



EMS
CONSORTIUM

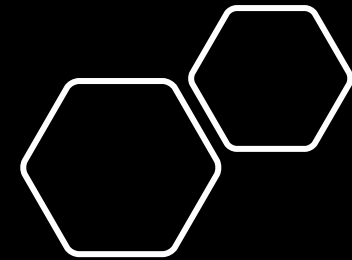
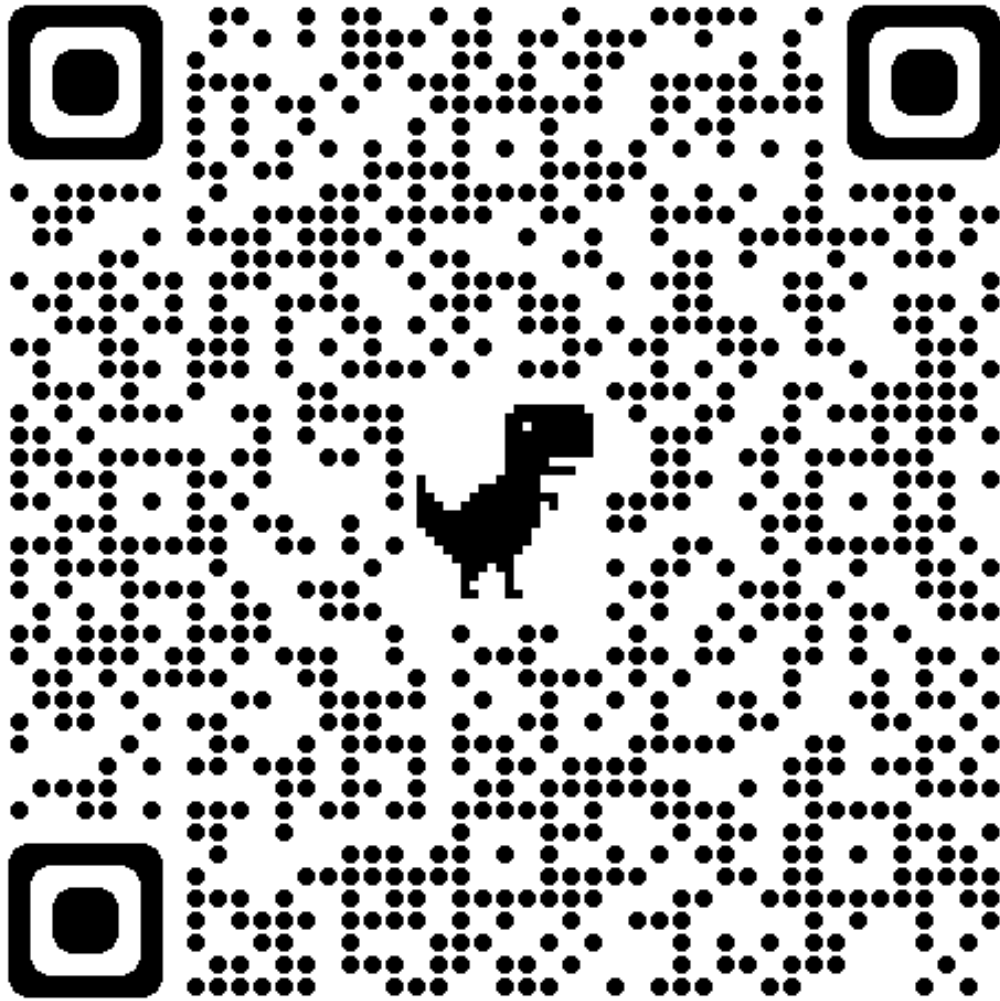


Facial Injuries

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Objectives

- Review anatomy of the face
- Identify injuries that occur to the
 - Eyes
 - Nose
 - Mouth
 - Ears
- Describe the assessment and management of a patient with facial injuries

Think about pain management

Practical application

Know your anatomy so you can describe what you find

Do a thorough exam so you don't miss important but subtle injuries

Patient management

- Control bleeding with direct pressure
- Anticipate challenges with airway with face injury
- Pain control



Get your paper and pencil

- List the ways you can think of that any part of the face can get injured.
- I'll get you started-
 - you can have a piece of something fly into your eye

What were
the
mechanisms
of injury you
came up
with?

Assault

- Think fist to face (eye, jaw etc)
- Other object to face

Fall

- Face to sidewalk

MVC

- Face to steering wheel, windshield
- Seatbelt to neck

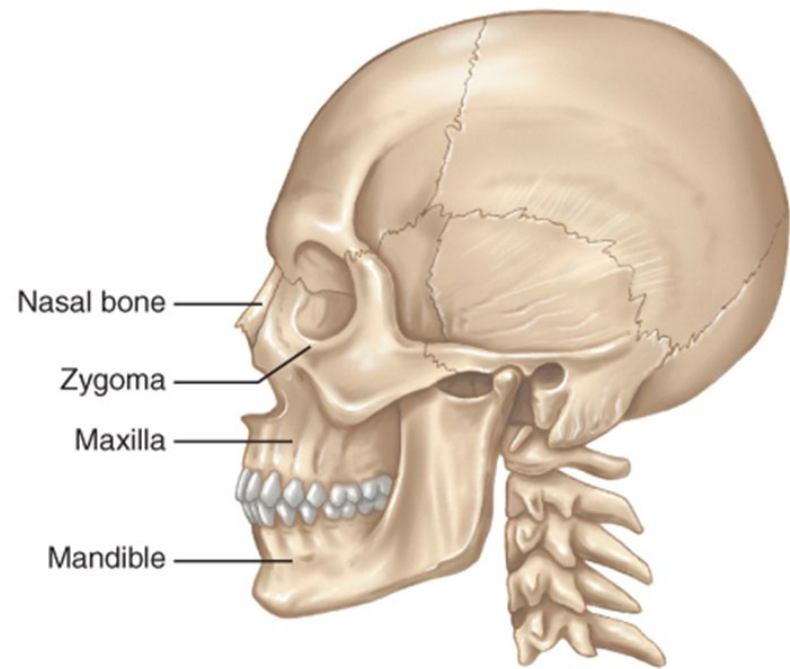
Penetrating trauma

- GSW
- Stab wound
- Foreign body –flying object



Anatomy + Injuries

In the context of
injury risk and
pattern

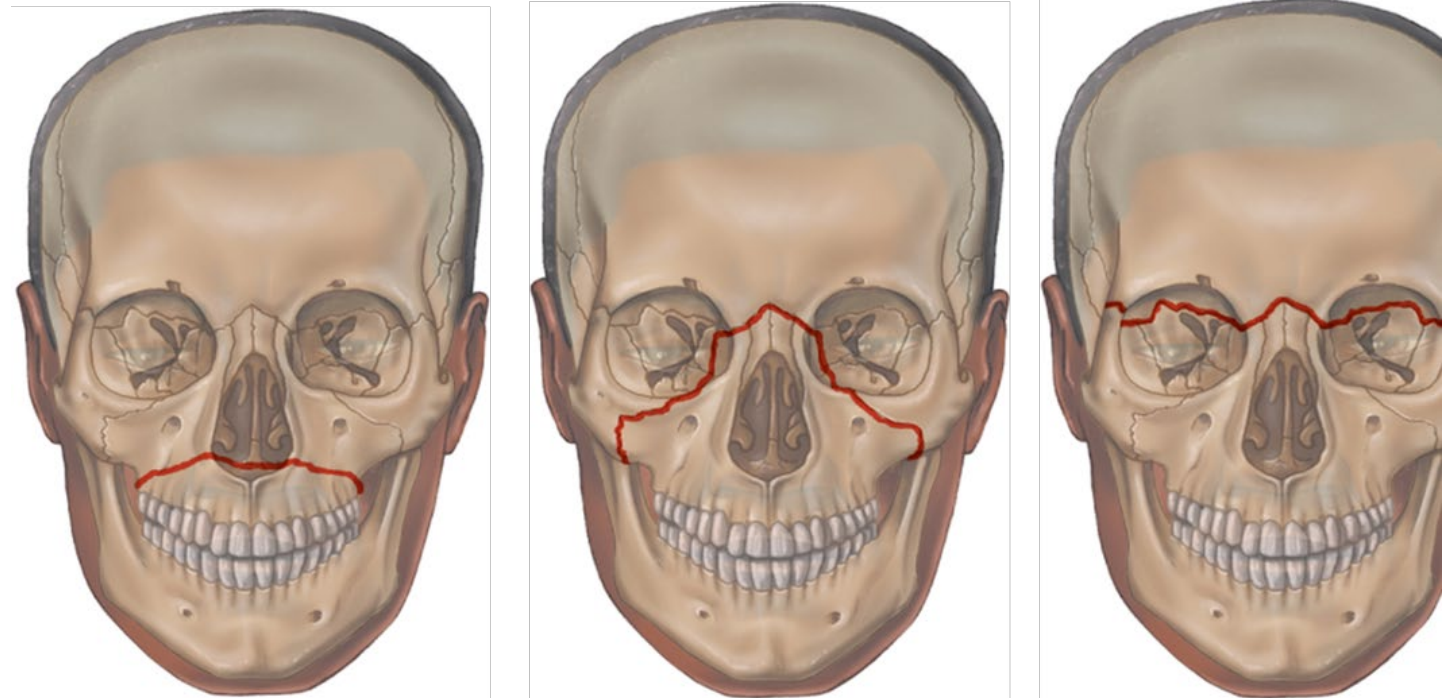
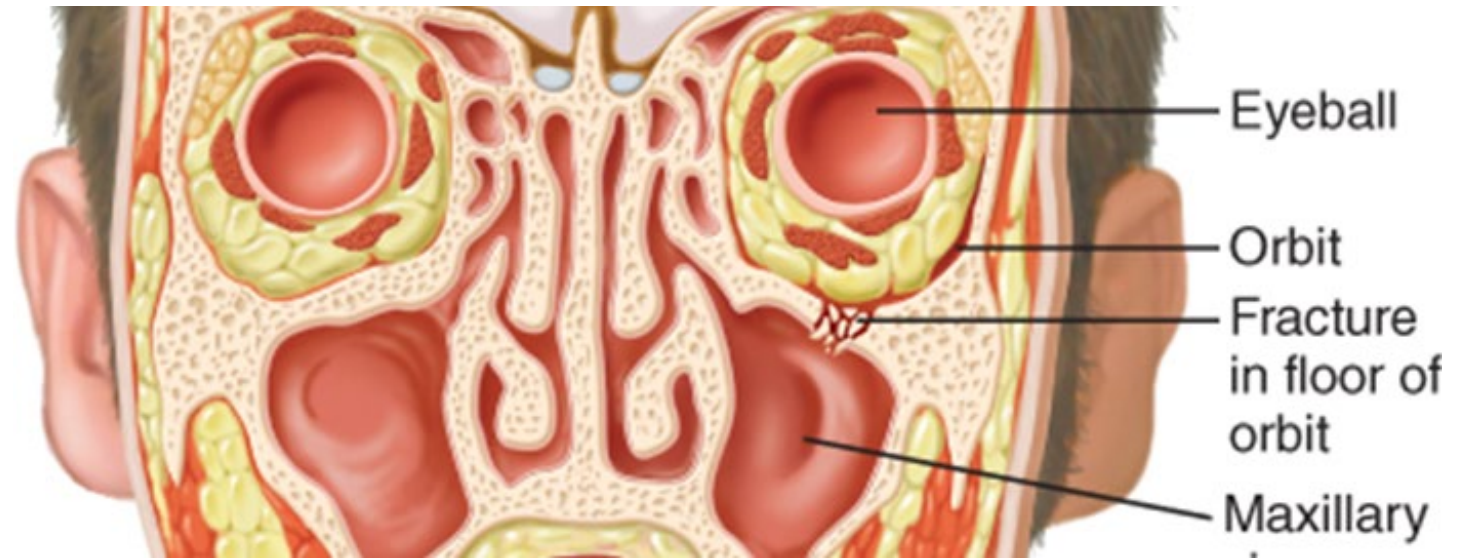


Bones

- Thick ones
- Thin ones
- Mechanisms of injury

Facial fractures

- Your face is that crumple zone
- Designed to break so some parts break easily
- A careful exam
- High suspicion for injury
- Usually nothing to do, just to note

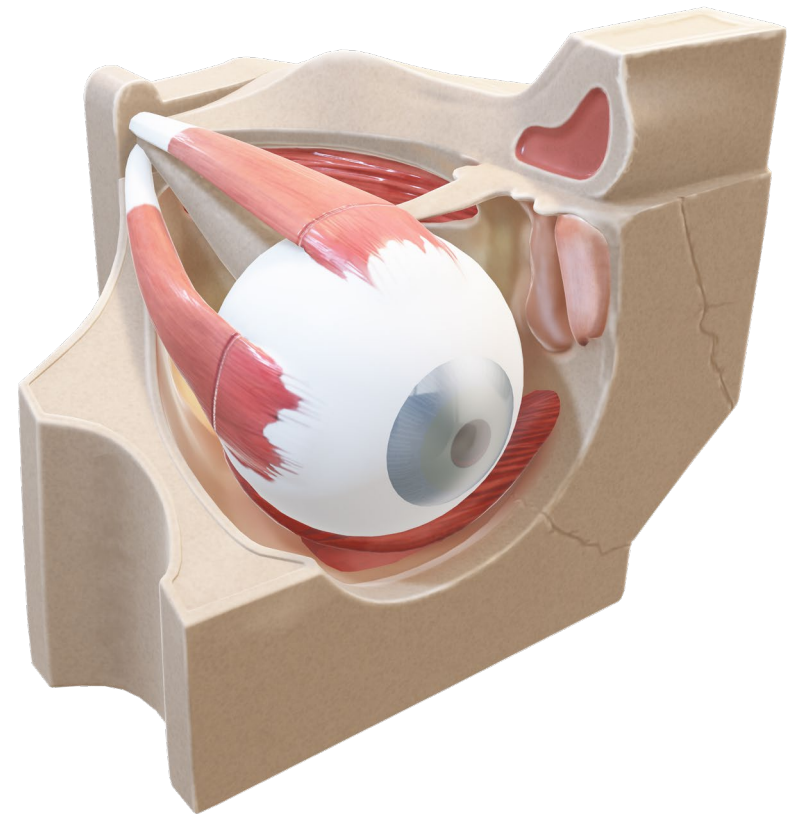
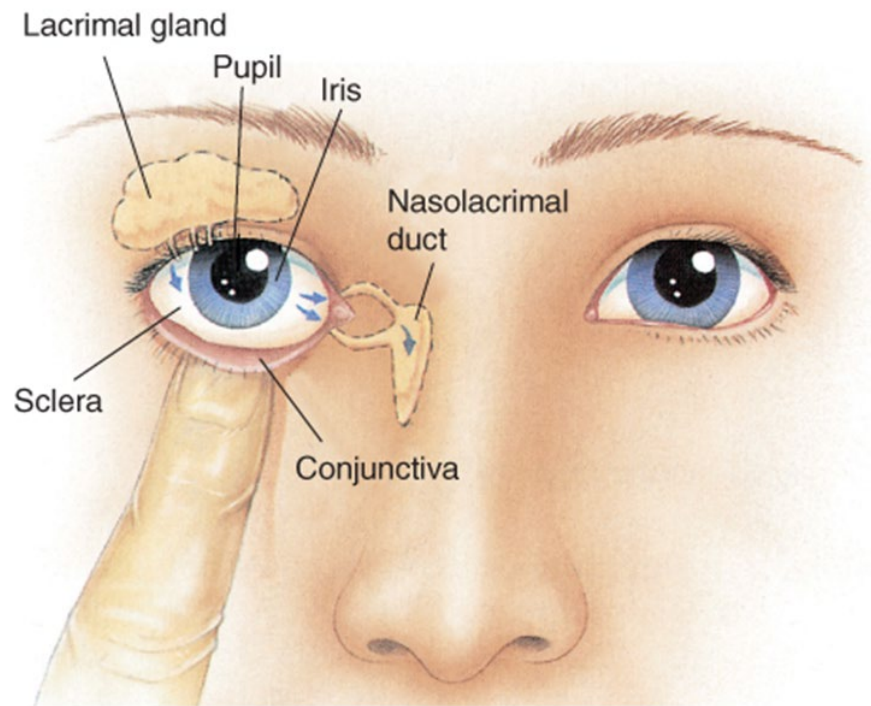


A close-up, artistic photograph of a human eye. The eye is the central focus, with its iris and pupil clearly visible. The surrounding skin and eyelashes are softly blurred, creating a shallow depth of field. The overall color palette is muted, with earthy tones of brown, grey, and blue. The text 'The eye' is centered over the eye in a clean, white, sans-serif font. Two thin, horizontal white lines are positioned above and below the eye, framing it.

The eye

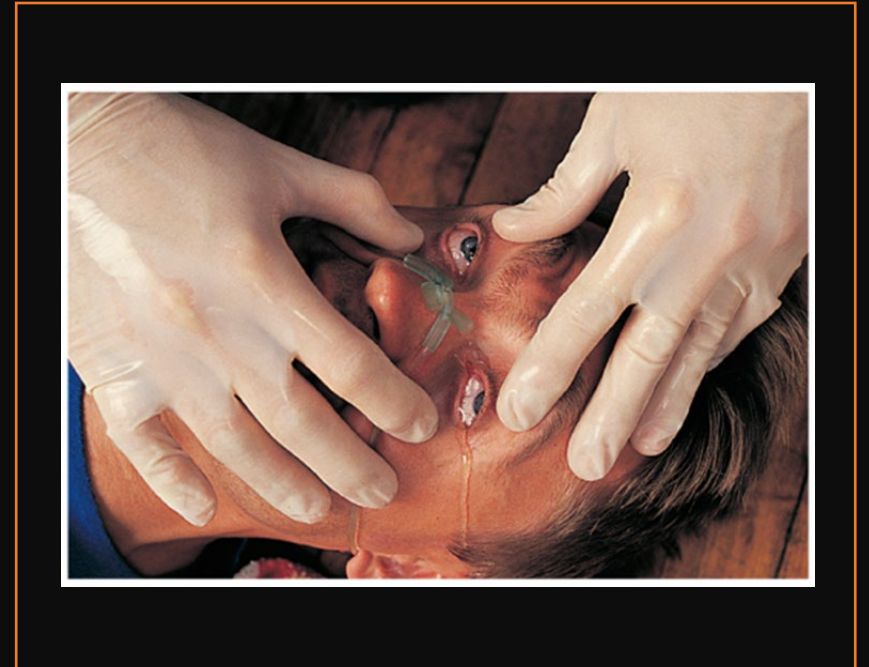
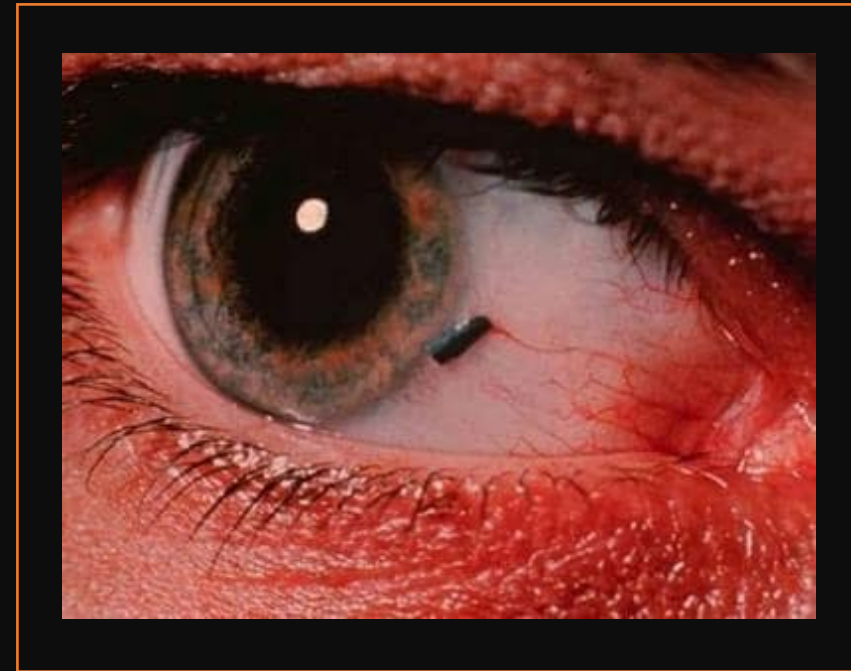
Eye

- Injuries to the Eye
- Injuries to surrounding parts



Eye injuries- Foreign Body

- Always start with a thorough exam
- Foreign bodies
 - Consider circumstances
 - Symptoms/Signs
 - Pain
 - Blurry Vision
 - Ability to visualize FB (only sometimes)
- Management
 - Irrigate the eye- will remove loose stuff
 - Don't rub the eye
 - Cover it-
- If a large object, stabilize it, don't remove it



Eye injury: Globe injury

High risk= globe injury

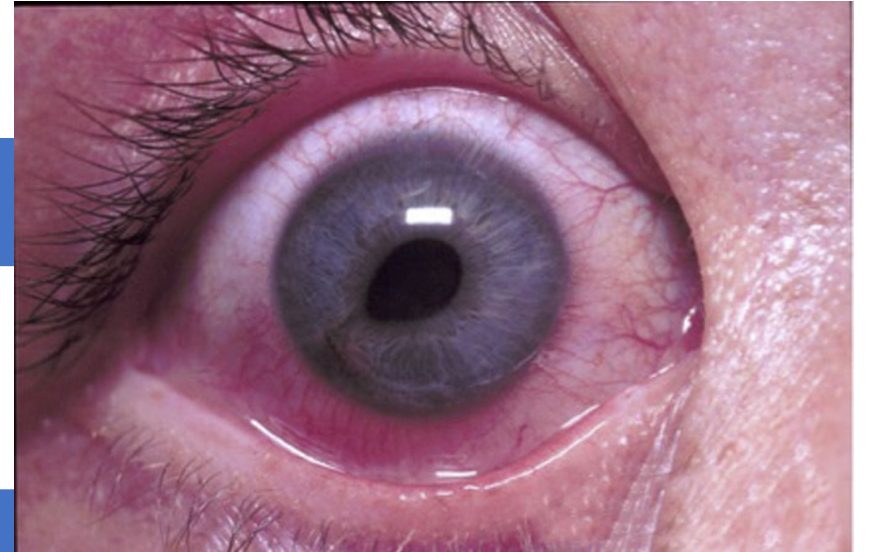
- Large or sharp object
- High force trauma

Exam:

- Irregular pupil
- Loss of vision
- Can be obvious or subtle

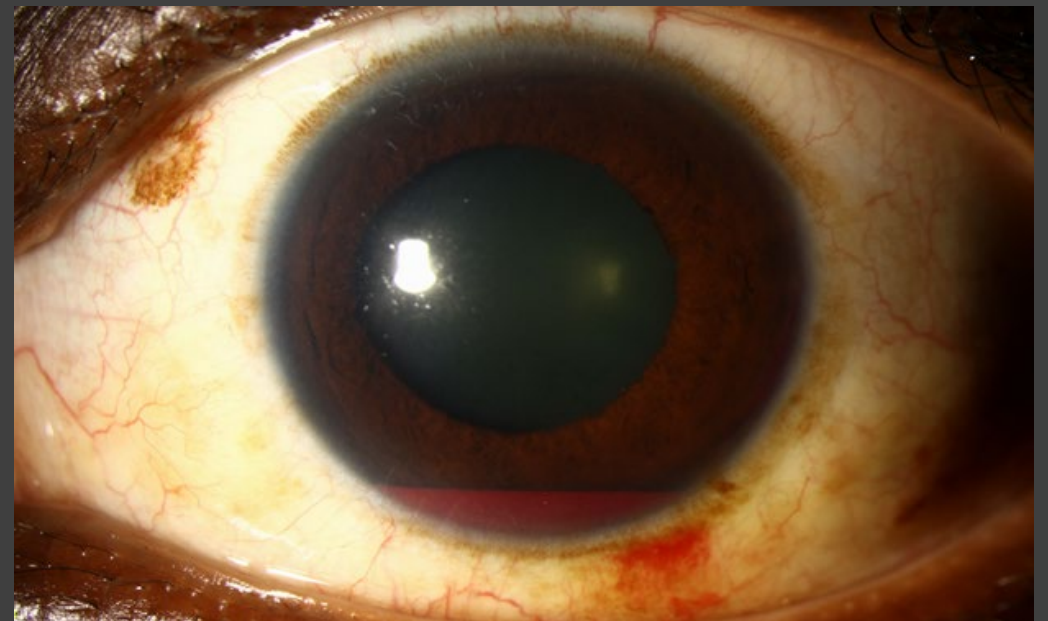
Cover the eye with a stiff covering

Prevent any pressure to the eye



Eye Injury: Blunt trauma

- Can result in multiple different injuries
 - Fractures
 - Direct eye injury
- Do a careful exam and report any:
 - Extraocular movements → fractures
 - Visual acuity
 - Any abnormalities to pupils, conjunctiva etc



The eye as the window to the brain...

Anisocoria



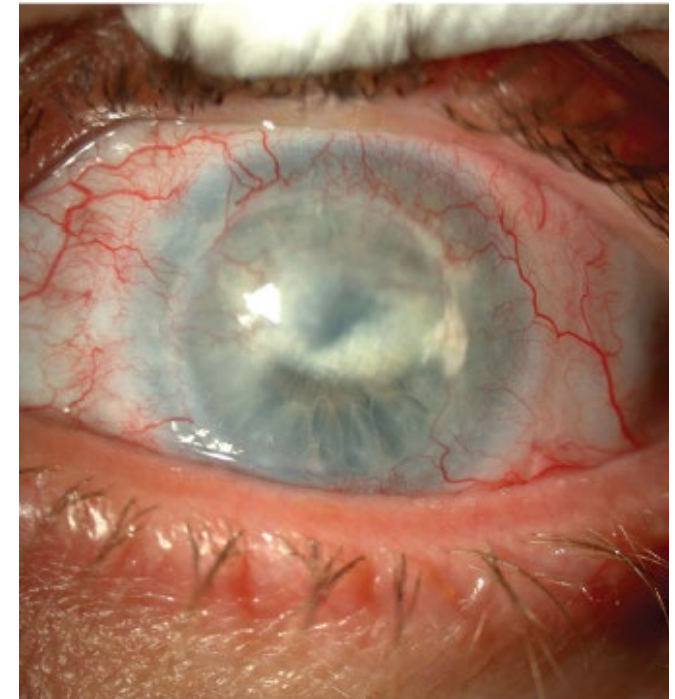
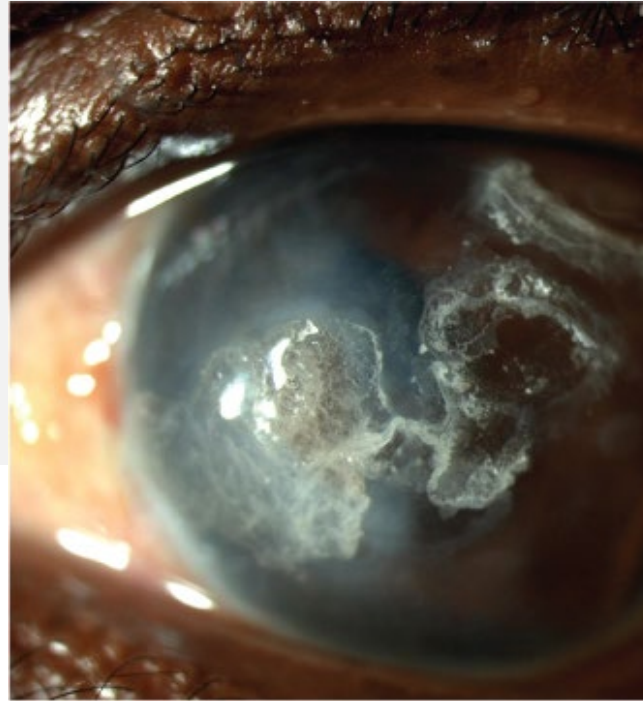
Figure 1. Patient with post-traumatic retrobulbar

- In severely head injured patients the eyes can be clues to what is going on with the brain/inside the skull.
- Always note
 - Asymmetry of pupils
 - Reactivity of both pupils
 - Direction of the gaze (do the eyes track together)
 - Protrusion of one eye in comparison to the other (proptosis)



In general

- Do a good exam
 - Look at it
 - Have the patient move it
 - Shine a light on it
 - Compare it to the other one
- Irrigate exposures, unseen foreign bodies
- Cover without pressure

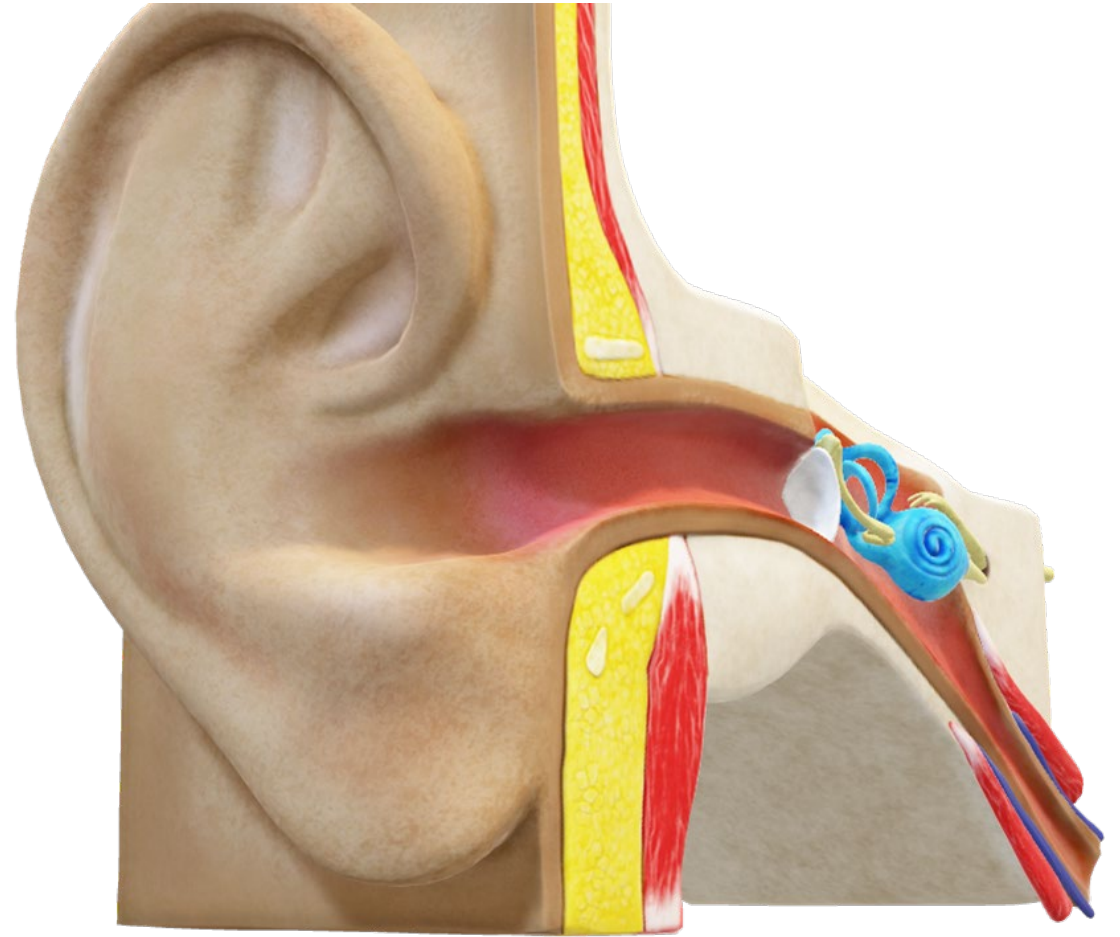




The ear

Ear

- Outer parts
- Middle parts
- Inner ear/bony parts



Ear Trauma

Symptoms:

- Ear pain
- Decreased hearing
- Dizziness

Signs:

- Blood or fluid coming from the ear
- Difficulty hearing on one side

Mechanisms:

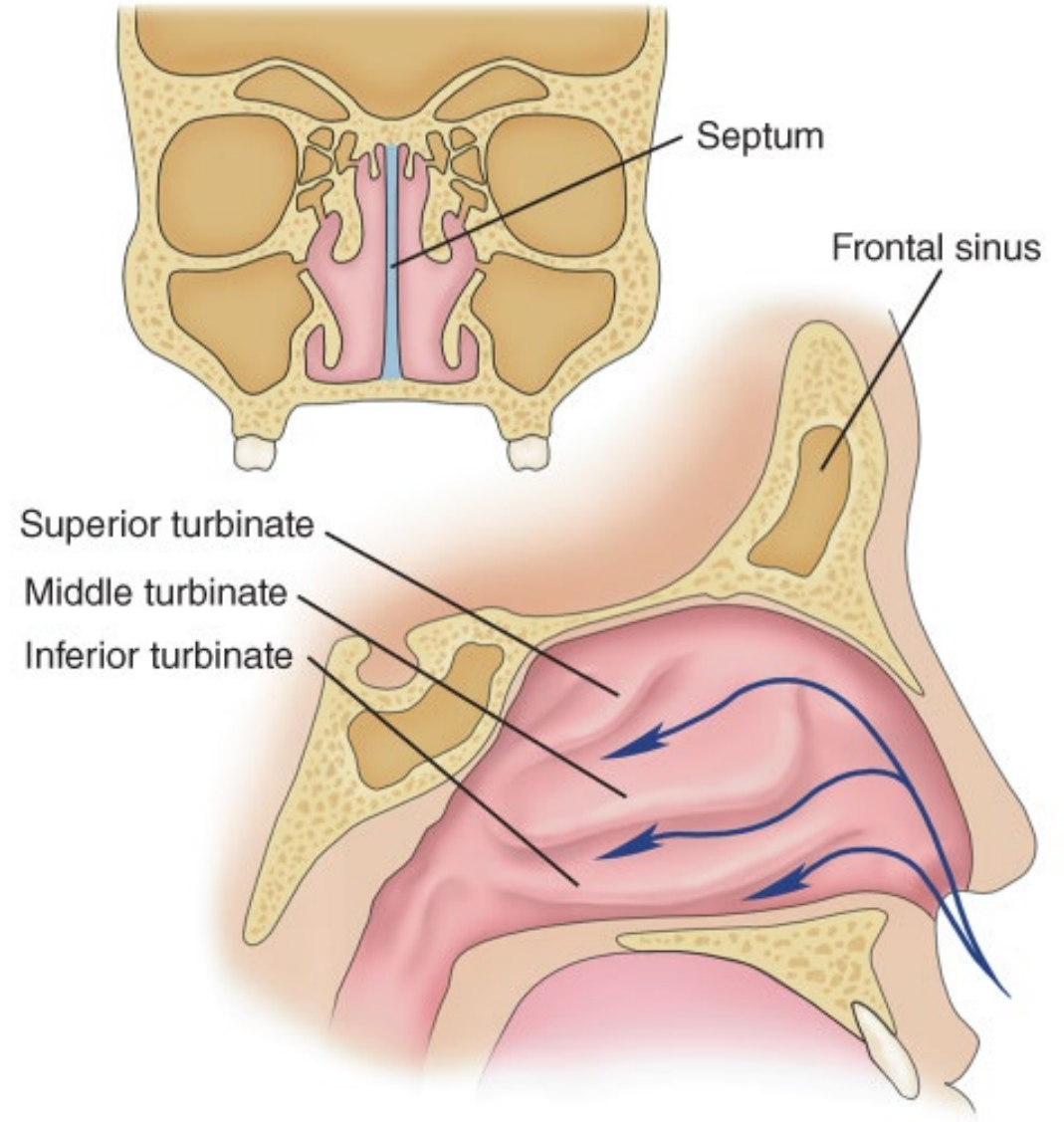
- Foreign bodies
- Blast injuries
- Significant blunt trauma
- Infection

What is
coming out
of the ear?



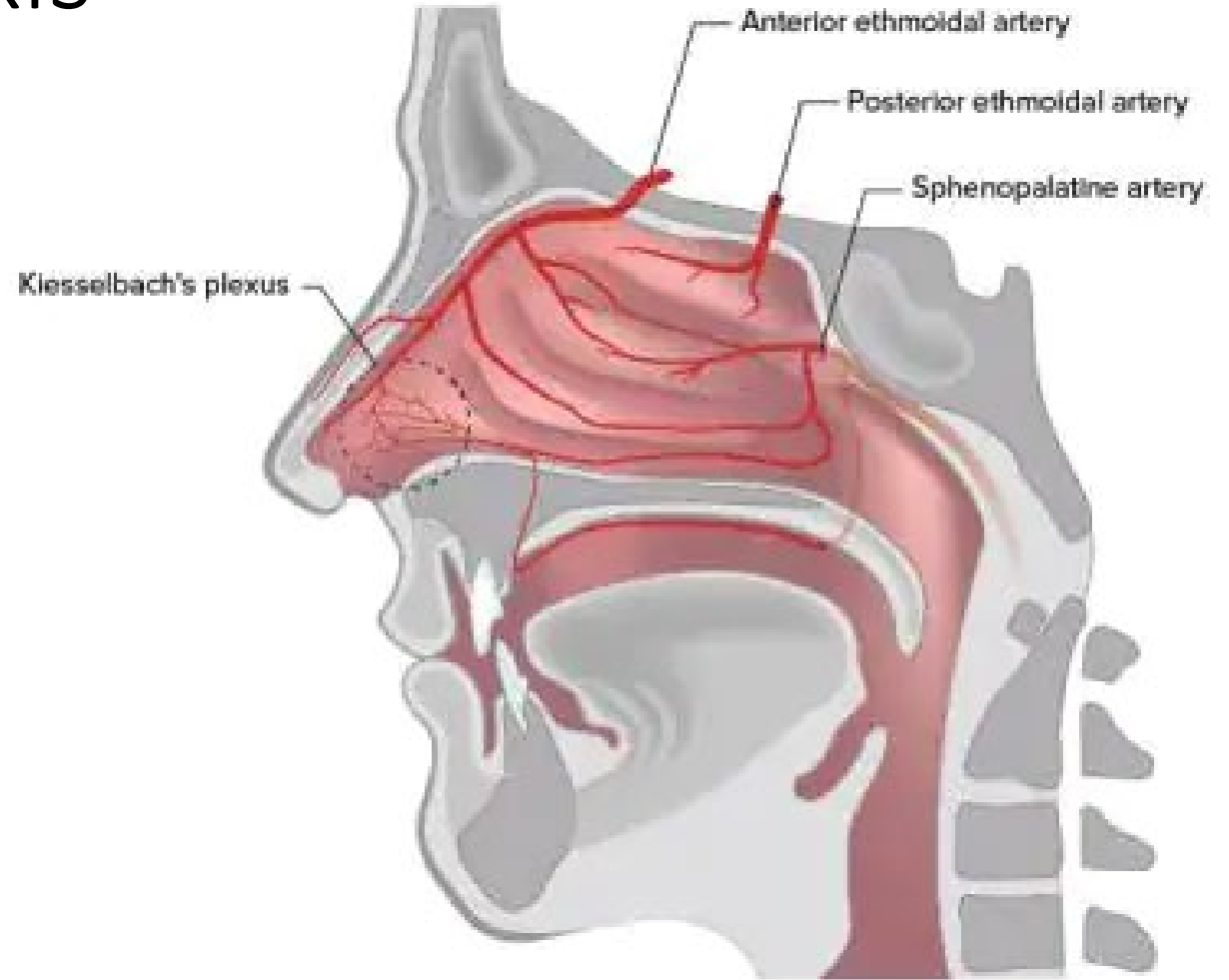
Nose

- Septum made up of mostly cartilage
- Sinuses to each side and above
- Turbinate helps humidify the air
- Lots of blood flow



Nasal injuries - Epistaxis

- Epistaxis- Nose Bleed
- Causes- Direct trauma, picking
- Increased risk- blood thinners
- Most common- Anterior bleed
 - Kiesselbach's plexus
- Less common- Posterior bleed
 - More significant trauma
 - Hard to control prehospital



Other nasal injuries

Nasal bone fractures

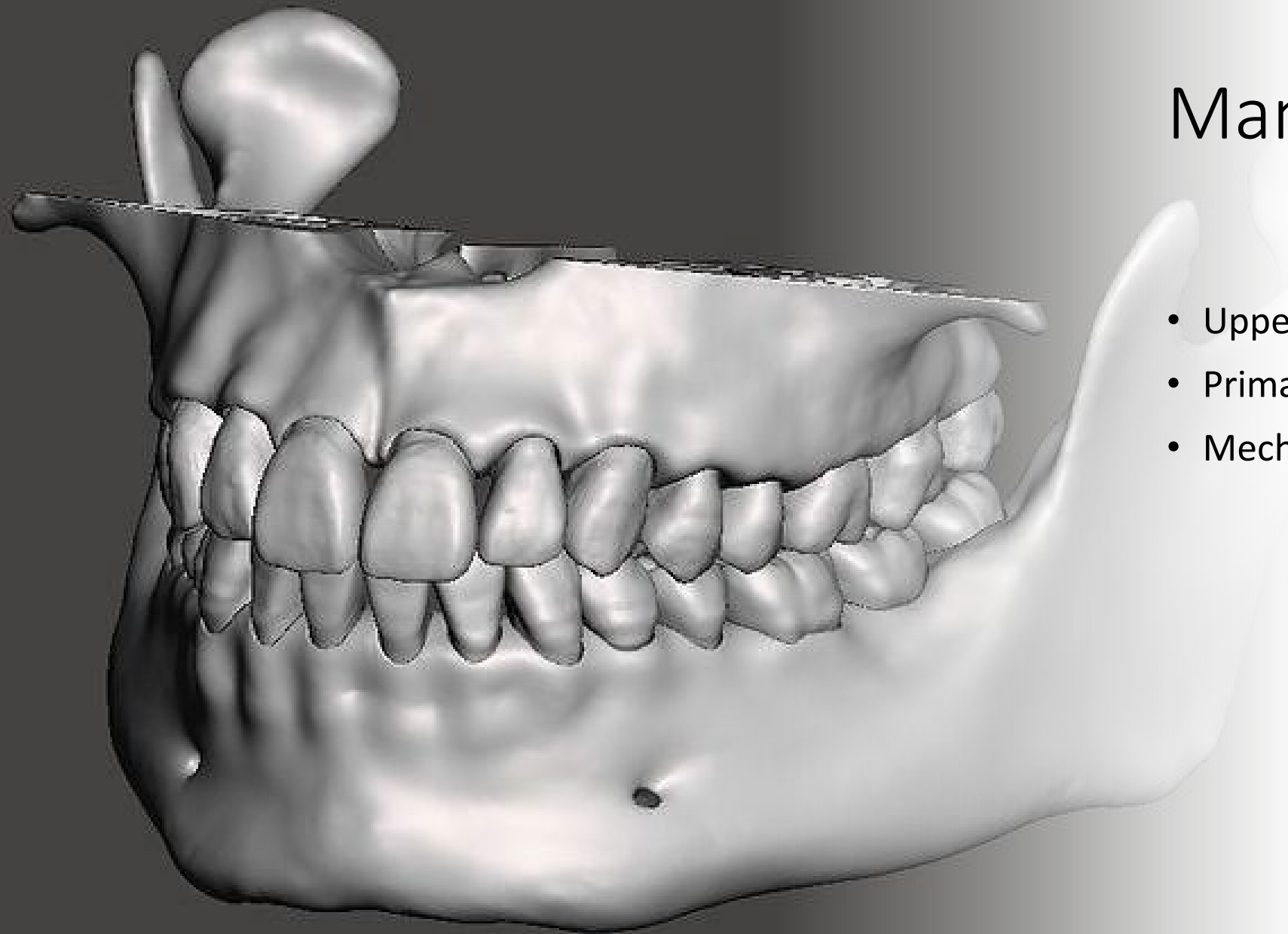
Nasal fractures associated with other facial fractures

Lacerations

Foreign bodies

A close-up photograph of a lizard's head, showing its eye, scales, and mouth. The scales are multi-colored, including shades of green, orange, and yellow. The text "Mouth and teeth" is overlaid in white on the lizard's face.

Mouth and teeth



Mandible + Teeth

- Upper vs Lower teeth
- Primary (baby) vs. permanent
- Mechanism of injury

Mouth/Dental Injuries

- Jaw fractures
 - Go with facial fractures
 - Symptoms/signs
 - Teeth don't feel like they line up (malocclusion)
 - visualize deformity to the gum line
- Beware bad dental and jaw trauma
 - Challenging airway management!
 - Hard to BVM
 - Teeth can cause obstruction



Assessment and management





Injuries=trauma=trauma assessment

Is your scene
safe/secure

Do you have the
appropriate
protective
equipment

Do your normal
things!

Case example

- Hit in the head with a bottle
- Large scalp laceration
- Bleeding controlled per EMS. 20 min transport
- Initial scene vitals: 120/90, 110, 24 95% RA
- Initial vitals in the ED: 80/40, 120, 22 95% RA
- What happened here?



Control life threatening hemorrhage

- Direct pressure IS NOT wrapping a bunch of gauze around it
- Not sites for tourniquets
- Find the source of bleeding and apply pressure
- Scalps bleed a lot

Airway

Support respiratory effort as needed

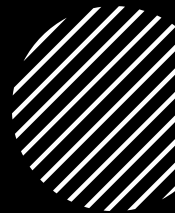
AVOID an NPA in a patient with significant facial trauma

Is the airway currently patent (not obstructed, talking, making noise)

Does the patient have injuries that could lead to compromised airway



Anticipate the difficult airway!



Have your suction ready



Remove any foreign
bodies from the
mouth first

Teeth
Other debris
Dislodged dentures etc

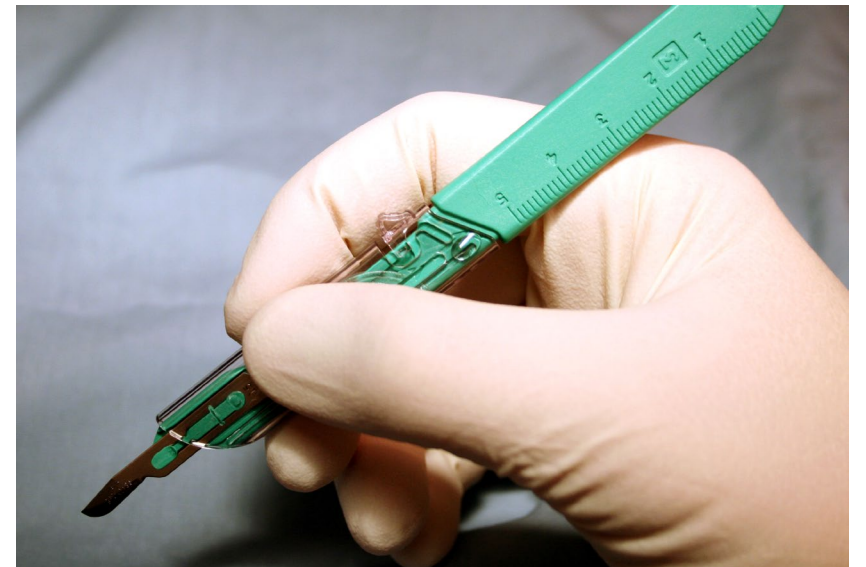
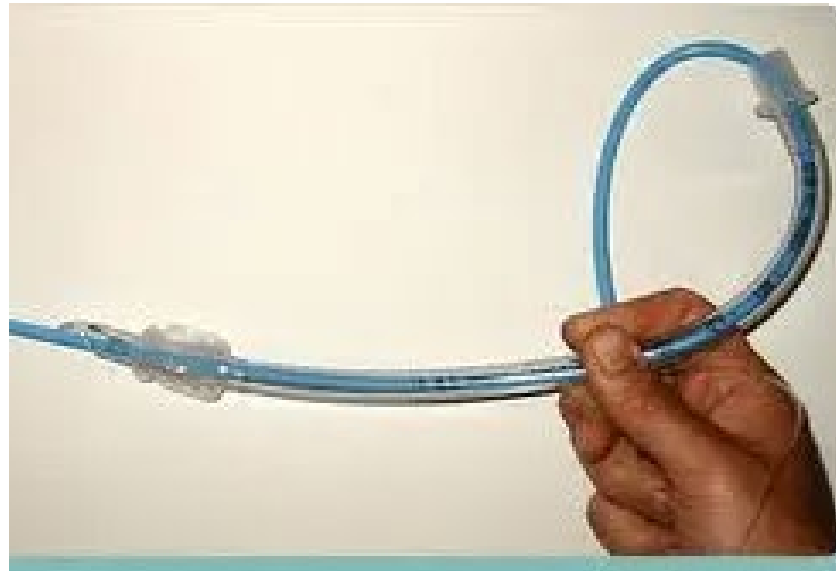


Think about risk benefit of your different
tools



Play the what if game

Tools



Breathing and circulation

Breathing-

- Adequate respirations?
- Avoid an NPA in a patient with *significant* facial trauma
- Support ventilations as needed (Jaw thrust) BVM

Circulation

- Assess perfusion, quality and rate of pulse
- Under-appreciated hemorrhage
- **Consider early IV access even if not using it right away**

Round out the initial trauma assessment

Evaluate for Disability

- Can they move each of their arms and legs?
- Is there anything else not working right?

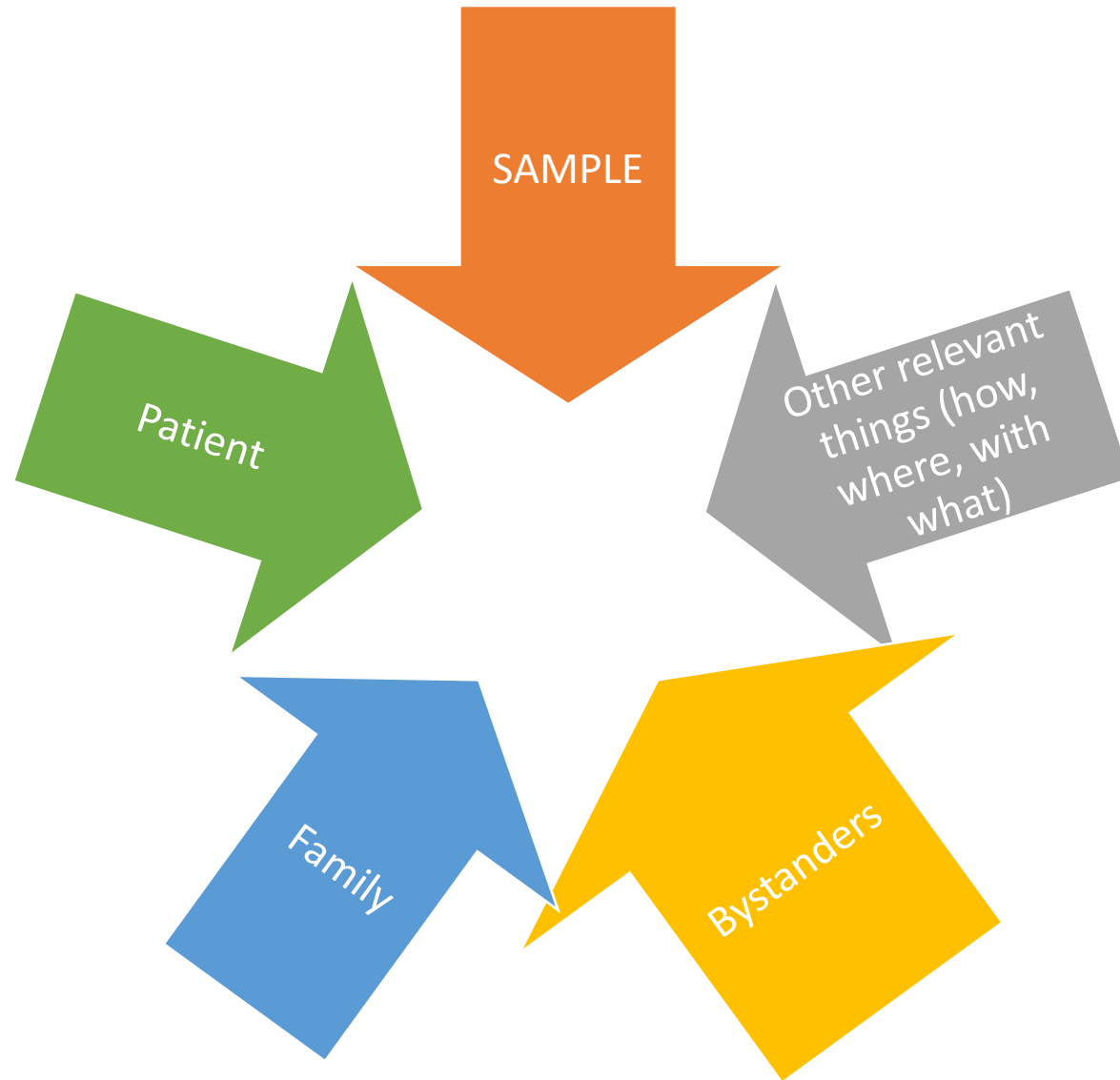
Expose the patient to look for other injuries

Prioritize rapid transport of sick trauma patients

- Altered
- Hypotensive
- Airway compromise
- Concerning mechanism of injury
- Concerning identified injury
- Significant clinical change

For these patients, complete exam can be performed ON THE WAY to the hospital

Gather history whenever possible



Emergency care reminders

Do a complete exam

Always consider c spine injuries with significant facial trauma

If a part has fallen off

- Bring it in
- Moist gauze
- Not directly on ice

Cover injured eyes but no pressure on them

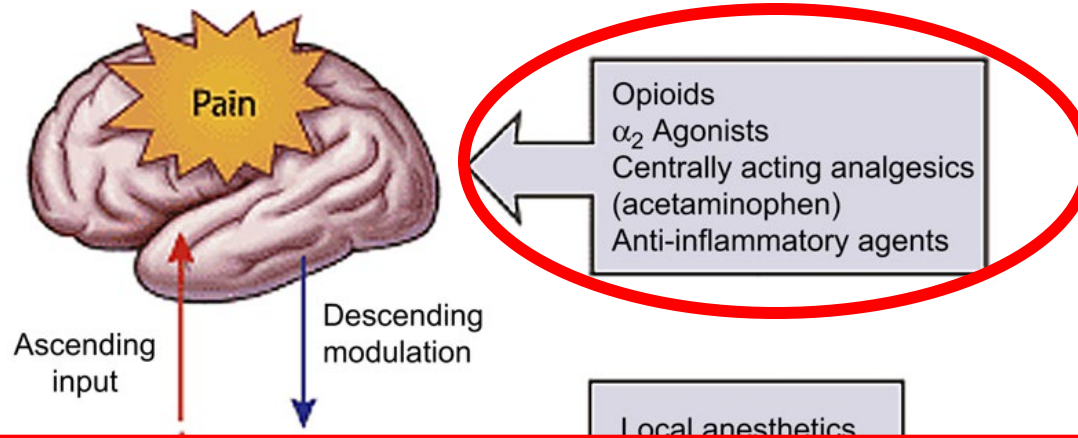
If teeth are missing- consider where they might be



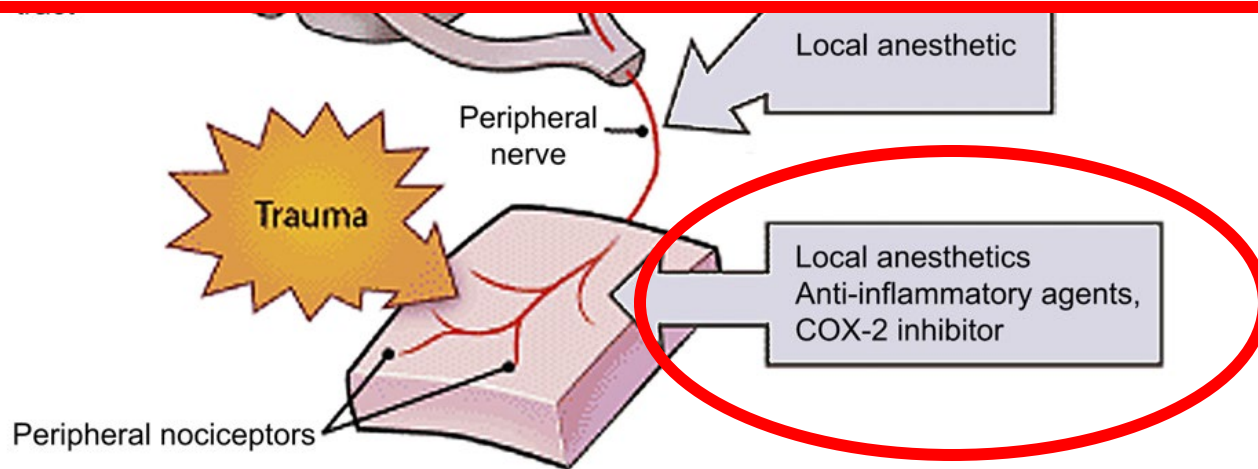
Remember: Vital signs
and Vital **trends** are Vital



Treat Pain



Narcotics Trick The Brain, NSAIDS Act At Injury Site



When To Use Narcotics

- Severe, Acute pain

- Obvious

One Dose Won't Make Someone Addicted

- Suspicious

- Co

- **Don't forget Intranasal option*****





When To Use NSAIDs

- Mild to Moderate pain
- Musculoskeletal pain
 - Sprains, strains
- Fever with body aches
 - Flue like symptoms
- Young people



NSAID Contraindications

- History of bleeding ulcers
 - Esophageal varices
- Liver failure
- Kidney failure
- Pregnancy
- Concern for significant ongoing bleeding

DON'T DO IT.

When I Use Tylenol

- Mild to Moderate Pain
- Patients where I can't use NSAIDS
 - Elderly
 - Pregnant
 - Renal disease
- Fever only





That's it.

- If all you will take away is 3 things, what three things would you pick?
- Write them down

1

2

3

Practical rules- 3(ish)

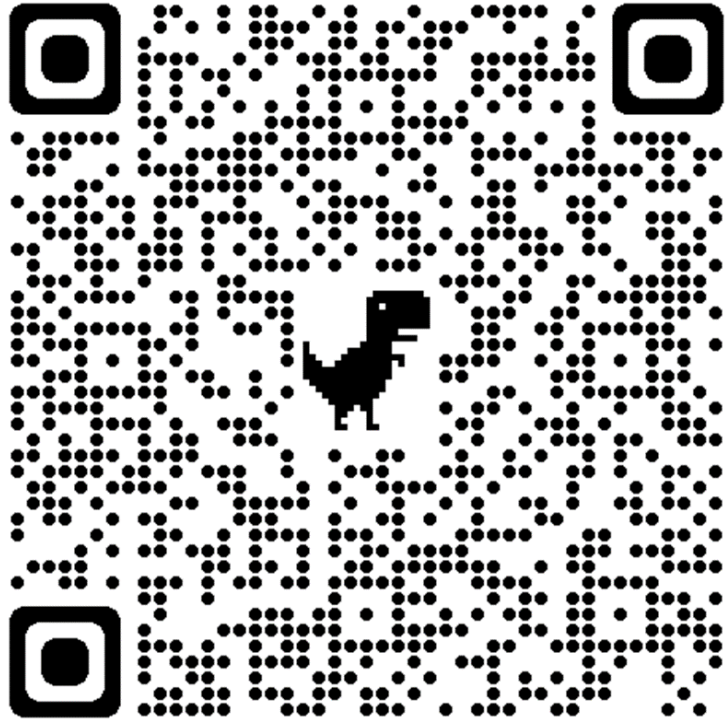
Know your anatomy so you can describe what you find

Do a thorough exam so you don't miss important but subtle injuries

Patient management

- Control bleeding with direct pressure
- Anticipate challenges with airway with face or neck injury (No NPA with facial trauma)
- Treat pain- usually

Questions?



Dental injuries- Lost teeth

- Look in the mouth
- Feel in the mouth if its safe (any teeth loose?)
- If a tooth is out
 - Is it the whole tooth?
 - Is it part of a tooth?
- If it's the whole tooth
 - Only touch it by the crown
 - Place it in saline (or milk)
 - Chances are good it won't make it anyway

