

Ventilator Pocket Guide

Foundational Equations

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|--|--|--------------|--------------|----------------------------|---------------------------|
| Ohm's Law | $\Delta P = FR = P_{aw} - P_{alv} = P_{pl} - PEEP_{total}$ | | | | |
| Equation of Motion | $P_{aw} = FR + \frac{V_t}{C} + PEEP_{total}$ | | | | |
| Compliance | $C = \frac{\Delta V}{\Delta P}$ | | | | |
| Natural Decay Equation | $V_i(t) = \frac{V_o}{RC} e^{-\frac{t}{RC}} = \frac{V_o}{\tau} e^{-\frac{t}{\tau}}$ | | | | |
| Calculating τ, General Case | $\tau = \frac{V_t}{F} \cdot \left(\frac{PIP - P_{plt}}{P_{plt} - PEEP_{total}} \right)$ | | | | |
| Patient Mode | TV Rate | Ppeak | Pplat | PEEP_{auto} | PEEP_{set} |

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