



มหาวิทยาลัยราชภัฏนครปฐม



Adult and Geriatric Nursing Practicum 2

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Complication Ventilatory support



Impact on Mechanically Ventilated Patients

Posing a significant burden to patients and caregivers

Short-term

Increase in complications

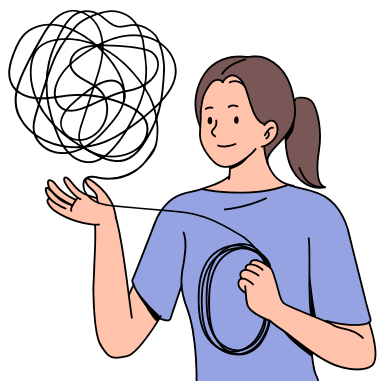
- VAP
- Sepsis
- Acute respiratory distress syndrome (ARDS)
- Pulmonary embolism
- Barotrauma
- Pulmonary edema

Increase in health care costs

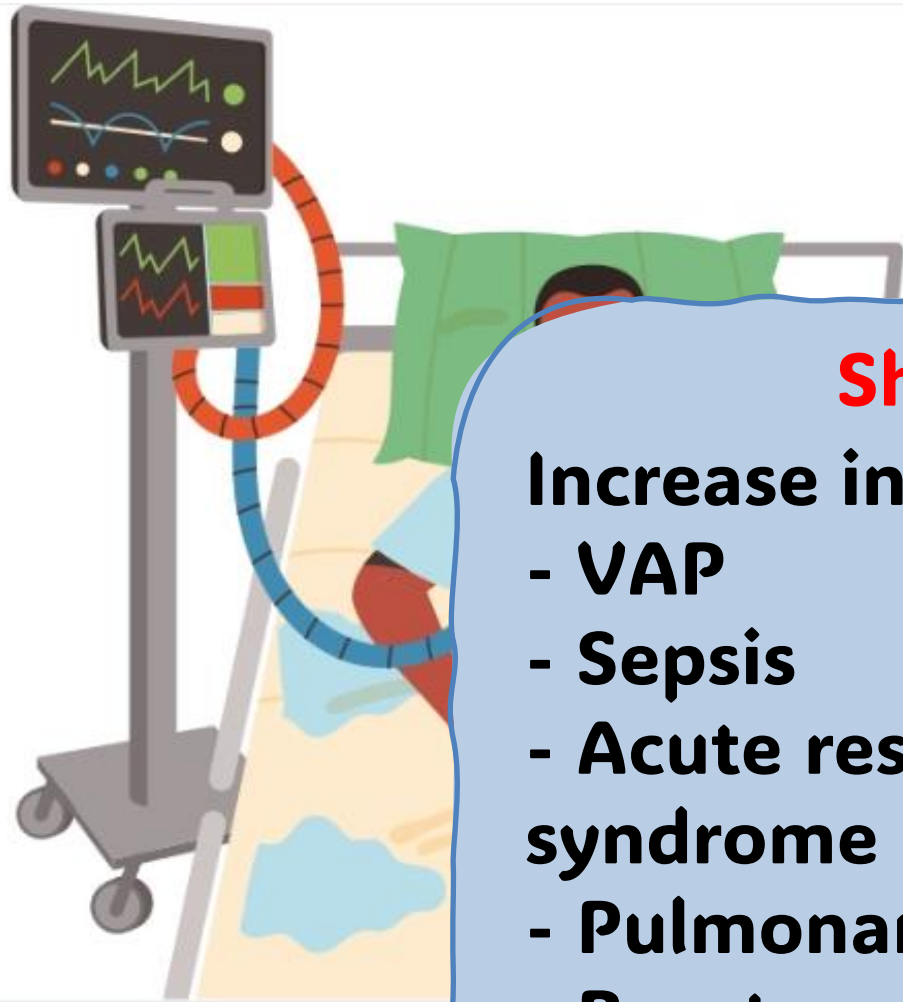
Increase in length of stay

Long-term

- Slower overall recovery time
- Debilitating physical disabilities
- Lingering cognitive dysfunction
- Psychiatric issues, including anxiety, depression, and post-traumatic stress disorder



(Martin, 2024)



sedative drug



Fentanyl (10:1) IV drip 10 ml./hr. (IV infusion : 1 – 5 mcg/ kg/ hr)

High Alert drug !!

- Fentanyl is selected to manage pain in critical care patients on mechanical ventilation in the intensive care unit (ICU)

management

Ex. Fentanyl (10:1) IV drip 10 ml./hr.
Fentanyl 1,000 mcg. : NSS 100 ml.
= Fentanyl 1,000 mcg. (2 vial) : NSS 80 ml.



dilution in NSS, D5W

https://phrachomklao.moph.go.th/wp-content/uploads/2022/02/20_Fentanyl.pdf



sedative drug

Fentanyl (10:1) IV drip 10 ml./hr.

Close monitoring

If sign and symptoms notify

- Respirator rate < 12 bpm.
- BP < 90/60 mmHg.
- HR < 60 bpm.
- O2 saturation < 94%
- Sedative score ≥ 2
- Pain score ≥ 4
- Pupil < 1 mm.

Seizure, bradycardia , constipation, nausea vomiting

**Observe
extravasation**



Phlebitis



Sedation score	Level of sedation
1	Awake and alert
2	Drowsy, responsive to verbal stimuli
3	Drowsy, arousable to physical stimuli
4	Unarousable

sedative drug

High Alert drug !!

Midazolam (Dormicum 1:1) IV 3 ml./hr.

- Benzodiazepines
- dilution in NSS, D5W

Close monitoring

- Respirator rate < 12 bpm.
- BP < 90/60 mmHg.
- HR < 60 bpm.
- O2 saturation < 94%
- Sedative score ≥ 2

Hiccups, Cough, nausea vomiting,
Hallucination, Abnormal salivation,
diplopia



sedative drug

High Alert drug !!

Nimbex (1:1) IV 5 ml./hr.

- Neuromuscular Blocking agent
- dilution in NSS, D5W

Close monitoring

- peripheral nerve stimulator
- Toxic monitoring : blood gas, vital sign (BP, pulse rate), respiratory rate, malignant hyperthermia, muscle paralysis
- neuromuscular disease, renal failure, hepatic failure, myopathy syndrome



ventilator associated pneumonia, VAP



General measures

- Universal infection control measures
 - Hygiene
- Multidisciplinary team approach
 - Staff : Patient ratio

Prevention of aspiration

- Elevation of the head of the bed
- Endotracheal cuff pressure
- Avoiding circuit manipulation
- Drainage of subglottic secretions

Preventive measures for VAP

Decontamination

- Oral decontamination
- Selective GI decontamination
- Silver Endotracheal tube

Early extubation

- Early weaning protocol
- Daily sedation brakes



(Rosenthal et al., 2024)

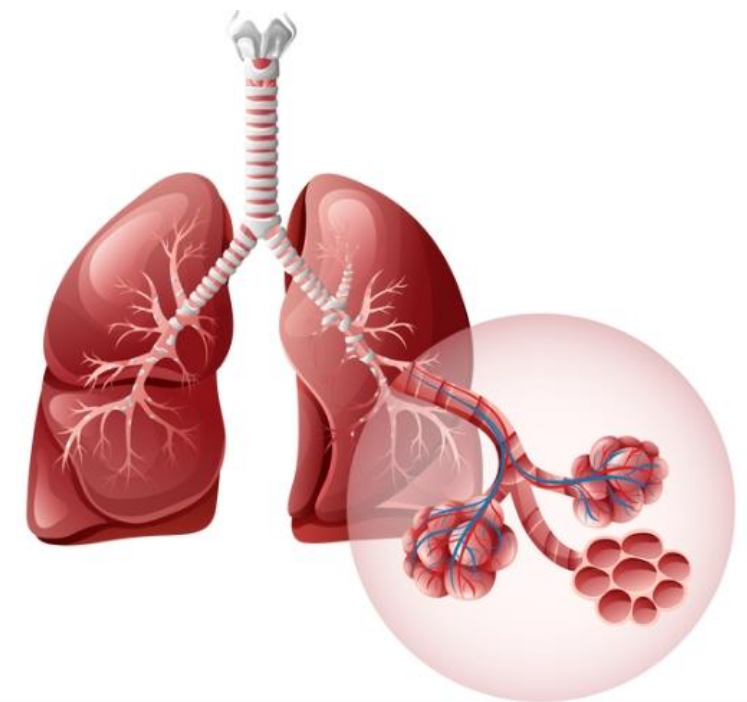
Weaning

Weaning readiness criteria

$FIO_2 \leq 0.4$, $PEEP=5$

- No ACS, CHF, Life threatening arrhythmia
- $GCS \geq 9$ (E3M6VT)
- No muscle relaxant or sedation drug
- No vasopressor or inotropic drug < 5 mcg/min

- SBT: PS 5-8, RR < 30 bpm,
- SBP 90-140, HR 50-120 bpm.
- normal Ca, Mg, Phos, K > 2.5
- Hb > 7 g/dl, HCT $\geq 20\%$
- $SatO_2 > 90\%$, $PaO_2 > 60$
- $RSBI < 105$ (RR/Vt)
- cough strength ≥ 3
- Frequency suction > 2 hr.



Weaning

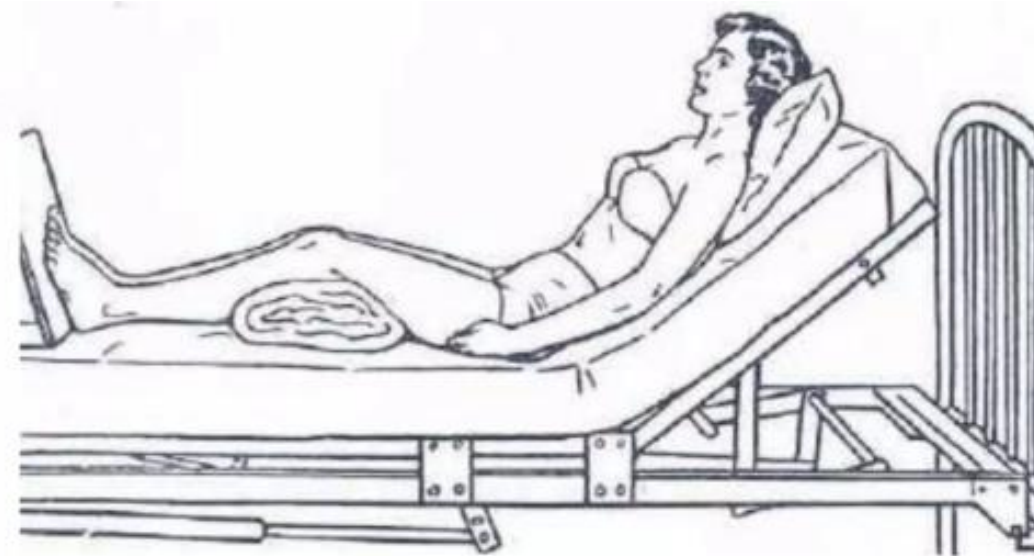
Termination Criteria of Weaning

- RR > 30 bpm.
- accessory muscles of respiration
- SBP < 90, > 150 mmHg.
or BP changed more than 20%
- PR changed more than 20%
- Cardiac arrhythmia

extubation

1. Cuff Leak Test

- The cuff leak test is used to predict risk of post-extubation stridor in intubated patients.



(Jaber, 2023)



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