

GiViTI








Gruppo Italiano per la Valutazione degli Interventi In Terapia Intensiva

**Report
CREACTIVE project**

Year 2016

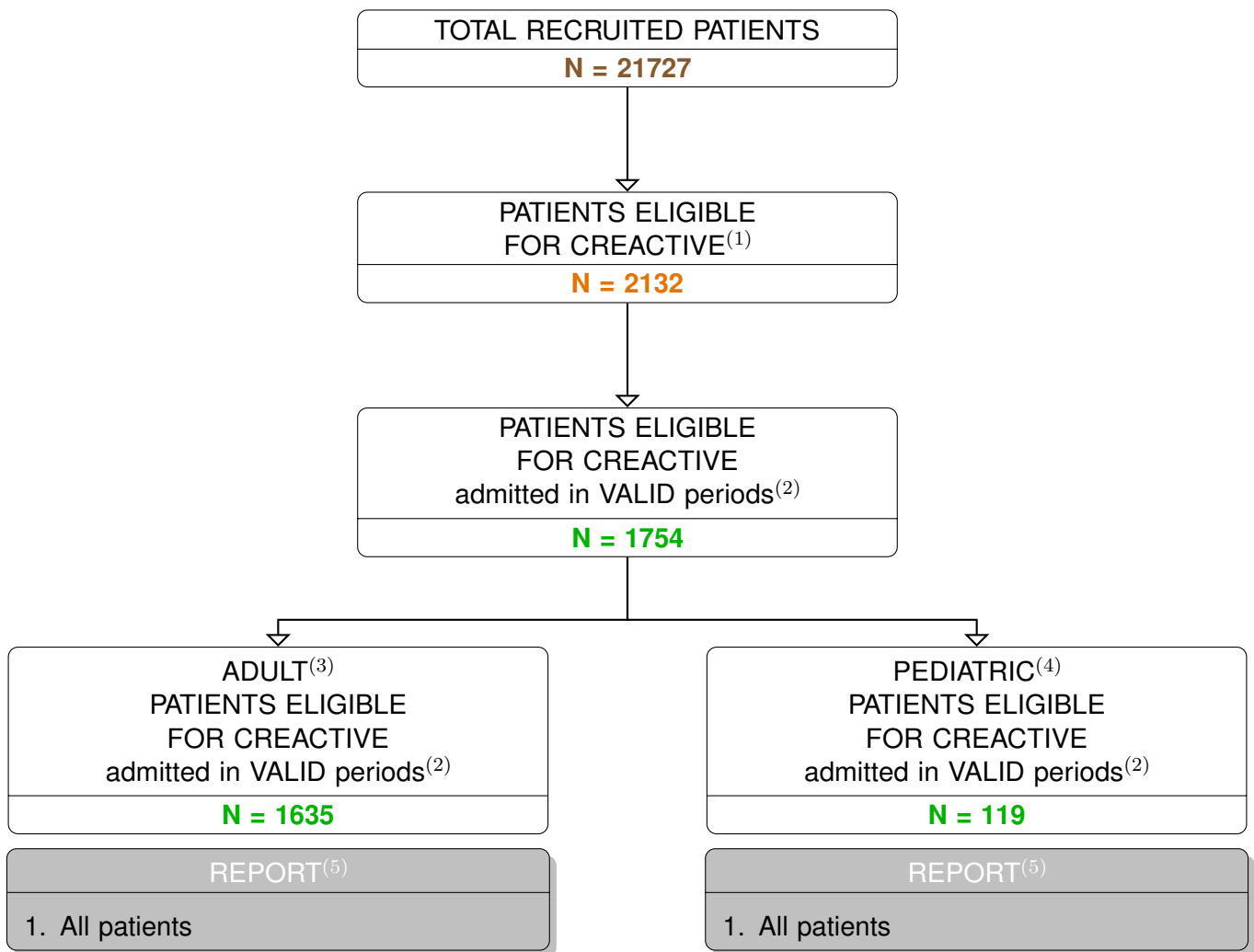
Overall population (56 ICUs)

General report - Year 2016
Project participation*

Nation	ICUs	Adult Patients	Pediatric Patients	TBI Adult Patients	TBI Pediatric Patients	VALID TBI Adult Patients	VALID TBI Pediatric Patients
 Cyprus	1	787	0	38	0	34	0
 Greece	5	908	160	64	9	63	9
 Hungary	6	1513	24	335	12	263	11
 Israel	1	26	660	0	33	0	28
 Italy	34	14168	853	1213	70	980	62
 Poland	6	845	379	108	7	99	7
 Slovenia	3	1396	8	241	2	196	2
Total	56	19643	2084	1999	133	1635	119
		21727			2132	1754	

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

Overall population with valid data (56 ICUs) - Year 2016
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 2016

Characteristics on admission - Adult patients

Patients (N): 1635

Sex	N	%
Male	1207	73.8
Female	428	26.2
Missing	0	

Age (years)	N	%
17-45	569	34.8
46-65	463	28.3
66-75	240	14.7
>75	363	22.2
Missing	0	
Mean	55.1	
SD	21.0	
Median	57	
Q1-Q3	38-73	
Min-Max	17-97	

Race	N	%
White European	1544	95.4
White African	15	0.9
Black Afro-american	6	0.4
Asian	24	1.5
Arab	9	0.6
Nomad	0	0.0
Unknown	21	1.3
Missing	16	

Marital status:	N	%
Married	584	36.1
Unmarried / Single	336	20.8
Separated / Divorced	46	2.8
Cohabiting	60	3.7
Widowed	125	7.7
Unknown	467	28.9
Missing	17	

Education level	N	%
No schooling	36	2.2
Primary school/ Elementary school	359	22.2
High school diploma	318	19.6
University degree	73	4.5
Unknown	833	51.5
Missing	16	

Occupational status:	N	%
Worker	454	28.1
Student	477	29.5
Retired	50	3.1
Unemployed / Looking for work	80	5.0
Disabled / Not applicable / Sheltered employment	38	2.4
Unknown	517	32.0
Missing	19	

Body mass Index (BMI)	N	%
Underweight	59	3.6
Normal	887	54.7
Overweight	545	33.6
Obese	132	8.1
Missing	12	

Comorbidities	N	%
No	740	45.3
Yes	895	54.7
Missing	0	

Comorbidities (top 10)	N	%
Hypertension	506	30.9
Arrhythmia	151	9.2
Alcohol addiction	151	9.2
Antiplatelet therapy	139	8.5
Diabetes Type II without insulin tr.	124	7.6
Cerebrovascular disease	111	6.8
Drug-induced coagulopathy	94	5.7
Myocardial infarction	91	5.6
NYHA class II-III	65	4.0
Dementia	55	3.4
Missing	0	

Multiple trauma	N	%
No	929	56.8
Yes	706	43.2
Missing	0	

Trauma (anatomical districts)	N	%
Spine	313	19.1
Vertebral fracture, without deficit	272	16.6
Tetraplegia	13	0.8
Cervical injury, incomplete deficit	11	0.7
Chest	480	29.4
Other injuries of the chest	254	15.5
Traum. haemothorax/pneumothorax	209	12.8
Severe lung contusion/laceration	142	8.7
Abdomen	142	8.7
Minor injuries of the abdomen	44	2.7
Spleen: Moderate-Severe laceration	39	2.4
Liver: Moderate-Severe laceration	38	2.3
Pelvis/bone/joint & muscle	320	19.6
Long bone fracture	233	14.3
Multiple fracture of the pelvis	129	7.9
Very severe or open fracture of the pelvis	17	1.0
Major vessels injury	37	2.3
Neck vessels: dissection/transection	13	0.8
Aorta: rupture/dissection	11	0.7
Proximal limbs vessels: transection	7	0.4
Miscellaneous	1	0.1
Inhalation injury	1	0.1
-	0	0.0
Missing	0	

General report - Year 2016

Timing of admission in ICU - Adult patients

Stay before ICU (days)		
Mean	1.0	
SD	5.6	
Median	0	
Q1–Q3	0–1	
Missing	1	

Source of admission	N	%
Same hospital	1297	79.3
Other hospital	335	20.5
Long-term chronic care hospital	3	0.2
Directly from the community	0	0.0
Missing	0	

Ward of admission		
Same hospital (N=1297)	N	%
Medical ward	27	2.1
Surgical ward	207	16.0
Emergency room	993	76.6
Other ICU	43	3.3
High dependency care unit	27	2.1
Missing	0	

Ward of admission		
Other hospital (N=335)	N	%
Medical ward	11	3.3
Surgical ward	16	4.8
Emergency room	253	75.5
Other ICU	49	14.6
High dependency care unit	6	1.8
Missing	0	

Reason for transfer from		
Other ICU (N=92)	N	%
Specialist expertise	43	46.7
Step-up care	27	29.3
Logistical/organizational reasons	21	22.8
Step-down care	1	1.1
Missing	0	

Access type °		
	N	%
Primary	1300	79.5
Secondary	335	20.5
Within 48 hours	272	85.0
Over 48 hours	48	15.0
Missing	15	
Missing	0	

Time of trauma available		
	N	%
No	400	24.8
Yes	1213	75.2
Missing	22	

Hours between trauma and admission in ICU		
<i>Time of trauma available (N=1213)</i>		
Mean	13.6	
SD	24.9	
Median	5	
Q1–Q3	3–10	
Min–Max	0–178	
Missing	0	

Hours between trauma and admission in ICU		
<i>Time of trauma available - Same hospital (N=994)</i>		
Mean	12.5	
SD	23.6	
Median	5	
Q1–Q3	3–9	
Min–Max	0–172	
Missing	0	

Hours between trauma and admission in ICU		
<i>Time of trauma available - Other hospital (N=216)</i>		
Mean	18.7	
SD	29.2	
Median	7.5	
Q1–Q3	5–17	
Min–Max	1–178	
Missing	0	

Hours between trauma and admission in ICU		
<i>Time of trauma available - Same hospital - Emergency room (N=800)</i>		
Mean	8.1	
SD	15.3	
Median	4	
Q1–Q3	2–7	
Min–Max	0–172	
Missing	0	

Hours between trauma and admission in ICU		
<i>Time of trauma available - Other hospital - Emergency room (N=176)</i>		
Mean	12.1	
SD	15.8	
Median	7	
Q1–Q3	5–12	
Min–Max	1–126	
Missing	0	

° This information is not requested in the CRF. It is therefore calculated based on the number of hours/days elapsing between the trauma event and admission to hospital.

General report - Year 2016

Characteristics of the trauma - Adult patients

Type of traumatic brain injury	N	%
Penetrating	46	2.9
Closed	1557	96.5
Unknown	10	0.6
Missing	22	

Workplace accident	N	%
No	1441	89.3
Yes	116	7.2
Unknown	56	3.5
Missing	22	

Home/domestic accident	N	%
No	1045	64.8
Yes	501	31.1
Unknown	67	4.2
Missing	22	

Road traffic incident	N	%
No	914	56.7
Yes	699	43.3
Missing	22	

Means of transport	N	%
Road traffic incident (N=699)		
Truck/bus	11	1.6
Car/van	213	30.5
Motorcycle	170	24.3
Bicycle	114	16.3
Pedestrian	172	24.6
Other	19	2.7
Missing	0	

Sport/recreational accident	N	%
No	1457	90.3
Yes	89	5.5
Unknown	67	4.2
Missing	22	

Intention	N	%
Accidental	1397	86.6
Self-inflicted injury	52	3.2
Violence	38	2.4
Other	9	0.6
Unknown	117	7.3
Missing	22	

Trauma Dynamics	N	%
High energy impact with helmet	156	9.7
High energy impact without helmet	623	38.6
Low energy impact with helmet	39	2.4
Low energy impact without helmet	608	37.7
Blunt object	56	3.5
Crush	21	1.3
Blast	5	0.3
Gunshot	14	0.9
Acceleration/deceleration	132	8.2
Unknown	85	5.3
Missing	23	

General report - Year 2016

Type of trauma - Adult patients

Type of lesion °	N	Alone	With G	With H	With G+H
Diffuse Injury *	166	76	45	26	19
Focal Damage **	1320	530	260	248	282
G: Traumatic subarachnoid haemorrhage	721	90	/	25	/
H: Skull fracture	627	27	25	/	/

Marshall Classification	N	%
Diffuse Injury I (no visible pathology)	164	10.2
(D-II) Diffuse injury II	555	34.4
Diffuse Injury III (edema)	124	7.7
Diffuse Injury IV (shift >5mm)	76	4.7
(5-EML) Evacuated mass lesion	547	33.9
Cerebral contusion/laceration	45	8.2
Extradural/epidural haematoma	96	17.6
Traumatic Subdural haematoma	349	63.8
Traumatic intraparenchymal bleeding	57	10.4
(6-NEML) Not Evacuated mass lesion	149	9.2
Cerebral contusion/laceration	45	30.2
Extradural/epidural haematoma	8	5.4
Traumatic Subdural haematoma	54	36.2
Traumatic intraparenchymal bleeding	42	28.2
Missing	20	

Prevalent lesion: DIFFUSE INJURY (N): 166

Diffuse injury	N	Alone	With G	With H	With G+H
A: Traumatic diffuse injury without oedema	94	52	29	9	4
B: Traumatic diffuse injury with oedema	72	24	16	17	15

Petechiae	N	%	Midline shift >5 mm	N	%	Cistern conditions	N	%
No	60	36.4	No	141	85.5	Normal	109	66.1
Yes	105	63.6	Yes	24	14.5	Compressed or distorted	39	23.6
Missing	1		Missing	1		Absent	17	10.3
						Missing	1	

Presence of focal damage	N	%
No	97	58.8
Yes	68	41.2
Missing	1	

Focal lesion	N	%
Presence of focal damage (N=68)		
Traumatic subdural hematoma	10	14.7
Extradural or epidural hematoma	8	11.8
Contusion and/ or brain laceration	40	58.8
Traumatic intraparenchymal hemorrhage	10	14.7
Missing	0	

Lesion volume > 25ml (N=68)	N	%	Evacuated mass (N=68)	N	%
No	57	83.8	No	64	94.1
Yes	11	16.2	Yes	4	5.9
Missing	0		Missing	0	

° Diffuse injury and focal injury are mutually exclusive. Where both are present, the clinician is requested to select and indicate the prevalent 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 2016

Type of trauma - Adult patients

Prevalent lesion: FOCAL DAMAGE (N): 1320

Focal damage	N	Alone	With G	With H	With G+H
C: Cerebral contusion/laceration	409	124	86	88	111
D: Extradural/epidural haematoma	151	71	11	45	24
E: Traumatic Subdural haematoma	589	274	119	94	102
F: Traumatic intraparenchymal bleeding	171	61	44	21	45

Lesion volume > 25ml	N	%
No	740	56.6
Yes	568	43.4
Missing	12	

Evacuated mass	N	%
No	765	58.5
Yes	543	41.5
Missing	12	

Petechiae	N	%
No	855	65.4
Yes	453	34.6
Missing	12	

Midline shift > 5 mm	N	%
No	738	56.4
Yes	570	43.6
Missing	12	

Cistern conditions	N	%
Normal	606	46.3
Compressed or distorted	617	47.2
Absent	85	6.5
Missing	12	

FOCAL DAMAGE (prevalent or compresent) (N): 1388

Lesion volume > 25ml	N	%
No	797	57.9
Yes	579	42.1
Missing	12	

Evacuated mass	N	%
No	829	60.2
Yes	547	39.8
Missing	12	

Midline shift > 5 mm	N	%
No	787	57.2
Yes	589	42.8
Missing	12	

Cistern conditions	N	%
Normal	638	46.4
Compressed or distorted	644	46.8
Absent	94	6.8
Missing	12	

FOCAL DAMAGE (prevalent or compresent) with evacuated mass (N): 547

Lesion volume > 25ml	N	%
No	117	21.4
Yes	430	78.6
Missing	0	

Midline shift > 5 mm	N	%
No	127	23.2
Yes	420	76.8
Missing	0	

Cistern conditions	N	%
Normal	94	17.2
Compressed or distorted	413	75.5
Absent	40	7.3
Missing	0	

FOCAL DAMAGE (prevalent or compresent) without evacuated mass (N): 829

Lesion volume > 25ml	N	%
No	680	82.0
Yes	149	18.0
Missing	0	

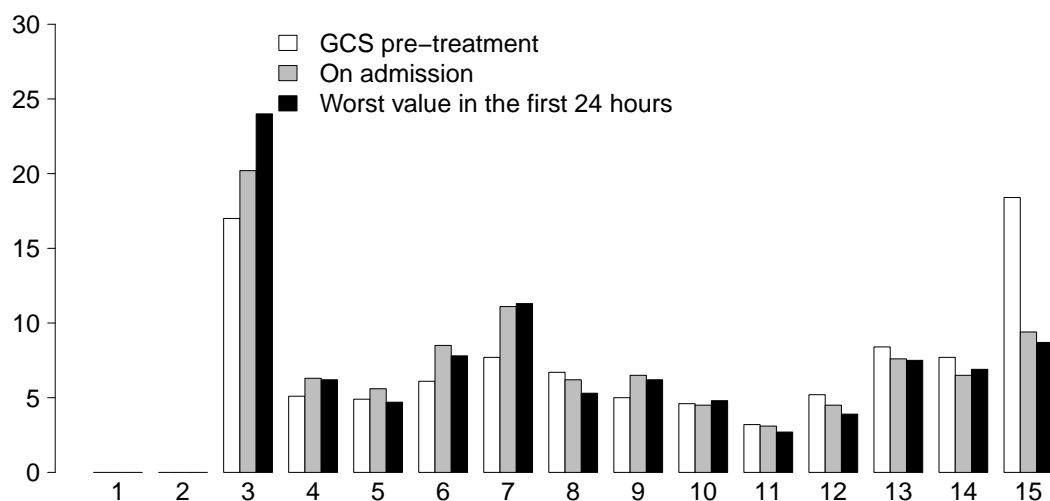
Midline shift > 5 mm	N	%
No	660	79.6
Yes	169	20.4
Missing	0	

Cistern conditions	N	%
Normal	544	65.6
Compressed or distorted	231	27.9
Absent	54	6.5
Missing	0	

General report - Year 2016

Glasgow Coma Scale - Adult patients

Glasgow Coma Scale (%)



GCS pre-treatment

Median	9
Q1-Q3	5-14
Missing	20

GCS (admission)

Median	7
Q1-Q3	4-12
Not evaluable	462
Missing	1

Worst GCS (first 24 hours)

Median	7
Q1-Q3	4-12
Not evaluable	561
Missing	1

GCS	GCSPre(N)	GCSPre(%)	GCSAdm(N)	GCSAdm(%)	GCSWorst24(N)	GCSWorst24(%)
3	275	17	236	20.2	258	24
4	83	5.1	74	6.3	67	6.2
5	79	4.9	65	5.6	50	4.7
6	98	6.1	99	8.5	84	7.8
7	124	7.7	130	11.1	121	11.3
8	109	6.7	73	6.2	57	5.3
9	81	5	76	6.5	66	6.2
10	74	4.6	52	4.5	51	4.8
11	52	3.2	36	3.1	29	2.7
12	84	5.2	52	4.5	42	3.9
13	135	8.4	89	7.6	81	7.5
14	124	7.7	76	6.5	74	6.9
15	297	18.4	110	9.4	93	8.7
Tot	1615	100	1168	100	1073	100
3-8					637	59.4
9-13					269	25.1
14-15					167	15.6

Worst GCS during first 24h: best motor response	N	%
Obeys commands (6)	299	18.3
Localizes pain (5)	289	17.7
Withdraws to pain (4)	171	10.5
Flexion (abnormal) to pain (3)	65	4.0
Extension to pain (2)	84	5.1
None(1)	316	19.3
Not available	410	25.1
Missing	1	

GCS trend in 48h	N	%
Available information (N=1119)		
GCS 3 stable	117	10.5
GCS from 3 to 4-8	31	2.8
GCS from 3 to > 8	31	2.8
GCS from 4-8 to 3	59	5.3
GCS 4-8 stable	155	13.9
GCS from 4-8 to > 8	102	9.1
GCS from > 8 to 3	50	4.5
GCS from > 8 to 4-8	133	11.9
GCS > 8 stable	441	39.4
Missing	0	

General report - Year 2016

Before admission to ICU - Adult patients

Availability of the pre-ICU systolic blood pressure value	N	%
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No	402	24.9
Yes	1211	75.1
Missing	22	

Clinically relevant hypotension	N	%
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No	1262	78.2
Yes	212	13.1
Not available	139	8.6
Missing	22	

(Lowest) systolic blood pressure value		
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Mean	120.5
SD	33.5
Median	120
Q1–Q3	100–140
Min–Max	20–222
Missing	0

Availability of pre-ICU hypoxia value	N	%
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No	439	27.2
Yes	1174	72.8
Missing	22	

Clinically relevant hypoxia	N	%
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No	1050	65.1
Yes	391	24.2
Not available	172	10.7
Missing	22	

(Lowest) peripheral oxygen saturation value		
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Mean	93.4
SD	9.9
Median	96
Q1–Q3	92–98
Min–Max	10–100
Missing	0

Pupils in the emergency room		
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GCS pre < 15 (N=1318)	N	%
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Bilaterally reactive and/or miotic	858	65.1
Unilaterally dilated and non-reactive	231	17.5
Bilaterally dilated and non-reactive	147	11.2
Not assessable	21	1.6
Not available	60	4.6
Missing	1	

Hemoglobin ER (gr/dl)		
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Mean	12.5
SD	2.3
Median	12.8
Q1–Q3	11.1–14.1
Min–Max	0.4–19.9
Not available	191
Missing	22

Blood glucose at ER (mg/dl)		
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Mean	159.1
SD	66.3
Median	146
Q1–Q3	120–185
Min–Max	4–613
Not available	281
Missing	22

General report - Year 2016

Complications in the ICU - Adult patients

Neurological complications during the stay	N	%
No	765	47.4
Yes	849	52.6
A: Intracranial hypertension	497	30.8
B: Intracranial hypertension refractory or intractable	291	18.1
C: At least one episode of dilated pupils unreactive to light	332	20.6
D: Reduction of serum sodium	192	11.9
E: Post-surgical intracranial bleeding	28	1.7
F: Non-surgical intracranial bleeding	17	1.1
G: Seizures	59	3.7
H: Drowsiness/agitation/delirium	179	11.1
Missing	21	

Neurological complications during the stay (top 10)	N	%
ABC	148	9.2
H	119	7.4
A	102	6.3
C	76	4.7
D	71	4.4
AB	66	4.1
AC	34	2.1
G	28	1.7
AD	27	1.7
ABD	24	1.5
Missing	21	

Other complications during the stay	N	%
Respiratory	246	15.0
Atelectasis	131	8.0
Pleural effusion	77	4.7
Pneumothorax/Pneumomediastinum	31	1.9
Aspiration pneumonia	21	1.3
Moderate ARDS	11	0.7
Cardiovascular	167	10.2
Acute severe arrhythmia: tachycardias	57	3.5
Deep venous thrombosis	54	3.3
Cardiac arrest	32	2.0
Acute severe arrhythmia: bradycardias	21	1.3
Hypertensive crisis	17	1.0
Gastrointestinal and hepatic	65	4.0
Paralytic Ileus	25	1.5
Liver Dysfunction Syndrome	9	0.6
Gastrointestinal bleeding: lower tract	6	0.4
Gastrointestinal bleeding: upper tract	6	0.4
Acute on chronic liver disease	5	0.3
Other	74	4.5
Metabolic disorder	34	2.1
Nephrourologic disease	15	0.9
Other disease	11	0.7
Blunt cerebral vessels trauma	3	0.2
Other skin and/or soft tissue pathology	3	0.2
Graft vascular thrombosis	2	0.1
Extremity compartment syndrome (severe)	2	0.1
Infections	589	36.0
Pneumonia	287	17.6
L.R.T.I. other than pneumonia	143	8.7
NON-surgical urinary tract infection	50	3.1
Catheter-related bacteremia (CR-BSI)	44	2.7
F.U.O. fever of unknown origin	39	2.4
Primary bacteraemia of unknown origin	36	2.2
Clinical sepsis	24	1.5
Upper respiratory tract infection	20	1.2
Post-surgical skin/soft tissue infection	11	0.7
Ventriculostomy-related CNS infection	11	0.7
Missing	0	

General report - Year 2016

Process indicators - Adult patients

ICP monitoring in Core	N	%
No	1191	72.8
Yes	444	27.2
Missing	0	

ICP monitoring in Core Worst value in the first 24 hours <= 8 (N=637)	N	%
No	447	70.2
Yes	190	29.8
Missing	0	

Neurosurgical operation	N	%
No	930	57.2
Yes	696	42.8
Subdural haematoma evacuation	416	25.6
Extradural haematoma evacuation	110	6.8
Lobectomy or contusion removal	58	3.6
Primary decompression	147	9.0
Secondary decompression	47	2.9
Other neurosurgical procedure	123	7.6
Missing	9	

Hypothermia	N	%
No	1618	99.0
Yes	17	1.0
Missing	0	

External ventricular drainage without ICP monitoring	N	%
No	1611	98.5
Yes	24	1.5
Missing	0	

External ventricular drainage with ICP monitoring	N	%
No	1545	94.5
Yes	90	5.5
Missing	0	

Barbiturate infusion for refractory ICP	N	%
No	1511	93.8
Yes	100	6.2
Missing	24	

Hyperventilation paCO ₂ <25 mmHg	N	%
No	1569	97.4
Yes	42	2.6
Missing	24	

Indomethacin	N	%
No	1608	99.8
Yes	3	0.2
Missing	24	

Mannitol (multiple doses)	N	%
No	1247	77.4
Yes	364	22.6
Missing	24	

Hypertonic saline	N	%
No	1419	88.0
Yes	193	12.0
Missing	23	

Osmotic therapy	N	%
No	1173	72.8
Yes	438	27.2
Missing	24	

Sedation/analgesia	N	%
No	1088	67.5
Yes	524	32.5
Missing	23	

Propofol infusion for refractory ICP	N	%
No	1450	90.0
Yes	161	10.0
Missing	24	

Vasoconstrictor drugs Vasoactive drugs in Core (N=891)	N	%
No	326	37.2
Yes	550	62.8
Missing	15	

Therapy level	N	%
None	822	50.3
Standard	330	20.2
Intermediate	224	13.7
Extreme - medical	212	13.0
Extreme - surgical	47	2.9
Missing	0	

General report - Year 2016

Outcome - Adult patients

ICU stay (days)		
Mean	10.8	
SD	11.7	
Median	7	
Q1–Q3	2–15	
Min–Max	1–104	
Missing	2	

ICU mortality ⁽³⁾		
	N	%
Alive	1255	76.8
Dead	379	23.2
Missing	1	

Cause of death ⁽⁴⁾		
Dead (N=370)		
	N	%
MOF	43	11.8
Comorbidities	25	6.9
Cerebral	275	75.8
Hemorrhagic	16	4.4
Not determined	4	1.1
Missing	7	

Outcome at discharge from ICU ⁽⁵⁾		
Alive (N=1264)		
	N	%
Cannot follow simple commands	381	30.5
Can follow simple commands	867	69.5
Missing	16	

Hospital stay (days) ^{(1),(2)}		
Mean	22.1	
SD	28.8	
Median	13	
Q1–Q3	6–28	
Min–Max	0–418	
Missing	2	

Hospital mortality ^{(1),(3)}		
	N	%
Alive	1164	71.5
Dead	465	28.5
Missing	2	

Last hospital mortality ⁽¹⁾		
	N	%
Alive	1131	69.6
Dead	493	30.4
Missing	7	

Does the patient have language problems?		
Can follow simple commands		
	N	%
(N=867)		
No	580	66.9
Si	196	22.6
Not assessable	91	10.5
Missing	0	

Does the patient have motor problems?		
Alive (N=1264)		
	N	%
No	639	51.2
Yes	609	48.8
Missing	16	

Is the patient oriented in at least one of the following dimensions: space, time, person, context?		
Can follow simple commands		
	N	%
(N=867)		
No	284	32.8
Yes	524	60.4
Unknown	59	6.8
Missing	0	

(1) Statistics calculated after excluding readmissions (N = 1631).

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

(3) Patients discharged in a preterminal condition (N = 9) were calculated among the deceased.

(4) Excluding patients discharged in a preterminal condition.

(5) Including patients discharged in a preterminal condition.

General report - Year 2016

Characteristics on admission - Pediatric patients

Patients (N): 119

Sex	N	%
Male	87	73.1
Female	32	26.9
Missing	0	

Age	N	%
Newborn (0-4 weeks)	0	0.0
1-6 months	2	1.7
6-12 months	5	4.2
12-24 months	7	5.9
2-4 years	17	14.3
5-8 years	20	16.8
9-16 years	68	57.1
Missing	0	
Mean	9.1	
SD	5.3	
Median	10	
Q1–Q3	4–14	
Min–Max	0–16	

Race	N	%
White European	52	62.7
White African	2	2.4
Black Afro-american	3	3.6
Asian	1	1.2
Arab	24	28.9
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	107	89.9
Yes	12	10.1
Missing	0	

Comorbidities (top 10)	N	%
Asthma	2	1.7
Brain and skull malformations	2	1.7
Genetic diseases	2	1.7
Autoimmune disease	1	0.8
Cerebrovascular disease	1	0.8
Encephalopathy	1	0.8
Gastrointestinal malformations	1	0.8
Hemiplegia or paraplegia or quadriplegia	1	0.8
Malignant haematological disease	1	0.8
Metastatic cancer	1	0.8
Missing	0	

Multiple trauma	N	%
No	73	61.3
Yes	46	38.7
Missing	0	

Trauma (anatomical districts)	N	%
Spine	8	6.7
Vertebral fracture, without deficit	7	5.9
Cervical injury, incomplete deficit	1	0.8
-	0	0.0
Chest	25	21.0
Severe lung contusion/laceration	13	10.9
Other injuries of the chest	13	10.9
Traum. haemothorax/pneumothorax	7	5.9
Abdomen	9	7.6
Minor injuries of the abdomen	4	3.4
Spleen: Moderate-Severe laceration	2	1.7
Spleen: Massive rupture	2	1.7
Pelvis/bone/joint & muscle	22	18.5
Long bone fracture	17	14.3
Multiple fracture of the pelvis	5	4.2
-	0	0.0
Major vessels injury	3	2.5
Neck vessels: dissection/transection	3	2.5
-	0	0.0
-	0	0.0
Miscellaneous	0	0.0
-	0	0.0
-	0	0.0
Missing	0	

General report - Year 2016

Timing of admission in ICU - Pediatric patients

Previous ICU admissions	N	%
None	101	84.9
<=2	7	5.9
>2	1	0.8
Unknown	10	8.4
Missing	0	

Stay before ICU (days)		
Mean	0.5	
SD	3.1	
Median	0	
Q1–Q3	0–0	
Missing	0	

Source of admission	N	%
Same hospital	87	73.1
Other hospital	23	19.3
Long-term chronic care hospital	0	0.0
Directly from the community	9	7.6
Missing	0	

Ward of admission		
Same hospital (N=87)	N	%
Medical ward	4	4.6
Surgical ward	7	8.0
Emergency room	76	87.4
Other ICU	0	0.0
High dependency care unit	0	0.0
Missing	0	

Ward of admission		
Other hospital (N=23)	N	%
Medical ward	1	4.3
Surgical ward	0	0.0
Emergency room	21	91.3
Other ICU	1	4.3
High dependency care unit	0	0.0
Missing	0	

Reason for transfer from		
Other ICU (N=1)	N	%
Specialist expertise	0	0.0
Step-up care	1	100.0
Logistical/organizational reasons	0	0.0
Step-down care	0	0.0
Missing	0	

Access type °	N	%
Primary	96	80.7
Secondary	23	19.3
Within 48 hours	21	95.5
Over 48 hours	1	4.5
Missing	1	
Missing	0	

Time of trauma available	N	%
No	11	9.5
Yes	105	90.5
Missing	3	

Hours between trauma and admission in ICU

Time of trauma available (N=105)

Mean	8.9
SD	18.1
Median	4
Q1–Q3	3–7
Min–Max	1–142
Missing	0

Hours between trauma and admission in ICU

Time of trauma available - Same hospital (N=78)

Mean	9.5
SD	20.5
Median	4
Q1–Q3	2–7
Min–Max	1–142
Missing	0

Hours between trauma and admission in ICU

Time of trauma available - Other hospital (N=18)

Mean	9.5
SD	9.0
Median	6
Q1–Q3	3.2–13.2
Min–Max	3–38
Missing	0

Hours between trauma and admission in ICU

Time of trauma available - Same hospital - Emergency room (N=69)

Mean	5.9
SD	7.6
Median	4
Q1–Q3	2–6
Min–Max	1–53
Missing	0

Hours between trauma and admission in ICU

Time of trauma available - Other hospital - Emergency room (N=16)

Mean	8.6
SD	8.9
Median	6
Q1–Q3	3–8.8
Min–Max	3–38
Missing	0

° This information is not requested in the CRF. It is therefore calculated based on the number of hours/days elapsing between the trauma event and admission to hospital.

General report - Year 2016

Characteristics of the trauma - Pediatric patients

Type of traumatic brain injury	N	%
Penetrating	9	7.8
Closed	107	92.2
Unknown	0	0.0
Missing	3	

Workplace accident	N	%
No	114	98.3
Yes	2	1.7
Unknown	0	0.0
Missing	3	

Home/domestic accident	N	%
No	80	69.0
Yes	35	30.2
Unknown	1	0.9
Missing	3	

Road traffic incident	N	%
No	61	52.6
Yes	55	47.4
Missing	3	

Means of transport	N	%
Road traffic incident (N=55)		
Truck/bus	1	1.8
Car/van	8	14.5
Motorcycle	10	18.2
Bicycle	8	14.5
Pedestrian	28	50.9
Other	0	0.0
Missing	0	

Sport/recreational accident	N	%
No	101	87.1
Yes	15	12.9
Unknown	0	0.0
Missing	3	

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	3	

Trauma Dynamics	N	%
High energy impact with helmet	21	18.1
High energy impact without helmet	45	38.8
Low energy impact with helmet	2	1.7
Low energy impact without helmet	35	30.2
Blunt object	10	8.6
Crush	3	2.6
Blast	0	0.0
Gunshot	0	0.0
Acceleration/deceleration	12	10.3
Unknown	2	1.7
Missing	3	

General report - Year 2016

Type of trauma - Pediatric patients

Type of lesion °	N	Alone	With G	With H	With G+H
Diffuse Injury *	18	11	1	5	1
Focal Damage **	81	29	3	35	14
G: Traumatic subarachnoid haemorrhage	23	4	/	0	/
H: Skull fracture	70	15	0	/	/

Marshall Classification	N	%
Diffuse Injury I (no visible pathology)	24	20.5
(D-II) Diffuse injury II	47	40.2
Diffuse Injury III (edema)	14	12.0
Diffuse Injury IV (shift>5mm)	4	3.4
(5-EML) Evacuated mass lesion	26	22.2
Cerebral contusion/laceration	1	3.8
Extradural/epidural haematoma	20	76.9
Traumatic Subdural haematoma	5	19.2
Traumatic intraparenchymal bleeding	0	0.0
(6-NEML) Not Evacuated mass lesion	2	1.7
Cerebral contusion/laceration	1	50.0
Extradural/epidural haematoma	1	50.0
Traumatic Subdural haematoma	0	0.0
Traumatic intraparenchymal bleeding	0	0.0
Missing	2	

Prevalent lesion: DIFFUSE INJURY (N): 18

Diffuse injury	N	Alone	With G	With H	With G+H
A: Traumatic diffuse injury without oedema	11	8	0	3	0
B: Traumatic diffuse injury with oedema	7	3	1	2	1

Petechiae	N	%	Midline shift>5 mm	N	%	Cistern conditions	N	%
No	9	50.0	No	17	94.4	Normal	13	72.2
Yes	9	50.0	Yes	1	5.6	Compressed or distorted	4	22.2
Missing	0		Missing	0		Absent	1	5.6
						Missing	0	

Presence of focal damage	N	%
No	11	61.1
Yes	7	38.9
Missing	0	

Focal lesion	N	%
Presence of focal damage (N=7)		
Traumatic subdural hematoma	2	28.6
Extradural or epidural hematoma	1	14.3
Contusion and/ or brain laceration	4	57.1
Traumatic intraparenchymal hemorrhage	0	0.0
Missing	0	

Lesion volume > 25ml §	N	%	Evacuated mass	N	%
(N=7)			(N=7)		
No	5	71.4	No	6	85.7
Yes	2	28.6	Yes	1	14.3
Missing	0		Missing	0	

° Diffuse injury and focal injury are mutually exclusive. Where both are present, the clinician is requested to select and indicate the prevalent 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 2016

Type of trauma - Pediatric patients

Prevalent lesion: FOCAL DAMAGE (N): 81

Focal damage	N	Alone	With G	With H	With G+H
C: Cerebral contusion/laceration	35	13	2	14	6
D: Extradural/epidural haematoma	29	12	0	14	3
E: Traumatic Subdural haematoma	14	4	1	5	4
F: Traumatic intraparenchymal bleeding	3	0	0	2	1

Lesion volume > 25ml § (N=38)	N	%
No	31	81.6
Yes	7	18.4
Missing	0	

Evacuated mass	N	%
No	55	68.8
Yes	25	31.2
Missing	1	

Petechiae	N	%
No	51	63.7
Yes	29	36.2
Missing	1	

Midline shift > 5 mm	N	%
No	62	77.5
Yes	18	22.5
Missing	1	

Cistern conditions	N	%
Normal	55	68.8
Compressed or distorted	23	28.7
Absent	2	2.5
Missing	1	

FOCAL DAMAGE (prevalent or compresent) (N): 88

Lesion volume > 25ml § (N=41)	N	%
No	33	80.5
Yes	8	19.5
Missing	0	

Evacuated mass	N	%
No	61	70.1
Yes	26	29.9
Missing	1	

Midline shift > 5 mm	N	%
No	68	78.2
Yes	19	21.8
Missing	1	

Cistern conditions	N	%
Normal	59	67.8
Compressed or distorted	25	28.7
Absent	3	3.4
Missing	1	

FOCAL DAMAGE (prevalent or compresent) with evacuated mass (N): 26

Lesion volume > 25ml § (N=13)	N	%
No	5	38.5
Yes	8	61.5
Missing	0	

FOCAL DAMAGE (prevalent or compresent) without evacuated mass (N): 61

Lesion volume > 25ml § (N=28)	N	%
No	28	100.0
Yes	0	0.0
Missing	0	

Midline shift > 5 mm	N	%
No	11	42.3
Yes	15	57.7
Missing	0	

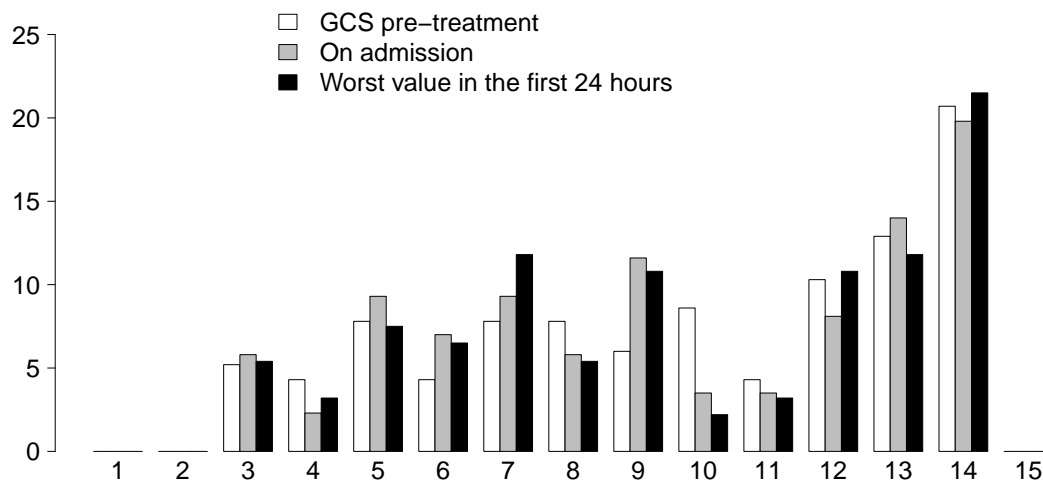
Midline shift > 5 mm	N	%
No	57	93.4
Yes	4	6.6
Missing	0	

Cistern conditions	N	%
Normal	11	42.3
Compressed or distorted	15	57.7
Absent	0	0.0
Missing	0	

Cistern conditions	N	%
Normal	48	78.7
Compressed or distorted	10	16.4
Absent	3	4.9
Missing	0	

§ Only for > 10 years old.

Glasgow Coma Scale (%)



GCS pre-treatment

Median	10
Q1-Q3	7-13
Missing	3

GCS (admission)

Median	9
Q1-Q3	7-13
Not evaluable	27
Missing	0

Worst GCS (first 24 hours)

Median	9
Q1-Q3	7-13
Not evaluable	26
Missing	0

GCS	GCSPre(N)	GCSPre(%)	GCSAdm(N)	GCSAdm(%)	GCSWorst24(N)	GCSWorst24(%)
3	6	5.2	5	5.8	5	5.4
4	5	4.3	2	2.3	3	3.2
5	9	7.8	8	9.3	7	7.5
6	5	4.3	6	7	6	6.5
7	9	7.8	8	9.3	11	11.8
8	9	7.8	5	5.8	5	5.4
9	7	6	10	11.6	10	10.8
10	10	8.6	3	3.5	2	2.2
11	5	4.3	3	3.5	3	3.2
12	12	10.3	7	8.1	10	10.8
13	15	12.9	12	14	11	11.8
14	24	20.7	17	19.8	20	21.5
15	/	/	/	/	/	/
Tot	116	100	86	100	93	100
3-8					37	39.8
9-13					36	38.7
14					20	21.5

Worst GCS during first 24h: best motor response	N	%
Obeys commands (5)	49	41.2
Localizes pain (4)	22	18.5
Flexion to pain (3)	12	10.1
Extension to pain (2)	4	3.4
None(1)	6	5.0
Not available	26	21.8
Missing	0	

GCS trend in 48h	N	%
Available information (N=95)		
GCS 3 stable	3	3.2
GCS from 3 to 4-8	1	1.1
GCS from 3 to > 8	1	1.1
GCS from 4-8 to 3	1	1.1
GCS 4-8 stable	14	14.7
GCS from 4-8 to > 8	10	10.5
GCS from > 8 to 3	0	0.0
GCS from > 8 to 4-8	3	3.2
GCS > 8 stable	62	65.3
Missing	0	

General report - Year 2016

Before admission to ICU - Pediatric patients

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

No	38	32.8
Yes	78	67.2
Missing	3	

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

No	92	79.3
Yes	14	12.1
Not available	10	8.6
Missing	3	

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

Mean	104.7
SD	19.8
Median	110
Q1–Q3	90–116.5
Min–Max	40–154
Missing	0

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

No	33	28.4
Yes	83	71.6
Missing	3	

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

No	80	69.0
Yes	28	24.1
Not available	8	6.9
Missing	3	

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

Mean	96.0
SD	6.4
Median	98
Q1–Q3	94.5–99.5
Min–Max	60–100
Missing	0

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

GCS pre < 14 (N=92)	N	%
Bilaterally reactive and/or miotic	72	83.7
Unilaterally dilated and non-reactive	11	12.8
Bilaterally dilated and non-reactive	1	1.2
Not assessable	1	1.2
Not available	1	1.2
Missing	6	

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

Mean	12.2
SD	1.7
Median	12.1
Q1–Q3	11.4–13.2
Min–Max	6.3–16.1
Not available	17
Missing	3

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

Mean	141.0
SD	40.8
Median	130
Q1–Q3	118.8–153.8
Min–Max	12–279
Not available	20
Missing	3

General report - Year 2016

Complications in the ICU - Pediatric patients

Neurological complications during the stay	N	%
No	73	62.9
Yes	43	37.1
A: Intracranial hypertension	31	26.7
B: Intracranial hypertension refractory or intractable	10	8.6
C: At least one episode of dilated pupils unreactive to light	9	7.8
D: Reduction of serum sodium	10	8.6
E: Post-surgical intracranial bleeding	0	0.0
F: Non-surgical intracranial bleeding	3	2.6
G: Seizures	6	5.2
H: Drowsiness/agitation/delirium	9	7.8
Missing	3	

Neurological complications during the stay (top 10)	N	%
A	12	10.3
AB	5	4.3
ABC	2	1.7
AD	2	1.7
AH	2	1.7
D	2	1.7
DH	2	1.7
G	2	1.7
H	2	1.7
ABCD	1	0.9
Missing	3	

Other complications during the stay	N	%
Respiratory	14	11.8
Upper resp. tract disease	6	5.0
Atelectasis	4	3.4
Mild ARDS	3	2.5
Aspiration pneumonia	1	0.8
Haemoptysis	1	0.8
Cardiovascular	1	0.8
Pulmonary edema	1	0.8
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Gastrointestinal and hepatic	3	2.5
Gastrointestinal bleeding: upper tract	1	0.8
Gastrointestinal perforation	1	0.8
Paralytic Ileus	1	0.8
-	0	0.0
-	0	0.0
Other	8	6.7
Metabolic disorder	7	5.9
Other disease	1	0.8
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
-	0	0.0
Infections	15	12.6
Pneumonia	6	5.0
L.R.T.I. other than pneumonia	4	3.4
Post-surgical CNS infection	2	1.7
Upper respiratory tract infection	2	1.7
Ventriculostomy-related CNS infection	2	1.7
Primary bacteraemia of unknown origin	1	0.8
Catheter-related bacteremia (CR-BSI)	1	0.8
NON-surgical CNS infection	1	0.8
F.U.O. fever of unknown origin	1	0.8
NON-surgical urinary tract infection	1	0.8
Missing	0	

General report - Year 2016

Process indicators - Pediatric patients

ICP monitoring in Core	N	%
No	83	69.7
Yes	36	30.3
Missing	0	

ICP monitoring in Core Worst value in the first 24 hours ≤ 8 (N=37)	N	%
No	21	56.8
Yes	16	43.2
Missing	0	

Neurosurgical operation	N	%
No	77	65.3
Yes	41	34.7
Subdural haematoma evacuation	4	3.4
Extradural haematoma evacuation	22	18.6
Lobectomy or contusion removal	1	0.8
Primary decompression	6	5.1
Secondary decompression	2	1.7
Other neurosurgical procedure	16	13.6
Missing	1	

Hypothermia	N	%
No	117	98.3
Yes	2	1.7
Missing	0	

External ventricular drainage without ICP monitoring	N	%
No	116	97.5
Yes	3	2.5
Missing	0	

External ventricular drainage with ICP monitoring	N	%
No	112	94.1
Yes	7	5.9
Missing	0	

Barbiturate infusion for refractory ICP	N	%
No	106	91.4
Yes	10	8.6
Missing	3	

Hyperventilation paCO ₂ <25 mmHg	N	%
No	111	95.7
Yes	5	4.3
Missing	3	

Indomethacin	N	%
No	114	98.3
Yes	2	1.7
Missing	3	

Mannitol (multiple doses)	N	%
No	95	81.9
Yes	21	18.1
Missing	3	

Hypertonic saline	N	%
No	99	85.3
Yes	17	14.7
Missing	3	

Osmotic therapy	N	%
No	89	76.7
Yes	27	23.3
Missing	3	

Sedation/analgesia	N	%
No	80	69.0
Yes	36	31.0
Missing	3	

Propofol infusion for refractory ICP	N	%
No	102	87.9
Yes	14	12.1
Missing	3	

Vasoconstrictor drugs Vasoactive drugs in Core (N=20)	N	%
No	0	0.0
Yes	20	100.0
Missing	0	

Therapy level	N	%
None	75	63.0
Standard	12	10.1
Intermediate	9	7.6
Extreme - medical	21	17.6
Extreme - surgical	2	1.7
Missing	0	

General report - Year 2016

Outcome - Pediatric patients

ICU stay (days)

Mean	6.1
SD	9.6
Median	3
Q1–Q3	1–6
Min–Max	1–73
Missing	0

Hospital stay (days) ^{(1),(2)}

Mean	13.1
SD	11.3
Median	11
Q1–Q3	5–18
Min–Max	1–73
Missing	0

ICU mortality ⁽³⁾

	N	%
Alive	113	95.8
Dead	5	4.2
Missing	1	

Hospital mortality ^{(1),(3)}

	N	%
Alive	111	95.7
Dead	5	4.3
Missing	0	

Cause of death ⁽⁴⁾**Dead (N=5)**

	N	%
MOF	1	20.0
Comorbidities	0	0.0
Cerebral	4	80.0
Hemorrhagic	0	0.0
Not determined	0	0.0
Missing	0	

Last hospital mortality ⁽¹⁾

	N	%
Alive	111	95.7
Dead	5	4.3
Missing	0	

Outcome at discharge from ICU ⁽⁵⁾**Alive >=4 years (N=89)**

	N	%
Cannot follow simple commands	8	9.2
Can follow simple commands	79	90.8
Missing	2	

Does the patient have language problems?**Can follow simple commands****(>=4 years) (N=79)**

	N	%
No	67	84.8
Si	10	12.7
Not assessable	2	2.5
Missing	0	

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

	N	%
No	64	73.6
Yes	23	26.4
Missing	2	

Is the patient oriented in at least one of the following dimensions: space, time, person, context?**Can follow simple commands****(>=4 years) (N=79)**

	N	%
No	32	40.5
Yes	45	57.0
Unknown	2	2.5
Missing	0	

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

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

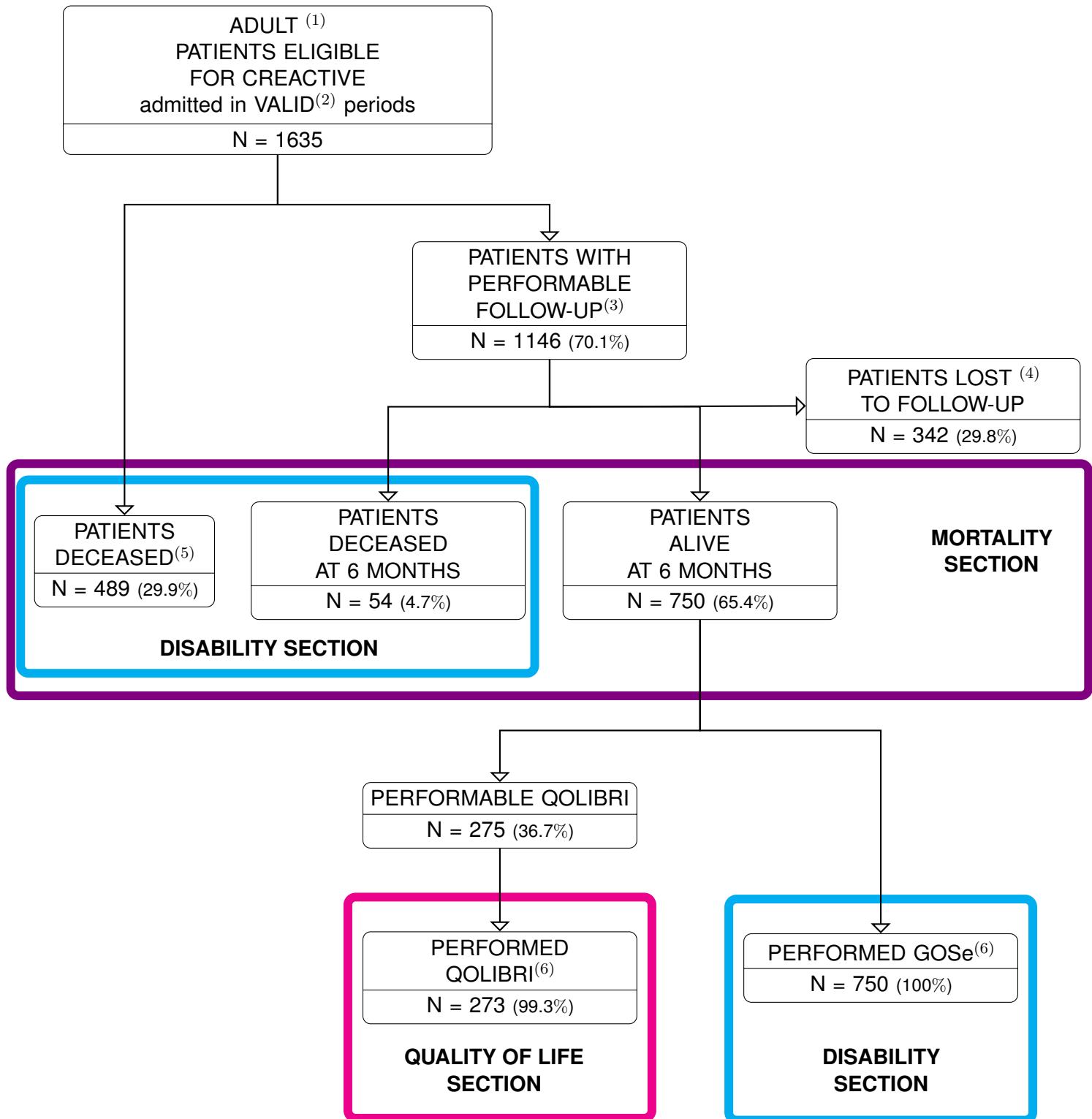
(3) Patients discharged in a preterminal condition (N = 0) were calculated among the deceased.

(4) Excluding patients discharged in a preterminal condition.

(5) Including patients discharged in a preterminal condition.

FOLLOW-UP

Overall population with valid data (52 ICUs) - Year 2016
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 2016

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

Patients (N): 1293

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, 14.4% of the 569 patients aged between 17 and 45 years died in the ICU, while 15.7% died in hospital; 37.7% of the 363 patients aged over 75 years died in the ICU, while 50.4% 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, 432 of the valid adult CREATIVE patients are aged between 17 and 45 years: of these, 10.3% died within 4 days of the trauma event, while the remaining 89.7% 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 ($432 \times 0.897 = 388$): 6.2% of these 388 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.*, $388 \times 0.938 = 364$); 5.3% 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=1635)			Patients with follow-up (N=1293)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
17-45	569	14.4	15.7	432	10.3	6.2	5.3	0.9
46-65	463	21.2	28.8	374	12.4	9.5	13.3	9.1
66-75	240	25.8	37.9	193	15.5	8.6	22.3	27.8
>75	363	37.7	50.4	294	22.9	17.3	34.9	28.1

Comorbidities	All patients (N=1635)			Patients with follow-up (N=1293)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Yes	895	28.7	39.0	720	16.6	12.2	23.6	19.3
No	740	16.5	19.8	573	12.0	7.0	7.1	3.5

Source of admission	All patients (N=1635)			Patients with follow-up (N=1293)				
	N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Same hospital	1297	23.1	29.9	1028	14.5	9.5	15.3	10.2
Other hospital	335	23.3	31.9	263	14.6	11.3	17.8	14.8
Long-term chronic care hospital	3	33.3	33.3	2	50.0	0.0	0.0	0.0
Directly from the community	0	-	-	0	-	-	-	-

† Mortality (%)
* from TBI

General report - Year 2016

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

		All patients (N=1635)			Patients with follow-up (N=1293)				
Type of traumatic brain injury		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Penetrating		46	28.3	38.6	39	15.4	15.2	25.0	4.8
Closed		1557	23.0	30.1	1240	14.3	9.6	15.4	11.3
Unknown		10	30.0	30.0	7	28.6	0.0	20.0	0.0

		All patients (N=1635)			Patients with follow-up (N=1293)				
Worst GCS (first 24 hours)		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
3-8		637	38.8	45.7	557	25.2	12.8	21.5	14.4
9-13		269	5.9	11.9	194	0.0	4.2	10.4	11.7
14-15		167	3.6	6.0	116	0.9	2.7	4.5	1.9
Not evaluable		561	19.6	29.0	425	10.9	11.7	16.3	10.8

		All patients (N=1635)			Patients with follow-up (N=1293)				
Worst GCS during first 24h: best motor response		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
Obeys commands (6)		299	3.0	5.7	215	0.5	1.9	4.8	5.6
Localizes pain (5)		289	6.9	11.9	214	0.5	4.3	11.5	7.3
Withdraws to pain (4)		171	21.6	32.9	138	4.3	8.3	22.3	26.6
Flexion (abnormal) to pain (3)		65	16.9	30.8	52	7.7	6.4	27.3	12.5
Extension to pain (2)		84	44.0	56.0	72	23.6	29.1	28.2	10.7
None(1)		316	60.8	66.1	283	47.0	24.7	28.3	14.8
Not available		410	17.8	27.1	318	7.9	9.6	15.6	10.9

		All patients (N=1635)			Patients with follow-up (N=1293)				
GCS trend in 48h		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
GCS 3 stable		117	70.1	76.9	106	61.3	26.8	36.7	15.8
GCS from 3 to 4-8		31	22.6	25.8	23	8.7	9.5	21.1	0.0
GCS from 3 to > 8		31	3.2	3.2	20	5.0	0.0	0.0	0.0
GCS from 4-8 to 3		59	67.8	69.5	54	55.6	29.2	5.9	25.0
GCS 4-8 stable		155	27.7	35.5	139	8.0	10.3	23.0	14.9
GCS from 4-8 to > 8		102	2.9	7.8	73	2.8	1.4	5.9	9.4
GCS from > 8 to 3		50	64.0	68.0	48	37.5	16.7	44.0	14.3
GCS from > 8 to 4-8		133	27.8	40.8	113	9.7	12.7	23.6	20.6
GCS > 8 stable		441	4.5	9.1	318	0.0	3.5	7.6	7.9

† Mortality (%)

* from TBI

General report - Year 2016

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

		All patients (N=1635)			Patients with follow-up (N=1293)				
Clinically relevant hypotension		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
		No	1262	19.5	26.8	1004	10.7	8.7	14.7
	Yes	212	41.7	47.2	183	33.3	13.1	18.1	9.3
	Not available	139	28.8	37.0	99	16.3	15.9	24.6	15.4

		All patients (N=1635)			Patients with follow-up (N=1293)				
Clinically relevant hypoxia		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
		No	1050	21.4	28.4	839	12.6	9.5	15.0
	Yes	391	25.1	32.1	318	17.7	8.1	14.2	9.3
	Not available	172	29.7	38.6	129	18.1	15.4	25.0	15.2

		All patients (N=1635)			Patients with follow-up (N=1293)				
Pupils in the emergency room		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
		Bilaterally reactive and/or miotic	860	12.1	19.1	668	4.8	6.2	12.1
	Unilaterally dilated and non-reactive	231	35.1	43.3	191	21.6	12.8	23.8	12.1
	Bilaterally dilated and non-reactive	147	76.2	81.0	140	60.0	42.9	31.2	4.5
	Not assessable	21	33.3	47.6	17	17.6	21.4	18.2	33.3
	Not available	60	26.7	37.3	45	20.0	16.7	20.0	20.8

		All patients (N=1635)			Patients with follow-up (N=1293)				
Anatomical severity (worst CT within 48 hours of admission)		N	† in ICU(%)	† in H(%)	N	† within 4 days(%)*	† 4-7 days(%)*	† 8-30 days(%)*	† over 30 days(%)*
		Diffuse Injury I (no visible pathology)	164	11.0	15.3	114	9.8	3.0	8.2
	(D-II) Diffuse injury II	555	7.4	12.3	429	1.9	2.6	9.2	8.2
	Diffuse Injury III (edema)	124	39.5	44.7	102	32.4	13.0	15.0	11.8
	Diffuse Injury IV (shift>5mm)	76	44.7	48.7	62	25.8	19.6	27.0	11.1
	(5-EML) Evacuated mass lesion	547	24.1	35.2	443	13.6	12.6	20.2	13.6
	(6-NEML) Not Evacuated mass lesion	149	66.4	73.8	135	41.5	32.9	43.4	36.7

† Mortality (%)

* from TBI

General report - Year 2016

Follow-Up - 'Disability' section - Adult patients

Patients (N): 1293

GOSe result :*	All patients (N=1258)		Alive patients (N=715)	
	N	%	N	%
Deceased	543	43.2	-	-
Vegetative state	42	3.3	42	5.9
Severe disability LOWER LEVEL	179	14.2	179	25
Severe disability UPPER LEVEL	106	8.4	106	14.8
Moderate disability LOWER LEVEL	81	6.4	81	11.3
Moderate disability UPPER LEVEL	90	7.2	90	12.6
Good recovery LOWER LEVEL	101	8.0	101	14.1
Good recovery UPPER LEVEL	116	9.2	116	16.2

* patients with 'Pre-trauma disability' are not analyzed. N=1258 patients, instead of 1293 are analyzed.

Disability for main subgroups of patients - N (%)

Age (years)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
17-45	417	90 (21.6)	10 (2.4)	102 (24.5)	91 (21.8)	124 (29.7)
46-65	361	139 (38.5)	14 (3.9)	84 (23.3)	64 (17.7)	60 (16.6)
66-75	192	109 (56.8)	8 (4.2)	47 (24.5)	10 (5.2)	18 (9.4)
>75	288	205 (71.2)	10 (3.5)	52 (18.1)	6 (2.1)	15 (5.2)

Comorbidities	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Yes	698	392 (56.2)	25 (3.6)	146 (20.9)	62 (8.9)	73 (10.5)
No	560	151 (27.0)	17 (3.0)	139 (24.8)	109 (19.5)	144 (25.7)

Source of admission	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Same hospital	1000	420 (42.0)	34 (3.4)	227 (22.7)	140 (14.0)	179 (17.9)
Other hospital	256	122 (47.7)	8 (3.1)	57 (22.3)	31 (12.1)	38 (14.8)
Long-term chronic care hospital	2	1 (50.0)	0 (0.0)	1 (50.0)	0 (0.0)	0 (0.0)
Directly from the community	0	-	-	-	-	-

Type of traumatic brain injury	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Penetrating	39	19 (48.7)	3 (7.7)	3 (7.7)	9 (23.1)	5 (12.8)
Closed	1205	515 (42.7)	39 (3.2)	281 (23.3)	160 (13.3)	210 (17.4)
Unknown	7	3 (42.9)	0 (0.0)	1 (14.3)	1 (14.3)	2 (28.6)

Worst GCS (first 24 hours)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
3-8	548	312 (56.9)	25 (4.6)	100 (18.2)	52 (9.5)	59 (10.8)
9-13	186	46 (24.7)	4 (2.2)	55 (29.6)	32 (17.2)	49 (26.3)
14-15	108	11 (10.2)	1 (0.9)	23 (21.3)	23 (21.3)	50 (46.3)
Not evaluable	415	174 (41.9)	12 (2.9)	107 (25.8)	63 (15.2)	59 (14.2)

General report - Year 2016

Follow-Up - 'Disability' section - Adult patients

Worst GCS during first 24h: best motor response	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Obeys commands (6)	207	26 (12.6)	2 (1.0)	52 (25.1)	44 (21.3)	83 (40.1)
Localizes pain (5)	202	46 (22.8)	5 (2.5)	63 (31.2)	38 (18.8)	50 (24.8)
Withdraws to pain (4)	136	69 (50.7)	4 (2.9)	28 (20.6)	11 (8.1)	24 (17.6)
Flexion (abnormal) to pain (3)	52	23 (44.2)	3 (5.8)	11 (21.2)	3 (5.8)	12 (23.1)
Extension to pain (2)	70	47 (67.1)	6 (8.6)	9 (12.9)	7 (10.0)	1 (1.4)
None(1)	282	214 (75.9)	11 (3.9)	31 (11.0)	17 (6.0)	9 (3.2)
Not available	308	118 (38.3)	11 (3.6)	91 (29.5)	50 (16.2)	38 (12.3)

GCS trend in 48h	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
GCS 3 stable	105	90 (85.7)	5 (4.8)	8 (7.6)	1 (1.0)	1 (1.0)
GCS from 3 to 4-8	22	8 (36.4)	2 (9.1)	5 (22.7)	4 (18.2)	3 (13.6)
GCS from 3 to > 8	18	1 (5.6)	0 (0.0)	4 (22.2)	4 (22.2)	9 (50.0)
GCS from 4-8 to 3	54	42 (77.8)	2 (3.7)	8 (14.8)	1 (1.9)	1 (1.9)
GCS 4-8 stable	137	63 (46.0)	9 (6.6)	34 (24.8)	16 (11.7)	15 (10.9)
GCS from 4-8 to > 8	67	13 (19.4)	0 (0.0)	15 (22.4)	17 (25.4)	22 (32.8)
GCS from > 8 to 3	48	36 (75.0)	3 (6.2)	3 (6.2)	5 (10.4)	1 (2.1)
GCS from > 8 to 4-8	111	59 (53.2)	4 (3.6)	28 (25.2)	6 (5.4)	14 (12.6)
GCS > 8 stable	305	56 (18.4)	5 (1.6)	78 (25.6)	55 (18.0)	111 (36.4)

Clinically relevant hypotension	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
No	975	379 (38.9)	31 (3.2)	237 (24.3)	141 (14.5)	187 (19.2)
Yes	178	104 (58.4)	6 (3.4)	32 (18.0)	20 (11.2)	16 (9.0)
Not available	98	54 (55.1)	5 (5.1)	16 (16.3)	9 (9.2)	14 (14.3)

Clinically relevant hypoxia	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
No	819	336 (41.0)	23 (2.8)	198 (24.2)	111 (13.6)	151 (18.4)
Yes	307	130 (42.3)	12 (3.9)	72 (23.5)	47 (15.3)	46 (15.0)
Not available	125	71 (56.8)	7 (5.6)	15 (12.0)	12 (9.6)	20 (16.0)

Pupils in the emergency room	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Bilaterally reactive and/or miotic	643	198 (30.8)	25 (3.9)	170 (26.4)	116 (18.0)	134 (20.8)
Unilaterally dilated and non-reactive	190	103 (54.2)	9 (4.7)	41 (21.6)	17 (8.9)	20 (10.5)
Bilaterally dilated and non-reactive	140	119 (85.0)	2 (1.4)	11 (7.9)	6 (4.3)	2 (1.4)
Not assessable	16	11 (68.8)	0 (0.0)	2 (12.5)	1 (6.2)	2 (12.5)
Not available	45	26 (57.8)	0 (0.0)	10 (22.2)	2 (4.4)	7 (15.6)

Anatomical severity (worst CT within 48 hours of admission)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Diffuse Injury I (no visible pathology)	110	28 (25.5)	1 (0.9)	26 (23.6)	25 (22.7)	30 (27.3)
(D-II) Diffuse injury II	415	86 (20.7)	11 (2.7)	117 (28.2)	86 (20.7)	115 (27.7)
Diffuse Injury III (edema)	100	57 (57.0)	3 (3.0)	21 (21.0)	6 (6.0)	13 (13.0)
Diffuse Injury IV (shift>5mm)	60	38 (63.3)	1 (1.7)	10 (16.7)	7 (11.7)	4 (6.7)
(5-EML) Evacuated mass lesion	430	211 (49.1)	25 (5.8)	101 (23.5)	42 (9.8)	51 (11.9)
(6-NEML) Not Evacuated mass lesion	135	116 (85.9)	1 (0.7)	10 (7.4)	4 (3.0)	4 (3.0)

General report - Year 2016

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

Patients (N): 273**QOLIBRI-OS score:**

Mean	76.1
SD	21.0
Median	79.2
Q1–Q3	66.7–91.7
Min–Max	0–100

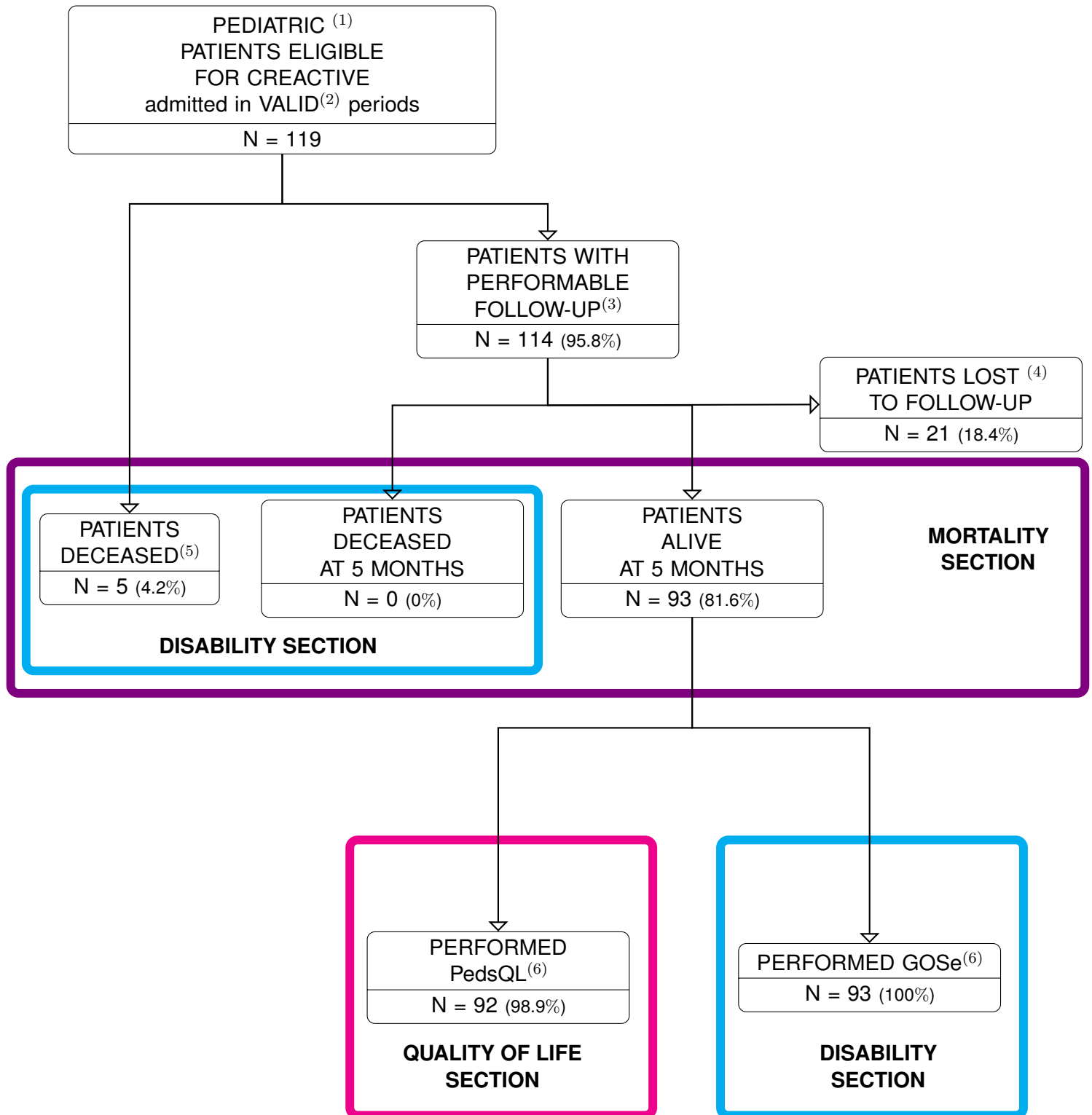
QOLIBRI-OS score:

Anatomical severity (worst CT within 48 hours of admission) (N=273)	N	%	Mean	SD	Median	Q1-Q3
Diffuse Injury I (no visible pathology)	39	14.3	70.4	22.1	75.0	60.4–87.5
(D-II) Diffuse injury II	138	50.5	78.1	19.7	83.3	67.7–91.7
Diffuse Injury III (edema)	17	6.2	78.4	16.9	83.3	66.7–91.7
Diffuse Injury IV (shift>5mm)	5	1.8	85.0	9.6	83.3	79.2–87.5
(5-EML) Evacuated mass lesion	69	25.3	73.5	23.8	79.2	58.3–91.7
(6-NEML) Not Evacuated mass lesion	5	1.8	87.5	8.8	87.5	83.3–95.8

QOLIBRI-OS score:

GOSe result (N=264)	N	%	Mean	SD	Median	Q1-Q3
Deceased	0	0.0	-	-	-	-
Vegetative state	0	0.0	-	-	-	-
Severe disability	63	23.9	60.5	24.1	66.7	41.7–79.2
Moderate disability	77	29.2	72.2	19.3	75.0	62.5–83.3
Good recovery	124	47.0	86.6	13.8	91.7	79.2–100

Overall population with valid data (30 ICUs) - Year 2016
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 2016

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, 3% of the 68 patients aged between 9 and 16 years died in the ICU, while 2.9% died in hospital; 0% of the 17 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, 3.6% died within 4 days of the trauma event, while the remaining 96.4% 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 ($55 \times 0.964 = 53$): 0% of these 53 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.*, $53 \times 1 = 53$); 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=119)			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	2	50.0	50.0	2	50.0	0.0	0.0	0.0
6-12 months	5	0.0	0.0	5	0.0	0.0	0.0	0.0
12-24 months	7	0.0	0.0	6	0.0	0.0	0.0	0.0
2-4 years	17	0.0	0.0	13	0.0	0.0	0.0	0.0
5-8 years	20	10.0	10.0	17	0.0	11.8	0.0	0.0
9-16 years	68	3.0	2.9	55	3.6	0.0	0.0	0.0

Comorbidities	All patients (N=119)			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	12	0.0	0.0	11	0.0	0.0	0.0	0.0
No	107	4.7	4.7	87	3.5	2.4	0.0	0.0

Source of admission	All patients (N=119)			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	87	2.3	2.3	71	1.4	1.4	0.0	0.0
Other hospital	23	4.3	4.3	19	0.0	5.3	0.0	0.0
Long-term chronic care hospital	0	-	-	0	-	-	-	-
Directly from the community	9	22.2	22.2	8	25.0	0.0	0.0	0.0

† Mortality (%)

* from TBI

General report - Year 2016

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

Type of traumatic brain injury	All patients (N=119)			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	9	0.0	0.0	8	0.0	0.0	0.0	0.0
Closed	107	4.7	4.7	90	3.4	2.3	0.0	0.0
Unknown	0	-	-	0	-	-	-	-

GCS worst (first 24 hours)	All patients (N=119)			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	37	10.8	10.8	30	10.0	3.7	0.0	0.0
9-13	36	0.0	0.0	32	0.0	0.0	0.0	0.0
14	20	0.0	0.0	15	0.0	0.0	0.0	0.0
Not evaluable	26	4.0	3.8	21	0.0	5.0	0.0	0.0

Worst GCS during first 24h: best motor response	All patients (N=119)			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)	49	0.0	0.0	39	0.0	0.0	0.0	0.0
Localizes pain (4)	22	0.0	0.0	20	0.0	0.0	0.0	0.0
Flexion to pain (3)	12	0.0	0.0	10	0.0	0.0	0.0	0.0
Extension to pain (2)	4	25.0	25.0	3	0.0	33.3	0.0	0.0
None(1)	6	50.0	50.0	5	60.0	0.0	0.0	0.0
Not available	26	4.0	3.8	21	0.0	5.0	0.0	0.0

GCS trend in 48h	All patients (N=119)			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	3	66.7	66.7	3	66.7	0.0	0.0	0.0
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	1	0.0	0.0	1	0.0	0.0	0.0	0.0
GCS from 4-8 to 3	1	100.0	100.0	1	100.0	-	-	-
GCS 4-8 stable	14	7.1	7.1	10	0.0	10.0	0.0	0.0
GCS from 4-8 to > 8	10	0.0	0.0	8	0.0	0.0	0.0	0.0
GCS from > 8 to 3	0	-	-	0	-	-	-	-
GCS from > 8 to 4-8	3	0.0	0.0	3	0.0	0.0	0.0	0.0
GCS > 8 stable	62	0.0	0.0	54	0.0	0.0	0.0	0.0

† Mortality (%)

* from TBI

General report - Year 2016

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

Clinically relevant hypotension	All patients (N=119)			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	92	1.1	1.1	76	1.3	0.0	0.0	0.0
Yes	14	21.4	21.4	13	7.7	16.7	0.0	0.0
Not available	10	11.1	10.0	9	12.5	0.0	0.0	0.0

Clinically relevant hypoxia	All patients (N=119)			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	67	0.0	1.5	0.0	0.0
Yes	28	10.7	10.7	23	8.7	4.8	0.0	0.0
Not available	8	14.3	12.5	8	14.3	0.0	0.0	0.0

Pupils in the emergency room	All patients (N=119)			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	75	4.0	4.0	65	1.5	3.1	0.0	0.0
Unilaterally dilated and non-reactive	11	0.0	0.0	7	0.0	0.0	0.0	0.0
Bilaterally dilated and non-reactive	1	100.0	100.0	1	100.0	-	-	-
Not assessable	1	0.0	0.0	1	0.0	0.0	0.0	0.0
Not available	1	100.0	100.0	1	100.0	-	-	-

Anatomical severity (worst CT within 48 hours of admission)	All patients (N=119)			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)	24	0.0	0.0	19	0.0	0.0	0.0	0.0
(D-II) Diffuse injury II	47	2.1	2.1	39	0.0	2.6	0.0	0.0
Diffuse Injury III (edema)	14	14.3	14.3	11	9.1	10.0	0.0	0.0
Diffuse Injury IV (shift>5mm)	4	25.0	25.0	3	33.3	0.0	0.0	0.0
(5-EML) Evacuated mass lesion	26	4.0	3.8	24	4.3	0.0	0.0	0.0
(6-NEML) Not Evacuated mass lesion	2	0.0	0.0	2	0.0	0.0	0.0	0.0

† Mortality (%)

* from TBI

General report - Year 2016

Follow-Up - 'Disability' section - Pediatric patients

Patients (N): 98

GOSe result :*	All patients (N=98)		Alive patients (N=93)	
	N	%	N	%
Deceased	5	5.1	-	-
VEGETATIVE STATE	1	1.0	1	1.1
Severe disability LOWER LEVEL	8	8.2	8	8.6
Severe disability UPPER LEVEL	7	7.1	7	7.5
Moderate disability LOWER LEVEL	4	4.1	4	4.3
Moderate disability UPPER LEVEL	10	10.2	10	10.8
Good recovery LOWER LEVEL	21	21.4	21	22.6
Good recovery UPPER LEVEL	42	42.9	42	45.2

* 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	2	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)
6-12 months	5	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	5 (100.0)
12-24 months	6	0 (0.0)	0 (0.0)	2 (33.3)	0 (0.0)	4 (66.7)
2-4 years	13	0 (0.0)	0 (0.0)	1 (7.7)	3 (23.1)	9 (69.2)
5-8 years	17	2 (11.8)	0 (0.0)	1 (5.9)	2 (11.8)	12 (70.6)
9-16 years	55	2 (3.6)	1 (1.8)	11 (20.0)	9 (16.4)	32 (58.2)

Comorbidities	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Yes	11	0 (0.0)	0 (0.0)	3 (27.3)	1 (9.1)	7 (63.6)
No	87	5 (5.7)	1 (1.1)	12 (13.8)	13 (14.9)	56 (64.4)

Source of admission	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Same hospital	71	2 (2.8)	1 (1.4)	10 (14.1)	11 (15.5)	47 (66.2)
Other hospital	19	1 (5.3)	0 (0.0)	2 (10.5)	3 (15.8)	13 (68.4)
Long-term chronic care hospital	0	-	-	-	-	-
Directly from the community	8	2 (25.0)	0 (0.0)	3 (37.5)	0 (0.0)	3 (37.5)

Type of traumatic brain injury	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Penetrating	8	0 (0.0)	0 (0.0)	2 (25.0)	3 (37.5)	3 (37.5)
Closed	90	5 (5.6)	1 (1.1)	13 (14.4)	11 (12.2)	60 (66.7)
Unknown	0	-	-	-	-	-

GCS worst (first 24 hours)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
3-8	30	4 (13.3)	0 (0.0)	9 (30.0)	4 (13.3)	13 (43.3)
9-13	32	0 (0.0)	0 (0.0)	3 (9.4)	4 (12.5)	25 (78.1)
14	15	0 (0.0)	0 (0.0)	1 (6.7)	3 (20.0)	11 (73.3)
Not evaluable	21	1 (4.8)	1 (4.8)	2 (9.5)	3 (14.3)	14 (66.7)

General report - Year 2016

Follow-Up - 'Disability' section - Pediatric patients

Worst GCS during first 24h: best motor response	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Obeys commands (5)	39	0 (0.0)	0 (0.0)	4 (10.3)	6 (15.4)	29 (74.4)
Localizes pain (4)	20	0 (0.0)	0 (0.0)	3 (15.0)	3 (15.0)	14 (70.0)
Flexion to pain (3)	10	0 (0.0)	0 (0.0)	4 (40.0)	2 (20.0)	4 (40.0)
Extension to pain (2)	3	1 (33.3)	0 (0.0)	1 (33.3)	0 (0.0)	1 (33.3)
None(1)	5	3 (60.0)	0 (0.0)	1 (20.0)	0 (0.0)	1 (20.0)
Not available	21	1 (4.8)	1 (4.8)	2 (9.5)	3 (14.3)	14 (66.7)

GCS trend in 48h	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
GCS 3 stable	3	2 (66.7)	0 (0.0)	1 (33.3)	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	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
GCS from 4-8 to 3	1	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
GCS 4-8 stable	10	1 (10.0)	0 (0.0)	4 (40.0)	1 (10.0)	4 (40.0)
GCS from 4-8 to > 8	8	0 (0.0)	0 (0.0)	1 (12.5)	1 (12.5)	6 (75.0)
GCS from > 8 to 3	0	-	-	-	-	-
GCS from > 8 to 4-8	3	0 (0.0)	0 (0.0)	1 (33.3)	0 (0.0)	2 (66.7)
GCS > 8 stable	54	0 (0.0)	0 (0.0)	5 (9.3)	10 (18.5)	39 (72.2)

Clinically relevant hypotension	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
No	76	1 (1.3)	0 (0.0)	12 (15.8)	11 (14.5)	52 (68.4)
Yes	13	3 (23.1)	0 (0.0)	3 (23.1)	0 (0.0)	7 (53.8)
Not available	9	1 (11.1)	1 (11.1)	0 (0.0)	3 (33.3)	4 (44.4)

Clinically relevant hypoxia	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
No	67	1 (1.5)	0 (0.0)	11 (16.4)	11 (16.4)	44 (65.7)
Yes	23	3 (13.0)	0 (0.0)	4 (17.4)	1 (4.3)	15 (65.2)
Not available	8	1 (12.5)	1 (12.5)	0 (0.0)	2 (25.0)	4 (50.0)

Pupils in the emergency room	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Bilaterally reactive and/or miotic	65	3 (4.6)	0 (0.0)	9 (13.8)	11 (16.9)	42 (64.6)
Unilaterally dilated and non-reactive	7	0 (0.0)	0 (0.0)	3 (42.9)	0 (0.0)	4 (57.1)
Bilaterally dilated and non-reactive	1	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Not assessable	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
Not available	1	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Anatomical severity (worst CT within 48 hours of admission)	N	Deceased	Vegetative state(%)	Severe disability(%)	Moderate disability(%)	Good recovery(%)
Diffuse Injury I (no visible pathology)	19	0 (0.0)	0 (0.0)	2 (10.5)	3 (15.8)	14 (73.7)
(D-II) Diffuse injury II	39	1 (2.6)	0 (0.0)	4 (10.3)	4 (10.3)	30 (76.9)
Diffuse Injury III (edema)	11	2 (18.2)	0 (0.0)	4 (36.4)	1 (9.1)	4 (36.4)
Diffuse Injury IV (shift>5mm)	3	1 (33.3)	0 (0.0)	1 (33.3)	0 (0.0)	1 (33.3)
(5-EML) Evacuated mass lesion	24	1 (4.2)	1 (4.2)	4 (16.7)	6 (25.0)	12 (50.0)
(6-NEML) Not Evacuated mass lesion	2	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)

General report - Year 2016

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

Patients (N): 92**PedsQL - TOTAL SCORE**

Mean	78.6
SD	22.5
Median	88
Q1–Q3	68.8–96
Min–Max	5–100

PedsQL - TOTAL SCORE

Anatomical severity (worst CT within 48 hours of admission) (N=92)	N	%	Mean	SD	Median	Q1-Q3
Diffuse Injury I (no visible pathology)	19	20.7	91.1	10.3	95.0	85.5–98
(D-II) Diffuse injury II	38	41.3	78.8	21.4	88.0	72–94.8
Diffuse Injury III (edema)	8	8.7	69.4	27.1	71.0	45.2–95
Diffuse Injury IV (shift>5mm)	2	2.2	53.0	43.8	53.0	37.5–68.5
(5-EML) Evacuated mass lesion	23	25.0	73.0	25.7	76.0	61.5–95
(6-NEML) Not Evacuated mass lesion	2	2.2	81.5	9.2	81.5	78.2–84.8

PedsQL - TOTAL SCORE

GOSe result (N=92)	N	%	Mean	SD	Median	Q1-Q3
Deceased	0	0.0	-	-	-	-
Vegetative state	1	1.1	5.0	-	5.0	5–5
Severe disability	14	15.2	49.5	21.5	45.0	35–58.8
Moderate disability	14	15.2	72.7	20.2	77.5	64.2–88.8
Good recovery	63	68.5	87.5	14.0	94.0	79.5–97