

Difficult Airway

MOANS <ul style="list-style-type: none">Mask sealObesityAged pt >55No teethStiff lungs Difficult bag mask ventilation	LEMONS <ul style="list-style-type: none">Look externallyEvaluate 3-3-2MallampatiObstructionNeck mobilitySpace /Scene/ Skill Difficult intubation
RODS <ul style="list-style-type: none">RestrictionObstructionDistortionStiff lungs Difficult extraglottic device	SHORT <ul style="list-style-type: none">SurgeryHematomaObesityRadiationTumor Difficult cricothyrotomy

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 13

1 Questionable Life Status

CASE

Dispatch

Case One

Medic 3, respond for an unconscious female with questionable life status

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 15

Upon Arrival

Case One

Initial Assessment

Case One

1 Patency of the airway?

Airway

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 17

Initial Assessment

Case One

Airway

Initial Assessment

Case One

2 Adequacy of ventilations? **Breathing**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 19

Bag Mask Ventilation

Case One

- Mask seal
- Obesity
- Aged pt >55
- No teeth
- Stiff lungs

Assess for difficult BMV

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 20

Bag Mask Ventilation

Case One

Rule of Twos

- 2 people
- 2 airways
- 2 inches
- 2 seconds
- 2 PSI

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 21

Initial Assessment

Case One

3 Adequacy of oxygenation? **Circulation**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 22

Initial Assessment

Case One

Evaluation of treatment

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 23

Initial Assessment

Case One

4 Anticipated clinical course? **Decision**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 24

Evaluation of Treatment

Case One

Summary

- Example of inadequate ventilation
- Gag reflex not a good indicator
- BMV assessment & technique
- Consider hypercapnea
- Intubation may be delayed
- Clinical course anticipated

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 25

2 Failure is not an option

CASE

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates

Dispatch

Case Two

Medic 1, respond for a sixty year-old male with severe trouble breathing.

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 27

Upon Arrival

Case Two

- **H**istory
- **A**ctivity
- **P**ain on inspiration
- **I**nfectious signs
- **S**moker
- **O**rthopnea
- **C**ough
- **S**upplemental ?'s

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 28

Initial Assessment

Case Two

I can't... seem... to... catch my... breath

1 Patency of the airway? **Airway**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 29

Initial Assessment

Case Two

2 Adequacy of ventilations? **Breathing**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 30

Initial Assessment

Case Two

3 Adequacy of **oxygenation**? **Circulation**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 31

Pulmonary Edema

Copyright (C) 2007 All Rights Reserved 32

Initial Assessment

Case Two

4 Anticipated **clinical course**? **Decision**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 33

Decision

Need to improve
Ventilation & Oxygenation

↓

IPPV

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 34

Invasive PPV

ENDOTRACHEAL INTUBATION

Why	Why Not
Respiratory failure/arrest	VAP
High IPs	Weaning
Secure airway	Trauma
	Hypoxia
	Pt position

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 35

Assess for Difficult Airway

Case Two

Space /Scene/ Skill

LEMONS

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 36

Decision

Need to improve
Ventilation & Oxygenation

IPPV **NiPPV**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 37

Case Two

Noninvasive PPV

Contraindications

- Unable to maintain airway
- Decreased LOC
- Pneumothorax
- Facial trauma/burns
- Systolic BP < 90
- Recent facial surgery
- Epistaxis
- Unable to tolerate

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 38

Assess for Mask Seal

Case Two

- Mask seal
- Obesity
- Aged pt >55
- No teeth
- Stiff lungs

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 39

Evaluation of Treatment

Case Two

Summary

- Problem of oxygenation
- ETI not wrong
- CPAP is ideal
- Proper assessment is key

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 40

3 Stop Flailing

CASE

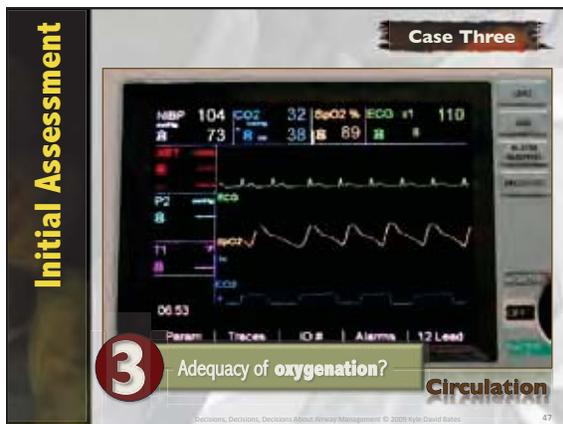
Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 41

Dispatch

Case Three

Medic 8, respond for a male who fell from the roof.

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 42



Decision to Intubate

Case Three

- Mask seal
- Obesity
- Aged pt >55
- No teeth
- Stiff lungs

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 49

Decision to Intubate

Case Three

Space / Scene / Skill

LEMONS

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 50

Rapid Sequence Induction

Case Three

- Preparation
- Preoxygenation
- Premedication
- Paralysis
- Positioning
- Proof
- Postintubation

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 51

Establishing the Airway

Case Three

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 52

Assessing Placement

Case Three

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 53

Evaluation of Treatment

Case Three

Summary

- Problem of ventilation
- IPPV is the treatment
- Assessment is fundamental
- Preparation is key
- Assessment continuous

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 54

4 A night at the fights

CASE

Dispatch

Case Four

Medic 1 respond for a female who fell down a flight of stairs at a house party.



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 56

Upon Arrival

Case Four



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 57

Initial Assessment

Case Four

1 Patency of the **airway**?

Airway



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 58

Initial Assessment

Case Four

2 Adequacy of **ventilations**?

Breathing



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 59

Initial Assessment

Case Four

3 Adequacy of **oxygenation**?

Circulation



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 60

Initial Assessment

Case Four



4 Anticipated clinical course?

Decision

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 61

Decision to Sedate

Case Four



- Mask seal
- Obesity
- Aged pt >55
- No teeth
- Stiff lungs

Difficult BMV

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 62

Decision to Paralyze

Case Four



- Restricted mouth
- Obstruction
- Distorted airway
- Stiff lungs / spine

Difficult extraglottic placement

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 63

Rapid Sequence Airway

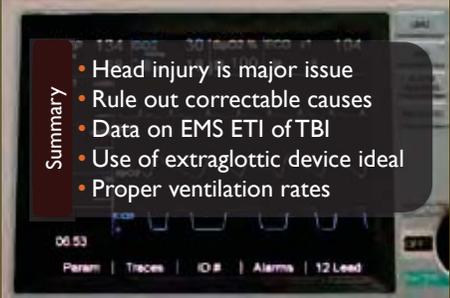
Case Four



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 64

Evaluation of Treatment

Case Four



Summary

- Head injury is major issue
- Rule out correctable causes
- Data on EMS ETI of TBI
- Use of extraglottic device ideal
- Proper ventilation rates

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 65

5 CASE A tight squeeze



Dispatch

Case Five

Medic 14, Engine 32 is requesting a paramedic response at the scene of a residential explosion.



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 67

Upon Arrival

Case Five



Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 68

Initial Assessment

Case Five

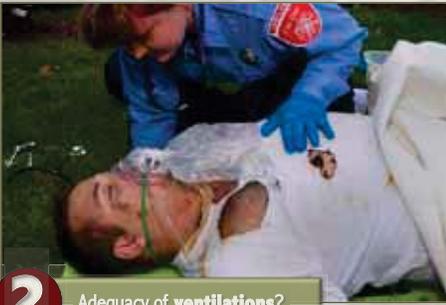


1 Patency of the airway? **Airway**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 69

Initial Assessment

Case Five



2 Adequacy of ventilations? **Breathing**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 70

Initial Assessment

Case One



3 Adequacy of oxygenation? **Circulation**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 71

Initial Assessment

Case Five



4 Anticipated clinical course? **Decision**

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 72

Assess Ability to Ventilate

Case Five

- Mask seal
- Obesity
- Aged pt >55
- No teeth
- Stiff lungs

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 73

Decision to Intubate

Case Five

Space / Scene / Skill

LEMONS

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 74

Cricothyrotomy Potential

Case Five

- Surgical scar
- Hematoma
- Obese
- Radiation
- Tumor

SHORT

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 75

Plan for a Difficult Airway

Case Five

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 76

Airway Management

Case Five

Consider apneic oxygenation!

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 77

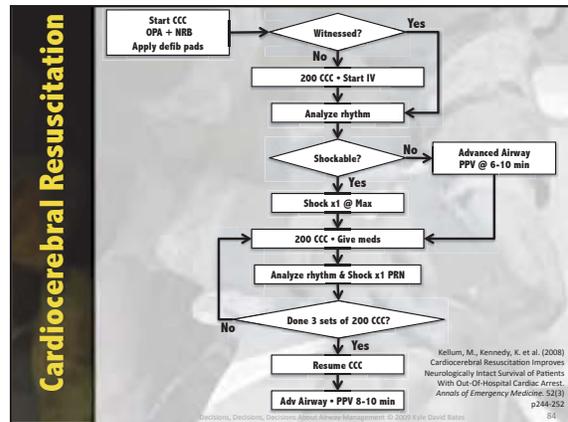
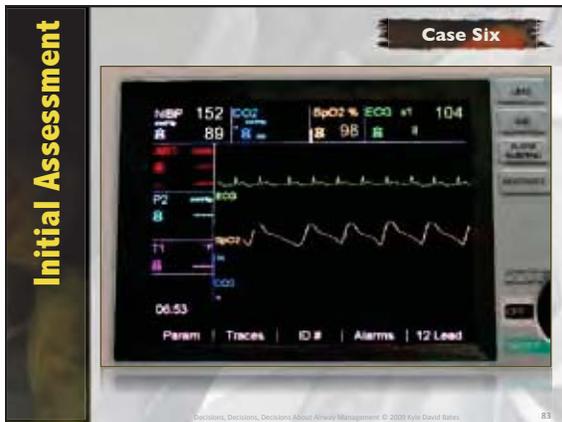
Evaluation of Treatment

Case Five

Summary

- Example of a clinical course
- Respiratory failure imminent
- Difficult airway anticipated
- Planned approach / alternatives
- Continuous waveform capnography

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 78



Case Summary

Case Six

Summary

- VF/VT arrests
- Focus on CCC
- Delayed PPV and ETI
- Promising results
- Still some questions

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 85

Summary

- 1 Patency of the airway?
- 2 Adequacy of ventilations?
- 3 Adequacy of oxygenation?
- 4 Anticipated clinical course?

Decisions, Decisions, Decisions About Airway Management © 2009 Kyle David Bates 86

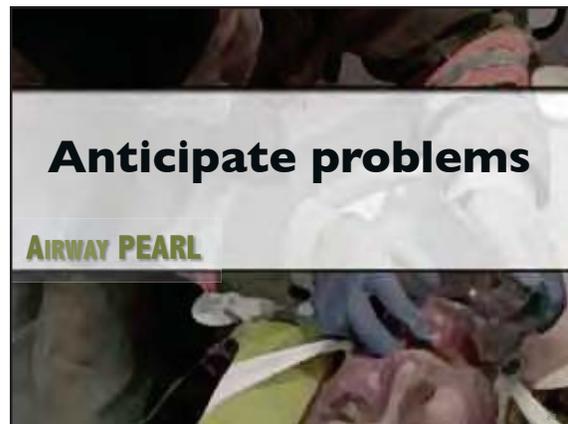
Preplan the approach

AIRWAY PEARL



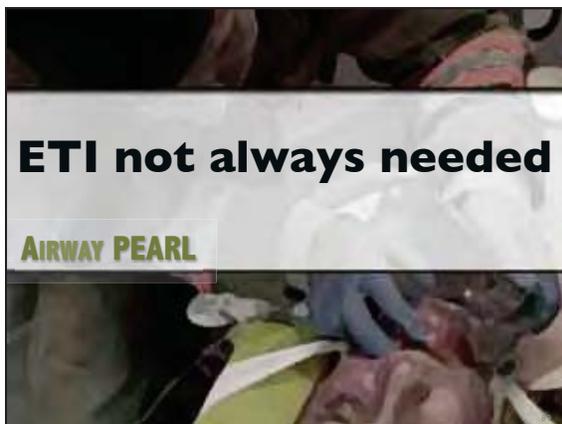
Anticipate problems

AIRWAY PEARL



ETI not always needed

AIRWAY PEARL



RSI vs. RSA

AIRWAY PEARL



