

Supplementary Table 1: Prehospital interventions for life-threatening events (LTE) classified into basic or advanced EMS care

LTE category	Prehospital intervention	EMS Care	
		Basic	Advanced
Airway	Laryngeal mask airway	X	
	Oropharyngeal airway	X	
	Intubation*		X
Breathing	CPR	X	
	Chest decompression		X
	Oxygen	X	
Circulation	Tourniquet	X	
	Pelvic wrap/binding/sling/splint	X	
	Adrenaline (topical, IM, IN, NEB)	X	
	Adrenaline (infusion, bolus, IV for arrest)		X
	Atropine		X
	Sodium Chloride		X
	Calcium Chloride and Sodium Bicarbonate		X
Neurological	Rapid Sequence Intubation on TBI patient with GCS $\leq$ 10		X

**Excludes RSI on TBI patient with GCS $\leq$ 10.

Supplementary Table 2: Pathway and directness of transport to advanced/mid-level definitive care hospital for major trauma patients

	Direct		Indirect		Total	
	n	col %	n	col %	n	col %
Overall (row %)	638	63.3	370	36.7	1,008	100.0
Trauma care capabilities of definitive care hospital						
Advanced-level trauma care	527	82.6	329	88.9	856	84.9
<i>Pathway for Indirect patients:</i>						
TC to TC: <i>Advanced to Advanced</i>			8	2.2		
TC to TC: <i>Mid to Advanced level</i>			255	68.9		
non-TC to TC: <i>Low to Advanced level</i>			32	8.6		
non-TC to TC: <i>Minimal to Advanced level</i>			31	8.4		
non-TC to TC: <i>Non-trauma to Advanced level</i>			3	0.8		
Mid-level trauma care	111	17.4	41	11.1	152	15.1
<i>Pathway for Indirect patients:</i>						
non-TC to TC: <i>Low to Mid-level</i>			9	2.4		
non-TC to TC: <i>Minimal to Mid-level</i>			18	4.9		
non-TC to TC: <i>Non-trauma to Mid-level</i>			14	3.8		

Supplementary Table 3: Multivariate analyses: short-term mortality of major trauma patients by directness of transport to definitive care hospital (N = 989)

Propensity-weighted models All ages: adjusted	2-week mortality*			30-day mortality*		
	RR	95% CI		RR	95% CI	
Indirect	0.638	0.383	1.063	0.697	0.421	1.156
Age	1.026	1.015	1.036	1.026	1.016	1.036
Charlson Comorbidity (Quan): $\geq 1^*$	2.319	1.483	3.625	2.292	1.461	3.596
Mechanism						
Transport	(ref)			(ref)		
Fall	1.599	0.933	2.741	1.463	0.887	2.411
Other	0.665	0.337	1.314	0.632	0.335	1.195
Primary diagnosis						
Traumatic brain injury (TBI)	(ref)			(ref)		
Fracture (excl TBI)	0.332	0.163	0.675	0.295	0.152	0.572
Spinal Cord Injury	1.065	0.559	2.028	0.964	0.508	1.829
Internal organ injury (excl TBI & SCI)	0.272	0.085	0.869	0.204	0.066	0.628
Other	1.076	0.410	2.824	0.886	0.323	2.430
ISS	1.014	0.996	1.033	1.017	1.000	1.034
Head AIS ≥ 2	0.501	0.235	1.067	0.464	0.218	0.990
Chest AIS ≥ 2	0.450	0.268	0.757	0.523	0.327	0.835
GCH of incident						
U1	(ref)			(ref)		
U2	1.818	0.980	3.376	1.635	0.877	3.047
R1	1.217	0.668	2.217	1.174	0.660	2.091
R2	2.084	1.074	4.046	1.772	0.916	3.427
R3	1.573	0.617	4.012	1.701	0.712	4.063
ICP at incident	0.510	0.334	0.779	0.563	0.376	0.843
≥ 1 advanced prehospital intervention for LTE	2.180	1.403	3.387	1.810	1.154	2.839
Prehospital time to 1 st hospital (mins)**	0.637	0.401	1.012	0.669	0.431	1.038
Initial hospital SBP <100	2.910	1.796	4.716	3.015	1.923	4.729
Initial hospital GCS <9	5.284	2.485	11.239	4.842	2.502	9.369
Intubation prior to definitive care	1.594	0.761	3.335	1.747	0.887	3.440

*Prehospital deaths and 'unsalvageable' deaths within first 2 hours of hospitalisation were excluded.

**Prehospital time to first hospital was log-transformed.



Supplementary Table 4: Sensitivity analysis: Multivariate analyses of short-term mortality of major trauma patients by directness of transport to definitive care hospital (indirect compared to direct)

	(A)		(B)		(C)	
	Main analysis (Table 4)		Adjusted analysis without propensity weights		Removing “opportunity for indirect” criteria, crude and adjusted analysis without propensity weights	
	(N = 989)		(N = 989)		(N = 2,729 ³)	
	RR	95% CI	RR	95% CI	RR	95% CI
2-week mortality ¹						
Crude – complete case	1.044	(0.681, 1.600)	–	–	0.912	(0.656, 1.267)
With propensity weights	0.896	(0.519, 1.545)	–	–	–	–
Adjusted ²	0.638	(0.383, 1.063)	0.568	(0.299, 1.079)	0.736	(0.493, 1.098)
30-day mortality ¹						
Crude – complete case	1.145	(0.766, 1.710)	–	–	0.941	(0.691, 1.281)
With propensity weights	0.928	(0.560, 1.540)	–	–	–	–
Adjusted ²	0.697	(0.421, 1.156)	0.639	(0.350, 1.165)	0.750	(0.513, 1.096)

¹Excludes prehospital deaths and 'unsalvageable' deaths within first 2 hours of hospitalisation.

²With propensity weights (A only) and adjusted for Age, Charlson Comorbidity Index, Mechanism, Primary diagnosis, ISS, Head AIS2+ and Chest AIS2+, GCH of incident, ICP at incident, ≥ 1 advanced EMS intervention for LTE, Prehospital time to first hospital (log-transformed), Initial vital signs at hospital: GCS & SBP, Intubation prior to definitive care.

³Of the 2,797 in Figure 1, 11 attended more than one intermediary hospital and an additional 57 had incomplete data.

