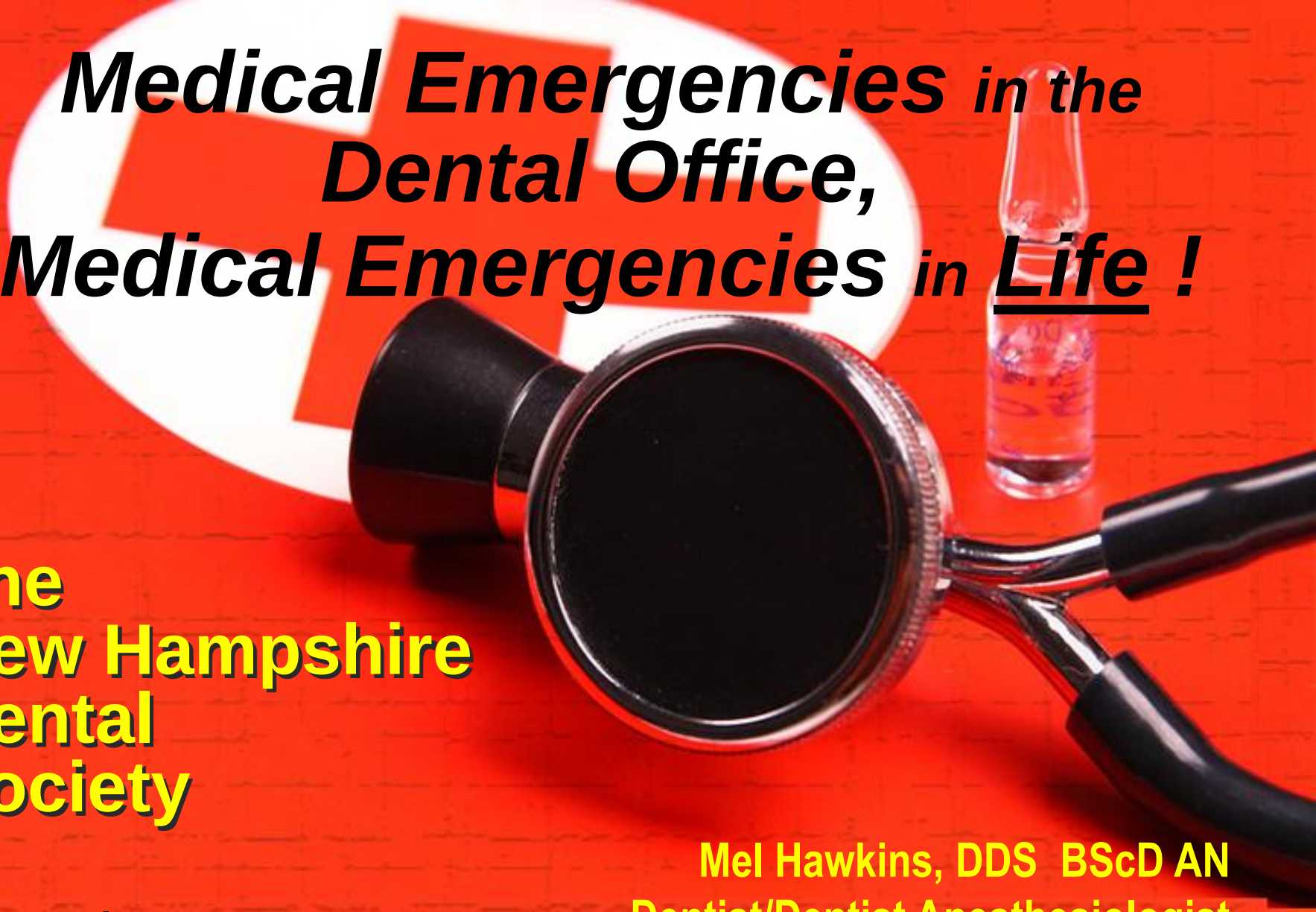
Medical Emergencies in the Dental Office, Medical Emergencies in Life !



The New Hampshire Dental Society

Mel Hawkins, DDS BScD AN
Dentist/Dentist Anesthesiologist
Toronto, ON Canada

Concord, NH

Friday, November 9th, 2018

DISCLOSURE

Mel Hawkins

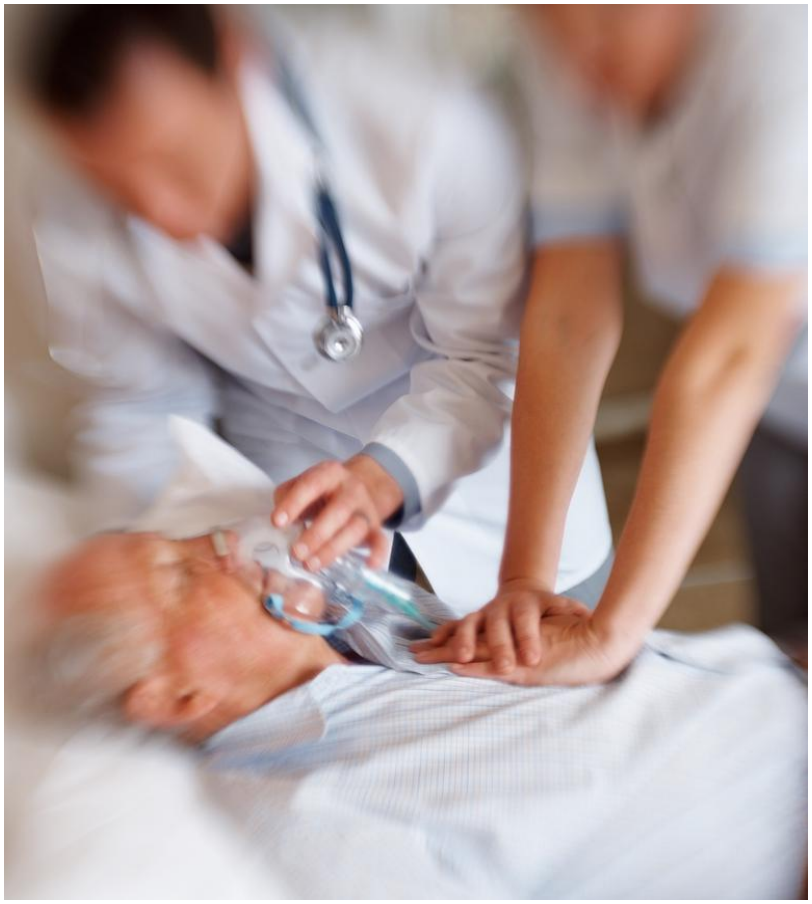
has no relevant financial relationship with any company or organization to disclose with respect to this continuing dental education program

The New Hampshire Dental Society
Friday, November 9th, 2018

Reality of Dental Emergencies

Almost Always

Almost Never



The Challenge

How can we as *health professionals*, who are supposed to have higher skills, be expected to treat an *emergency* situation in the office or in life when they *NEVER* (*well, almost never*) occur?

What today is NOT:

28 different emergency situations involving 28 different medical scenarios (15 of which you and I have *never* heard of), which drug to use, IV?, IM?, IL?, dose in mg., repeat how often?, side effects, which drug to combat the side effects? etc…etc…

Are we facing an . . . .

- INCONVENIENCE?
- URGENCY?
- EMERGENCY?
- RARITY?

Inconveniences

Syncope	15,407
Mild Allergy	2,583
Postural Hypotension	2,475
Bronchospasm (asthma)	1,392
Hyperventilation	1,326
Epinephrine Reaction	913

Martin & Ellis JADA 112:499-501, Malamed JADA 124:4-53 >30,000 events

Urgencies

Syncope	15,407
Angina	2,552
Seizure	1,595
Bronchospasm (asthma)	1,392
Epinephrine Reaction	913
Insulin Shock (conscious)	890

Martin & Ellis JADA 112:499-501, Malamed JADA 124:4-53 >30,000 events

Emergencies

Syncope	15,407
Angina	2,552
Seizure	1,595
Bronchospasm (asthma)	1,392
Myocardial Infarction	289
Local Anesthetic Overdose	204
C.V.A.	68

Martin & Ellis JADA 112:499-501, Malamed JADA 124:4-53 >30,000 events

Rarity (“Non” Events)

Acute Pulmonary Edema	141
Diabetic Coma	105
Adrenal Insufficiency	25
Thyroid Storm	4

Martin & Ellis JADA 112:499-501, Malamed JADA 124:4-53 >30,000 events

“What’s Really Important?”

Syncope	15,407
Angina	2,552
Myocardial Infarction	289
Cardiac Arrest	???
Asthma, Severe Allergy ⇨ Bronchospasm	1,392

Everything Else Has Time!

Diabetic Coma/Insulin Shock	Sugar
Epilepsy/Seizure/Convulsions	Airway
Hyperventilation O_2 Sat?	100%
Mild Allergy Itchiness/Rash	Wait
Local Anesthetic / Epinephrine	β Blockers

WHAT TODAY IS:

1. Protocols,

   Age/Risk

   Pharmaco-dynamics

2. Airway + a few good adjuncts, Oxygen, Vasocon-strictors

3. Defib,

   Drugs

   and

   Diagnosis

1

- Protocols,
- Age/Risk
- Pharmacodynamics

Emergency Protocol

Is 911 a false sense of security?

IT DEPENDS on:

- **What,**
- **When, and**
- **Where the problem is!**

Emergency Protocols

YES → 911 is a solution.

Problem → What to do in the **meantime**???

Communication

- Front Desk
- Office Manager

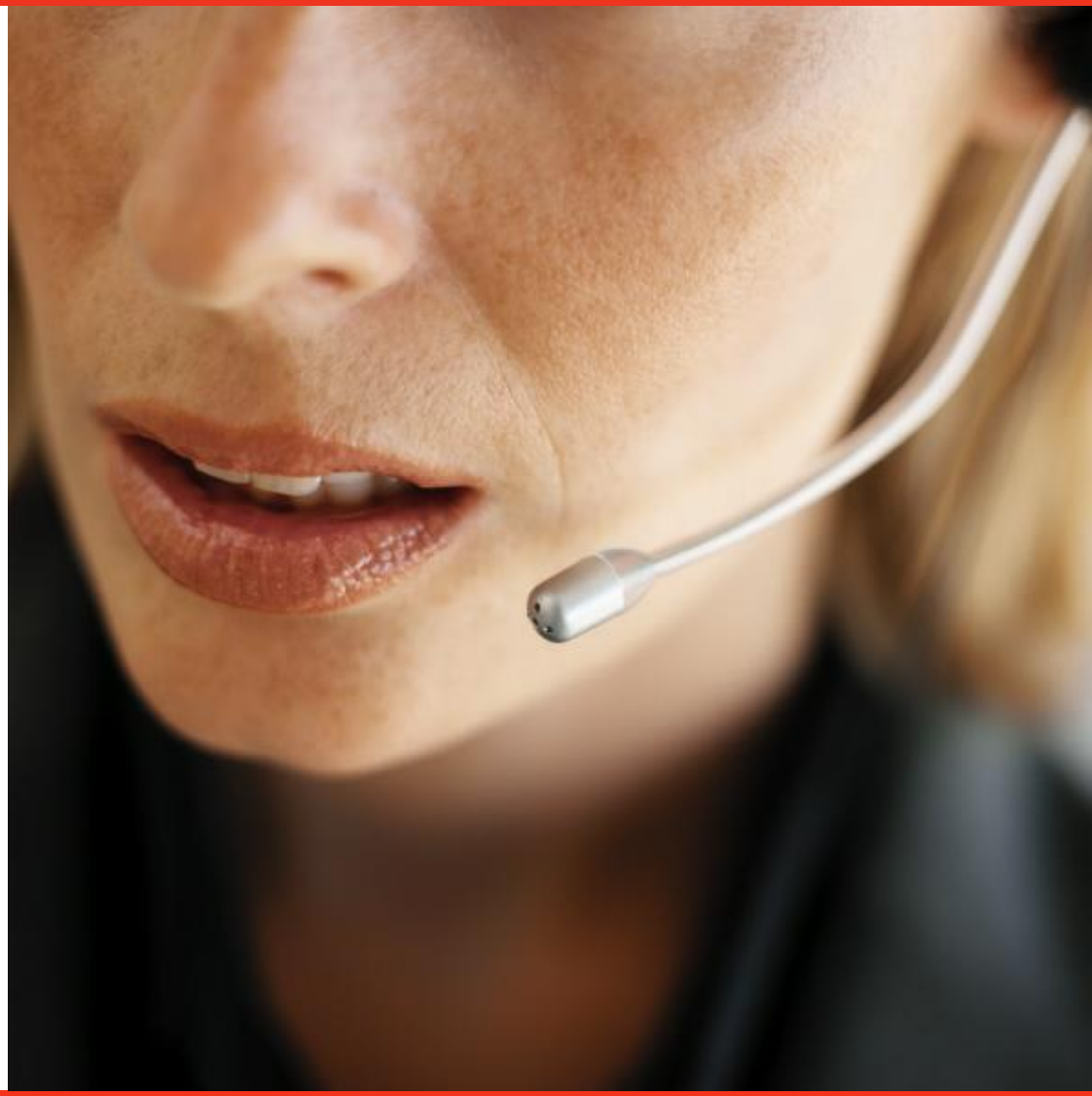
“What is your Emergency?”

The 3 U’s

Unconscious

Unresponsive

Unable to find a pulse



RESPONSIBILITIES

Attending person → **911**

“I HAVE AN UNRESPONSIVE CHILD WITHOUT A PULSE”.

123 Home Street.

Hawkins residence.

Front door.

“I will meet you there”

RESPONSIBILITIES

Front Desk → **911**

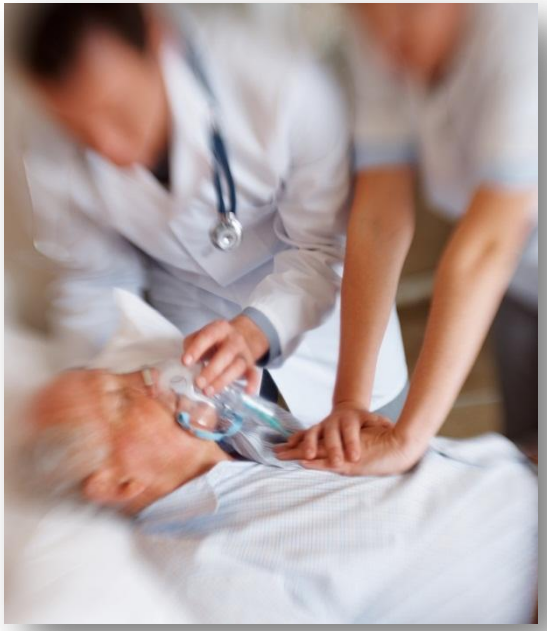
“WE HAVE A PATIENT IN CARDIAC ARREST WITH CPR IN PROGRESS”

91 Rylander Blvd.

Dr. Hawkins office.

Front parking lot.

“I will meet you there”



All the staff must know the location of:

- Portable oxygen with masks/cannulas
- Bag-Valve-Mask with airways
- Automatic External Defibrillator
- Emergency drug kit
- Portable suction
- Emergency lighting source

Staff Training

- Current BLS training
- Task designation: 2 groups, action + support
- Mock simulations:

→ shorter time (15 min.)

→ higher frequency (2 mo.)

→ repetition, repetition, repetition

Staff Training

Recommendation:

Can you discover, **privately**, without embarrassment who **is** and who **may not be** prepared for an assigned duty **before** an event, **not** during.

Mock Simulations

Every 2 Months:
Syncope

for 15 Minutes:
Syncope

Syncope Algorithm

Position, ABC's

Time, Time, Time

Always!

O_2 by nasal cannula

4 litres/minute

+ Glucose

Medical Consultation

Hey Doc, how do I treat your medically compromised patient?

B-r-r-r-ing

B-r-r-r-ing

B-r-r-r-ing

B-r-r-r-ing

MUST HAVE A GAME PLAN!

1. **Dental treatment risk/benefit**
2. **Contemplated medications in mg. or μg.**

MD scrawling "BP is 240/120 but OK for dental treatment" on Rx pad is NOT a mandate!

EMERGENCY KITS

Ready made?

Self assembled?

Acme™ Dental / Medical Kit

IN OLD DAYS: nice suitcase and color coded micro-print

Pharmacodynamics: Age/Risk

PEDIATRIC CONSIDERATIONS

SENIOR CITIZEN

“AVER-AGE” PATIENT

Physical Classifications - ASA

ASA I – normal, healthy

ASA II – mild systemic disease

ASA III – severe multiple systems, medication

ASA IV – severe disease, threat to life

ASA V – won't survive without operation

ASA VI – brain dead, alive for organ transplant

E – operation modification e.g. ASA III-E

Why does Morbidity – Mortality "target" CHILDREN?

Children

Although inaccurate, a "child" in our society is usually defined as up to 12 years old.

A "bad day" will usually happen because of lack of respect of their airway...

Pediatric Considerations

C.V.S / C.N.S:

THE 2 **MOST IMPORTANT** Physiological Considerations IN **PEDIATRIC RESCUE** are:

High MYOCARDIAL O_2 Consumption

High BRAIN O_2 Consumption

Pediatric Considerations

C.N.S:

The CPR / BLS guideline of:

> **"3 – 6 minutes until permanent brain damage begins" is for the adult without an O_2 debt and does *NOT* apply in pediatric life."**

IT'S MORE IN THE ORDER OF 1 MINUTE!

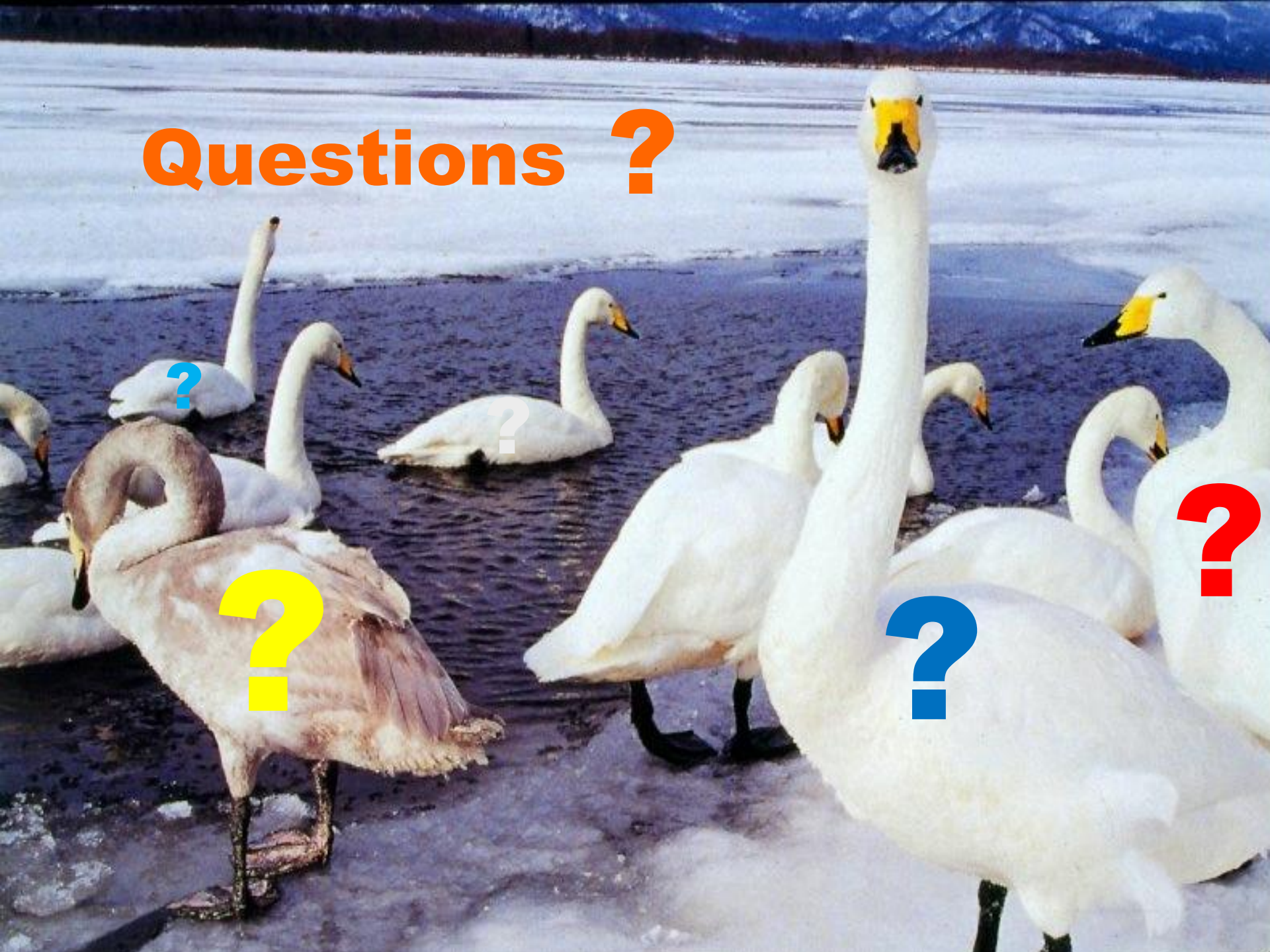
Pediatric Considerations

Drug (local anesthetic) impact:

- **Unpredictable**
- **Blood Brain Barrier is immature**
- **↓ Metabolism due to immature liver**

Pediatric Considerations

COMMUNICATION DIFFICULTIES


Questions ?

- **Airway,**
- **A Few Good Adjuncts,**
- **Oxygen and**
- **Vasoconstrictors**

MANAGEMENT OF AIRWAY

Actions & Armamentarium

Airway Obstructions: The Conscious Victim

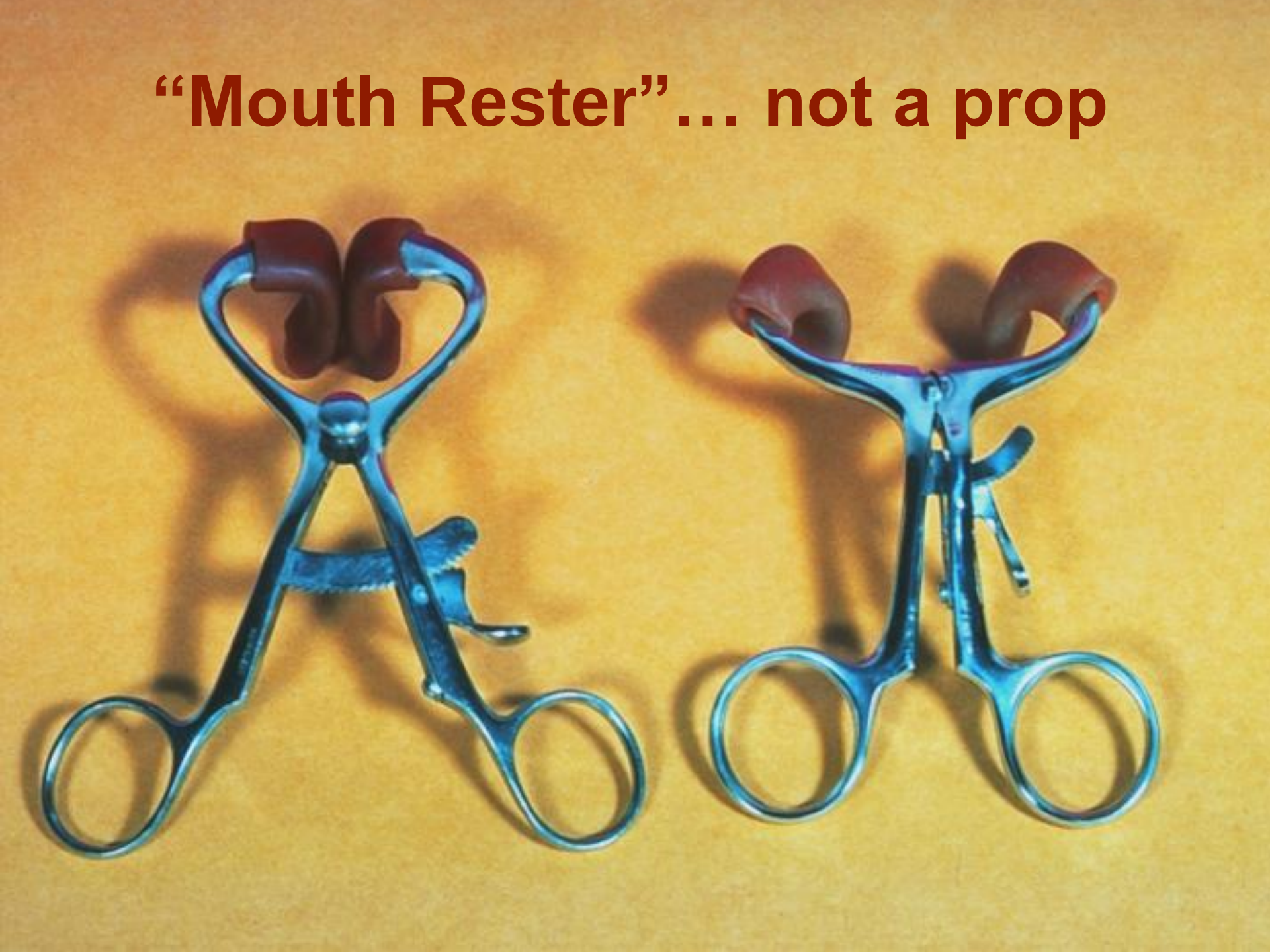
Airway Considerations

- Know Each Patient's Airway
- Always Maintain Patency
- Head Position
- Clear Debris
- Use Throat Partitions
- Use Rubber Dam When Possible

Equipment Adjunct Management

It would be ideal to be able to use the emergency armamentaria in day-to-day dentistry, for cost efficiency, familiarity and for practice!

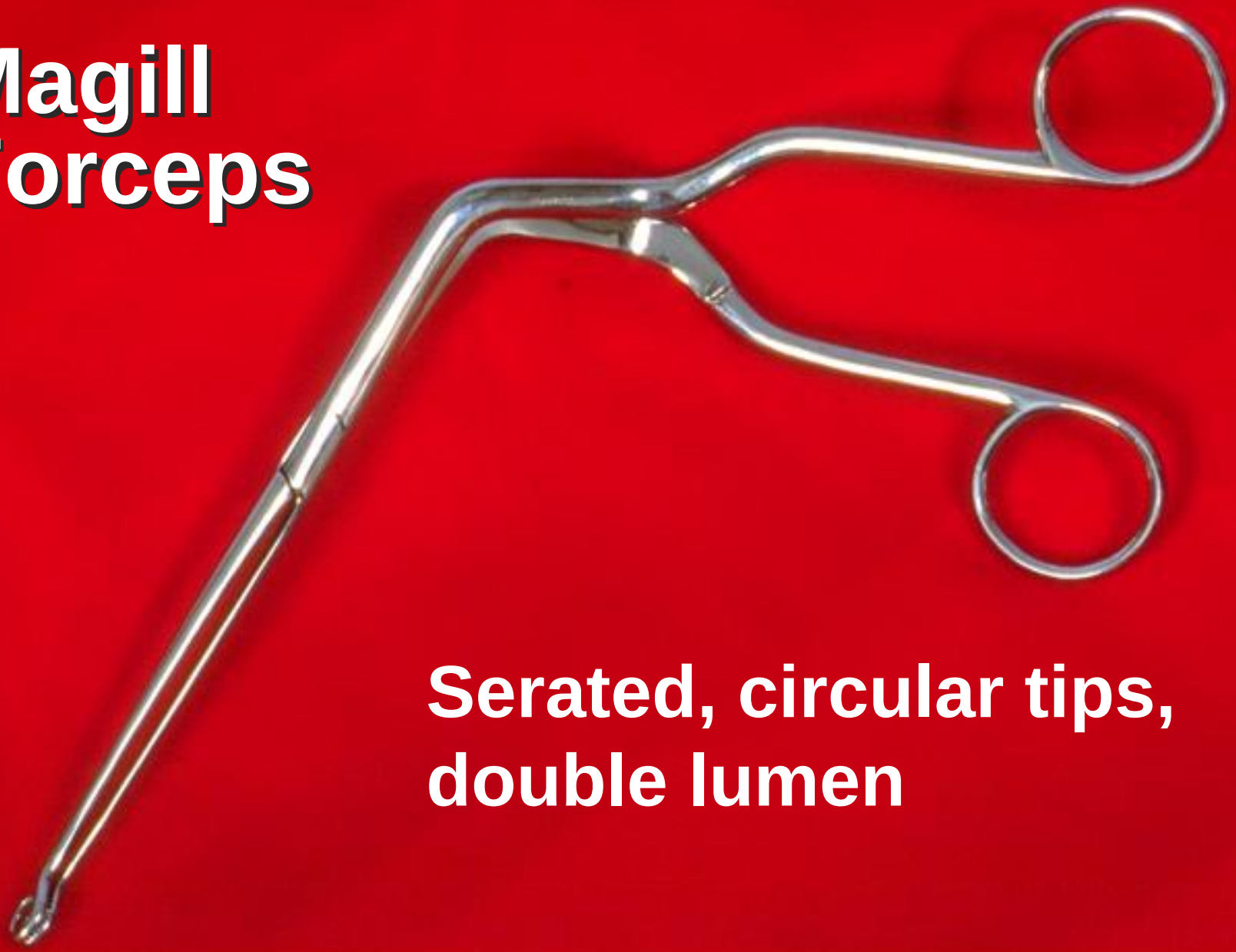
“Mouth Rester”… not a prop



Disposable Laryngoscope

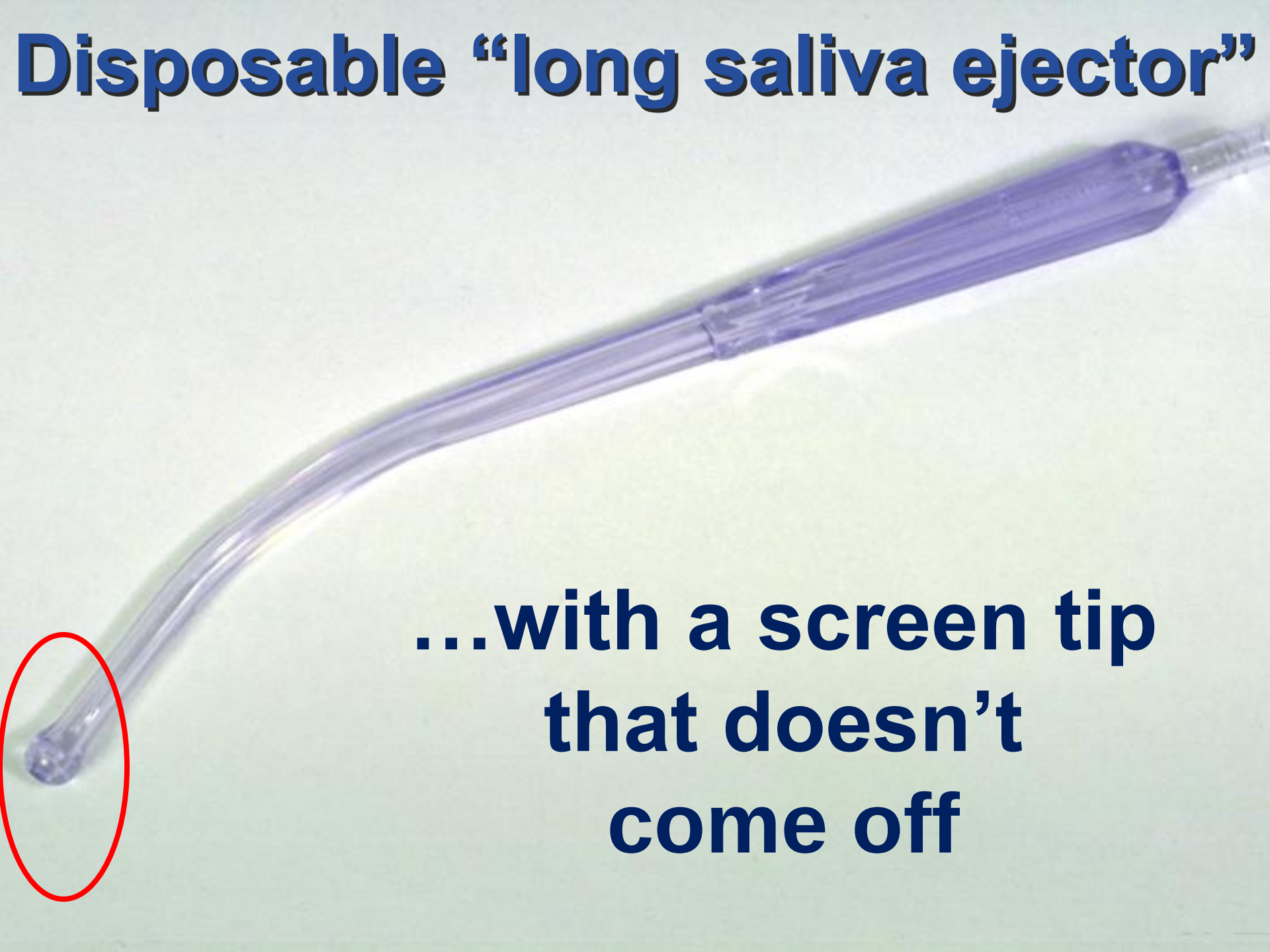
“A tongue depressor with a light on it”

Magill Forceps



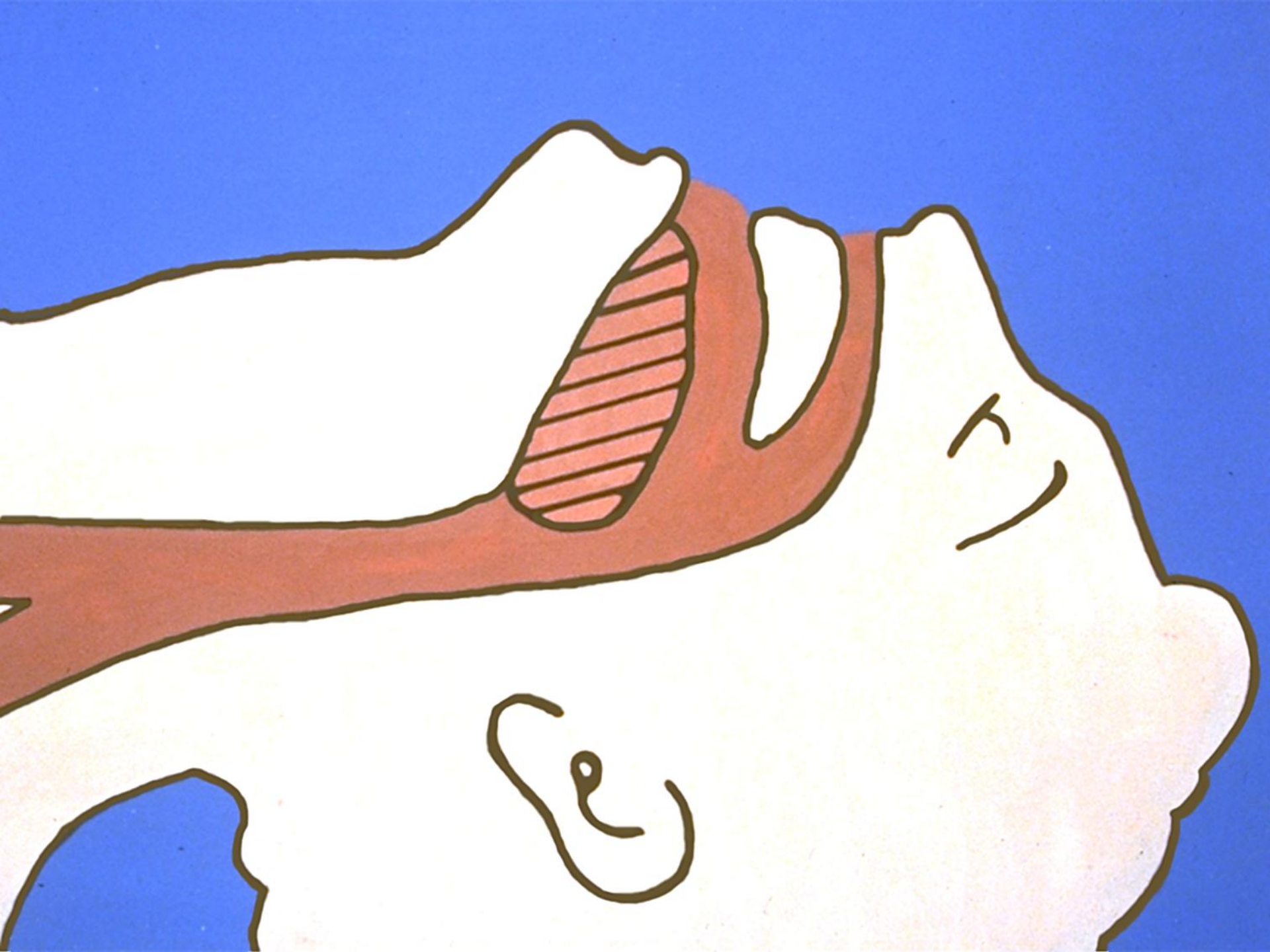
Serated, circular tips, double lumen

Disposable “long saliva ejector”



…with a screen tip that doesn’t come off

Airway Obstructions: The Unconscious Victim

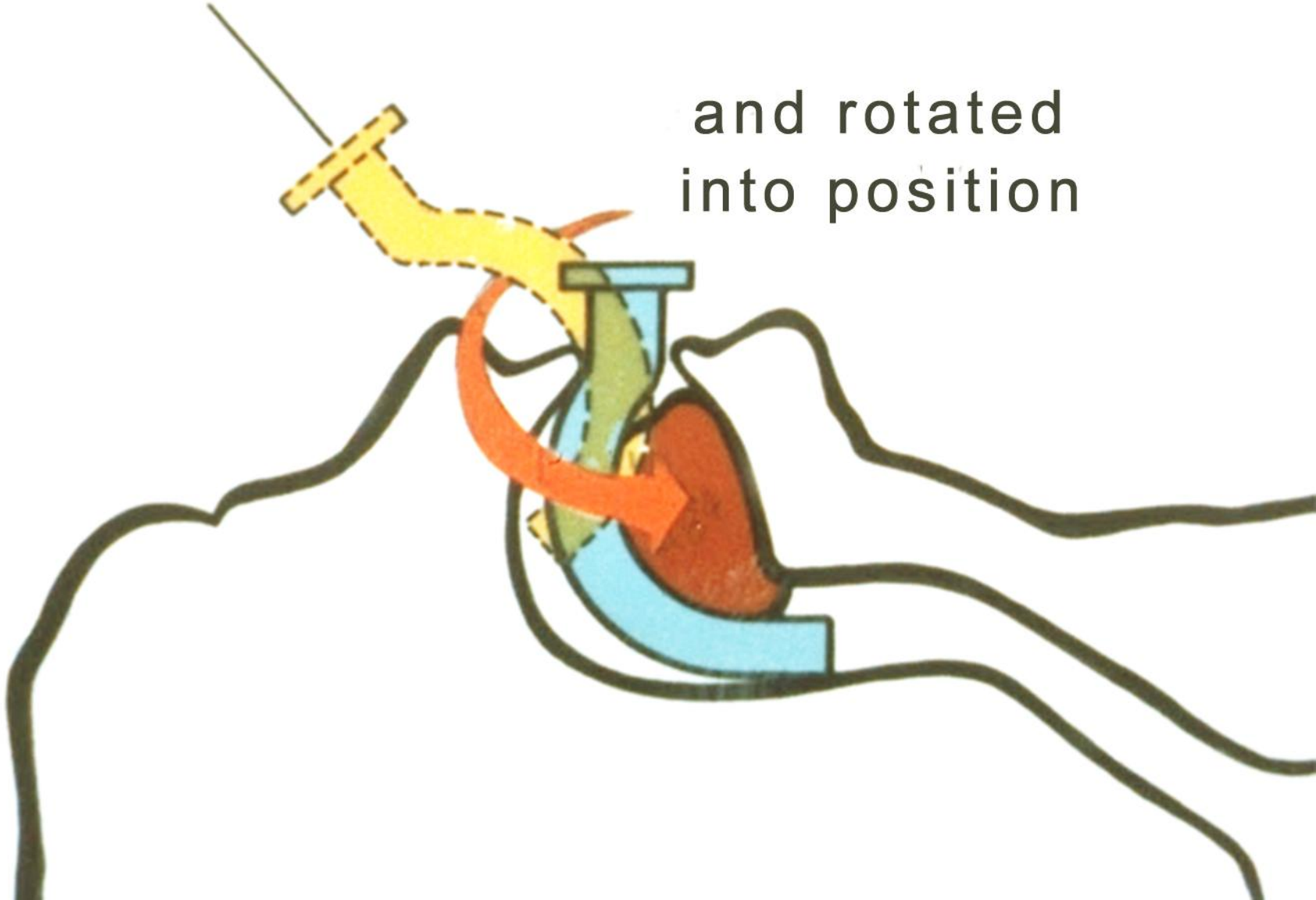


Oral Pharyngeal Airway

Size? Angle of Mandible to Corner of Mouth

STARTING POSITION

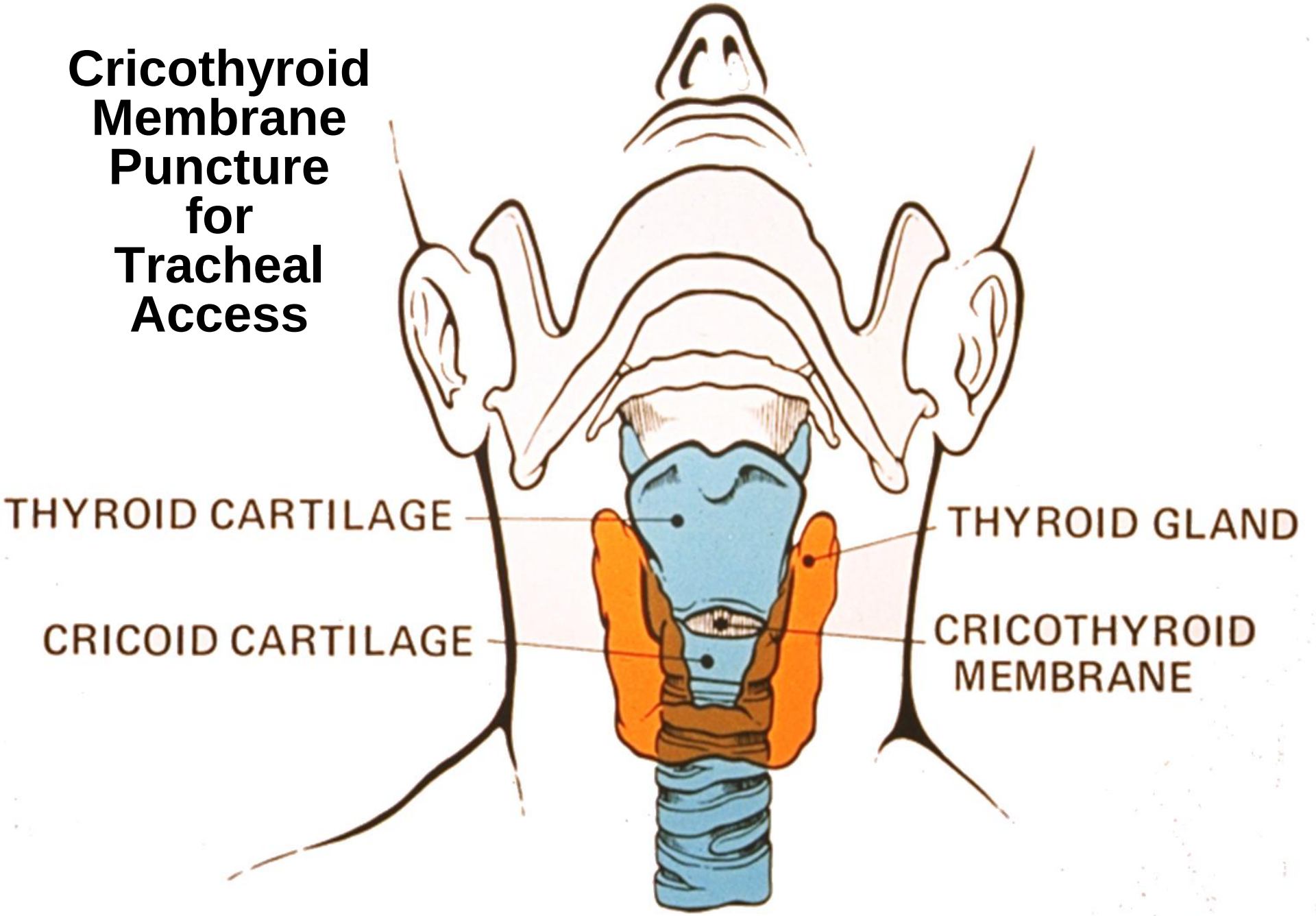
Airway is inserted backwards...



CRICOTHYROTOMY

Old and New Ideas

Cricothyroid Membrane Puncture for Tracheal Access



Cricothyrotomy

What you really need to know about old and new ideas of cricothyrotomy is…

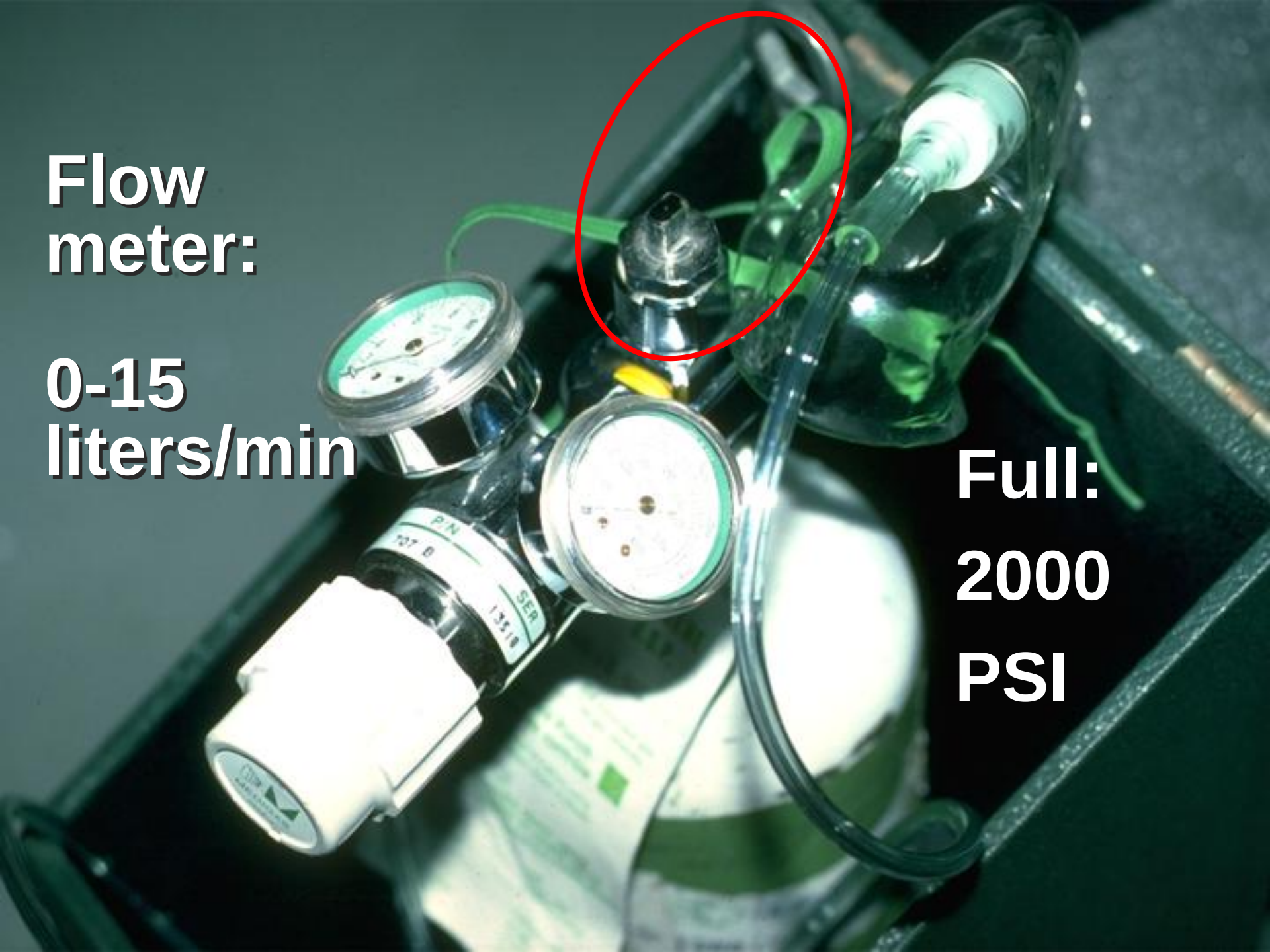
Cricothyrotomy

MANAGEMENT OF BREATHING

Actions & Armamentarium

Oxygen Sources

- Portable tanks
  (Stem & Wrenches)
- Central tanks
  - Regulators and Components
  - Flow meters


Flow meter:
0-15 liters/min
Full:
2000
PSI

Nasal Cannula - Disposable

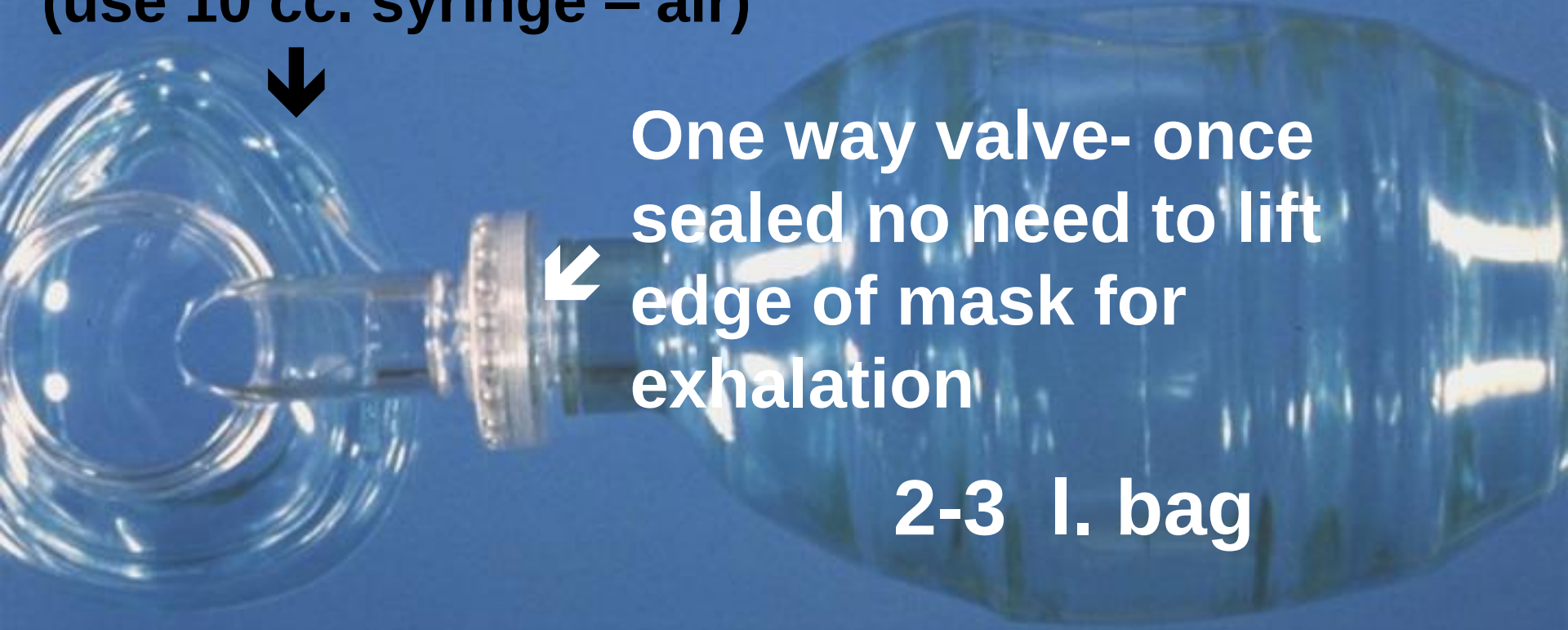
Non-rebreathing Mask (NRB)

Bag-valve-mask Systems (B.V.M.)

Bag Valve Mask (BVM)

Can be used IF breathing

Inflatable Mask
(use 10 cc. syringe – air)

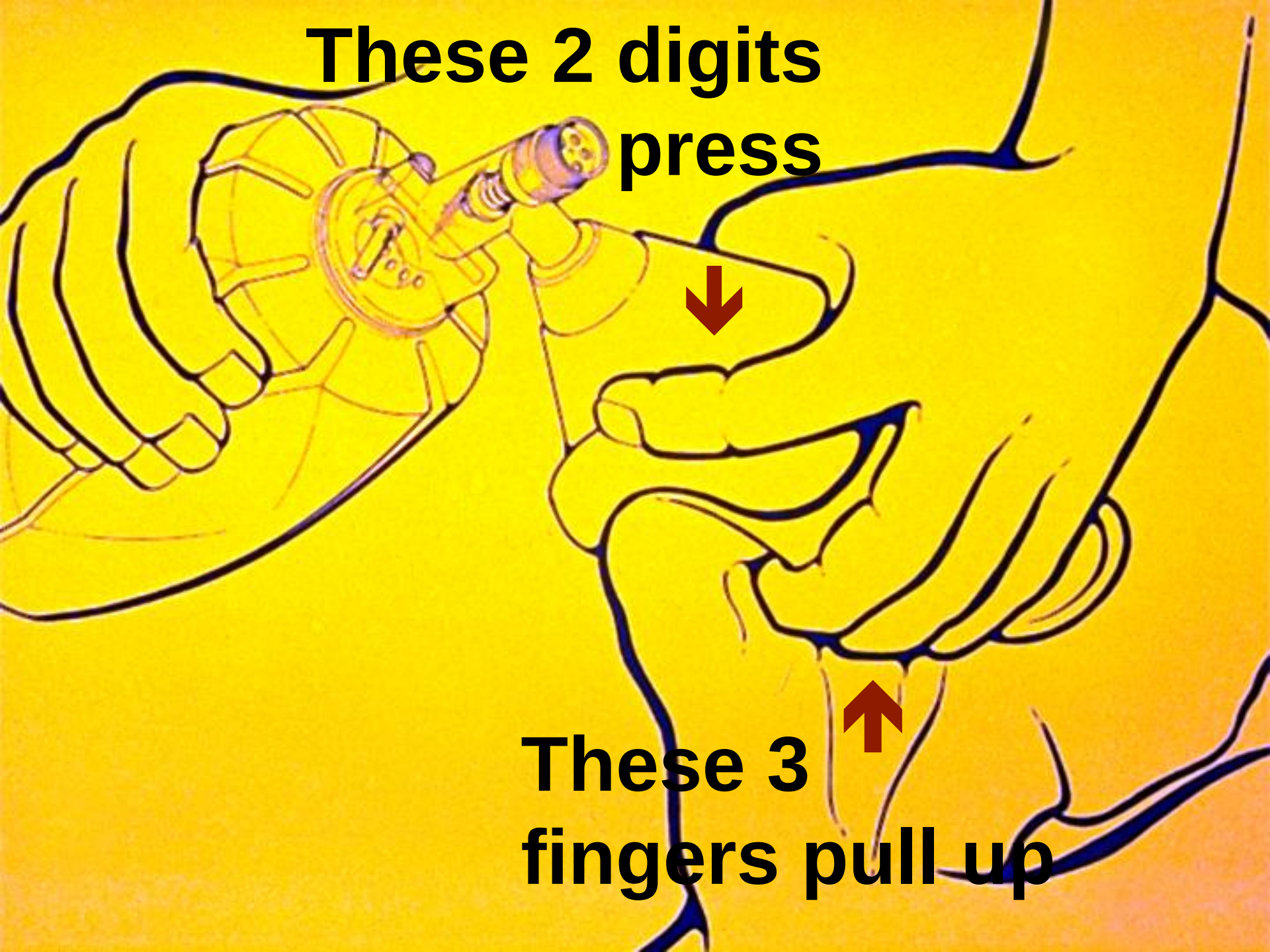


One way valve- once sealed no need to lift edge of mask for exhalation

2-3 l. bag

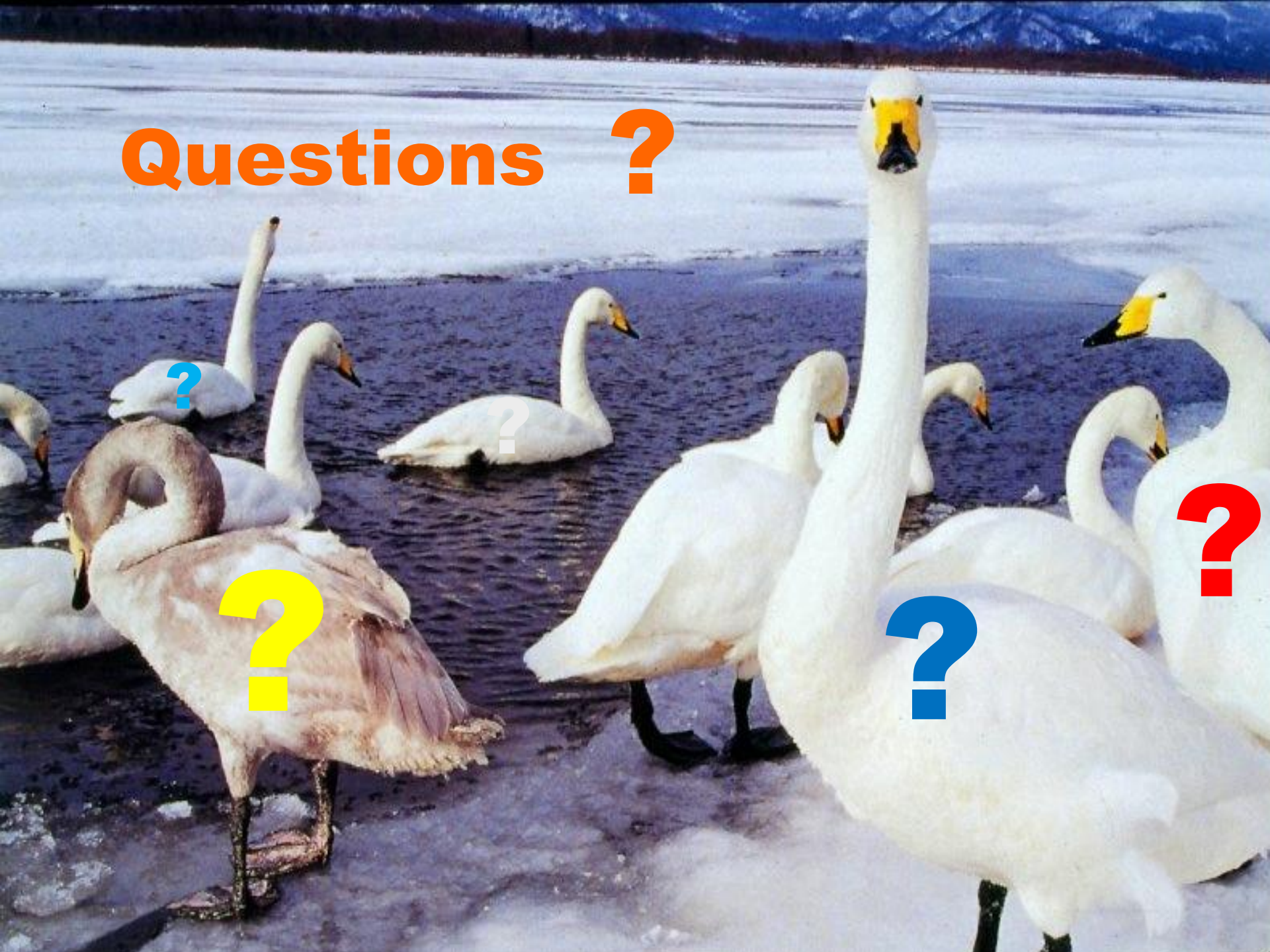
Transparent mask – can see regurgitation

Supplemental O_2 with reservoir at 10-15 liters/minute


These 2 digits press
These 3 fingers pull up

Demand Valve

NOT Recommended


Questions ?
?
?
?
?
?

MANAGEMENT OF CIRCULATION

Actions & Armamentarium

Vasoconstrictor Considerations

VASOCONSTRICTOR "ISSUES"

or

Truths, Lies and Consequences

Vasoconstrictor Considerations

A. Use is based on vasoconstrictive alpha receptor agonists

1. Delays absorption, reducing toxicity and prolonging duration

   No Advantage With Concentrations > 1:200,000

2. Reduces hemorrhage at surgical site

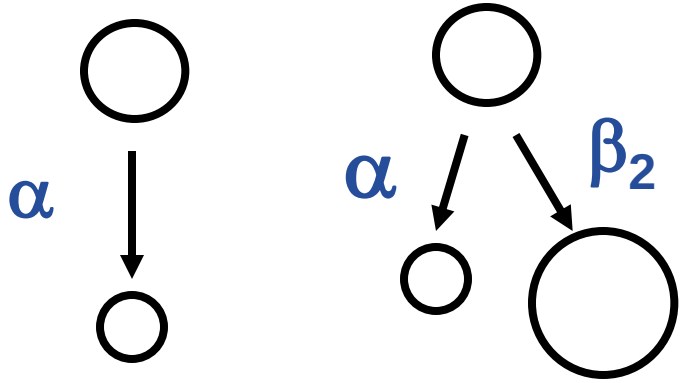
   (CONCENTRATION IS ADVANTAGEOUS IN THIS CASE)

Vasoconstrictor Considerations

Adrenergic alpha receptor functions and vascular distribution

- α → Vasoconstriction
- β_2 → Vasodilation + Bronchial dilation
- β_1 → Cardio-tropic

Veins and Submucosal Arteries	Deep Arteries



True or False

With most heart conditions, the most serious medical-dental risk for dental treatment is the vasoconstrictor.

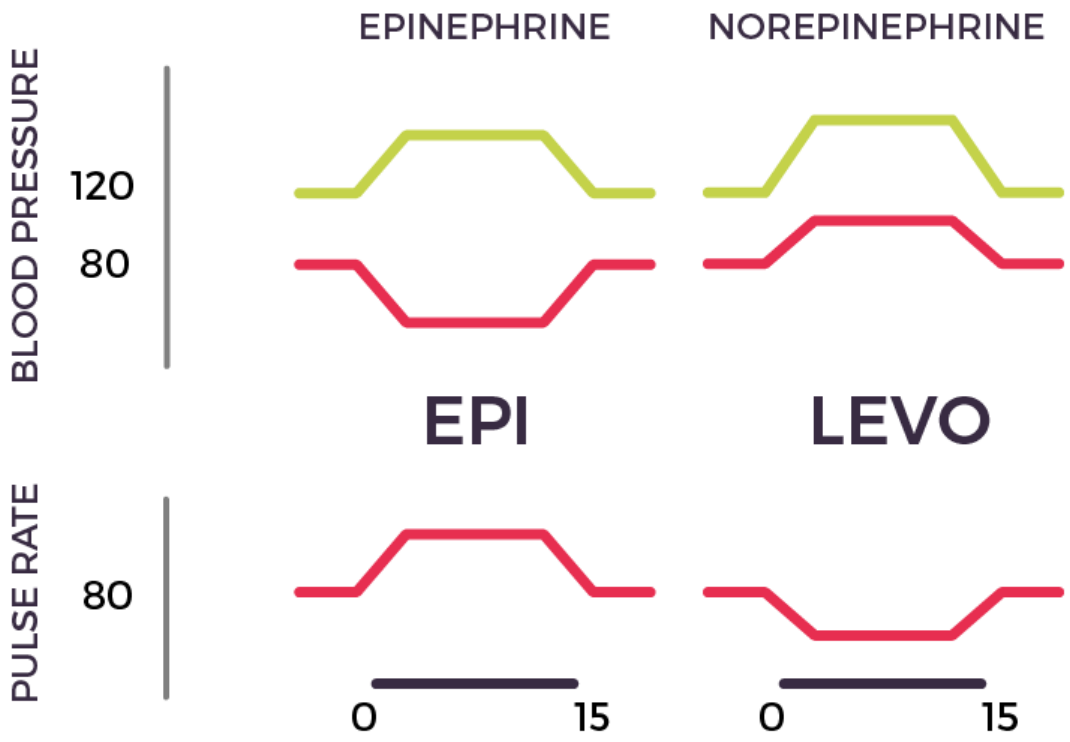
Vasoconstrictors

A. Epinephrine is not safe for the hypertensive patient

True or False?

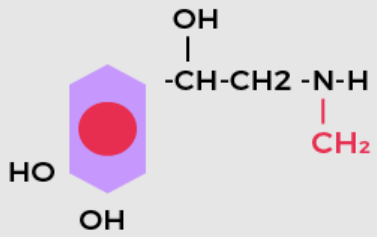
Cardiovascular Influences

Prototypic Catecholamines

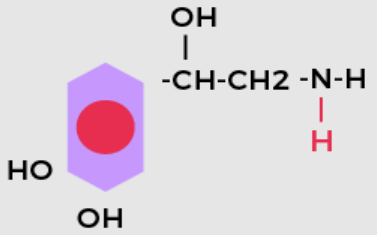


Goodman & Gilman's 1996

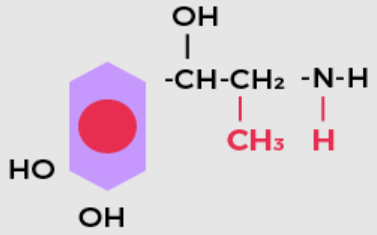
EPINEPHRINE



NOREPINEPHRINE



LEVONORDEFRIN



Selecting a Vasopressor

- **Epinephrine** for Hypertensive Patients
- **Levonordefrin** if Tachycardia is Concern
- Both **Increase** Myocardial Oxygen Demand

✓ **Epinephrine ↑ Heart Rate**

✓ **Levonordefrin ↑ Blood Pressure**

Vasoconstrictors

B. When anesthetizing children – do not use epinephrine. Use a plain non-epi containing solution

True or False?


Dentists are responsible for safety!
Parents are responsible for lip / tongue biting

Vasoconstrictors

Why?

Epinephrine delays absorption, reduces toxicity and safely allows for 1 ½ X maximum dose!

"MRD" or Maximum Recommended Doses

DRUG	Vasoconstrictor	No Vasoconstrictor
Articaine 4%	500 mg	300 mg
Lidocaine 2%	500 mg	300 mg
Mepiva 3%	500 mg	300 mg
Prilocaine 4%	600 mg	400 mg
Bupiva 0.5	150mg	75 mg

* *For healthy 70 Kg adult –must adjust for age and weight*

Hawkins, M - various sources, 2017

How many ‘carps’ ?

Maximum Doses

Drug	Maximum Dose	# “Carps”
Articaine 4%	7 mg/kg (up to 500 mg)	7
Bupiva .5%	2 mg/kg (up to 200 mg)	10
Lidocaine 2%	7 mg/kg (up to 500 mg)	13 ? 10 ?
Mepivac 3%	7 mg/kg (up to 400 mg)	9*
Prilocaine 4%	8 mg/kg (up to 500 mg)	7

Hawkins, M - various sources, 2017

Vasoconstrictors

C. Epinephrine and antidepressants do <u>not</u> interact (except *POSSIBLY* with tricyclics?)

True or False?

ANTIDEPRESSANTS

CLASS: MONOAMINE OXIDASE INHIBITOR

GENERIC NAME	TRADE NAME
Phenelzine sulfate	Nardil®
Tranyleypromine sulfate	Parnate®
Isocarboxazid	Marplan (U.S. only)®

Local Anesthetic/Vasoconstrictor Precautions:
None, since both epinephrine and neocobefrin are metabolized by COMT, not MAO

ANTIDEPRESSANTS

CLASS: TRICYCLICS

GENERIC NAME	TRADE NAME
Maprotiline hydrochloride	Ludiomil® Novo-Maprotilinel®
Trimipramine maleate	Apo-Trimip® NovoTripramine® NuTrimipramine® Rhotrimine®, Surmontil®

Local Anesthetic/Vasoconstrictor Precautions:

Use with caution; epinephrine and levonordefin have been shown to have an increased pressor response in combination with tricyclics. Clinically may only be seen in higher doses.

ANTIDEPRESSANTS

CLASS: SELECTIVE SEROTONIN REUPTAKE INHIBITORS

GENERIC NAME	TRADE NAME
Fluoxetine hydrochloride	Prozac®
Fluvoxamine maleate	Luvox®
Paroxentine hydrochloride	Paxil®
Sertratine	Zoloft®

Local Anesthetic/Vasoconstrictor Precautions:

No interactions have been reported with vasoconstrictors

ANTIDEPRESSANTS

CLASS: MISCELLANEOUS

GENERIC NAME	TRADE NAME
Nefazadone hydrochloride	Serzone®
Venlafaxine hydrochloride	Effexor®
Buspirone hydrochloride	BuSpar®

Local Anesthetic/Vasoconstrictor Precautions:

No precautions appear necessary

Vasoconstrictors

D. Non-selective β-blocked patients are a *relative* precaution only. All other β-blocker categories are fine

True or False?

Vasoconstrictor Considerations

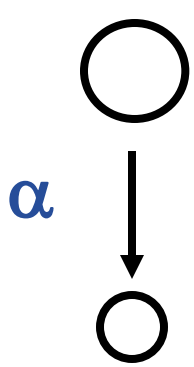
Adrenergic alpha receptor functions and non-selective β blockade (e.g. Inderal®)

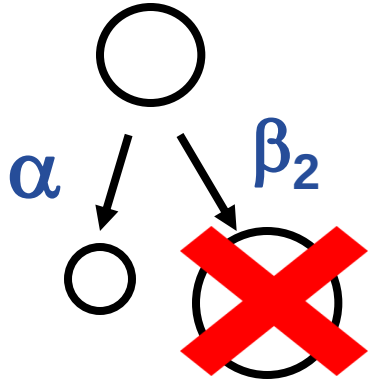
α → **Vasoconstriction**

β^2 ✗ **Vasodilation + Bronchial dilation**

β_1 ✗ **Cardio-tropic**

Veins and Submucosal Arteries	Deep Arteries





BETA-ADRENERGIC BLOCKERS

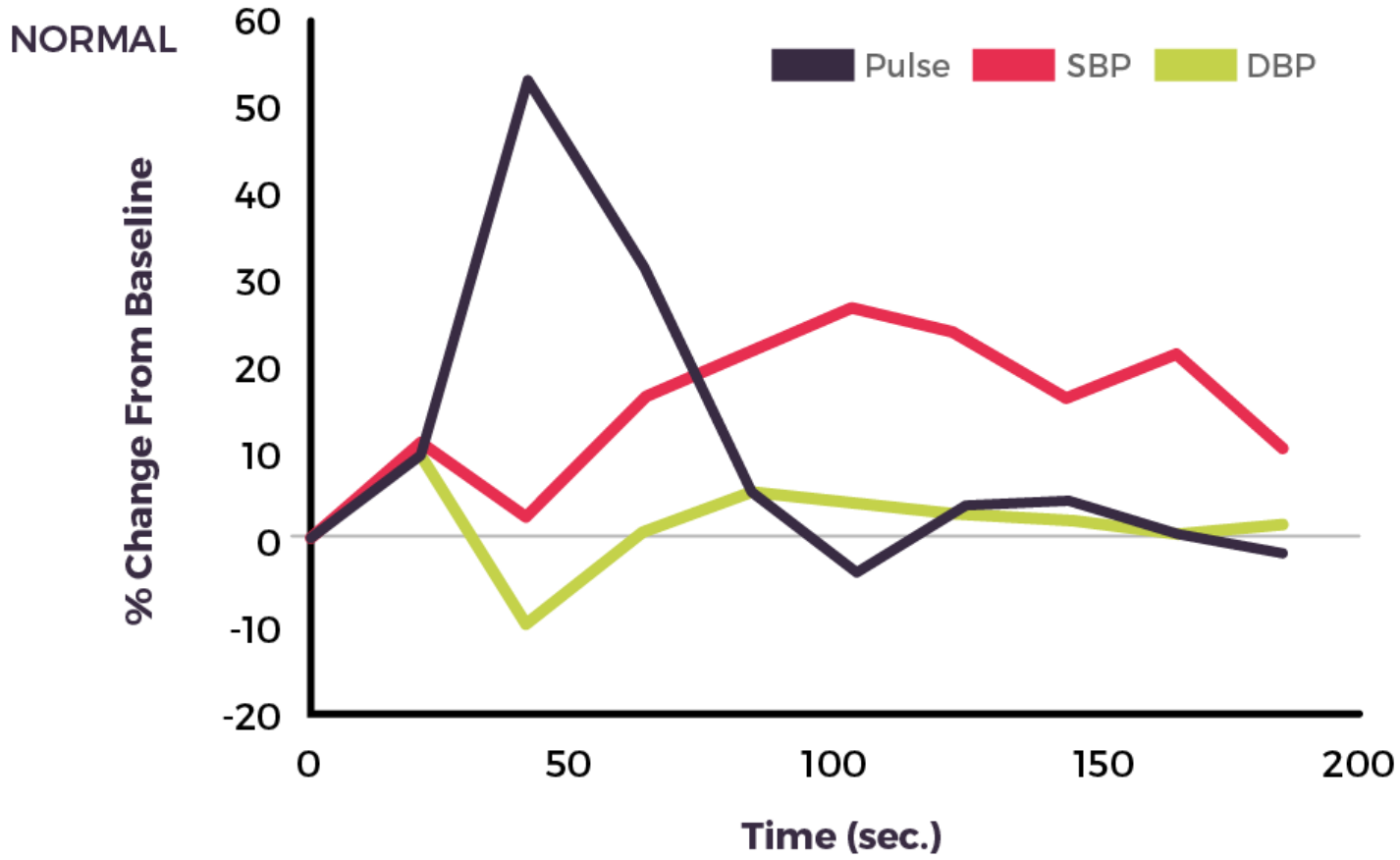
Sympathomimetics epinephrine

(a) Cardioselective	**"alright" β 1 blocked only**
Atenolol	Tenormin®
Metoprolol	Betaloc® Lopressor®
(b) Noncardioselective	**"beware" β 1,2 both blocked**
Nandolol	Corgard®
Propranolol	Inderal®
Sotalol	Sotacor®
(c) Noncardioselective and alpha blocker	
Labetalol	Trandate®

"cool"all blocked

Non-Beta Blocked Patients

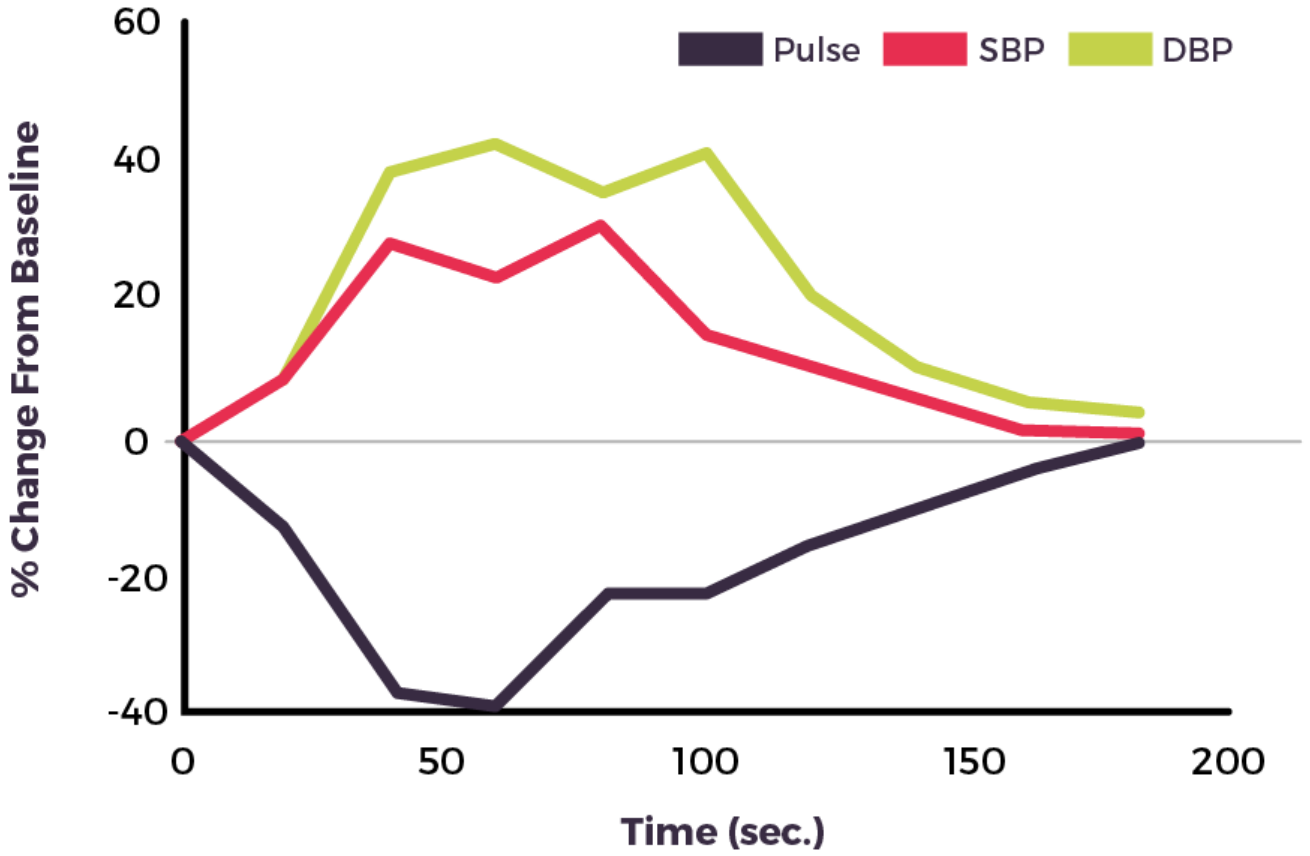
(15 ug Epinephrine I.V.)



Mulroy MF, Regional Anesthesia 1989

Beta Blocked Patients

(15 ug Epinephrine I.V.)



Mulroy MF, Regional Anesthesia 1989

Case Report #1

Case Report #1

NOW WHAT?

Managing Beta Blocked Patients

No issue with cardioselective agents, (a) category BUT

Propranolol and others in the non-selective, (b) category

WHAT TO DEFINITELY DO!

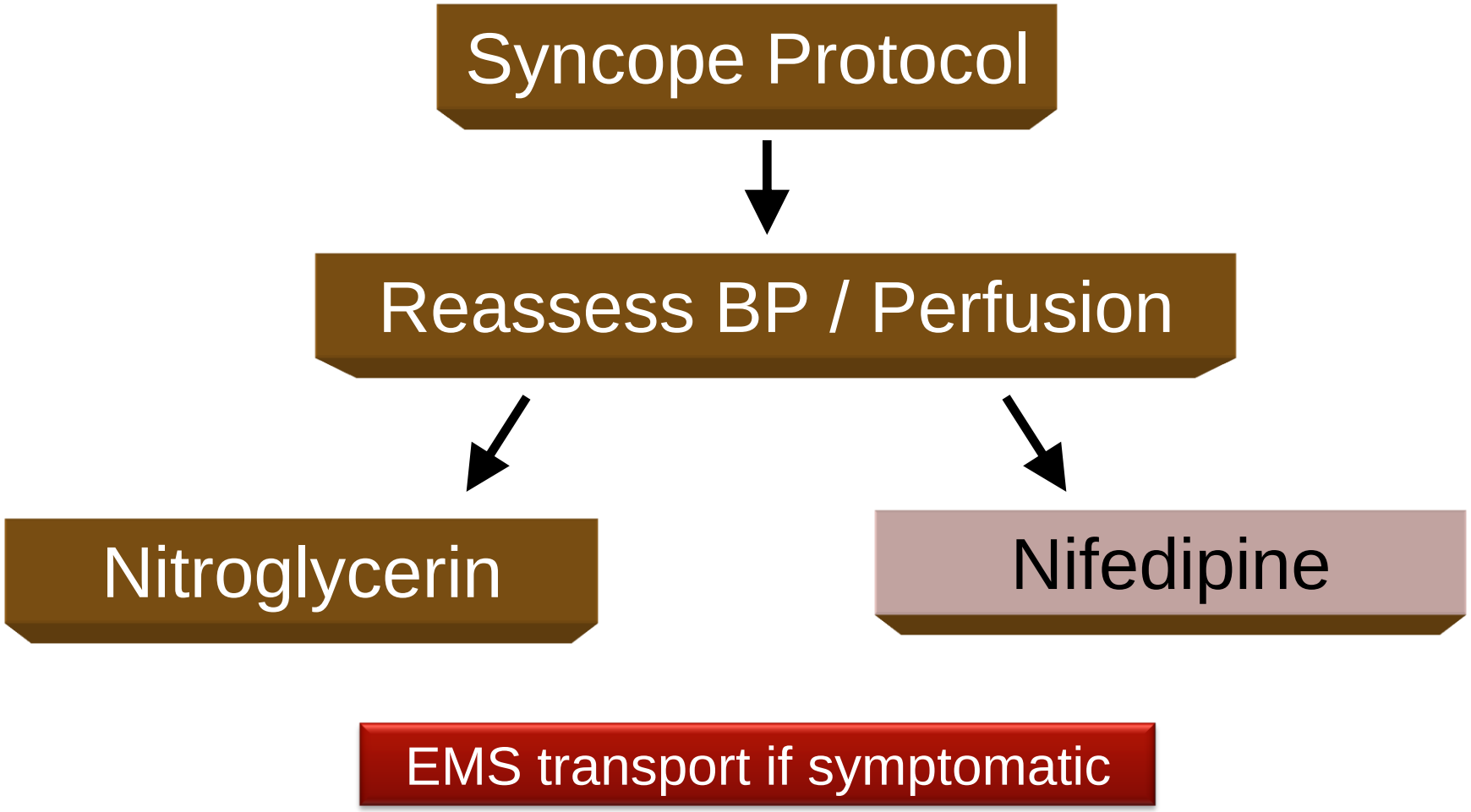
1. **Look it up on line**
2. **Wait 5 minutes after each cartridge and reassess vitals**

Managing Beta Blocked Patients

WHAT TO POSSIBLY DO?

3. **Avoid** using a vasopressor if (b) category
4. **Consult** physician regarding discontinuing (b) beta blocker or changing it to a cardioselective (a) beta blocker

Hypertension Algorithm



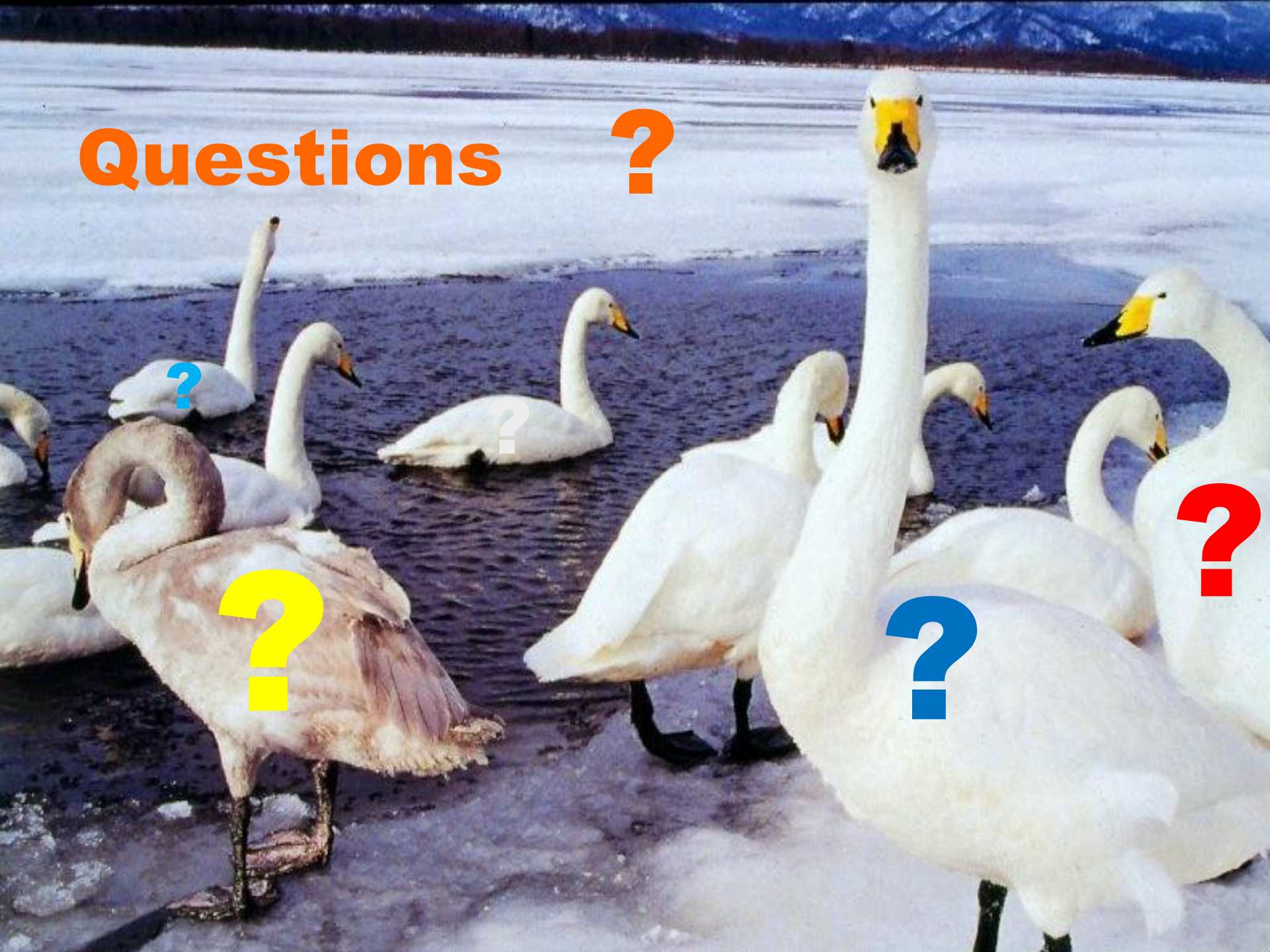
Vasoconstrictor Summary:

A. Epinephrine is safe for the hypertensive patient

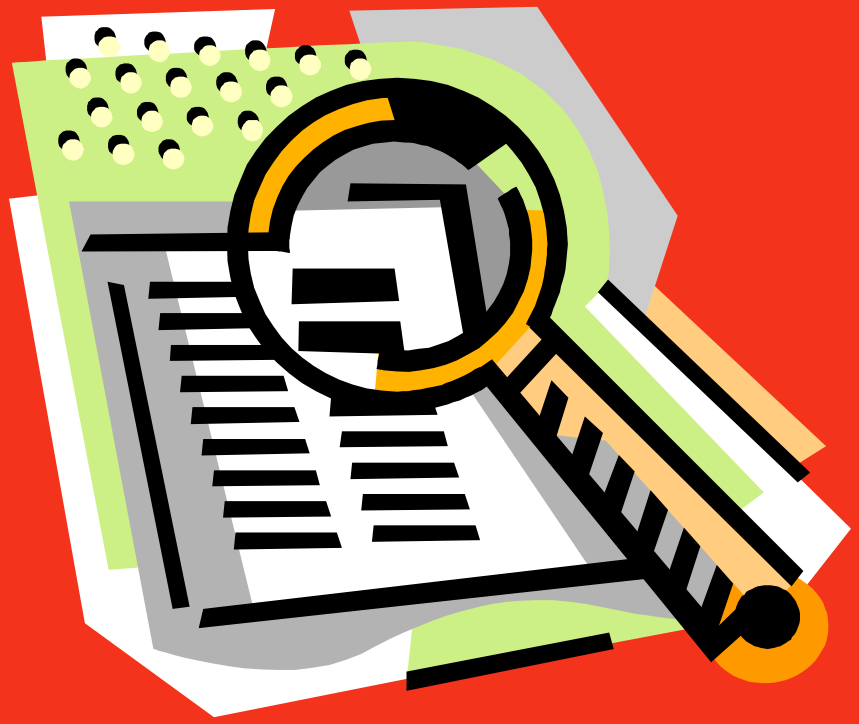
B. When anesthetizing children - use epinephrine. It delays absorption, reducing toxicity

C. Non-selective β-blocked patients are a *relative* precaution only

D. Epinephrine and antidepressants do not interact (tricyclics?)


Questions ?
?
?
?
?
?

Looking at the “Drug”



Local Anesthetic *DOSAGES*

POSOLOGY

Any "%" solution needs to be expressed as:

mg/cc (ml)

POSOLOGY

In 2 % lidocaine, for example:

2 %, add 0 = 20 mg /cc
a cartridge of 1.8 cc
= 36 mg

Maximum Doses

Drug	Maximum Dose	# “Carps”
Articaine 4%	7 mg/kg (up to 500 mg)	7
Bupiva .5%	2 mg/kg (up to 200 mg)	10
Lidocaine 2%	7 mg/kg (up to 500 mg)	13 ? 10 ?
Mepivac 3%	7 mg/kg (up to 400 mg)	9*
Prilocaine 4%	8 mg/kg (up to 500 mg)	7

Hawkins, JM: various sources compiled 2017

"MRD" or Maximum Recommended Doses

DRUG	Vasoconstrictor	No Vasoconstrictor
Articaine 4%	**500 mg**	300 mg
Lidocaine 2%	**500 mg**	300 mg
Mepiva 3%	**500 mg**	300 mg
Prilocaine 4%	**600 mg**	400 mg
Bupiva 0.5	**150mg**	75 mg

**** For healthy 70 Kg adult –must adjust for age and weight***

Factors:

3% mepivacaine PLAIN

Adult: 7 mg./kg = 490 mg. = 9 cartridges

Age 12-18 yrs: 6 mg./kg = 330 mg. = 6

Age 6-12 yrs: 5 mg./kg = 200 mg = 3.5

Age < 6 yrs: 4 mg./kg = 100 mg = < 2

Hawkins, JM: various sources compiled 2017

Factors:

2% lidocaine 1:100,000 epi

Adult: 7 mg./kg = 490 mg. = 13 cartridges

Age 12-18 yrs: 6 mg./kg = 330 mg. = 8.5

Age 6-12 yrs: 5 mg./kg = 200 mg = 5.5

Age < 6 yrs: 4 mg./kg = 100 mg = 3

Hawkins, JM: various sources compiled 2017

Hawkins, JM: various sources compiled 2017

Scenario:

1. Good child ☺
2. Financial
3. L.A. is just “water”
4. Bell curve

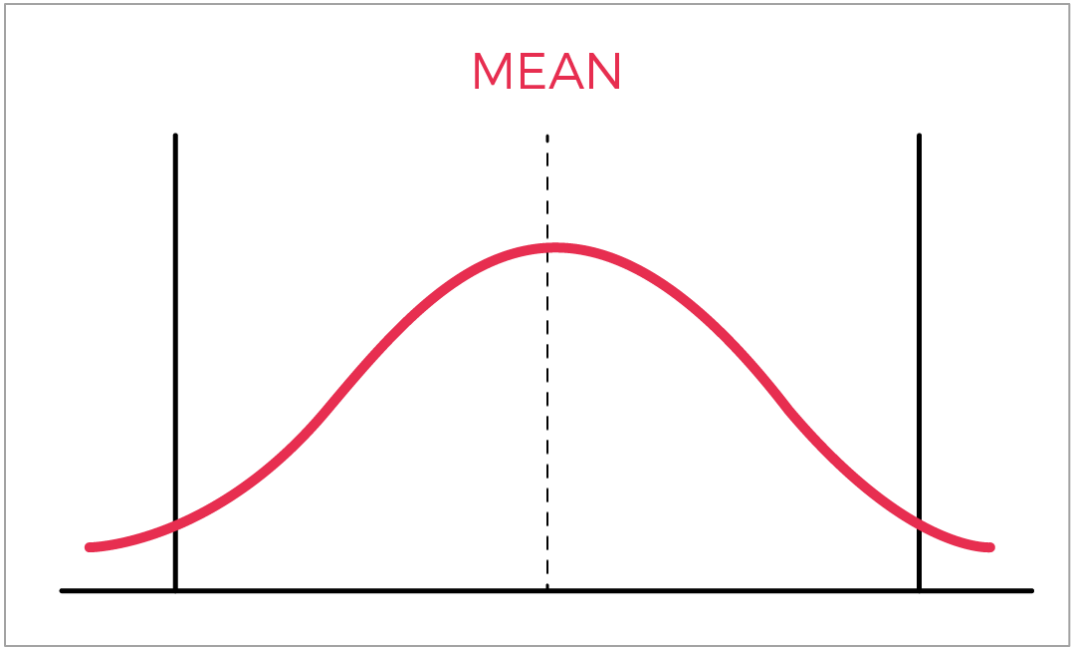
Dr. Norman Treiger, DDS, MD Montefiore Hospital, the Bronx, NY

CASE REPORT

Case: @ 55 lb 7 y.o. ♂ (25 k.g.)

Administered:

11 CART 2% LIDO 1:100,000 EPI



or

@ 400 mg!

How …..

Does This Happen???

Dr. Norman Treiger, DDS, MD Montefiore Hospital, the Bronx, NY

Factors:

1. Size: 1/3 of adult

2. Physiology of a child vs. adult

3. M.R.Dose = 133 mg.

or no more than

~ 3.5 cartridges!

4. *BUT* adjust for physiology to 4 mg./kg.

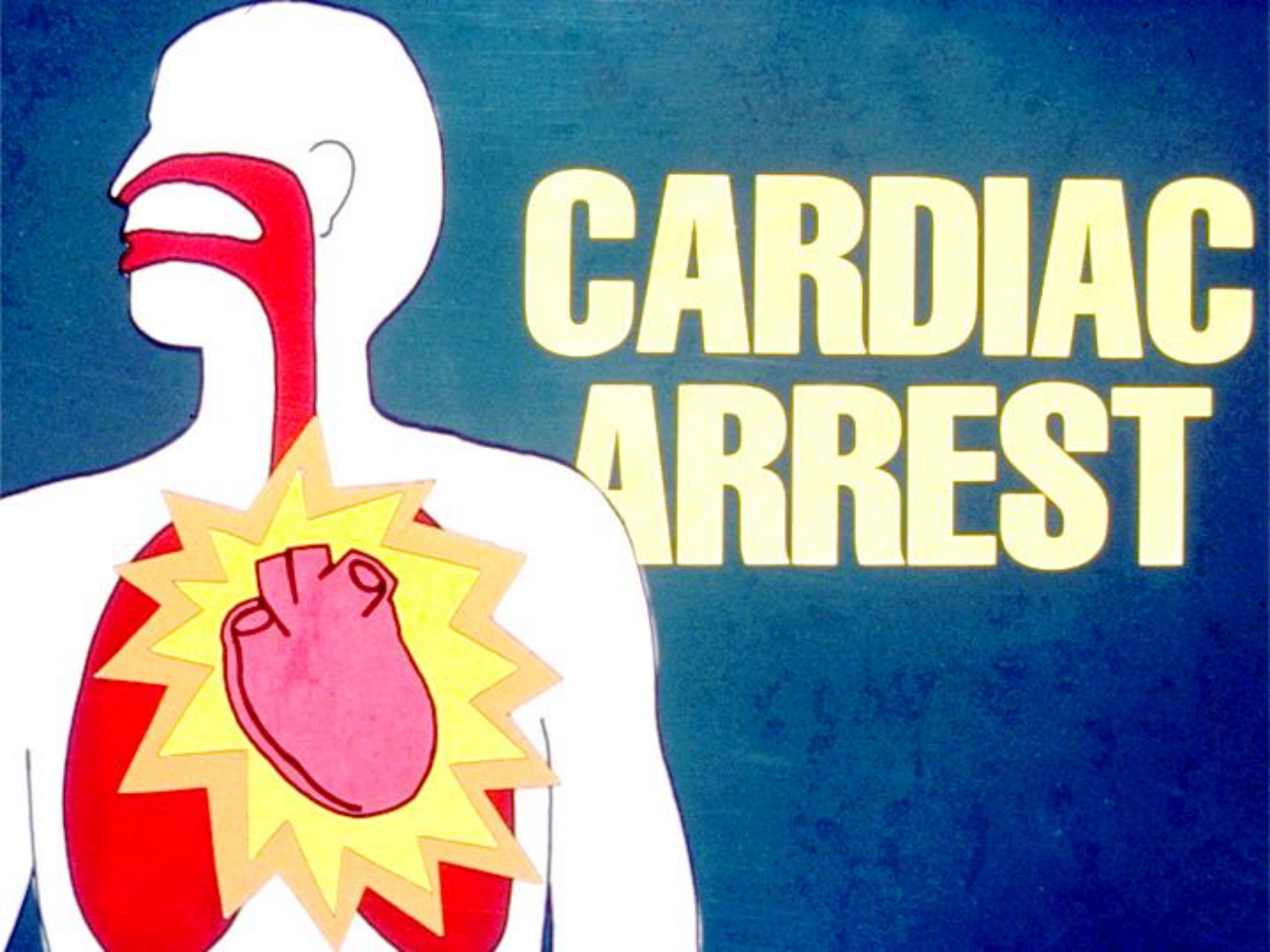
So…M.R.D. = 100 mg. or < 3 cartridges

RESULTS:

Dr. Norman Treiger, DDS, MD Montefiore Hospital, the Bronx, NY

QUESTIONS?

Defibrillation, Drugs and Diagnosis


CARDIAC
ARREST

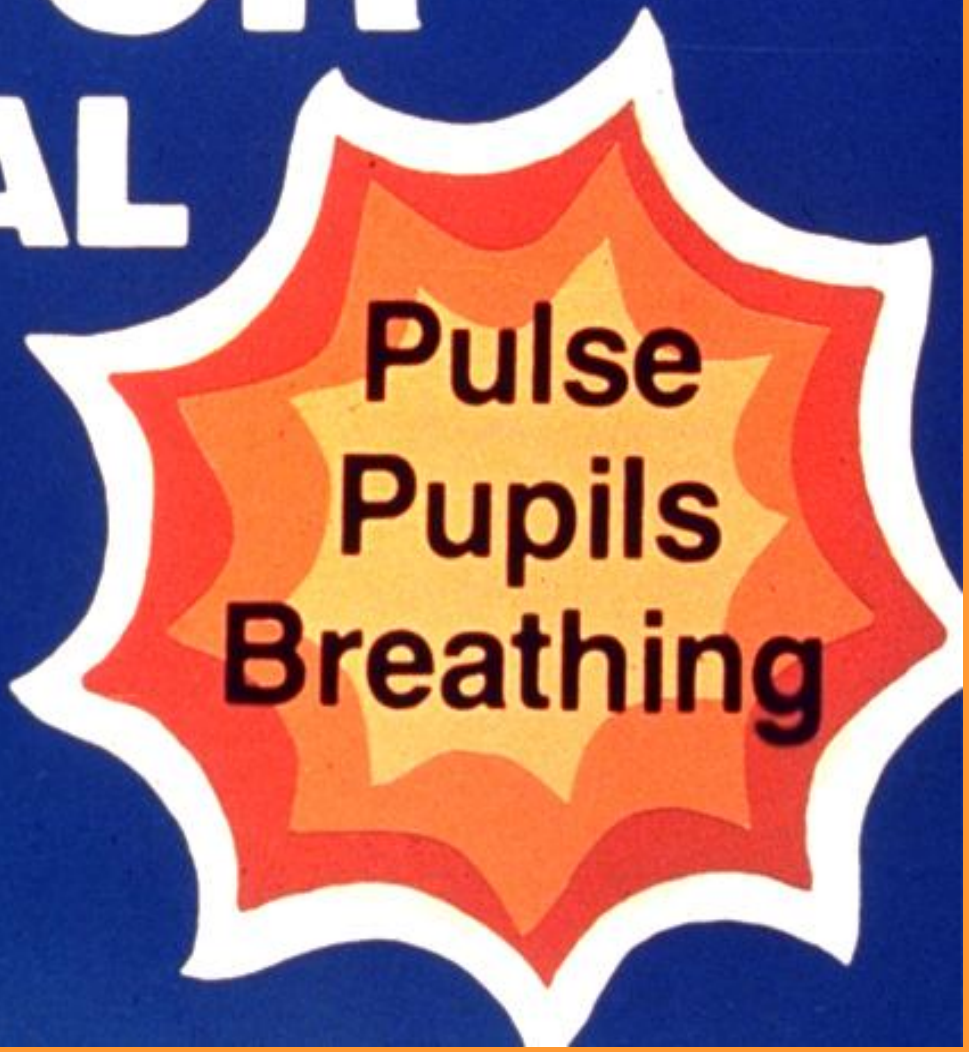
Racketball…

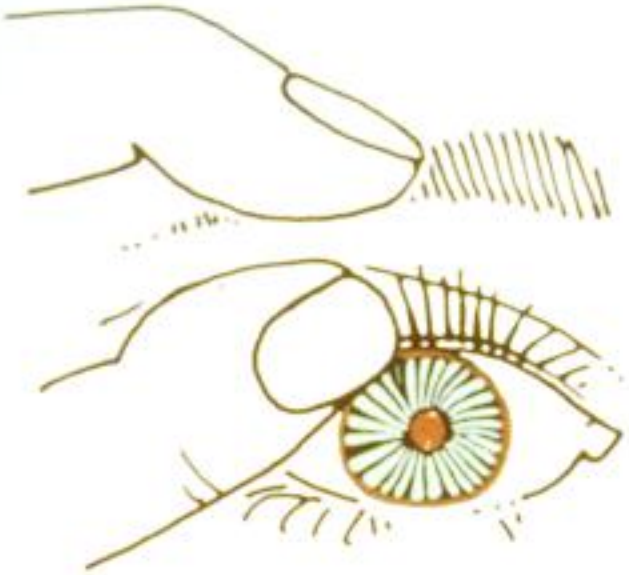
Readiness?..

and

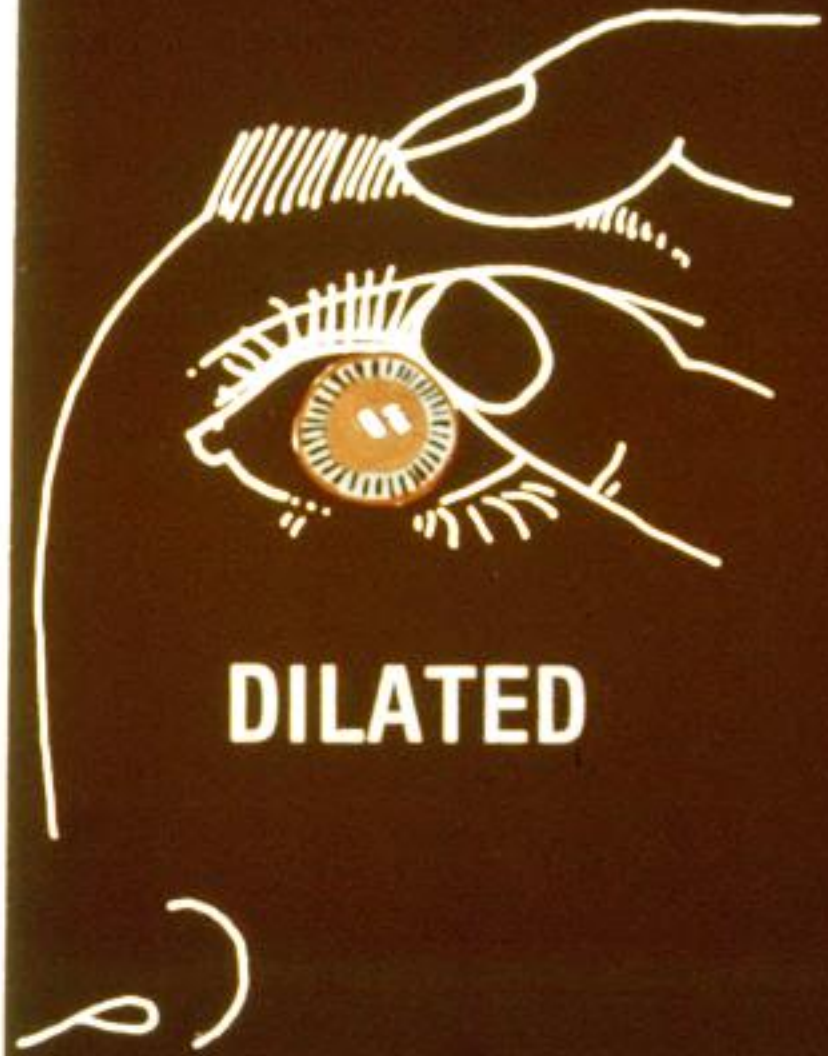
Rescue Attempt…

MONITOR THE VITAL SIGNS





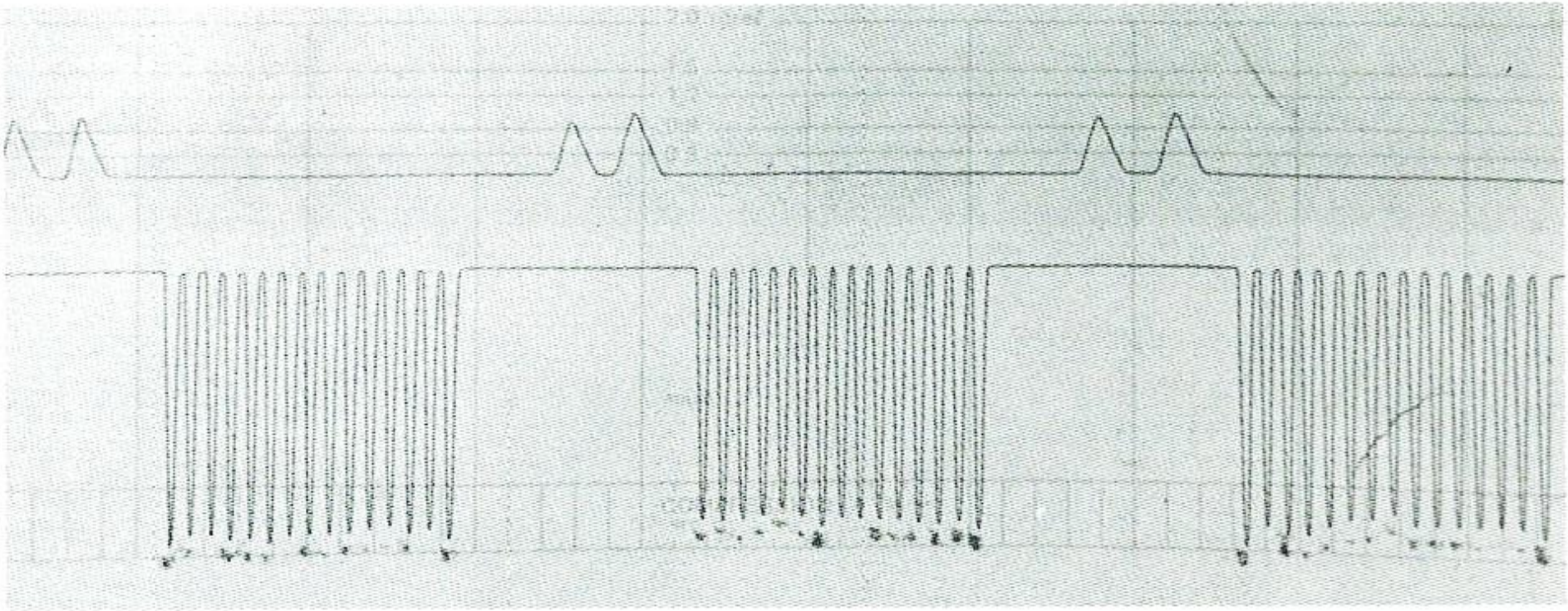
CONSTRICTED



DILATED

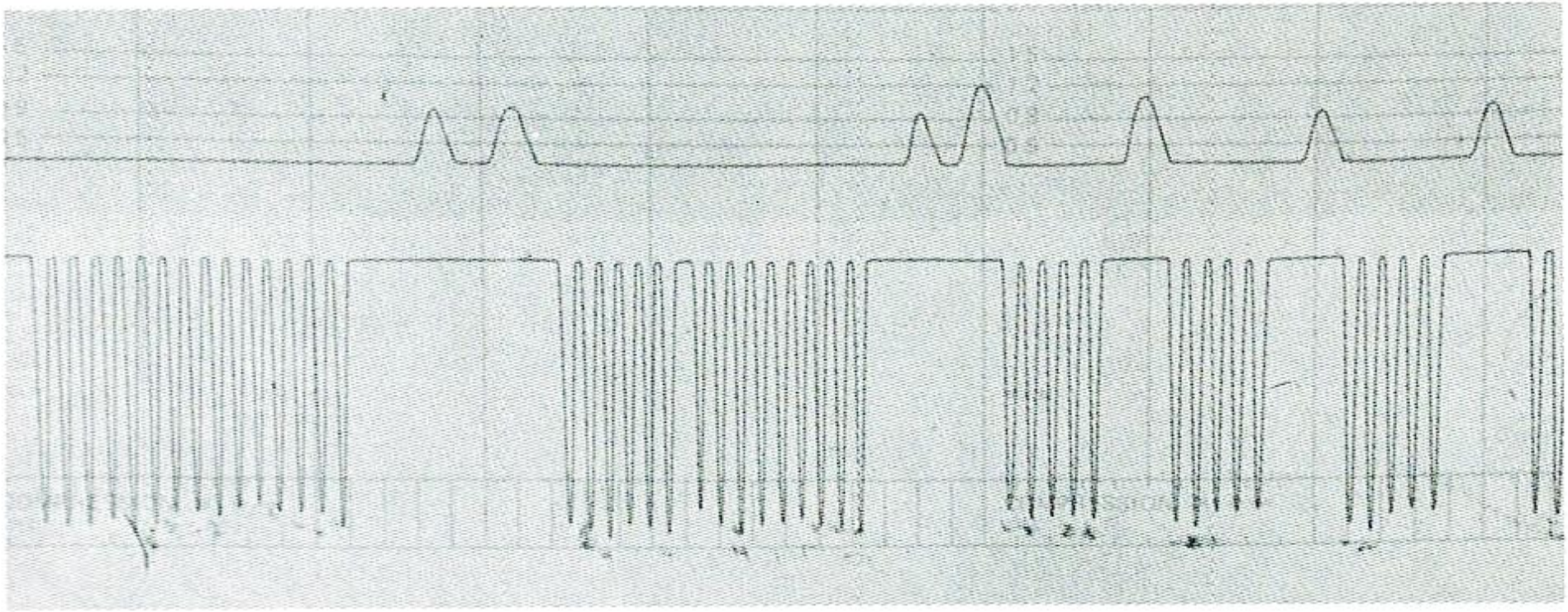
Victim Must Be On “Firm” Surface ???

Resusitation: Floor Resusci-Anne (n = 50)



Hawkins, M JODA. Jul/Aug Vol 6:28

Dental Chair Resusitation Resusci-Anne (n = 50)



Hawkins, M JODA. Jul/Aug Vol 6:28

A.E.Ds

One-Touch

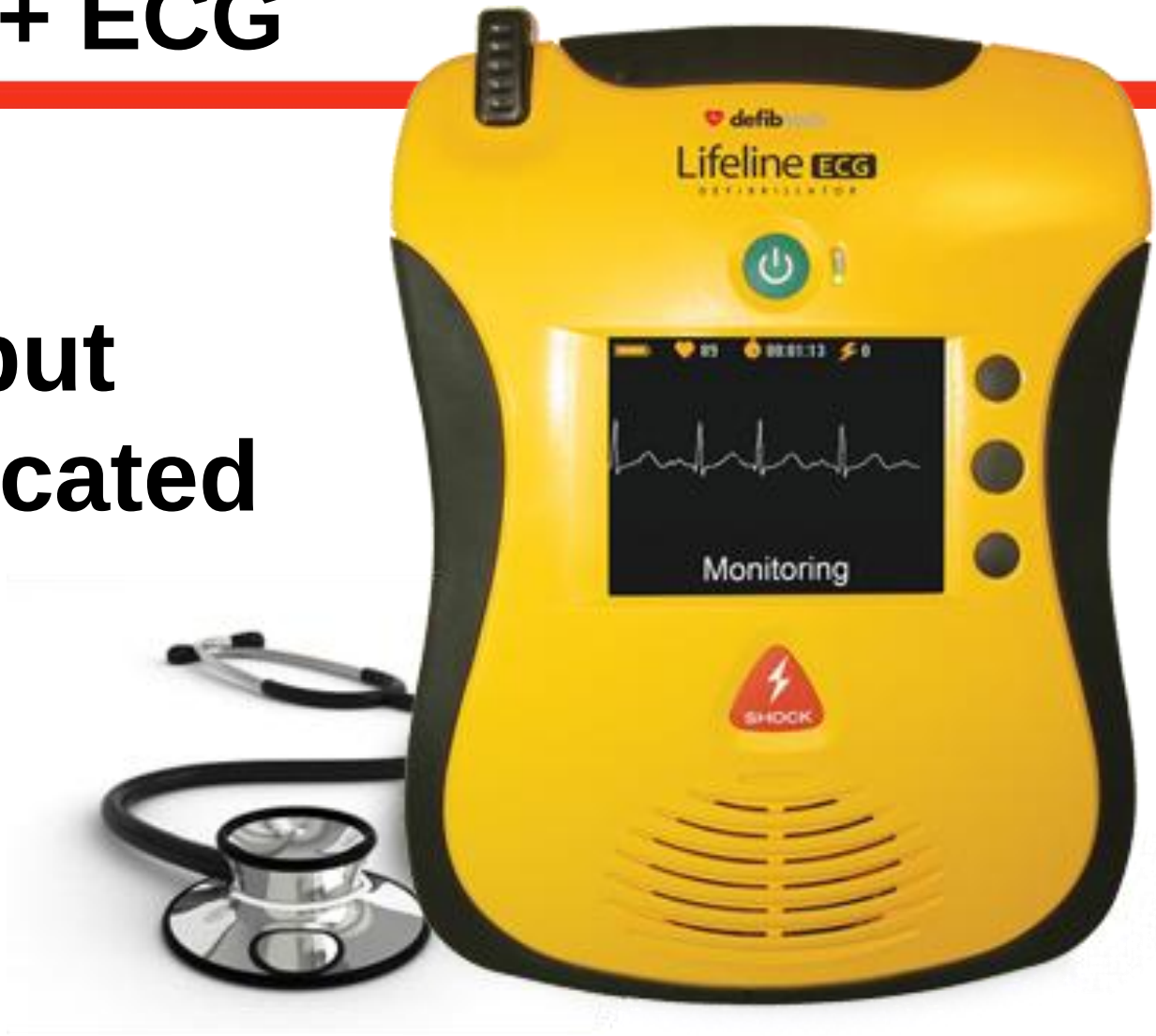
$1245.00

CPR Savers and First Aid Supply®

AED Philosophy

AED + ECG

Simple but Sophisticated



$1999.00

CPR Savers and First Aid Supply®

3

Let's Do Drugs

Guidelines

What do you need?

DO NOT

even *THINK* of using a drug you know nothing about!

Emergency Medications Responsible Auxiliary:

- Check kit every two months (on mock simulation day) to assure drugs are not expired or broken. Replace as needed.

- Review correct method for preparation in emergency periodically.

OXYGEN

Epinephrine

Various injectors available for anaphylaxis (severe allergy; bee stings, peanuts) and bronchospasm

CHILD / ADULT:

Packs of 1 or 2 vary in price

child: 0.15 mg.

adult: 0.3 mg.

***until you can draw up from an amp.**

Epinephrine

Equi-potent doses: (1ml 1:1000 amps)
by route of administration:

- **SC - 0.5 mg**
- **IM - 0.3 mg.**
- **IL - 0.2 mg.**
- **IV - 0.1 mg. - must dilute 1:10,000**

If patient has air exchange:

ß-2 inhaler: albuterol


DIN 00721891
EPINEPHRINE
INJECTION USP
1:1000


IMS
DIN. 362832
STOCK NO. 1071
NDC. 548-1071
SINGLE USE
MIN-I-JET™
SYSTEM
25 GA. x 5/8" with NEEDLE
6-80
EPINEPHRINE HCl SOLUTION, USP
Each ml contains:
EPINEPHRINE 1 mg;
HYDROCHLORIC ACID, TO DISSOLVE EPINEPHRINE AND ADJUST pH; SODIUM CHLORIDE, FOR ISOTONICITY; CITRIC ACID AND SODIUM CITRATE, AS BUFFERS; AND SODIUM BISULFITE, AS ANTIOXIDANT, 2.5 MG.
PROTECT FROM LIGHT
STORE AT CONTROLLED ROOM TEMPERATURE (15° C to 30° C)
NOTE: Do not use the injection if it is brown or contains a precipitate.
GUARANTEED STERILE IN ORIGINAL, INTACT PACKAGE.
FOR SUBCUTANEOUS USE — ADRENERGIC
Usual Adult Dose: 0.3 ml to 0.5 ml.
DISCARD ANY REMAINING SOLUTION.
See package insert for full prescribing information.
Caution: Federal (U.S.A.) law prohibits dispensing without prescription.
Manufactured by
IMS LTD.
So. El Monte, CA 91733, U.S.A.
Distributed in Canada by
INTERNATIONAL MEDICATION SYSTEMS OF CANADA Ltée.
St. Laurent (Montreal), Quebec, Canada
LOT / EXP

Epinephrine

EPIPEN®* for anaphylaxis (severe allergy; bee stings, peanuts) and bronchospasm

CHILD / ADULT: EpiPen 2-Pak®:

child: 0.15 mg….. $279.06

adult: 0.3 mg…. $ 279.06

***until you can draw up from an amp.**

Nitroglycerin

Action is unclear: SL administration ⇨ vasodilation result in a reduced venous return, or preload reduction, lowering myocardial O_2 consumption.

Indications: Ischemic chest pain - 1 tab Q5M x 3

Symptomatic hypertensive episodes

Dose: 0.3-0.6 SL mg. tabs / 0.4-0.8 SL spray

Warning: do not give another "nitro" if SBP < 90

$9.00 / 100

Expiration date must be “Sharpied” to 8-10 weeks from “today’s seal breaking”

$32.00

Nitrolingual® Pumpspray
but . . .

. . . expiry date IS the expiry date

ASA

Giving the maximum as a 325 mg. tablet is OK but…

ASA (for MI)

325 mg. = peak effect

It's best via 4X baby ASA (81 mg.) chewed, aside from, and over and above prophylactic use

ASA (for MI)

325 mg. = peak effect

Action: Keeps # of platelets from increasing, which could lead to further coronary artery blockage or if cerebral blockage, STROKE!

Albuterol-Bronchodilator

Albuterol - β2 agonist

Inhaler: Inhale 1 to 2 puffs of albuterol up to 4 times daily.

More than 8 inhalations per day is not recommended.

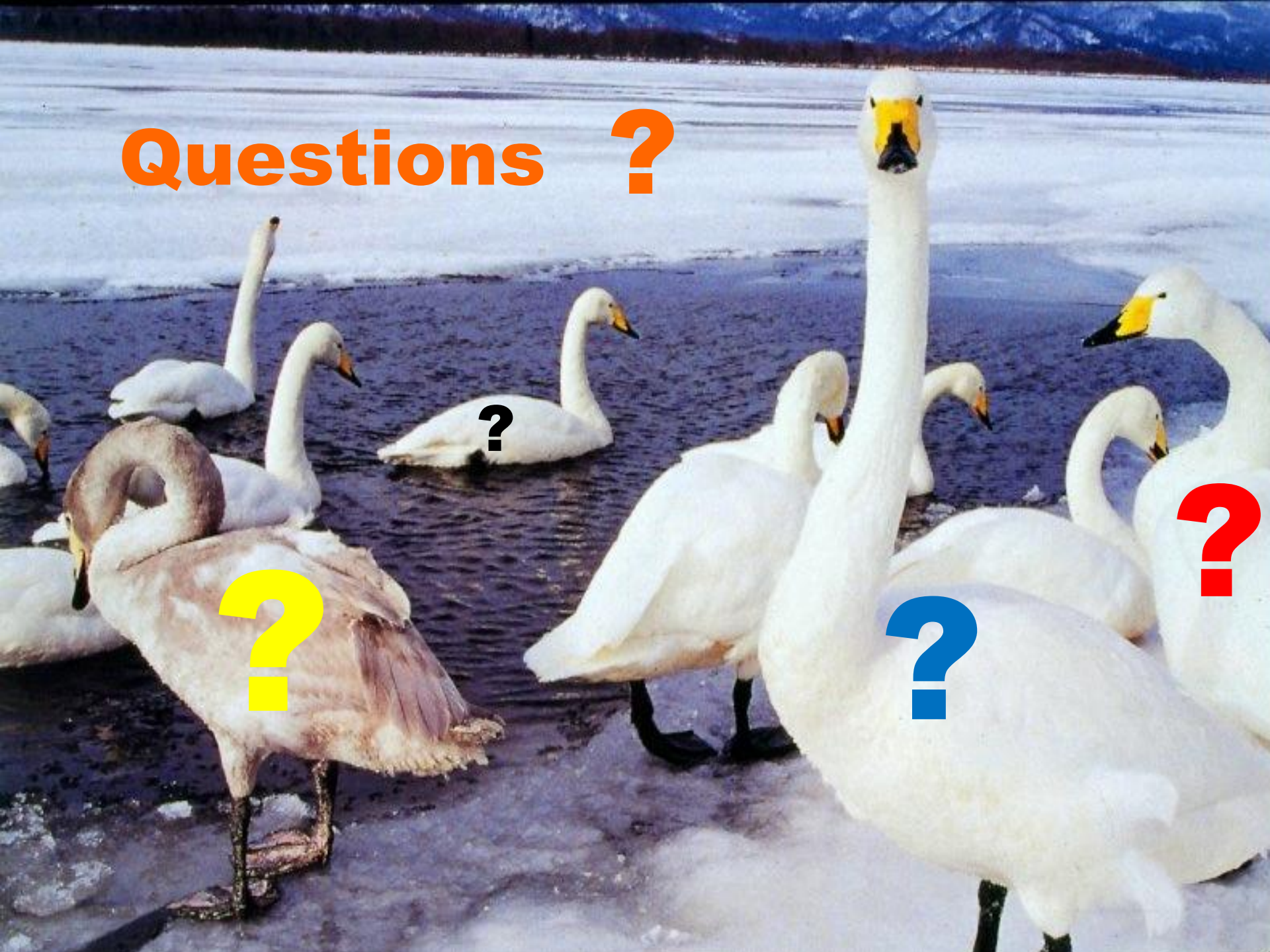

Albuterol -
Ventolin® -
β2 agonist
Ventolin
Glaxo
Ventolin
salbutamol
100 mcg
Glaxo

Diphenhydramine

- Action and effect based on blocking histamine release
- Indications / Dose: (50mg/ml amp or SDV)
  - pruritus / urticaria / nausea
  - 50mg IM followed by 50mg TID P.O.
  - medical follow up to anaphylaxis
- THINK FIRST! Can they get a ride?

Glucose Source

ALL dental offices have a massive sugar availability in house!


Questions ?
?
?
?
?


Diagnosis
Dependent
Treatments

Syncope

- Sudden, transient loss of consciousness
- Common immediately pre- or post injection
- Most common procedure – extraction
- Often recovery before advanced treatment can be implemented

Syncope Profile of Prevalence

- Male » Female
- Never in children
- Average age? 35 years old
- Scenario:

  Male, 35 y.o., anxious,
  "macho" guy,
  "needlephobic"

Syncope Signs/Symptoms

- Pallor
- Nausea
- Disorientation
- Loss of Consciousness
- Blood pressure 
- Pulse thready, may arrest 30-45 sec.
- Low blood sugar

Syncope Causes

- Anxiety, Pain
- Sit up too fast
- Inject too fast
- Intraosseous injections
- Hypoglycemia (prolonged NPO)

Syncope Algorithm

Position, ABC's

Time, Time, Time

Always!

O_2 by nasal cannula

4 litres/minute

+ Glucose


Nausea /
Vomiting
…associated with syncope

Hyperventilation

Signs / Symptoms:

- Rapid, shallow breaths, “air hunger”
- Impaired inspiration / expiration
- Sense of panic
- Disorientation
- O_2 saturation = 100%

Hyperventilation

It’s Showtime!

Hyperventilation Treatment

- Rebreathe from paper bag?
- Do nothing and leave room?

*Nobody has ever died from a 100% oxygen saturation!

Angina

- Pallor, chest pain in “waves”
- “Indigestion?”
- Denial
- Midsternal pain, left arm, left mandible
- Nausea, diaphoresis
- Rapid, shallow breathing,
- R_x 1 nitroglycerine tablet or 2 sprays

Myocardial Infarction

- **Female: “weight on chest” / indigestion?**
- **mild shortness of breath (SOB), nausea**
- **Male: chest pain, sharp, severe, left arm**
- **↑ SOB, ↑ BP (pain)**
- **Panic, fear, but denial**
- **Rapid, shallow breathing**

Angina / MI Algorithm

Syncope Protocol

↓

Nitroglycerin q. 5 min x 3

↓

Assume MI / Call EMS

Cardiac Arrest

- Marked hypotension
- Rapid, shallow breathing ⇨ LOC
- Apnea ⇨ cyanosis = respiratory arrest
- Fibrillation = no pulse
- AED gives diagnosis and action

Cardiac Arrest Algorithm

Syncope Protocol

↓

CPR

100% Oxygen

➔ **1 - 2 mg epinephrine**

Asthma

Asthma and Severe Allergy

Signs/Symptoms

Bronchospasm Algorithm

ABC's & Position

↓

Oxygen

↓

B-2 inhaler

BUT if not exchanging air: epinephrine 0.3 mg

Seizures / Convulsions

DEFINITIONS:

- **Seizure**: “Fibrillation of the CNS”

- **Convulsion**: “Fibrillation of the CNS” with Motor Nerve activity added

Seizure Algorithm

Protect Patient,
Protect Yourselves!

↓

Syncope Protocol
Following Seizure

If status seizure: EMS/PPV

Seizure Algorithm

Flumazenil

Romazicon®

In The Dental Office or Witnessed at home

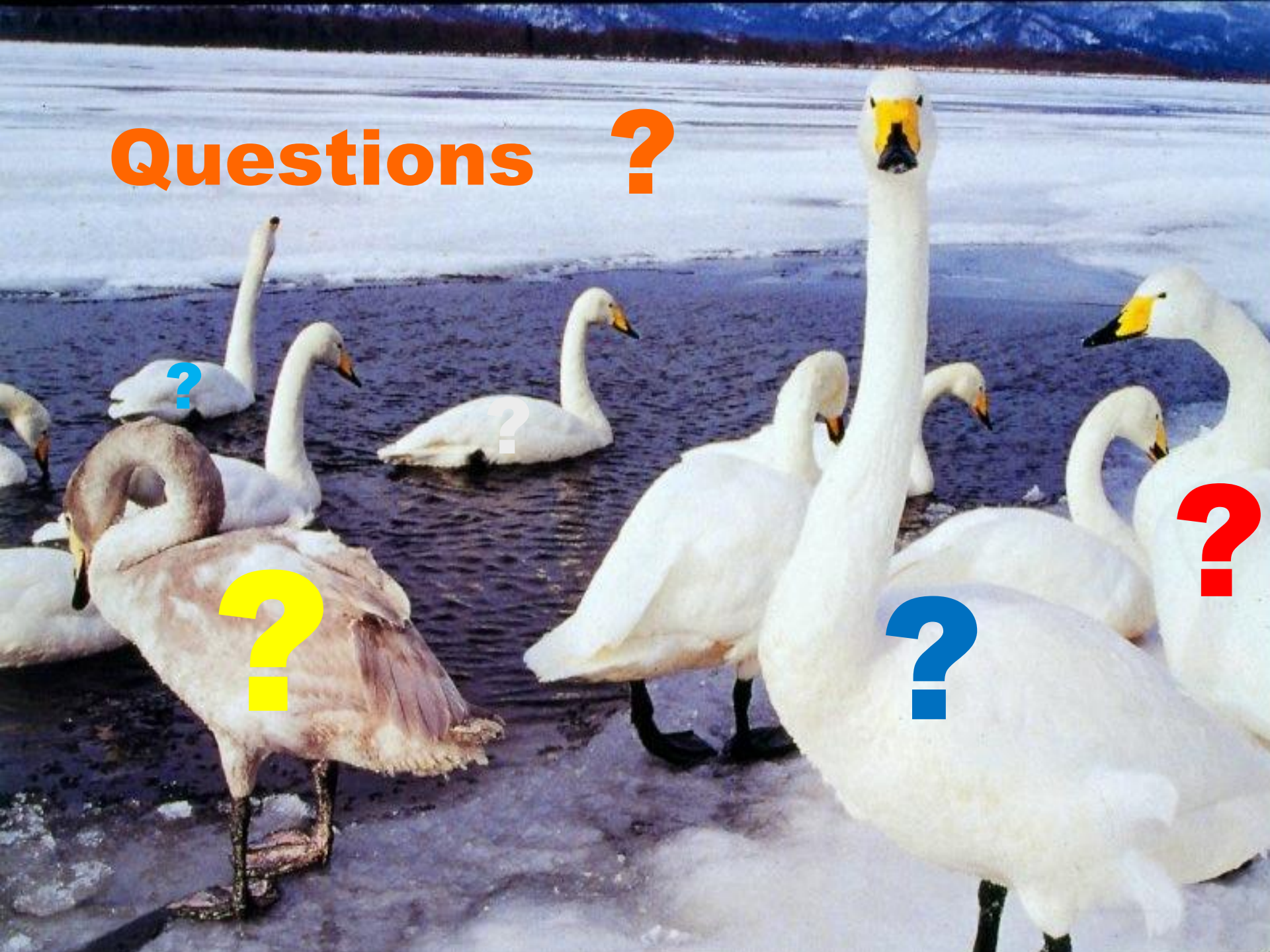
- Primary assessment is in front of you or in the history
- Activate EMS, 911
- Assign, Designate

Unexplained, Unwitnessed, Unconscious

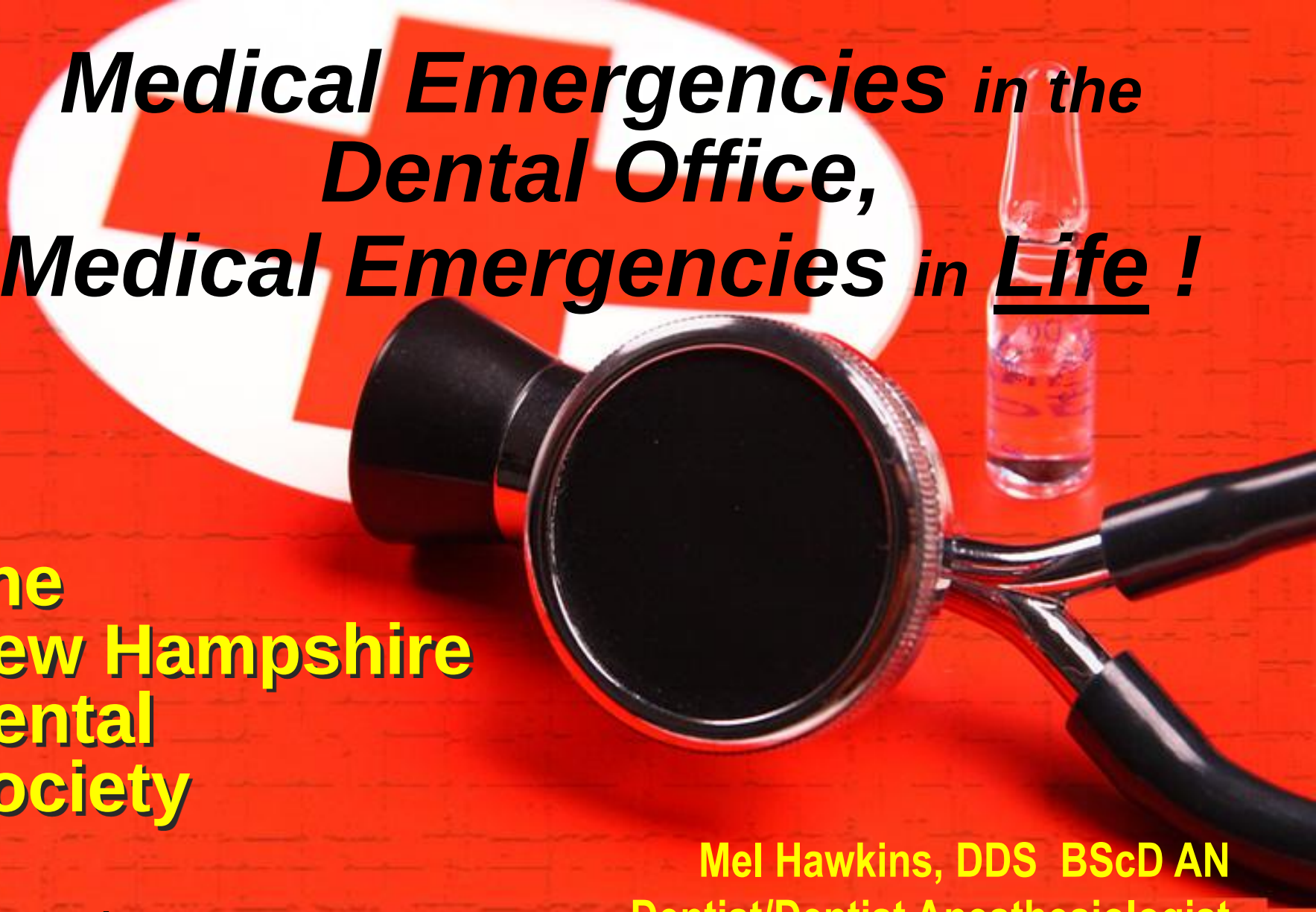
- Primary assessment
- Call for HELP, get to a phone even if it's you that has to leave
- No medical history, no relatives, no knowledgeable friends

IN LIFE…triple “U”

- Look for MEDIC ALERT bracelet or necklace
- Read allergies, medical conditions
- Phone emergency hot line # on MEDICAL ALERT tag, quote victim’s ID #
- Medical history will be given 24 / 7 by phone


Questions ?
?
?
?
?
?

Medical Emergencies in the Dental Office, Medical Emergencies in Life !



The New Hampshire Dental Society

Mel Hawkins, DDS BScD AN
Dentist/Dentist Anesthesiologist
Toronto, ON Canada

Concord, NH

Friday, November 9th, 2018