A hand holding a pen is shown writing the equation $2 + 2 = 5$ on a whiteboard. The numbers and symbols are written in a thick, black, cursive font. The hand is positioned on the right side of the frame, with the pen tip touching the end of the number 5.
$$2 + 2 = 5$$

Cože ????

Anesteziologové a
intenzivisté dělají
chyby?

Tomáš Henlín



The Success Loop

Polytrauma ?

Není trauma jako trauma....

Table 3
Comparison of performance of polytrauma definitions.

	Sens%	Spec%	PPV%	NPV%	+LR	-LR	Kappa
ISS > 15	100 (0.9196-1)	70 (0.6460-0.7539)	34 (0.2558-0.4236)	100 (0.9822-1)	3.356	0	0.3816
ISS > 17	91 (0.7833-0.9747)	79 (0.7362-0.8332)	39 (0.2969-0.4938)	98 (0.9476-0.9895)	4.282	0.115	0.4467
2 × AIS > 2	84 (0.6993-0.9336)	91 (0.8683-0.9381)	58 (0.4482-0.7006)	98 (0.9568-0.9953)	9.094	0.175	0.6273

Sens: sensitivity; Spec: specificity; PPV: positive predictive value; NPV: negative predictive value; +LR: positive likelihood ratio; -LR: negative likelihood ratio; KAPPA: Cohen's kappa coefficient.

AIS > 2 in at least two body regions: A potential new anatomical definition of polytrauma

Nerida Butcher, Zsolt J. Balogh*

Department of Traumatology, Division of Surgery, John Hunter Hospital and University of Newcastle, Newcastle, NSW, Australia

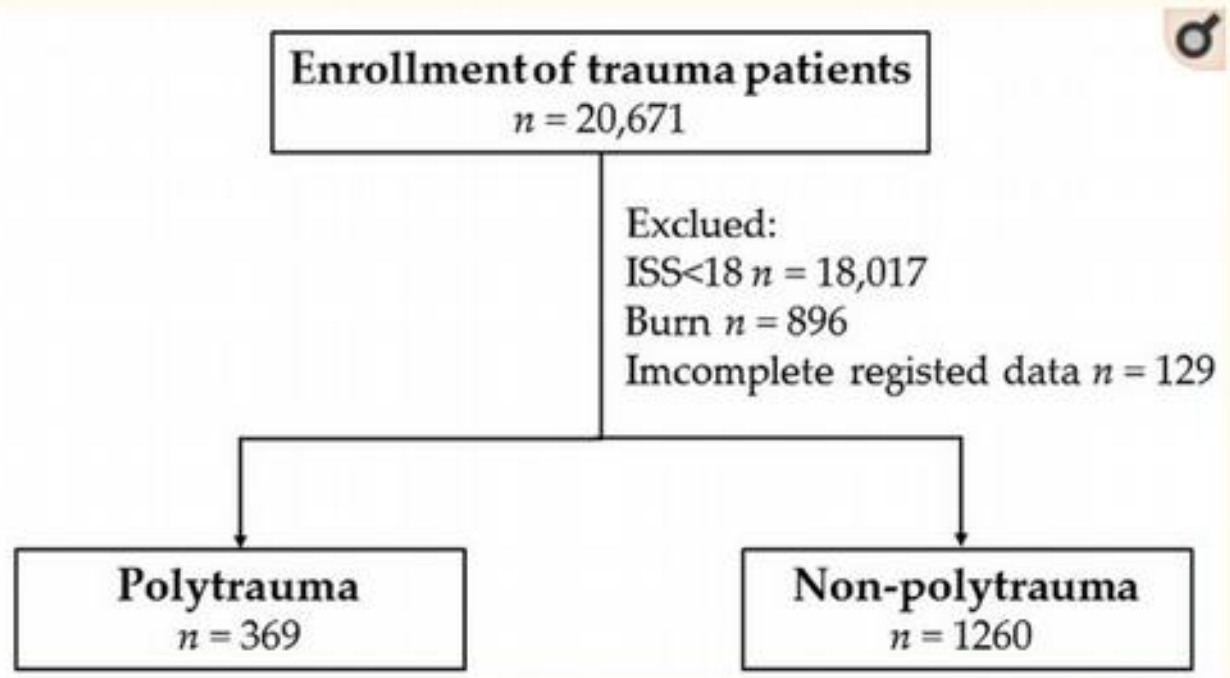


Figure 1

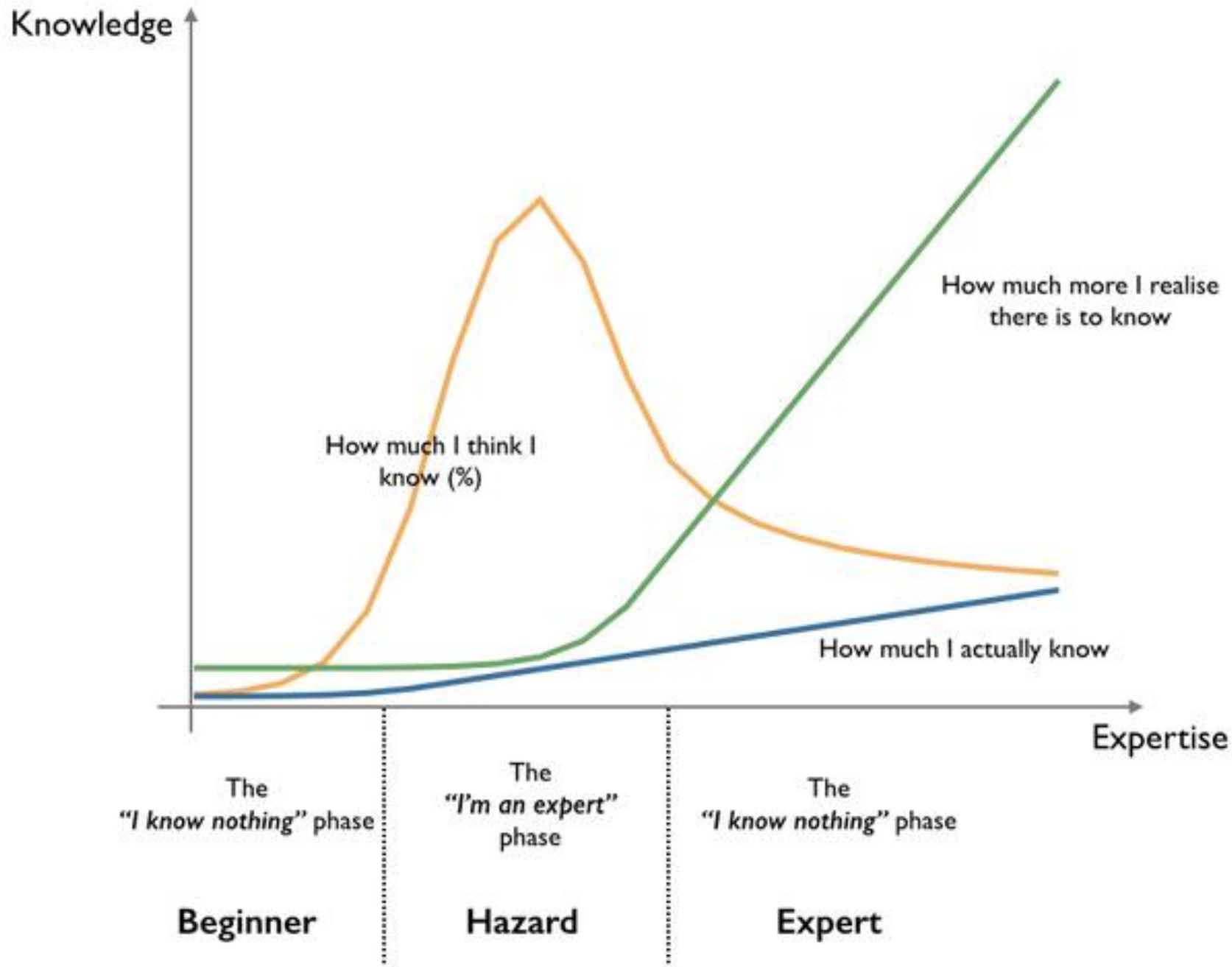
Flow chart of the studied polytrauma and non-polytrauma population.

Demographics and injury characteristics of polytrauma and non-polytrauma patients.

Variables	Polytrauma n = 369	Non-Polytrauma n = 1260	Odds Ratio (95% CI)	p
Sex				0.610
Male	255 (69.1)	853 (67.7)	1.1 (0.83–1.37)	
Female	114 (30.9)	407 (32.3)	0.9 (0.73–1.20)	
Age	49.9 ± 22.9	47.3 ± 19.9	—	0.052
AIS ≥ 3, n (%)				
Head/Neck	281 (76.2)	940 (74.6)	1.1 (0.83–1.43)	0.546
Face	19 (5.1)	12 (1.0)	5.6 (2.71–11.74)	<0.001
Thorax	237 (64.2)	378 (30.0)	4.2 (3.28–5.35)	<0.001
Abdomen	82 (22.2)	136 (10.8)	2.4 (1.74–3.20)	<0.001
Extremity	183 (49.6)	191 (15.2)	5.5 (4.26–7.11)	<0.001
ISS, median (IQR)	29 (22–36)	24 (20–25)	—	<0.001
18–24	100 (27.1)	727 (57.7)	0.3 (0.21–0.35)	<0.001
≥25	269 (72.9)	533 (42.3)	3.7 (2.84–4.74)	<0.001
Mortality, n (%)	80 (21.7)	164 (13.0)	1.9 (1.38–2.49)	<0.001
Hospital LOS (days)	20.0 ± 16.8	16.8 ± 15.6	—	0.001

Polytrauma Defined by the New Berlin Definition: A Validation Test Based on Propensity-Score Matching Approach





Analgesia in Polytrauma

Primary Trauma Survey/
Identification of immediate life threats

Consider intubation & general anesthesia: **A**

Airway or respiratory compromise
Early or ongoing hemodynamic instability
Anticipated early operative intervention
Injury causing uncontrollable pain or distress
Severe agitation

Multiple Injuries or
Severely Painful Injuries

Red: Profound/Refractory Shock **B**

Loss of central pulses
Systolic BP < 70 mmHg

All efforts focused on identification and treatment of shock

Decreased level of consciousness/obtundation is the rule
Consider withholding analgesia until hemodynamics improved

Yellow: Shock/Occult Shock **C**

Poorly perfused extremities
Loss of peripheral pulses
Isolated or persistent SBP < 105 mmHg
Shock index > 0.9
Base deficit ≤ -6.0

Fentanyl 0.5 mcg/kg IV
Ketamine 0.1-0.3 mg/kg IV over 10-20 minutes

Green **D**

Fentanyl 1-1.5 mcg/kg IV
Morphine 0.1 mg/kg IV
Ketamine 0.2-0.3 mg/kg IV over 10-20 minutes

Throughout Resuscitation **E**

Reassess hemodynamics, analgesia q10-15 min
Repeat bolus analgesia to effect
Consider non-pharmacological adjuncts to alleviate pain

Consider Maintenance Infusions **F**

Titrate to effect
If intubated, add sedative drip as needed

Fentanyl 2 mcg/kg bolus then 1 mcg/kg/hour IV
Morphine 0.1 mg/kg bolus then 0.1 mg/kg/hour IV
Ketamine Non-intubated (analgesia) 0.3 mg/kg/h IV
Ketamine Post-intubation (dissociation) 1 mg/kg/h IV

Non-pharmacological adjuncts **G**

Early discontinuation of spinal immobilization (long board, rigid collar)
when clinically appropriate

Reduce and splint/immobilize injuries, including open fractures/
dislocations, bony pelvic injuries (stable or unstable) and significant
soft tissue/burn injuries

Foley catheter to decompress bladder

Pre-procedure patient briefing for anticipated painful procedures

Full Moon

by Jim Allen



Airway and ventilation management strategies for hemorrhagic shock. To tube, or not to tube, that is the question!

**Anthony J. Hudson, MA, Geir Strandenes, MD, Christopher K. Bjerkvig, MD,
Marius Svanevik, MD, *and* Elon Glassberg, MD, MHA, *Devon, UK***

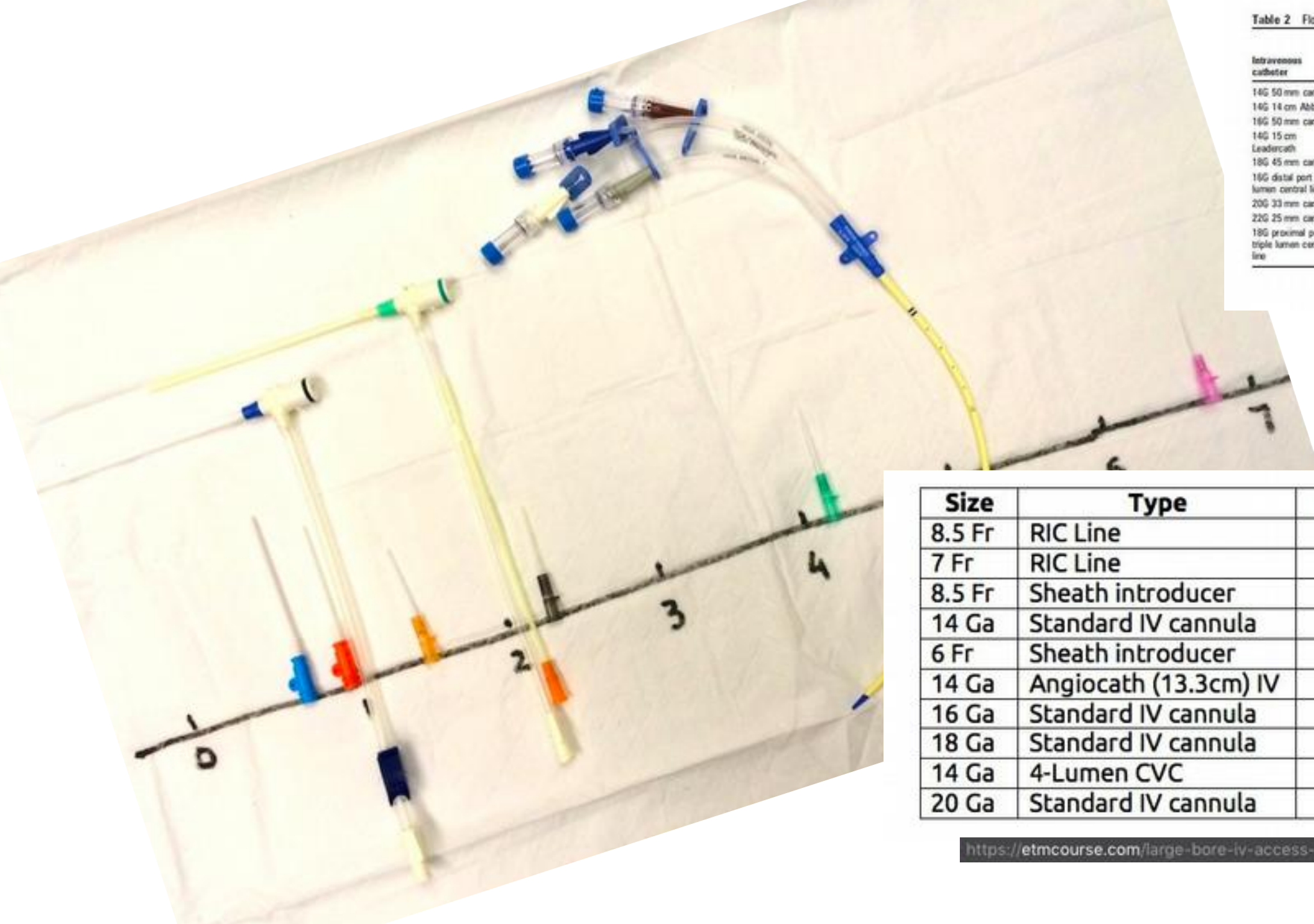


Table 2 Flow rates of devices

Intravenous catheter	Rate of flow with gravity (ml/min)	Rate of flow with pressure (ml/min)	Rate of flow with Bionector (ml/min)	Percentage increase with pressure	Percentage decrease with Bionector
14G 50 mm cannula	236.1	384.2	138.3	62.7%	-41.4%
14G 14 cm Abbocath	197	366	131.3	85.8%	-33.4%
16G 50 mm cannula	154.7	334.4	109.6	116.2%	-29.2%
14G 15 cm Leadercath	117.3	211.1	101.1	80%	-13.8%
18G 45 mm cannula	98.1	153.1	80.3	56%	-18.1%
16G distal port triple lumen central line	69.4	116.1	67.4	67.3%	-2.88%
20G 33 mm cannula	64.4	105.1	58.5	63.2%	-9.17%
22G 25 mm cannula	35.7	71.4	34.7	100%	-2.80%
18G proximal port triple lumen central line	29.7	79.3	28.7	167%	-3.37%

Figure from Reddick et al, 2011

Size	Type	1000ml infusion time
8.5 Fr	RIC Line	0:46 sec
7 Fr	RIC Line	1:00 min
8.5 Fr	Sheath introducer	1:05 min
14 Ga	Standard IV cannula	1:30 min
6 Fr	Sheath introducer	2:10 min
14 Ga	Angiocath (13.3cm) IV	2:10 min
16 Ga	Standard IV cannula	2:20 min
18 Ga	Standard IV cannula	4:23 min
14 Ga	4-Lumen CVC	5:20 min
20 Ga	Standard IV cannula	6:47 min



EVERYBODY

LIES



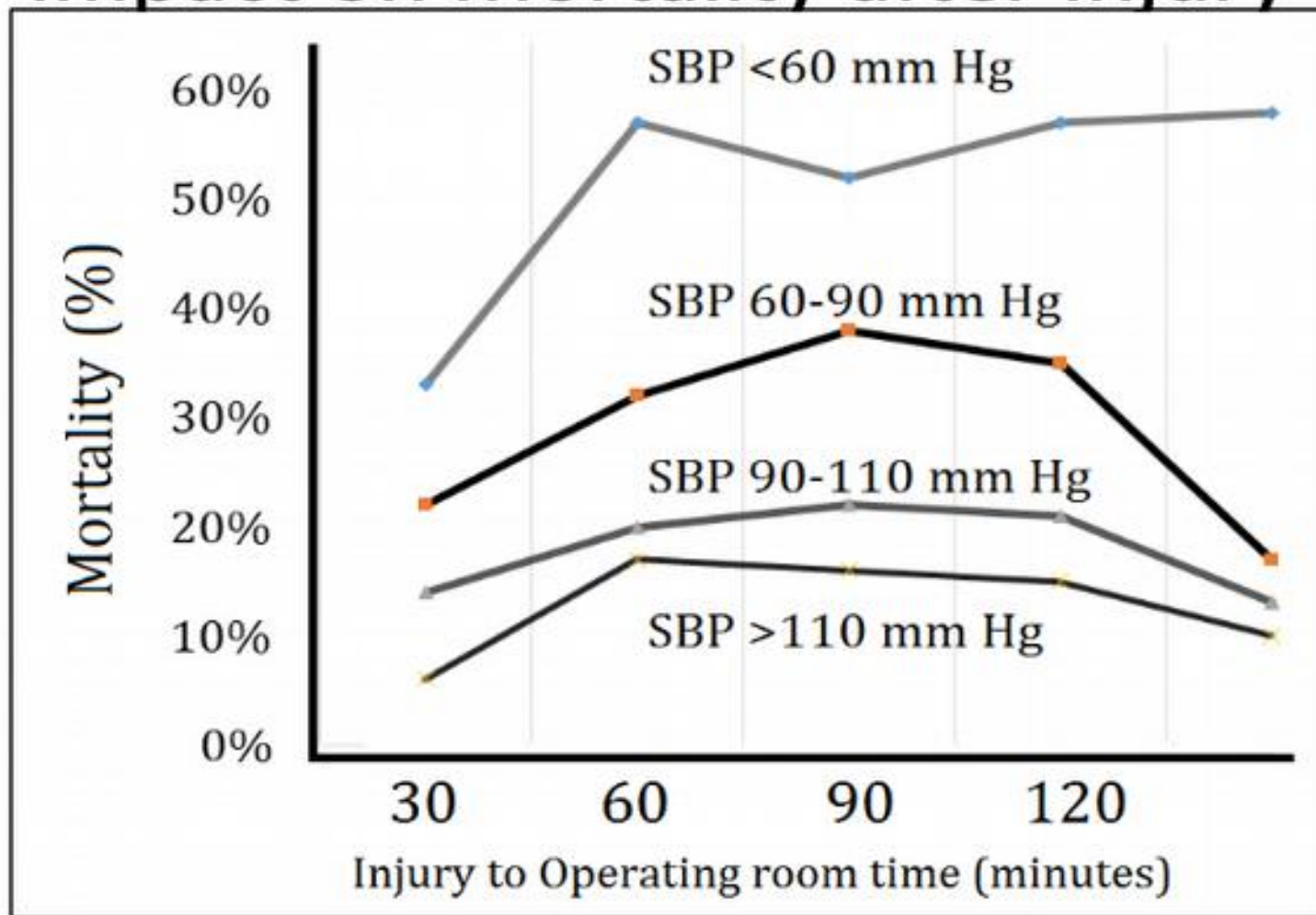
what are you
changing?





SBP and Time to OR

Impact on Mortality after Injury



Alarhayem, Eastridge: No Time to Bleed. Presented at Southwestern Surgical Congress 2017



1. Nechodíte tam...
2. Chodíte tam...
3. Uspáváte je...
4. Intubujete je...
5. Pícháte je...
6. Chcete dělat medicínu...
7. Nereagujete včas...
8. JEDINÝM VAŠÍM CÍLEM BY MĚLO BÝT...



STOP
THE BLEED



WHAT REBELS WANT from their boss...

- 1. WE ARE NOT TROUBLE MAKERS**
We are motivated to make our org BETTER

WHY? why? ???? not?
- 2. WE CARE**
about work more than anyone else

~~THAT'S WHY WE ARE WILLING TO ENGAGE IN A CONFLICT~~
- 3. WE NEED AN ENVIRONMENT**
where it is safe to disagree and challenge STATUS QUO

- 4. LOVE OUR DIFFERENCES AND QUIRKS**
We may not be like you

AND THAT'S A GOOD THING
- 5. CHALLENGE US**
give us thorniest problems LET US PROVE OUR WILD IDEAS AT WORK
we want to be stretched

- 6. DON'T GIVE US LIP SERVICE**
Tell us as it is NO GLIB LIKE

THERE'S NO BUDGET
NO RESOURCES
- 7. COACH US** on how to navigate org. politics so we avoid making mistakes

- 8. REBELLIOUSNESS IS A POSITIVE BEHAVIOR**
it is an act of courage and risk taking

- 9. APPRECIATE US**
and we'll move mountains for you.


Velmi Samostaný Anesteziolog Inspirován Pícháním na Medicíně
Dynamicky Krváci