

Assessment Soapboxes

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If I Am Ever A Trauma.....

Or

How to Assess in the Zombie Apocalypse



What Is Trauma??

Definition of *trauma*

An injury (such as a wound) to living tissue caused by an extrinsic agent

Trauma is the Greek word for "wound"



Definition of Soapbox

An improvised platform used by a self-appointed, spontaneous, or informal orator broadly

Something that provides an outlet for delivering opinions

The term is also used metaphorically to describe a person engaging in often flamboyant impromptu or unofficial public speaking, as in the phrase

"Get off your soapbox"

FRM:Paging@WakeMed.org
MSG:trauma alert 56 y m s/p
fall 10 ft, mult rib fx, ox 92 %
136/90. gcs 15. eta 15 min

FRM:Paging@WakeMed.org
MSG:Trauma one update, ETA
now 15 min, it is a 25 y m,
stabbed upper R arm, 2
tourniquets applied, BP 161/111
P-93 ET CO2 22. GCS 15

1 of 2
FRM:Paging@WakeMed.org
MSG:29yo M Pinned in vehicle
extensive intrusion on
passenger side.
? fx jaw, open fx, right knee and
right
(Con't) 2 of 2
tib/fib,
137/88, 98, 95%ra
GCS 14
ETA 20 approx.(End)

FRM:Paging@WakeMed.org
MSG:trauma alert eta 18 min 71
yom mvc + loc head lac gcs 14
pulse 91 bp 111/74

FRM:Paging@WakeMed.org
MSG:trauma alert eta 5 min 71
yom fall 15-20 ft from tree
confused gcs 14 bp 93/60
pulse 90 rib pain

I'm Here.....



So now what??



SOAPBOX #1

Pay
Attention
to the
Monitor

Look at it, y'all



Vital Signs

What is “Normal”??



What is the patient’s “Normal”???



What do the numbers mean????



Blood Pressure

Systolic Blood Pressure

Maximum arterial pressure when blood is ejected from the left ventricle

Diastolic Blood Pressure

Minimum arterial pressure when the heart is relaxed

Mean Arterial Pressure

Average arterial pressure throughout one cardiac cycle

Pulse Pressure

The difference between SBP and DBP



Medical Axioms 🇺🇸
@medicalaxioms



Some bleeding patients get tachycardic with a normal BP.
Others get hypotensive with a normal pulse.
Show them the book if you want.

4:27 PM · 8/7/17 · [Twitter for iPhone](#)

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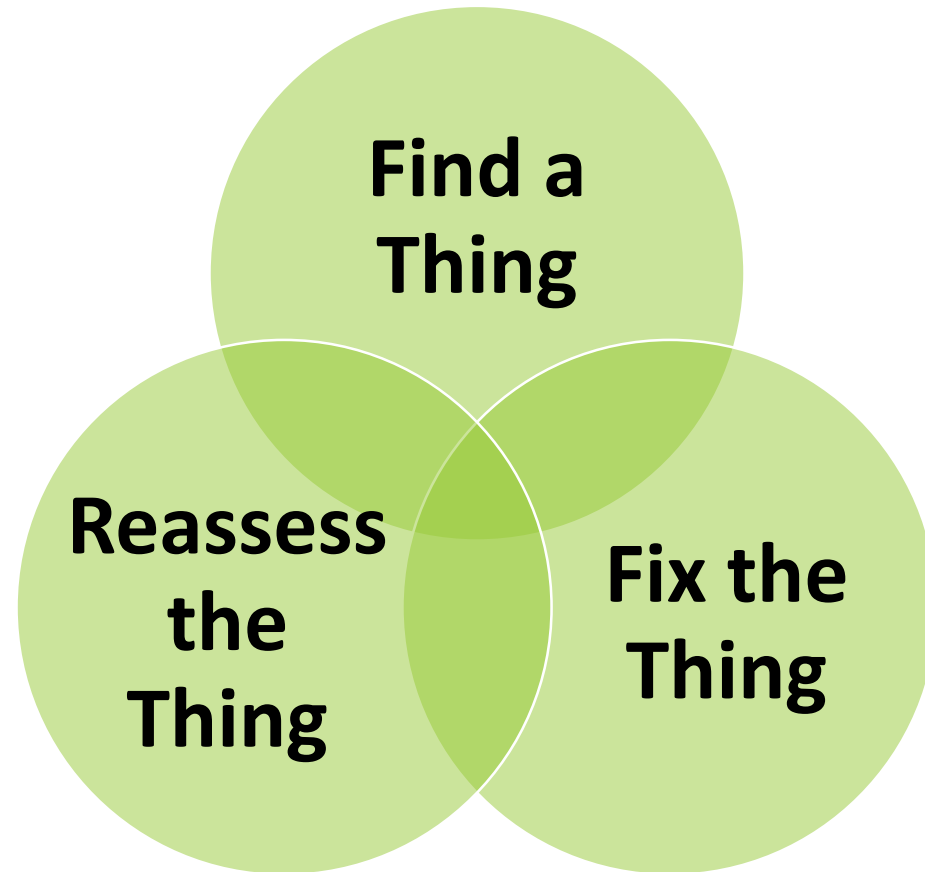
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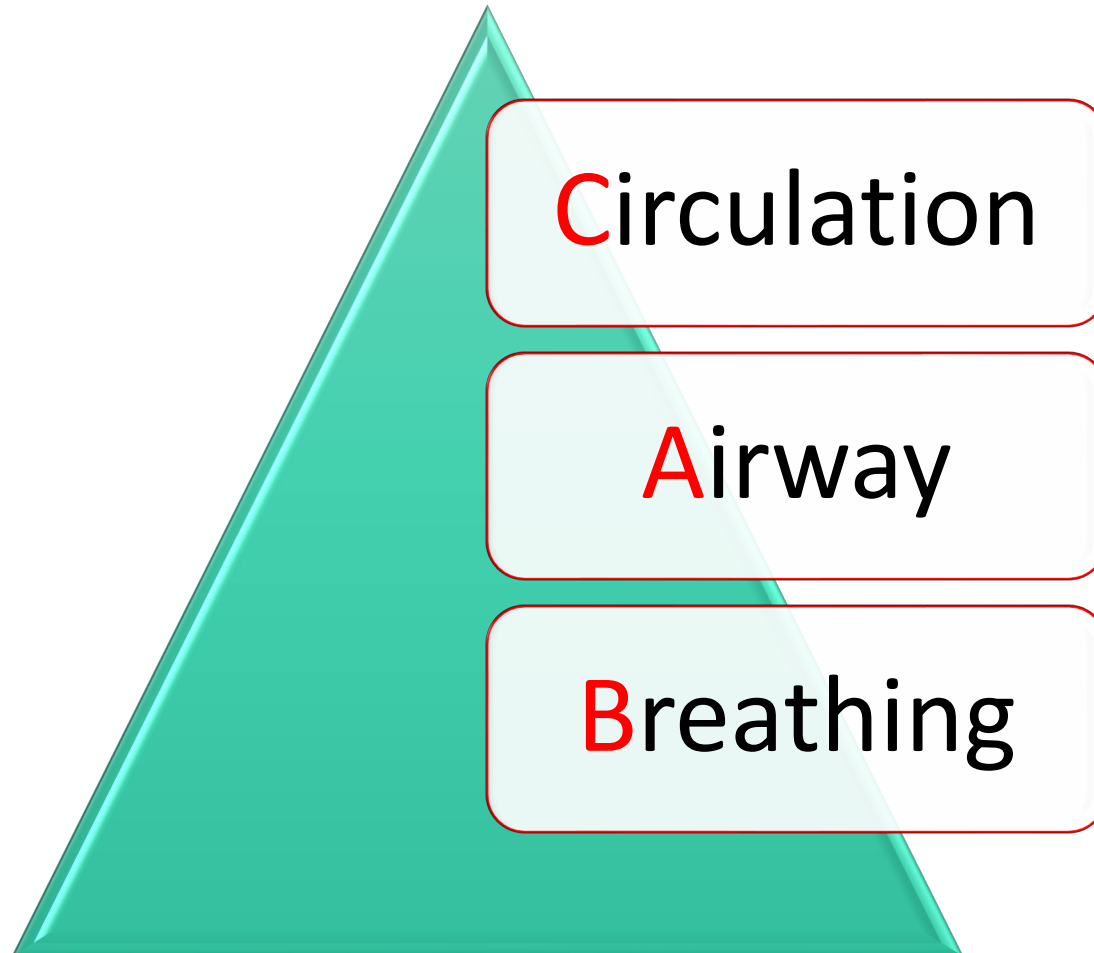
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Assessment

A Standardized Approach



It's as easy as C, A, B.....



SOAPBOX #2

Ignore the Monitor

Touch the patient, y'all



ATLS classifications of hemorrhagic shock

CLASS	BLOOD LOSS	PULSE	BP	PULSE PRESSURE	MENTAL STATUS
I	15% (750 ml)	<100	Normal	Normal	Slight Anxiety
II	15%-30% (750-1500ml)	110-120	Normal	Narrow	Anxious
III	30%-40% (1500ml-2000ml)	>120	↓	Narrow	Anxious/ Confused
IV	>40% (>2000ml)	>140	↓	Narrow	Lethargic/ Obtunded



The Two Finger Cardiac Output Assessment



SOAPBOX #3

Is everyone really breathing 20 times a minute? Assessing epidemiology and variation in recorded respiratory rate in hospitalized adults. (BMJ, 2017)

Measurement of respiratory rate by multiple raters in a clinical setting is unreliable: A cross-sectional simulation study. (JCC, 2018)

Explaining transgression in respiratory rate observation methods in the emergency department: A classic grounded theory analysis. (IJNS, 2017)

SOAPBOX #3

**Emergency department triage respiratory rate measurements
are often inaccurate.** (NEJM Journal Watch, 2013)

**Why don't nurses consistently take patient respiratory
rates?** (BJN, 2014)

The Neglected Vital Sign

Respiratory rate: The neglected vital sign. (MJA, 2008)

Respiratory rate: A neglected triage tool for prehospital identification of trauma patients.

“Compared with patients with a normal respiratory rate, tachypneic patients were more likely to be under-triaged for any reason.” (JACS, 2016)

Respiratory rate as a prehospital triage tool in rural trauma.

“In rural trauma with long evacuations, the in-field respiratory rate seems to be an accurate predictor of trauma death.” (JT, 2003)

“Best practice guidelines suggest that clinicians count the number of breaths over a full minute, also noting any abnormalities in the depth, rhythm, quality and effectiveness of respirations.” (AENJ, 2017)



Pulse Oximetry

Measures the oxygen saturation of Hemoglobin in arterial blood.

Does NOT measure ventilation, perfusion, oxygen exchange or metabolism at the cellular level.

Pulse Oximetry **SOAPBOX #4**

Just because it's "OK" doesn't mean your patient is.

SpO₂ levels can remain at acceptable levels for up to

2 minutes

during periods of apnea and respiratory depression.

End Tidal CO₂/Waveform Capnography

DOES measure: Ventilation, perfusion, oxygen exchange, and metabolism at the cellular level.

Provides **real-time** monitoring for apnea, cardiac output, impending cardiac arrest, adequate CPR, and resuscitation.

End Tidal CO_2 / Waveform Capnography

**The Swiss Army Knife of
Trauma Resuscitation**



**Accurately measure RR
and evaluate for
respiratory insufficiency**

**Advanced airway
assessment and
verification**

**Can be used to
evaluate
effectiveness of
compressions**

**Quickly and accurately
signal ROSC**

**Lower end tidal
values = poorer
outcomes**



**Visual
representation of
cardiac output**

**Deviation between
PCO₂ and ETCO₂
correlates strongly
with mortality risk**

**Predictive of mortality,
transfusion, operative
requirement**

**Inverse correlate of
lactate**

**Can be used to monitor
effectiveness of resuscitation**



The only vital sign that is directly indicative of metabolic processes



Only study to examine ETCO₂ among non-intubated trauma pts in pre-hospital setting

Low ETCO₂ (≤ 28.5) associated with 6.3 odds of death compared to normal/high (>28.5)

(Bryant et al., 2021)

Low trauma bay ETCO₂ associated with greater odds of transfusion, mortality, complications

More predictive of transfusion than Shock Index

(Portelli Tremont et al., 2022)



Picture taken by author shared with permission

NICOLE'S SOAPBOXES = UNRECOGNIZED SHOCK

Unrecognized Shock = Compensated Shock

Tachypnea

Anxiety

Cool, pale, diaphoretic skin

Mild tachycardia

Altered Mental Status

Weak peripheral pulse

Narrow pulse pressure

Delayed capillary refill

RECAP

SOAPBOX #1

PAY ATTENTION TO THE MONITOR

SOAPBOX #2

IGNORE THE MONITOR

SOAPBOX #3

THE NEGLECTED VITAL SIGN

SOAPBOX #4

THE DEVIL'S TOOL

SOAPBOX #5

ANXIETY: THE FORGOTTEN VITAL SIGN

**It's not the bells and whistles that
determine excellent trauma care**

It's the basics

(Nicole Cook, 2018)