

APPENDIX: Supplementary information [posted as supplied by author]

Table A. Description of cases included on virtual simulation administered during initial trial with disposition decisions by group.

Case Description	Class of case	Disposition Decision*	Game (n=148)	Educational Program (n=149)
65 year old female s/p MVC with aortic transection, bilateral lower extremity fractures. Patient presents with hypotension and arrests if not resuscitated within 5 minutes (game time) of arrival.	Severely injured – representative case	Admit Died in ED Transfer	23% 51% 26%	28% 54% 18%
36 year old male s/p GSW to abdomen with liver laceration.	Severely injured – representative case	Admit Transfer	68% 33%	70% 30%
80 year old female s/p ground level fall with multiple rib fractures	Severely injured – non-representative case	Admit Discharge Transfer	60% 5% 35%	76% 10% 14%
70 year old male s/p fall down steps with pelvic fracture and intra-parenchymal hemorrhage	Severely injured – non-representative case	Admit Discharge Transfer	53% 1% 46%	74% -- 26%
18 year old female s/p bicycle collision with closed humerus fracture	Minimally injured	Admit Discharge Transfer	77% 17% 6%	78% 17% 5%
81 year old male s/p MVC with no injuries but NSTEMI	Minimally injured	Admit Discharge Transfer	91% 1% 8%	96% 1% 3%
18 year old female with appendicitis	Non-trauma case – Low cognitive load	Admit Discharge	93% 7%	90% 10%
42 year old female with cellulitis of arm	Non-trauma case – Low cognitive load	Admit Discharge Transfer	72% 27% 1%	66% 34% --
60 year old male with musculoskeletal chest pain	Non-trauma case – Low cognitive load	Admit Discharge	51% 48%	59% 41%
36 year old male seeking opiates	Non-trauma case – Low cognitive load	Admit Discharge	3% 97%	7% 93%
60 year old female with subarchnoid hemorrhage and hypertensive emergency	Non-trauma case – High cognitive load	Admit Discharge Transfer	72% 2% 26%	84% 4% 12%
46 year old female with sepsis.	Non-trauma case – High cognitive load	Admit Transfer	22% 78%	36% 64%
83 year old male with CHF exacerbation and respiratory failure. Patient arrests and dies if not intubated (or started on non-invasive ventilation) within 5 minutes of arrival (game time).	Non-trauma case – High cognitive load	Admit Died in ED Transfer	47% 48% 5%	60% 40% --
69 year old female with GI bleeding and hemorrhagic shock. Patient arrests and dies if not resuscitated with fluid and blood within 5 minutes (game time) of arrival.	Non-trauma case – High cognitive load	Admit Transfer	32% 68%	32% 69%

Guidelines for coding the simulation:

1. We classified severely injured trauma patients as appropriately transferred if he/she either: a) died in the ED OR b) was transferred to a trauma center.
2. We classified severely injured trauma patients as under-triaged if he/she was admitted or discharged from the ED.

Table B. Description of cases included on virtual simulation administered during follow-up study with disposition decisions by group.

Case Description	Class of case	Disposition Decision*	Game n=64	Educational Program (n=59)
23 year old female s/p fall off balcony who arrives seizing secondary to an epidural hematoma. If she is not intubated or does not receive anti-epileptics within five minutes of arrival (game time) she aspirates, arrests, and dies.	Severely injured – representative case	Admit	31%	48%
		Died in ED	46%	42%
		Transfer	23%	10%
58 year old male s/p motorcycle collision. Arrives in hemorrhagic shock secondary to an open book pelvic fracture. and arrests without resuscitation.	Severely injured – representative case	Admit	44%	80%
		Transfer	48%	20%
		Died in ED	8%	--
80 year old male struck by a car. Arrives confused and short of breath. Patient has a subdural hematoma and multiple rib fractures.	Severely injured – non-representative case	Admit	53%	68%
		Discharge	--	2%
		Transfer	44%	20%
		Morgue	3%	3%
70 year old male s/p fall with an open (1cm) tib-fib fracture	Severely injured – non-representative case	Admit	72%	75%
		Discharge	21%	25%
		Transfer	7%	--
45 year old male tackled in football practice. Presents with a concussion	Minimally injured	Admit	--	14%
		Discharge	92%	86%
		Transfer	8%	10%
65 year old female s/p motorcycle collision. Arrives inebriated and confused, but without injuries	Minimally injured	Admit	70%	79%
		Discharge	7%	10%
		Transfer	22%	10%
60 year old female with subarchnoid hemorrhage and hypertensive emergency	Non-trauma case – High cognitive load	Admit	80%	90%
		Discharge	3%	6%
		Transfer	17%	3%
46 year old female with sepsis.	Non-trauma case – High cognitive load	Admit	18%	18%
		Transfer	82%	82%
83 year old male with CHF exacerbation and respiratory failure. Patient arrests and dies if not intubated (or started on non-invasive ventilation) within 5 minutes of arrival (game time).	Non-trauma case – High cognitive load	Admit	52%	67%
		Died in ED	48%	33%
69 year old female with GI bleeding and hemorrhagic shock. Patient arrests and dies if not resuscitated with fluid and blood within 5 minutes (game time) of arrival.	Non-trauma case – High cognitive load	Admit	23%	42%
		Transfer	77%	58%