Ventilation Mode Translator

HAMILTON MEDICAL
Intelligent Ventilation since 1983

The R. Chatburn classification
(taken from his lecture)

1. Determine the Control Variable

- **Volume Control**
  - Both tidal volume and inspiratory flow are preset
    - *Example: Volume Assist/Control*
- **Pressure Control**
  - Inspiratory pressure preset or proportional to effort
    - *Examples: APRV, NAVA*
- **Time Control**
  - Only inspiratory and expiratory times preset
    - *Example: HFO*

2. Determine the Breath Sequence

- **All breaths are spontaneous**
  - Continuous Spontaneous Ventilation (CSV)
- **Spontaneous breaths are possible between mandatory breaths**
  - Intermittent Mandatory Ventilation (IMV)
    1. *set mandtory rate*
    2. *mandatory breaths suppressed by spont rate*
    3. *mandatory breaths suppressed by spont MV*
- **Spontaneous breaths are not possible between mandatory breaths**
  - Continuous Mandatory Ventilation (CMV)

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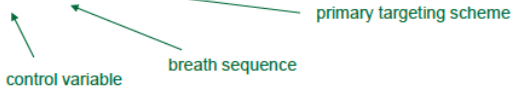
3. Determine the Target Scheme(s)

1. **Set-point – all parameters are operator pre-set**
2. **Dual – ventilator switches between VC and PC**
3. **Bio-variable – ventilator randomly changes V_T**
4. **Servo – inspiratory pressure proportional to effort**
5. **Adaptive – ventilator adjusts target with changing patient condition**
6. **Optimal – ventilator adjusts target to maximize or minimize some desired parameter**
7. **Intelligent – ventilator adjusts target using artificial intelligence tools**

Volume Assist/Control

- **Operator sets inspiratory volume and flow**
  - Control variable is volume
- **Every patient effort generates a volume cycled inspiration (all breaths machine cycled)**
  - Breath sequence is CMV
- **All parameters of the control variable are operator set**
  - Targeting scheme is setpoint

Tag is: VC-CMVs



Volume Controlled Modes

Chatburn Taxonomy	Hamilton Medical	Dräger	Maquet	Covidien
VC-CMVs	**(S)CMV**	**VC-CMV** **VC-A/C**	**VC**	**A/C Volume**
VC-CMVd	NA	**VC-A/C pressure limited**	**VC**	NA
PC-CMVa	**APVcmv, CMV+**	**VC-CMV AutoFlow**	**PRVC**	**VC+**
PC-IMVa,s	**APVsimv, SIMV+**	**VC-SIMV Autoflow**	**SIMV (PRVC) + SP**	**SIMV-VC+**
VC-IMVs,s	**SIMV**	**VC-SIMV**	**SIMV(VC)+PS**	**SIMV**
VC-IMVa,s	(is within **ASV** (%MinVol, Pat. height))	**VC-MMV**	NA	NA

Pressure Controlled Modes

Chatburn Taxonomy	Hamilton Medical	Dräger	Maquet	Covidien
PC-CMVs	**P CMV, PCV**	**PC-CMV** **PC-AC**	**PC**	**A/C Pressure**
PC-IMVs,s	**DuoPAP** **P SIMV** **APRV** (with Psupport*) * Only in HAMILTON-G5	**PC-BIPAP** **PC-SIMV** **PC-APRV**	**BI-VENT** **IMV(PC) + PS** **BI-VENT**	**SIMV Pressure** **BiLevel**
PC-IMVoi,oi	**ASV** (%MinVol, Pat. height)	NA	NA	NA

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Pressure/Volume Support Modes

Chatburn Taxonomy	Hamilton Medical	Dräger	Maquet	Covidien
PC-CSVs	SPONT	SPN-CPAP/PS	(PS)/CPAP	SPONT
PC-CSVa	VS	SPN-CPAP/VS	VS	VS
PC-CSVr	NA	SPN-PPS	NAVA	PAV+

Noninvasive Modes

Chatburn Taxonomy	Hamilton Medical	Dräger	Maquet	Covidien
PC-CSVs	NIV	NIV: SPN-CPAP/PS)	NIV: PS	NIV: SPONT
PC-IMVs,s	NIV-ST	NIV: PC-SIMV	NIV: SIMV(PC) + PS)	NIV: SIMV
PC-IMVs,s	nCPAP-PS[1]	NA	NIV: Nasal CPAP[1]	NIV: SPONT

[1]only in neonatal ventilation

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Hamilton Medical specific Modes

Chatburn Taxonomy	Hamilton Medical	Dräger	Maquet	Covidien
PC-IMVs,s	**PSIMV+ (incl. Psync)**	Similar: **PC CMV or PC BiPAP**	Similar: **SIMV PC**	Similar: **SIMV Pressure**
PC-IMVoi,oi	**INTELLiVENT-ASV**	**NA**	**NA**	**NA**

Questions to mhimmelstoss@hamilton-medical.ch