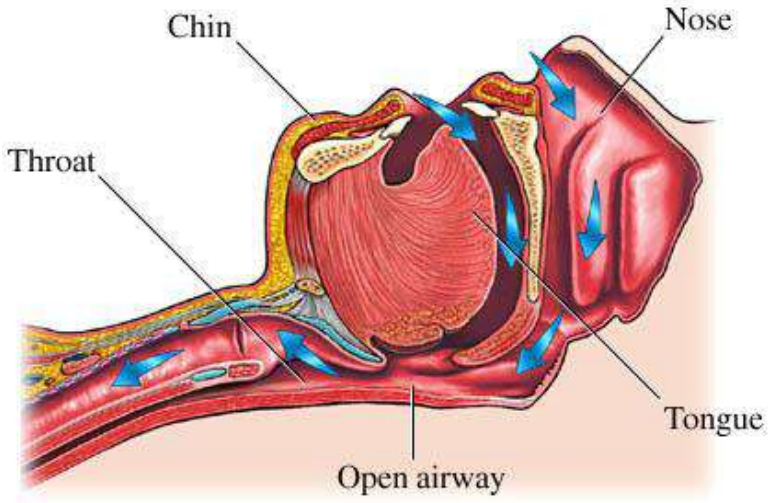
Airway Management In Difficult Situation

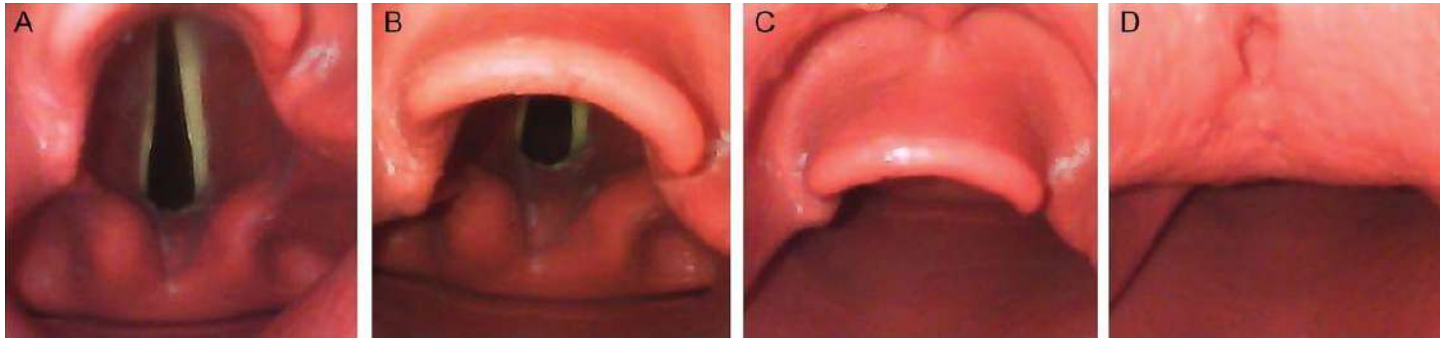


Apirak Thewaritrueangsri,MD

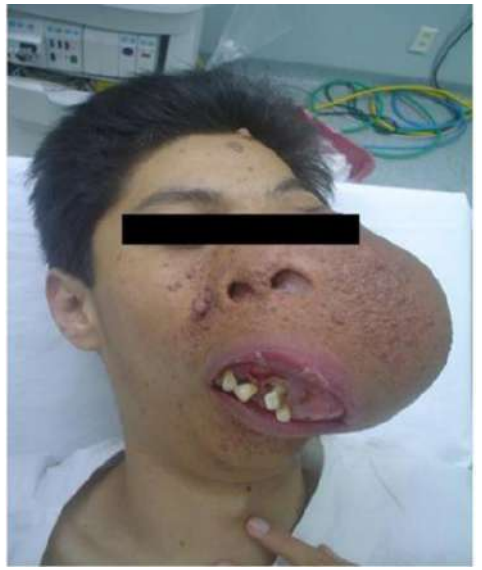
Rawee Jongkongkawutthi, MD

Department of anesthesiology
Naresuan University

What is the problem?



- Uncooperative patient
- Can’t seen vocal cord
  - Laryngeal view grade > I
  - Obscured by Secretion / Blood / Mass
- Seen vocal cord, but can’t insert endotracheal tube into vocal cord
  - Can’t control tip of ETT to vocal cord
  - Vocal cord edema
- Limited mouth opening or neck movement



Classification Of Difficult Airway

Difficult airway

- The clinical situation in which anticipated or unanticipated difficulty or failure is experienced by a physician trained in anesthesia care

Difficult airway

- The clinical situation in which anticipated or unanticipated difficulty or failure is experienced by a physician trained in anesthesia care

Difficult Facemask Ventilation.
Difficult Laryngoscopy.
Difficult Supraglottic Airway Ventilation.
Difficult or Failed Tracheal Intubation.
Difficult or Failed Invasive Airway.

Classification

- Difficult Facemask Ventilation
- Difficult Supraglottic Airway Ventilation.
- Difficult laryngoscopy
- Difficult or Failed Tracheal Intubation
- Difficult or Failed Invasive Airway

Inadequate mask seal

Excessive gas leak

Excessive resistance to the ingress or egress of gas.

Classification

- Difficult Facemask Ventilation
- Difficult Supraglottic Airway Ventilation.
- Difficult laryngoscopy
- Difficult or Failed Tracheal Intubation
- Difficult or Failed Invasive Airway

Difficult supraglottic airway placement

Supraglottic airway placement requiring multiple attempts

Inadequate supraglottic airway seal

Excessive gas leak

Excessive resistance to the ingress or egress of gas.

Classification

- Difficult Facemask Ventilation
- Difficult Supraglottic Airway Ventilation.
- Difficult laryngoscopy
- Difficult or Failed Tracheal Intubation
- Difficult or Failed Invasive Airway

It is not possible to visualize any portion of the vocal cords after multiple attempts at laryngoscopy.

Classification

- Difficult Facemask Ventilation
- Difficult Supraglottic Airway Ventilation.
- Difficult laryngoscopy
- Difficult or Failed Tracheal Intubation
- Difficult or Failed Invasive Airway

Tracheal intubation requires multiple attempts or tracheal intubation fails after multiple attempts.

Classification

- Difficult Facemask Ventilation
- Difficult Supraglottic Airway Ventilation.
- Difficult laryngoscopy
- Difficult or Failed Tracheal Intubation
- Difficult or Failed Invasive Airway

Anatomic features or abnormalities reducing or preventing the likelihood of successfully placing an airway into the trachea through the front of the neck.

Difficult airway

- A quick assessment of congenital or acquired *anatomic defects*

Facial, **H**ead, or **N**eck trauma,

Oral bleeding, **R**egurgitated gastric contents,

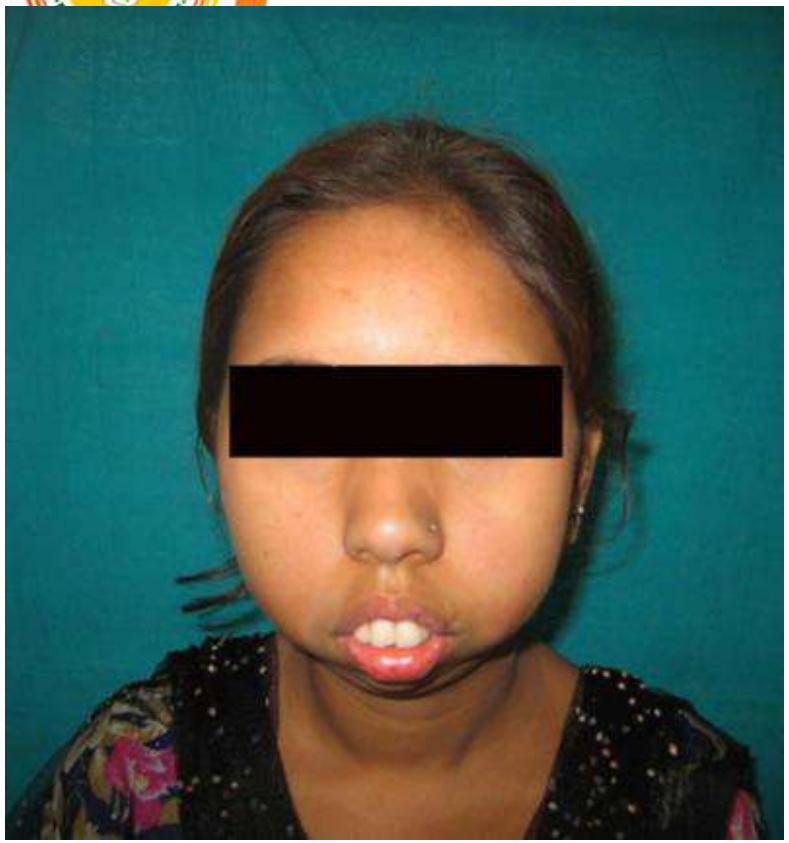
Frothing of the mouth

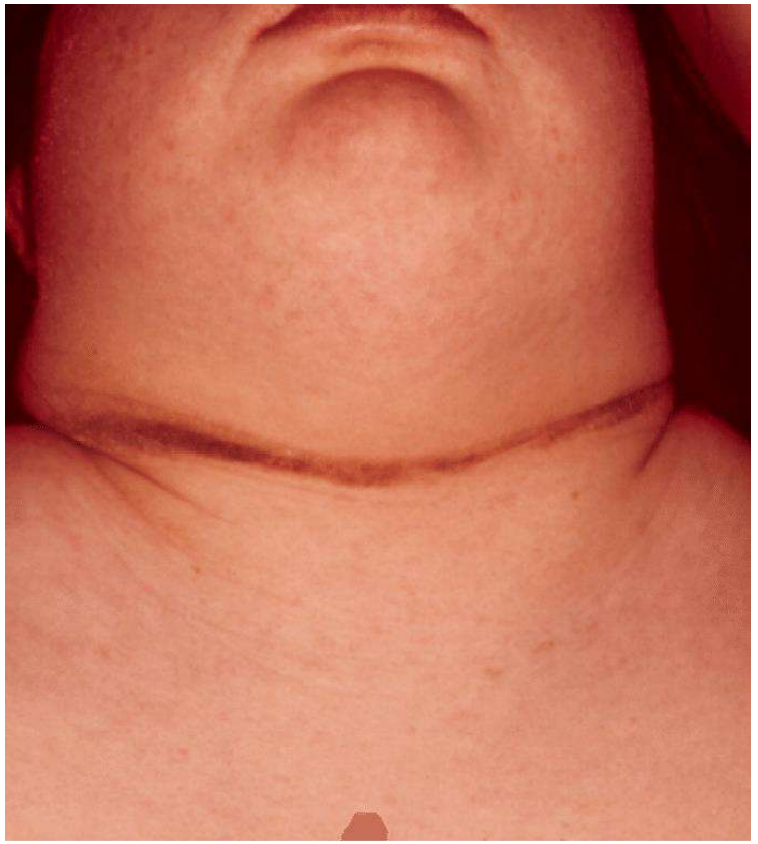
Neck mobility, **B**eard, **O**bese, **N**o teeth , **E**lderly,

Sleep apnea/snoring, **R**estricted mouth opening, **O**bstruction,

Distorted airway, **S**tiff lungs or c-spine surgery,

Mass, **T**hyromental distance






Stanford Medicine 25

Guidelines for Management of the Difficult Airway

2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway*

Jeffrey L. Apfelbaum, M.D., Carin A. Hagberg, M.D., Richard T. Connis, Ph.D., Basem B. Abdelmalak, M.D., Madhulika Agarkar, M.P.H., Richard P. Dutton, M.D., John E. Fiadjoe, M.D., Robert Greif, M.D., P. Allan Klock, Jr., M.D., David Mercier, M.D., Sheila N. Myatra, M.D., Ellen P. O'Sullivan, M.D., William H. Rosenblatt, M.D., Massimiliano Sorbello, M.D., Avery Tung, M.D.

ANESTHESIOLOGY 2022; 136:31–81

ABSTRACT

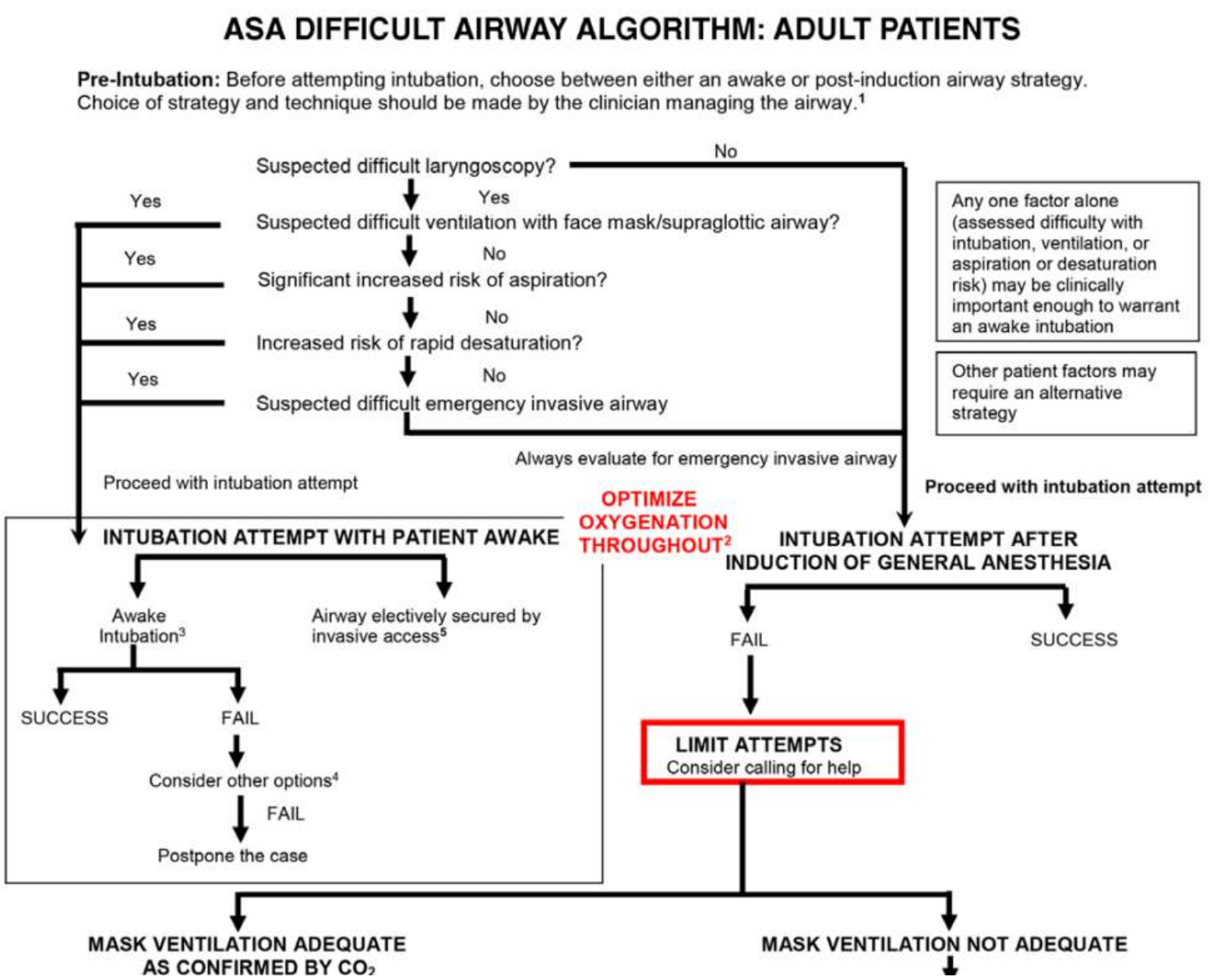
The American Society of Anesthesiologists; All India Difficult Airway Association; European Airway Management Society; European Society of Anaesthesiology and Intensive Care; Italian Society of Anesthesiology, Analgesia, Resuscitation and Intensive Care; Learning, Teaching and Investigation Difficult Airway Group; Society for Airway Management; Society for Ambulatory Anesthesia; Society for Head and Neck Anesthesia; Society for Pediatric Anesthesia; Society of Critical Care Anesthesiologists; and the Trauma Anesthesiology Society present an updated report of the Practice Guidelines for Management of the Difficult Airway.

(Anesthesiology 2022; 136:31–81)

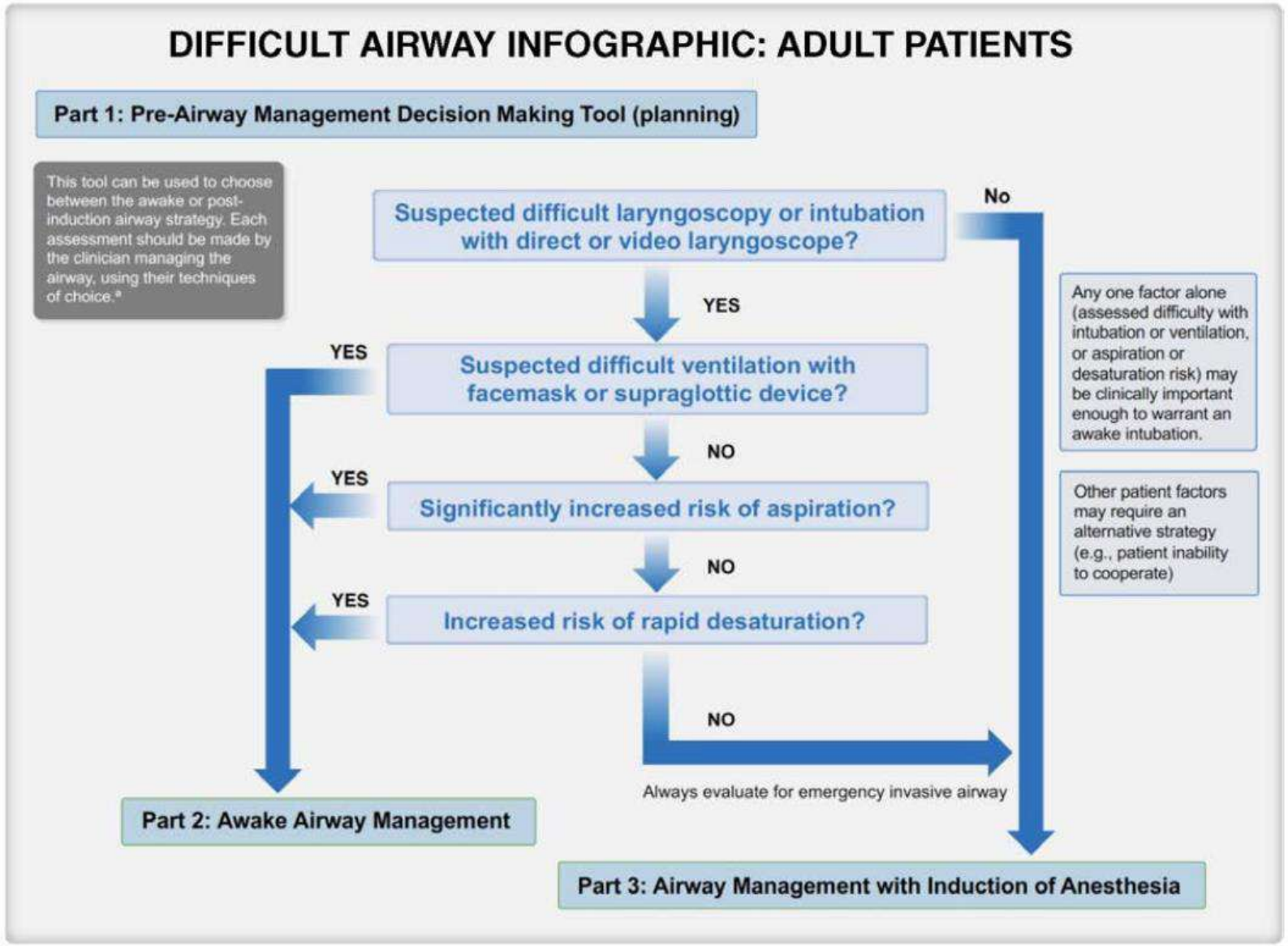
HIGHLIGHTS BOX

These updated guidelines:

- Replace the "Practice Guidelines for Management of the Difficult Airway: A Report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway," adopted by the American Society of Anesthesiologists in 2012 and published in 2013.[1]
- Specifically address difficult airway management. The guidelines do not address education, training, or certification requirements for



Guidelines for Management of the Difficult Airway



Guidelines for Management of the Difficult Airway

Preoxygenation Technique

Rises in the alveolar O2 fraction (FAO2), reductions in the alveolar nitrogen fraction (FAN2)

- Face mask
  - Deep Breathing
  - Rapid Breathing at FiO_2=1.0
  - Four Vital Capacities Method
- Transnasal Humidified Rapid Insufflation Ventilator Exchange (THRIVE)
- Oxygen cannula

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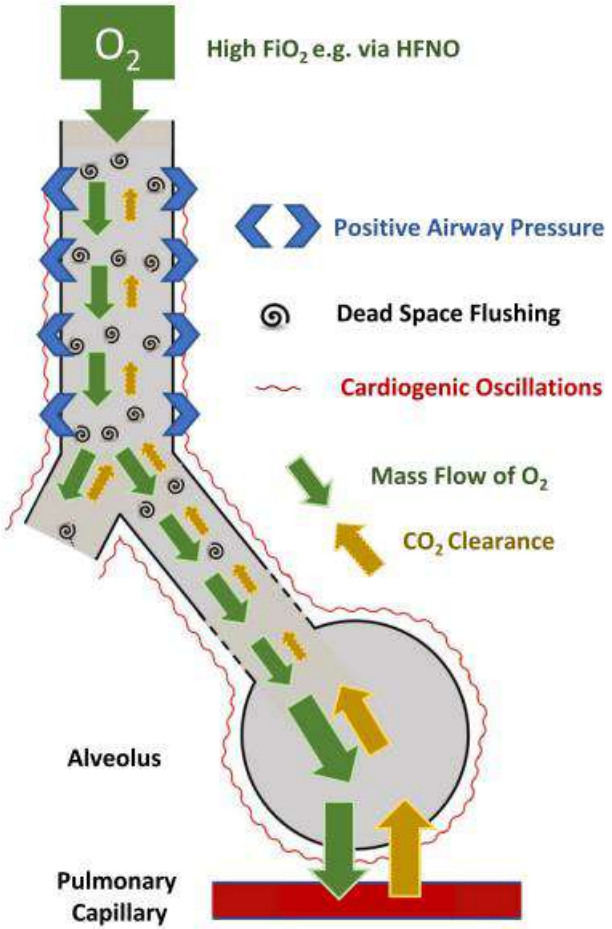
Transnasal Humidified Rapid Insufflation Ventilator Exchange (THRIVE)



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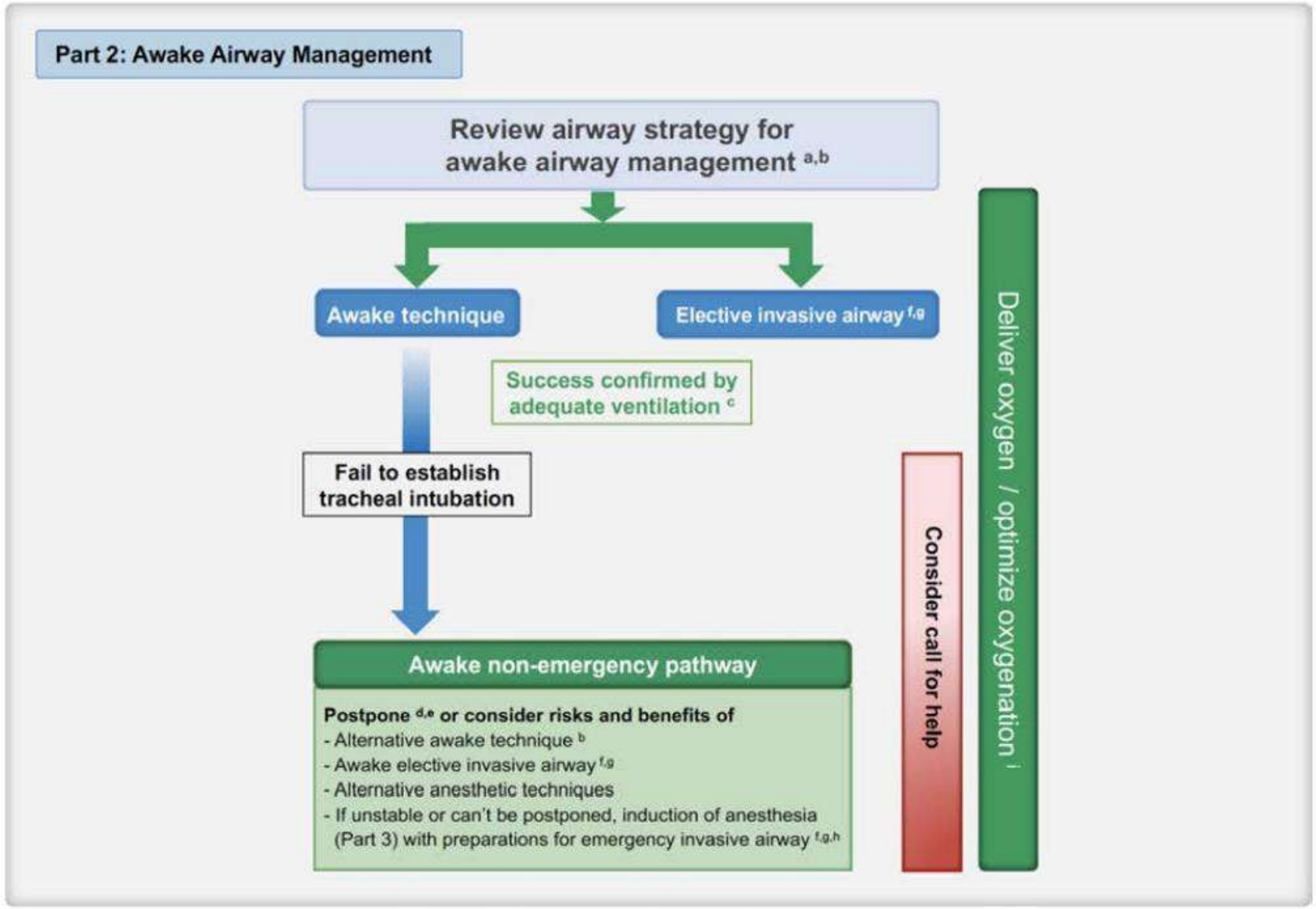

Guidelines for Management of the Difficult Airway

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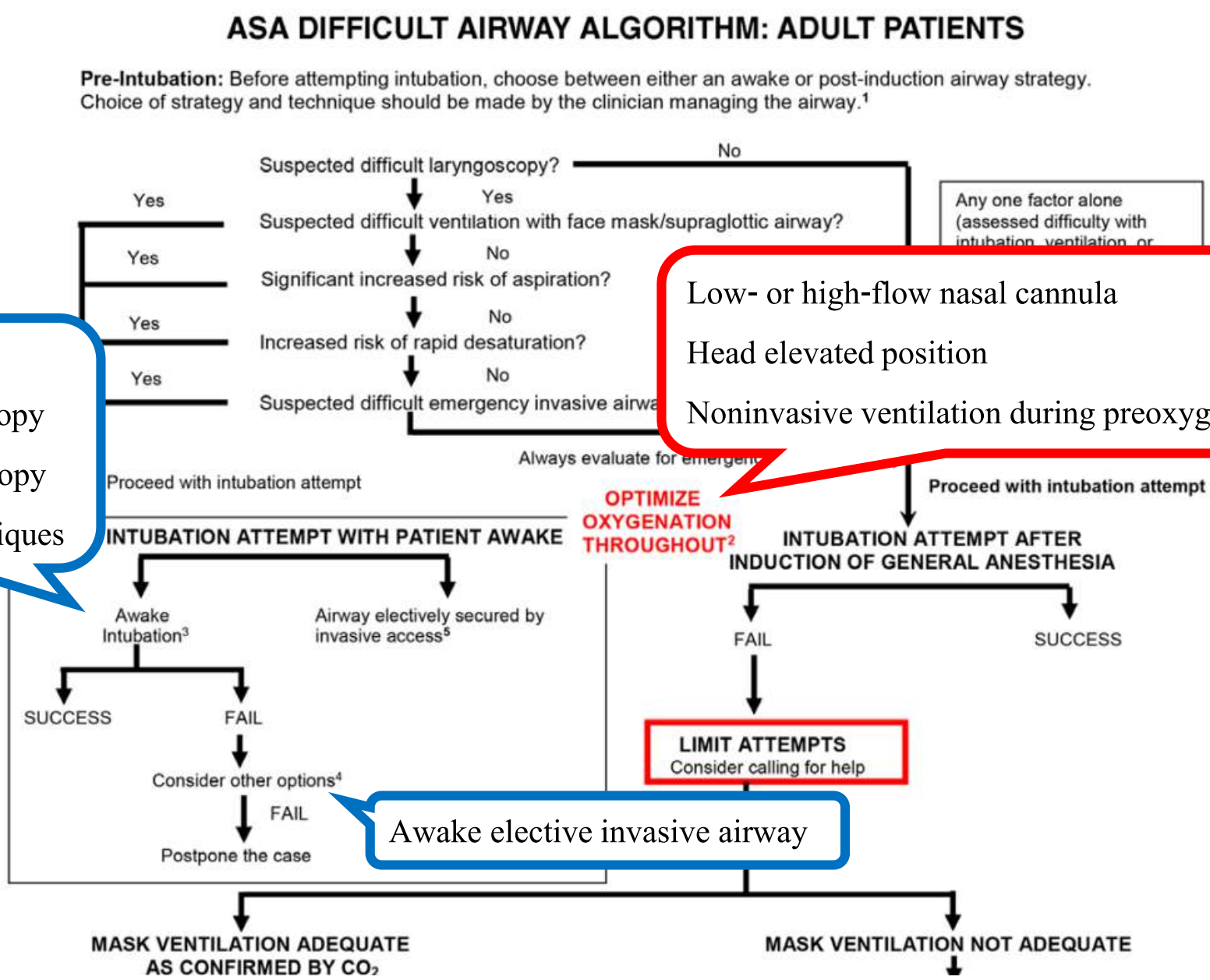

Fiberoptic

Video laryngoscopy

Direct laryngoscopy

Combined techniques

Low- or high-flow nasal cannula

Head elevated position

Noninvasive ventilation during preoxygenation

Awake elective invasive airway

Establish secure airway

- Intubating stylets
- External laryngeal manipulation
- Video-assisted laryngoscopy
- Alternative laryngoscope blades
- Intubating supraglottic airway
- Combined techniques

Establish secure airway

- **Intubating stylets**
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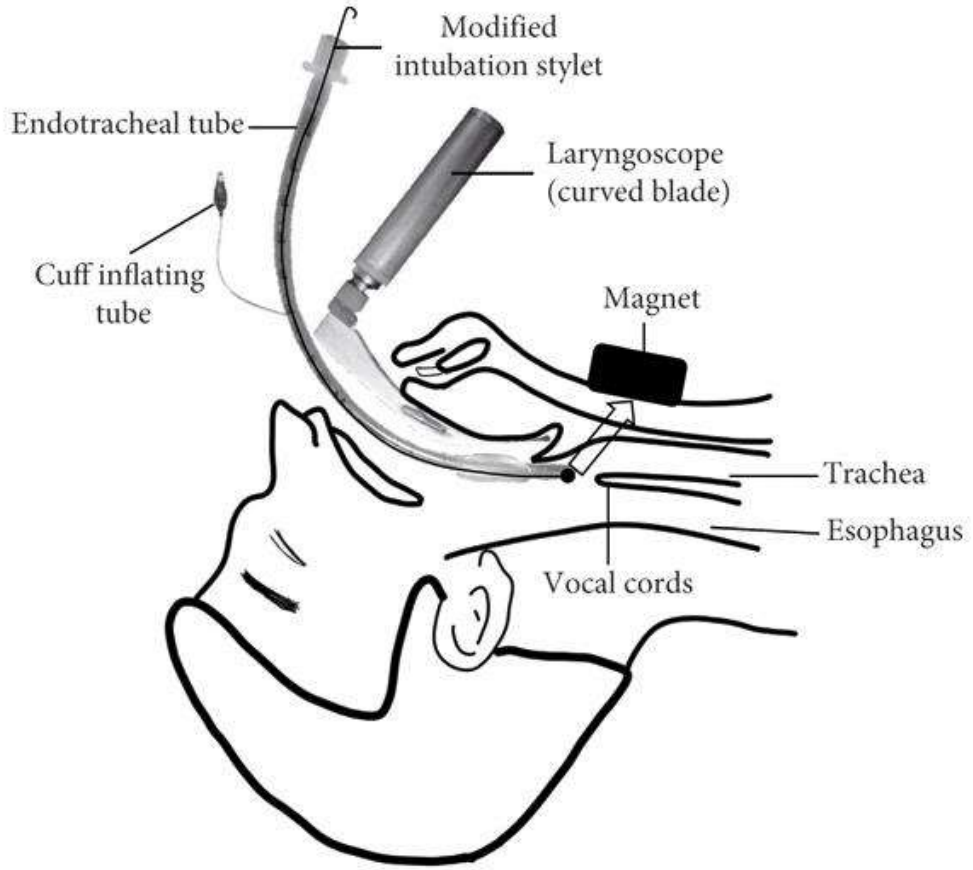
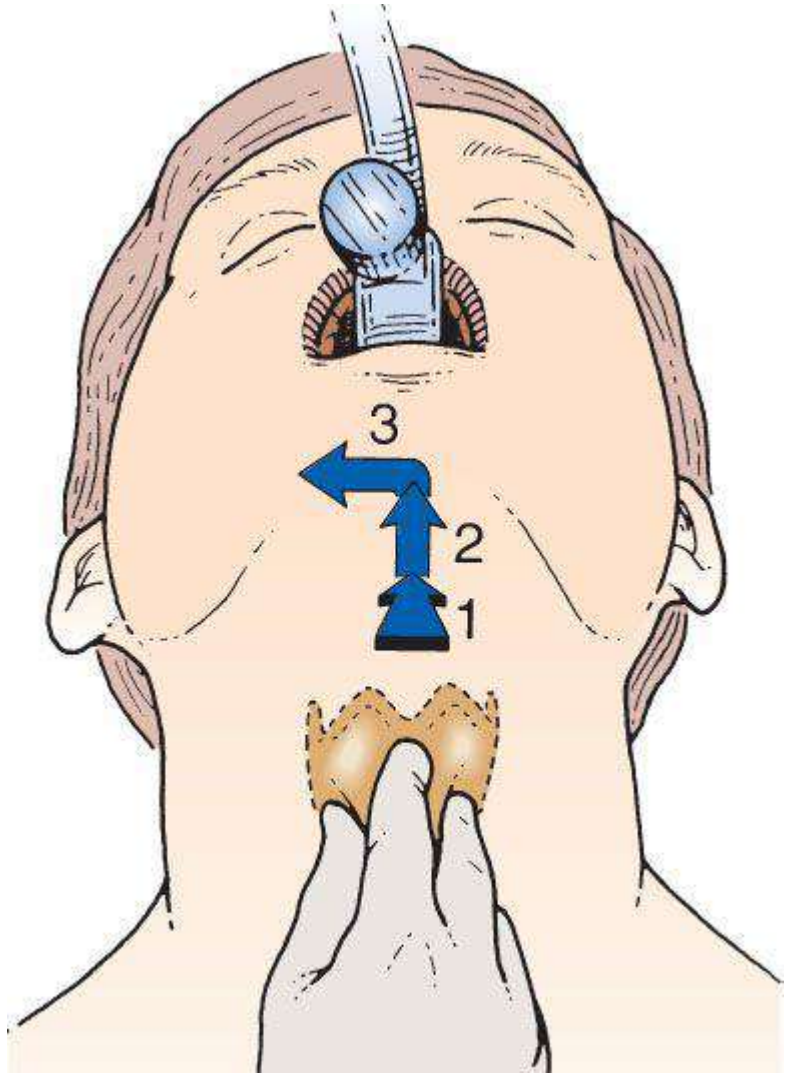


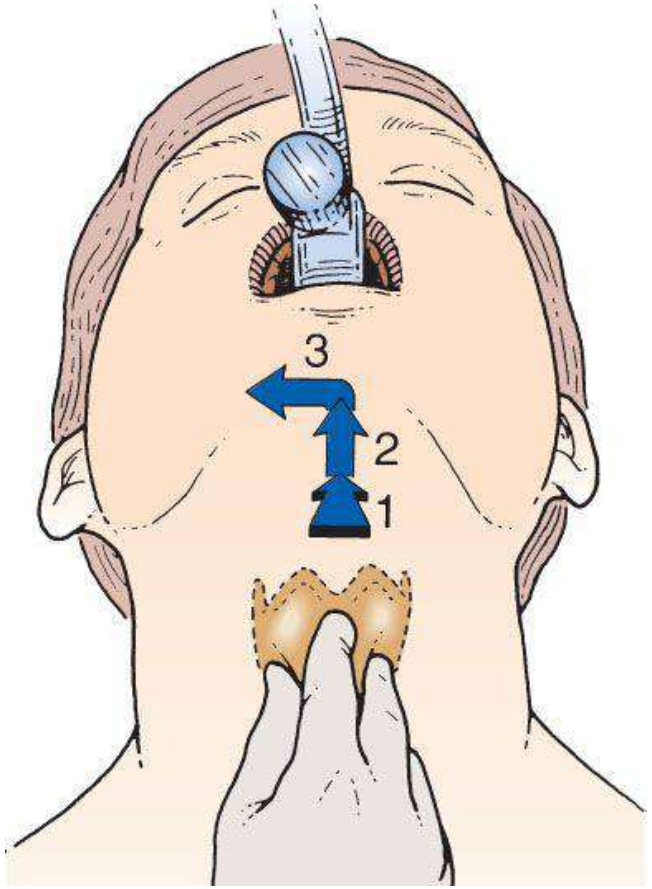
Establish secure airway

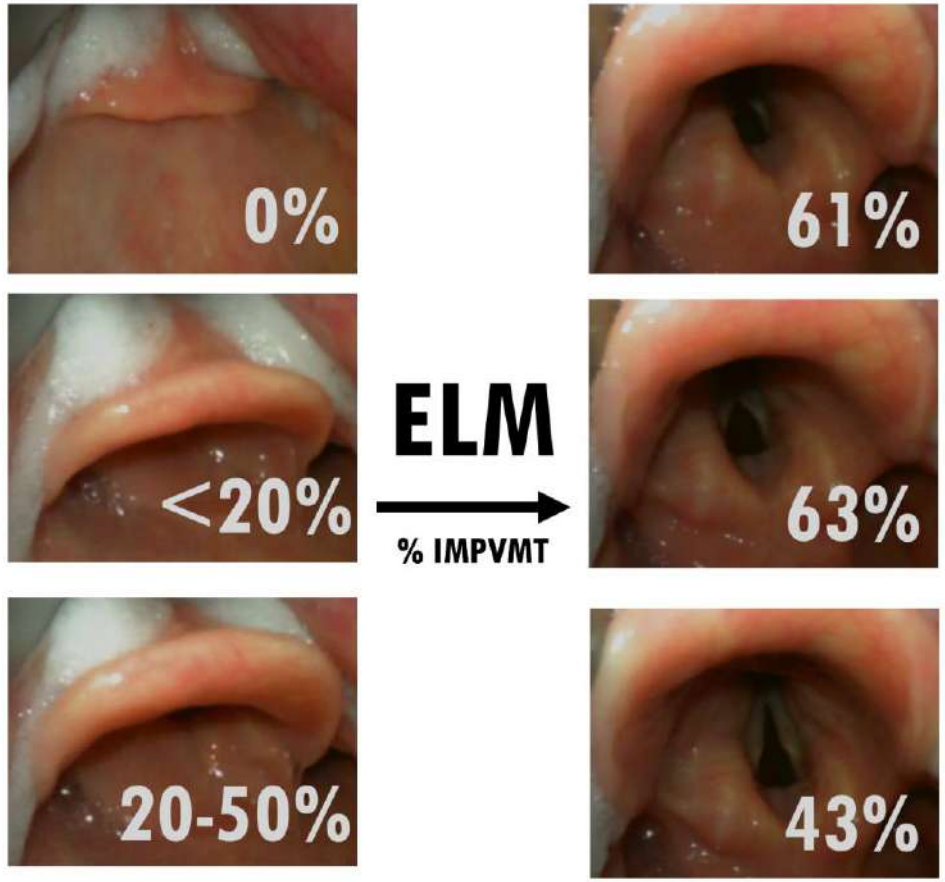
- Intubating stylets
- **External laryngeal manipulation (BURP maneuver)**
- Video-assisted laryngoscopy
- Alternative laryngoscope blades
- Intubating supraglottic airway
- Combined techniques



External laryngeal manipulation (BURP maneuver)

- B – Backward
- U – Upward
- RP – Rightward pressure





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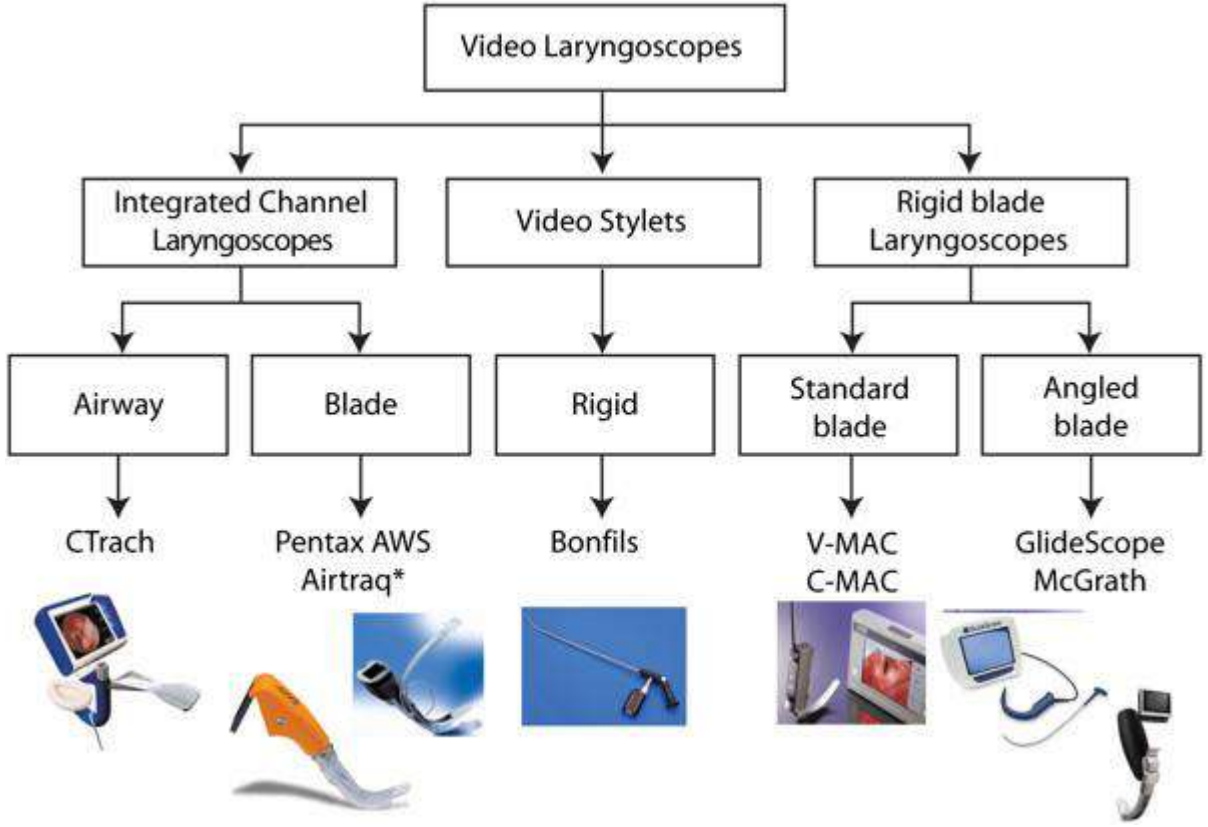
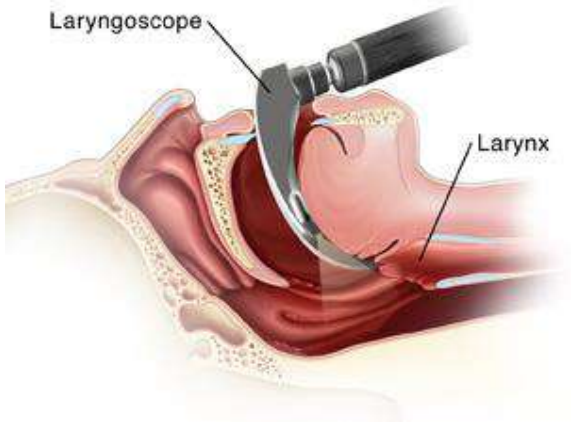
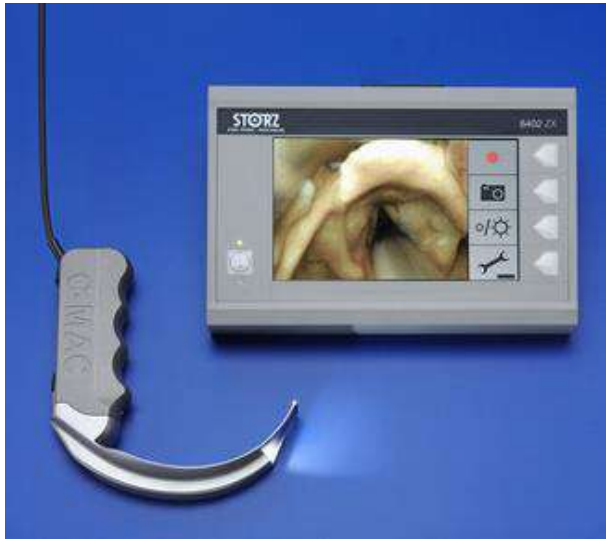


Direct *VS* Video-assisted laryngoscopy





Video-assisted laryngoscopy

Indications and advantages

- Unnecessary to align airway axes (oral-pharyngeal-laryngeal)
- Improved glottic visualization, (limited mouth opening or neck mobility)
- Allows others to view the screen and/or help
- facilitate ETI (e.g., redirect cricoid pressure, acquire other airway devices)
- Less cervical manipulation
- Possible awake assessment/intubation
- Can provide an official record.

Disadvantages

- Difficulty in passing ETT despite improved glottic visualization (especially with angulated blade)
- Possible increased intubation time; variable learning curve
- Potential for false sense of security and lack of preparation for difficult airway
- Two–dimensional view with loss of depth perception;
- Obscured view by fogging and secretions on camera lens

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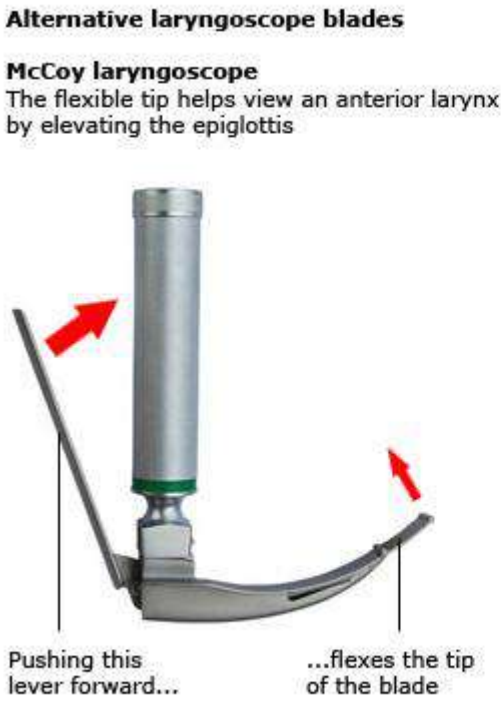

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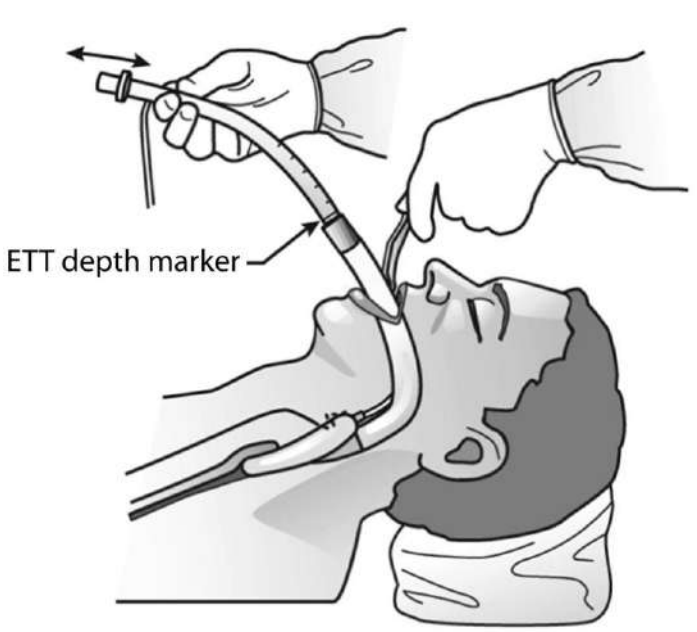

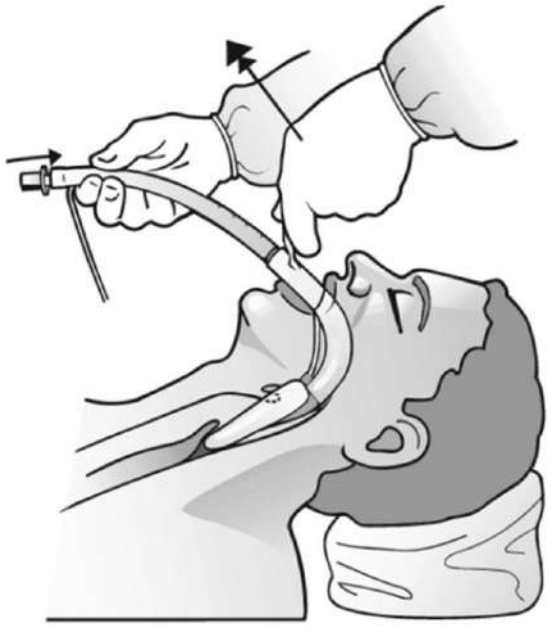

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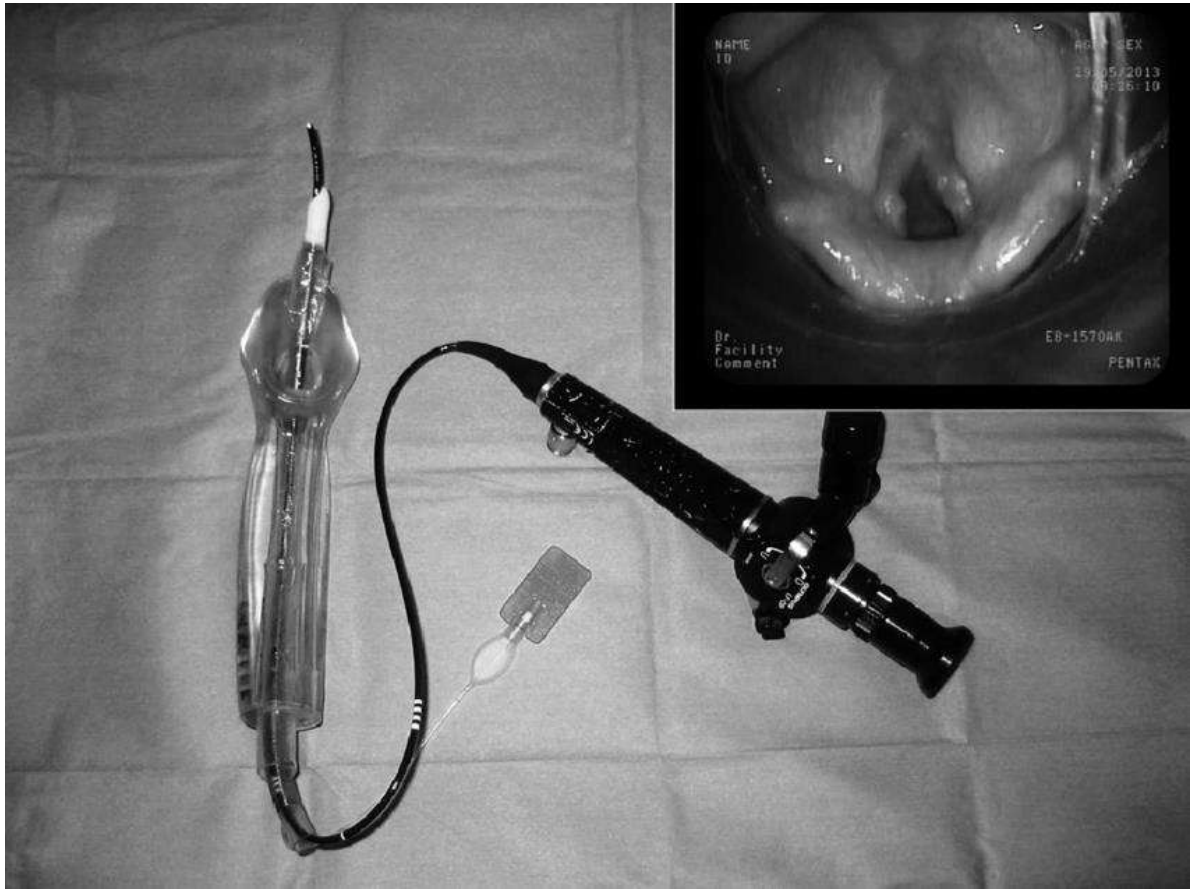
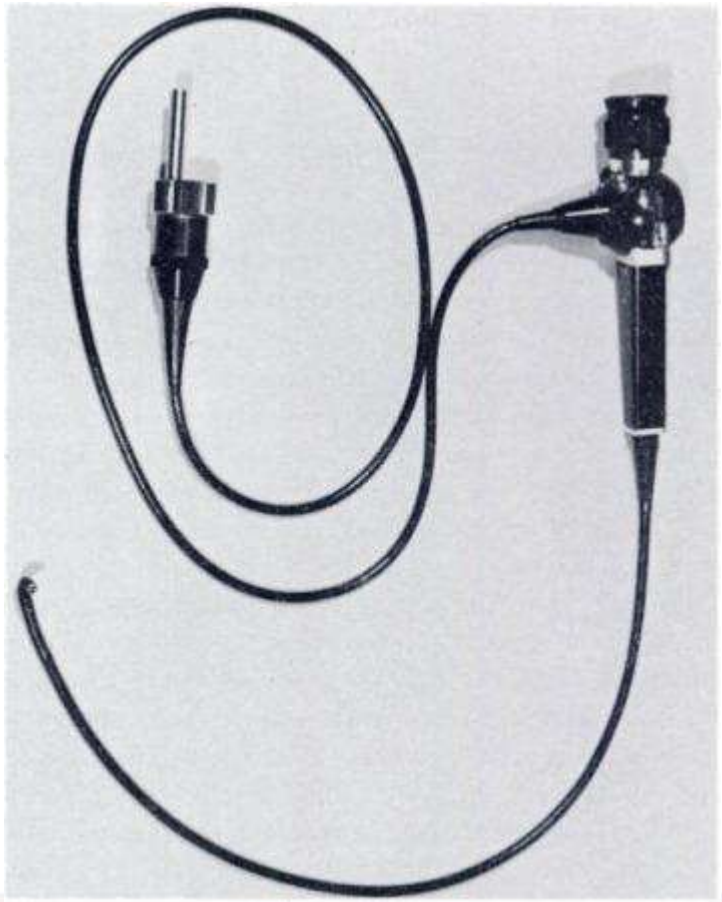


Flexible Bronchoscope Intubation



Flexible Bronchoscope Intubation

- Both anticipated and unanticipated difficult airways
- Awake, sedated, and anesthetized patients.
- Orotracheal and nasotracheal routes
- Insulation of these fibers by a glass layer with a different optical density enables transmission by internal reflection of light

Flexible Bronchoscope Intubation

Indications and advantages

- Limited mouth opening
- Abnormal airway anatomy/mass obstructing direct visualization of vocal cords
- Unstable cervical spine
- Airway trauma requiring visualization of larynx and trachea prior to intubation
- Prone/Lateral position requiring rescue intubation

Contraindications and disadvantages

- Blood or secretion in the airway, severe maxillofacial injury
- Need for rapid control of the airway
- Clinician inexperienced
- Coagulopathy (risk of epistaxis)
- Allergy to local anesthetics
- Refusal or uncooperative patient

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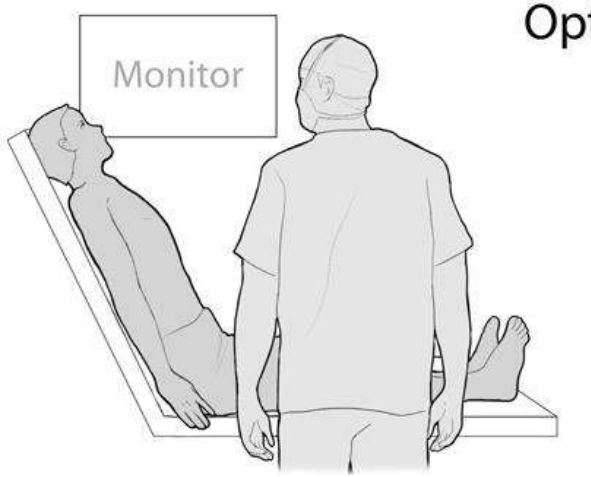
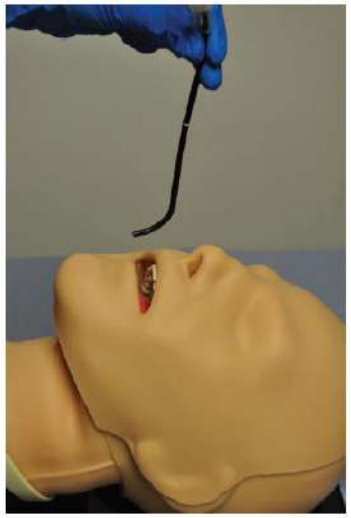
Positioning

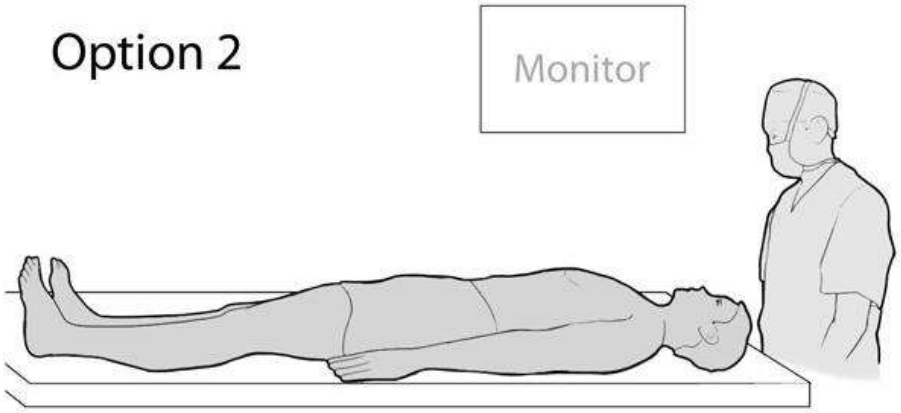
Option 1

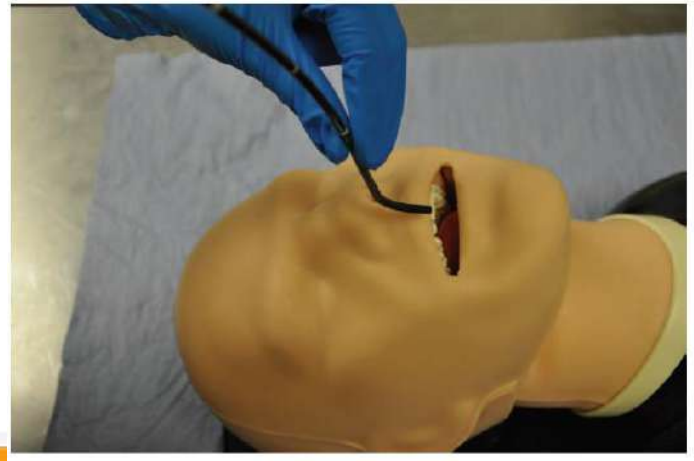




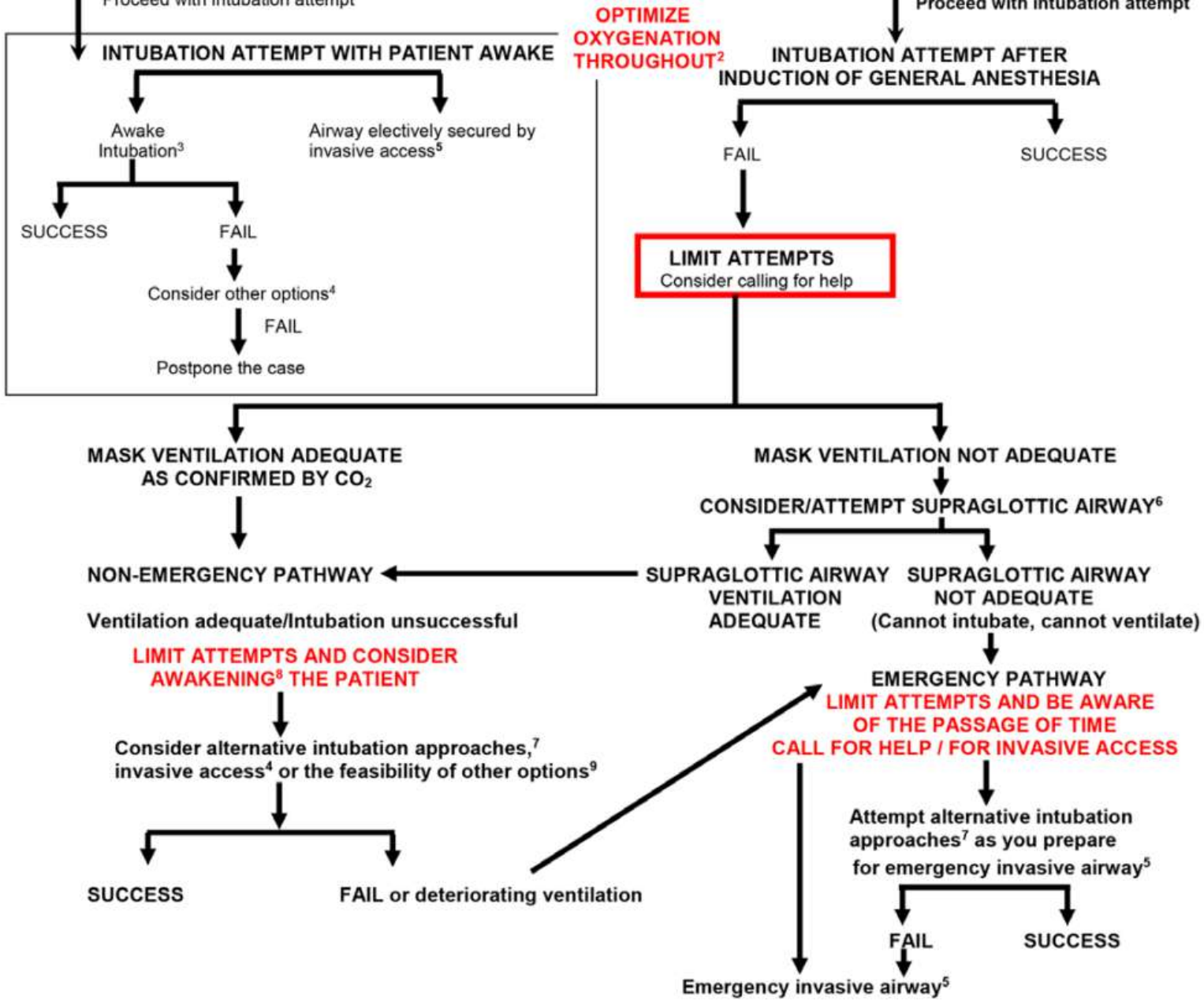
❖ Patient is seated or from the **side** of the bed, the tip of the scope is angulated down at an angle of 45°

Option 2

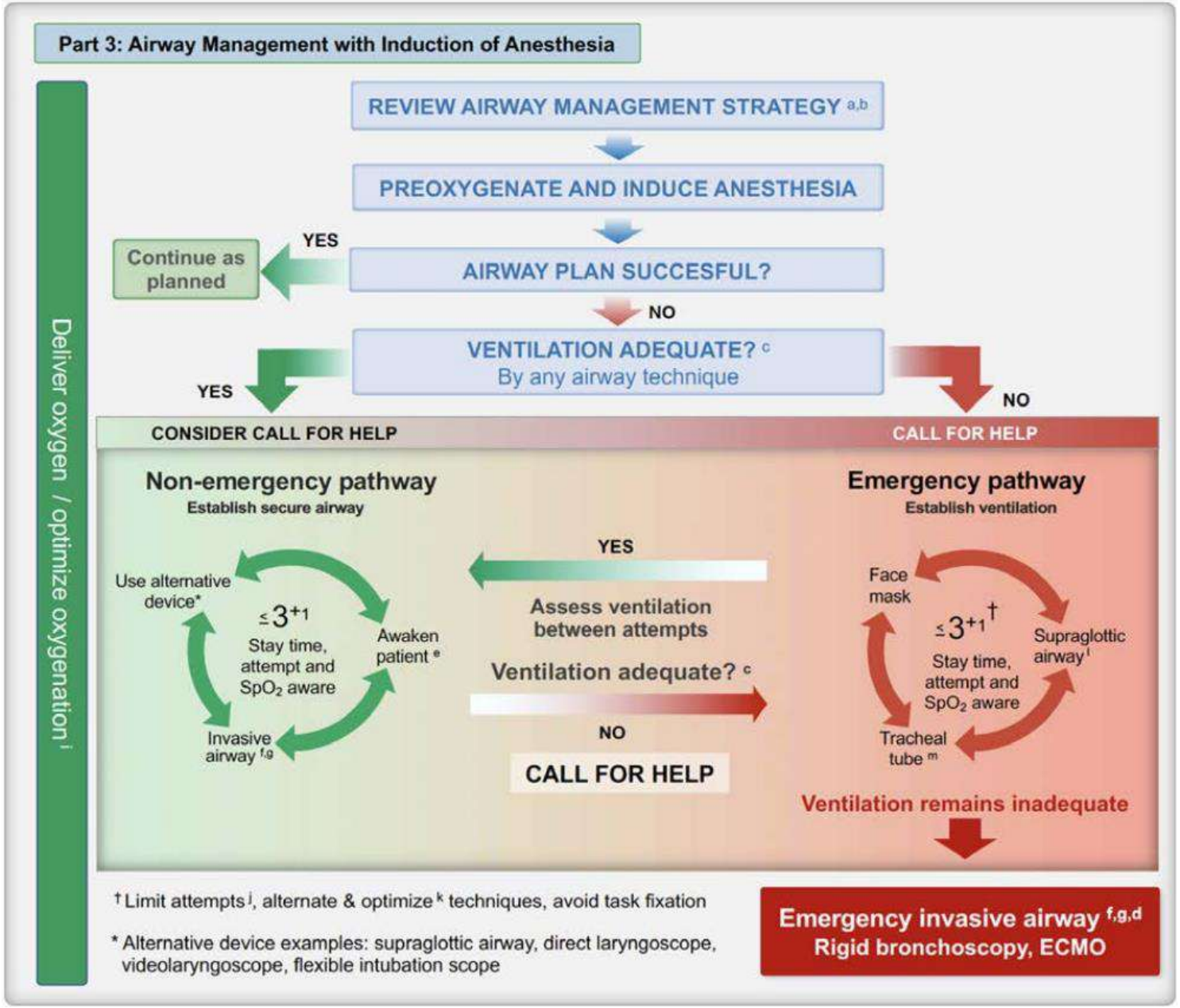




❖ Scope from the **head** of the bed, the tip of the scope is angulated up at an angle of 45°



Guidelines for Management of the Difficult Airway



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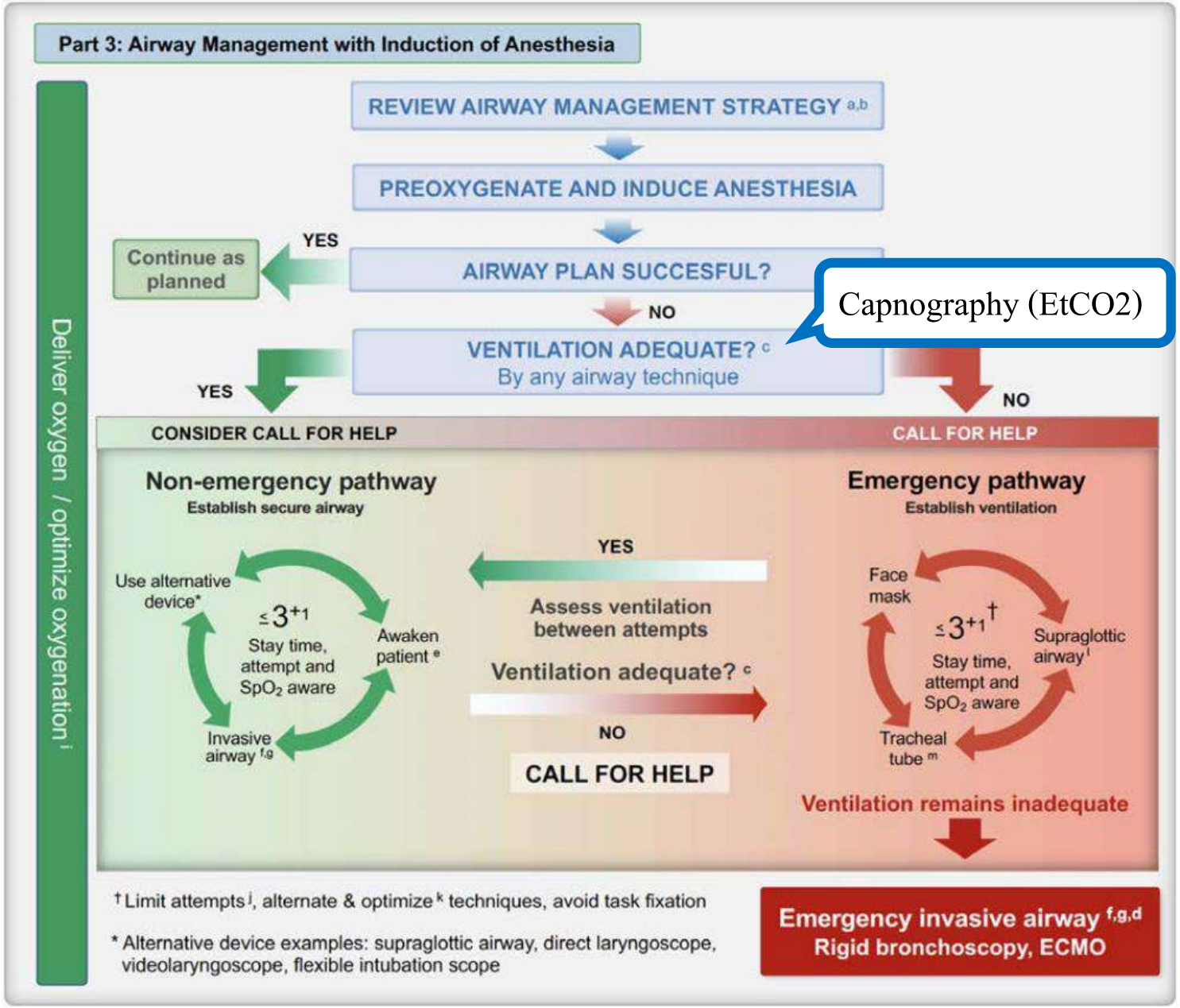
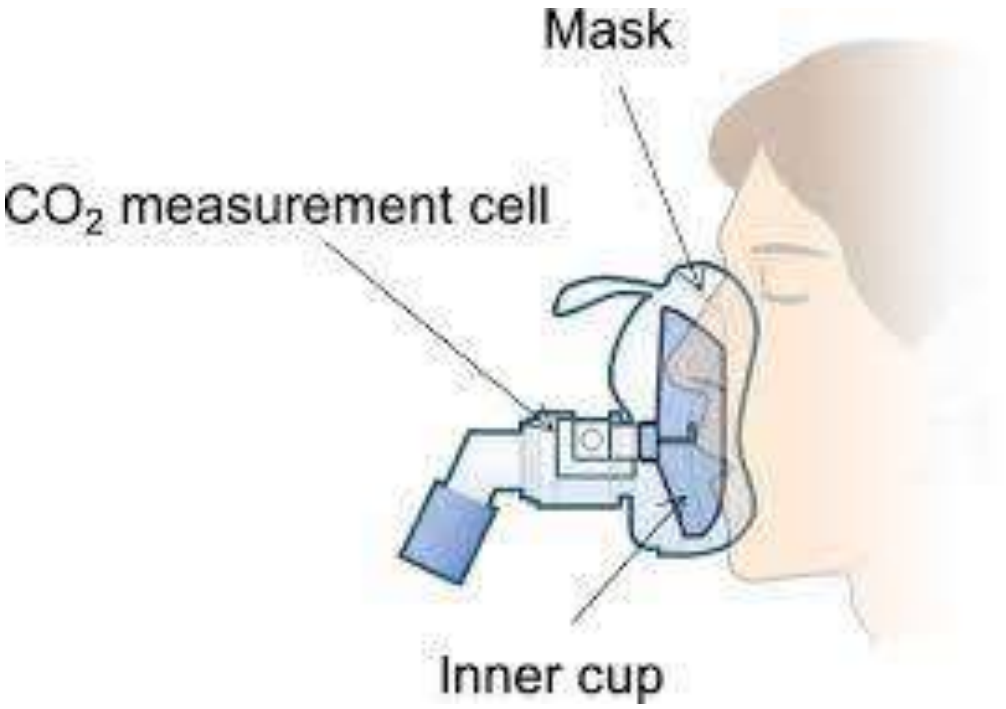
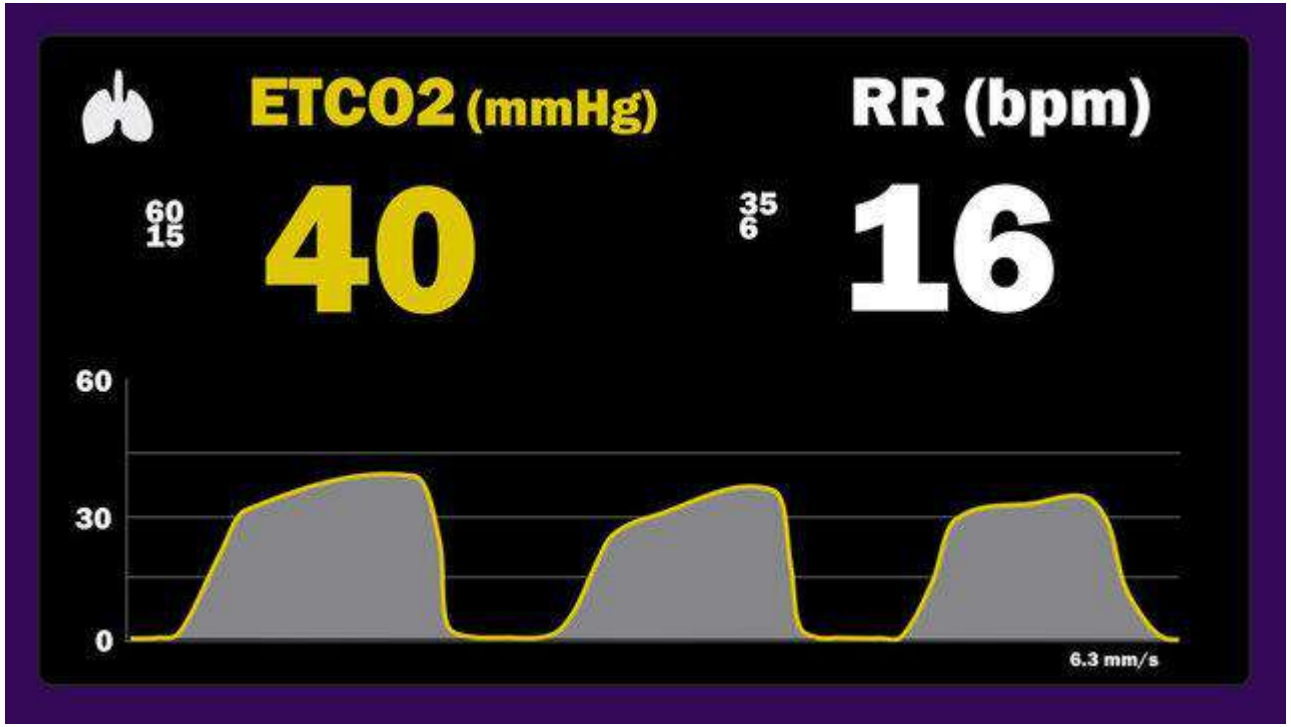


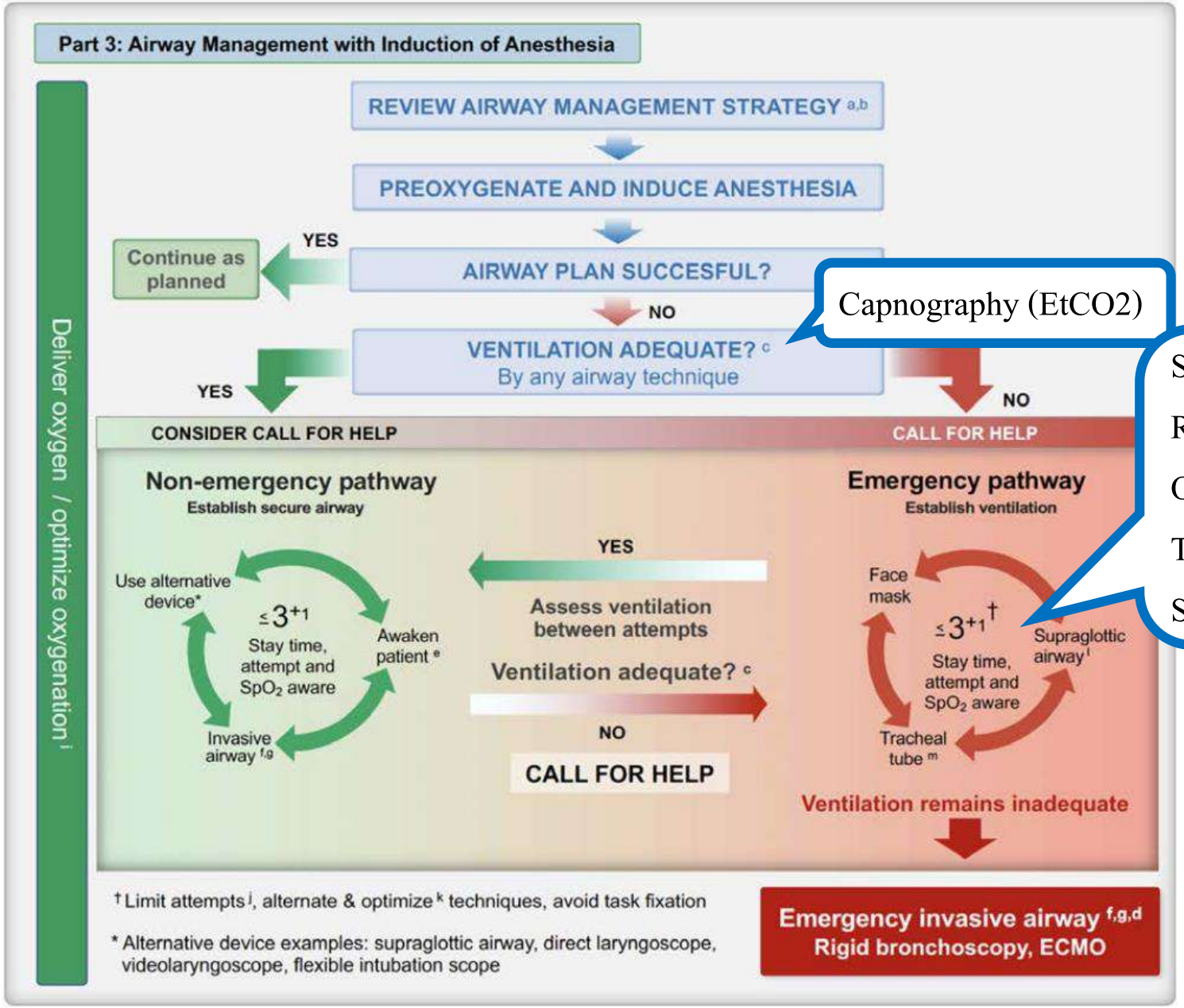
Guidelines for Management of the Difficult Airway

Capnography (EtCO2)





Guidelines for ement Difficult Airway



Establish ventilation

- Suction
- Repositioning
- Oral/nasal airway
- Two-hand mask grip
- Supraglottic airway

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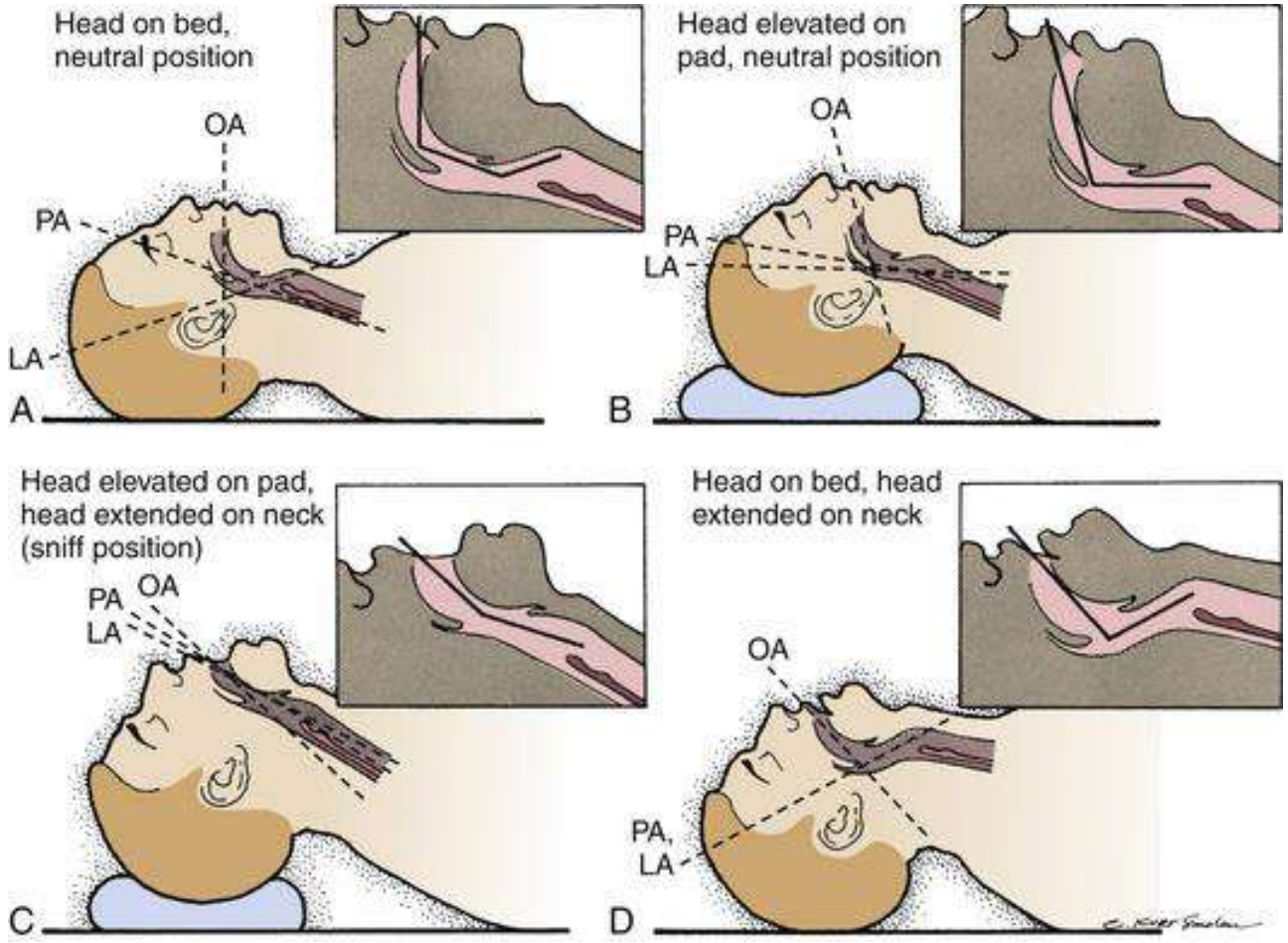

Establish ventilation

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- **Repositioning**
- Oral/nasal airway
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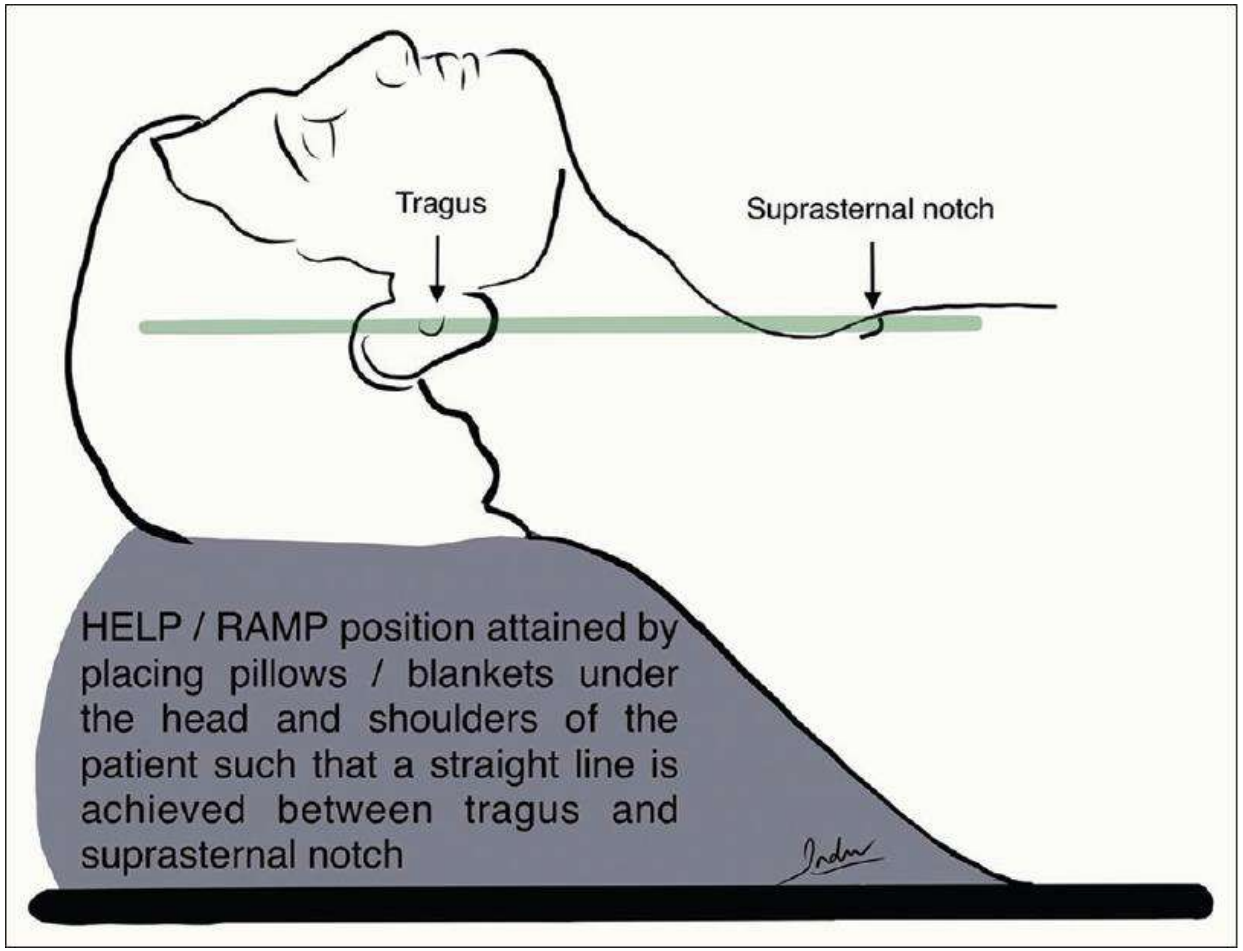

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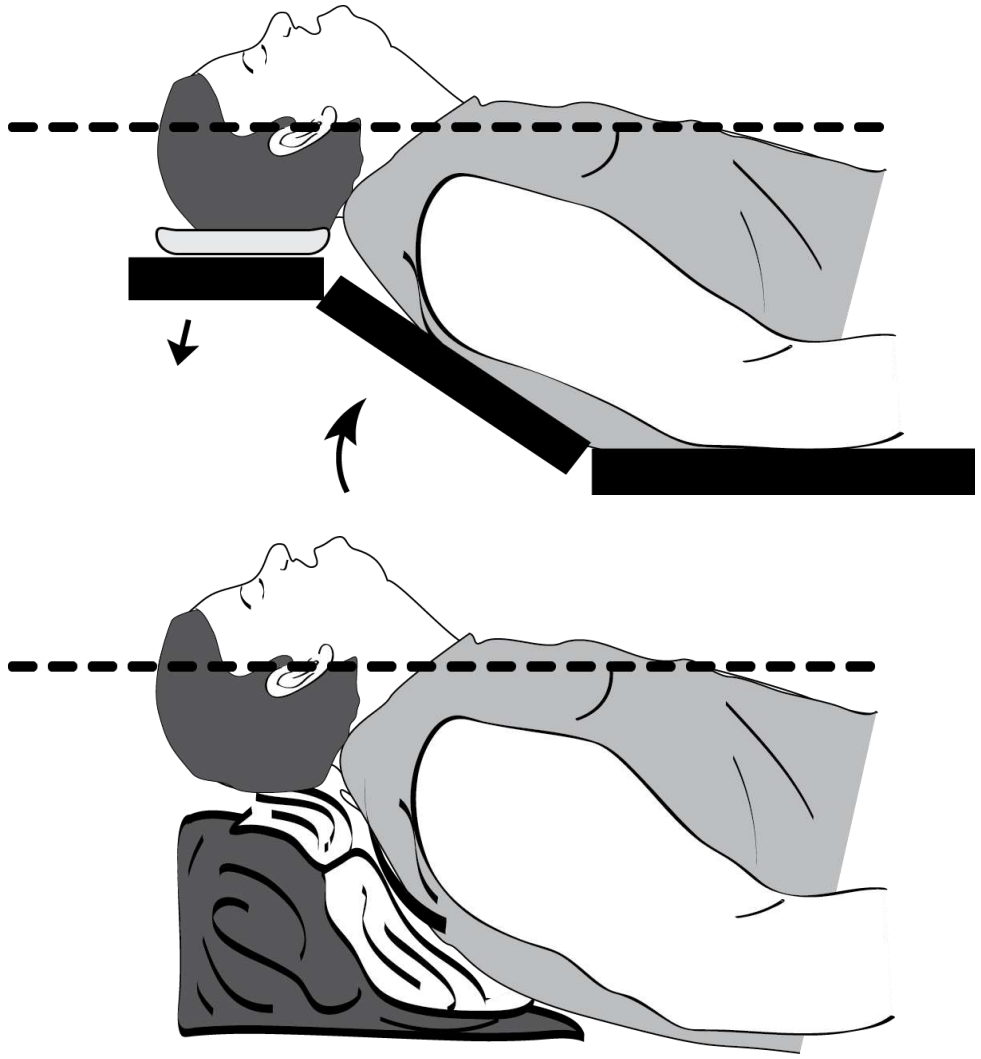

Establish ventilation

- Suction
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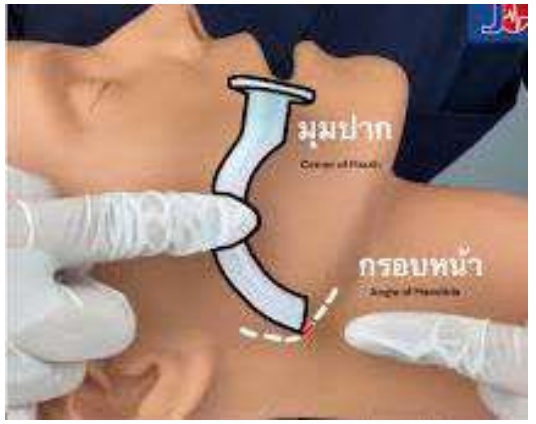
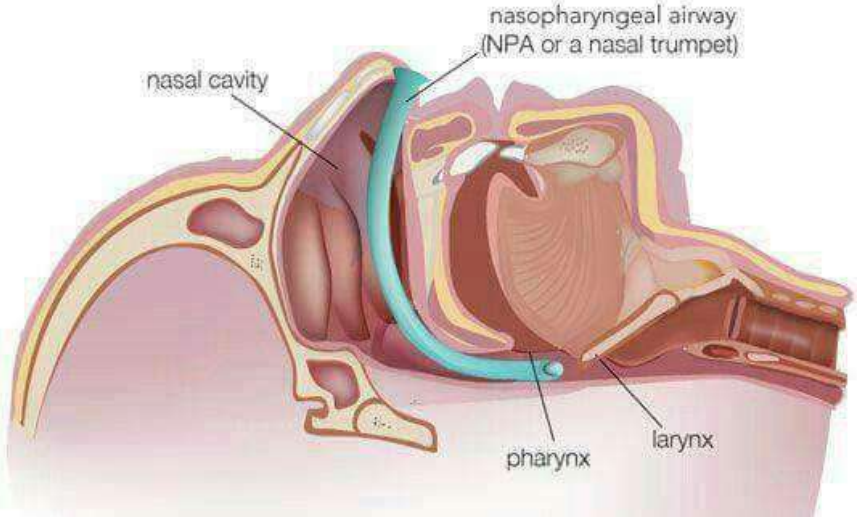
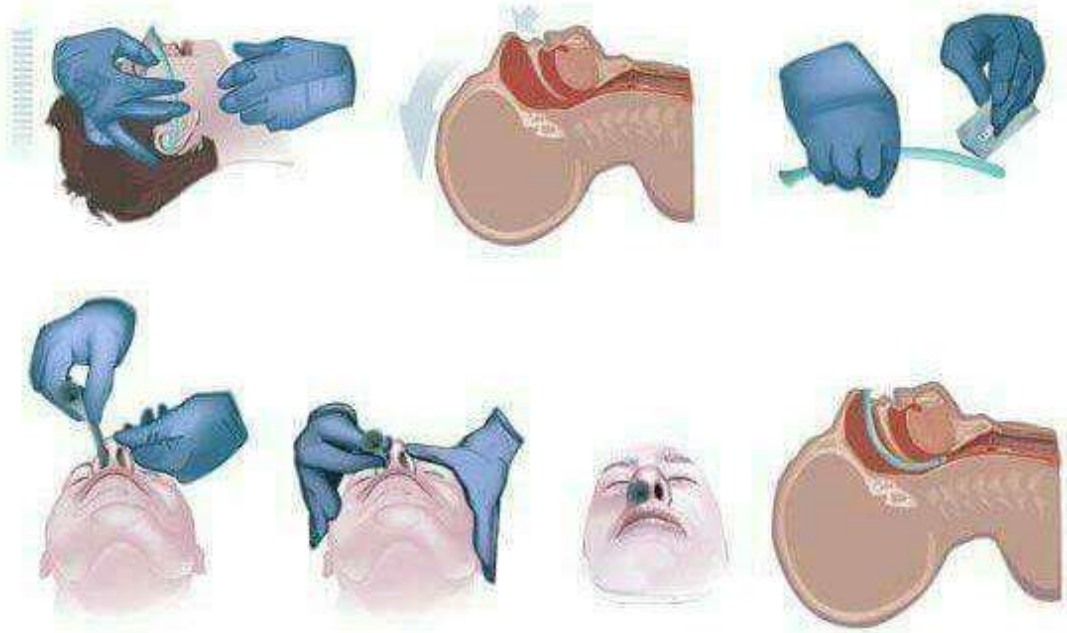
- Two-hand mask grip
- Supraglottic airway



Establish ventilation

- Suction
- Repositioning
- **Oral/nasal airway**
- Two-hand mask grip
- Supraglottic airway





Establish ventilation

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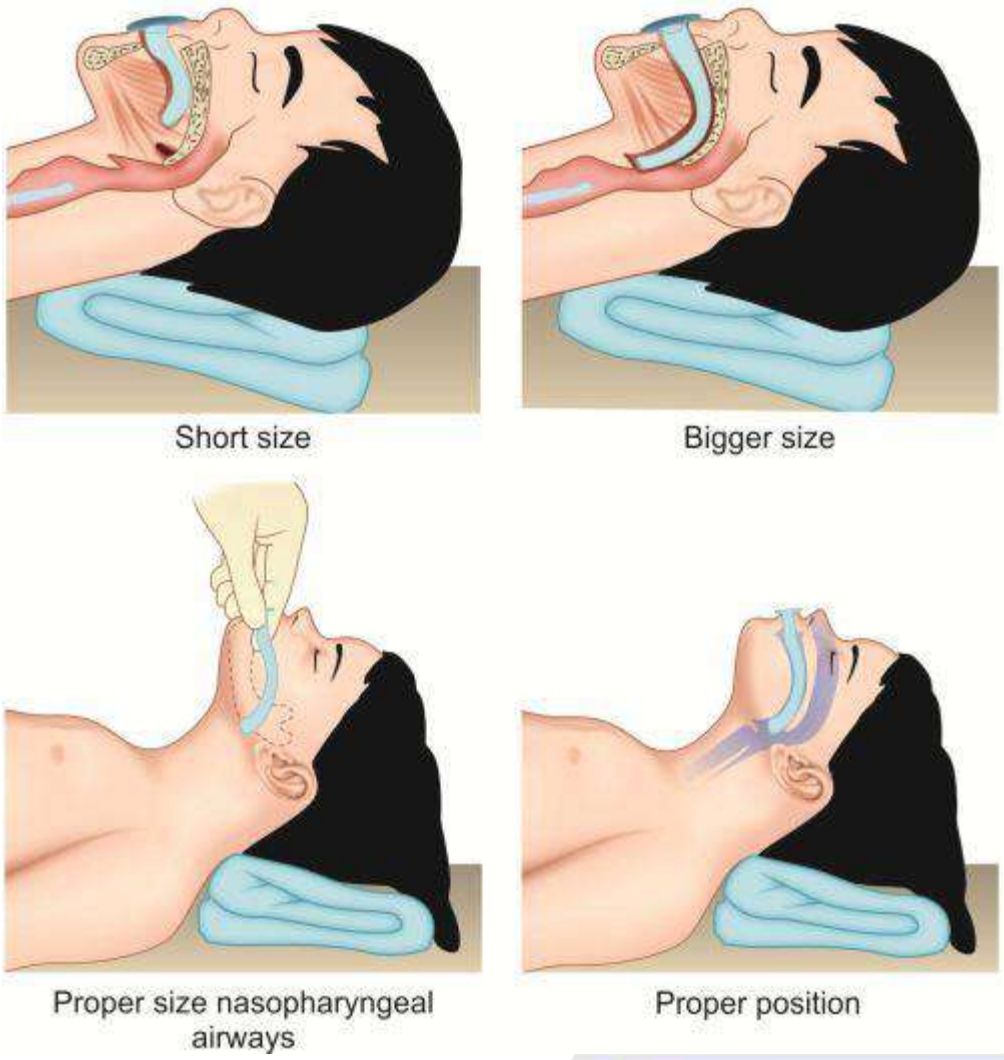

Establish ventilation

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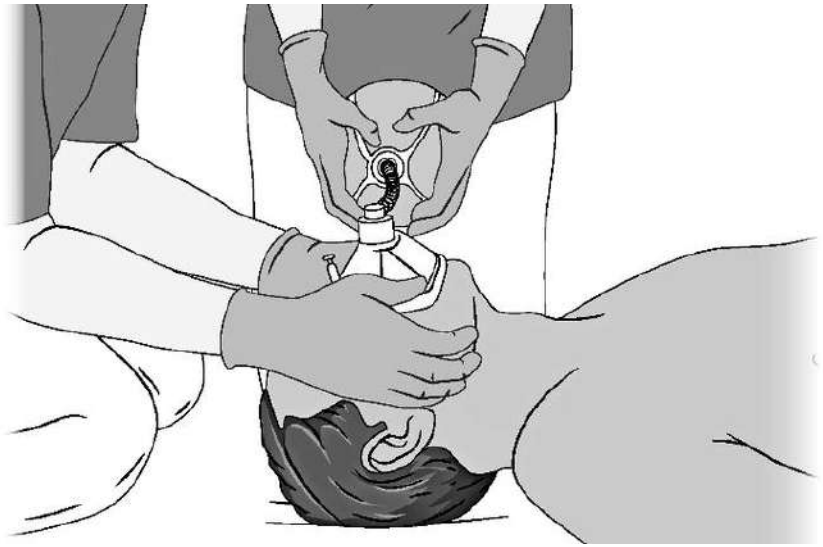

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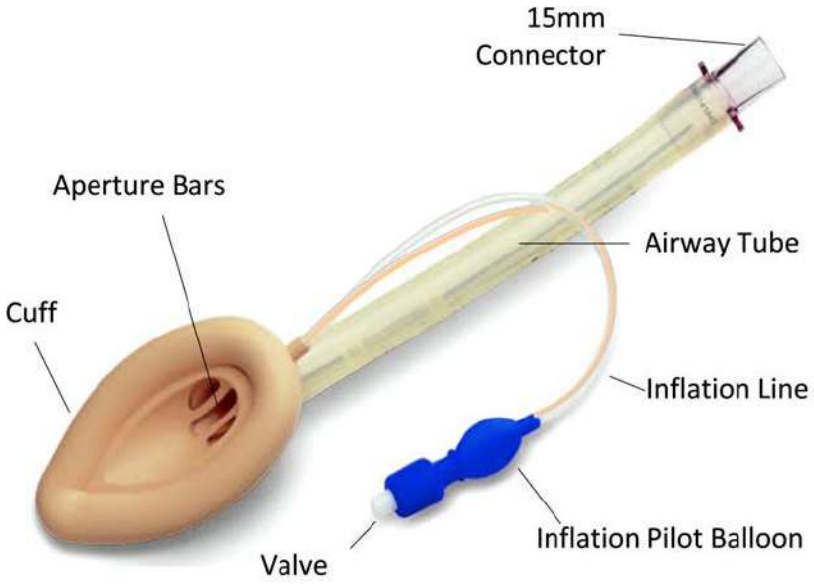

Establish ventilation

- Suction
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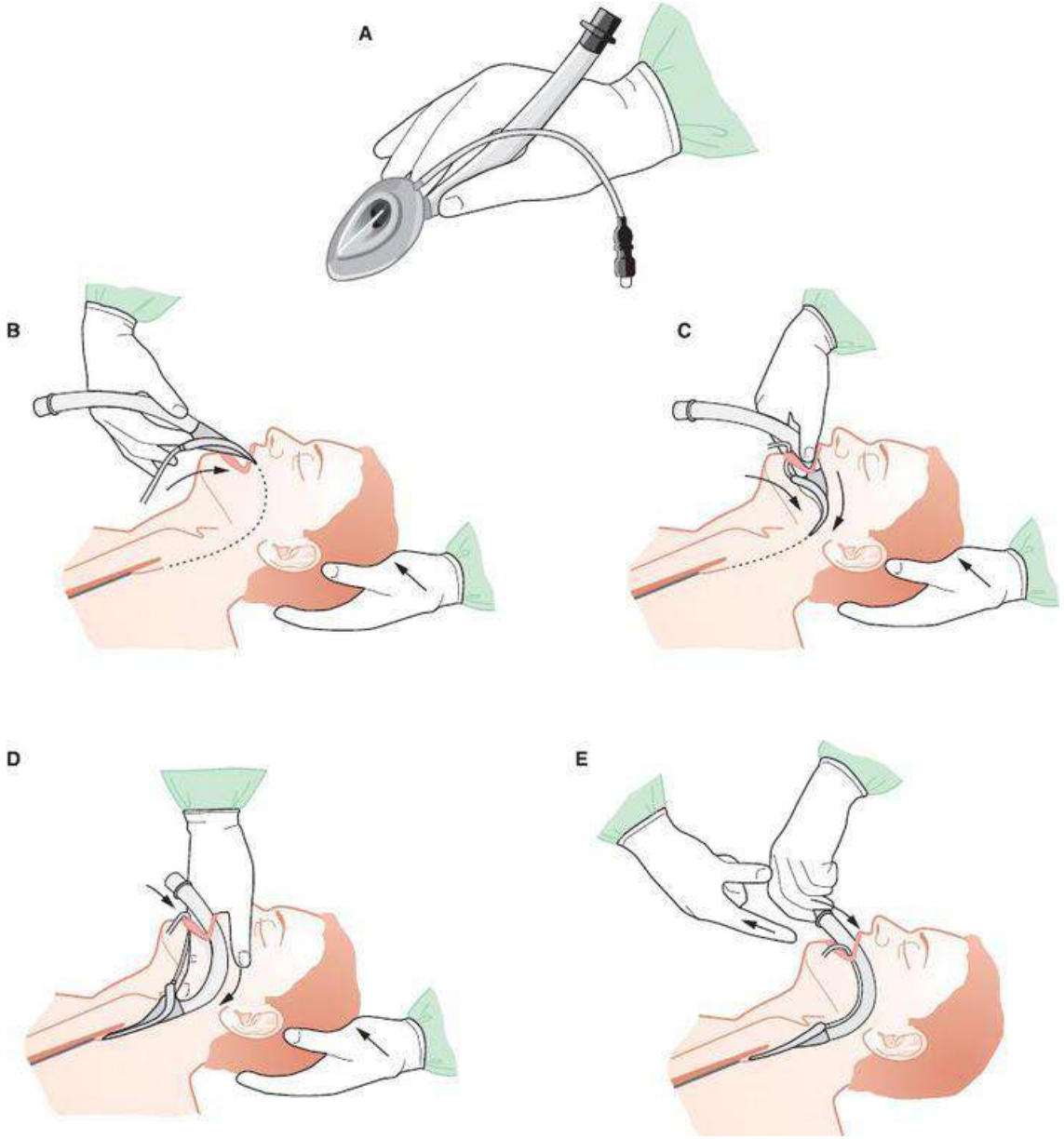
- Oral/nasal airway
- Two-hand mask grip
- **Supraglottic airway**



Establish ventilation

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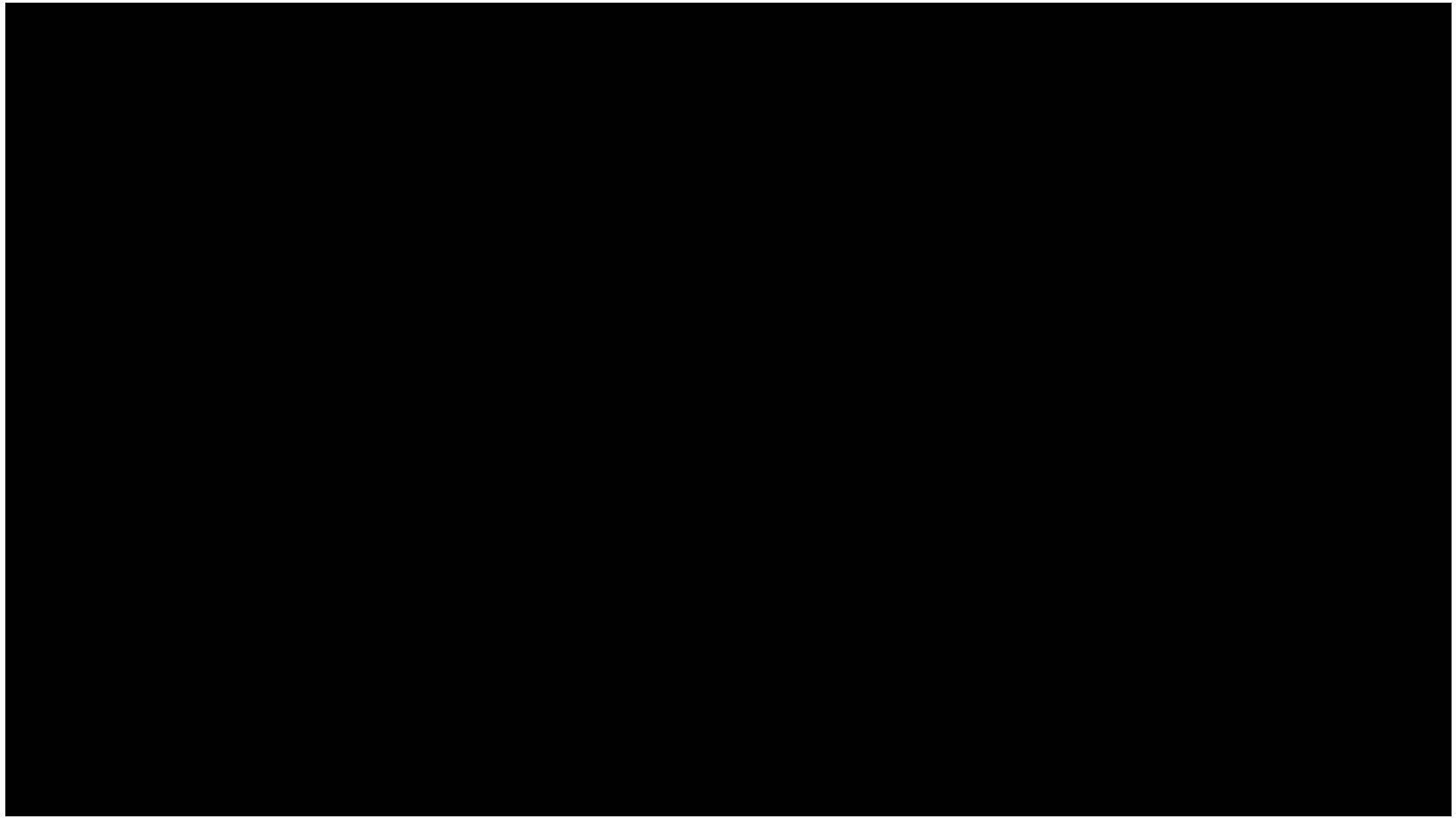
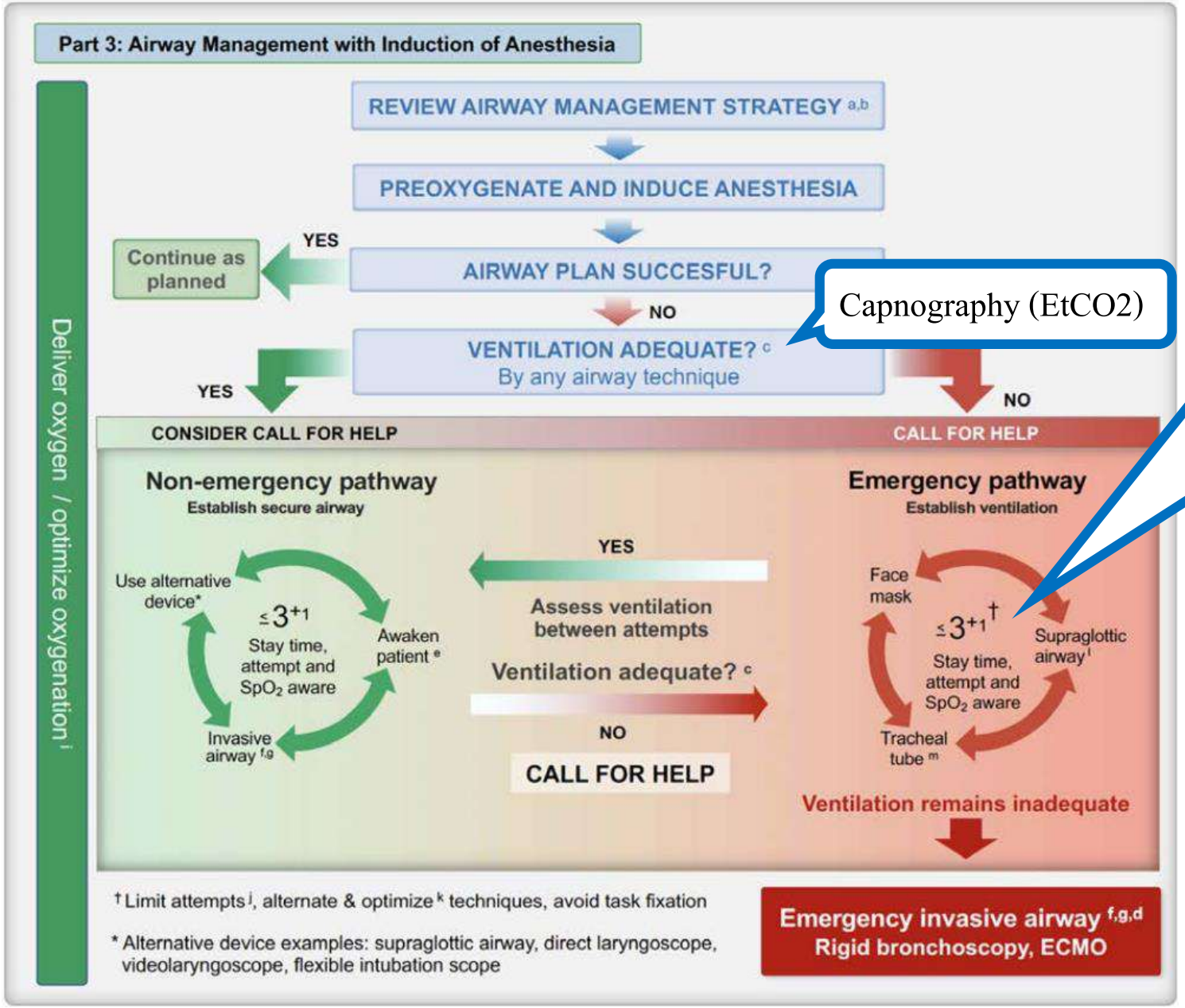
- **Supraglottic airway**





Capnography (EtCO2)

Intubating stylets

External laryngeal manipulation

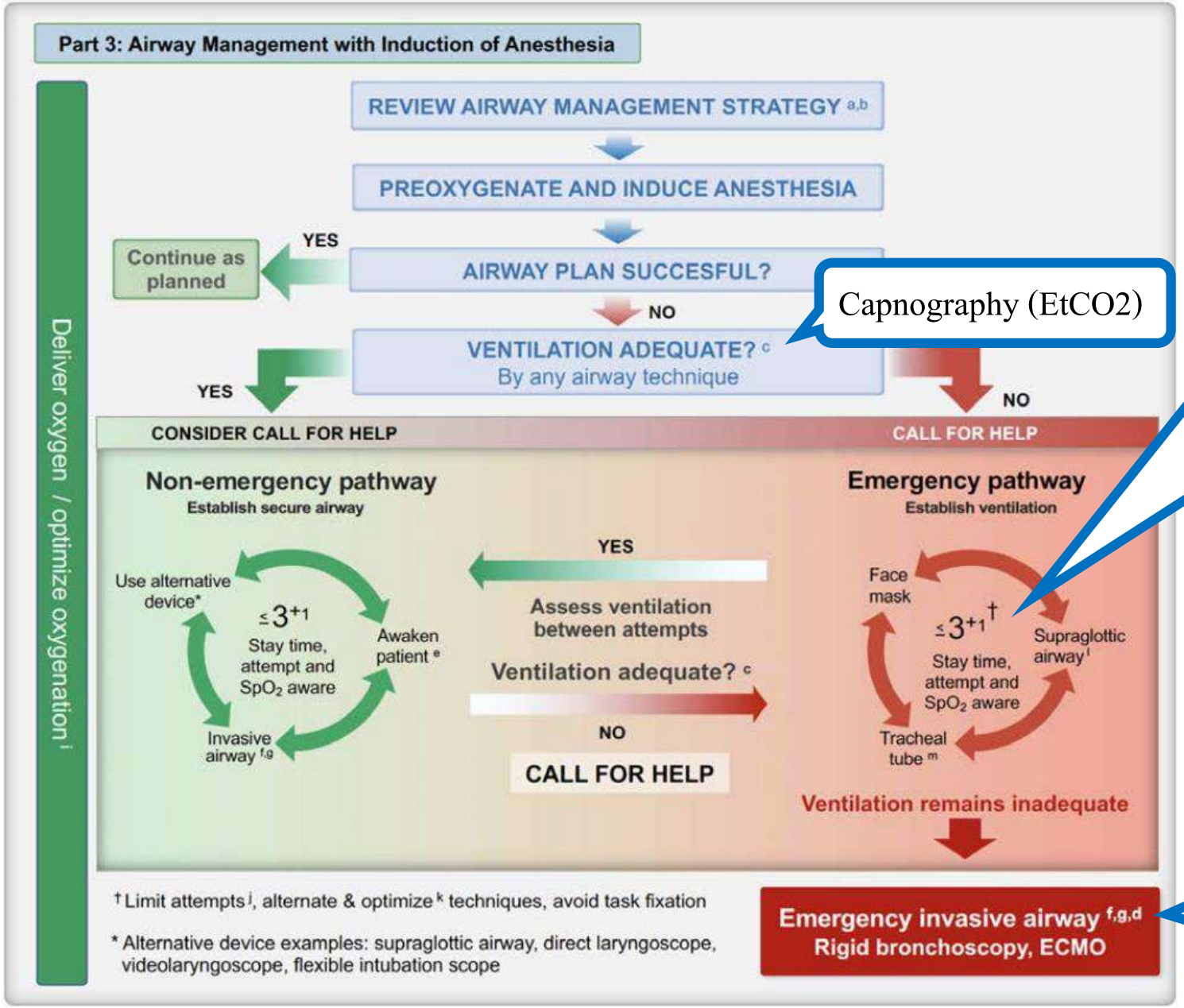
Video-assisted laryngoscopy

Alternative laryngoscope blades

Combined techniques

Intubating supraglottic airway

of the Difficult Airway



Capnography (EtCO2)

Intubating stylets

External laryngeal manipulation

Video-assisted laryngoscopy

Alternative laryngoscope blades

Combined techniques

Intubating supraglottic airway

of the Difficult Airway

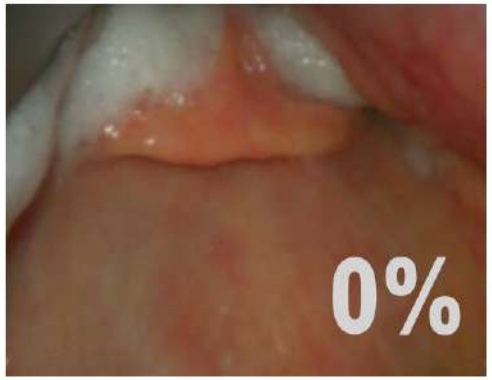
Surgical cricothyrotomy

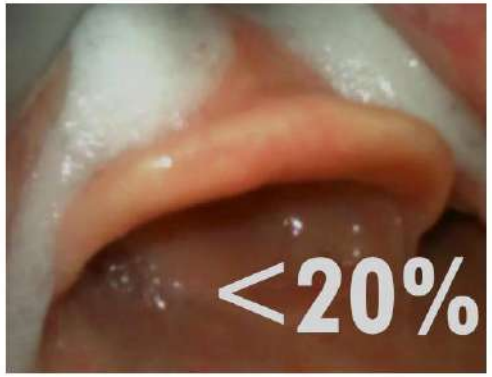
Needle cricothyrotomy

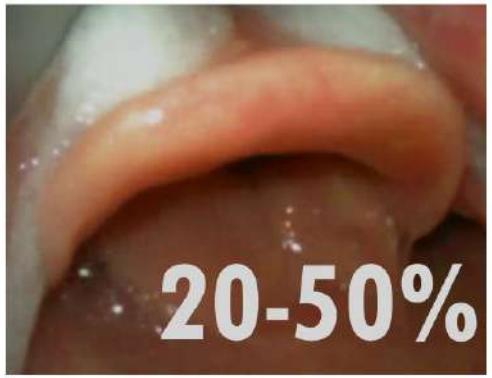
Surgical tracheostomy

What is the problem?

- Uncooperative patient
- Can’t seen vocal cord
  - Laryngeal view grade > I
  - Obscured by Secretion / Blood / Mass
- Seen vocal cord, but can’t insert endotracheal tube into vocal cord
  - Can’t control tip of ETT to vocal cord
  - Vocal cord edema
- Limited mouth opening or neck movement





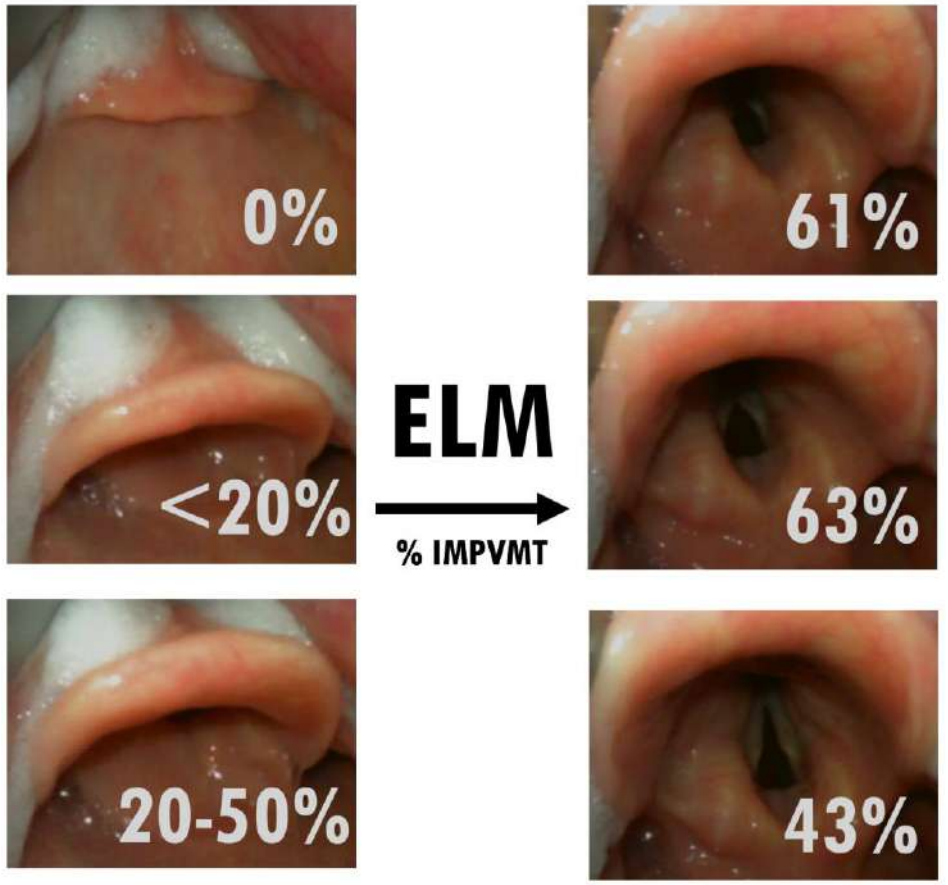


What is the problem?

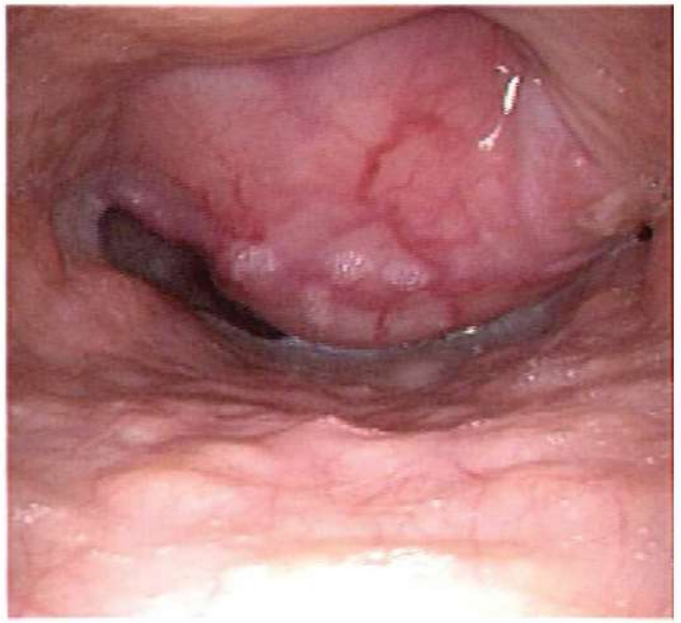
- Uncooperative patient
  - Proper sedation
  - Rapid sequence induction

What is the problem?

- Can’t seen vocal cord due to poor LV
  - Appropriated position – Sniff position
  - BURP maneuver
  - Appropriated laryngoscope blades
  - Video laryngoscopy or combine techniques



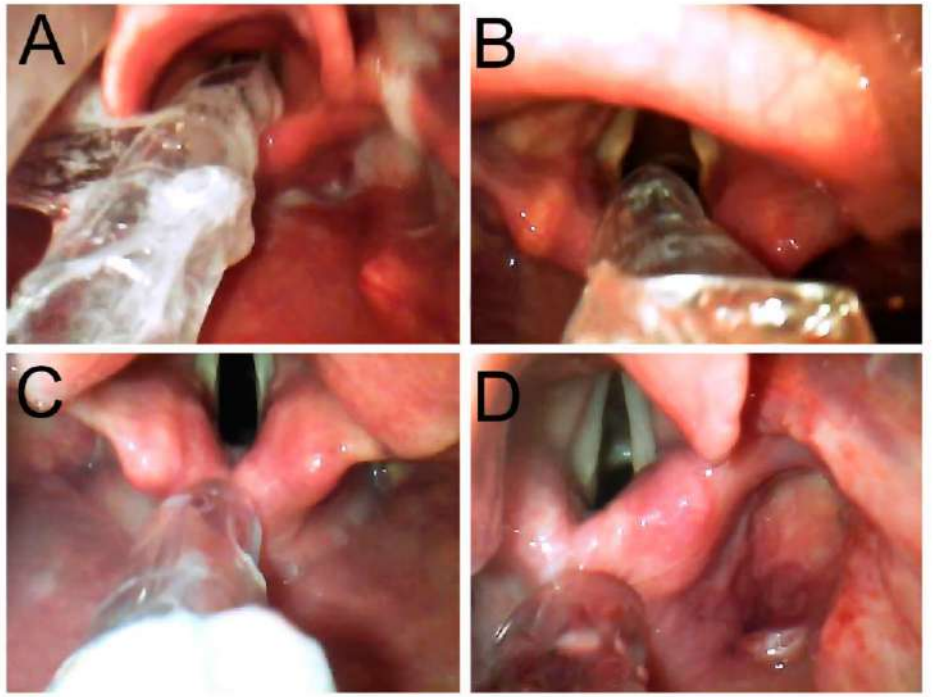
What is the problem?



- Can’t seen vocal cord due to obscured by Secretion / Blood
  - Suction
  - Limit attempts
- Can’t seen vocal cord due to obscured by large mass e.g. base of tongue tumor
  - Limit attempts and consider calling for help
  - Consider role of fiberoptic or invasive airway by specialist

What is the problem?

- Seen vocal cord, but can’t insert endotracheal tube into vocal cord
  - BURP maneuver
  - Intubating stylets with appropriated curve (correlation with laryngoscope curve blades)
  - Fiberoptic or combine techniques
  - Smaller endotracheal tube size



What is the problem?

- Limited mouth opening or neck movement -> Evaluation cause of limitation
  - Incorporating patient -> Sedation or induction
  - Pain -> Pain controller e.g. Fentanyl, Pethidine

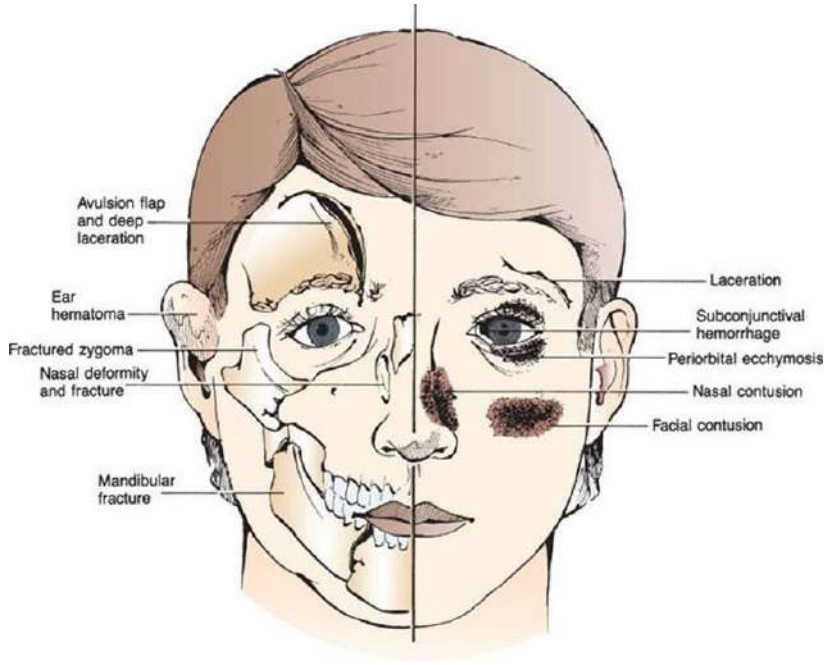
What is the problem?

- Limited mouth opening or neck movement
  - Collar mask
  - Manual in line stabilization with video laryngoscopy

MILS during intubation – standing opposite to intubator

What is the problem?

- Limited mouth opening or neck movement
  - Anatomy defects
  - Limit attempts and consider calling for help
  - Consider role of fiberoptic or invasive airway by specialist



Take home messages

- Face mask ventilation is KEY for survival
- Limit attempts and consider calling for help

Breaking Bad News

Assoc.Prof.Jiranun Weerakul

What is bad news?

"any information which adversely and seriously effects an individual's view of his or her future"

Example of medical bad news

Example of medical bad news

- Informing patients that they have cancer.
- Inform the patient that he/she or her child is HIV positive.
- In form the first degree relative that the patient has brain death.
- Inform the mother that the child has Down syndrome.
- Inform the patient or relative that he/she need to amputate.

Why is it important?

- A frequent and stressful task
- Breaking bed news can be particularly stressful when the doctor is inexperienced, the patient is young or there are limited prospects for successful treatment

Buckman R. Breaking bad news: why is it so difficult?. BMJ. 1984;288:1597-9

The patients want the truth

- By the late 1970s most physicians were open about telling cancer patient their diagnosis
- In 1982 of 1,251 American indicated that 96% wished to be told if they had diagnosis of cancer
- 85% wished, in case of grave prognosis, to be giver a realistic estimate of how long they had to be live

Buckman R. Breaking bad news: why is it so difficult?. BMJ. 1984;288:1597-9

Ethical and legal imperatives

- Clear ethical and legal obligations to provide patients with as much information as they desire about their illness and its treatment
- Physicians may not withhold medical information even if they suspect it will have a negative effect on the patient

Clinical outcomes

- How bad news is discussed can effect the patient's comprehension of information, satisfaction with medical care, level of hopefulness, and subsequent psychological adjustment

Barriers to breaking bad news

- Emotional-anxiety
- Burden of responsibility
- Fear of negative evaluation

Principle of breaking bad news

D	Doctor	Compression. Loving-kindness, empathy
P	Patient	Anxiety, fear, Worries
I	Information	Step-by-step approach depending on the patient's capacity to assimilate it
H	Hope	Always commit to be on the patient's side, find a way to help especially psychological well-being

Models of Breaking bad news

- SPIKES model
  - Robert Buckman
  - Professor of oncology-Toronto
  - Trained in Cambridge
  - Used world wide
- KAYES model
- ABCDE model

Buckman R. Breaking bad news: why is it so difficult?. BMJ. 1984;288:1597-9

SPIKES Model

Six steps

- S-Setting up the interview
- P-assessing the patients Perception
- I-obtaining the patients Invitation
- K-giving Knowledge
- E-addressing Emotions
- S-Strategy and Summary

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

S-Setting up the interview

- Privacy
- Involve others
- Look attentive and calm
- Listening mode
- Availability

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

P-Perception

- Ask before you tell
- Find out what the patient know

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

I-Invitation

- While a majority of patients express a desire for full information about their diagnosis, prognosis, and details of their illness, some patients do not
- How much information would the patient like to know

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

K-Knowledge

- Warming first
- Mirror language
- Avoid jargon
- Small chunks
- Use of silence
- Allow time for emotions

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

E-Emotions

- Recognize
- Listen for and identify the emotion
- Identify cause of emotion
- Show the patient you have identified both the emotion and its origin

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

E-Emotions

- Crying
- Anger
- Denial
- Bargaining
- Shock/silence

S-Strategy and Summary

- Understanding reduces fear
- Summarizes the discussion
- Strategy foe future care
- Schedule next meeting
- Allow time for questions
- Leaflets

Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.

KAYE's model

- 10 steps
- Logical sequence
- Not based on rigorous research
- Can be used for any serious illness

Peter Kaye, 1996

1. Preparation

- Know all the facts
- Ensure privacy
- Find out who the patient would like present
- Introduce yourself

Peter Kaye, 1996

2. What dose the patient know?

- Open end questions
- Statements may make the best questions
- “How did it all start?”

Peter Kaye, 1996

3. Is more information wanted?

- Not forced on them
- “Would you like me to explain a bit more?”

Peter Kaye, 1996

4. Warning shots

- Not straight out with it
- “I'm afraid it looks rather serious”

Peter Kaye, 1996

5. Allow denial

- Allow the patient to control the amount of information they receive

Peter Kaye, 1996

6. Explain if requested

- Step by step
- Detail will not be remembered but the way you explain it will be

Peter Kaye, 1996

7. Listen to concerns

- “What are your concerns at the moment?”
- Allow time and space for answers

Peter Kaye, 1996

8. Encourage feelings

- Acknowledge the feelings
- Non-judgmental
- Vital step for patient satisfaction

Peter Kaye, 1996

9. Summarizes

- Concerns
- Plans for treatment
- Foster hope
- ? Written information

Peter Kaye, 1996

10.

- Availability
- Information
- Future needs will change

Peter Kaye, 1996

ABCDE technique

- A-Advance preparation
- B-Build a therapeutic environment or relationship
- C-Communicate well
- D-Deal with patient and family reactions
- E-Encourage and validate emotions

GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79.

A-Advance preparation

- Arrange for adequate time, privacy and no interruptions (turn off or silent mode of mobile phone)
- Review relevant clinical information
- Mental rehearse, identify words or phrase to use and avoid
- Prepare yourself emotionally

GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79.

B-Build a therapeutic environment or relationship

- Determine what and how much the patient wants to know
- Have family or support persons present
- Introduce yourself to everyone
- Warm the patient that bad news is coming
- Use touch when appropriate
- Schedule follow-up appointments

GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79.

C-Communicate well

- Ask what the patient or family already knows
- Be frank but compassionate; avoid euphemisms and medical jargon
- Allow for silence and tears; proceed at the patient's pace
- Have the patient describe his or her understanding of the news; repeat this information at subsequent visits
- Allow time to answer questions; write things down and provide written information
- Conclude each visit with a summary and follow-up plan

GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79.

D-Deal with patient and family reactions

- Assess and response to the patient and the family's emotional reaction; repeat at each visit
- Be empathetic
- Do not argue with or criticize colleagues

GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79.

E-Encourage and validate emotions

- Explore what the news means to the patient
- Offer realistic hope according to the patient's goals
- Use interdisciplinary resources
- Take care of your own needs; be attuned to the needs of involved house staff and officer or hospital personnel

GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79.

reference

- รัตนา สายพานิชย์. การแจ้งข่าวร้าย. ใน: มาโนช หล่อตระกูล, บรรณาธิการ. คู่มือการดูแลผู้มีปัญหา สุขภาพจิตและจิตเวชสำหรับแพทย์. นนทบุรี: สำนัก พัฒนาสุขภาพจิต กรมสุขภาพจิต; 2544, หน้า 143-56.
- Buckman R. How to break bad news : a guide for health care professionals. Baltimore, Md. : The Johns Hopkins University Press, 1992.
- Sonny Jerome, Breaking bad news.
- Buckman R. Breaking bad news: why is it so difficult?. BMJ. 1984;288:1597-9
- Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. Oncologist 2000;5:302-11.
- GREGG K. VANDEKIEFT. Breaking Bad News. Fam Physician. 2001;64(12):1975-79

Case study

เด็กหญิงอายุ 10 ปี ได้รับการวินิจฉัยว่าเป็นมะเร็งกระดูก (Osteosarcoma) โดยมีก้อนที่เข่าด้านซ้าย และ มีอาการปวดขาบริเวณก้อนจนเดินไม่ไหว มา 6 เดือน

- วันนี้ แพทย์นัดมารดามาแจ้งผลการรักษาหลังจากได้รับยาเคมีบำบัด และ ทำ MRI เพื่อประเมินก่อนการผ่าตัด

SPIKES Model

- S-Setting up the interview:
- P-assessing the patients Perception
- I-obtaining the patients Invitation
- K-giving Knowledge
- E-addressing Emotions
- S-Strategy and Summary

Eye Problems in General

Phattharaphong Tantichariyangkul, MD, FICO

MED NU 2023: UNEASY SITUATION FOR GENERAL PHYSICIAN

	SV	PALs	Degressive	Blue/UV coating	Coating	Photochromic	Sunglasses	Reduce Myopic Progression	Techonlogy	Individualised Fitting
ESSILOR	EYEZEN start (antifatigue, dualoptim) EYEZEN boost/plus (initial0.4/active0. SV Roadpilot II SV Exceptio (-40 to +30 oe beyond)	Varilux X series (Xclusive4D/Xclusive Varilux E series (Easy-to-wear) Varilux S series (Nanoptix balance ,Sy Varilux Physio 3.0 Varilux Comfort Max (Flex Optim) Varilux Roadpilot II Varilux Liberty 3.0 (Large near area) Varilux Exceptio (-40 to +30 oe beyond) Varilux Sunmax	Varilux Digitime (near80/mid100/room Varilux Computer 3V (large int) Varilux Computer 2V (int and near) Interview80/130 (large near)	Crizal Sapphire 360 UV Crizal Provencia Crizal Rock Crizal Alize UV Crizal Easy UV	Optifog (antiglare & fog both sides) Antifog AR (antiglare front & antifog ba	Transitions Signature GEN8 Transitions XTRActive Polarized (activ Transitions Vantage (variable polariza Transitions Drivewear (polarized)	Xperio Sun Xperio Polarised Xperio Mirror - Crizal Sun XProtect (ionic shield strengthen)	Stellest (HALT) MyoP/Lux SightGlass (DOT)	WAVE & WAVE 2.0 (wavefront advanc Path Optimizer Binocularbooster Flexoptim Nanoptix (anti off-balance) Synchroneyes (calculate both lenses as a pair for smooth far-near refixation) Xtend (extend sharp vision area within arm-length 16-28" or 60-85% add power with ED DualOptix	Eyecode (with Visioffice automatic device) Fit (frame) AVA (customise 0.01 D scale) 4D (dominant eye fast saccade) NVB (ipad, near visual behaviour)
HOYA	Nulux Identity V+ SYNC III (antifatigue) Nulux Trueform (freeform) Hilux Trueform Nulux Hilux Sportive SV EnRoute/Pro SV (Driving) Nulux Seamless Aspheric (Aphakia)	Hoyalux iD MySelf Hoyalux iD MyStyle V+ (Trueview I) Hoyalux iD LifeStyle 3/3i Hoyalux iD Balansis (integrated double surface FF) Daynamic (full back surface PAL) Amplitude Trueform Amplitude EnRoute/Pro Progressive(Driving) Sportive Progressive	Hoyalux iD WorkStyleV+ 200,400 Tact200,400 Addpower80 (60cm)	UV control Blue control UV block385/400	Hi-Vision LongLife Super Hi-Vision Hi-Vision Aqua Hi-Vision Aqua Concave Glare filter	Sensity Sensity Dark Sensity Shine		MIYOSMART+ (DIMS)		*Trueview i / Lite* automatic device
NIKON	SEEMAX Infinite (freeform 8 axis, tail MyopSee (DAS) RELAXEE Neo (antifatigue) Lite AS	SEEMAX Ultimate SEEMAX Master SEEMAX Power Presio Master Presio Power Presio W	SOLTES Wide Neo Home&Office Neo DigiLife	Pure blue UV pro Pure blue UV SEECOAT Next Blue SEECOAT Blue UV SEECOAT plus UV	SEECOAT Bright/Next Bright (Augme SEECOAT Drive SEECOAT Next	Transitions XTRActive	Sunstyle Polarshade (polarize)			
ZEISS (mineral/plastic/Tri	SV Sph SV AS SV Superb + Asi SV Individual (wa Digital Lens (antifa DriveSafe Individua DriveSafe SV EnergizeMe SV (CL user, antifatigue, EnergizeME Digital (0.65D)	Ind Sup form std wra on Plus -guided HOA ion) PAL Drive EnergizeMe PAL (+0.75-4.00 D)	Oc Oc Oc	DuraV DuraV DuraV	ion antiglare from > Lo	tofusion uravision Platinum/Silver r-ET (Einfache Farnschicht; camouflage for glass) (repellent + H d + AR)				
RODENSTOCK	Perfalit (Sph) Cosmolit (AS) Perfalit Mono Plus 2 (antifatigue) Perfalit Mono Sport 2 (high wrap) Multigressiv Mono2 + Plus (Back mult Impression Mono2 + Plus (Back multi Impression Mono Sport2	Progressiv Life Free2 Progressiv PureLift Free2 B.I.G. Multigressiv MyView Multigressiv MyLife Impression2 Impression Freesign3	ressiv Ergo Book/PC/Room ressiv Ergo Book/PC/Room ression Ergo S2 yxerna (all r versions)	PRO410	X-tra Clean Solitaire Protect P 2	Colorm ic IQ2				Impressi ST DnEye
TOKAI										

I HAVE **NO CONFLICT** OF **INTERESTS** IN THE PRESENTATION

P Tantichariyangkul

Ophthalmology Subspecialties

Low vision & Rehabilitation

Ocular Pathologist

Neuro-Oph

Ped-Oph & Strabismologist

Oculoplastic

Cornea & Refractive Sx

Uveitis

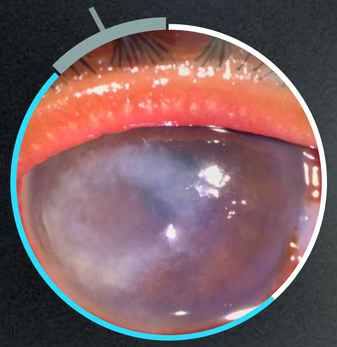
Glaucoma

Retina

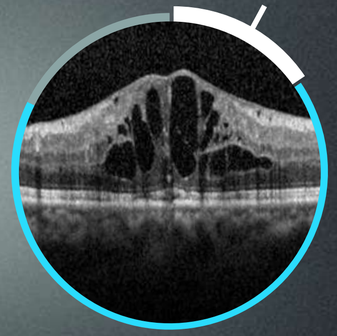
WHAT are common PRESENTATIONS of EYE PROBLEMS?

Visual Symptoms

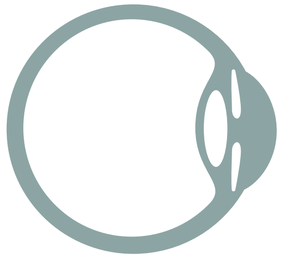
Ocular Pain & Discomfort



Others: Appearance, Screening



Modalities of Visual Functions



Visual Acuity

Visual Field

Contrast Sensitivity

Color (Ishihara, Fransworth, Red pin)

RAPD (Anterior visual pathway)

Binocular vision (Diplopia, Stereoacuity)

Refractive Error (Defocus)

ERG, VEP, EOG

Image Resolution

Image/Canvas Size

Contrast + Resolution

Hue & Saturation

Exposure/Brightness between 2 images

Merge images > Ghost images, etc

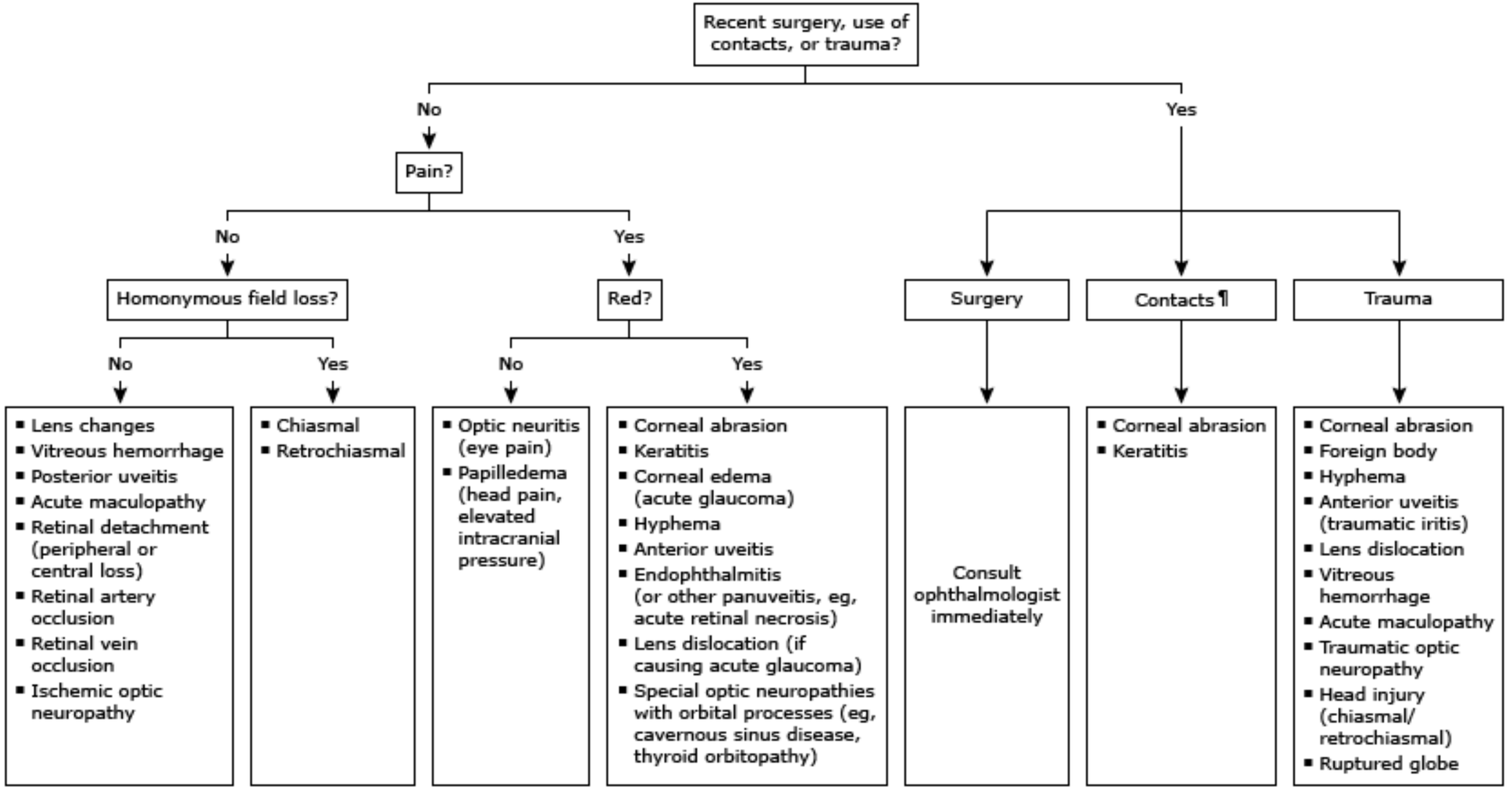
Blur or Sharpen tool

Calibrate for Dead pixel

Approaching Ocular Problems

OUTSIDE IN

Approaching Visual Problems



Thellea Leveque, MD, MPH. Approach to the adult with acute persistent visual loss: Algorithm 1. Up-to-date web platform, Cited 16 Jan 2023.

Approaching Visual Problems

Refractive Error	Media Opacity	Retina & Choroid	Neural Visual Pathway
Hyperopia	Ptosis	Vasculopathies DR CRAO CRVO Leukemia Hyperviscosity	Pre-chiasmal lesions from ganglion cell layer (GCL)
Myopia	Discharge, Tear film instability	Retinal detachment	Optic neuropathies; glaucomatous ischemia, inflammatory, infectious
Astigmatism	Cornea; keratitis, scar edema (glaucoma), dystrophy	Maculopathy / Choroidopathy eg. AMD, PCV, CSC, Drug-induced	Disc swelling / Papilledema
Others eg. Higher order aberrations (HOA)	Anterior chamber: hyphema (spontaneous or traumatic), uveitis	Retinitis Infection / Inflammation	Chiasmal lesions Pituitary, Craniopharyngioma
Ocular misalignment eg. Strabismus	Cataract	Neoplasm	Post-chiasmal lesions Brain lesions eg. stroke, mass, PRES
	Vitreous hemorrhage Vitritis, Floaters	Dystrophies eg. Retinitis pigmentosa	Visual Aura, Migraine

Modified from Sabah Iqbal, MD, Bruce L Klein, MD. Diagnostic Approach to Acquired Visual Loss in Children: Table 1. Up-to-date web platform, Cited 16 Jan 2023.

Approaching Visual Problems

Hx Taking

LODCRAFT

PHx FHx

Trauma/Sx

Prior Tx

Refraction

Pinhole

Spectacles

Contact lens

Day/Night Vision

Eye Exam

Lid, Lash, Conjunctiva, Tear film, Cornea, A/C, Iris, Lens, Vitreous, Retina, Optic nerve, Chiasm, Tract, LGB to visual cortex, CN III, IV, VI

Approaching Visual Problems

Cataract RE

Hx Taking

70 yr old

Blurry + glare RE

progressed for 6 months

No other symptoms

Refraction

VA RE 20/100 PH 20/70

VA LE 20/40 PH 20/25

Non-significant refractive error

Eye Exam

Conjunctiva, Cornea, A/C WNL

Lens: NS + CC

Fundus: WNL

Approaching Visual Problems

Dry Eyes from Meibomian Gland Dysfunction

Hx Taking

Generalized blurry BE

off and on for years

Worse: outdoor/working

Improve with blink

Refraction

VA - $20/25^{+1}$

VA c PH - $20/20^{-1}$

Unstable refraction

(astigmatism)

Eye Exam

Lid margin: meibum plugs

Conj: mildly injected

Tear film instability

Cornea: epith. erosions

Approaching Visual Problems

Posterior Vitreous Detachment (PVD) RE

Hx Taking

Floaters/flashing RE

for months

Worse: lateral gaze

Refraction

VA 20/20

Emmetropia

Eye Exam

Anterior segment: WNL

Vitreous floaters

Lattice degeneration

Approaching Visual Problems

PVD RE, High Risk Retinal Break > Laser Retinopexy

Hx Taking

Floaters/flashing RE

for months

Hx of laser LE

Hx of head trauma

Refraction

VA 20/20

High Myopia

Eye Exam

Anterior segment: WNL

Vitreous floaters

Lattice degeneration

Approaching Visual Problems

VH RE, Suspicious of PVD or Retinal Break

Hx Taking

Floaters/flashing RE

for months

Full of floaters today

Last checkup: no U/D

Refraction

VA $20/20^{-2}$

Emmetropia

Eye Exam

Anterior segment: WNL

Vitreous hemorrhage gr I-II

Normal background fundus

Approaching Visual Problems

RRD, Macula on > Emergency retina repair Sx

Hx Taking

Floaters/flashing RE
for months
Blurry inferior (1 dPTA)
to central vision today

Refraction

VA 20/100 PH 20/70^{-2}
VA LE 20/20
Hx prior RE vision = LE

Eye Exam

Anterior segment: WNL
Superior RRD, macula on
(involve superior macula)

Approaching Visual Problems

VH RE, Suspicious of PDR > Consult

Hx Taking

Blurry RE for years

Floaters for days

Can’t see anything today

Last visit: 1st Dx DM

Refraction

VA RE HM, LE 20/40

Auto-Refraction: RE unable, LE emmetropia

Eye Exam

Anterior segment: WNL

Except pupil SRTL BE

RE Vitreous hemorrhage gr IV

(Cannot evaluate fundus)

Approaching Visual Problems

Migraine with Visual aura (Scintillating scotoma)

Hx Taking	Refraction	Eye Exam
Headache after seeing zigzag dancing light followed by blurry image, expand to 50% of visual field in both eyes, lasting 30 min	VA 20/20 (no symptom now) Emmetropia	WNL

Approaching Visual Problems

Acute Angle Closure RE > IOP lowering agent & LPI

Hx Taking

At 4 AM

Headache N/V 4 hrs

RE blurry & see halo around lightings

Refraction

VA 20/70

Auto-Refraction: unable

Eye Exam

Tense globe

Ciliary injection

Slightly cloudy cornea

Mid-dilated fixed pupil

Approaching Visual Problems

Optic Neuritis RE

Hx Taking

Headache for 4 day

Blurry RE with

Color desaturation

Refraction

VA RE 20/100 PH NI

VA LE 20/20

Eye Exam

Anterior segment: WNL

Except RAPD RE

no disc swelling RE

Ishihara RE 6/24, LE 24/24

Approaching Visual Problems

Bilat. Optic Neuritis, Suspicious of NMOSD/AntiMOG

Hx Taking

Headache for 1 day

Blurry RE > LE with

Color desaturation

Refraction

VA RE 20/400 PH NI

VA LE 20/50 PH NI

Eye Exam

Anterior segment: WNL

Except RAPD RE

Mild disc swelling RE

Ishihara RE 0/24, LE 0/24

Approaching Visual Problems

Advance glaucoma RE > LE

Hx Taking

70 yr old

Blurry + dark vision RE

progressed for 6 months

No other symptoms

Refraction

VA RE 20/20

VA LE 20/20

Emmetropia

Eye Exam

IOP RE 28 LE 25

Anterior segment: WNL

Except RAPD RE

C:D RE 0.9 LE 0.7

Approaching Visual Problems

Rt Post-chiasmatic lesion, Suspicious of Stroke

Hx Taking

75 yr old, Sudden

painless blurry vision BE

U/D Old CVA, HT, DM

Hx Cataract Sx BE 10 yr

Refraction

VA RE 20/25 PH 20/20

VA LE 20/25 PH 20/20

Nearly emmetropia

Eye Exam

Anterior segment: WNL

RAPD negative

Normal fundus

Confrontation: Lt hemianopia

Approaching Visual Problems

Asthenopia, Presbyopia

Hx Taking	Refraction	Eye Exam
37 yr old Intermittent blurry vision periocular dull-aching pain worsen during E-sport	VA RE 20/20 VA LE 20/20 Hyperopia +1 BE	WNL

Approaching Visual Problems

Monocular Diplopia from Refractive Error

Hx Taking

80 yr old

Diplopia 2 months

Cannot drive his car

U/D: HT DM DLP

Refraction

VA cc RE 20/50 PH 20/25

VA cc LE 20/70 PH 20/30

Hyperopic astigmatism

Eye Exam

Anterior segment WNL

Normal fundus examination

EOM full auctions & versions

APCT orthophoria

Approaching Visual Problems

Bilateral Sixth Nerve Palsies > Workup

Hx Taking

80 yr old

Diplopia 1 day

Cannot drive his car

U/D: HT DM DLP

Refraction

VA (BE open) 20/20

without diplopia

both Snellen & near chart

Emmetropia

Eye Exam

Anterior segment WNL

Normal fundus examination

EOM limit abduction 80 PD BE

APCT ET 30 PD on side gazes

Approaching Visual Problems

Divergence Insufficiency > Prism spectacles

Hx Taking

80 yr old

Diplopia 1 day

Cannot drive his car

Last checkup: no U/D

Refraction

VA (BE open) 20/20

without diplopia

both Snellen & near chart

Emmetropia

Eye Exam

Anterior segment WNL

Normal fundus examination

EOM full ductions & versions

APCT: ET 10 PD, ortho at near

Approaching Red Eye & Discomfort

OUTSIDE IN

Approaching Red Eye & Discomfort

Lid & Lashes

Cellulitis / Panophthalmitis

Hordeolum / Chalazion / Neoplasm

Meibomian Gland Dysfunction

Thyroid orbitopathy

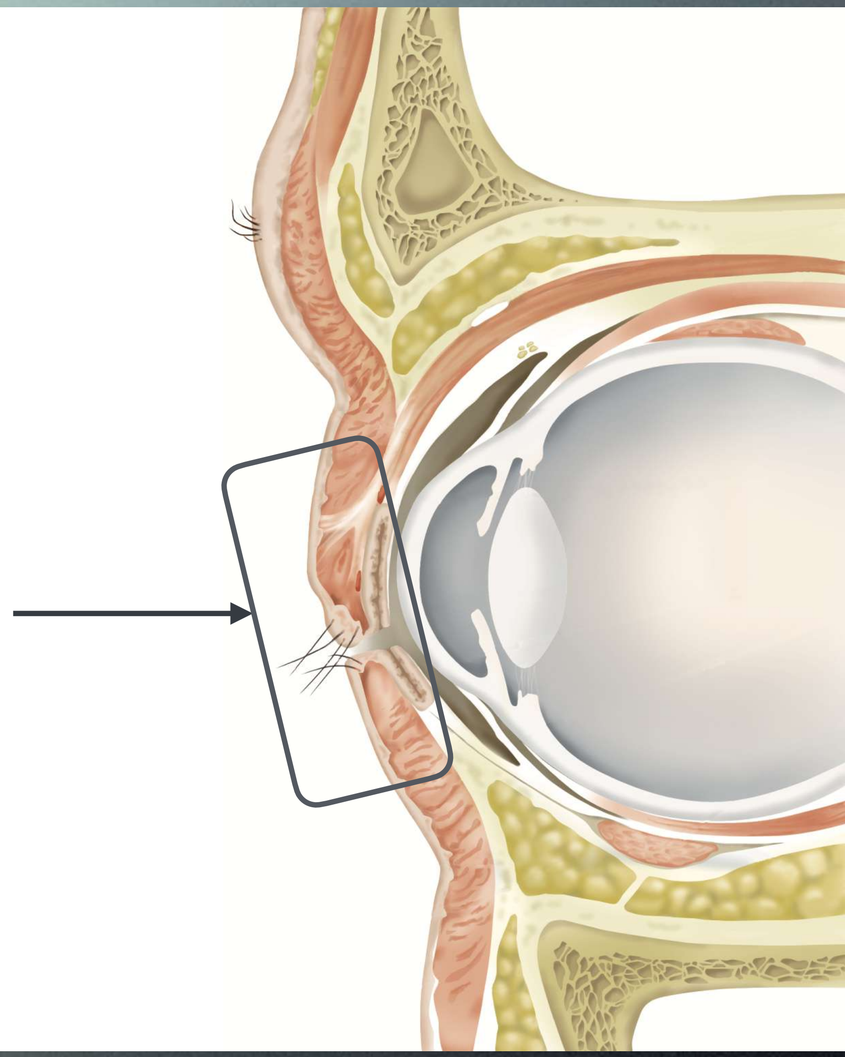
Herpes Simplex / Zoster Blepharitis

Trichiasis / Distichiasis

Ectropion / Entropion / Epiblepharon

Blepharospasm / Hemifacial spasm

Dacryocystitis / Canaliculitis



Approaching Red Eye & Discomfort

Conjunctiva

Conjunctivitis / Episcleritis

Infection: Viral, Bacterial, Parasitic

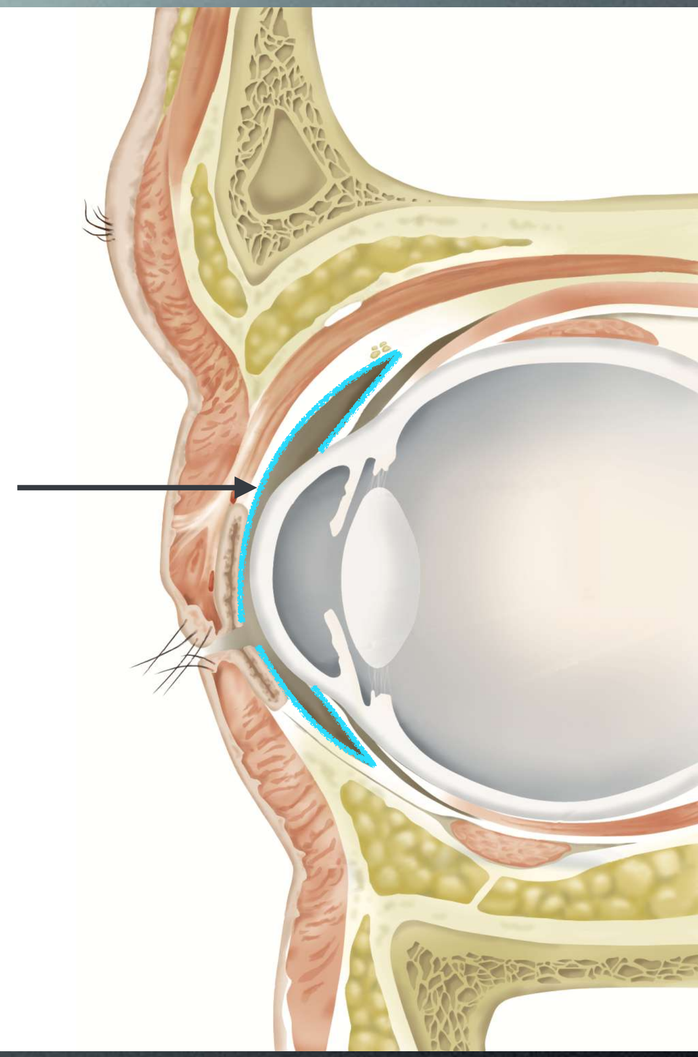
Inflammation / SJS / Allergic

Masquerade / Neoplasm

Thyroid orbitopathy

Subconjunctival Hemorrhage

Foreign body / Lithiasis



Approaching Red Eye & Discomfort

Tear film

Cornea & Sclera

Dry Eyes

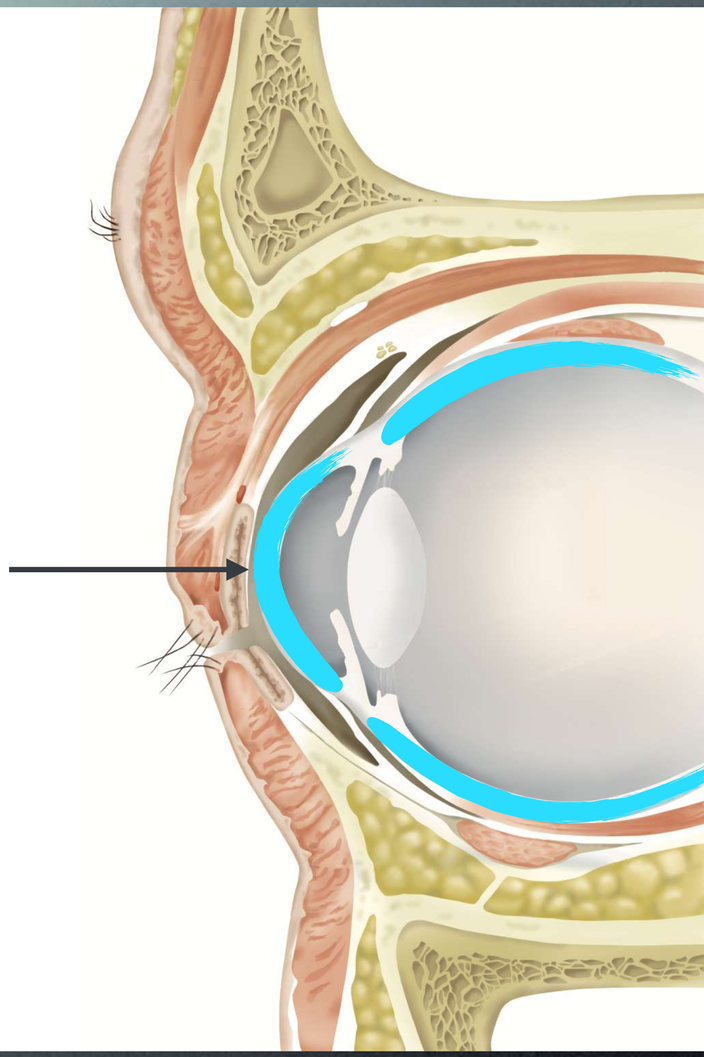
Epithelial defect / Abrasion

Contact lens overwear

Scleritis / Keratitis

Infection / Inflammation

Foreign body / Neoplasm



Approaching Red Eye & Discomfort

A/C - Iris - Lens
Ciliary body

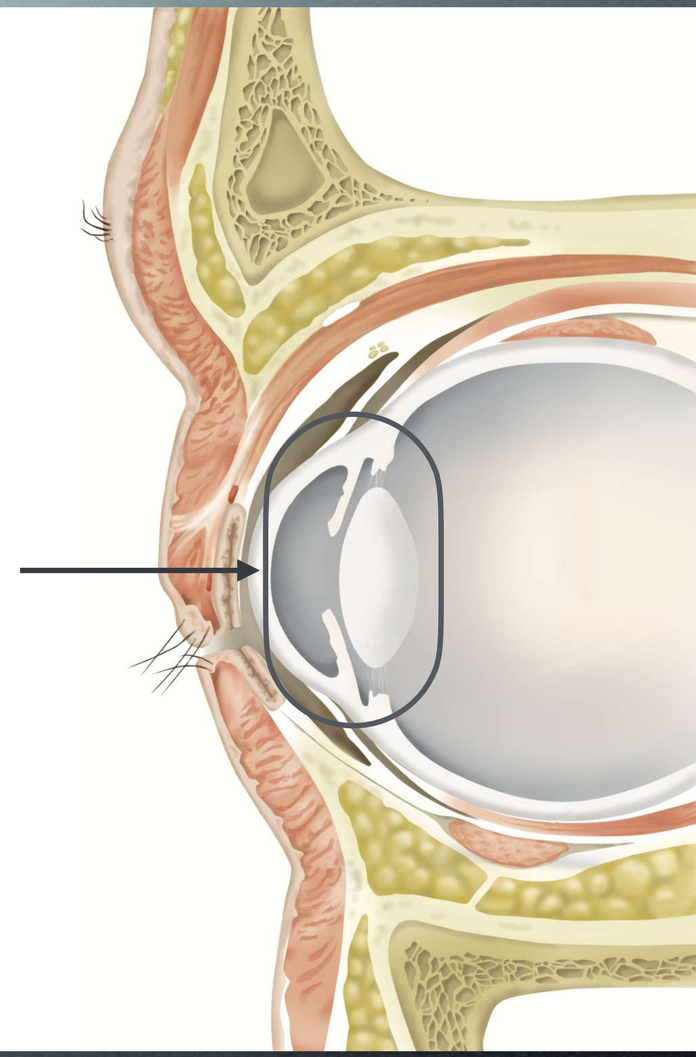
Anterior uveitis (Iritis, Iridocyclitis, Cyclitis)

Angle closure (Primary / Lens-induced)

Hyphema / Hypopyon

eg. Endophthalmitis

Masquerade



Approaching Red Eye & Discomfort

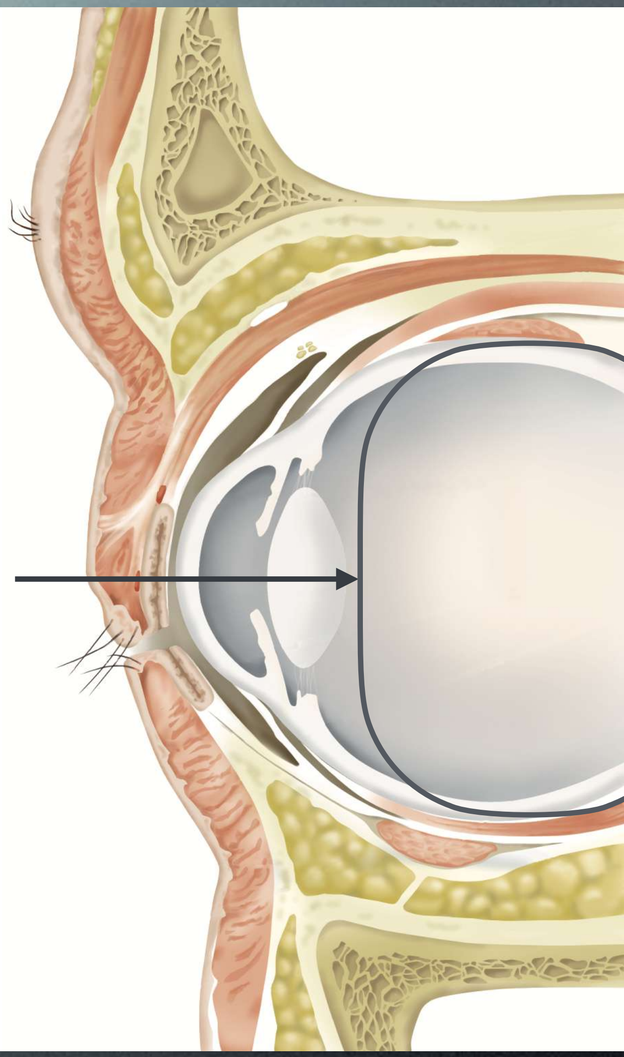
Posterior Segment

Vitritis / Endophthalmitis

Panophthalmitis

Posterior Scleritis

Retrobulbar Optic Neuritis



Approaching Red Eye & Discomfort

Asthenopia (Fatigue)

Excessive near work

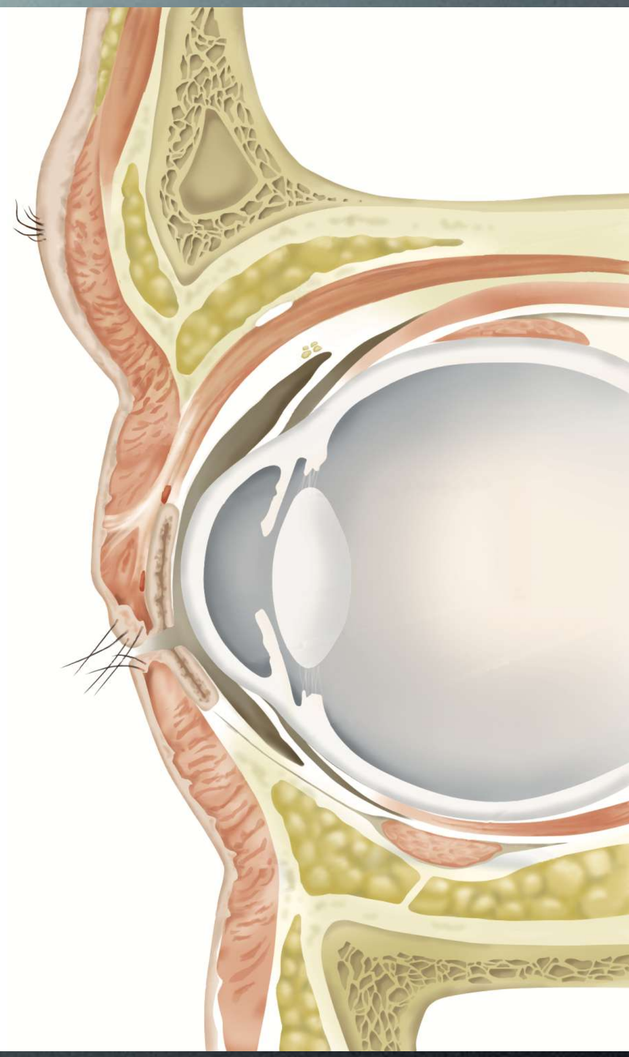
Hyperopia

Presbyopia

Overcorrection of Myopia

Spasm of near reflex

Strabismus eg. X(T) maintain fusion



Eye Screening

Non-specific

For general patients

Walk in / screening package

Visual functions (VA, Refraction, Colour), IOP

Comprehensive eye exam (may not dilate pupil)

Specific

For increased risk patients

By consultation

Eg. DR, CMVR, HCQ/CQ Maculopathy,

Endogenous endophthalmitis, ROP

Common Specific Screening

Ped-Oph
& Strabismologist

Uveitis

Retina

Neuro-Oph

Cornea &
Refractive Sx

Glaucoma

Oculoplastic

Visual field (CTVF)
Pre/Post NeuroSx

Periocular Trauma
Invasive sinusitis

JIA-AU

Steroid-induced
Cataract

ROP, Leukocoria
Refraction, Amblyopia

Sjogren, SJS, KF ring
Ant. segment trauma

Steroid-induced OHT
FHx glaucoma

DR, CMVR, CQ/HCQ
Endo-Endophthalmitis

P Tantichariyangkul

TAKE HOME MESSAGE

Hx Taking: LODCRAFT, PH, FHx, Trauma/Sx, Prior Tx

Outside-in Approach: VA cc/pinhole, ant -> post -> visual pathway

Photograph: obtained with patient consent, very useful

THANKS FOR YOUR ATTENTION

Update management of diabetes mellitus

Preaw Suwannasrisuk, M.D.
Division of Endocrine and metabolism
Department of medicine Naresuan Hospital

Update guideline

- Standard of Care in Diabetes: ADA 2023
- A consensus report by ADA and EASD, Sep 2022
- Thai guideline 2020

Outlines

- Screening and diagnosis
- Lifestyle modification
- Pharmacological management
- Summary

Screening

1. Age ≥ 35 years
2. Hx of GDM (testing at least every 3 years)
3. Hx of prediabetes (A1C >5.7%,IGT,IFG) (testing at least yearly)
4. Overweight or obesity (BMI ≥23 kg/m2) with one or more risk factor*

Diabetes Care Volume 46, Supplement 1, January 2023

Screening

Risk factor*

- First degree relative with diabetes
- History of CVD
- Hypertension
- HDL < 35 mg/dL and/or triglyceride level >250 mg/dL
- Hx PCOS
- Physical inactivity
- Clinical of insulin resistance eg. acanthosis nigrican

Diabetes Care Volume 46, Supplement 1, January 2023

Diagnosis

- FPG ≥ 126 mg/dL . Fasting is defined as no caloric intake for at least 8 h. * or
- 2-h PG ≥ 200 mg/dL during 75 gm-OGTT.*or
- A1C ≥ 6.5% (A1C method that is NGSP certified and standardized to the DCCT assay.)* or
- Random plasma glucose ≥ 200 mg/dL + classic symptoms or hyperglycemia crisis

* Diagnosis requires 2 abnormal test results from the same sample or in 2 separate test samples

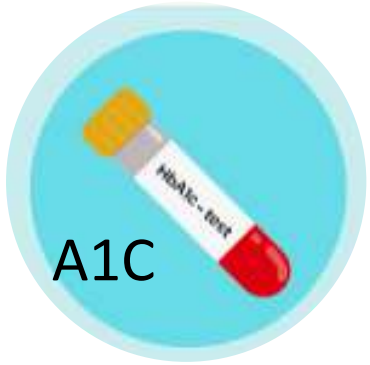
Diabetes Care Volume 46, Supplement 1, January 2023

Assessment and treatment plan

Assess risk of diabetes complication	• ASCVD and heart failure history • ASCVD risk factors and 10-yr ASCVD risk assenssment • Staging of CKD • Hypoglycemia risk • Retinopathy and neuropathy
Goal setting	• Set A1C target • Blood pressure target • Diabetes self-management goals
Treatment plan	• Lifestyle management • Pharmacological management (glucose lowering) • Pharmacological management (CVD risk factors and renal)

ASCVD : atherosclerotic cardiovascular disease

Diabetes Care Volume 46, Supplement 1, January 2023.



ADA : A1C < 7%
Premeal CPG 80-130 mg/dL
Peak post prandial < 180 mg/dL

KDIGO: target of<6.5% to <8.0% (individulized A1C target)

ADA:

- BP< 130/80 mmHg
- BP< 140/90 mmHg if older adult and multiple comorbidities
- **KDIGO2021**:SBP<120 mmHg

ACEI or ARB : 1 st line treatment

Thai guideline 2017: taget LDL
LDL <100 mg/dL for 1° prevention
LDL < 70 mg/dL for 2° prevention

ADA
Moderate potency statin for 1° prevention
High potency statin for 2 ° prevention

Kidney Int.2022Sep27:S0085-2538(22)00634-2.
Diabetes care 2022;45(suppl.1):S1895-S207
Thai guideline2017

Treatment goals for glycemia and blood pressure in older adults with diabetes

Patient character/ health status	A1C goal	Fasting glucose mg/dL	Bedtime glucose mg/dL	Blood pressure mmHg
Healthy	< 7-7.5 %	80-130	80-180	<130/80
Complex/ intermediate*	< 8 %	90-150	100-180	<130/80
Very complex/ poor health**	A1C base on avoid hypoglycemia and symptomatic hyperglycemia	100-180	110-200	<140/80

*Multiple coexisting chroninc illness or mild to moderate cognitive impairment or ≥ 2 instrument activity daily living impairments

**End stage chronic illness or moderate to severe cognitive impairment or ≥ 2 activity daily living impairment

Diabetes Care Volume 46, Supplement 1, January 2023.

Treatment plan

- Lifestyle management
- Pharmacological management (glucose lowering)
- Pharmacological management (CVD risk factors and renal)

Diabetes Care Volume 46, Supplement 1, January 2023.

Lifestyle modification

	Adiposity-related diabetes	Diabetes with cardiovascular disease	Isolated hyperglycaemia
Primary pathophysiological driver	Insulin resistance	Atherosclerosis, inflammation	β-cell dysfunction
Approximate prevalence*	40–70%	20–40%	10–20%
Primary morbidity	Obesity	Cardiovascular disease	Hyperglycaemia
Foundational diabetes treatment target	Weight-centric	Cardiocentric	Glucocentric
Target	>15% bodyweight loss	Use of proven cardio-protective agents	HbA_{1c} <7%
Examples of foundational diabetes treatment	Anti-obesity agents or intervention, GLP1R agonist, SGLT2 inhibitor, metformin	SGLT2 inhibitor, GLP1R agonist (thiazolidinediones)	Sulfonylurea, insulin, GLP1R agonist
Secondary treatment targets	Glucose, blood pressure, lipids	Weight, glucose, blood pressure, lipids, coagulation	NA

HbA_{1c}=glycated haemoglobin. NA=not applicable. *Prevalence varies by definition and population.

***Table 3*: Proposed primary and secondary treatment goals for type 2 diabetes by prevailing disease phenotype**

Weight-centric approach

Cardiocentric approach

Glucocentric approach

Lancet, The, 2022-01-22, Volume 399, Issue 10322, Pages 394-405

Treatment effectivess of weight loss

% weight loss	Procedure
5-7%	• Self monitor diet • Intensive lifestyle program
8-15%	• Meal replacement • Very low calories diet
9-15%	• Weight-loss medications • GI procedure
20-30 %	• SLEEVE gastrectomy • RYGB

Lifestyle modification

- ≥ 5% weight loss are recommended for most people with type 2 diabetes and overweight or obesity.
- Method of 3-5% weight loss:

  500–750 kcal/day energy deficit or

  colorie restriction : 1,200 –1,500 kcal/day for women

  : 1,500 –1,800 kcal/day for men

Diabetes Care Volume 46, Supplement 1, January 2023

History taking

- Medication
- Hypoglycemia
- Meal: frequency, CHO count
- Simple CHO : sweetener drinks, bakery, Thai dessert

คาร์โบไฮเดรต	18 กรัม	1 ส่วน = 1 คาร์บ
โปรตีน	2 กรัม	
พลังงาน	80 กิโลแคลอรี	

ขนมจีน 1 จับ หรือ $^1/_2$ ถ้วยตวง

ข้าวเหนียว $^1/_2$ ทัพพี หรือ $^1/_4$ ถ้วยตวง

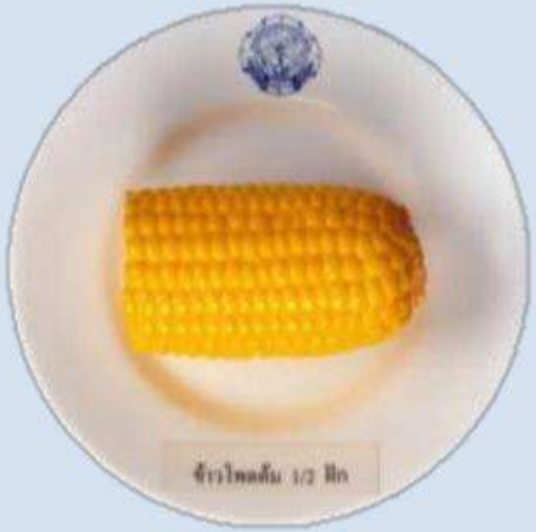
ข้าวขาว 1 ทัพพี หรือ $^1/_3$ ถ้วยตวง

หมวดข้าวแป้งและผลิตภัณฑ์

คาร์โบไฮเดรต	18 กรัม
โปรตีน	2 กรัม
พลังงาน	80 กิโลแคลอรี

1 ส่วน = 1 คาร์บ

ขนมปัง
1 แผ่น



ข้าวโพดต้ม
½ ฝัก

ขนมปังแครกเกอร์
4 – 6 แผ่น

หมวดผัก ก.
(ผักที่ไม่มีแป้ง)

ไม่ดิดพลังงาน อุดมด้วยแร่ธาตุ วิตามิน และใยอาหาร

ผักกาดขาว

แตงกวา

ตำลึง

ผักบุ้งจีน

กะหล่ำปลี

ผักกวางตุ้ง

หมวดผัก ข.
(ผักที่มีแป้ง)

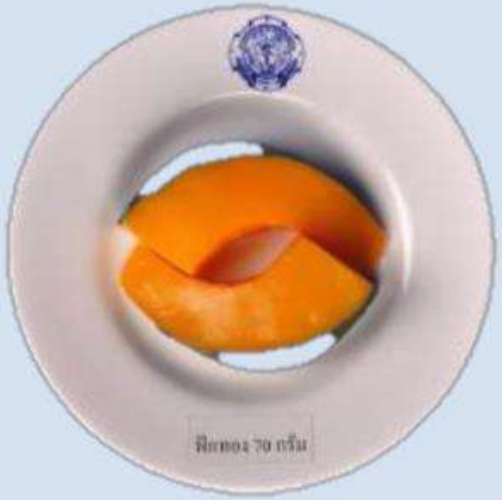
คาร์โบไฮเดรต	5 กรัม
โปรตีน	2 กรัม
พลังงาน	28 กิโลแคลอรี

1 ส่วน = 0.3 คาร์บ

แครอท

ผักคะน้า

บร็อคเคอรี่



ฟักทอง

ผลไม้ วันละ 3-4 ส่วน

Plate model


- มื้ออาหารหลักของฉัน -
นม 1 แก้ว/วัน
ผัก
2 ส่วน/มื้อ
เนื้อสัตว์
1 ส่วน/มื้อ
ผลไม้ 1 ส่วน
ข้าว / แป้ง
1 ส่วน/มื้อ
กินให้ถูกส่วนใน 1 มื้อ
2 : 1 : 1
(ผัก) (ข้าว/แป้ง) (เนื้อสัตว์)

Case scenario

- Goal of treatment
- Diabetes management

Case 1: 60-year-old woman

Underlying diseases: T2DM for 2 years

Physical examination

- V/S: BP 140/90 mmHg, HR 80 bpm, BMI 25 kg/m2
- Acanthosis nigrican at neck
- RS and CVS: unremarkable
- Ext: no pitting edema

Case1 : 60-year-old woman: T2DM for 2 years

Current medication

Metformin2,000mg/day

Physical examination

- V/S: BP120/80 mmHg
- BMI 30 kg/m2

Laboratory

HbA1c=8.5%, FPG=180mg%, LDL=80mg/dL

Cr=0.8mg/dL

Urine microalbumin=20mg/gm.cr

Management ?

Update on Thai DM CPG August 2563

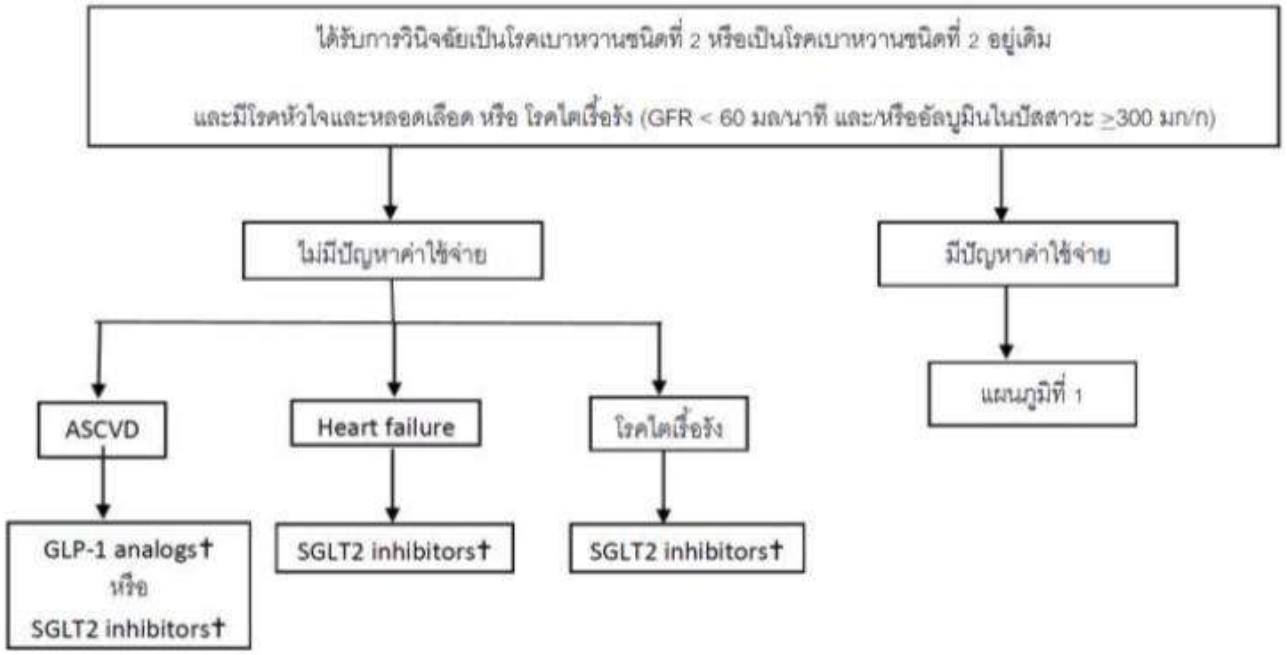
2. การเริ่มต้นให้การรักษาขึ้นอยู่กับ

2.1 ระดับน้ำตาลในเลือด และ A_{1c} (ถ้ามีผลการตรวจ)

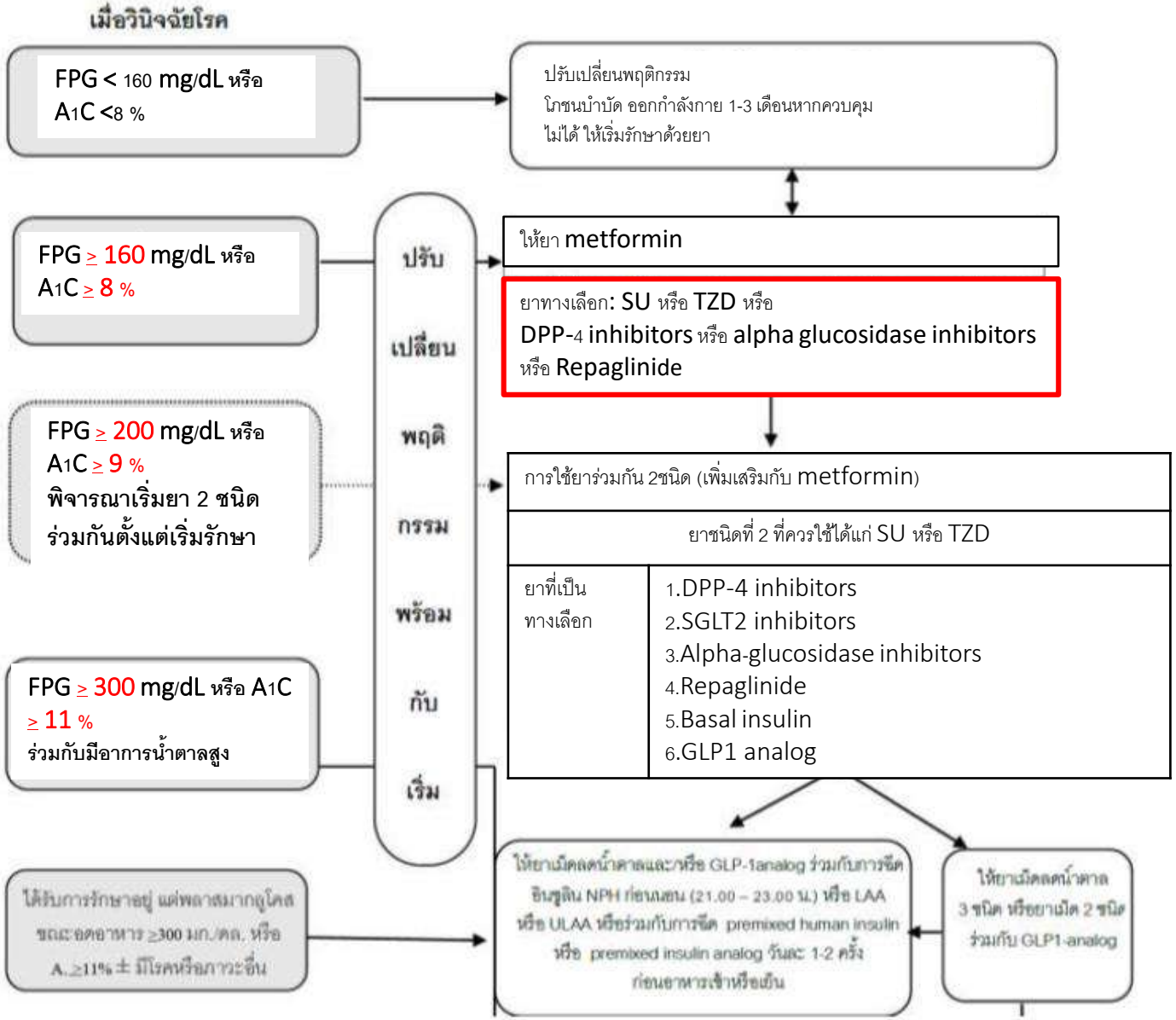
2.2 อาการหรือความรุนแรงของโรค (อาการแสดงของโรคเบาหวานและโรคแทรกซ้อน)

2.3 สภาพร่างกายของผู้ป่วย ได้แก่ โรคอ้วน โรคอื่น ๆ ที่อาจมีร่วมด้วย การทำงานของตับและไต

2.4 โรคร่วมของผู้ป่วย ได้แก่ โรคหัวใจและหลอดเลือด และ/หรือ โรคไตเรื้อรัง (GFR <60 มล/นาที และ/หรืออัลบูมินในปัสสาวะ ≥300 มก/ก)



Update on Thai DM CPG August 2563: Cost concern



Case 1: 60-year-old woman: T2DM for 2 years

Current medication

Metformin2,000 mg/day

Physical examination
- V/S: BP 140/90 mmHg
- BMI 30 kg/m^2

Laboratory

HbA1c 8.5%, FPG 180 mg%, LDL 80 mg/dL
Cr=0.8, Urine microalbumin 20mg/gm.cr

Add glipizide or pioglitazone

Case 2: 60-year-old woman

Underlying diseases: T2DM for 20 years, hypertension, DLD

Physical examination

- V/S: BP 140/90 mmHg, HR 80 bpm, BMI 30 kg/m2
- Acanthosis nigrican at neck
- RS and CVS: unremarkable
- Ext: pitting edema1+

Case 2: 60-year-old woman

Underlying disease
T2DM for 20 years, hypertension, DLD

Physical examination
- V/S: BP140/90 mmHg
- BMI 30 kg/m2

Laboratory

HbA1c 8.5%, FPG 180 mg%, LDL 120 mg/dL

Cr=1.8, eGFR=40 ml/min/1.73m3 (persistent)

Urine microalbumin 2,000 mg/gm.cr

Current medication

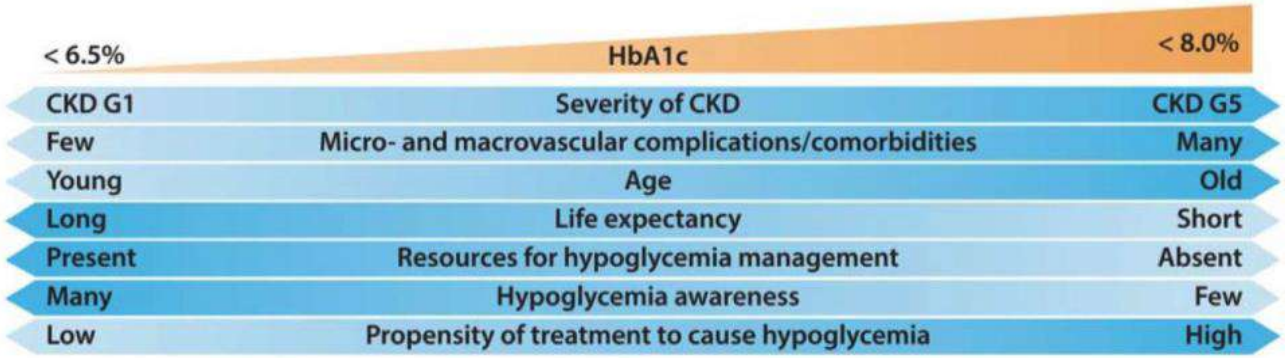
- Metformin 2,000 mg/day
- Glipizide 10 mg/day
- Pioglitazone 30 mg/day
- Sitagliptin 100 mg/day
- Amlodipine 10 mg/day
- Simvastatin 10 mg/day

F 60 yr
:T2DM for20 years, hypertension, DLD

Physical examination
- V/S: BP140/90 mmHg
- BMI 30 kg/m2

Laboratory

HbA1C 8.5% , FPG 180 mg%,
LDL 120 mg/dL
Cr=1.8, eGFR 40 ml/min/1.73m3
Urine microalbumin 2,000 mg/gm.cr



ADA : target of HbA1c <7%

KDIGO : target of <6.5% to<8.0%
(individualized HbA1c target)

Opinion: target of HbA1c 7-8 %

F 60 **yr**
:T2DM for 20 years, hypertension, DLD

Physical examination
- V/S: BP140/90 mmHg
- BMI 30 kg/m2

Laboratory
LDL 120 mg/dL , cholesterol 250 mg/dl,
HDL 40 mg/dl
Cr=1.8, eGFR=40 ml/min/1.73m3
Urine microalbumin 2,000 mg/gm.cr

ACEI or ARB : 1 st line treatment

ADA:
- BP < 140/90 mmHg
  if 10-yr ASCVD risk <15%
- BP <130/80 mmHg
  if 10-yr ASCVD risk >15%

KDIGO 2021: SBP<120 mmHg

Opinion <130/80 mmHg (Thai guideline2017)

Kidney Int. 2022 Sep 27:S0085-2538(22)00634-2.

F 60 yr
:T2DM for 20 years, hypertension, DLD

Physical examination
- V/S: BP140/90 mmHg
- BMI 30 kg/m2

Laboratory
LDL 120 mg/dL , cholesterol 250 mg/dl,
HDL 40 mg/dl
Cr=1.8, eGFR=40 ml/min/1.73m3
Urine microalbumin 2,000 mg/gm.cr

Target : LDL < 100 mg/dl

- Primary prevention: moderate intensity statin
- Secondary prevention: high intensity statin

	High Intensity	Moderate Intensity	Low Intensity
LDL-C lowering†	≥50%	30%–49%	<30%
Statins	**Atorvastatin (40 mg‡) 80 mg** **Rosuvastatin 20 mg (40 mg)**	**Atorvastatin 10 mg** (20 mg) **Rosuvastatin** (5 mg) **10 mg** **Simvastatin 20–40 mg§**	Simvastatin 10 mg
	…	**Pravastatin 40 mg** (80 mg) **Lovastatin 40 mg** (80 mg) Fluvastatin XL 80 mg **Fluvastatin 40 mg BID** Pitavastatin 1–4 mg	**Pravastatin 10–20 mg** **Lovastatin 20 mg** Fluvastatin 20–40 mg

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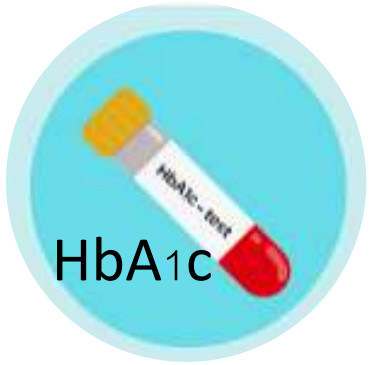

ADA : target of HbA1c <7%

KDIGO : target of <6.5% to<8.0
(individualized HbA1c target)

ADA:

- BP < 140/90 mmHg
  if10-yr ASCVD risk< 15%
- BP <130/80 mmHg
  if 10-yr ASCVD risk>15%

KDIGO 2021: SBP<120 mmHg

ACEI or ARB : 1 st line treatment

Thai guideline2017: Target LDL
LDL < 100 mg/dl for 1° prevenntion
LDL < 70 mg/dl for 2° prevention

ADA
1° prevention : moderate potency statin
2° prevention : high potency statin

Kidney Int.2022Sep27:S0085-2538(22)00634-2.
Thai guideline2017

Diabetes and CKD management

	ADA 2022	KDIGO 2022
Protein	0.8 gm protein/kg/day	
Sodium	<2,300 mg/d	<2,000 mg/d
Physical activity	Moderate intensity (≥150 min/wk) Vigoruous intensity (≥75min/wk)	Moderate intensity (at least 150 min/wk)
Weight	At least 5% weight loss	Advice weight loss in CKD with obese (eGFR≥ 30) Consider GLP-1agonist for promote weight loss
Alcohol	≤ 1drink in women ≤ 2drinks in men	No recommendation on alcohol intake

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Diabetes and CKD management

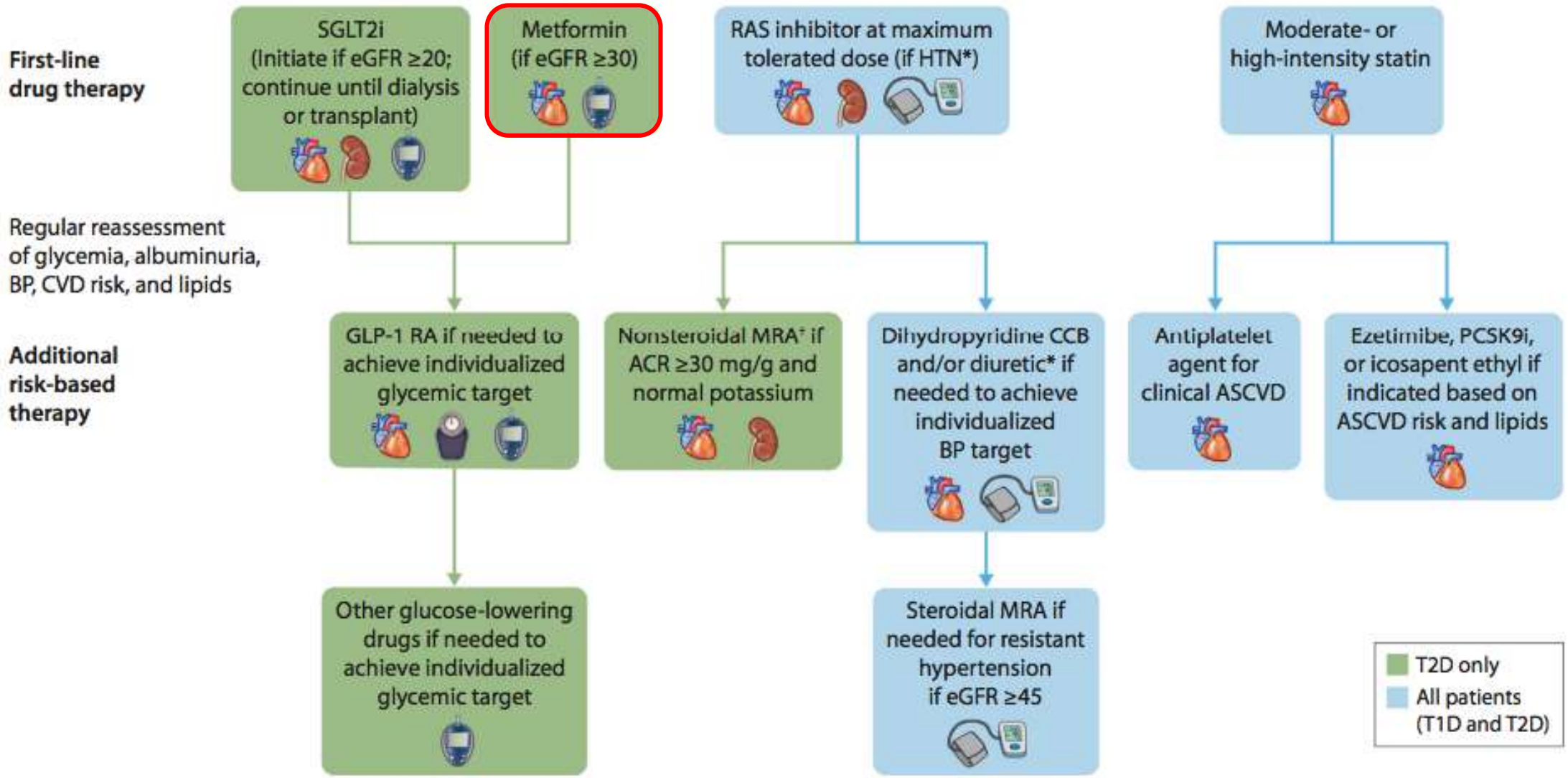

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Table 2 | Considerations for selecting glucose-lowering agents in patients with T2D and CKD[2,17]

	Progression of CKD	ASCVD	Heart failure	Glucose-lowering efficacy	Hypoglycemia risk	Weight effects	Cost
Metformin	Neutral	Potential benefit	Potential benefit	High	Low	Neutral	Low
SGLT2 inhibitors	Benefit[a]	Benefit[c]	Benefit	Intermediate	Low	Loss	High
GLP-1 receptor agonists	Benefit[b]	Benefit[c]	Potential benefit	High	Low	Loss	High
DPP-4 inhibitors	Neutral	Neutral	Potential risk[c] (saxagliptin)	Intermediate	Low	Neutral	High
Insulin	Neutral	Neutral	Neutral	Highest	High	Gain	High (analogs) Low (human)
Sulfonylureas	Neutral	Neutral	Neutral	High	High	Gain	Low
Thiazolidinediones	Neutral	Potential benefit (pioglitazone)	Increased risk	High	Low	Gain	Low
α-Glucosidase inhibitors	Neutral	Neutral	Neutral	Intermediate	Low	Neutral	Low

Neutral

Potential benefit or intermediate glucose-lowering efficacy

Benefit (organ protection, high efficacy, low hypoglycemia risk, weight loss, or low cost)

Potential risk or high cost to patient

Increased risk for adverse effects

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Metformin for T_2DM with CKD

- eGFR 45-59 ml/min/1.73m3 : a reduction should be considerd
- eGFR 30-44 ml/min/1.73m3: max dose 1,000 mg/day
- eGFR <30 ml/min/1.73m3 : contraindication

- Sick day protocol: holding metformin doses during acute illness.

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SGLT2 inhibitors (SGLT2i)

Benefit	Side effect
Decrease A1C 0.5-0.9 % Low risk hypoglycemia Weight loss 2 kg SBP lowering 2.5-5 mmHg DBP lowering 1-2 mmHg Cardiovascular and renal protection	Volume depletion from polyuria Fungal genital infection (F 10%, M 2-3%) DKA (<0.1%)

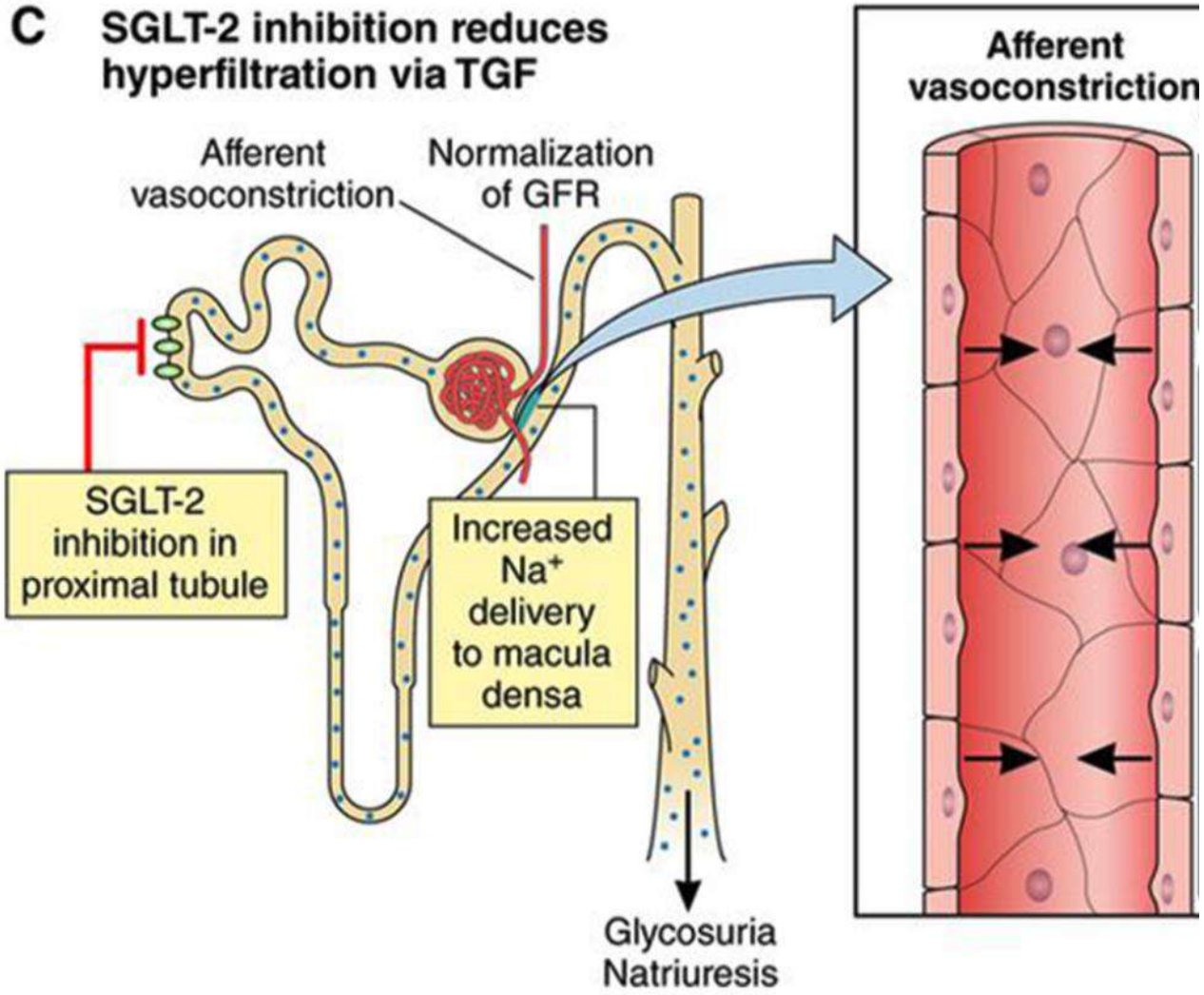
Table 4—Dose adjustments for eGFR <45 mL/min/1.73 m^2 (information presented reflects the package inserts rather than guidance from this consensus report)

	Stage 3b (eGFR 30–44 mL/min/1.73 m^2)	Stage 4 (eGFR 15–29 mL/min/1.73 m^2)	Stage 5 (eGFR <15 mL/min/1.73 m^2)
Canagliflozin	Maximum 100 mg daily	Initiation not recommended; may continue 100 mg daily if tolerated for kidney and CV benefit until dialysis	
Dapagliflozin	10 mg daily†	Initiation not recommended with eGFR <25 mL/min/1.73 m^2; may continue if tolerated for kidney and CV benefit until dialysis	
Empagliflozin	10 mg daily‡	Initiation not recommended with eGFR <20 mL/min/1.73 m^2; may continue if tolerated for kidney and CV benefit until dialysis	

Lancet 2021; 398: 262–76
Kidney Int. 2022 Sep 27:S0085-2538(22)00634-2.

	CREDENCE(N=4401)	DAPA-CKD (N=4094)	EMPA-KIDNEY(N=6609)
Product	Canangliflozin	Dapagliflozin	Empagliflozin
Patient population	CKD+T2DM	CKD+T2DM CKD without T2DM	CKD+T2DM CKD without T2DM
Required eGFR(ml/min/1.73m3) and UACR(mg/d) for enrolment	eGFR ≥30-<90 UACR:>300 - ≤500	eGFR ≥25-<75 UACR:≥200 - ≤5000	eGFR >45-<90 UACR:>200 or eGFR ≥20- <45
Primary endpoint	Composite of ESKD, doubling of serum Cr, renal or CV death	Composite of ≥50% susptanin decline in eGFR, ESKD, renal or CV death	Kidney disease progression (ESKD, susptanin decline in eGFR to < 10 ml/min/1.73m3, renal death or sustain decline of ≥ 40 % in eGFR) or CV death
Outcome	HR 0.7(0.59-0.82), P=0.00001	HR 0.61(0.51-0.72), P < 0.001	HR 0.72(0.64-0.82), P<0.000001

N Engl J Med.2019 Jun13;380(24):2295-2306N Engl J Med. 2020Oct8;383(15):1436-1446.
N Engl J Med.2022Nov 4.doi: 10.1056/NEJMoa2204233.



Tubuloglomerular feedback is mediated by the juxtaglomerular apparatus, which contains the macula densa; a specialised group of cells that detect sodium ion (Na^+) concentration within the tubule, signalling to the glomerulus to regulate the filtration rate and avoid dehydration via a feedback loop.

Improved glomerular haemodynamics

- decreased proximal tubular sodium resorption
- glomerular afferent arteriolar vasoconstriction

(in response to raised adenosine levels, driven by increased membrane Na^+/K^+ ATPase activity)

Outcome:

intraglomerular pressure and reduces the amount of protein filtered through the glomerulus (albuminuria).

Diabetes Ther (2020) 11:2757–2774

GLP-1 receptor agonists

Benefit	Side effect
Decrease A1C 0.9-2.2% Low risk hypoglycemia Weight loss 1.3-8.7 kg BP lowering 2-3 mmHg Cardiovascular and renal protection	GI side effect Nausea25-60% Vomiting 5-15% (risk of cholestasis, pancreatitis)

Liraglutide (once daily)

Dulaglutide(weekly)

Table 4—Dose adjustments for eGFR <45 mL/min/1.73 m^2 (information presented reflects the package inserts rather than guidance from this consensus report)

	Stage 3b (eGFR 30–44 mL/min/1.73 m^2)	Stage 4 (eGFR 15–29 mL/min/1.73 m^2)	Stage 5 (eGFR <15 mL/min/1.73 m^2)
GLP-1 receptor agonists[§]			
Exenatide	Caution initiating or increasing dose; avoid once-weekly formulation	Use not recommended	
Dulaglutide	No dose adjustment required		
Liraglutide	No dose adjustment required		
Lixisenatide	No dose adjustment required		Use not recommended
Semaglutide	No dose adjustment required		

Kidney Int.2022Sep27:S0085-2538(22)00634-2.

Case 1: 60-year-old woman

Dx
1.T2DM with poor control with DN
2.CKD G3b A3
3.HT, DLD, obesity

Underlying disease
T2DM for20 years, hypertension, DLD
- V/S: BP=140/90 mmHg
- BMI 30 kg/m2, pitting edema 1+

Previous lab (last month)

HbA1c 8.5%, FPG 180 mg%, LDL 120 mg/dL

Cr=1.8, eGFR 40 ml/min/1.73m^2 (persistent)

Urine microalbumin2,000 mg/gm.cr

คำแนะนำในการปรับยา

1. ลดขนาด meformin 1,000 mg/day (eGFR 30-44 ml/min/1.73m^2)
2. Glipizide คงขนาดเดิมได้ถ้าไม่มีอาการ hypoglycemia
3. ควร off Pioglizone เนื่องจากเริ่มบวม
4. Sitagliptin ควรลดขนาดยาเป็น 50 mg/day(eGFR 30-44 ml/min/1.73m2)
5. ยาลดความดันควรเพิ่มยากลุ่ม ACEI หรือ ARB (low dose)
   ติดตาม home BP และค่า Cr, K
6. ควรเพิ่มขนาดยา simvastatin 20 mg/day
   หรือปรับเป็น atorvastatin 10-20 mg/day
7. หากต้องเพิ่มยาลดน้ำตาล โดยไม่มีข้อจำกัดเรื่องค่าใช้จ่าย แนะนำ
   SGLT2 inh หรือ
   GLP1 agonist (หากเริ่มยากลุ่มนี้ต้องงดยา DPP4-inh; sitagliptin)

Anti diabetic agent dose adjustment for CKD

Medication	eGFR	Dose
Sulfonylureas(2nd generation)		
Glimepiride	Stage 3b-5	1-8 mg/d
Glipizide	Stage 3b-5	2.5 -20 mg/d
Thiazolidinediones		
Pioglitazone	No dose adjustment	
Alpha-Glucosidase inhibitors		
Acarbose	Stage 3b (30-44)	No dose adjustment
	Stage 4-5	Use not recommend

Kidney Int.2022Sep 27:S0085-2538(22)00634-2.

SGLT2i inhibitors

SGLT2i In Thailand:	(T2DM indication) eGFR (ml/min/1.73m^2)	Dose (mg/day)
Canagliflozin	○ EGFR ≥ 30 with UACR > 300 mg/g ○ eGFR >45	○ 100
	○ eGFR >60	○ 300
Dapagliflozin	○ eGFR ≥ 45	○ 10
Empagliflozin	○ eGFR ≥ 30	○ 10-25
Lusegliflozin	○ eGFR ≥ 60	○ 5

SGLT2i In Thailand:	(Heart failure indication) eGFR (ml/min/1.73m^2)	Dose(mg/day)
Canagliflozin	○ Not approved	
Dapagliflozin	○ eGFR ≥ 25	○ 10
Empagliflozin	○ eGFR ≥ 20	○ 10

SGLT2i In Thailand:	(CKD: Indication) eGFR(ml/min/1.73m^2)	Dose (mg/day)
Canagliflozin	○ EGFR ≥ 30 ○ with UACR > 300 mg/g	○ 100
Dapagliflozin	○ eGFR ≥ 25	○ 10
Empagliflozin	○ eGFR ≥ 30	○ 10

Kidney Int2022. Sep 27:S0085-2538(22)00634-2.

Approved on 24 Feb 2022, https://www.mims.com/thailand/drug/info

DPP4 inhibitors

Medication	eGFR	Dose
Sitagliptin	Stage1-3a (≥45)	100 mg/d
	Stage 3b(30-44)	50 mg/d
	Stage 4-5	25 mg/d
Gemigliptin	No dose adjustment	
Linagliptin	No dose adjustment	
Saxagliptin	Stage1-3a (≥45)	2.5-5 mg/d
	Stage 3b-5	2.5 mg/d

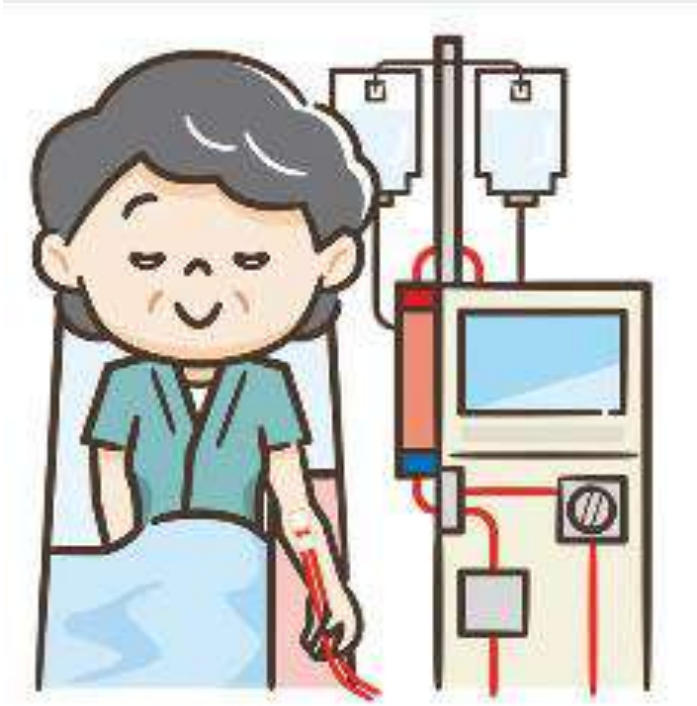
GLP1 agonist

Medication	eGFR	Dose	Thai FDA
Liraglutide	No dose adjustment	0.6-1.8mg sc OD	eGFR >15
Dulaglutide	No dose adjustment	1.5mg sc weekly	eGFR > 15

Kidney Int.2022Sep 27:S0085-2538(22)00634-2.

Case 3:
60-year-old woman

- T2DM for 20 years, hypertension, DLD
- Symptomatic hyperglycemia
- BW 60 kg



Previous Lab

HbA1c=13%, FPG 240 mg%, LDL 80 mg/dL

Cr=1.8 , eGFR 40 ml/min/1.73m2 (persistent)

UACR 2,000 mg/gm

Medication: glipizide 10 mg/day

Add basal insulin[3]

Choice of basal insulin should be based on person-specific considerations, including cost. Refer to **Table 9.4** for insulin cost information. Consider prescription of glucagon for emergent hypoglycemia.

Add basal analog or bedtime NPH insulin[4]

INITIATION: Start 10 units per day OR 0.1–0.2 units/kg per day

TITRATION:

- Set FPG target (see Section 6, "Glycemic Targets")
- Choose evidence-based titration algorithm, e.g., increase 2 units every 3 days to reach FPG target without hypoglycemia
- For hypoglycemia determine cause, if no clear reason lower dose by 10–20%

Assess adequacy of basal insulin dose

Consider clinical signals to evaluate for overbasalization and need to consider adjunctive therapies (e.g., basal dose more than ~0.5 units/kg/day, elevated bedtime–morning and/or post–preprandial differential, hypoglycemia [aware or unaware], high variability)

Neutral Protamine Hagedorn (NPH)

ชนิดยา (ชื่อยา)	เวลาที่เริ่มออกฤทธิ์	เวลาที่มีฤทธิ์สูงสุด	ระยะเวลาการออกฤทธิ์
ฮิวแมนอินซูลินออกฤทธิ์ปานกลาง (Insulin Isophane Suspension, NPH) (Insulatard HM®, Humulin N®, Gensulin N®, Insugen N®, Insuman basal®, Winsulin N®)	2-4 ชั่วโมง	4-8 ชั่วโมง	10-16 ชั่วโมง

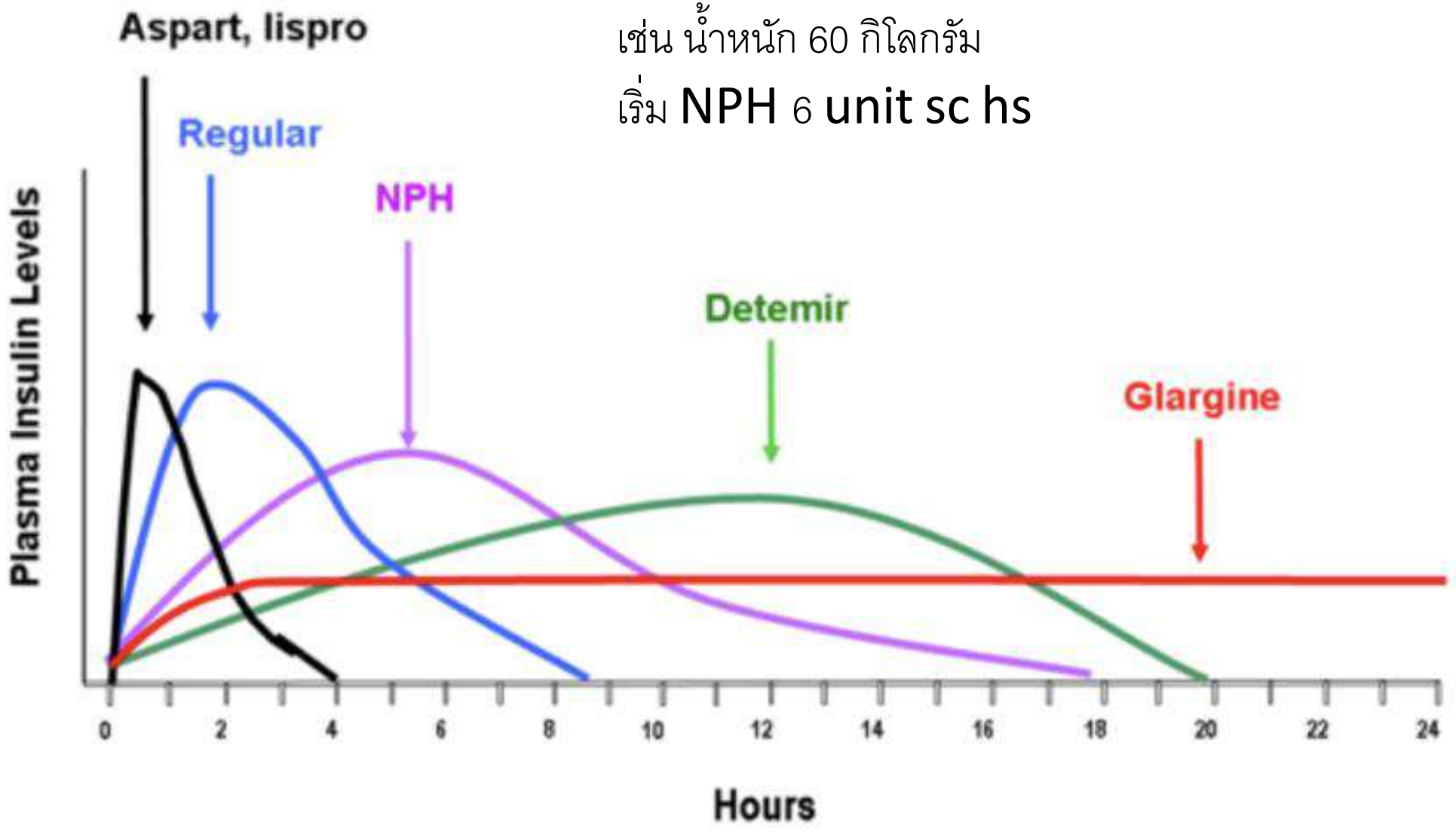
ตารางที่ 2. แสดงยาฉีดอินซูลินชนิดต่างๆ ทีมีในประเทศไทย และเวลาการออกฤทธิ

ชนิดยา (ชื่อยา)	เวลาที่เริ่มออกฤทธิ์	เวลาที่มีฤทธิ์สูงสุด	ระยะเวลาการออกฤทธิ์
อินซูลินอะนาล็อกออกฤทธิ์เร็ว			
- Insulin lispro (Humalog®)	5-15 นาที	1-2 ชั่วโมง	3-4 ชั่วโมง
- Insulin aspart (NovoRapid®)	10-20 นาที	1-2 ชั่วโมง	3-4 ชั่วโมง
- Insulin glulisine (Aprida®)	10-20 นาที	1-2 ชั่วโมง	3-4 ชั่วโมง
อินซูลินอะนาล็อกออกฤทธิ์ยาว			
- Insulin glargine (Lantus®, Basalin®, Glaritus®)	2 ชั่วโมง	ไม่มี	24 ชั่วโมง
- Insulin detemir (Levemir®)	2 ชั่วโมง	ไม่มี	18-24 ชั่วโมง
- Insulin degludec (Tresiba®)	6 ชั่วโมง	ไม่มี	24-36 ชั่วโมง

Start basal insulin 0.1 unit /kg/day

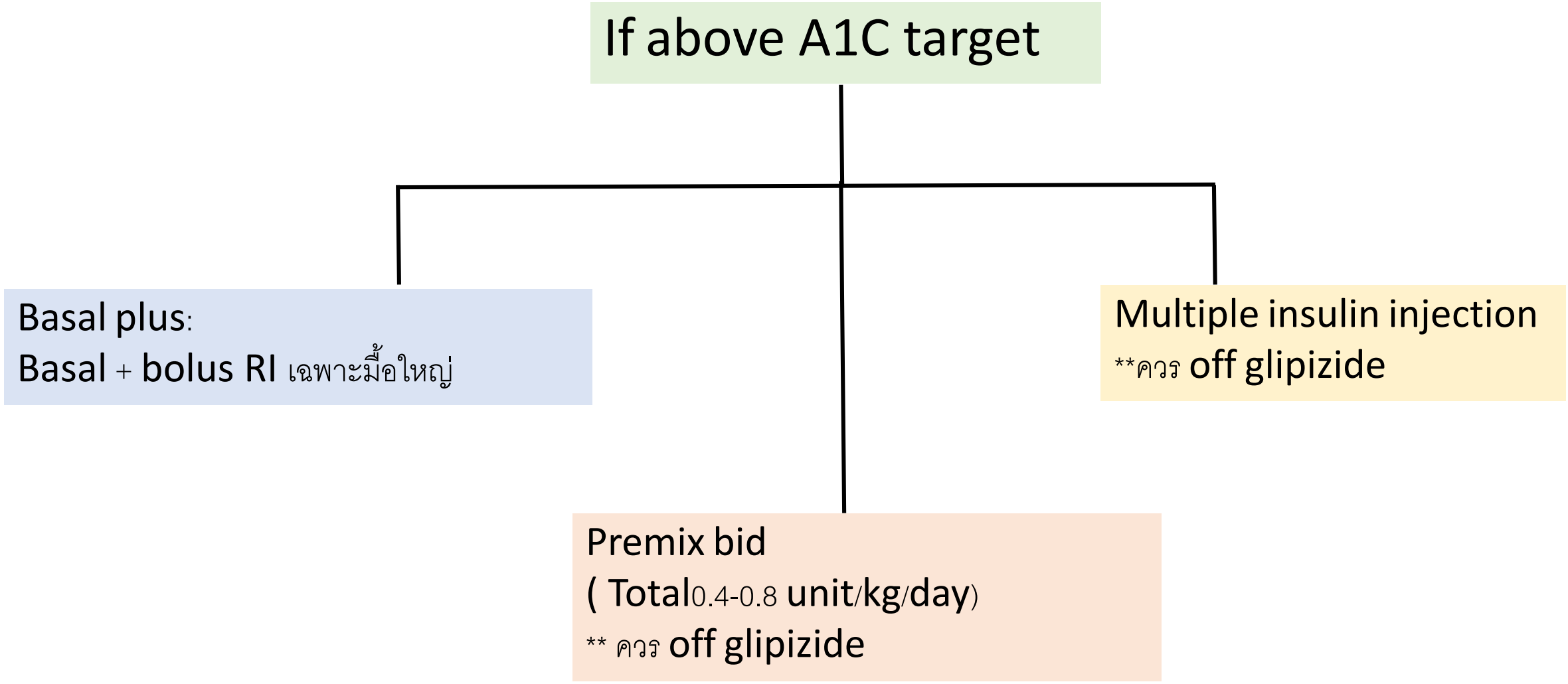
เช่น น้ำหนัก 60 กิโลกรัม

เริ่ม NPH 6 unit sc hs



Case 3: BW 60 kg
60-year-old woman, last A1c=13%, glipizide 10 mg/day

DTX เช้า	**DTX เย็น**	
240	280	NPH 6 unit sc hs
204	275	NPH 6 unit sc hs
184	267	NPH 6 unit sc hs
189	289	NPH 8 unit sc hs
156	300	NPH 8 unit sc hs


If above A1C target
Basal plus:
Basal + bolus RI เฉพาะมื้อใหญ่
Premix bid
(Total0.4-0.8 unit/kg/day)
** ควร off glipizide
Multiple insulin injection
**ควร off glipizide

Case 3: BW 60 kg
60-year-old woman, last A1c=13%, off glipizide
Start premix 0.5 unit/kg/day

DTX เช้า	**DTX** เย็น	
155	200	**Mixtard** 20 **unit sc ac** เช้า **Mixtard** 10 **unit sc ac** เย็น
136	174	ฉีดเท่าเดิม
124	155	ฉีดเท่าเดิม
132	185	ฉีดเท่าเดิม
125	177	**Mixtard** 22 **unit sc ac** เช้า **Mixtard** 10 **unit sc ac** เย็น

Premix insulin (30%RI+70%NPH)

ชนิดยา (ชื่อยา)	เวลาที่เริ่มออกฤทธิ์	เวลาที่มีฤทธิ์สูงสุด	ระยะเวลาการออกฤทธิ์
ฮิวแมนอินซูลินผสมสำเร็จรูป			
- Premixed 30% RI + 70% NPH (Mixtard 30 HM®, Humulin 70/30®, Gensulin M30®, Insugen 30/70®, Insuman combo30®, Winsulin 30/70®)	30-60 นาที	2 และ 8 ชั่วโมง	12-20 ชั่วโมง
- Premixed 50% RI + 50% NPH (Gensulin M50®)	30-60 นาที	2 และ 8 ชั่วโมง	12-20 ชั่วโมง

Novomix: 70% protaminate aspart+30%Aspart

Preparation	Trade name	Timing of Action		
		Onset	Peak	Duration
Pre-mixed insulin				
70%NPH / 30%Regular	Humulin 70/30 Mixtard30	30-60 นาที	Dual	10-16 ชั่วโมง
75% protaminated Lispro / 25% Lispro	Humalog mix 25	15-30 นาที	Dual	10-16 ชั่วโมง
70% Protaminated aspart / 30% aspart	Novomix 30	15-30 นาที	Dual	10-16 ชั่วโมง

Insulin in CKD

Table 4: Insulin preparations: Considerations in hemodialysis patients.

INSULIN PREPARATION	ONSET OF ACTION	PEAK ACTION	EFFECTIVE DURATION
Rapid-acting			
Regular	30–60 min	2–3 hr	8–10 hr
Lispro (Humalog)	5–15 min	30–90 min	4–6 hr
Aspart (NovoLog)	5–15 min	30–90 min	4–6 hr
Long-acting			
Neutral protamine Hagedorn (NPH)	2–4 hr	4–10 hr	12–18 hr
Glargine (Lantus)	2–4 hr	None	20–24 hr
Detemir (Levemir)	3–4 hr	3–14 hr	6–23 (19.9) hr
Premixed			
70/30 human mix	30–60 min	3–12 hr	12–18 hr
70/30 aspart mix	5–15 min	30–90 min	12–18 hr
75/25 lispro mix	5–15 min	30–90 min	12–18 hr

EGFR ($ml/min/1.73m^2$)	**Decrease doses of insulin**
10-50	25%
<10	50%

Arch Clin Nephrol2017.3(1):047-052.

How to start insulin in a patient with CKD

- Total daily dose (TDD) for insulin : 0.1 to 0.3 units/kg (depend on nutritional status or frailty of the patient. (Obese patient : 1.2-1.5 units/kg)

- Regimens: multiple doses of insulin (MDI) or basal bolus regimen > premix

- The rule of thumb to prevent nocturnal hypoglycemia is- "Bedtime glucose should always be higher than before dinner glucose by atle ast 40mg/dl

Arch Clin Nephrol2017.3(1):047-052.

Conclusion

- Lifestyle modification is important management.

- Pharmacological management:risk specific selection:
  - SGLT2 inhibitor(ASCVD, Hx HF, CKD)
  - GLP1 agonist (ASCVD, CKD, weight management goal)

Thank you

For attention

แนวทางเบื้องต้นในการจัดการ
ผู้ป่วยก้าวร้าว

การใช้ยาทางจิตเวชเบื้องต้น

Dr. Fasinee Arunrodpanya
M.D. ,Dip.Thai Board of psychiatry ,
Dip.program in clinical medical sciences,
clinical epidemiology, clinical statistic
Faculty of medicine, Naresuan University.

Special guest

Assit.Prof.Dr.Jatuwit Howannapakorn,MD.

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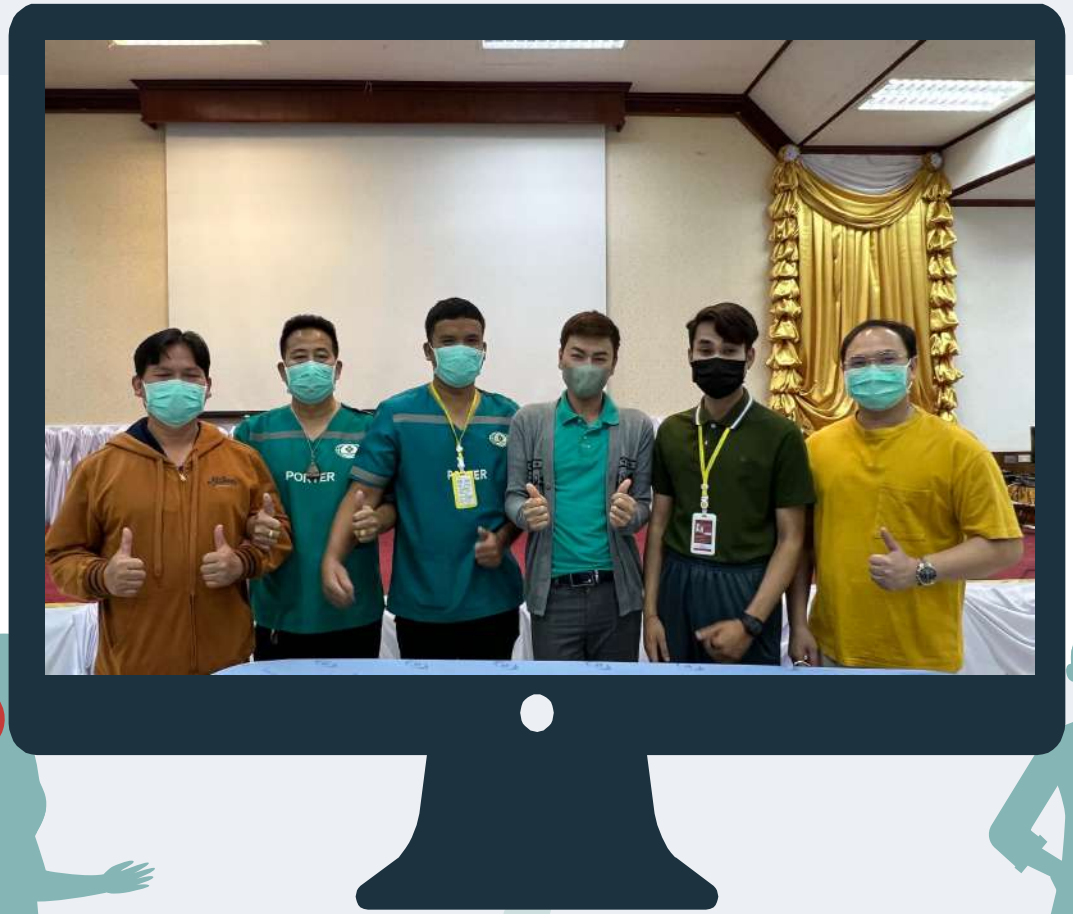


พฤติกรรมก้าวร้าว ?

- ผู้ป่วยที่เคยมีประวัติพฤติกรรมรุนแรง
- ผู้ที่มีอาการแสดงที่เป็นสัญญานพฤติกรรมรุนแรง

พฤติกรรมก้าวร้าว ?

- ผู้ที่มีอาการแสดงที่เป็นสัญญานพฤติกรรมรุนแรง

  ➢ **การแสดงออกทางสีหน้า/ท่าทาง**
  - สีหน้าบึ้งตึง โกรธ แววตาไม่เป็นมิตร
  - กัดกรามแน่น ดวงตาเปิดกว้าง
  - ท่าทางเครียด ไม่ผ่อนคลาย

พฤติกรรมก้าวร้าว ?

- ผู้ที่มีอาการแสดงที่เป็นสัญญานพฤติกรรมรุนแรง

  ➢ **การเคลื่อนไหว การกระทำ**

  - กระวนกระวาย อยู่ไม่นิ่ง เดินไปมา
  - ตัวเกร็ง กำมือแน่น กำหมัด
  - กระแทกหรือ กระทำด้วยความรุนแรง
  - หยุดการกระทำที่ทำอยู่ทันทีทันใด

พฤติกรรมก้าวร้าว ?

- ผู้ที่มีอาการแสดงที่เป็นสัญญานพฤติกรรมรุนแรง

  ➢ **การแสดงออกทางคำพูด**
  - เงียบเฉยผิดปกติ
  - โต้ตอบด้วยน้ำเสียงห้วน
  - พูดก้าวร้าว วิพากวิจารณ์ ตำหนิติเตียน ด่าว่าคำหยาบ สาปแช่ง

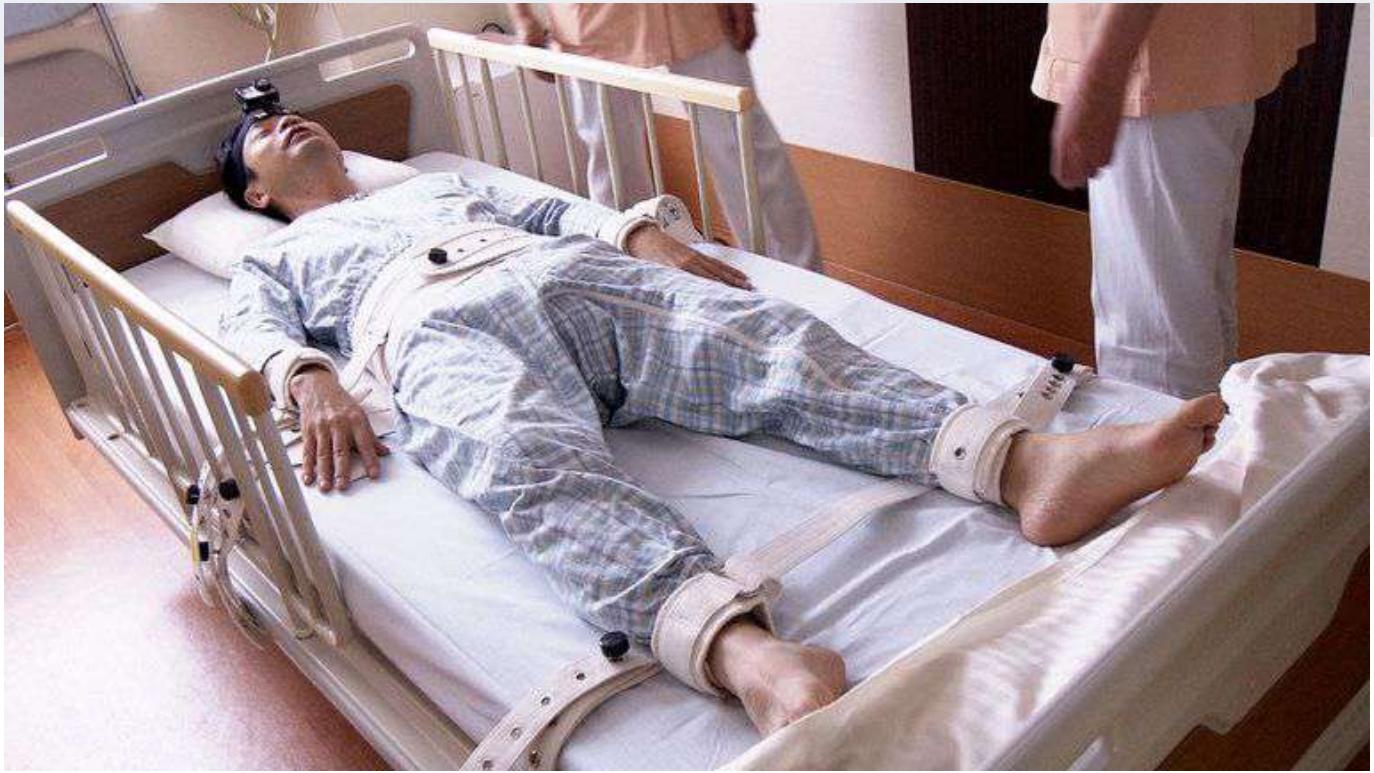
  ➢ **การเปลี่ยนแปลงความรู้สึกอย่างทันทีทันใด**

การพูดคุยกับผู้ป่วย

- ท่าทีเป็นมิตร สงบ จริงใจ
- พูดคุยด้วยน้ำเสียงนุ่มนวล
- ให้ผู้ป่วยได้ระบายความคิด
- แยกผู้ป่วยออกจากสถานการณ์ ลดสิ่งแวดล้อมกระตุ้นผู้ป่วย

การเตรียมอุปกรณ์การผูกยึด

- ผ้าผูกยึด ควรเป็นผ้าที่แข็งแรง เหนียว แต่นุ่ม และมีลักษณะพร้อมใช้
- ตำแหน่งข้อมือข้อเท้า และลำตัว
- เตียงที่สามารถใช้ผ้าผูกยึดได้



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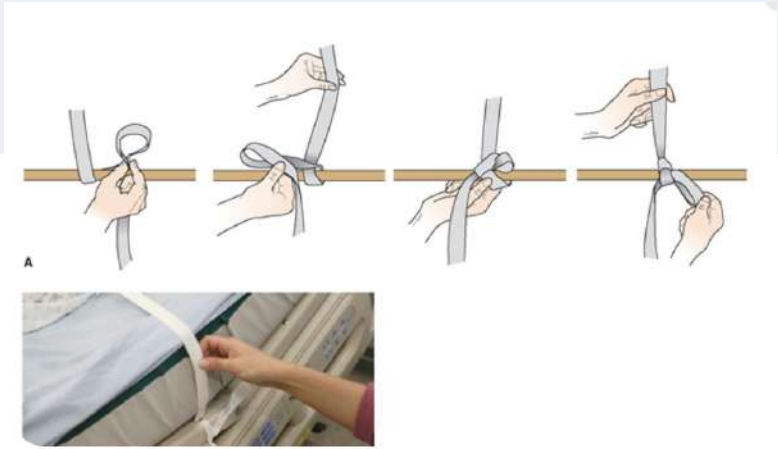

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ทีมที่ดูแลรักษา

- ควรมีอย่างน้อย 5-6 คน มีการตกลงร่วมกัน ปฏิบัติไปใน**แนวทางเดียวกัน**
- แพทย์ หรือ พยาบาล หรือสมาชิกที่สามารถพูด**เบี่ยงเบน**ความสนใจ
- สมาชิกคนที่**เข้าจับ**ผู้ป่วย เมื่อผู้ป่วยเผลอ
- สมาชิกที่**ช่วยจับ**แขนขาเพื่อการผูกยึด

ข้อควรปฏิบัติ

- การเข้าจับควรทำขณะผู้ป่วย**เผลอ**
- ผู้นำทีมต้องให้**สัญญาณ**ในการเข้าจับผู้ป่วย
- การเข้าจับควรยึดจับบริเวณ**ข้อพับใหญ่ๆ** ข้อศอก เข่า เป็นต้น
- ควรผูกยึดผู้ป่วยในท่า**นอนหงาย**

ข้อควรปฏิบัติ

- การผูกยึดที่ดีควรใช้นิ้วมือ **2 นิ้ว** สอดใต้ผ้าผูกยึดได้
- ตรวจเยี่ยมประเมิน**ทุก 15-30 นาที** การเปลี่ยนท่า การรับประทานนำ อาหาร การขับถ่าย
- เมื่อสงบลง พูดคุยรู้เรื่องจึง**ยุติการผูกยึด**

ยาทางจิตเวชเบื้องต้นสำหรับสถานการณ์นี้

First choice; antipsychotic
ระวัง alcohol intoxication

Haloperidol 5 mg IM q 30 minutes	**EPS; dystonia, akathisia**
Diazepam 10 mg IV, IM	**Respiratory repression**
Risperidone solution 2-4 cc oral	**Sedative**

ยาทางจิตเวชเบื้องต้น

บุคคลากรผู้เหนื่อยล้า และหัวร้อน หงุดหงิดมานานเหลือเกิน
ควร work up baseline metabolic profile

Sertraline (50) 1 tab oral OD pc เย็น	**Loss appetite, N/V, palpitate**
Lorazepam 0.5-1 mg oral hs	**Sedative , daytime somnolence**
.....	**....**

Thank you

For your attention