Βασικές αρχές μηχανικής υποστήριξης της αναπνοής

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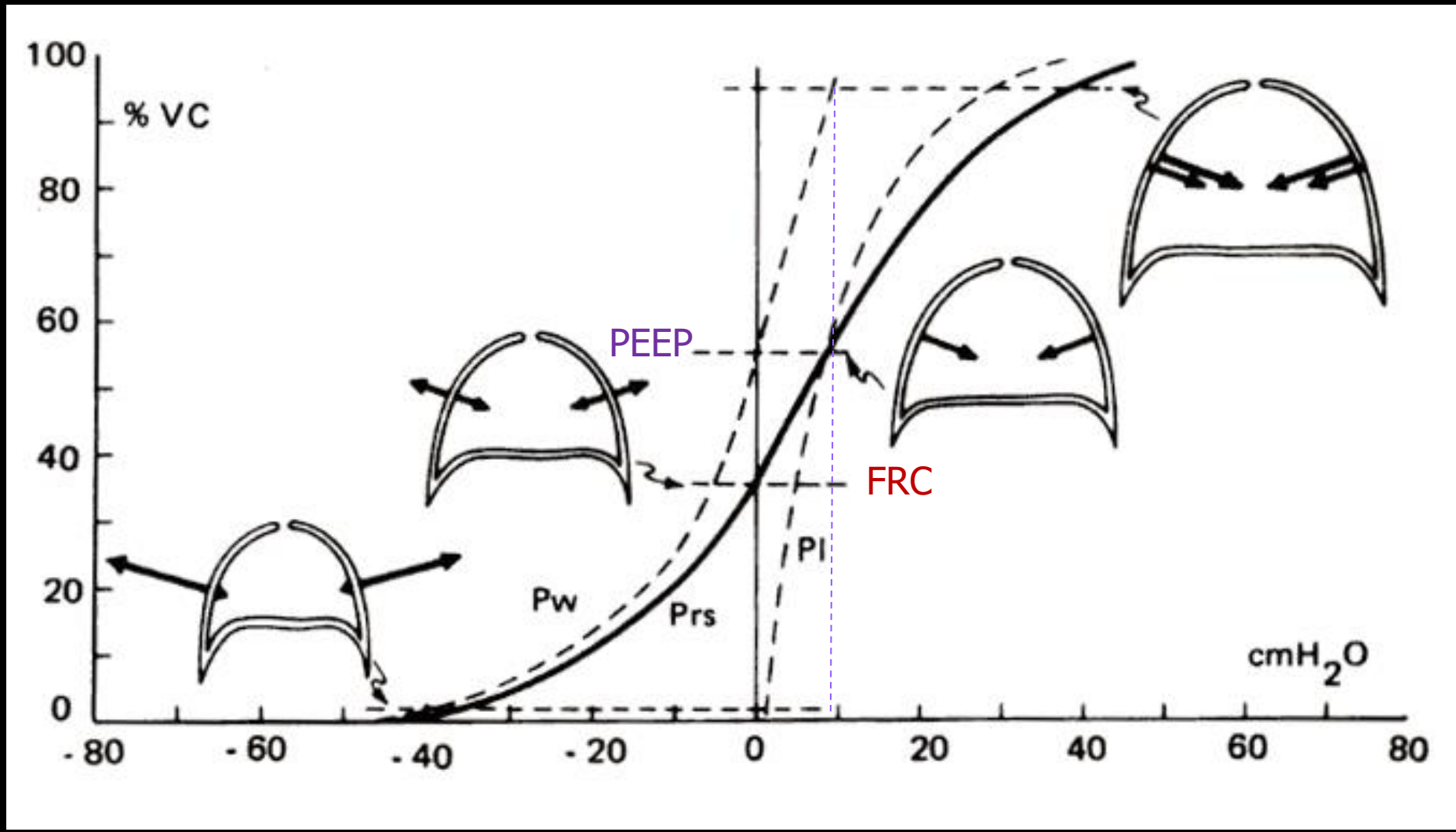
Διευθυντής Γ' Κλινικής Εντατικής Θεραπείας,

Ευγενίδειο Θεραπευτήριο

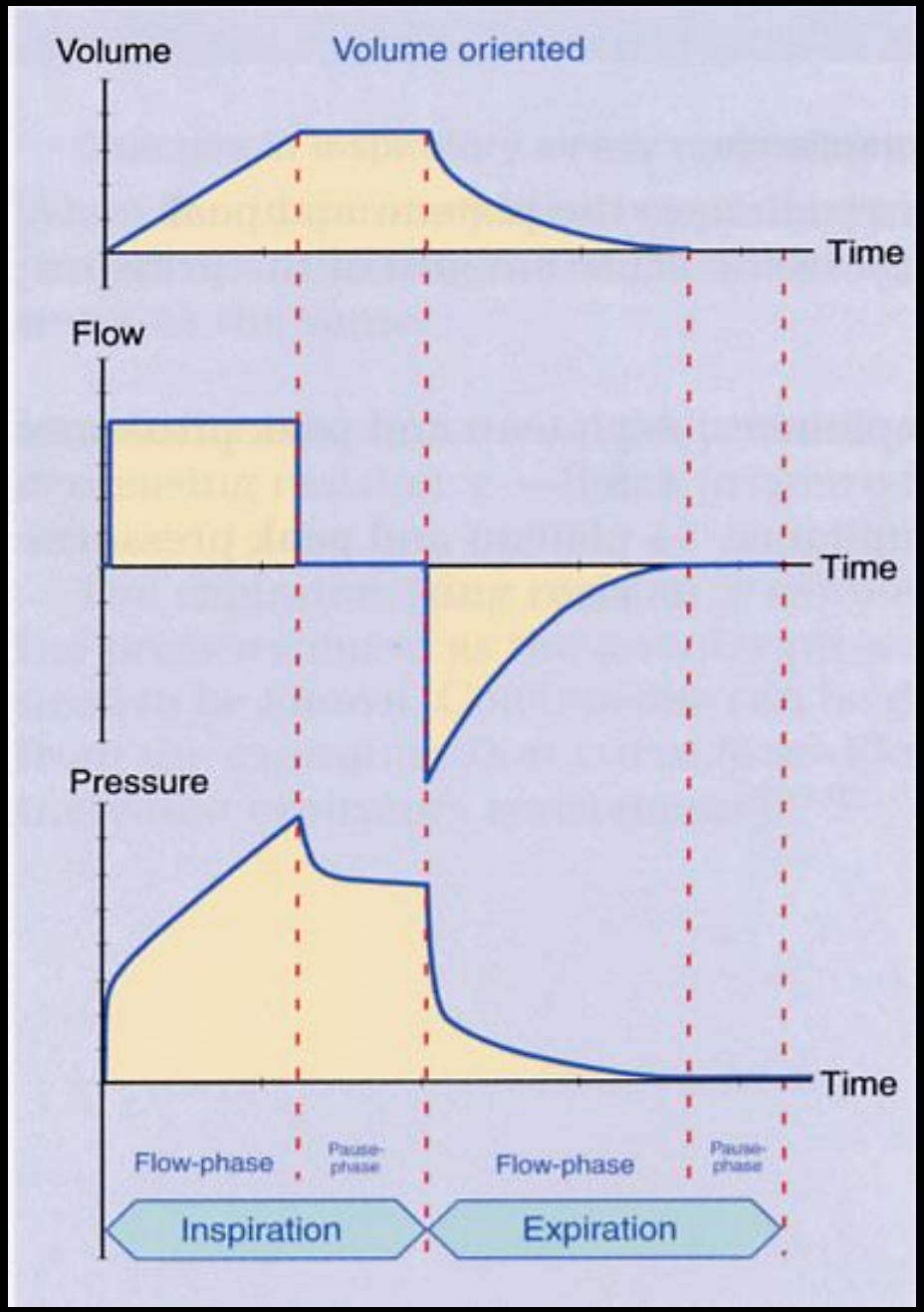
Βασικά modes

- Control modes
- Assisted modes

Διάγραμμα Rahn

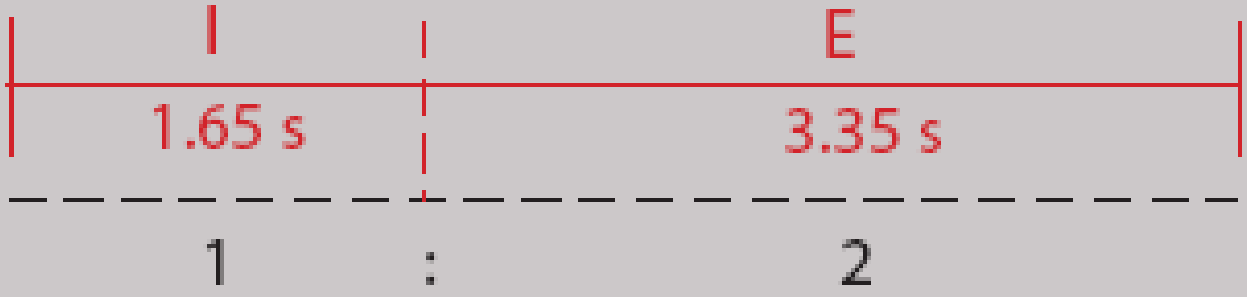


Volume Control

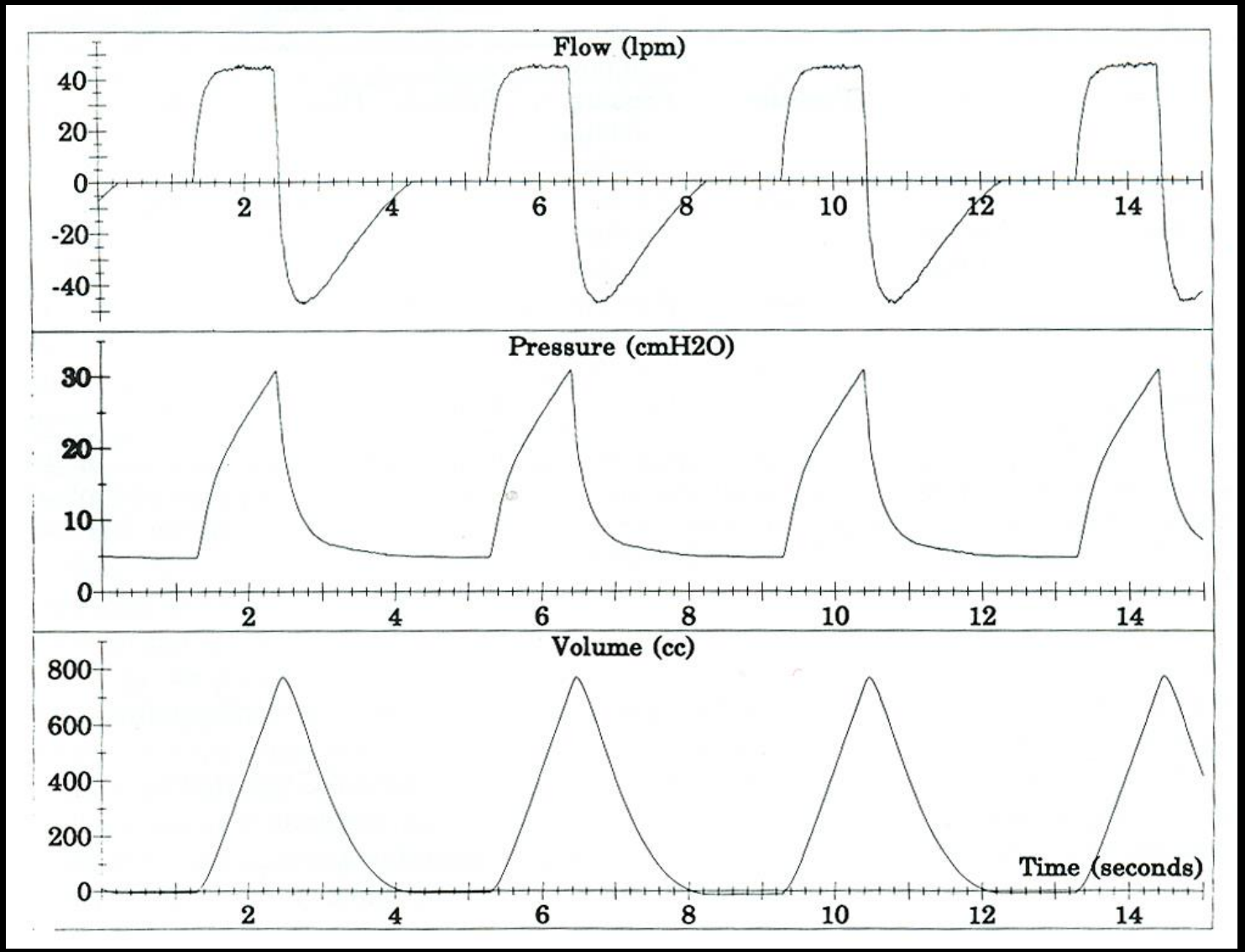


Volume Control: Settings

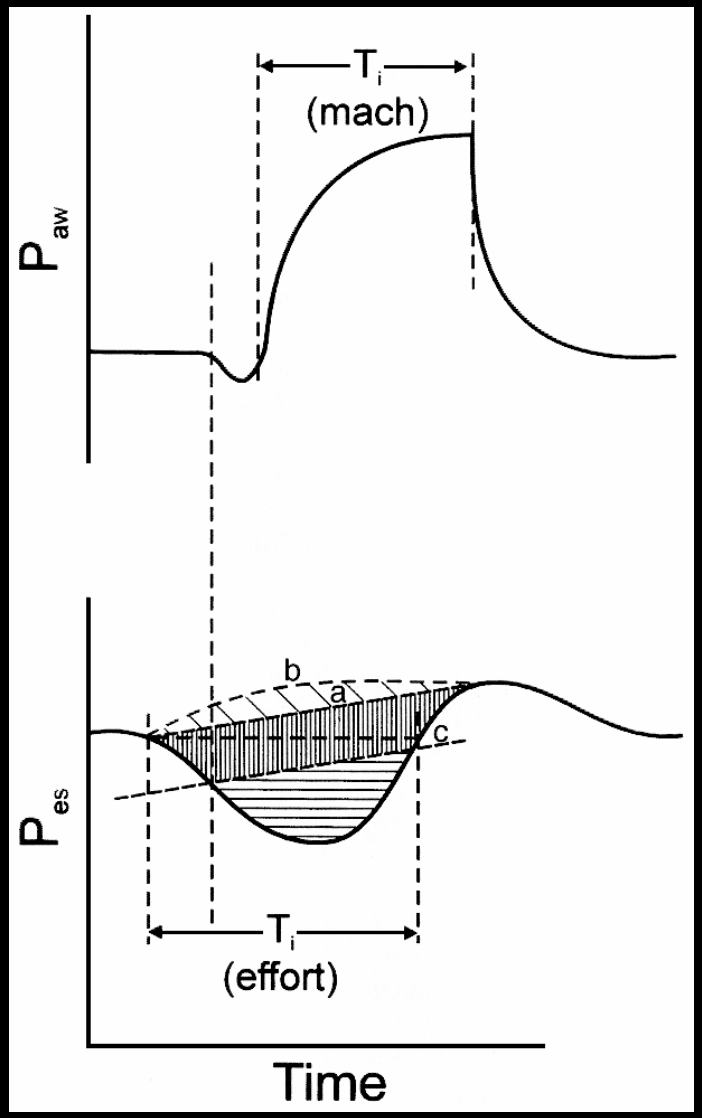
V_T	=	500 ml	
Resp Rate	=	12 breaths/min	
Time for each breath	=	60/12 =	5 s
T_i	=	1.65 s	
T_{Pause}	=	0 s	



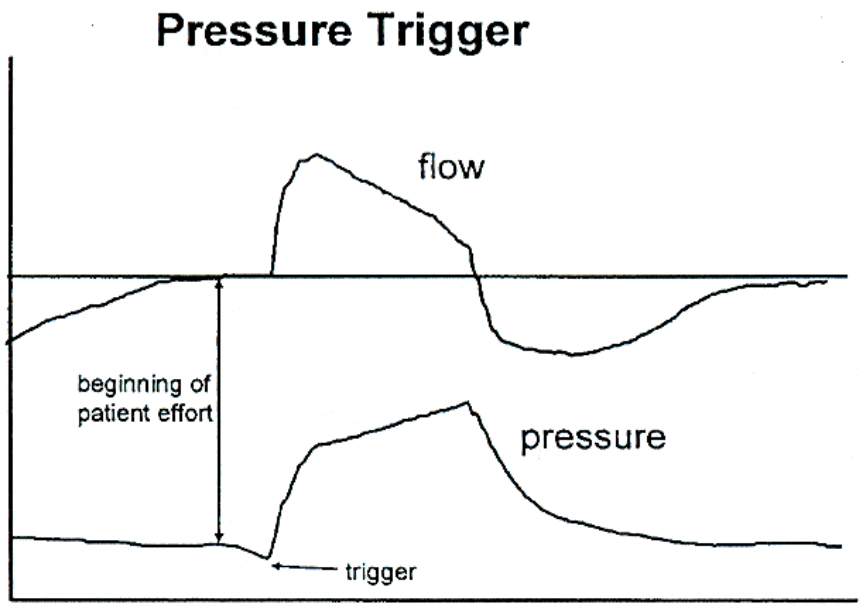
Controlled Mechanical Ventilation
Volume Control

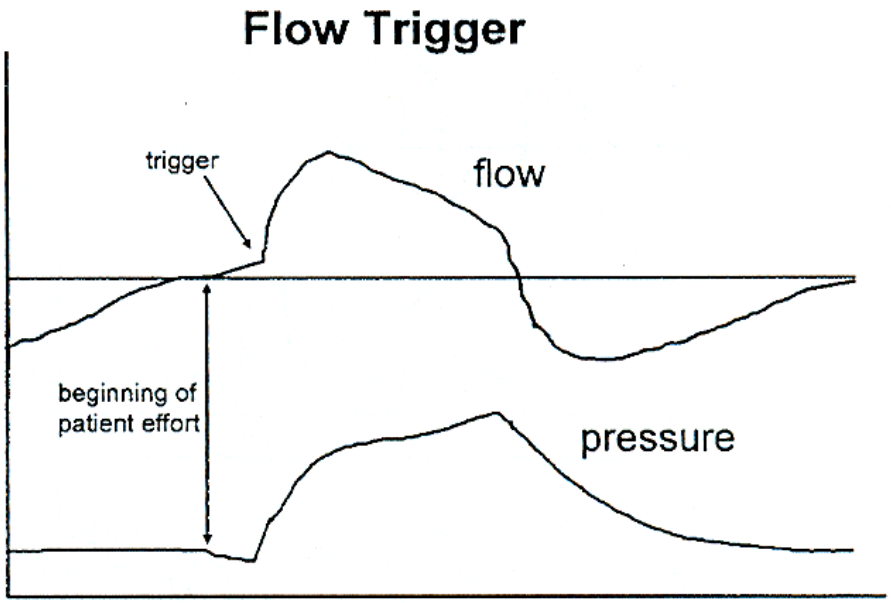


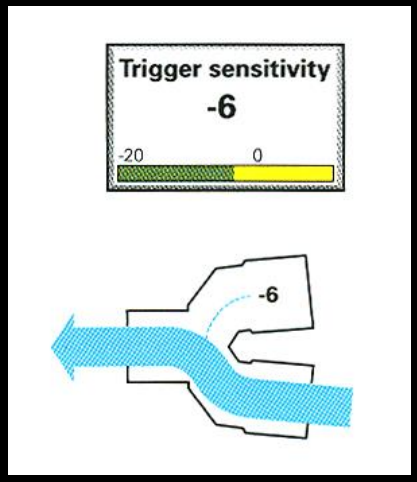
Triggering

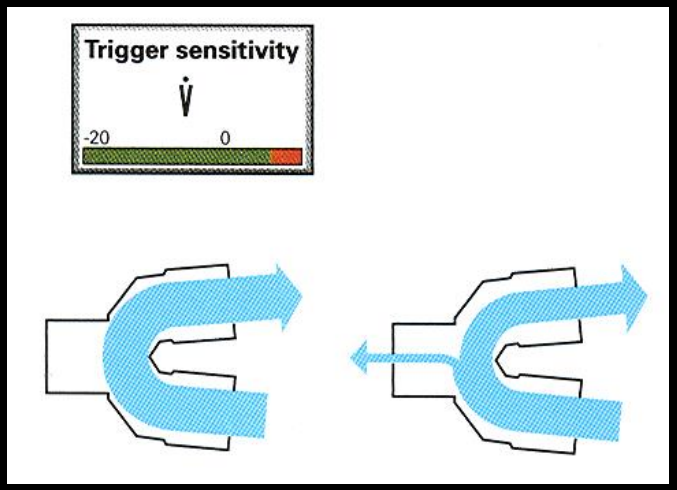


Pressure or Flow Trigger

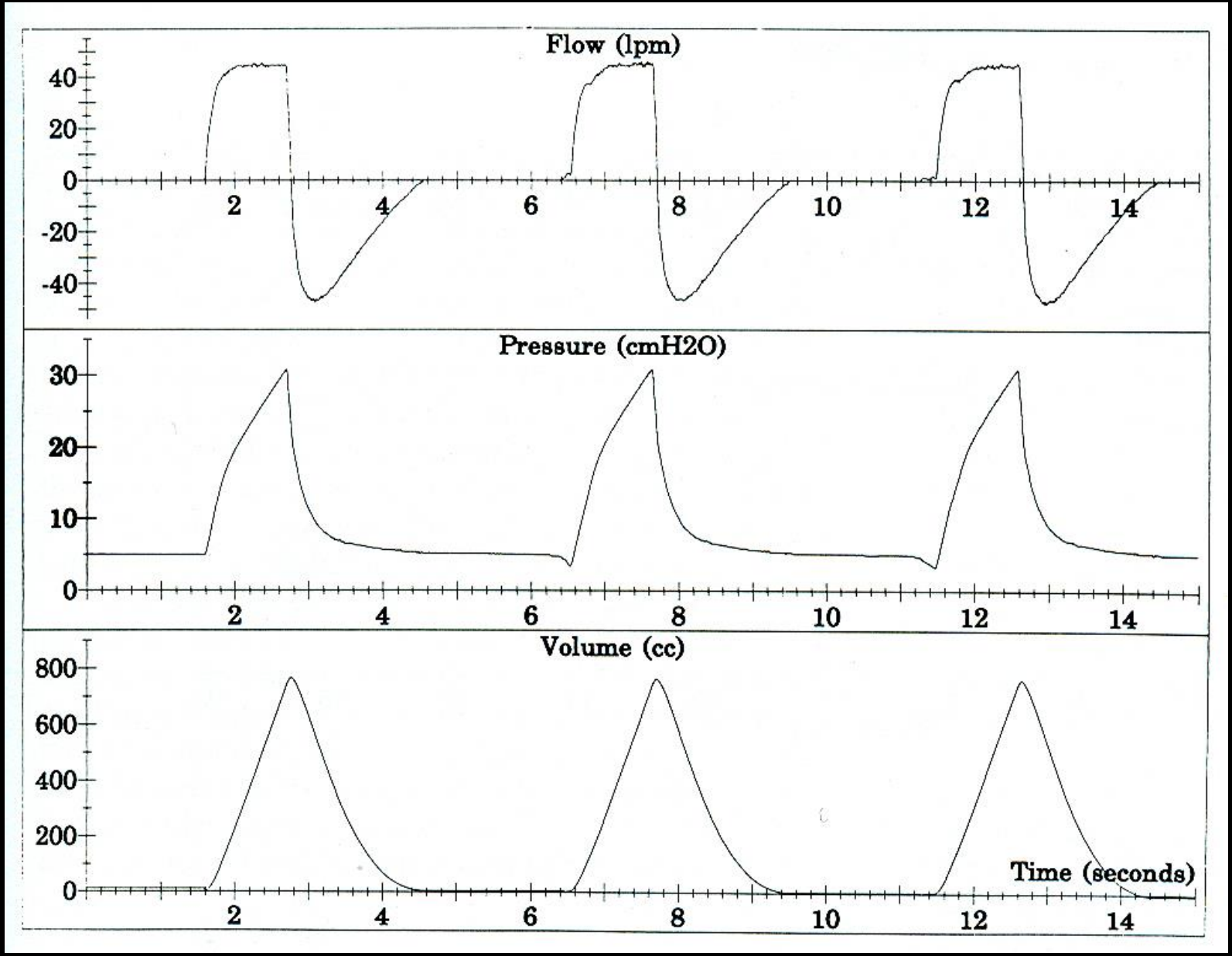




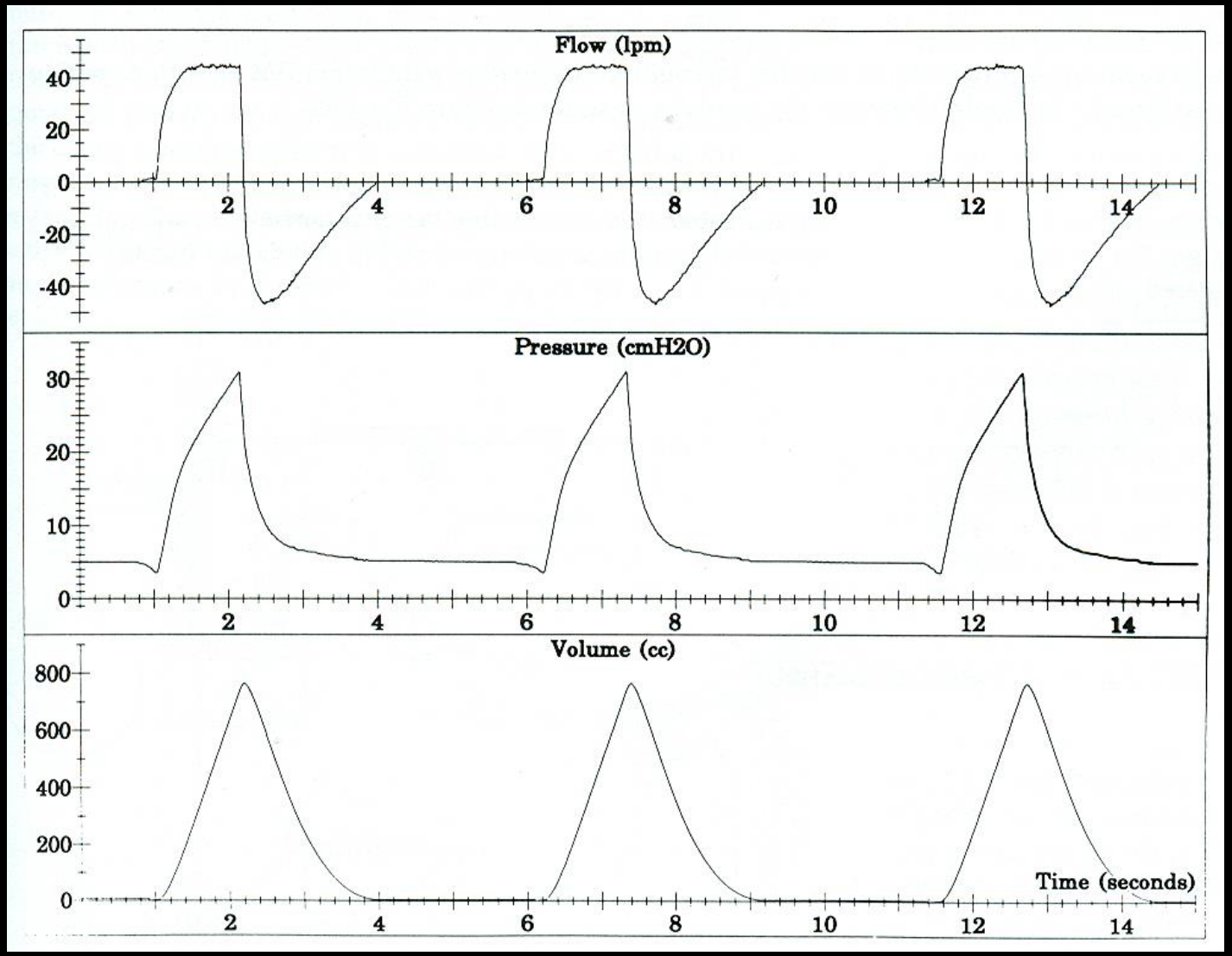




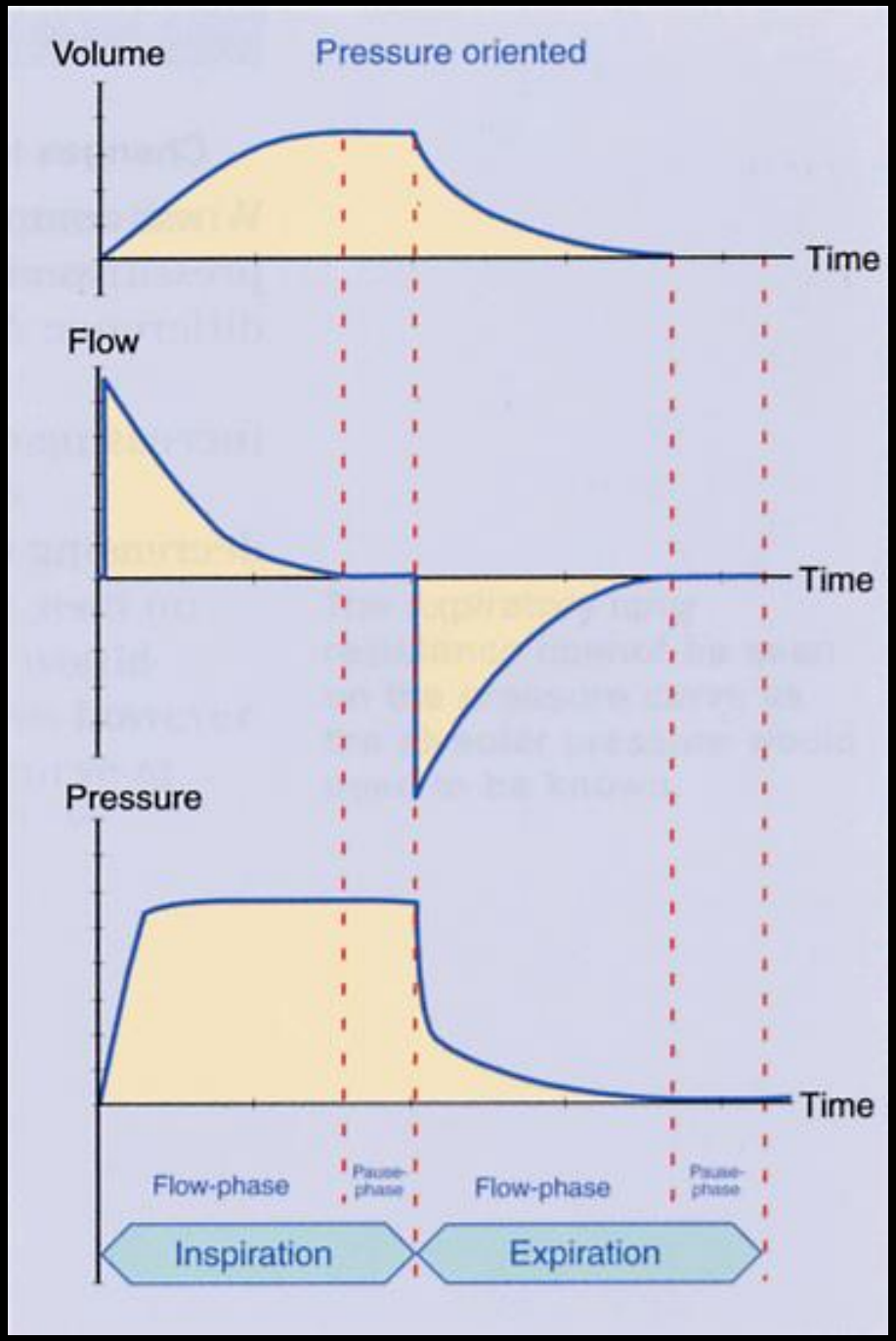
Assist Volume Control Ventilation



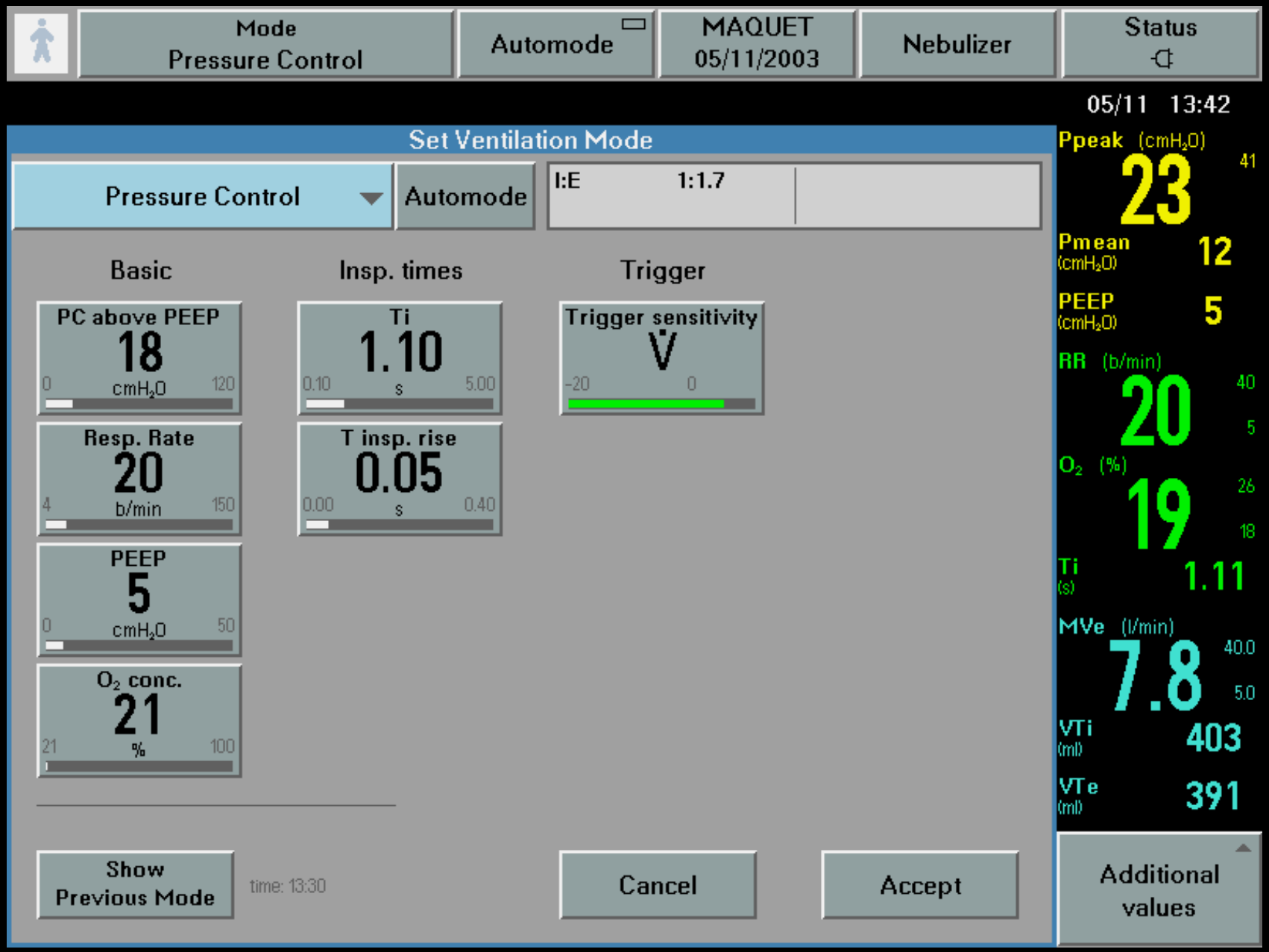
Assist Volume Control Ventilation

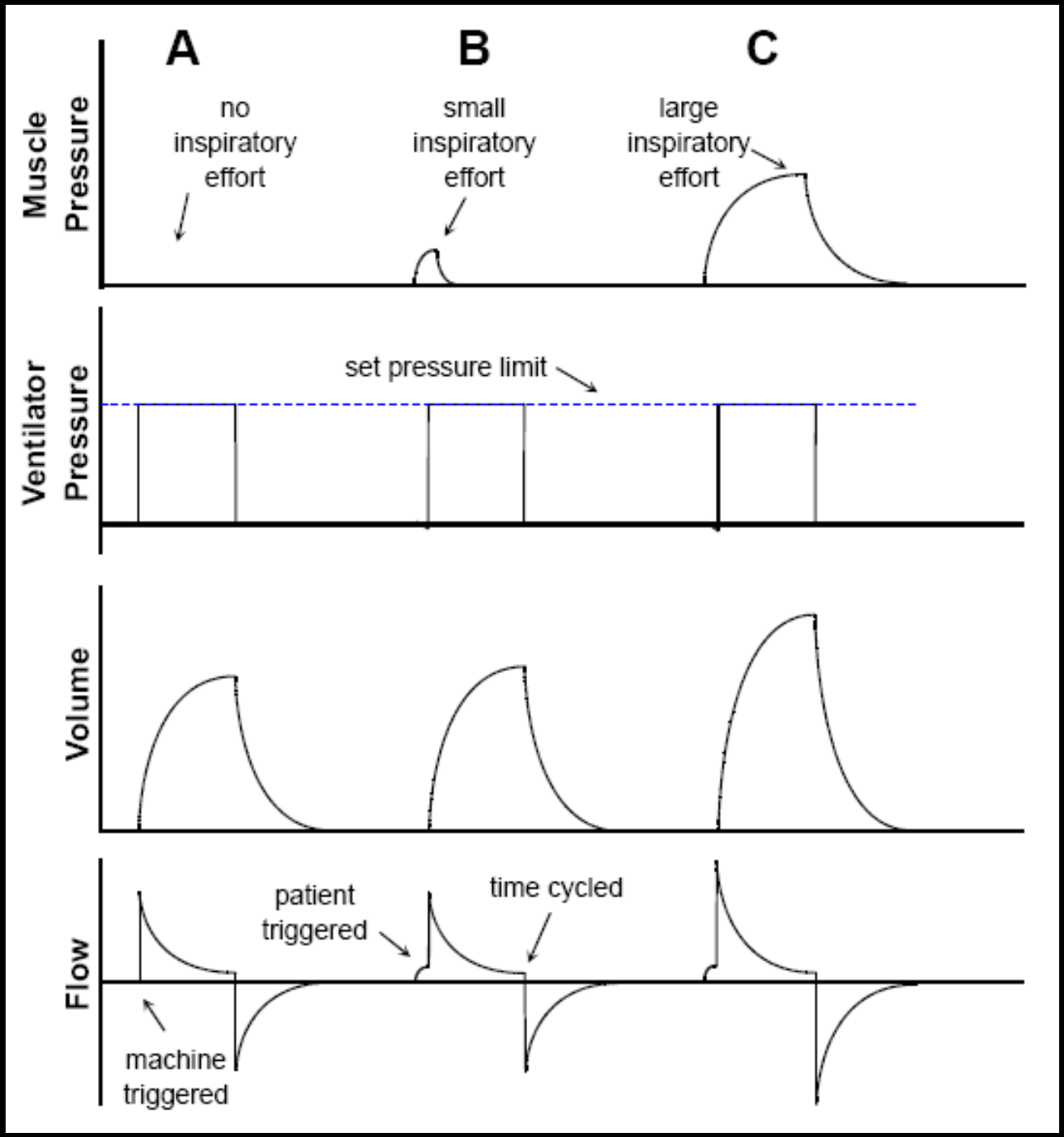


Pressure Control

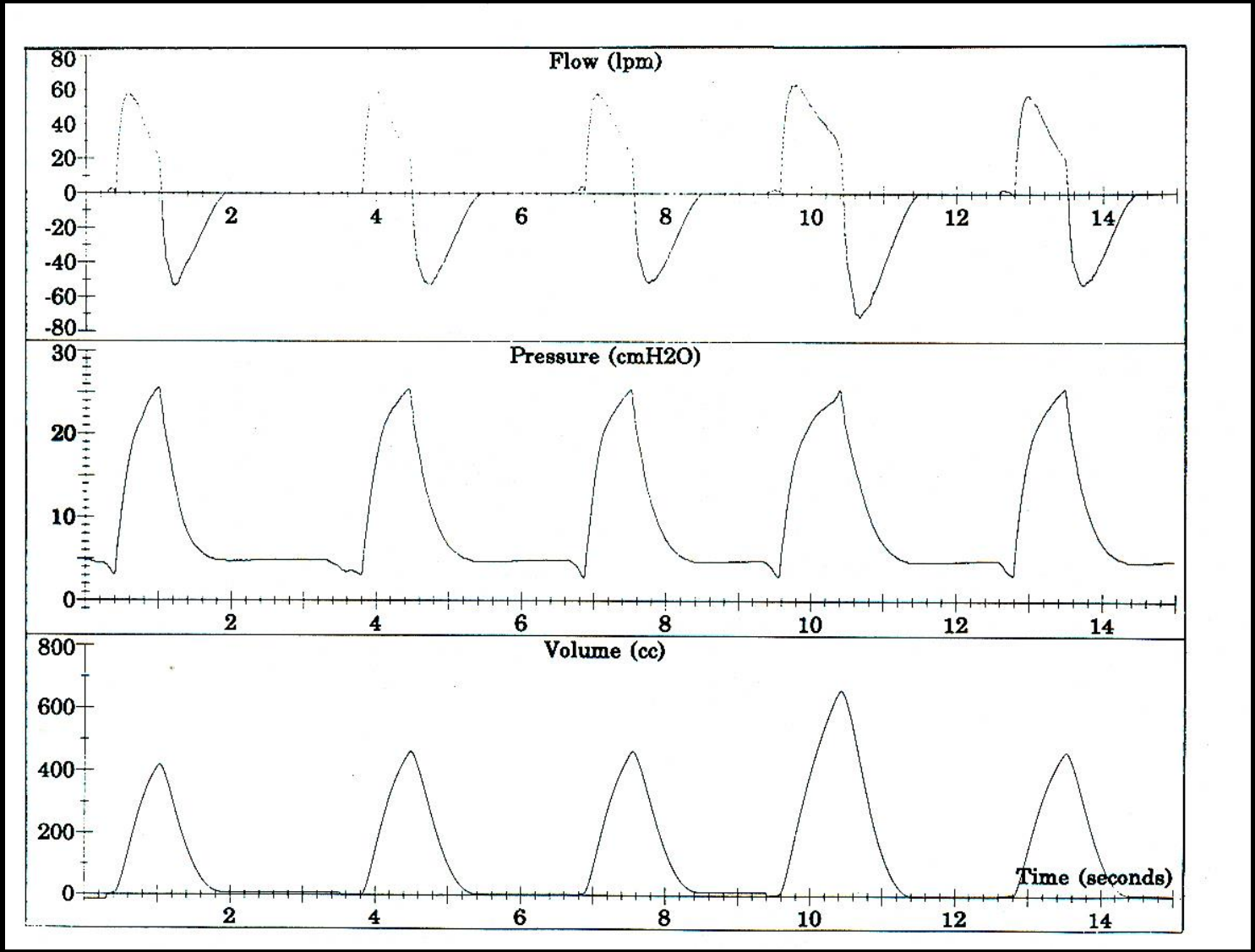


Pressure Control:ρυθμίσεις

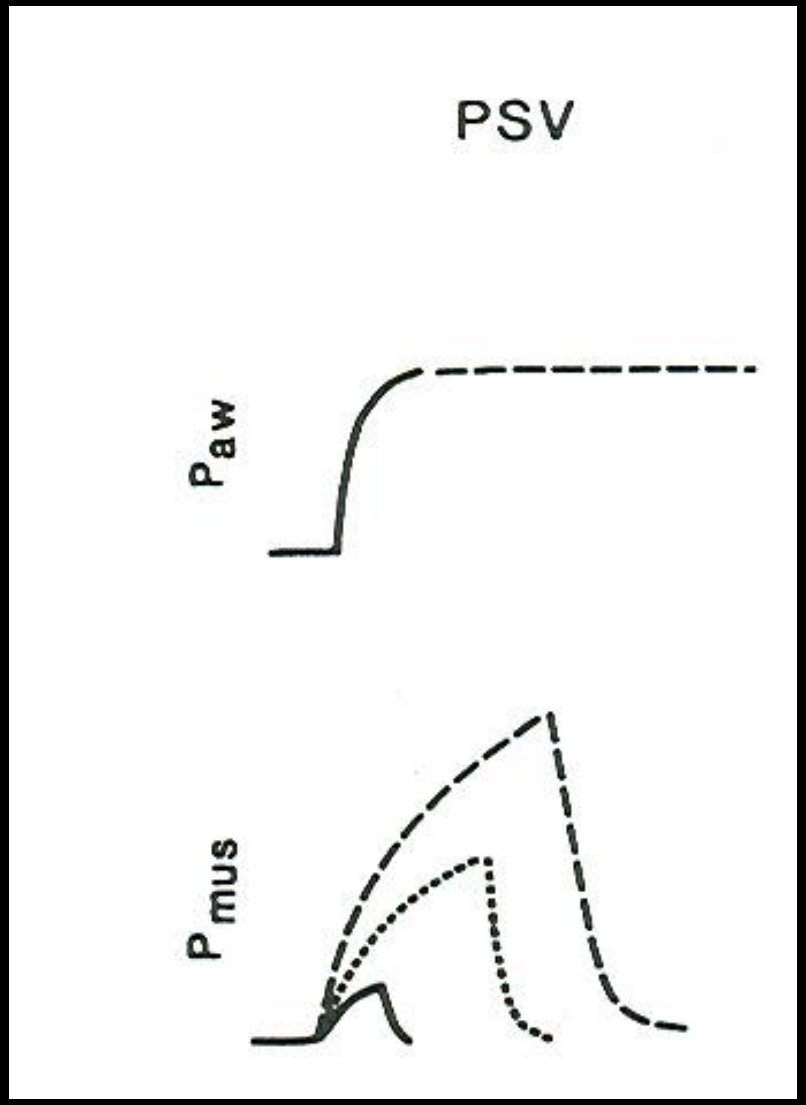


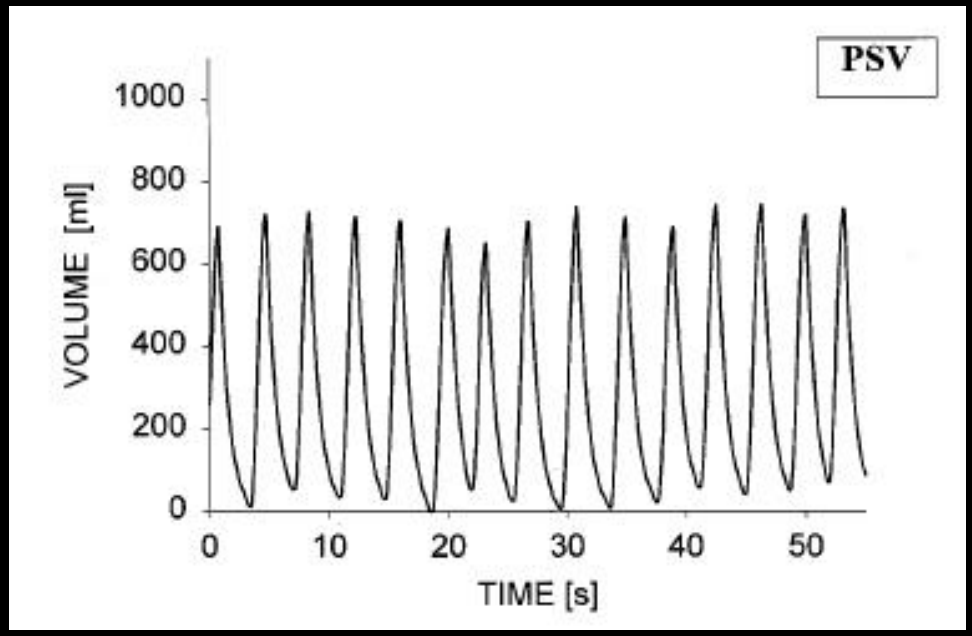

A
B
C
Muscle Pressure
no inspiratory effort
small inspiratory effort
large inspiratory effort
Ventilator Pressure
set pressure limit
Volume
Flow
patient triggered
time cycled
machine triggered

Pressure Support
Assisted mode



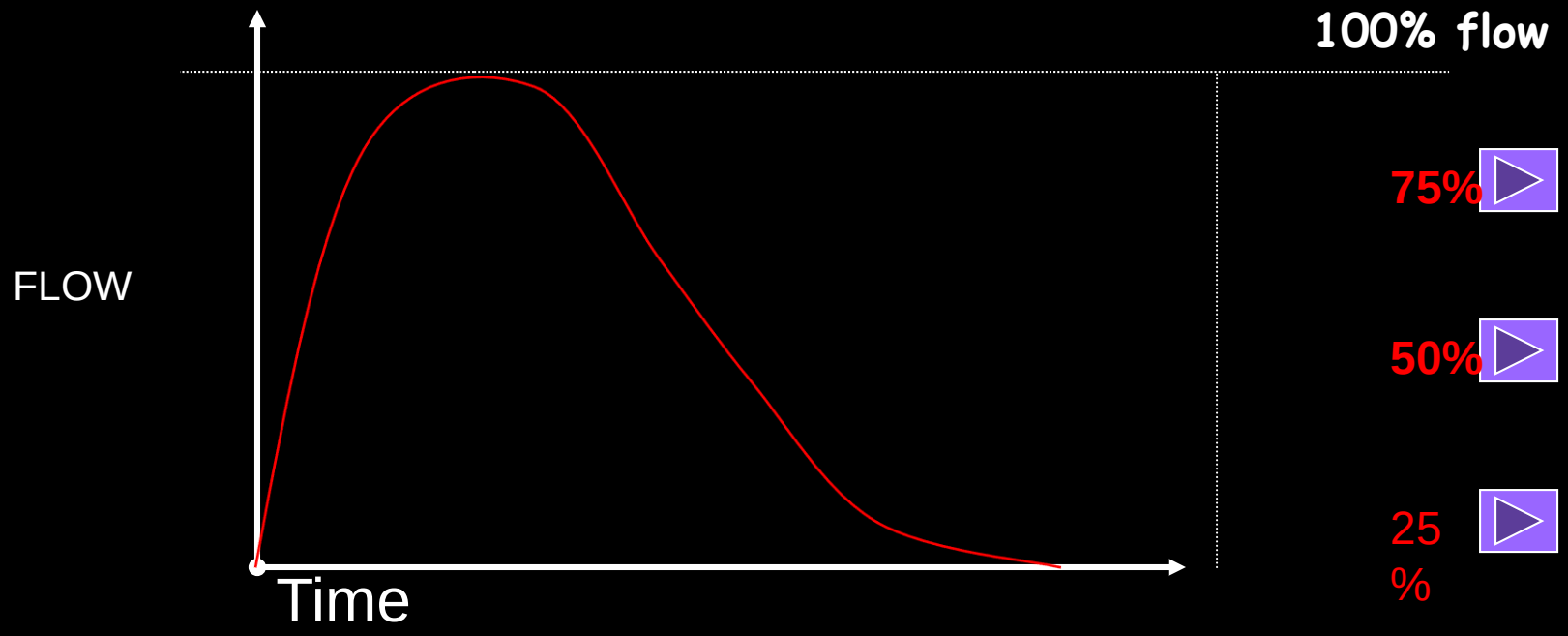
Pressure Support



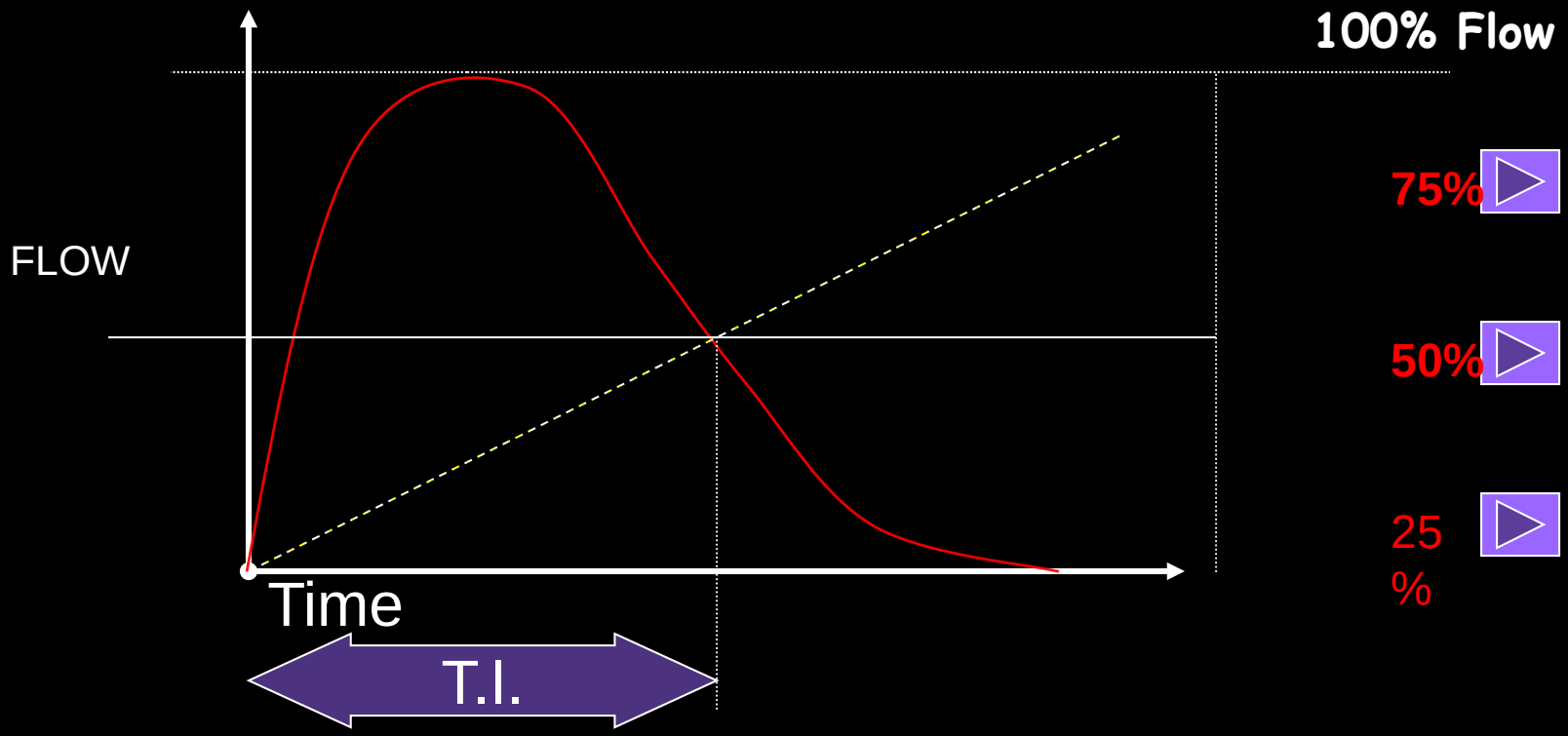


During PSV the cycling from inspiration to expiration is regulated by the flow DECAY

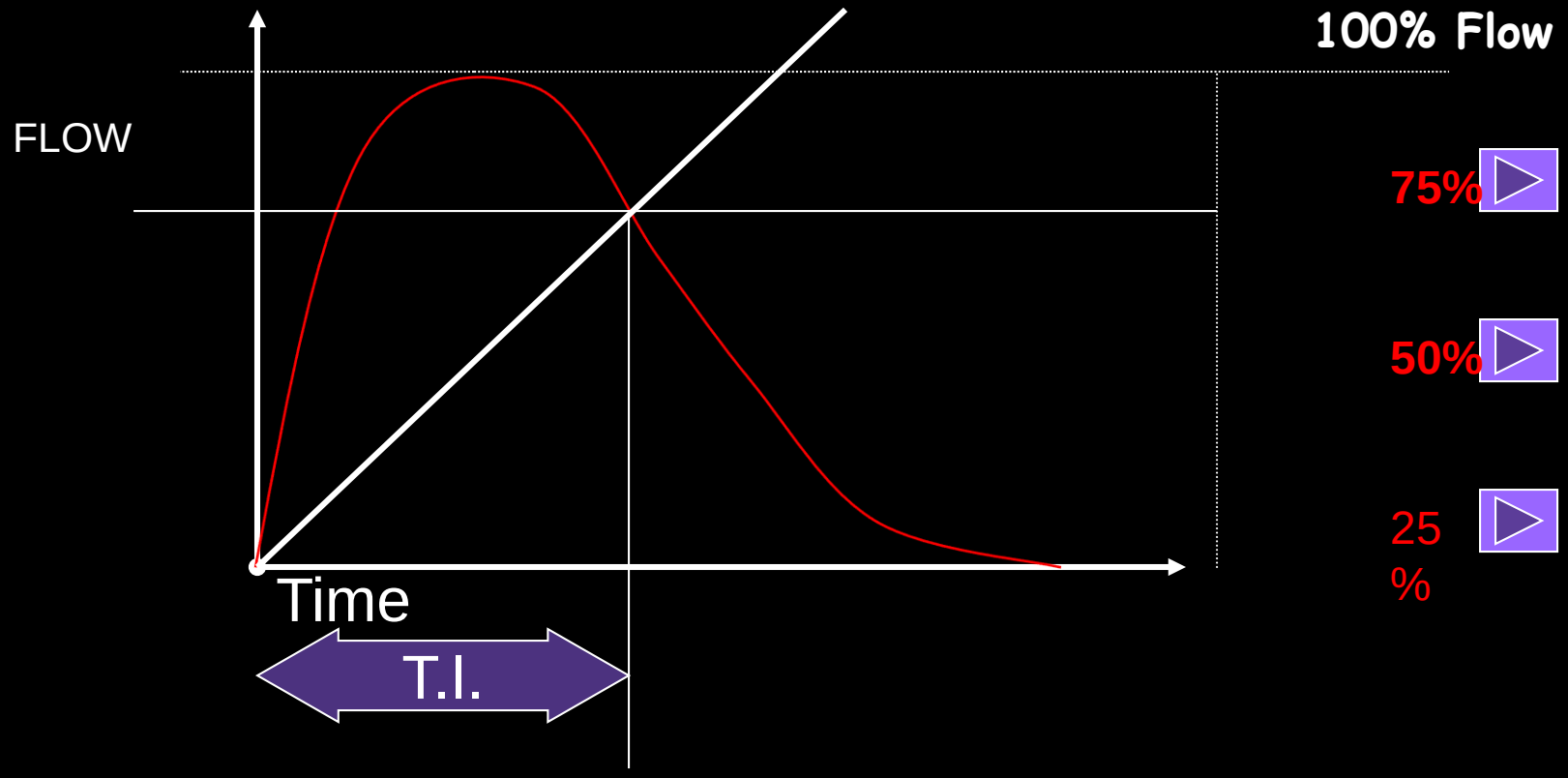
Expiratory threshold



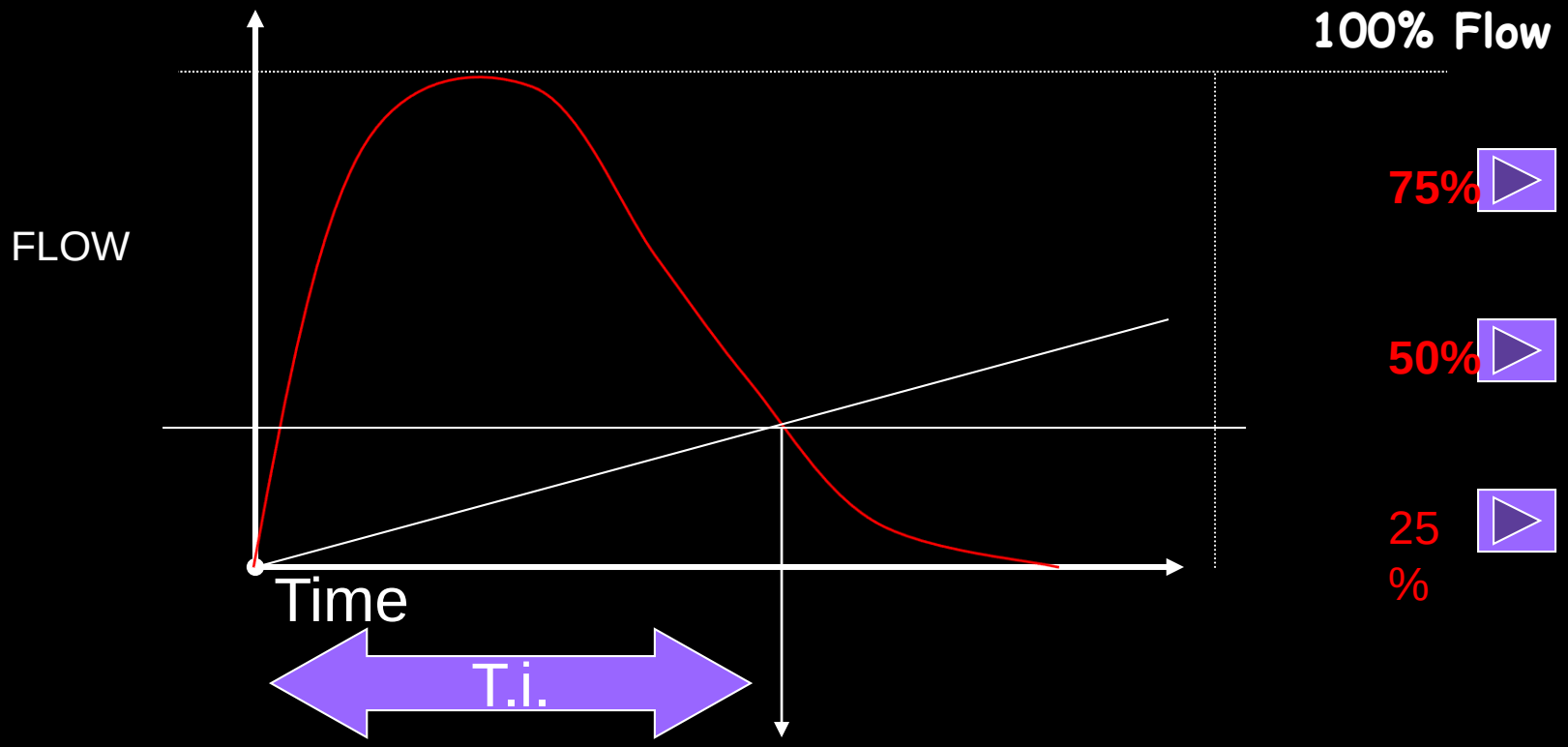
Expiratory threshold 50%



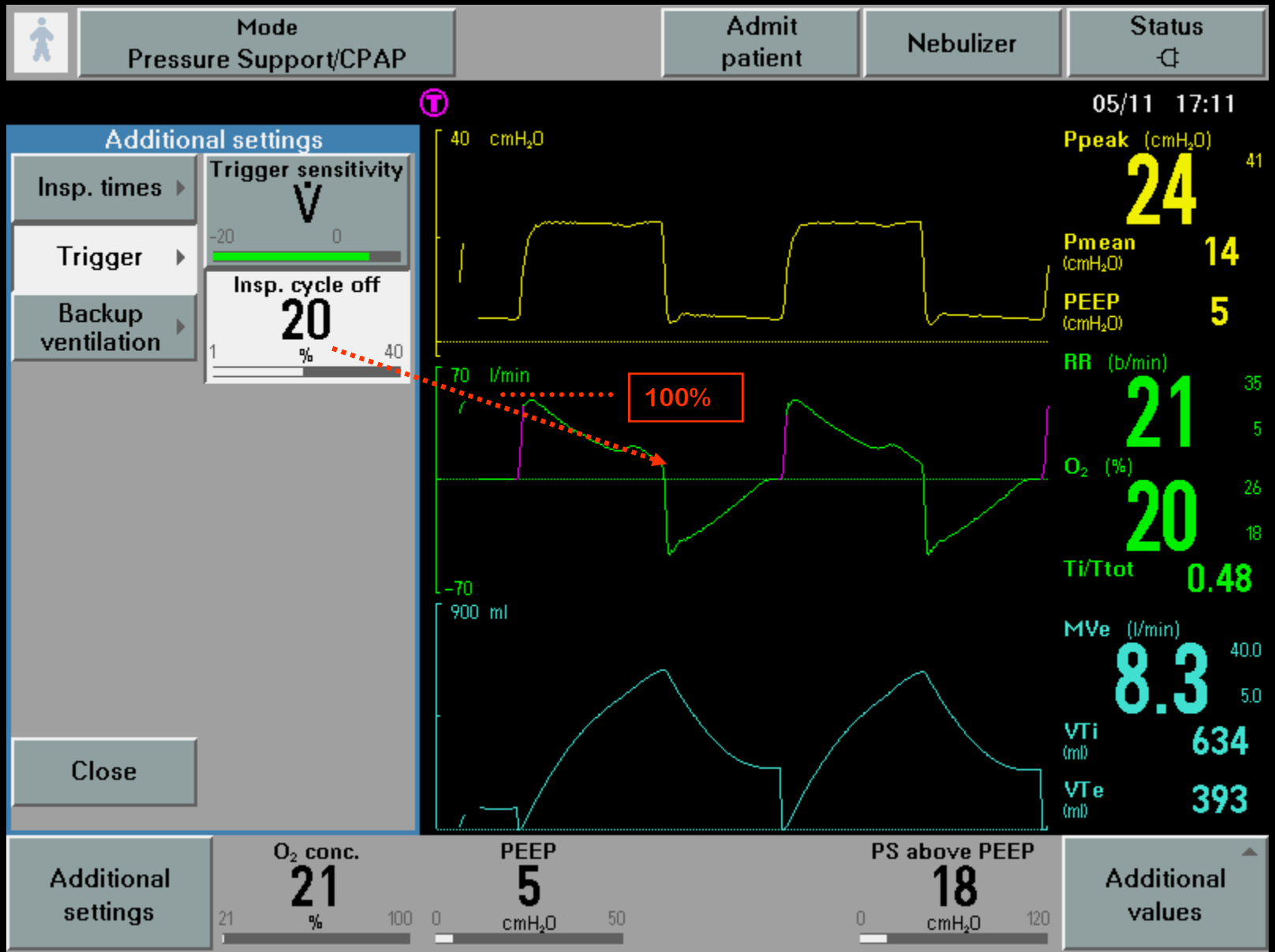
Expiratory treshold 75%



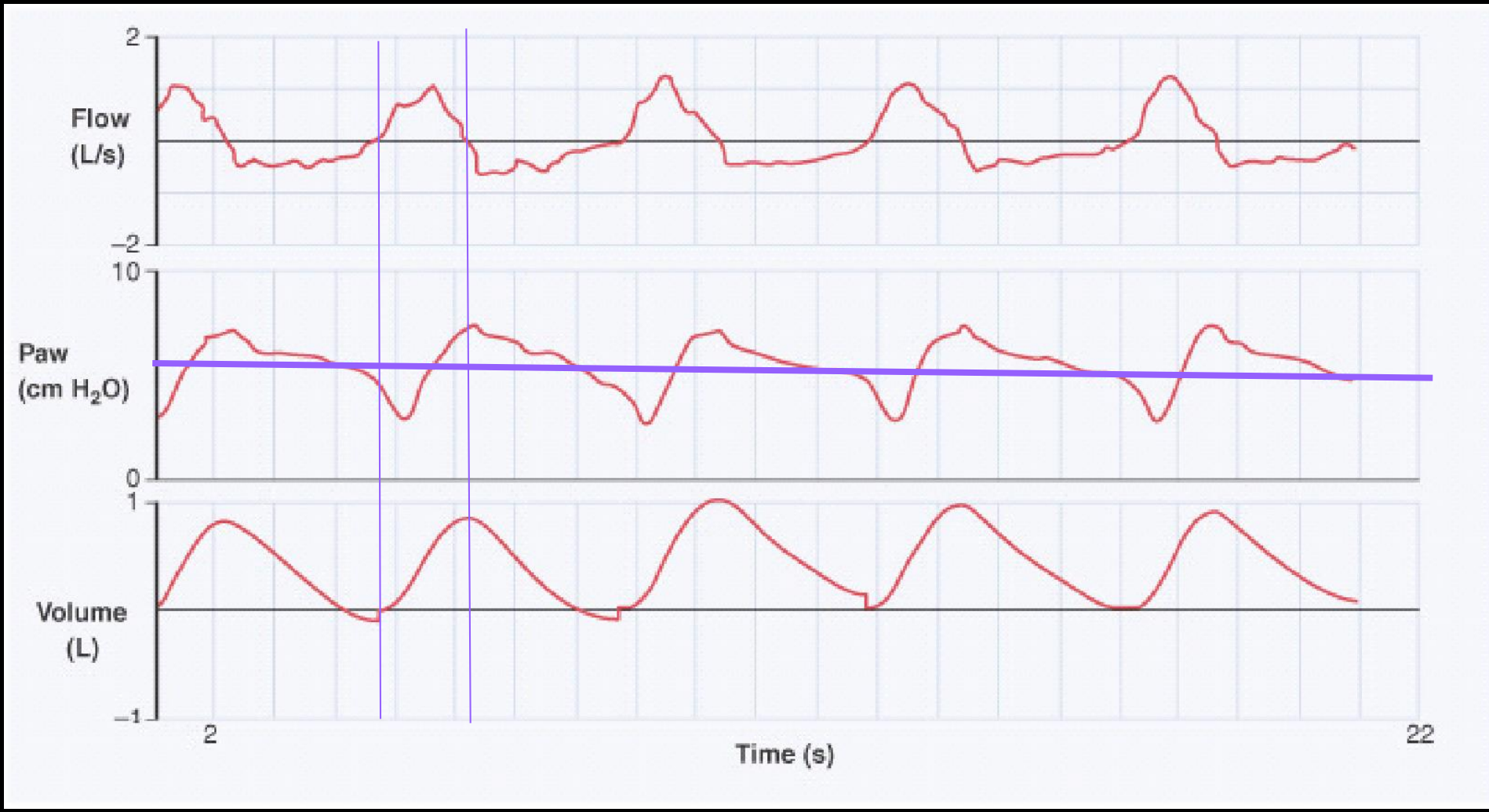
Expiratory threshold 25%



Insp. Cycle Off - Support Modes

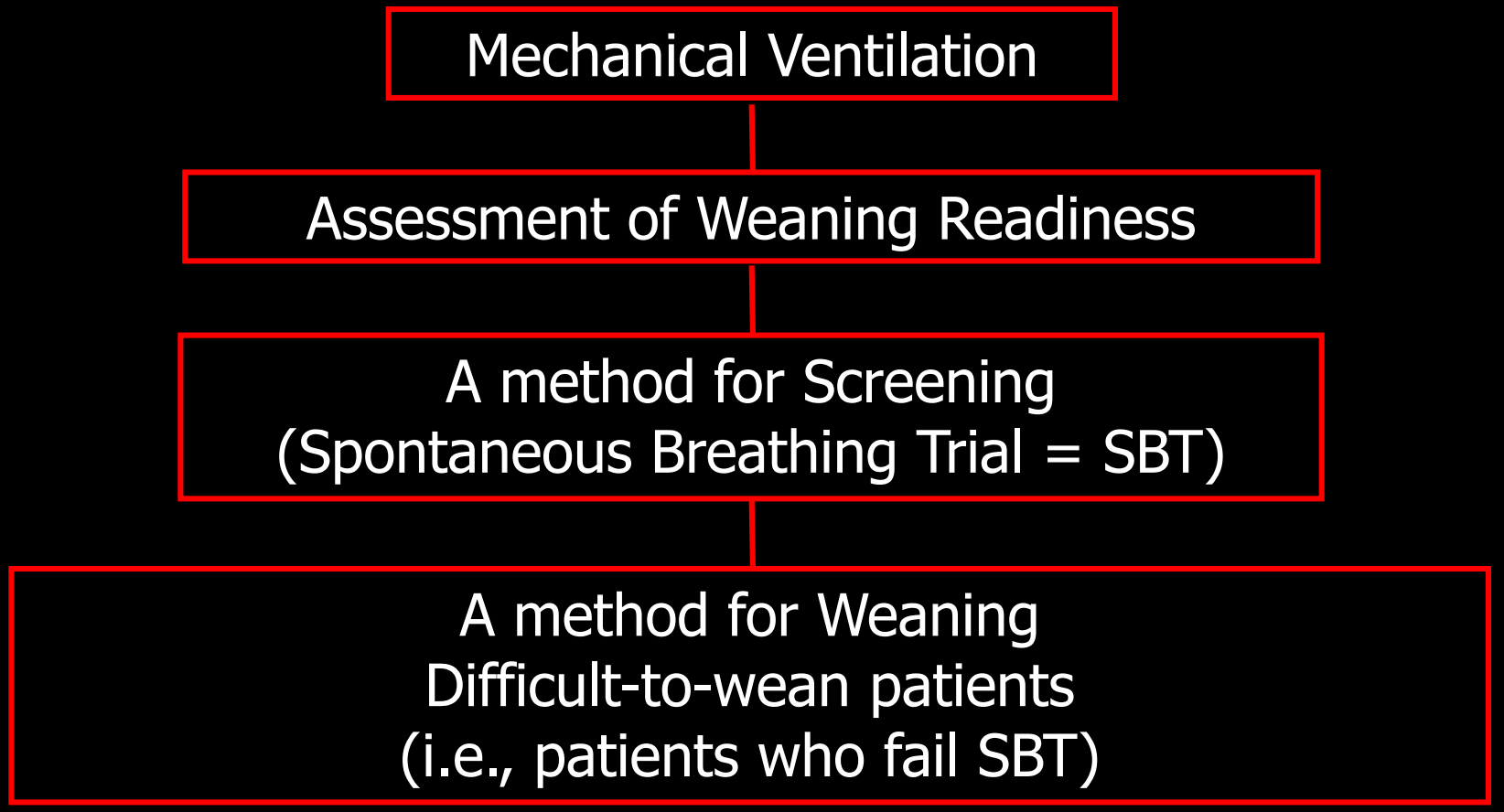


CPAP = PEEP only

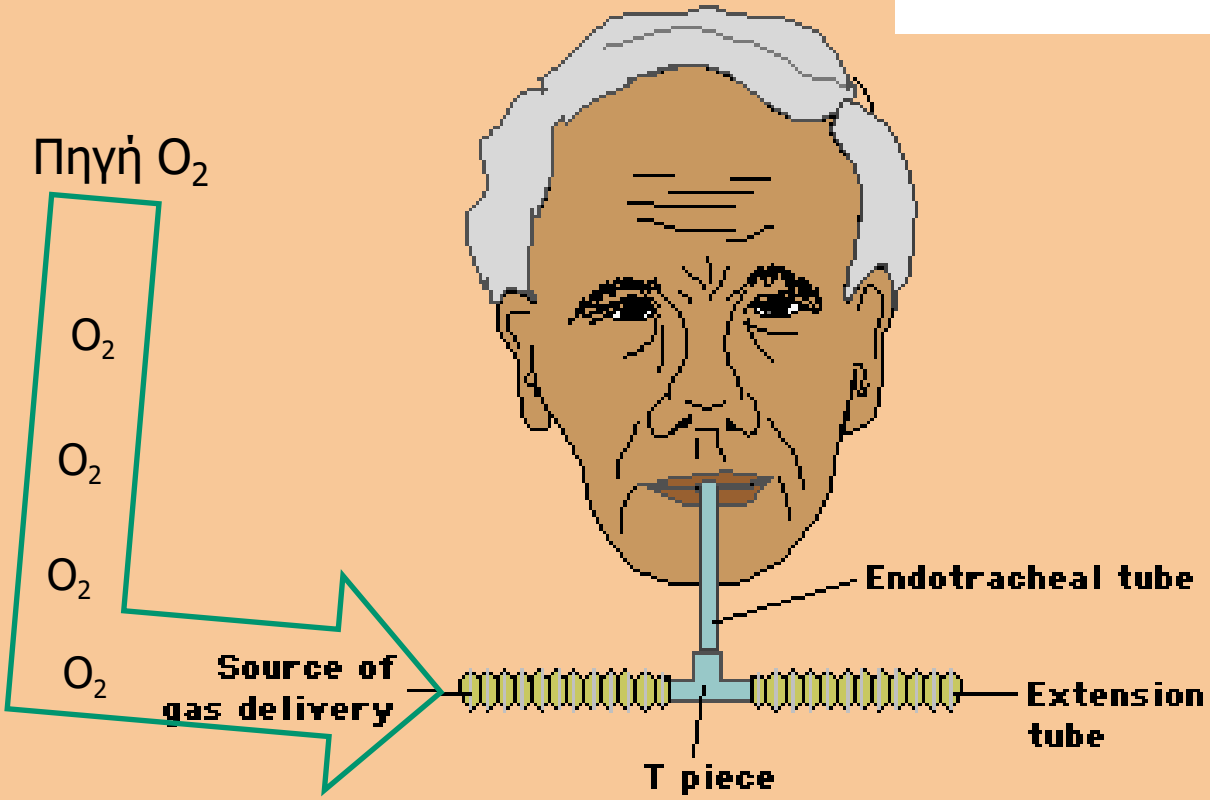


Αποδέσμευση από τον αναπνευστήρα

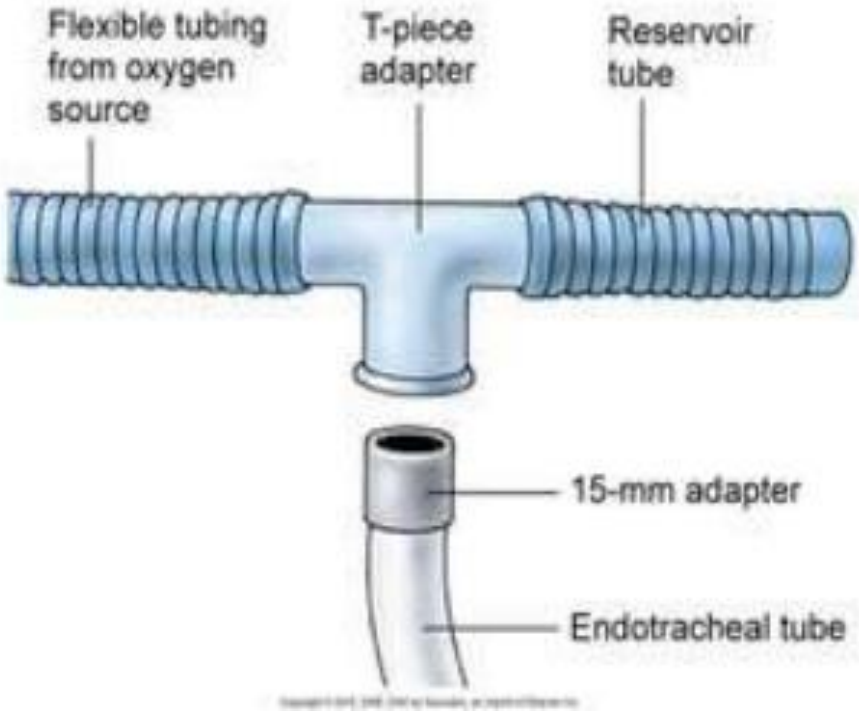
Weaning

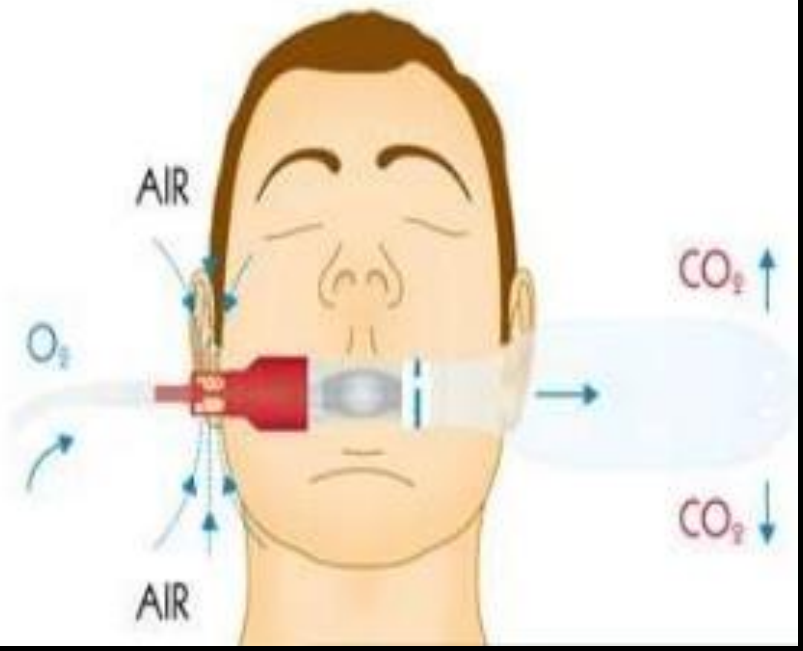

Mechanical Ventilation
Assessment of Weaning Readiness
A method for Screening
(Spontaneous Breathing Trial = SBT)
A method for Weaning
Difficult-to-wean patients
(i.e., patients who fail SBT)

T Piece Adapter

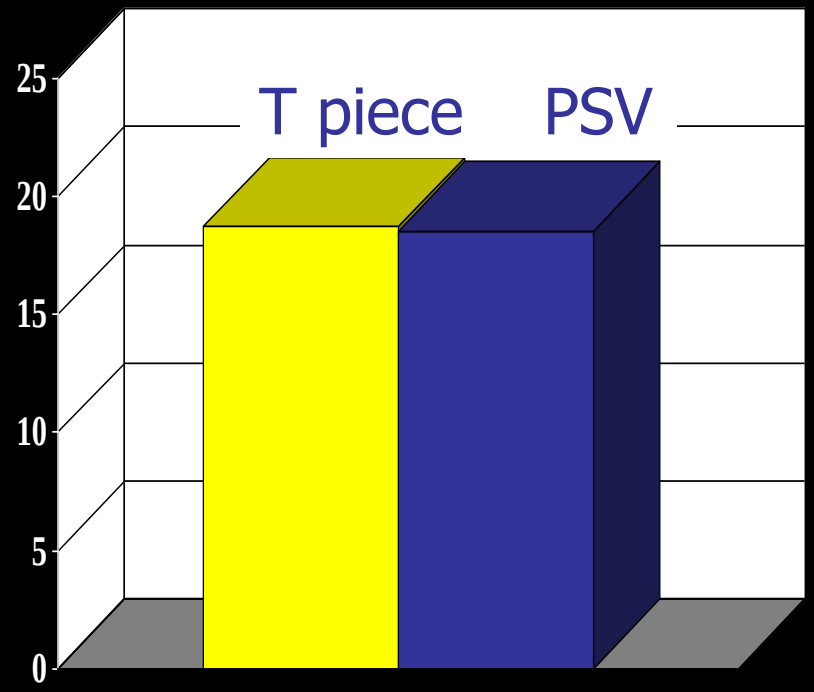


T-piece


Flexible tubing from oxygen source
T-piece adapter
Reservoir tube
15-mm adapter
Endotracheal tube

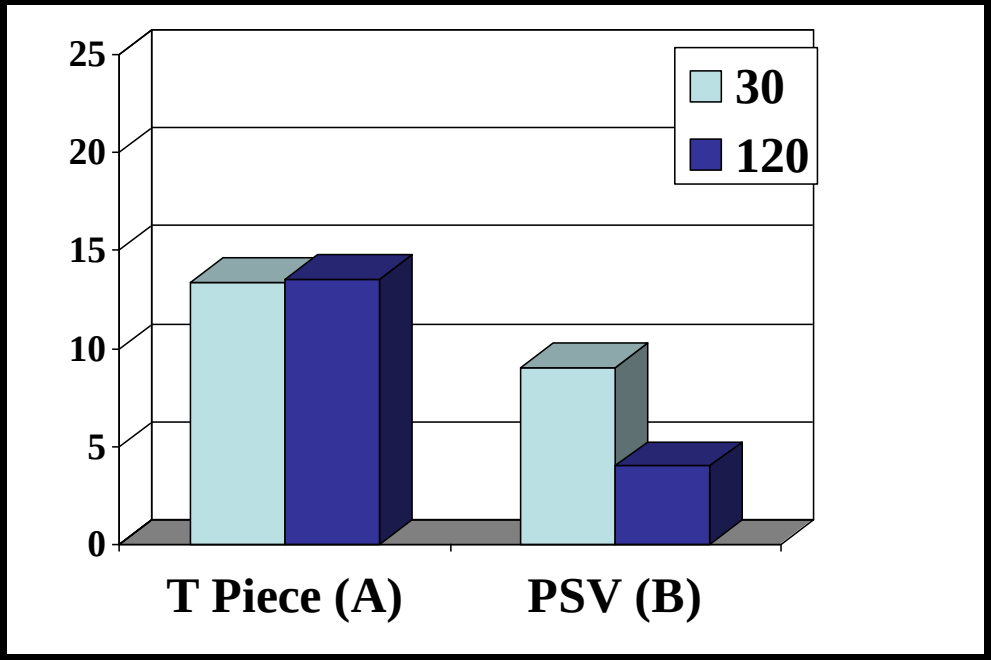

AIR
O_2
CO_2
CO_2
AIR

Which mode?



Esteban et al, *AJRCCM* 1997

How long?



A) Esteban et al, *AJRCCM* 1999

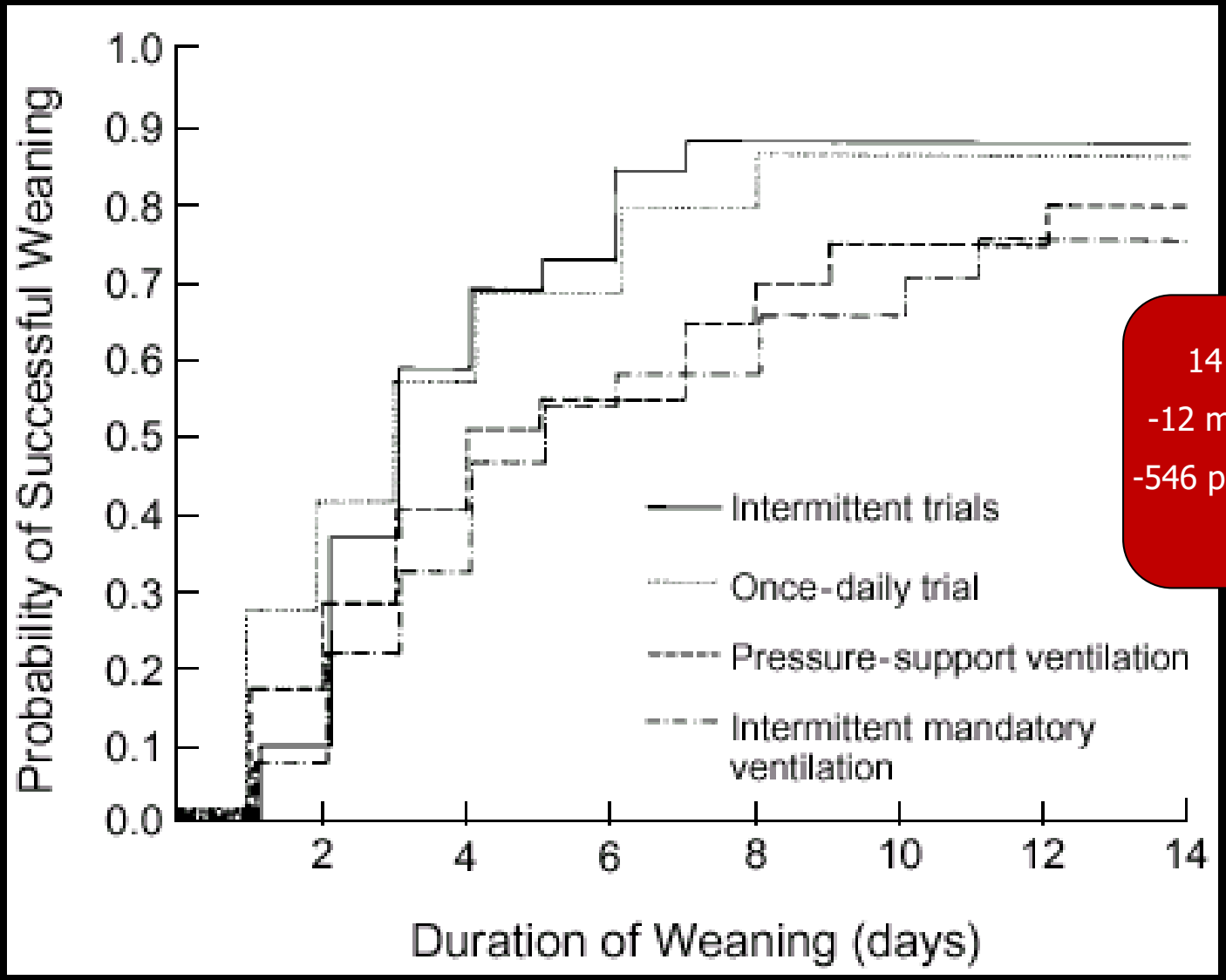
B) Perrin et al, *Intensive Care Med* 2002

Summary of Spontaneous Breathing Trials (SBT)

- SBT is an integral part of a weaning trial
- Method for SBT does not significantly influence
  - the rates of trial failure
  - Re-intubation
  - successful extubation
- Duration of SBT using T-piece or Pressure Suport

  30 -120 min

The Difficult- to-Wean Patients

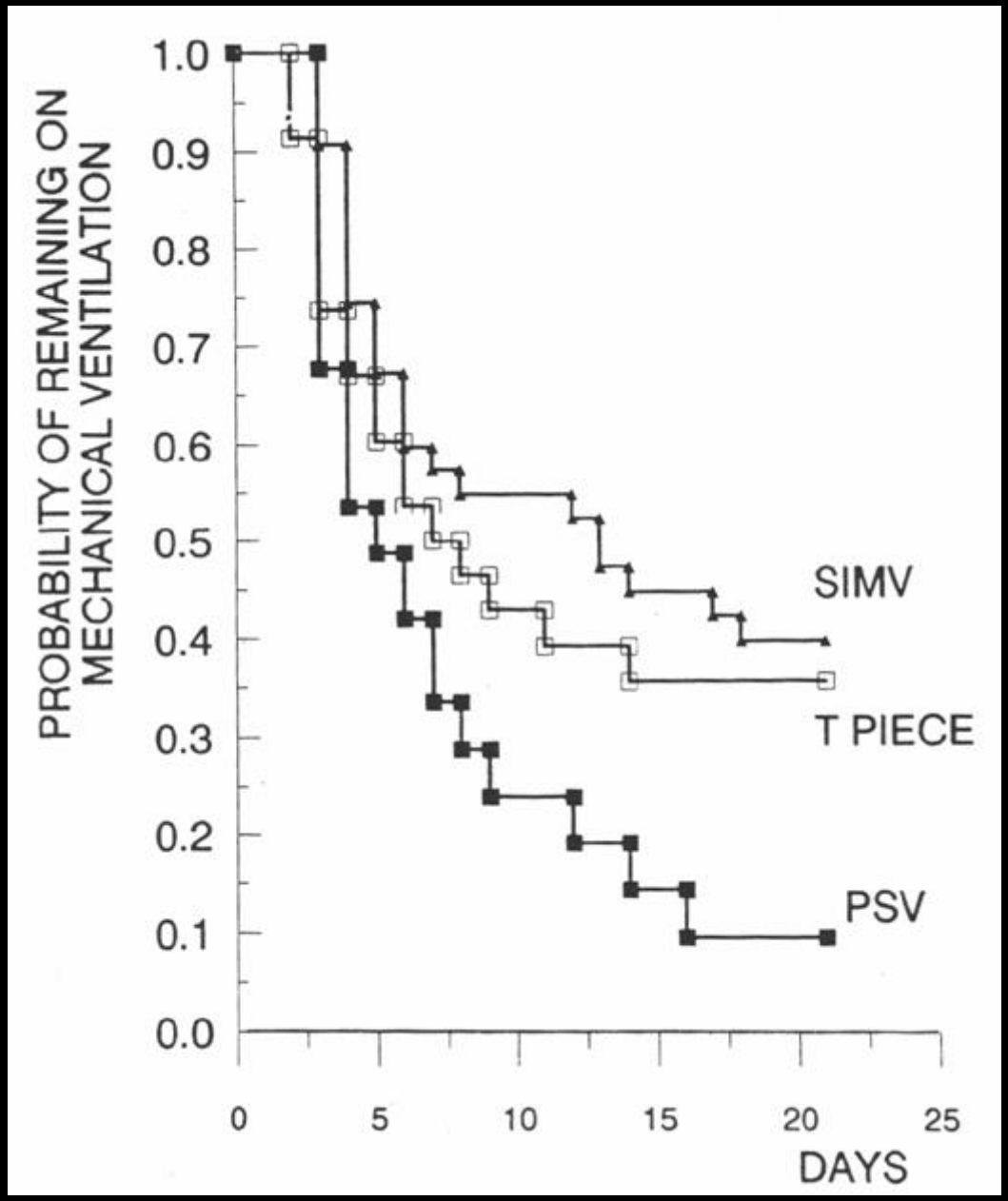


14 Intensive Care Units:

-12 months prospective study

-546 patientts meeting weaning criteria

Esteban et al., N Engl J Med 1995, 332: 345-50

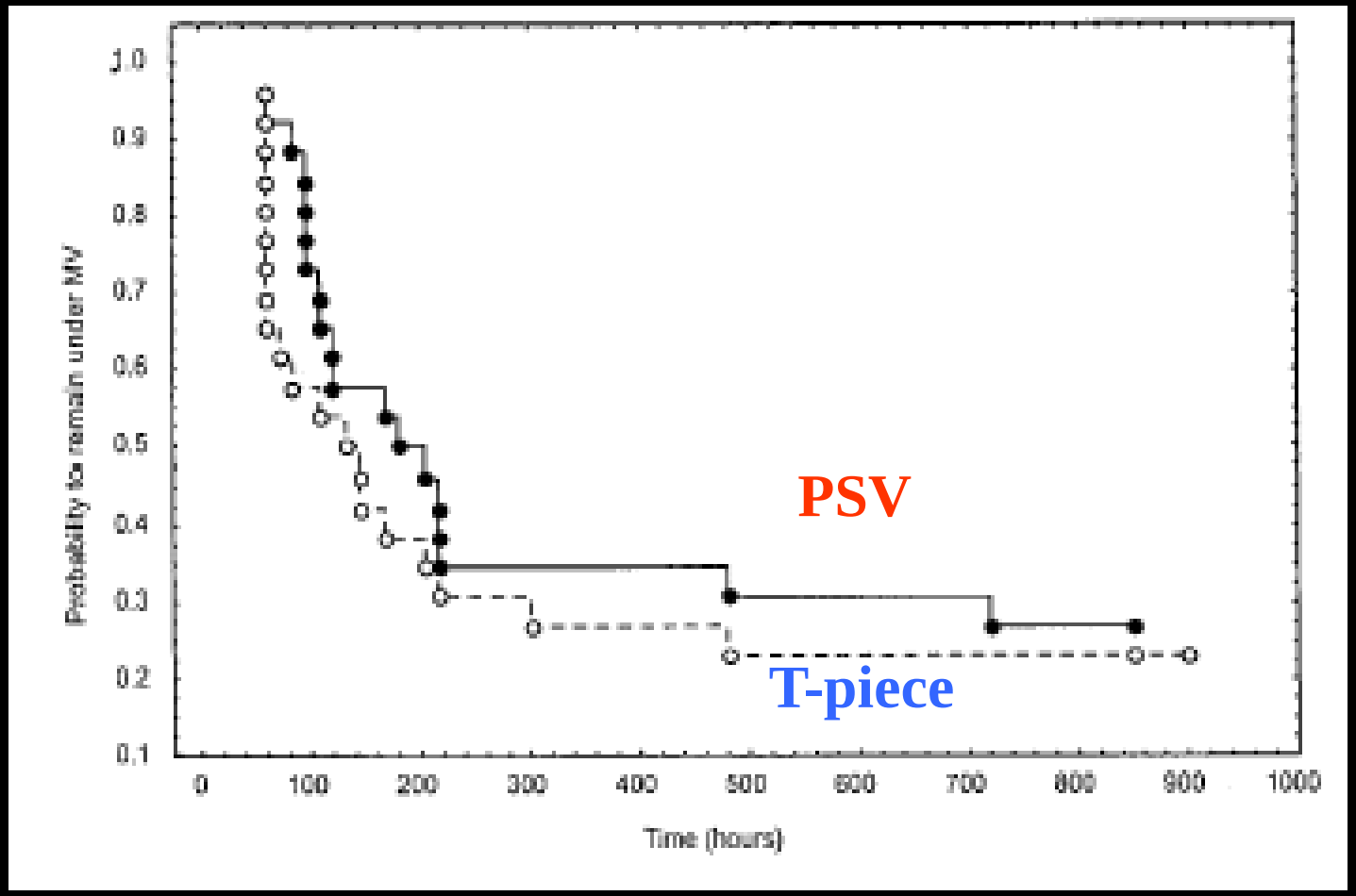


3 Intensive Care Units:
Creteil, Rome, Barcelona
-18 months prospective study
-456 patientts meeting
weaning criteria

Brochard et al., AJRCCM 1994, 150: 896

Comparison of Two Methods for Weaning Patients with Chronic Obstructive Pulmonary Disease Requiring Mechanical Ventilation for More Than 15 Days

MICHELE VITACCA, ANDREA VIANELLO, DANIELE COLOMBO, ENRICO CLINI, ROBERTO PORTA, LUCA BIANCHI, GIOVANNA ARCARO, GIOVANNI VITALE, ENRICO GUFFANTI, ALBINO LO COCO, and NICOLINO AMBROSINO



Am J Respir Crit Care Med 2001;164:225-230.

Summary

- In the ICU, T-piece and Pressure Support are equally effective as methods of weaning the difficult-to-wean patients.
- SIMV is the worst method of weaning.

Ευχαριστώ για την προσοχή σας

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