



# Non-Fatal Strangulation & Suffocation

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# Objectives

- ▶ Definitions
- ▶ Anatomy of the neck
- ▶ Sign and symptoms
- ▶ Medical complications: short & long term
- ▶ Why victims stay
- ▶ Trauma Informed care
- ▶ Medical forensic exam: The SANE/Forensic Nurse
- ▶ Safety planning
- ▶ Resources

# Disclosure

- ▶ I have no conflicts of interest to disclose
- ▶ There are some graphic images in my presentation for teaching purposes.
- ▶ These images help convey the seriousness of non-fatal strangulation, and also help us to understand why we need to provide culturally competent, trauma informed care.



# DEFINITIONS

# Asphyxia

- ▶ The process of being deprived of oxygen which can result in unconsciousness and death.

Is being choked the same as being  
strangled?



# Different Types of Asphyxia

- ▶ Strangulation
- ▶ Suffocation
- ▶ Choking

# Different Types of Asphyxia Defined

- ▶ **Strangulation:**
- ▶ Closure of blood vessels and/or air passages of the neck by **external pressure or blunt force trauma**. It is generally done intentionally and is a felony crime in most states.
- ▶ **Suffocation:**
- ▶ **Covering the mouth and/or nose** with hands, pillow, plastic bag, or sitting on the victim's chest.
- ▶ **Choking:**
- ▶ **Internal blockage** of the trachea either partially or completely by a foreign object, usually food.



# Types of Strangulation

## ▶ Manual



## ▶ Ligature



## ▶ Hanging



## ▶ Positional



Odd question – what form of strangulation is used more in the adult population and why? What about with children?



# Anatomy of the Neck

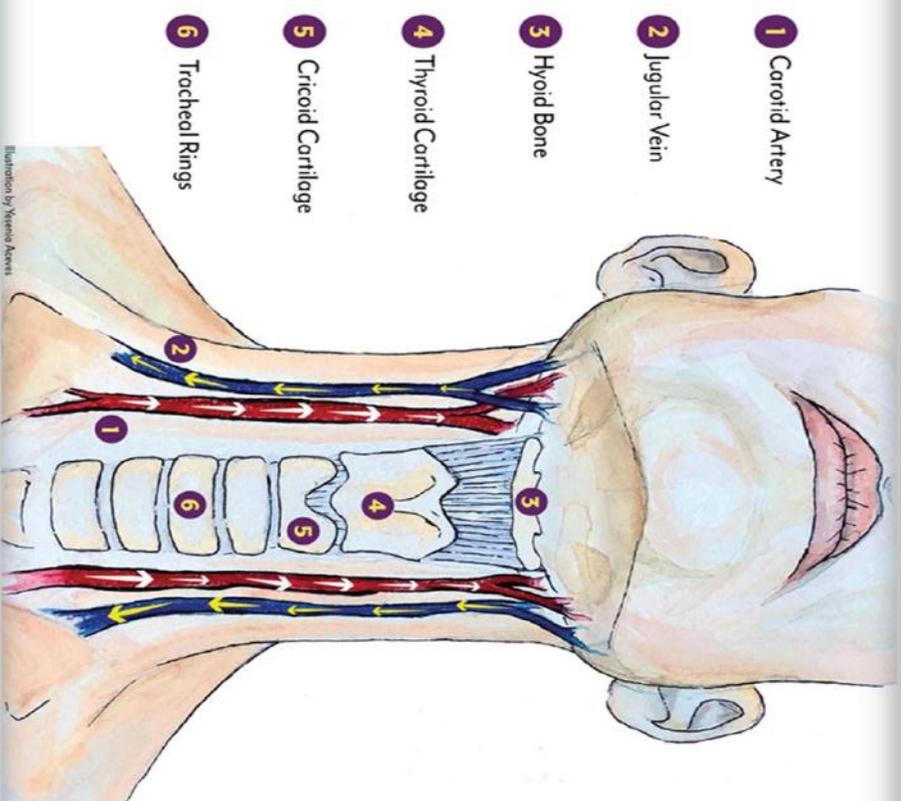
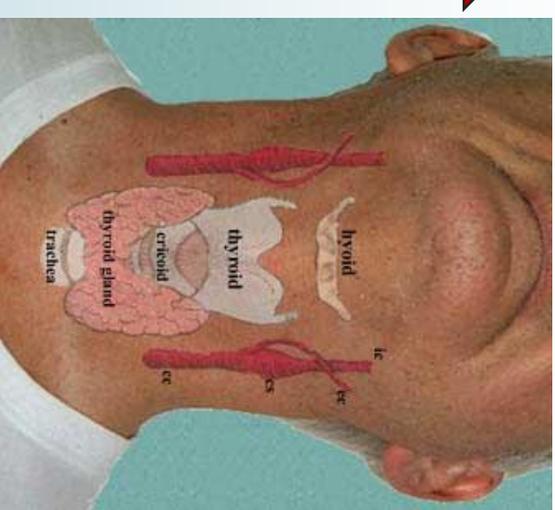


Illustration by Vanessa Azevedo

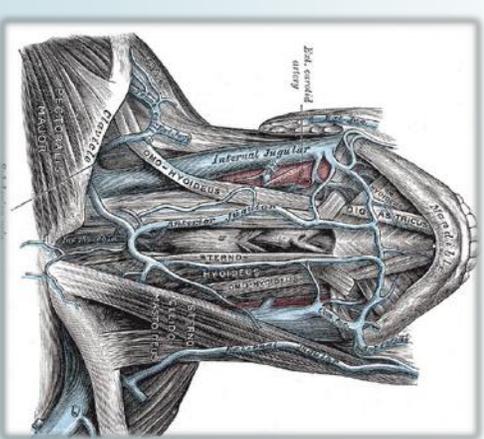
# Carotid Arteries

- ▶ Carry oxygenated blood to the structures of the head and neck, including the brain
- ▶ Obstruction results in: impaired blood flow, clotting, brain damage, stroke, loss of consciousness, and / or cardiac arrest (heart attack); can lead to death



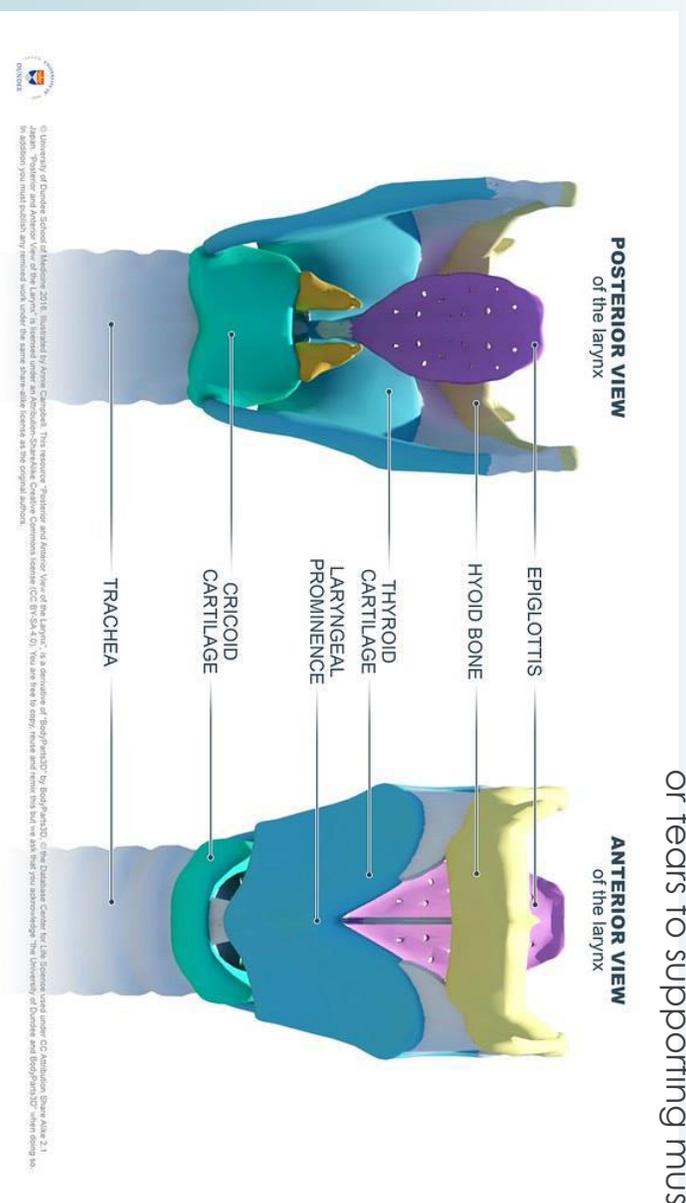
# Jugular Veins

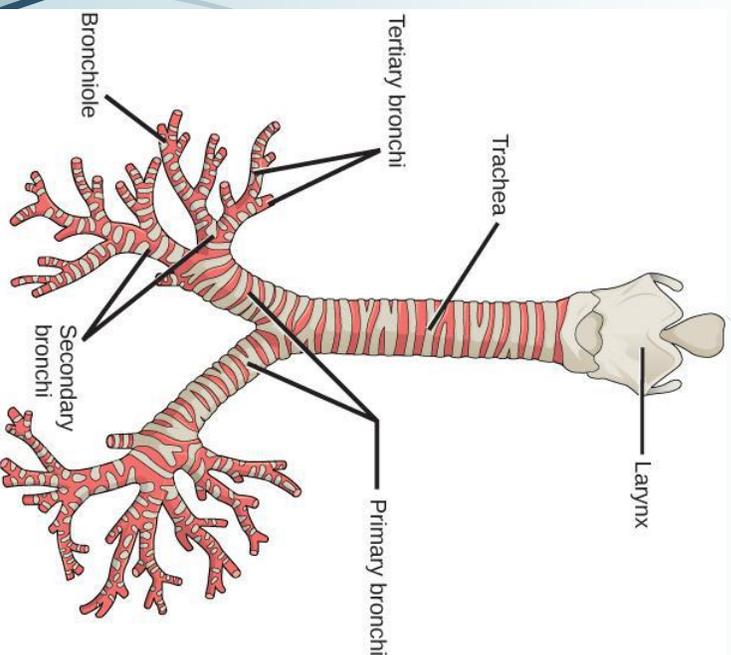
- ▶ Returns deoxygenated blood from the head to the heart
- ▶ Obstruction results in: depressed (or slower) respirations, increased intracranial pressure, capillary rupture, intracranial hemorrhage, edema (swelling), impaired blood flow to the brain, and / or loss of consciousness, asphyxia – can lead to death



# Bony Structures

- ▶ **Thyroid cartilage**
  - ▶ A wing-like cartilage that protects the trachea and the larynx (voice box)
  - ▶ Pressure causes: Edema and pressure on internal structures of the neck (can impede or stop airflow)
- ▶ **Hyoid bone**
  - ▶ The only bone in the human body that does not articulate (connect) with any other bone; Provides attachment for muscles of the floor of the mouth, tongue, larynx, epiglottis, and pharynx
  - ▶ Pressure causes: Fracture, edema, and / or tears to supporting musculature



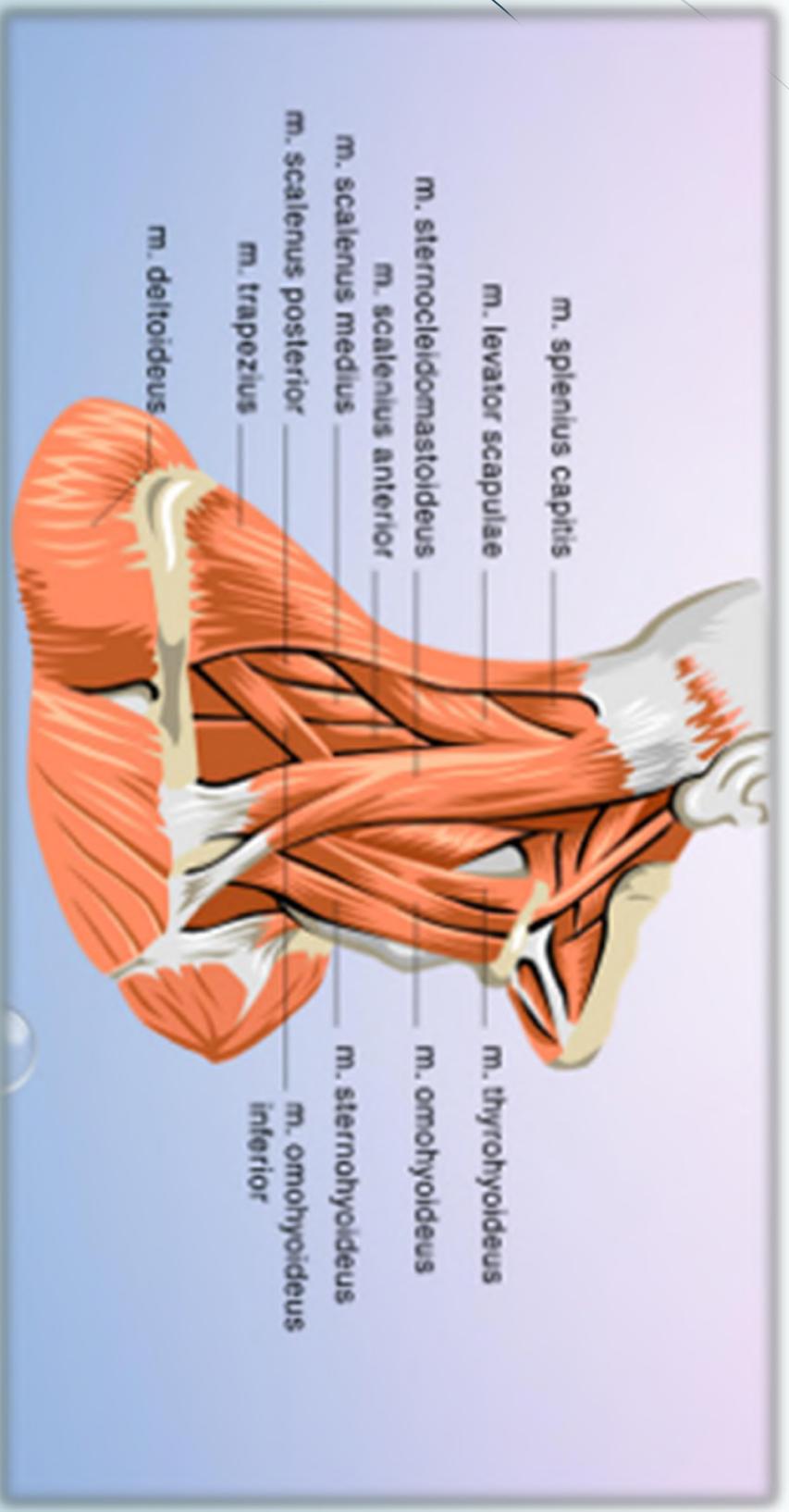


# Trachea (aka your airway)

- ▶ Transports air from the nose and mouth to the lungs
- ▶ Pressure causes airway compromise, hypoxia (not enough oxygen to sustain bodily functions), stridor (abnormal high pitched sound; wheezing), voice changes, dysphagia (difficulty swallowing), pneumonia, acute respiratory distress syndrome, and / or death

# Muscles

Support & Protect Structures of the Neck



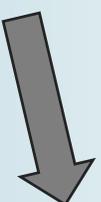




# **Consequences of Non-Fatal Strangulation**

# Signs & Symptoms of Non-Fatal Strangulation

- ▶ It is important to know that about 50% of victims of non-fatal strangulation do not have external visible injuries
- ▶ Some injuries seen are self-inflicted, when the victim is fighting for their life trying to pry someone's hands, or a ligature from their neck.



# Non-Visible Symptoms of Non-Fatal Strangulation

(Symptoms are what the victim is feeling)

- ▶ Breathing changes (hyperventilation, difficulty breathing)
- ▶ Voice changes (hoarse or raspy)
- ▶ Swallowing changes
- ▶ Vision changes
- ▶ Hearing changes (ringing in the ears)
- ▶ Drooling (sign they can't swallow)
- ▶ Headache
- ▶ Confusion
- ▶ Anxiety
- ▶ Dizziness
- ▶ Memory loss
- ▶ Can't feel their arms or legs
- ▶ Suicidal ideation
- ▶ Fainting or unconsciousness
- ▶ Altered mental state
- ▶ Shaking
- ▶ Short & long-term brain injury

# Visible Signs of Non-Fatal Strangulation

(What we can see)

- ▶ Vomiting
- ▶ Seizure
- ▶ Abrasions / fingernail scratches on neck or chin
- ▶ Bruises (ecchymosis) on the neck or chin
- ▶ Ligation marks
- ▶ Redness (erythema) on neck
- ▶ Neck swelling
- ▶ Bite marks
- ▶ Ptosis (droopy eyelid) &/or droopy face
- ▶ Massive tongue swelling
- ▶ Coughing up blood
- ▶ Loss of bodily functions
- ▶ Miscarriage (usually after the incident)
- ▶ Petechiae or petechial hemorrhage to eyes or skin
- ▶ Bloody red eyes
- ▶ Psychiatric / behavioral symptoms



# Long Term Health Consequences

- ▶ Cervical spine injury
- ▶ Carotid artery dissection (delayed death or stroke) can occur months later
- ▶ Traumatic brain injury – difficulty concentrating, retaining information, altered mental status, permanent changes in mentation
- ▶ Acute respiratory distress syndrome / pneumonia (lung damage or not taking deep breaths due to pain
- ▶ PTSD / Nightmares
- ▶ Suicide
- ▶ \*The impact of non-fatal strangulation is cumulative. Approx 75% of strangulation victims are repeatedly strangled!

## Typical Pounds of Pressure

- Handgun trigger pull: 6 psi (pounds per square inch)
- Opening of soda can: 20 psi
- Adult male hand shake: 80-180 psi

Source: Dr. Bill Smock, Louisville Metro Police Department

How many pounds of pressure does it take to render an adult male unconscious?

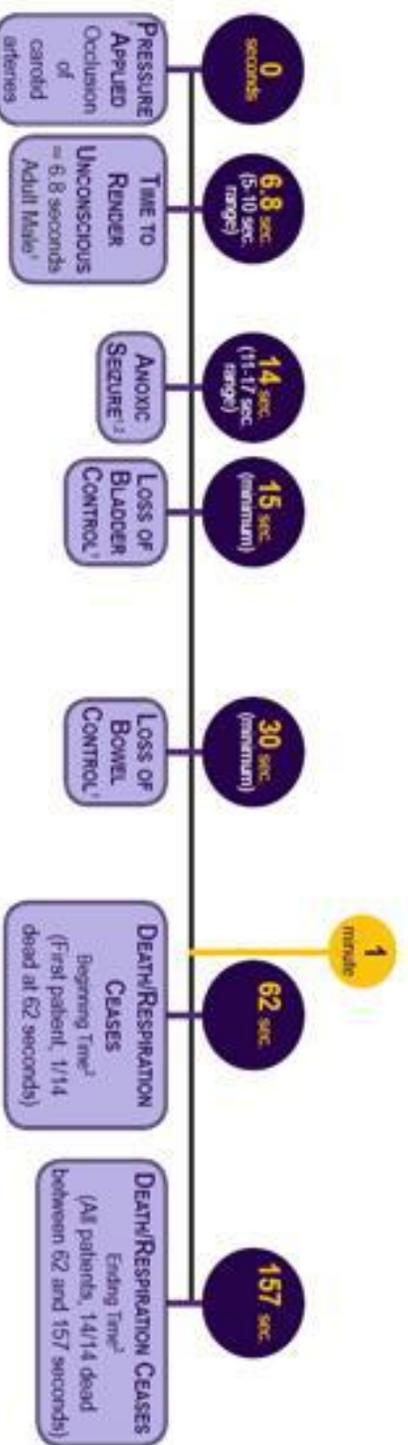
# Pounds of Pressure

- **CAROTID ARTERY OCCLUSION**
  - Anterior neck
    - DEEPER
  - 11 PSI for >6.8 seconds
- **JUGULAR VEIN OCCLUSION**
  - LATERAL neck
    - more SUPERFICIAL
  - 4.4 PSI for >6.8 seconds



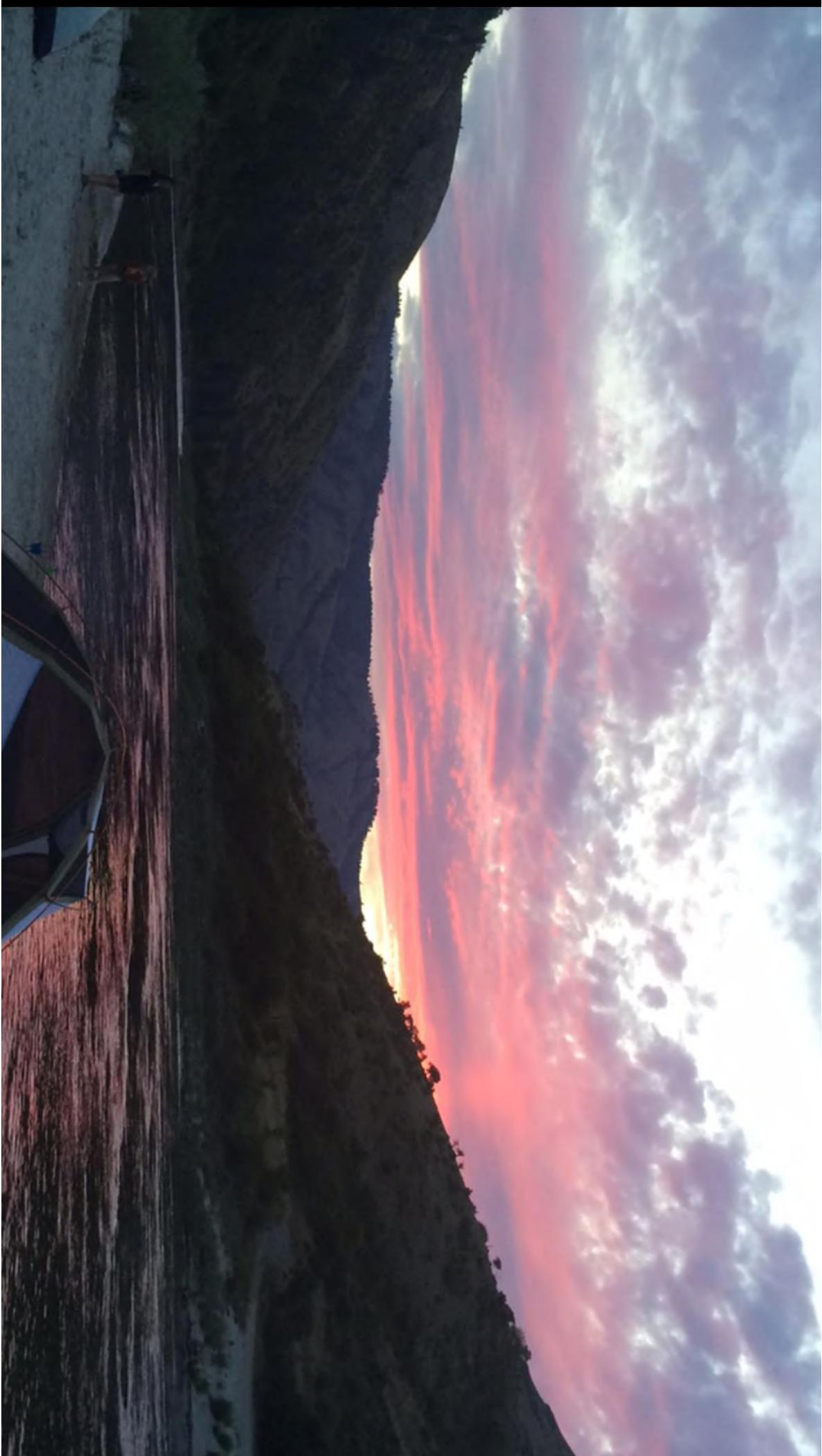
[https://www.youtube.com/watch?v=5ZHe\\_ZR1l8A](https://www.youtube.com/watch?v=5ZHe_ZR1l8A)

# Timing



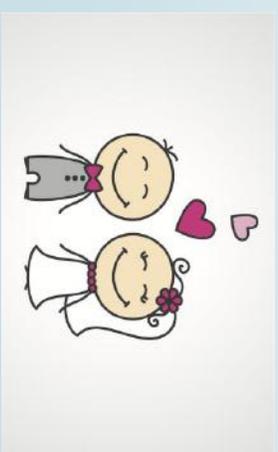
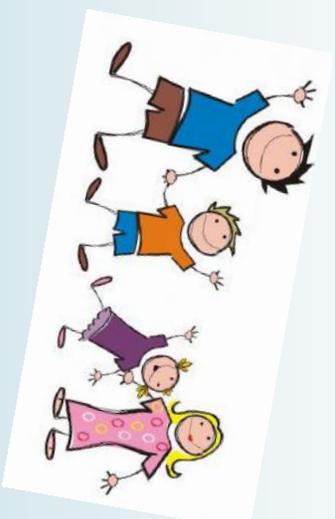
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- 2 Arny Sauvageanu, MD, MSc, Romano Luf-Harje, MD, David King, MD, Graeme Dowling, MD, Sam Andrews, MD, Sean Kelly, MD, Coranne Ambrosi, MD, Jean-Francois Guay, PhD, and Vernon J. Gerberth, MS, MFS for the Working Group on Human Asphyxia, Forensic Med Pathol 2011;32: 104 – 107
- 3 Training Institute on Strangulation Prevention: [strangulationtraininginstitute.com](http://strangulationtraininginstitute.com)



# Why do they stay?

- ▶ What are your thoughts on this?



# Why do victims stay?



# Why Victims Stay

- ▶ Children
- ▶ Religion/culture
- ▶ No Job
- ▶ Denial
- ▶ Guilt
- ▶ No place to go
- ▶ Caretaker Role
- ▶ No support
- ▶ Lack of resources and information



# Why Victims Stay

- ▶ Victims are told the abuse is their fault and they believe it
- ▶ Victims have been isolated from family and friends (Feel alone, and like they have no support)
- ▶ Constant criticism and blame lowers victim's self-esteem
- ▶ Fear of retaliation for themselves or loved ones
- ▶ No source of income
- ▶ Lack of HOPE that there will be justice in the court system
- ▶ Belief that their partner will change



THE #1 REASON A VICTIM STAYS:

## FEAR

- MOST SERIOUS INJURIES AND HOMICIDES OCCUR WHEN A VICTIM LEAVES OR IS PREPARING TO LEAVE; NOT WHEN SHE/HE STAYS



# Important to Know!

- ▶ Power and control and manipulation are like heroin – the perpetrator can't stop
- ▶ The greatest risk of violence is when the victim leaves, or tries to leave – the perpetrator has lost his power and control
- ▶ THIS IS WHY A SAFETY PLAN AND A SUPPORT SYSTEM ARE SO IMPORTANT



## Power and Control...

- ▶ “Women who are strangled one time are **750% more likely** to be killed at the hands of that perpetrator”

-Training Institute on Strangulation Prevention



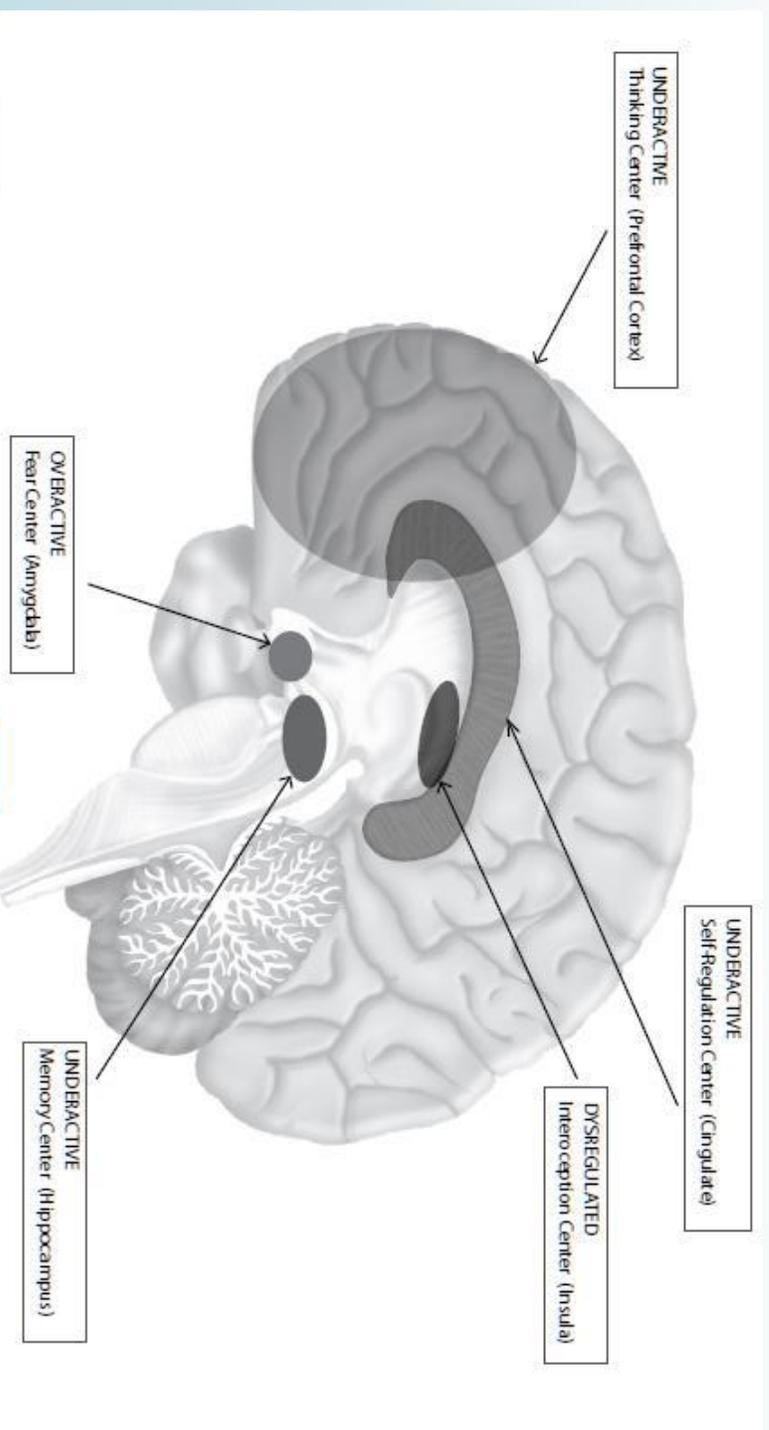
# Sobering Statistics

- ▶ ~65% of DV victims are also sexually assaulted
- ▶ It has been estimated that strangulation accounts for up to 10% of violent deaths in the United States
- ▶ Strangulation has been identified as one of the most lethal forms of DV and sexual violence
- ▶ Strangulation is an ultimate form of power and control as the batterer demonstrates his command over the victim's next breath

# Effects of Trauma

- ▶ Trauma physical changes the brain due to:
- ▶ Engagement of the limbic system, defense system, & stress response. This is a protective reaction!
  - ▶ Release of chemicals
    - ▶ Which causes: Fragmented memory (memory is stored differently)
    - ▶ We have no control over how the body and brain respond to trauma.

# Your Brain on Trauma



# CONTINUUM OF VIOLENCE:

- PUSH → SLAP → PUNCH → KICKS

THROW OBJECTS



THREATS  
WEAPONS  
STRANGLE



**HOMICIDE**



## Abusers Gain

### Control Through:

- ▶ Criticism
- ▶ Money
- ▶ Decision Making
- ▶ Children
- ▶ Verbal Threats
- ▶ Physical Threats
- ▶ Isolation
- ▶ Mind Games
- ▶ Jealousy
- ▶ Blame
- ▶ Intimidation
- ▶ Sex
- ▶ Physical Assault

# The Fear Factor: Strangulation is about Power & Control

Power & Control Wheel



# Trauma Informed

- ▶ It is very important to not blame the victim for staying
- ▶ Provide them with support
- ▶ Provide them with knowledge and resources “We have many people and resources here to help you”
- ▶ Validate “realness”
  - ▶ “I am so sorry you have been hurt”
  - ▶ “No one deserves to be treated this way”
  - ▶ “You must have been so afraid”
  - ▶ “I am so glad you came here today”

Confirm concern for the patient’s well being  
“I am afraid for you and your children”

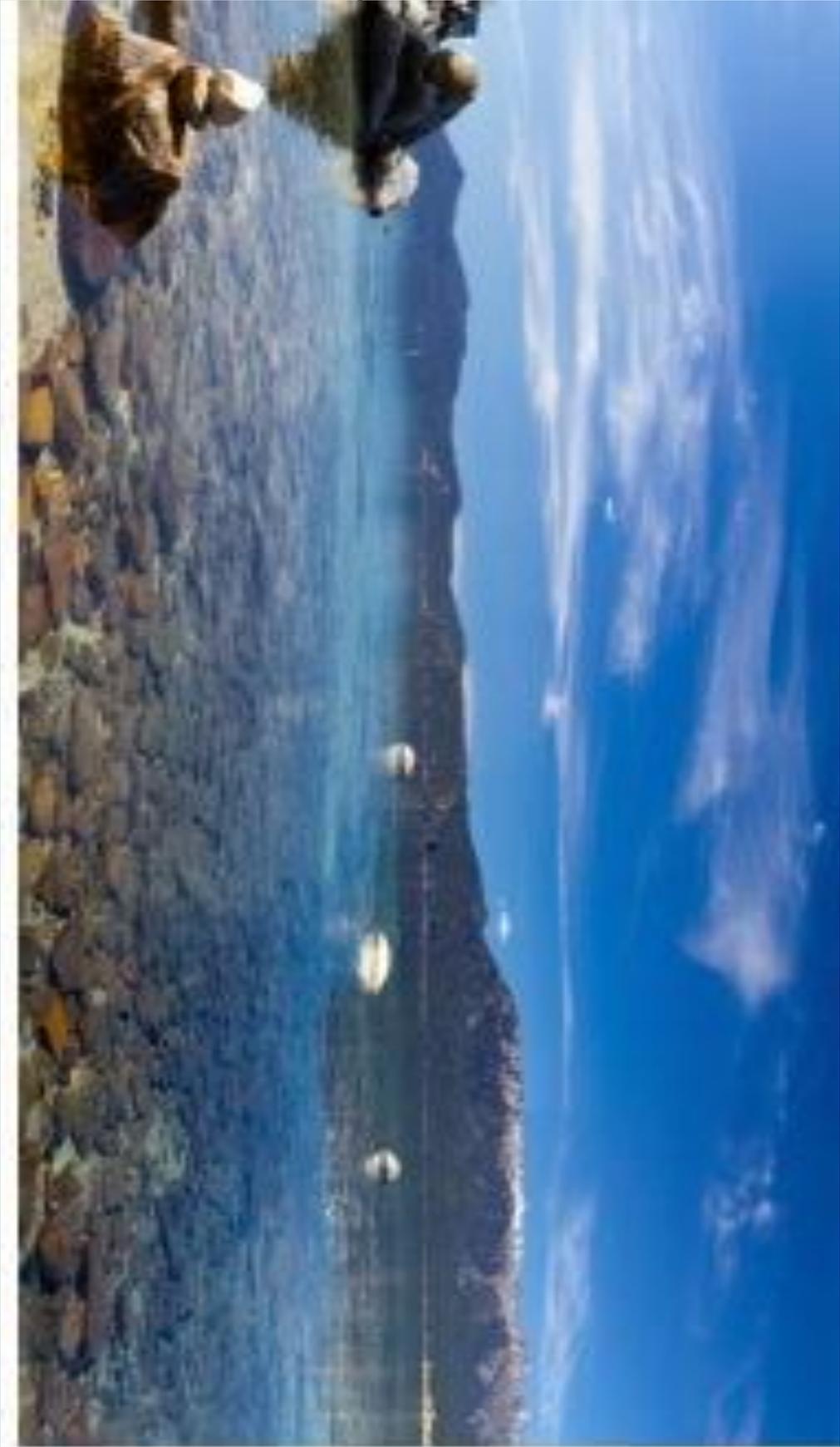
Understand they won’t likely leave

# Intervention

- ▶ Help Victim
  - ▶ Recognize ambivalence
  - ▶ Understand the dangers
  - ▶ Clarify feelings
  - ▶ Identify alternatives
  - ▶ Utilize support systems
  - ▶ Plan for the future
    - ▶ Safety planning

# AVOID!!!

- ▶ Don't ask:
  - ▶ Why do you allow this?
  - ▶ Why don't you leave?
  - ▶ What were you doing to make him/her so angry?
  - ▶ Why did you go back?
- ▶ Remember the effects of trauma; victim is always on high alert – constant stress / trauma physically changes the brain



# What is a SANE/Forensic Nurse?

- ▶ A Sexual Assault Nurse Examiner, or a Forensic Nurse is an RN who has been specially trained to care for victims of trauma / violence.
- ▶ They have knowledge of the neurobiology of trauma, and provide trauma informed care.
- ▶ In order to become a forensic nurse, an RN must complete a 40 hour didactic course and be signed off on a preceptorship to do medical forensic exams. This process must be done for the adult/adolescent population, and again for pediatrics.
- ▶ In order to become certified, the Forensic Nurse Examiner must complete 300 hours of practice (for adult/adolescent and again for pediatric) to sit for the exam. Once they have passed one or both exams, they can use the credentials SANE-A and/or SANE-P.

## Why victims need a medical exam

Our SANE Team is specifically trained to identify and document injuries caused by trauma. (Sexual assault, strangulation, abuse, neglect, trafficking...)

And remember, only 50% of strangulation victims have visible signs that anything happened. You may miss subtle signs of attempted murder.

Victims think they are fine!! They don't understand the lethality and consequences of strangulation.

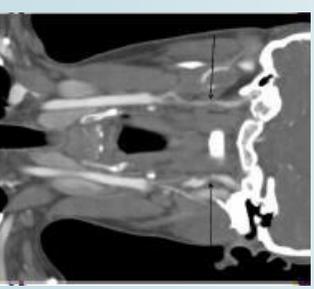
- remember bruises or marks may not show up for 24 hours!!

## Medical Exam

We need to understand the medical consequences that can occur with strangulations so we can **EDUCATE** our victims on the importance of a full medical evaluation.

The lack of visible findings or minimal injuries does not exclude a potentially life threatening condition

Bilateral carotid artery dissections identified 6 days post assault – NO symptoms



# SANE Medical Forensic Exam



- ▶ 7 On-call nurses + SANE Coordinator + Medical Director
- ▶ **The ideal SANE exam would be performed at the Family Advocacy Center in Sacaton**
- ▶ SANE exam can be completed before ED exam if patient is stable with no signs of distress. ANY signs of distress patient needs to go to ED first!
- ▶ SANE will ensure vital signs are stable, monitor O<sub>2</sub>, LOC throughout the exam. Patient may be transported to higher level of care if necessary.
- ▶ We can also go to any hospital to complete any kind of medical forensic exam
- ▶ Patient may become uncooperative later in the investigation. Detailed SANE exam can still be used in court!:



# SANE Medical Forensic Exam

- ▶ Very detailed head to toe assessment
- ▶ We assess symptoms that were felt **DURING** the strangulation event, **IMMEDIATELY AFTER** the assault as well as **CURRENT** symptoms (extremely important for exams > 24 hours after strangulation)
- ▶ Physical Exam and documentation / photo documentation of all injuries

# SANE Medical Forensic Exam Follow Up

- ▶ We encourage follow up exam(s) and photographs
- ▶ **Time frame: 72 hours – 14 days after strangulation event**
  - ▶ To ensure injuries have resolved, and to identify the need for additional referrals to specialists if needed
    - ▶ Behavioral health, counseling, safety planning
    - ▶ Ear, nose, and throat f/u (difficulty or painful swallowing, ringing in ears, etc.)
    - ▶ Neurology f/y (memory loss, confusion,

# Safety Planning

- ▶ As a SANE we provide a safety plan for all of our DV/strangulation patients.
- ▶ Individualized safety plan includes information such as:
  - ▶ Safety during a violent incident
  - ▶ Safety when preparing to leave
  - ▶ Safety in my own home
  - ▶ Safety with a protective order
  - ▶ Safety on the job and in public
  - ▶ Safety and drug / alcohol consumption
  - ▶ Safety and emotional health

We always try to empower the victim/our patient

- ▶ I can use positive self-talk to help me feel stronger. (e.g. **I AM GAINING CONFIDENCE EVERY DAY. I AM WORTHY OF SUPPORT, KINDNESS AND LOVE.**)

# Online Resources

- ▶ <https://www.strangulationtraininginstitute.com/>
- ▶ <https://www.thehotline.org/>
- ▶ <https://www.nsvrc.org/sarts/toolkit/5-8>
- ▶ <https://www.familyjusticecenter.org/the-law-and-you-strangulation-always-serious/>



Questions?

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