Supplementary Online Content

Gauss T, Ageron F-X, Devaud M-L, et al; French Trauma Research Initiative. Association of prehospital time to in-hospital trauma mortality in a physician-staffed emergency medicine system. *JAMA Surg*. Published online September 25, 2019. doi:10.1001/jamasurg.2019.3475

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Complete list of collected variables

Demographics	Prehospital	Hospital	Outcome and follow-up
Age	MICU team	Hospital name	In-hospital death
Gender	Glasgow coma scale	Hospital level	Cause of death
Mechanism of injury	Blood pressure	Glasgow coma scale	Length of stay (ICU)
Circumstances	Respiratory rate	Blood pressure	Length of ventilation
Place of accident	Heart rate	Respiratory rate	Withdrawal of treatment
Date of accident	Pulse oximetry	Heart rate	Abbreviated injury scale
	Pupil size	Pulse oximetry	Injury severity score
	Intubation	Pupil size	
	Fluid resuscitation	Intubation	
	Vasopressor use	Fluid resuscitation	
	Osmotherapy	Vasopressor use	
	Arrival on scene (time)	Osmotherapy	
	Arrival at hospital (time)	Surgery	
	Transportation type	Treatment	
	Cardiac arrest	Para-clinical tests	

eTable 2. Characteristics of patients excluded for analysis and missing data

	Considered for analysis N=10,126	Not considered for analysis due to missing data on prehospital time N=3,633
Age, mean (95%CI)	41 (40-41)	41 (40-41)
Sex male, N; % (95%CI)	7,937; 78% (78-79)	2,828; 78% (76-79)
Penetrating injury, N; % (95%CI)	861; 9% (8-9)	351; 10% (9-11)
Road traffic injury, N; % (95%CI)	5,598; 55%(54-56)	1,551; 43% (41-44)
Fall, N; % (95%CI)	3,053; 30% (29-31)	1,389; 38% (37-40)
SBP mean (95%CI)	117 (116-117)	120 (119-121)
GCS, mean (95%CI) N ;% (95%CI)	13 (13-13)	13 (13-13)
3-8	1,518; 15% (14-16)	497; 15% (14-17)
9-13	963; 10% (9-10)	293; 9% (8-10)
14-15	7,453; 74% (73-74)	2,461; 76% (74-77)
Prehospital intubation N ;% (95%CI)	2,321; 23% (22-24)	704; 19% (18-21)
Haemorrhagic shock, N ;% (95%CI)	1,010; 10% (9-11)	287; 8% (7-9)
AIS Head ≥3, N ;% (95%CI)	2,724; 27% (26-28)	1,053; 29% (28-30)
Mean ISS	17 (17-18)	17 (16-17)
ISS >15, N ;% (95%CI)	4,757; 47% (46-48)	1,692; 47% (45-48)
In-hospital Death, N ;% (95%CI)	968; 10% (9-10)	291; 8% (7-9)

AIS=abbreviated injury scale, GCS=Glasgow Coma Scale, ISS=Injury severity score, SBP=systolic blood pressure

eTable 3. Transportation mode and time according to regional database.

	Total	**Paris_ Ile de France (TRAUMABASE)**	**Northern French Alps (TRENAU)**
	N=10,126	N=5,067	N=5,059
Ambulance transportation, N (%)	7,434 (76)	4,319 (89)	3,115 (63)
Helicopter transportation, N (%)	2,367 (24)	516 (11)	1,851 (37)
Transport to designated trauma center, N (%)	9,098 (90)	5,067 (100)	4,031 (80)
Median TPT [IQR]	65 [49-90]	73 [54-100]	60 [45-80]
Total Prehospital time[a], N (%)			
0-29 min	514 (5)	247 (5)	267 (5)
30-59 min	3,535 (35)	1,335 (26)	2,200 (43)
60-89 min	3,459 (34)	1,762 (35)	1,697 (34)
90-119 min	1,624 (16)	999 (20)	625 (12)
120-179min	870 (9)	630 (12)	240 (5)
180 + min	124 (1)	94 (2)	30 (1)

[a]TPT = Total Prehospital Time, arrival of the physician-lead prehospital care-team on scene to arrival at the hospital

eTable 4. Pre-hospital Interventions and Total Pre-hospital Time

	Total	Oro-tracheal intubation N (%)	Resuscitation fluid >1000 ml N (%)	Vasopressor use N (%)	Osmotherapy N (%)
0-29 min	514	49 (10)	71 (14)	24 (5)	11 (2)
30-59 min	3,535	488 (14)	578 (16)	203 (6)	131 (4)
60-89 min	3,459	794 (23)	806 (23)	328 (10)	210 (6)
90-119 min	1,624	555 (34)	550 (34)	242 (15)	123 (8)
120-179min	870	391 (45)	365 (42)	153 (18)	76 (9)
180 + min	124	67 (54)	68 (54)	32 (26)	18 (14)
Total	10,126	2,321 (23)	2,438 (24)	982 (10)	569 (6)
P value for Homogeneity test		<0.001	<0.001	<0.001	<0.001

[a]TPT = Total Prehospital Time, arrival of the physician-lead prehospital care-team on scene to arrival at the hospital

eTable 5. Generalized Linear Mixed Model with primary outcome all-causes of death.

	Estimate	Standard error	P-Value	Odds ratio	95% CI
Prehospital time (by 10 minutes)	0.0389	0.0145	0.007	1.040	1.011 – 1.069
Age	-0.0366	0.0131	0.005	0.964	0.940-0.989
Age^2	0.0090	0.0001	<0.001	1.001	1.001-1.001
SBP	-0.0399	0.0074	<0.001	0.961	0.947-0.975
SBP^2	3.6 e^{-5}	8.9e^{-5}	0.687	1.00	0.999-1.000
SBP^3	6.9 e^{-7}	2.9e^{-7}	0.02	1.00	1.00-1.00
ISS	0.1789	0.0342	<0.001	1.196	1.130 – 1.265
ISS^2	-0.0032	8.6 e^{-4}	<0.001	0.997	0.995-0.998
ISS^3	2.5 e^{-5}	7.6 e^{-6}	0.001	1.00	1.00 -1.00
GCS	-0.0260	0.0083	<0.001	0.786	0.770 – 0.803

^2: quadratic term; ^3 cubic term; SBP: Systolic blood pressure; ISS: Injury Severity Score; GCS: Glasgow Coma Scale. Random effect by Registry and EMS system

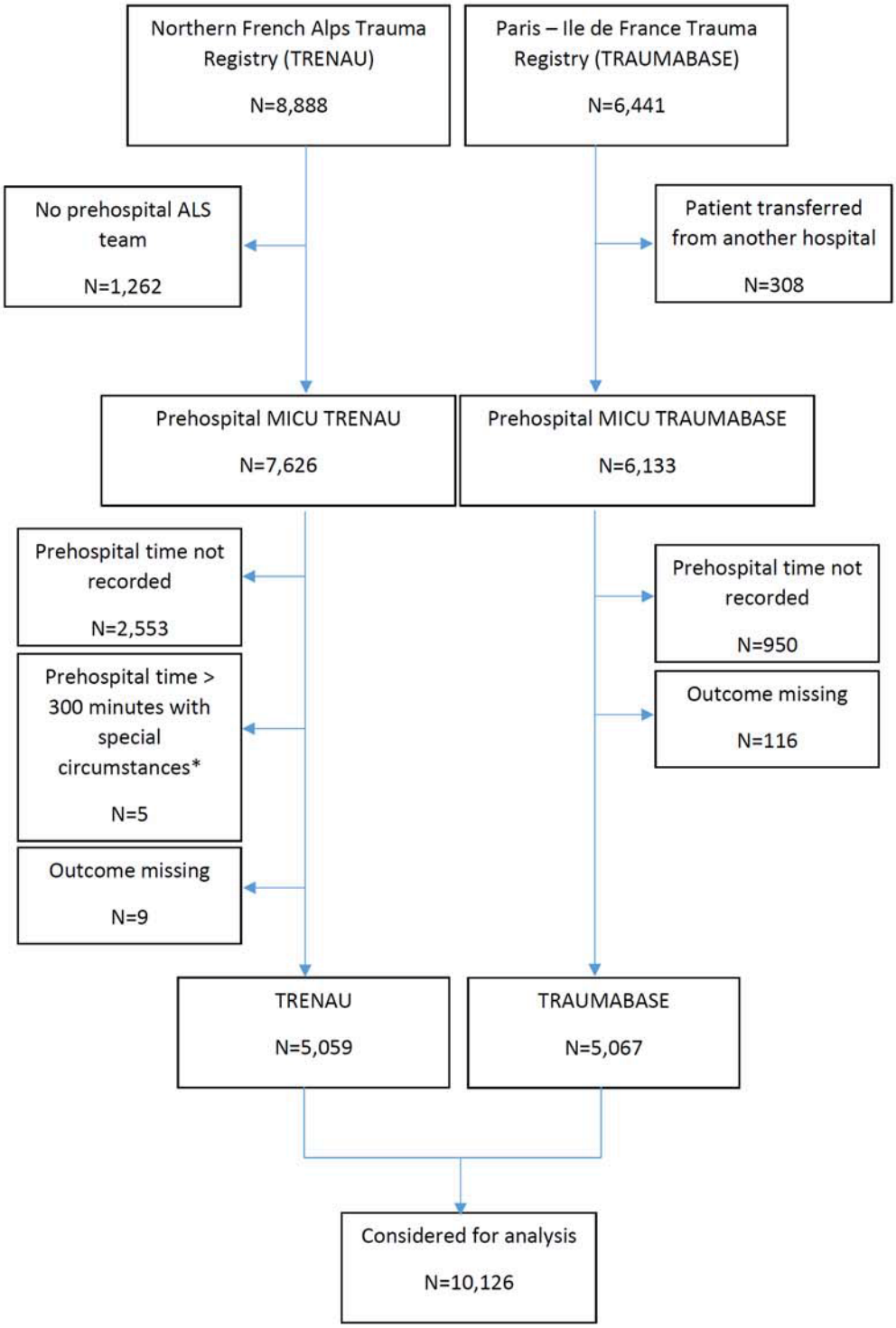
eTable 6. Generalized Linear Mixed Model with primary outcome all-causes of death.

	OR (95% CI)	P value
TPT by 10 min	1.04 (1.01-1.07)	0.002
Age	0.96 (0.95-0.99)	0.006
Age^2	1.001 (1.00-1.001)	<0.001
SBP	0.95 (0.94-0.96)	<0.001
SBP^2	1.00 (1.00-1.00)	<0.001
GCS	0.56 (0.49-0.65)	<0.001
GCS^2	1.02 (1.01-1.02)	<0.001
ISS	1.18 (1.11-1.25)	<0.001
ISS^2	0.99 (0.99-0.99)	0.002
ISS^3	1.00 (1.00-1.00)	0.006

TPT : Total Prehospital Time, SBP :Systolic Blood Pressure ; GCS ; Glasgow Coma Scale ; ISS :Injury Severity Scale.^{2}indicates quadratic term ^{3}indicates cubic terms.

eFigure 1. Flowchart of study

Fig 1. Study flow chart based on the Northern French Alps and Paris-Ile-de-France Registries.



MICU: Mobile Intensive Care Unit

*Mountain rescue: Speleology (1), Pedestrian transportation (2), Meteorological concerns (2)

eFigure 2. Adjusted Generalized Additive Model for individual confounders as logarithmic function (prehospital time, age, systolic blood pressure, Injury Severity Score, GCS); the Y-axis represents the functional risk of death