing	0		Absent	63	5.5
						Missing	0	

Presence of diffuse injury	N	%
No	1064	93.7
Yes	72	6.3
Missing	0	

## FOCAL DAMAGE (as main or compresent) (N): 1336

Lesion volume > 25ml	N	%	Evacuated mass	N	%
No	774	58.1	No	829	62.2
Yes	559	41.9	Yes	504	37.8
Missing	3		Missing	3	

Midline shift>5 mm	N	%	Cistern conditions	N	%
No	794	59.6	Normal	624	46.8
Yes	539	40.4	Compressed or distorted	624	46.8
Missing	3		Absent	85	6.4
			Missing	3	

## FOCAL DAMAGE (as main or compresent) with evacuated mass (N): 504

Lesion volume > 25ml	N	%
No	107	21.2
Yes	397	78.8
Missing	0	

Midline shift>5 mm	N	%
No	107	21.2
Yes	397	78.8
Missing	0	

Cistern conditions	N	%
Normal	93	18.5
Compressed or distorted	370	73.4
Absent	41	8.1
Missing	0	

## FOCAL DAMAGE (as main or compresent) without evacuated mass (N): 829

Lesion volume > 25ml	N	%
No	667	80.5
Yes	162	19.5
Missing	0	

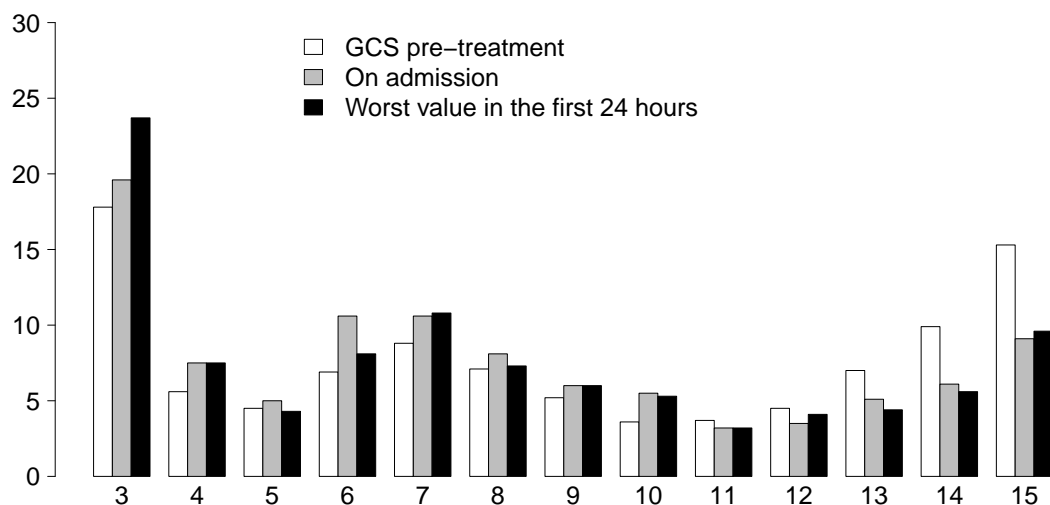
  

Midline shift>5 mm	N	%
No	687	82.9
Yes	142	17.1
Missing	0	

Cistern conditions	N	%
Normal	531	64.1
Compressed or distorted	254	30.6
Absent	44	5.3
Missing	0	

**Glasgow Coma Scale (%)**



**GCS pre-treatment**

Median	8
Q1-Q3	5-14
Missing	2

**GCS (admission)**

Median	7
Q1-Q3	4-11
Not evaluable	517
Missing	1

**Worst GCS (first 24 hours)**

Median	7
Q1-Q3	4-11
Not evaluable	628
Missing	1

GCS	GCSPre(N)	GCSPre(%)	GCSAdm(N)	GCSAdm(%)	GCSWorst24(N)	GCSWorst24(%)
3	284	17.8	212	19.6	230	23.7
4	90	5.6	81	7.5	73	7.5
5	72	4.5	54	5.0	42	4.3
6	110	6.9	115	10.6	79	8.1
7	141	8.8	115	10.6	105	10.8
8	114	7.1	87	8.1	71	7.3
9	83	5.2	65	6.0	58	6.0
10	57	3.6	59	5.5	51	5.3
11	59	3.7	35	3.2	31	3.2
12	72	4.5	38	3.5	40	4.1
13	112	7.0	55	5.1	43	4.4
14	158	9.9	66	6.1	54	5.6
15	245	15.3	98	9.1	93	9.6
<b>Tot</b>	<b>1597</b>	<b>100</b>	<b>1080</b>	<b>100</b>	<b>970</b>	<b>100</b>
3-8					600	61.9
9-13					223	23
14-15					147	15.2

Worst GCS during first 24h: best motor response	N	%
Obeys commands (6)	247	15.5
Localizes pain (5)	292	18.3
Withdraws to pain (4)	145	9.1
Flexion (abnormal) to pain (3)	68	4.3
Extension to pain (2)	81	5.1
None(1)	279	17.5
Not available	486	30.4
Missing	1	

GCS trend in 48h	N	%
Available information (N=1066)		
GCS 3 stable	103	9.7
GCS from 3 to 4-8	31	2.9
GCS from 3 to > 8	23	2.2
GCS from 4-8 to 3	54	5.1
GCS 4-8 stable	147	13.8
GCS from 4-8 to > 8	113	10.6
GCS from > 8 to 3	50	4.7
GCS from > 8 to 4-8	120	11.3
GCS > 8 stable	425	39.9
Missing	0	

## General report - Year 2017

## Before admission to ICU - Adult patients

Availability of the pre-ICU systolic blood pressure value	N	%
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No	429	26.9
Yes	1166	73.1
Missing	4	

Clinically relevant hypotension	N	%
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No	1198	75.1
Yes	246	15.4
Not available	151	9.5
Missing	4	

(Lowest) systolic blood pressure value	Mean	SD	Median	Q1–Q3	Min–Max	Missing
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Mean	119.8					
SD	35.1					
Median	120					
Q1–Q3	97.8–140					
Min–Max	20–260					
Missing	0					

Availability of pre-ICU hypoxia value	N	%
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No	450	28.2
Yes	1145	71.8
Missing	4	

Clinically relevant hypoxia	N	%
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No	1075	67.4
Yes	368	23.1
Not available	152	9.5
Missing	4	

(Lowest) peripheral oxygen saturation value	Mean	SD	Median	Q1–Q3	Min–Max	Missing
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Mean	93.5					
SD	9.6					
Median	96					
Q1–Q3	92–98					
Min–Max	10–100					
Missing	0					

Pupils in the emergency room	N	%
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GCS pre < 15 (N=1352)	N	%
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Bilaterally reactive and/or miotic	901	66.7
Unilaterally dilated and non-reactive	279	20.7
Bilaterally dilated and non-reactive	119	8.8
Not assessable	20	1.5
Not available	31	2.3
Missing	2	

Hemoglobin ER (gr/dl)	Mean	SD	Median	Q1–Q3	Min–Max	Not available	Missing
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Mean	12.3						
SD	2.3						
Median	12.6						
Q1–Q3	11–14						
Min–Max	1–20						
Not available	237						
Missing	4						

Blood glucose at ER (mg/dl)	Mean	SD	Median	Q1–Q3	Min–Max	Not available	Missing
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Mean	158.1						
SD	63.9						
Median	146						
Q1–Q3	120–181						
Min–Max	4–612						
Not available	308						
Missing	4						

## General report - Year 2017

## Complications in the ICU - Adult patients

Neurological complications during the stay	N	%
No	779	48.7
Yes	819	51.3
A: Intracranial hypertension	494	31.0
B: Intracranial hypertension refractory or intractable	284	17.8
C: At least one episode of dilated pupils unreactive to light	352	22.1
D: Reduction of serum sodium	124	7.8
E: Post-surgical intracranial bleeding	24	1.5
F: Non-surgical intracranial bleeding	18	1.1
G: Seizures	54	3.4
H: Drowsiness/agitation/delirium	172	10.8
Missing	1	

Neurological complications during the stay (top 10)	N	%
ABC	162	10.1
H	119	7.4
A	116	7.3
C	81	5.1
AB	67	4.2
D	52	3.3
AC	44	2.8
G	22	1.4
AD	13	0.8
AH	13	0.8
Missing	1	

Other complications during the stay	N	%
<b>Respiratory</b>	<b>201</b>	<b>12.6</b>
Atelectasis	79	4.9
Pleural effusion	62	3.9
Pneumothorax/Pneumomediastinum	37	2.3
Aspiration pneumonia	34	2.1
Pulmonary embolism	13	0.8
<b>Cardiovascular</b>	<b>155</b>	<b>9.7</b>
Deep venous thrombosis	46	2.9
Acute severe arrhythmia: tachycardias	46	2.9
Cardiac arrest	30	1.9
Acute severe arrhythmia: bradycardias	14	0.9
Hypertensive crisis	10	0.6
<b>Gastrointestinal and hepatic</b>	<b>43</b>	<b>2.7</b>
Paralytic Ileus	17	1.1
Liver Dysfunction Syndrome	7	0.4
Gastrointestinal bleeding: upper tract	6	0.4
Acute bile-duct disease	5	0.3
Gastrointestinal bleeding: lower tract	3	0.2
<b>Other</b>	<b>64</b>	<b>4.0</b>
Metabolic disorder	36	2.3
Nephrourologic disease	8	0.5
Other disease	8	0.5
Fat embolism	2	0.1
Iatrogenic major vessels injury	2	0.1
Delayed spleen rupture	1	0.1
Extremity compartment syndrome (severe)	1	0.1
<b>Infections</b>	<b>592</b>	<b>37.0</b>
Pneumonia	280	17.5
L.R.T.I. other than pneumonia	154	9.6
NON-surgical urinary tract infection	65	4.1
Primary bacteraemia of unknown origin	39	2.4
Catheter-related bacteremia (CR-BSI)	36	2.3
F.U.O. fever of unknown origin	30	1.9
Upper respiratory tract infection	27	1.7
Clinical sepsis	18	1.1
Sinusitis	17	1.1
Post-surgical skin/soft tissue infection	13	0.8
Missing	1	

## General report - Year 2017

## Process indicators - Adult patients

ICP monitoring in Core	N	%
No	1134	70.9
Yes	465	29.1
Missing	0	

ICP monitoring in Core Worst value in the first 24 hours <= 8 (N=600)	N	%
No	433	72.2
Yes	167	27.8
Missing	0	

Neurosurgical operation	N	%
No	918	57.5
Yes	679	42.5
Subdural haematoma evacuation	363	22.7
Extradural haematoma evacuation	103	6.4
Lobectomy or contusion removal	42	2.6
Primary decompression	152	9.5
Secondary decompression	44	2.8
Other neurosurgical procedure	159	10.0
Missing	2	

Hypothermia	N	%
No	1585	99.1
Yes	14	0.9
Missing	0	

External ventricular drainage without ICP monitoring	N	%
No	1576	98.6
Yes	23	1.4
Missing	0	

External ventricular drainage with ICP monitoring	N	%
No	1493	93.4
Yes	106	6.6
Missing	0	

Barbiturate infusion for refractory ICP	N	%
No	1497	93.9
Yes	98	6.1
Missing	4	

Hyperventilation paCO <sub>2</sub> <25 mmHg	N	%
No	1546	96.9
Yes	49	3.1
Missing	4	

Indomethacin	N	%
No	1588	99.6
Yes	7	0.4
Missing	4	

Mannitol (multiple doses)	N	%
No	1224	76.7
Yes	371	23.3
Missing	4	

Hypertonic saline	N	%
No	1423	89.2
Yes	172	10.8
Missing	4	

Osmotic therapy	N	%
No	1150	72.1
Yes	445	27.9
Missing	4	

Sedation/analgesia	N	%
No	1081	67.8
Yes	514	32.2
Missing	4	

Propofol infusion for refractory ICP	N	%
No	1412	88.5
Yes	183	11.5
Missing	4	

Vasoconstrictor drugs Vasoactive drugs in Core (N=971)	N	%
No	332	34.3
Yes	635	65.7
Missing	4	

Therapy level	N	%
None	714	44.7
Standard	393	24.6
Intermediate	221	13.8
Extreme - medical	227	14.2
Extreme - surgical	44	2.8
Missing	0	

## General report - Year 2017

## Outcome - Adult patients

ICU stay (days)		
Mean	11.5	
SD	12.6	
Median	7	
Q1–Q3	3–16	
Min–Max	1–152	
Missing	1	

ICU mortality <sup>(3)</sup>		
	N	%
Alive	1214	76.1
Dead	381	23.9
Missing	4	

Cause of death <sup>(4)</sup>		
Dead (N=375)		
	N	%
MOF	56	14.9
Comorbidities	29	7.7
Cerebral	271	72.3
Hemorrhagic	12	3.2
Not determined	7	1.9
Missing	0	

Outcome at discharge from ICU <sup>(5)</sup>		
Alive (N=1220)		
	N	%
Cannot follow simple commands	377	31.0
Can follow simple commands	841	69.0
Missing	2	

Hospital stay (days) <sup>(1),(2)</sup>		
Mean	22.8	
SD	26.9	
Median	15	
Q1–Q3	6–29	
Min–Max	0–248	
Missing	5	

Hospital mortality <sup>(1),(3)</sup>		
	N	%
Alive	1126	70.8
Dead	465	29.2
Missing	5	

Last hospital mortality <sup>(1)</sup>		
	N	%
Alive	1091	68.8
Dead	494	31.2
Missing	11	

Does the patient have language problems?		
Can follow simple commands		
	N	%
(N=841)		
No	528	62.8
Si	216	25.7
Not assessable	97	11.5
Missing	0	

Does the patient have motor problems?		
Alive (N=1220)		
	N	%
No	627	51.5
Yes	591	48.5
Missing	2	

Is the patient oriented in at least one of the following dimensions: space, time, person, context?		
Can follow simple commands		
	N	%
(N=841)		
No	245	29.1
Yes	552	65.6
Unknown	44	5.2
Missing	0	

(1) Statistics calculated after excluding readmissions (N = 1596).

(2) Days between admission to ICU and discharge from hospital.

(3) Patients discharged in a preterminal condition (N = 6) were calculated among the deceased.

(4) Excluding patients discharged in a preterminal condition.

(5) Including patients discharged in a preterminal condition.



## General report - Year 2017

## Characteristics on admission - Pediatric patients

## Patients (N): 116

Sex	N	%
Male	84	72.4
Female	32	27.6
Missing	0	

Age	N	%
Newborn (0-4 weeks)	0	0.0
1-6 months	0	0.0
6-12 months	6	5.2
12-24 months	7	6.0
2-4 years	13	11.2
5-8 years	27	23.3
9-16 years	63	54.3
Missing	0	
Mean	9.3	
SD	5.3	
Median	9	
Q1–Q3	5–15	
Min–Max	0–16	

Race	N	%
White European	54	67.5
White African	5	6.2
Black Afro-american	4	5.0
Asian	2	2.5
Arab	14	17.5
Nomad	0	0.0
Unknown	1	1.2
Missing	36	

Weight (kg) Newborns (N=0)	N	%
Mean		
SD		
Median		
Q1–Q3		
Missing	0	

Gestational age Newborns (N=0)	N	%
At term	0	0.0
Not at term	0	0.0
Missing	0	

Comorbidities	N	%
No	113	97.4
Yes	3	2.6
Missing	0	

Comorbidities (top 10)	N	%
Asthma	1	0.9
Coagulation disorder	1	0.9
Endocrine-metabolic diseases	1	0.9
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Missing	0	

Multiple trauma	N	%
No	77	66.4
Yes	39	33.6
Missing	0	

Trauma (anatomical districts)	N	%
Spine	9	7.8
Vertebral fracture, without deficit	6	5.2
Cervical injury, incomplete deficit	2	1.7
Paraplegia	1	0.9
Chest	18	15.5
Other injuries of the chest	10	8.6
Traum. haemothorax/pneumothorax	7	6.0
Severe lung contusion/laceration	4	3.4
Abdomen	12	10.3
Spleen: Moderate-Severe laceration	4	3.4
Liver: Moderate-Severe laceration	3	2.6
Kidney: Rupture/laceration	3	2.6
Pelvis/bone/joint & muscle	25	21.6
Long bone fracture	23	19.8
Multiple fracture of the pelvis	2	1.7
Massive crush/amputation	2	1.7
Major vessels injury	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Miscellaneous	0	0.0
-	0	0.0
-	0	0.0
Missing	0	

## General report - Year 2017

## Timing of admission in ICU - Pediatric patients

Previous ICU admissions	N	%
None	98	84.5
<=2	5	4.3
>2	1	0.9
Unknown	12	10.3
Missing	0	

Stay before ICU (days)		
Mean	0.3	
SD	0.6	
Median	0	
Q1–Q3	0–1	
Missing	0	

Source of admission	N	%
Same hospital	82	70.7
Other hospital	29	25.0
Long-term chronic care hospital	0	0.0
Directly from the community	5	4.3
Missing	0	

Ward of admission		
Same hospital (N=82)	N	%
Medical ward	1	1.2
Surgical ward	11	13.4
Emergency room	65	79.3
Other ICU	5	6.1
High dependency care unit	0	0.0
Missing	0	

Ward of admission		
Other hospital (N=29)	N	%
Medical ward	2	6.9
Surgical ward	0	0.0
Emergency room	25	86.2
Other ICU	2	6.9
High dependency care unit	0	0.0
Missing	0	

Reason for transfer from		
Other ICU (N=7)	N	%
Specialist expertise	3	42.9
Step-up care	3	42.9
Logistical/organizational reasons	0	0.0
Step-down care	1	14.3
Missing	0	

Access type	N	%
Primary	87	75.0
Secondary	29	25.0
Within 48 hours	27	96.4
Over 48 hours	1	3.6
Missing	1	
Missing	0	

Time of trauma available	N	%
No	27	23.3
Yes	89	76.7
Missing	0	

## Hours between trauma and admission in ICU

Time of trauma available (N=89)

Mean	6.8
SD	9.3
Median	5
Q1–Q3	3–7
Min–Max	0–73
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Same hospital (N=65)

Mean	7.0
SD	10.7
Median	5
Q1–Q3	2–7
Min–Max	0–73
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Other hospital (N=20)

Mean	6.8
SD	3.1
Median	6
Q1–Q3	4–8.5
Min–Max	4–14
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Same hospital - Emergency room (N=57)

Mean	4.5
SD	3.3
Median	4
Q1–Q3	2–6
Min–Max	1–19
Missing	0

## Hours between trauma and admission in ICU

Time of trauma available - Other hospital - Emergency room (N=20)

Mean	6.8
SD	3.1
Median	6
Q1–Q3	4–8.5
Min–Max	4–14
Missing	0

## General report - Year 2017

## Characteristics of the trauma - Pediatric patients

Type of traumatic brain injury	N	%
Penetrating	4	3.4
Closed	110	94.8
Unknown	2	1.7
Missing	0	

Workplace accident	N	%
No	115	99.1
Yes	1	0.9
Unknown	0	0.0
Missing	0	

Home/domestic accident	N	%
No	88	75.9
Yes	27	23.3
Unknown	1	0.9
Missing	0	

Road traffic incident	N	%
No	54	46.6
Yes	62	53.4
Missing	0	

Means of transport	N	%
<b>Road traffic incident (N=62)</b>		
Truck/bus	0	0.0
Car/van	22	35.5
Motorcycle	10	16.1
Bicycle	11	17.7
Pedestrian	16	25.8
Other	3	4.8
Missing	0	

Sport/recreational accident	N	%
No	92	79.3
Yes	23	19.8
Unknown	1	0.9
Missing	0	

Intention	N	%
Accidental	108	93.1
Self-inflicted injury	4	3.4
Violence	2	1.7
Other	0	0.0
Unknown	2	1.7
Missing	0	

Trauma Dynamics	N	%
High energy impact with helmet	8	6.9
High energy impact without helmet	55	47.4
Low energy impact with helmet	0	0.0
Low energy impact without helmet	42	36.2
Blunt object	4	3.4
Crush	2	1.7
Blast	0	0.0
Gunshot	0	0.0
Acceleration/deceleration	4	3.4
Unknown	2	1.7
Missing	0	

## General report - Year 2017

## Type of trauma - Pediatric patients

Type of lesion °	Present [N (%)]	Main [N (%)]
Diffuse Injury *	30 (25.9%)	24 (20.7%)
Focal Damage **	81 (69.8%)	68 (58.6%)
<b>G:</b> Traumatic subarachnoid haemorrhage	30 (25.9%)	13 (11.2%)
<b>H:</b> Skull fracture	55 (47.4%)	11 (9.5%)

Marshall Classification	N	%
Diffuse Injury I (no visible pathology)	21	18.1
(D-II) Diffuse injury II	46	39.7
Diffuse Injury III (edema)	13	11.2
Diffuse Injury IV (shift > 5mm)	9	7.8
(5-EML) Evacuated mass lesion	27	23.3
Traumatic intraparenchymal hemorrhage	1	4.3
Contusion and/ or brain laceration	3	13.0
Extradural or epidural hematoma	13	56.5
Traumatic subdural hematoma	6	26.1
(6-NEML) Not Evacuated mass lesion	0	0.0
Traumatic intraparenchymal hemorrhage	0	0.0
Contusion and/ or brain laceration	0	0.0
Extradural or epidural hematoma	0	0.0
Traumatic subdural hematoma	0	0.0
Missing	0	

## Main lesion: DIFFUSE INJURY (N): 24

Diffuse Injury	N main	With focal	With G	With focal+G
<b>A:</b> Traumatic diffuse injury without oedema	10	1	1	0
<b>B:</b> Traumatic diffuse injury with oedema	14	4	2	1

Petechiae	N	%	Midline shift > 5 mm	N	%	Cistern conditions	N	%
No	7	29.2	No	19	79.2	Normal	13	54.2
Yes	17	70.8	Yes	5	20.8	Compressed or distorted	9	37.5
Missing	0		Missing	0		Absent	2	8.3
						Missing	0	

Presence of focal damage	N	%
No	18	75.0
Yes	6	25.0
Missing	0	

Focal lesion	N	%
<b>Presence of focal damage (N=6)</b>		
Traumatic Subdural haematoma	3	50.0
Traumatic intraparenchymal bleeding	3	50.0
Cerebral contusion/laceration	2	33.3
Extradural/epidural haematoma	1	16.7
Missing	0	

Lesion volume > 25ml §	N	%	Evacuated mass	N	%
(N=6)			(N=6)		
No	5	83.3	No	3	50.0
Yes	1	16.7	Yes	3	50.0
Missing	0		Missing	0	

° Where both are present, the clinician is requested to select and indicate the main injury.

\* Traumatic diffuse injury without oedema, Traumatic diffuse injury with oedema.

\*\* Cerebral contusion/laceration, Extradural/epidural haematoma, Traumatic Subdural haematoma, Traumatic intraparenchymal bleeding.

§ Only for > 10 years old.

## General report - Year 2017

## Type of trauma - Pediatric patients

## Main lesion: FOCAL DAMAGE (N): 68

Focal Injury	N main	With diffuse	With G	With diffuse+G
C: Cerebral contusion/laceration	20	1	5	1
D: Extradural/epidural haematoma	23	0	3	1
E: Traumatic Subdural haematoma	18	0	1	1
F: Traumatic intraparenchymal bleeding	7	1	0	0

Lesion volume > 25ml § (N=27)	N	%	Evacuated mass		
			N	%	
No	21	77.8	No	45	66.2
Yes	6	22.2	Yes	23	33.8
Missing	0		Missing	0	

Petechiae	N	%	Midline shift>5 mm	N	%	Cistern conditions	N	%
No	44	64.7	No	51	75.0	Normal	56	82.4
Yes	24	35.3	Yes	17	25.0	Compressed or distorted	10	14.7
Missing	0		Missing	0		Absent	2	2.9
						Missing	0	

Presence of diffuse injury	N	%
No	63	92.6
Yes	5	7.4
Missing	0	

## FOCAL DAMAGE (as main or compresent) (N): 81

Lesion volume > 25ml § (N=35)	N	%
No	28	80.0
Yes	7	20.0
Missing	0	

Midline shift>5 mm	N	%
No	61	75.3
Yes	20	24.7
Missing	0	

Evacuated mass	N	%
No	54	66.7
Yes	27	33.3
Missing	0	

Cistern conditions	N	%
Normal	60	74.1
Compressed or distorted	17	21.0
Absent	4	4.9
Missing	0	

## FOCAL DAMAGE (as main or compresent) with evacuated mass (N): 27

Lesion volume > 25ml § (N=12)	N	%
No	5	41.7
Yes	7	58.3
Missing	0	

Midline shift>5 mm	N	%
No	14	51.9
Yes	13	48.1
Missing	0	

Cistern conditions	N	%
Normal	15	55.6
Compressed or distorted	9	33.3
Absent	3	11.1
Missing	0	

## FOCAL DAMAGE (as main or compresent) without evacuated mass (N): 54

Lesion volume > 25ml § (N=23)	N	%
No	23	100.0
Yes	0	0.0
Missing	0	

Midline shift>5 mm	N	%
No	47	87.0
Yes	7	13.0
Missing	0	

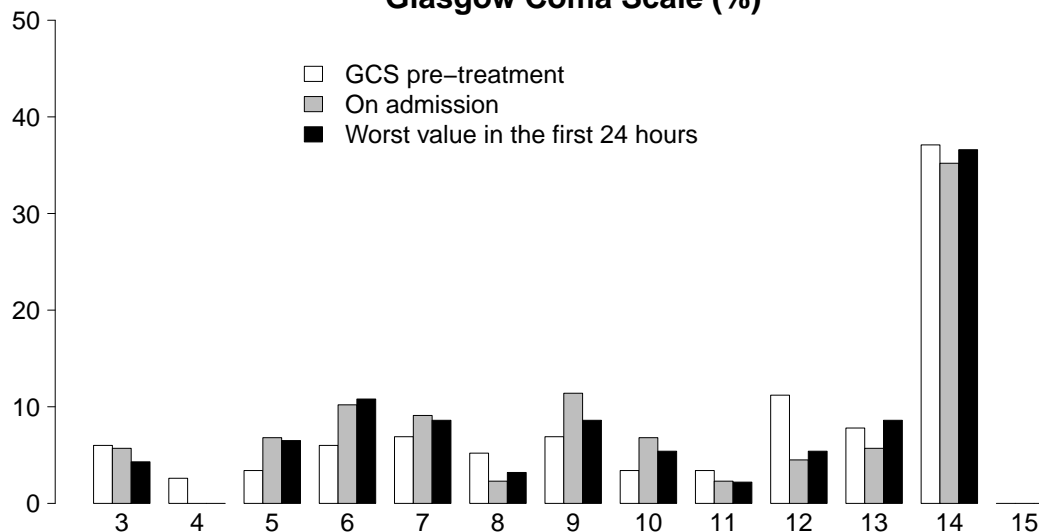
Cistern conditions	N	%
Normal	45	83.3
Compressed or distorted	8	14.8
Absent	1	1.9
Missing	0	

§ Only for &gt; 10 years old.

General report - Year 2017

Glasgow Coma Scale - Pediatric patients

Glasgow Coma Scale (%)



GCS pre-treatment

Median	12
Q1-Q3	7.8-14
Missing	0

GCS (admission)

Median	10
Q1-Q3	7-14
Not evaluable	28
Missing	0

Worst GCS (first 24 hours)

Median	12
Q1-Q3	7-14
Not evaluable	23
Missing	0

GCS	GCSPre(N)	GCSPre(%)	GCSAdm(N)	GCSAdm(%)	GCSWorst24(N)	GCSWorst24(%)
3	7	6	5	5.7	4	4.3
4	3	2.6	0	0	0	0
5	4	3.4	6	6.8	6	6.5
6	7	6	9	10.2	10	10.8
7	8	6.9	8	9.1	8	8.6
8	6	5.2	2	2.3	3	3.2
9	8	6.9	10	11.4	8	8.6
10	4	3.4	6	6.8	5	5.4
11	4	3.4	2	2.3	2	2.2
12	13	11.2	4	4.5	5	5.4
13	9	7.8	5	5.7	8	8.6
14	43	37.1	31	35.2	34	36.6
15	/	/	/	/	/	/
<b>Tot</b>	<b>116</b>	<b>100</b>	<b>88</b>	<b>100</b>	<b>93</b>	<b>100</b>
3-8					31	33.3
9-13					28	30.1
14					34	36.6

Worst GCS during first 24h: best motor response	N	%
Obeys commands (5)	51	44.0
Localizes pain (4)	27	23.3
Flexion to pain (3)	9	7.8
Extension to pain (2)	1	0.9
None(1)	5	4.3
Not available	23	19.8
Missing	0	

GCS trend in 48h	N	%
Available information (N=91)		
GCS 3 stable	4	4.4
GCS from 3 to 4-8	1	1.1
GCS from 3 to > 8	0	0.0
GCS from 4-8 to 3	0	0.0
GCS 4-8 stable	7	7.7
GCS from 4-8 to > 8	13	14.3
GCS from > 8 to 3	0	0.0
GCS from > 8 to 4-8	6	6.6
GCS > 8 stable	60	65.9
Missing	0	

## General report - Year 2017

## Before admission to ICU - Pediatric patients

Availability of the pre-ICU systolic blood pressure value	N	%
---	---	---

No	48	41.4
Yes	68	58.6
Missing	0	

Clinically relevant hypotension	N	%
---------------------------------	---	---

No	80	69.0
Yes	16	13.8
Not available	20	17.2
Missing	0	

(Lowest) systolic blood pressure value		
--	--	--

Mean	102.3
SD	28.1
Median	106.5
Q1–Q3	90–120
Min–Max	20–157
Missing	0

Availability of pre-ICU hypoxia value	N	%
---------------------------------------	---	---

No	41	35.3
Yes	75	64.7
Missing	0	

Clinically relevant hypoxia	N	%
-----------------------------	---	---

No	66	56.9
Yes	33	28.4
Not available	17	14.7
Missing	0	

(Lowest) peripheral oxygen saturation value		
---	--	--

Mean	93.7
SD	15.0
Median	98
Q1–Q3	94.5–100
Min–Max	10–100
Missing	0

Pupils in the emergency room		
------------------------------	--	--

GCS pre < 14 (N=73)	N	%
Bilaterally reactive and/or miotic	57	80.3
Unilaterally dilated and non-reactive	5	7.0
Bilaterally dilated and non-reactive	6	8.5
Not assessable	0	0.0
Not available	3	4.2
Missing	2	

Hemoglobin ER (gr/dl)		
-----------------------	--	--

Mean	12.1
SD	1.9
Median	12.1
Q1–Q3	11–13.5
Min–Max	6.9–15.8
Not available	28
Missing	0

Blood glucose at ER (mg/dl)		
-----------------------------	--	--

Mean	150.8
SD	41.3
Median	150
Q1–Q3	114.5–178.5
Min–Max	73–244
Not available	34
Missing	0

## General report - Year 2017

## Complications in the ICU - Pediatric patients

Neurological complications during the stay	N	%
No	79	68.1
Yes	37	31.9
A: Intracranial hypertension	33	28.4
B: Intracranial hypertension refractory or intractable	15	12.9
C: At least one episode of dilated pupils unreactive to light	12	10.3
D: Reduction of serum sodium	5	4.3
E: Post-surgical intracranial bleeding	0	0.0
F: Non-surgical intracranial bleeding	1	0.9
G: Seizures	6	5.2
H: Drowsiness/agitation/delirium	8	6.9
Missing	0	

Neurological complications during the stay (top 10)	N	%
A	10	8.6
ABC	7	6.0
AB	3	2.6
AH	3	2.6
H	2	1.7
ABCD	1	0.9
ABCG	1	0.9
ABDH	1	0.9
ABG	1	0.9
ABGH	1	0.9
Missing	0	

Other complications during the stay	N	%
Respiratory	15	12.9
Atelectasis	8	6.9
Aspiration pneumonia	3	2.6
Pleural effusion	3	2.6
Mild ARDS	2	1.7
Pneumothorax/Pneumomediastinum	2	1.7
Cardiovascular	1	0.9
Acute severe arrhythmia: bradycardias	1	0.9
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Gastrointestinal and hepatic	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Other	9	7.8
Metabolic disorder	5	4.3
Other disease	3	2.6
Nephrourologic disease	1	0.9
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Infections	15	12.9
Pneumonia	8	6.9
L.R.T.I. other than pneumonia	3	2.6
Post-surgical skin/soft tissue infection	2	1.7
Catheter-related bacteremia (CR-BSI)	1	0.9
Catheter-related local infection	1	0.9
Post-surgical CNS infection	1	0.9
F.U.O. fever of unknown origin	1	0.9
Other fungal infections	1	0.9
NON-surgical urinary tract infection	1	0.9
-	0	0.0
Missing	0	



## General report - Year 2017

## Process indicators - Pediatric patients

ICP monitoring in Core	N	%
No	87	75.0
Yes	29	25.0
Missing	0	

ICP monitoring in Core Worst value in the first 24 hours <= 8 (N=31)	N	%
No	19	61.3
Yes	12	38.7
Missing	0	

Neurosurgical operation	N	%
No	72	62.1
Yes	44	37.9
Subdural haematoma evacuation	10	8.6
Extradural haematoma evacuation	16	13.8
Lobectomy or contusion removal	1	0.9
Primary decompression	9	7.8
Secondary decompression	0	0.0
Other neurosurgical procedure	20	17.2
Missing	0	

Hypothermia	N	%
No	114	98.3
Yes	2	1.7
Missing	0	

External ventricular drainage without ICP monitoring	N	%
No	113	97.4
Yes	3	2.6
Missing	0	

External ventricular drainage with ICP monitoring	N	%
No	107	92.2
Yes	9	7.8
Missing	0	

Barbiturate infusion for refractory ICP	N	%
No	112	96.6
Yes	4	3.4
Missing	0	

Hyperventilation paCO <sub>2</sub> <25 mmHg	N	%
No	112	96.6
Yes	4	3.4
Missing	0	

Indomethacin	N	%
No	115	99.1
Yes	1	0.9
Missing	0	

Mannitol (multiple doses)	N	%
No	97	83.6
Yes	19	16.4
Missing	0	

Hypertonic saline	N	%
No	94	81.0
Yes	22	19.0
Missing	0	

Osmotic therapy	N	%
No	89	76.7
Yes	27	23.3
Missing	0	

Sedation/analgesia	N	%
No	78	67.2
Yes	38	32.8
Missing	0	

Propofol infusion for refractory ICP	N	%
No	98	84.5
Yes	18	15.5
Missing	0	

Vasoconstrictor drugs Vasoactive drugs in Core (N=27)	N	%
No	7	25.9
Yes	20	74.1
Missing	0	

Therapy level	N	%
None	74	63.8
Standard	9	7.8
Intermediate	14	12.1
Extreme - medical	19	16.4
Extreme - surgical	0	0.0
Missing	0	

## General report - Year 2017

## Outcome - Pediatric patients

**ICU stay (days)**

Mean	4.9
SD	6.5
Median	2
Q1–Q3	1–6
Min–Max	1–44
Missing	0

**Hospital stay (days)** <sup>(1),(2)</sup>

Mean	12.4
SD	12.4
Median	9
Q1–Q3	4.8–15
Min–Max	0–62
Missing	0

**ICU mortality** <sup>(3)</sup>

	N	%
Alive	107	92.2
Dead	9	7.8
Missing	0	

**Hospital mortality** <sup>(1),(3)</sup>

	N	%
Alive	107	92.2
Dead	9	7.8
Missing	0	

**Cause of death** <sup>(4)</sup>**Dead (N=9)**

	N	%
MOF	1	11.1
Comorbidities	0	0.0
Cerebral	8	88.9
Hemorrhagic	0	0.0
Not determined	0	0.0
Missing	0	

**Last hospital mortality** <sup>(1)</sup>

	N	%
Alive	107	92.2
Dead	9	7.8
Missing	0	

**Outcome at discharge from ICU** <sup>(5)</sup>**Alive  $\geq$ 4 years (N=89)**

	N	%
Cannot follow simple commands	11	12.4
Can follow simple commands	78	87.6
Missing	0	

**Does the patient have language problems?****Can follow simple commands****( $\geq$ 4 years) (N=78)**

	N	%
No	69	88.5
Si	8	10.3
Not assessable	1	1.3
Missing	0	

**Does the patient have motor problems?****Alive ( $\geq$ 4 years) (N=89)**

	N	%
No	71	79.8
Yes	18	20.2
Missing	0	

**Is the patient oriented in at least one of the following dimensions: space, time, person, context?****Can follow simple commands****( $\geq$ 4 years) (N=78)**

	N	%
No	36	46.2
Yes	41	52.6
Unknown	1	1.3
Missing	0	

(1) Statistics calculated after excluding readmissions (N = 116).

(2) Days between admission to ICU and discharge from hospital.

(3) Patients discharged in a preterminal condition (N = 0) were calculated among the deceased.

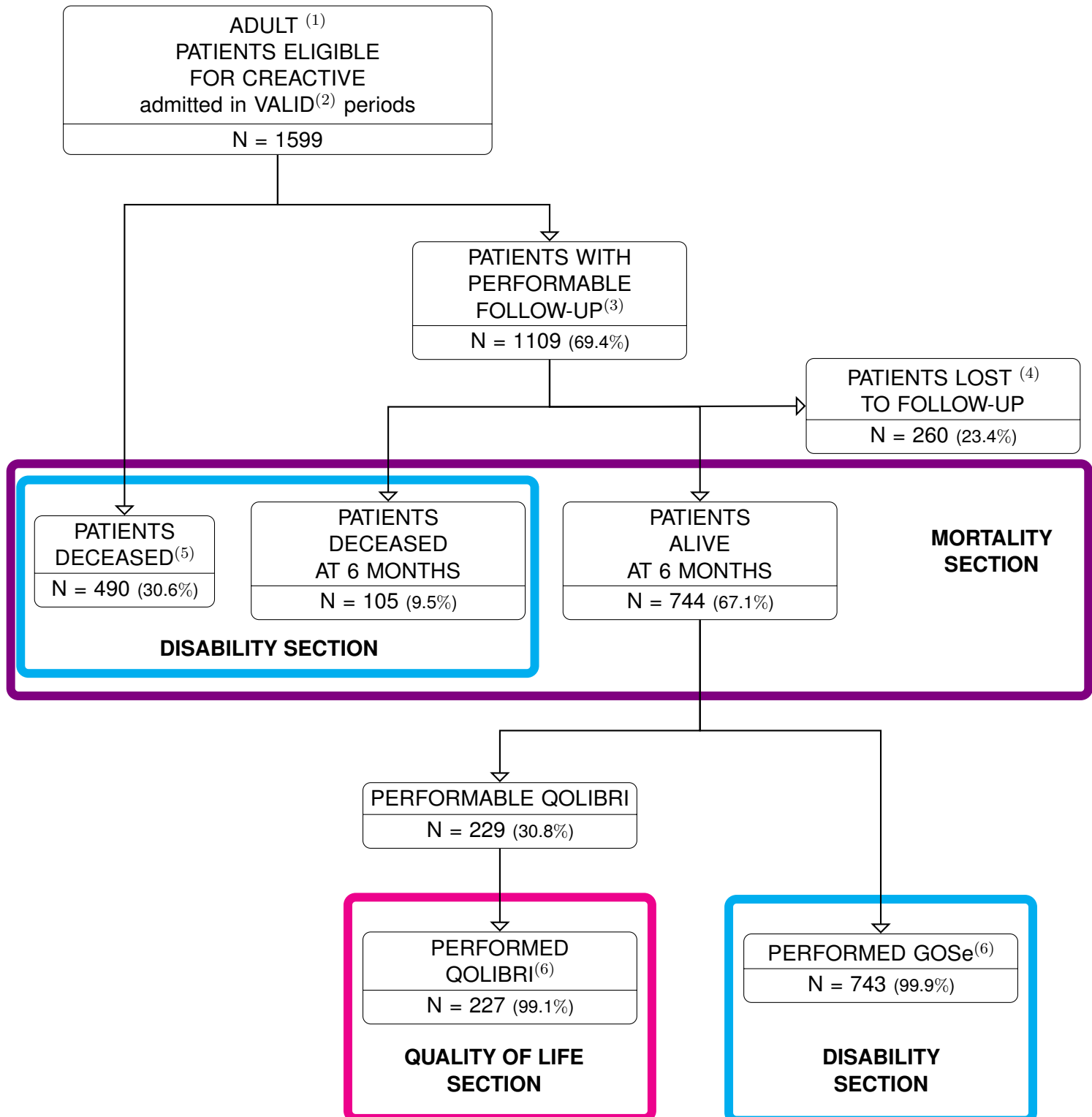
(4) Excluding patients discharged in a preterminal condition.

(5) Including patients discharged in a preterminal condition.

## **FOLLOW-UP**



**Overall population with valid data (47 ICUs) - Year 2017**  
**Follow-up flow-chart - Adult patients**



(1) Patients older than 17 years are considered ADULT patients.

(2) Periods are considered VALID when the % of complete data for core and petal are over the thresholds.

(3) Patients discharged alive > 6 months from the date of admission.

(4) This also includes patients declining to take part in the follow-up study or who are not contactable.

(5) Patients deceased in ICU or in hospital.

(6) Statistics are presented only for categories of patients represented by at least 5 subjects.

N.B. The % refers to the upper node in the flow chart.



## General report - Year 2017

Follow-Up - 'Mortality' section: Mortality for main subgroups of patients - Adult patients

Patients (N): 1339

This section presents the mortality-related statistics.  
Each of the tables provided is divided into two parts:

- the **first part** of each table (on the left-hand side, printed in black ink) refers to the ICU and the hospital mortality rates for each patient category.  
For example, 15.7% of the 538 patients aged between 17 and 45 years died in the ICU, while 16.7% died in hospital; 37.4% of the 377 patients aged over 75 years died in the ICU, while 54.4% died in hospital.  
This part of the table refers to all **adult CREATIVE patients with valid data**.
- the **second part** of each table (on the right-hand side, printed in purple ink) refers instead to **adult CREATIVE patients with valid data on whom we have 6-month outcome data** (alive or dead). The mortality rate at different time points (irrespective of the place of death - ICU, hospital, home) is shown for these patients: *within 4 days of the trauma event, between 4 and 7 days, between 8 and 30 days, and over 30 days*.  
For example, 427 of the valid adult CREATIVE patients are aged between 17 and 45 years: of these, 10.4% died within 4 days of the trauma event, while the remaining 89.6% were still alive at that date. Accordingly, the only patients at risk of dying between 4 and 7 days are the ones still alive at day 4 ( $427 \times 0.896 = 383$ ): 6.6% of these 383 died between 4 and 7 days. At this point, the only patients at risk of dying between 8 and 30 days are the ones who are still alive at day 8 (*i.e.*,  $383 \times 0.934 = 358$ ); 5.1% of these died within 30 days.  
Hence, the sum of the percentages in each row does not produce 100%, since the denominator on which the rate is calculated varies for each column. To be precise, it consists of the number of subjects who are still alive at the start of the observation period of each column.

Age	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
17-45	538	15.7	16.7	427	10.4	6.6	5.1	3.9
46-65	429	19.4	23.2	344	9.6	8.4	11.7	10.1
66-75	255	28.7	40.2	228	14.6	14.5	22.4	25.0
>75	377	37.4	54.4	340	20.1	18.9	34.9	32.4

Comorbidities	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Yes	931	29.0	40.0	814	14.5	14.3	22.9	22.2
No	668	16.8	18.7	525	11.7	6.7	6.8	3.8

Source of admission	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Same hospital	1293	24.3	30.9	1098	13.2	11.2	15.3	12.5
Other hospital	303	22.1	31.8	238	14.4	11.9	19.8	19.0
Long-term chronic care hospital	2	50.0	50.0	2	0.0	0.0	50.0	0.0
Directly from the community	1	0.0	0.0	1	0.0	0.0	0.0	0.0

† Mortality (%)  
\* from TBI

## General report - Year 2017

Follow-Up - 'Mortality' section: Mortality for main subgroups of patients - Adult patients

Type of traumatic brain injury	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Penetrating	55	55.6	60.0	52	34.6	32.4	26.1	11.8
Closed	1521	22.8	30.2	1273	12.2	10.7	16.0	13.5
Unknown	19	21.1	21.1	13	33.3	0.0	0.0	25.0

Worst GCS (first 24 hours)	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
3-8	600	37.6	47.0	538	22.8	18.9	21.2	15.9
9-13	223	8.6	13.0	173	1.7	5.3	9.3	11.0
14-15	147	3.4	4.8	117	1.7	0.9	5.4	4.7
Not evaluable	628	21.0	28.6	511	10.1	9.3	17.5	15.6

Worst GCS during first 24h: best motor response	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Obeys commands (6)	247	4.0	5.7	194	1.0	1.6	5.9	6.8
Localizes pain (5)	292	10.0	15.9	241	1.2	6.3	10.4	13.6
Withdraws to pain (4)	145	16.7	28.3	122	4.1	11.1	17.3	19.8
Flexion (abnormal) to pain (3)	68	30.9	50.7	58	10.3	15.4	36.4	21.4
Extension to pain (2)	81	45.7	54.3	74	20.5	31.0	32.5	11.1
None(1)	279	57.6	64.4	260	43.2	31.3	21.8	20.3
Not available	486	20.6	28.3	390	9.1	7.7	19.0	13.5

GCS trend in 48h	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
GCS 3 stable	103	70.6	73.5	97	52.6	37.0	20.7	17.4
GCS from 3 to 4-8	31	38.7	51.6	27	18.5	13.6	31.6	23.1
GCS from 3 to > 8	23	4.3	4.3	14	0.0	0.0	14.3	8.3
GCS from 4-8 to 3	54	63.0	66.7	50	52.0	33.3	25.0	16.7
GCS 4-8 stable	147	27.4	36.3	135	7.4	15.2	17.0	15.9
GCS from 4-8 to > 8	113	5.3	10.6	87	2.4	3.6	5.0	7.9
GCS from > 8 to 3	50	62.0	74.0	46	45.7	36.0	37.5	30.0
GCS from > 8 to 4-8	120	26.7	40.3	105	9.6	17.0	25.6	20.7
GCS > 8 stable	425	6.4	11.4	341	0.9	4.2	9.4	9.0

† Mortality (%)

\* from TBI



## General report - Year 2017

Follow-Up - 'Mortality' section: Mortality for main subgroups of patients - Adult patients

Clinically relevant hypotension	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
No	1198	20.2	27.1	1013	9.9	9.8	14.9	12.0
Yes	246	38.2	46.3	209	26.9	17.8	18.4	19.6
Not available	151	29.8	38.3	116	18.1	14.7	24.7	21.3

Clinically relevant hypoxia	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
No	1075	20.8	28.0	914	10.9	9.9	15.3	12.0
Yes	368	28.7	35.4	306	18.0	13.6	16.3	14.4
Not available	152	34.2	42.4	118	19.7	17.0	23.1	26.7

Pupils in the emergency room	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Bilaterally reactive and/or miotic	901	15.3	22.8	750	7.6	7.1	12.1	13.0
Unilaterally dilated and non-reactive	279	37.2	45.7	242	17.4	20.6	25.9	19.7
Bilaterally dilated and non-reactive	119	70.6	76.5	110	54.5	34.0	45.5	22.2
Not assessable	20	25.0	30.0	17	25.0	8.3	9.1	10.0
Not available	31	29.0	32.3	23	21.7	16.7	13.3	15.4

Anatomical severity (worst CT within 48 hours of admission)	All patients (N=1599)			Patients with follow-up (N=1339)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Diffuse Injury I (no visible pathology)	171	14.0	17.2	133	12.1	3.4	7.2	5.8
(D-II) Diffuse injury II	543	7.0	11.5	429	3.1	3.4	6.5	8.6
Diffuse Injury III (edema)	156	34.6	39.7	137	18.4	16.2	18.3	9.2
Diffuse Injury IV (shift>5mm)	59	50.8	64.4	53	32.1	33.3	33.3	12.5
(5-EML) Evacuated mass lesion	504	29.1	39.5	435	13.9	14.7	24.9	21.8
(6-NEML) Not Evacuated mass lesion	162	54.3	64.2	151	30.7	26.0	33.8	33.3

† Mortality (%)

\* from TBI



## General report - Year 2017

Follow-Up - 'Disability' section - Adult patients

Patients (N): 1338

GOSe result :*	All patients (N=1305)		Alive patients (N=710)	
	N	%	N	%
Deceased	594	45.5	-	-
Vegetative state	38	2.9	38	5.4
Severe disability LOWER LEVEL	194	14.9	194	27.3
Severe disability UPPER LEVEL	104	8.0	104	14.6
Moderate disability LOWER LEVEL	72	5.5	72	10.1
Moderate disability UPPER LEVEL	90	6.9	90	12.7
Good recovery LOWER LEVEL	93	7.1	92	13
Good recovery UPPER LEVEL	120	9.2	120	16.9

\* patients with 'Pre-trauma disability' are not analyzed. N=1305 patients, instead of 1338 are analyzed.

## Disability for main subgroups of patients - N (%)

Age (years)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
17-45	414	101 (24.4)	13 (3.1)	81 (19.6)	98 (23.7)	121 (29.2)
46-65	334	117 (35.0)	11 (3.3)	104 (31.1)	48 (14.4)	54 (16.2)
66-75	225	131 (58.2)	10 (4.4)	59 (26.2)	10 (4.4)	15 (6.7)
>75	332	245 (73.8)	4 (1.2)	54 (16.3)	6 (1.8)	23 (6.9)

Comorbidities	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Yes	789	457 (57.9)	19 (2.4)	179 (22.7)	51 (6.5)	83 (10.5)
No	516	137 (26.6)	19 (3.7)	119 (23.1)	111 (21.5)	130 (25.2)

Source of admission	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Same hospital	1069	473 (44.2)	29 (2.7)	243 (22.7)	146 (13.7)	178 (16.7)
Other hospital	233	120 (51.5)	9 (3.9)	55 (23.6)	16 (6.9)	33 (14.2)
Long-term chronic care hospital	2	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)
Directly from the community	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)

Type of traumatic brain injury	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Penetrating	51	37 (72.5)	0 (0.0)	7 (13.7)	1 (2.0)	6 (11.8)
Closed	1240	549 (44.3)	38 (3.1)	287 (23.1)	161 (13.0)	205 (16.5)
Unknown	13	7 (53.8)	0 (0.0)	4 (30.8)	0 (0.0)	2 (15.4)

Worst GCS (first 24 hours)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
3-8	524	313 (59.7)	25 (4.8)	94 (17.9)	49 (9.4)	43 (8.2)
9-13	168	43 (25.6)	2 (1.2)	52 (31.0)	24 (14.3)	47 (28.0)
14-15	112	14 (12.5)	0 (0.0)	28 (25.0)	20 (17.9)	50 (44.6)
Not evaluable	501	224 (44.7)	11 (2.2)	124 (24.8)	69 (13.8)	73 (14.6)

## General report - Year 2017

Follow-Up - 'Disability' section - Adult patients

<b>Worst GCS during first 24h: best motor response</b>	<b>N</b>	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
Obeys commands (6)	186	27 (14.5)	0 (0.0)	58 (31.2)	30 (16.1)	71 (38.2)
Localizes pain (5)	234	68 (29.1)	6 (2.6)	64 (27.4)	43 (18.4)	53 (22.6)
Withdraws to pain (4)	116	53 (45.7)	5 (4.3)	27 (23.3)	17 (14.7)	14 (12.1)
Flexion (abnormal) to pain (3)	55	36 (65.5)	0 (0.0)	11 (20.0)	5 (9.1)	3 (5.5)
Extension to pain (2)	73	49 (67.1)	4 (5.5)	15 (20.5)	3 (4.1)	2 (2.7)
None(1)	260	196 (75.4)	13 (5.0)	28 (10.8)	10 (3.8)	13 (5.0)
Not available	381	165 (43.3)	10 (2.6)	95 (24.9)	54 (14.2)	57 (15.0)

<b>GCS trend in 48h</b>	<b>N</b>	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
GCS 3 stable	97	78 (80.4)	7 (7.2)	8 (8.2)	3 (3.1)	1 (1.0)
GCS from 3 to 4-8	27	17 (63.0)	2 (7.4)	8 (29.6)	0 (0.0)	0 (0.0)
GCS from 3 to > 8	14	3 (21.4)	0 (0.0)	2 (14.3)	1 (7.1)	8 (57.1)
GCS from 4-8 to 3	50	40 (80.0)	4 (8.0)	4 (8.0)	1 (2.0)	1 (2.0)
GCS 4-8 stable	128	61 (47.7)	6 (4.7)	32 (25.0)	20 (15.6)	9 (7.0)
GCS from 4-8 to > 8	83	17 (20.5)	0 (0.0)	26 (31.3)	17 (20.5)	23 (27.7)
GCS from > 8 to 3	46	39 (84.8)	1 (2.2)	3 (6.5)	2 (4.3)	1 (2.2)
GCS from > 8 to 4-8	102	58 (56.9)	4 (3.9)	21 (20.6)	9 (8.8)	10 (9.8)
GCS > 8 stable	327	73 (22.3)	3 (0.9)	86 (26.3)	56 (17.1)	109 (33.3)

<b>Clinically relevant hypotension</b>	<b>N</b>	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
No	983	399 (40.6)	28 (2.8)	239 (24.3)	131 (13.3)	186 (18.9)
Yes	207	126 (60.9)	5 (2.4)	37 (17.9)	24 (11.6)	15 (7.2)
Not available	114	68 (59.6)	5 (4.4)	22 (19.3)	7 (6.1)	12 (10.5)

<b>Clinically relevant hypoxia</b>	<b>N</b>	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
No	886	368 (41.5)	20 (2.3)	218 (24.6)	120 (13.5)	160 (18.1)
Yes	303	151 (49.8)	12 (4.0)	61 (20.1)	37 (12.2)	42 (13.9)
Not available	115	74 (64.3)	6 (5.2)	19 (16.5)	5 (4.3)	11 (9.6)

<b>Pupils in the emergency room</b>	<b>N</b>	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
Bilaterally reactive and/or miotic	729	260 (35.7)	17 (2.3)	193 (26.5)	114 (15.6)	145 (19.9)
Unilaterally dilated and non-reactive	235	148 (63.0)	9 (3.8)	45 (19.1)	15 (6.4)	18 (7.7)
Bilaterally dilated and non-reactive	110	96 (87.3)	7 (6.4)	3 (2.7)	3 (2.7)	1 (0.9)
Not assessable	17	7 (41.2)	1 (5.9)	2 (11.8)	6 (35.3)	1 (5.9)
Not available	23	13 (56.5)	0 (0.0)	9 (39.1)	0 (0.0)	1 (4.3)

<b>Anatomical severity (worst CT within 48 hours of admission)</b>	<b>N</b>	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
Diffuse Injury I (no visible pathology)	131	34 (26.0)	2 (1.5)	28 (21.4)	24 (18.3)	43 (32.8)
(D-II) Diffuse injury II	413	87 (21.1)	10 (2.4)	124 (30.0)	85 (20.6)	107 (25.9)
Diffuse Injury III (edema)	136	68 (50.0)	3 (2.2)	34 (25.0)	16 (11.8)	15 (11.0)
Diffuse Injury IV (shift>5mm)	53	39 (73.6)	1 (1.9)	6 (11.3)	3 (5.7)	4 (7.5)
(5-EML) Evacuated mass lesion	420	248 (59.0)	19 (4.5)	86 (20.5)	28 (6.7)	39 (9.3)
(6-NEML) Not Evacuated mass lesion	151	117 (77.5)	3 (2.0)	20 (13.2)	6 (4.0)	5 (3.3)

**General report - Year 2017**

Follow-Up - 'Quality of Life' section - Adult patients

**Patients (N): 227****QOLIBRI-OS score:**

Mean	72.8
SD	20.1
Median	75
Q1–Q3	62.5–87.5
Min–Max	0–100

**QOLIBRI-OS score:**

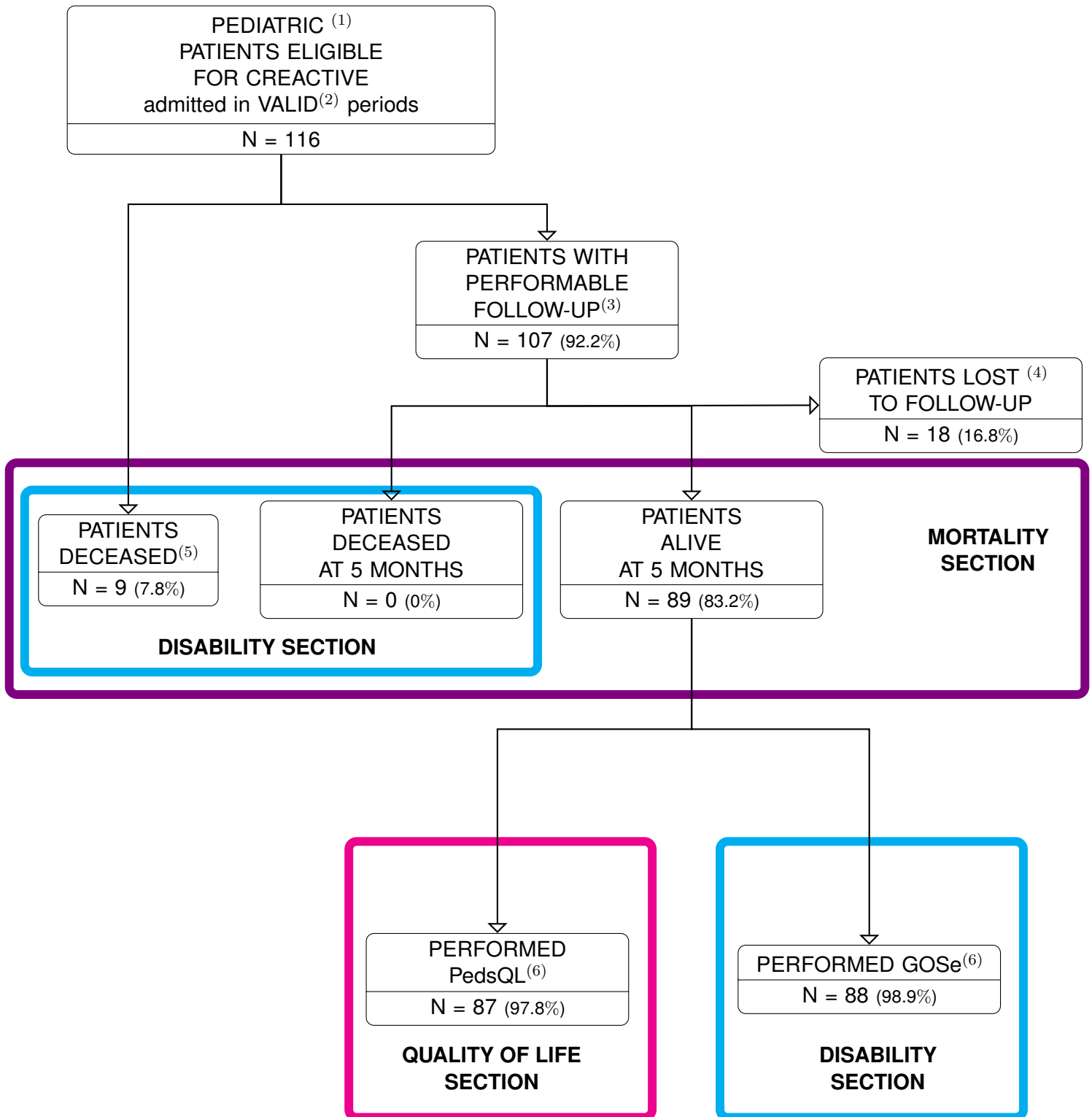
<b>Anatomical severity (worst CT within 48 hours of admission) (N=227)</b>	N	%	Mean	SD	Median	Q1-Q3
Diffuse Injury I (no visible pathology)	40	17.6	73.4	18.8	75.0	65.7–87.5
(D-II) Diffuse injury II	113	49.8	70.8	20.9	75.0	58.3–83.3
Diffuse Injury III (edema)	15	6.6	77.5	13.9	79.2	75–85.4
Diffuse Injury IV (shift>5mm)	6	2.6	82.6	17.8	89.6	68.8–94.8
(5-EML) Evacuated mass lesion	48	21.1	72.0	20.8	75.0	54.2–88.5
(6-NEML) Not Evacuated mass lesion	5	2.2	95.0	5.4	95.8	91.7–100

**QOLIBRI-OS score:**

<b>GOSe result (N=223)</b>	N	%	Mean	SD	Median	Q1-Q3
Deceased	0	0.0	-	-	-	-
Vegetative state	0	0.0	-	-	-	-
Severe disability	52	23.3	58.1	16.9	58.3	49–71.8
Moderate disability	72	32.3	70.1	17.9	70.8	62.5–80.2
Good recovery	99	44.4	83.4	16.8	87.5	75–95.8



**Overall population with valid data (20 ICUs) - Year 2017**  
**Follow-up flow-chart - Pediatric patients**



(1) Patients under 17 years of age are considered PEDIATRIC patients.

(2) Periods are considered VALID when the % of complete data for core and petal are over the thresholds.

(3) Patients discharged alive > 5 months from the date of admission.

(4) This also includes patients declining to take part in the follow-up study or who are not contactable.

(5) Patients deceased in ICU or in hospital.

(6) Statistics are presented only for categories of patients represented by at least 5 subjects.

N.B. The % refers to the upper node in the flow chart.





## General report - Year 2017

Follow-Up - 'Mortality' section: Mortality for main subgroups of patients - Pediatric patients

## Patients (N): 98

This section presents the mortality-related statistics.  
Each of the tables provided is divided into two parts:

- the **first part** of each table (on the left-hand side, printed in black ink) refers to the ICU and the hospital mortality rates for each patient category.  
For example, 7.9% of the 63 patients aged between 9 and 16 years died in the ICU, while 7.9% died in hospital; 0% of the 13 patients aged between 2 and 4 years died in the ICU, while 0% died in hospital.  
This part of the table refers to all **pediatric CREATIVE patients with valid data**.
- the **second part** of each table (on the right-hand side, printed in purple ink) refers instead to **pediatric CREATIVE patients with valid data on whom we have 5-month outcome data** (alive or dead). The mortality rate at different time points (irrespective of the place of death - ICU, hospital, home) is shown for these patients: *within 4 days of the trauma event, between 4 and 7 days, between 8 and 30 days, and over 30 days*.  
For example, 55 of the valid pediatric CREATIVE patients are aged between 9 and 16 years: of these, 5.6% died within 4 days of the trauma event, while the remaining 94.4% were still alive at that date. Accordingly, the only patients at risk of dying between 4 and 7 days are the ones still alive at day 4 ( $55 \times 0.944 = 52$ ): 3.9% of these 52 died between 4 and 7 days. At this point, the only patients at risk of dying between 8 and 30 days are the ones who are still alive at day 8 (*i.e.*,  $52 \times 0.961 = 50$ ); 0% of these died within 30 days.  
Hence, the sum of the percentages in each row does not produce 100%, since the denominator on which the rate is calculated varies for each column. To be precise, it consists of the number of subjects who are still alive at the start of the observation period of each column.

Age	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Newborn (0-4 weeks)	0	-	-	0	-	-	-	-
1-6 months	0	-	-	0	-	-	-	-
6-12 months	6	16.7	16.7	4	25.0	0.0	0.0	0.0
12-24 months	7	14.3	14.3	5	20.0	0.0	0.0	0.0
2-4 years	13	0.0	0.0	12	0.0	0.0	0.0	0.0
5-8 years	27	7.4	7.4	22	0.0	0.0	9.1	0.0
9-16 years	63	7.9	7.9	55	5.6	3.9	0.0	0.0

Comorbidities	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Yes	3	0.0	0.0	3	0.0	0.0	0.0	0.0
No	113	8.0	8.0	95	5.3	2.2	2.3	0.0

Source of admission	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Same hospital	82	8.5	8.5	69	5.9	1.6	3.2	0.0
Other hospital	29	6.9	6.9	26	3.8	4.0	0.0	0.0
Long-term chronic care hospital	0	-	-	0	-	-	-	-
Directly from the community	5	0.0	0.0	3	0.0	0.0	0.0	0.0

† Mortality (%)

\* from TBI

## General report - Year 2017

Follow-Up - 'Mortality' section: Mortality for main subgroups of patients - Pediatric patients

Type of traumatic brain injury	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Penetrating	4	50.0	50.0	4	0.0	0.0	50.0	0.0
Closed	110	6.4	6.4	92	5.5	2.3	0.0	0.0
Unknown	2	0.0	0.0	2	0.0	0.0	0.0	0.0

GCS worst (first 24 hours)	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
3-8	31	16.1	16.1	24	16.7	5.0	0.0	0.0
9-13	28	0.0	0.0	21	0.0	0.0	0.0	0.0
14	34	0.0	0.0	30	0.0	0.0	0.0	0.0
Not evaluable	23	17.4	17.4	23	4.3	4.5	9.5	0.0

Worst GCS during first 24h: best motor response	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Obeys commands (5)	51	0.0	0.0	41	0.0	0.0	0.0	0.0
Localizes pain (4)	27	0.0	0.0	23	0.0	0.0	0.0	0.0
Flexion to pain (3)	9	11.1	11.1	5	0.0	20.0	0.0	0.0
Extension to pain (2)	1	0.0	0.0	1	0.0	0.0	0.0	0.0
None(1)	5	80.0	80.0	5	80.0	0.0	0.0	0.0
Not available	23	17.4	17.4	23	4.3	4.5	9.5	0.0

GCS trend in 48h	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
GCS 3 stable	4	100.0	100.0	4	100.0	-	-	-
GCS from 3 to 4-8	1	0.0	0.0	1	0.0	0.0	0.0	0.0
GCS from 3 to > 8	0	-	-	0	-	-	-	-
GCS from 4-8 to 3	0	-	-	0	-	-	-	-
GCS 4-8 stable	7	0.0	0.0	5	0.0	0.0	0.0	0.0
GCS from 4-8 to > 8	13	0.0	0.0	12	0.0	0.0	0.0	0.0
GCS from > 8 to 3	0	-	-	0	-	-	-	-
GCS from > 8 to 4-8	6	16.7	16.7	3	0.0	33.3	0.0	0.0
GCS > 8 stable	60	0.0	0.0	49	0.0	0.0	0.0	0.0

† Mortality (%)

\* from TBI

## General report - Year 2017

Follow-Up - 'Mortality' section: Mortality for main subgroups of patients - Pediatric patients

Clinically relevant hypotension	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
No	80	1.2	1.2	65	0.0	1.5	0.0	0.0
Yes	16	31.2	31.2	15	33.3	0.0	0.0	0.0
Not available	20	15.0	15.0	18	0.0	5.9	12.5	0.0

Clinically relevant hypoxia	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
No	66	4.5	4.5	55	3.6	1.9	0.0	0.0
Yes	33	9.1	9.1	29	10.3	0.0	0.0	0.0
Not available	17	17.6	17.6	14	0.0	7.7	16.7	0.0

Pupils in the emergency room	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Bilaterally reactive and/or miotic	69	0.0	0.0	57	0.0	0.0	0.0	0.0
Unilaterally dilated and non-reactive	6	0.0	0.0	4	0.0	0.0	0.0	0.0
Bilaterally dilated and non-reactive	6	83.3	83.3	6	83.3	0.0	0.0	0.0
Not assessable	0	-	-	0	-	-	-	-
Not available	3	0.0	0.0	3	0.0	0.0	0.0	0.0

Anatomical severity (worst CT within 48 hours of admission)	All patients (N=116)			Patients with follow-up (N=98)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Diffuse Injury I (no visible pathology)	21	0.0	0.0	16	0.0	0.0	0.0	0.0
(D-II) Diffuse injury II	46	0.0	0.0	39	0.0	0.0	0.0	0.0
Diffuse Injury III (edema)	13	30.8	30.8	12	18.2	11.1	12.5	0.0
Diffuse Injury IV (shift>5mm)	9	22.2	22.2	8	12.5	0.0	14.3	0.0
(5-EML) Evacuated mass lesion	27	11.1	11.1	23	8.7	4.8	0.0	0.0
(6-NEML) Not Evacuated mass lesion	0	-	-	0	-	-	-	-

† Mortality (%)

\* from TBI



## General report - Year 2017

Follow-Up - 'Disability' section - Pediatric patients

Patients (N): 97

GOSe result :*	All patients (N=97)		Alive patients (N=88)	
	N	%	N	%
Deceased	9	9.3	-	-
VEGETATIVE STATE	2	2.1	2	2.3
Severe disability LOWER LEVEL	6	6.2	6	6.8
Severe disability UPPER LEVEL	8	8.2	8	9.1
Moderate disability LOWER LEVEL	7	7.2	7	8
Moderate disability UPPER LEVEL	13	13.4	13	14.8
Good recovery LOWER LEVEL	16	16.5	16	18.2
Good recovery UPPER LEVEL	36	37.1	36	40.9

\* patients with 'Pre-trauma disability' are not analyzed.

## Disability for main subgroups of patients - N (%)

Age	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Newborn (0-4 weeks)	0	-	-	-	-	-
1-6 months	0	-	-	-	-	-
6-12 months	4	1 (25.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (75.0)
12-24 months	4	1 (25.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (75.0)
2-4 years	12	0 (0.0)	0 (0.0)	4 (33.3)	2 (16.7)	6 (50.0)
5-8 years	22	2 (9.1)	0 (0.0)	0 (0.0)	3 (13.6)	17 (77.3)
9-16 years	55	5 (9.1)	2 (3.6)	10 (18.2)	15 (27.3)	23 (41.8)

Comorbidities	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Yes	3	0 (0.0)	0 (0.0)	1 (33.3)	1 (33.3)	1 (33.3)
No	94	9 (9.6)	2 (2.1)	13 (13.8)	19 (20.2)	51 (54.3)

Source of admission	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Same hospital	68	7 (10.3)	2 (2.9)	10 (14.7)	17 (25.0)	32 (47.1)
Other hospital	26	2 (7.7)	0 (0.0)	3 (11.5)	3 (11.5)	18 (69.2)
Long-term chronic care hospital	0	-	-	-	-	-
Directly from the community	3	0 (0.0)	0 (0.0)	1 (33.3)	0 (0.0)	2 (66.7)

Type of traumatic brain injury	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Penetrating	4	2 (50.0)	0 (0.0)	0 (0.0)	1 (25.0)	1 (25.0)
Closed	91	7 (7.7)	1 (1.1)	14 (15.4)	18 (19.8)	51 (56.0)
Unknown	2	0 (0.0)	1 (50.0)	0 (0.0)	1 (50.0)	0 (0.0)

GCS worst (first 24 hours)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
3-8	23	5 (21.7)	0 (0.0)	7 (30.4)	3 (13.0)	8 (34.8)
9-13	21	0 (0.0)	0 (0.0)	4 (19.0)	3 (14.3)	14 (66.7)
14	30	0 (0.0)	0 (0.0)	1 (3.3)	9 (30.0)	20 (66.7)
Not evaluable	23	4 (17.4)	2 (8.7)	2 (8.7)	5 (21.7)	10 (43.5)

## General report - Year 2017

Follow-Up - 'Disability' section - Pediatric patients

<b>Worst GCS during first 24h: best motor response</b>	N	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
Obeys commands (5)	41	0 (0.0)	0 (0.0)	4 (9.8)	10 (24.4)	27 (65.9)
Localizes pain (4)	22	0 (0.0)	0 (0.0)	6 (27.3)	3 (13.6)	13 (59.1)
Flexion to pain (3)	5	1 (20.0)	0 (0.0)	2 (40.0)	1 (20.0)	1 (20.0)
Extension to pain (2)	1	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
None(1)	5	4 (80.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (20.0)
Not available	23	4 (17.4)	2 (8.7)	2 (8.7)	5 (21.7)	10 (43.5)

<b>GCS trend in 48h</b>	N	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
GCS 3 stable	4	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
GCS from 3 to 4-8	1	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
GCS from 3 to > 8	0	-	-	-	-	-
GCS from 4-8 to 3	0	-	-	-	-	-
GCS 4-8 stable	4	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)	3 (75.0)
GCS from 4-8 to > 8	12	0 (0.0)	0 (0.0)	4 (33.3)	3 (25.0)	5 (41.7)
GCS from > 8 to 3	0	-	-	-	-	-
GCS from > 8 to 4-8	3	1 (33.3)	0 (0.0)	1 (33.3)	0 (0.0)	1 (33.3)
GCS > 8 stable	49	0 (0.0)	0 (0.0)	5 (10.2)	11 (22.4)	33 (67.3)

<b>Clinically relevant hypotension</b>	N	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
No	64	1 (1.6)	1 (1.6)	10 (15.6)	12 (18.8)	40 (62.5)
Yes	15	5 (33.3)	0 (0.0)	2 (13.3)	4 (26.7)	4 (26.7)
Not available	18	3 (16.7)	1 (5.6)	2 (11.1)	4 (22.2)	8 (44.4)

<b>Clinically relevant hypoxia</b>	N	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
No	54	3 (5.6)	1 (1.9)	9 (16.7)	10 (18.5)	31 (57.4)
Yes	29	3 (10.3)	0 (0.0)	3 (10.3)	8 (27.6)	15 (51.7)
Not available	14	3 (21.4)	1 (7.1)	2 (14.3)	2 (14.3)	6 (42.9)

<b>Pupils in the emergency room</b>	N	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
Bilaterally reactive and/or miotic	56	0 (0.0)	0 (0.0)	10 (17.9)	13 (23.2)	33 (58.9)
Unilaterally dilated and non-reactive	4	0 (0.0)	0 (0.0)	1 (25.0)	1 (25.0)	2 (50.0)
Bilaterally dilated and non-reactive	6	5 (83.3)	1 (16.7)	0 (0.0)	0 (0.0)	0 (0.0)
Not assessable	0	-	-	-	-	-
Not available	3	0 (0.0)	0 (0.0)	1 (33.3)	0 (0.0)	2 (66.7)

<b>Anatomical severity (worst CT within 48 hours of admission)</b>	N	<b>Deceased</b>	<b>Vegetative state(%)</b>	<b>Severe disability(%)</b>	<b>Moderate disability(%)</b>	<b>Good recovery(%)</b>
Diffuse Injury I (no visible pathology)	16	0 (0.0)	0 (0.0)	3 (18.8)	5 (31.2)	8 (50.0)
(D-II) Diffuse injury II	38	0 (0.0)	1 (2.6)	5 (13.2)	8 (21.1)	24 (63.2)
Diffuse Injury III (edema)	12	4 (33.3)	1 (8.3)	1 (8.3)	4 (33.3)	2 (16.7)
Diffuse Injury IV (shift>5mm)	8	2 (25.0)	0 (0.0)	1 (12.5)	0 (0.0)	5 (62.5)
(5-EML) Evacuated mass lesion	23	3 (13.0)	0 (0.0)	4 (17.4)	3 (13.0)	13 (56.5)
(6-NEML) Not Evacuated mass lesion	0	-	-	-	-	-

**General report - Year 2017**

Follow-Up - 'Quality of Life' section - Pediatric patients

**Patients (N): 87****PedsQL - TOTAL SCORE**

Mean	75.1
SD	24.5
Median	83
Q1–Q3	59–97
Min–Max	0–100

**PedsQL - TOTAL SCORE**

<b>Anatomical severity (worst CT within 48 hours of admission) (N=87)</b>	N	%	Mean	SD	Median	Q1-Q3
Diffuse Injury I (no visible pathology)	15	17.2	77.2	16.2	76.0	68–90.5
(D-II) Diffuse injury II	38	43.7	77.3	24.5	84.5	61.2–97.8
Diffuse Injury III (edema)	8	9.2	55.4	28.5	58.5	45–74.8
Diffuse Injury IV (shift>5mm)	6	6.9	90.5	13.7	94.5	90.2–99.5
(5-EML) Evacuated mass lesion	20	23.0	72.4	27.3	84.0	53–94
(6-NEML) Not Evacuated mass lesion	0	0.0	-	-	-	-

**PedsQL - TOTAL SCORE**

<b>GOSe result (N=87)</b>	N	%	Mean	SD	Median	Q1-Q3
Deceased	0	0.0	-	-	-	-
Vegetative state	2	2.3	0.0	0.0	0.0	0–0
Severe disability	14	16.1	49.4	18.8	50.5	38.8–62.5
Moderate disability	20	23.0	64.6	15.4	65.5	51–73.8
Good recovery	51	58.6	89.1	14.0	94.0	85–98