



MAHIDOL
UNIVERSITY
Wisdom of the Land

Mechanical ventilation in ARDS

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What is diagnosis?

	Mild	Moderate	Severe
Timing	Acute onset <1 week of clinical insult or new or worsening respiratory symptoms		
Hypoxemia	$\text{PaO}_2/\text{FiO}_2$ 201-300 mmHg with CPAP/PEEP ≥ 5	$\text{PaO}_2/\text{FiO}_2 \leq 200$ mmHg with PEEP ≥ 5	$\text{PaO}_2/\text{FiO}_2 \leq 100$ mmHg with PEEP ≥ 5
Origin of edema	Respiratory failure associated to known risk factors and not fully explained by cardiac failure or fluid overload. Need objective assessment if no risk factor are present		
Radiological abnormalities	Bilateral opacities*	Bilateral opacities*	Opacities involve at least 3 quadrants*

*not fully explained by effusions, lobar/lung collapse or nodules

JAMA 2012;307(23):2526-33.

AEEC ARDS 1994 vs. Berlin 2012

	AEEC ARDS 1994	Berlin 2012
Time of onset	No	Within 1 week
Categories	Acute lung injury/ARDS	Mild/Moderate/Severe ARDS
Thoracic image	Chest X-ray	Chest x-ray or CT
Prognostic categories	None	Only PaO ₂ /FiO ₂
Necessity of presence of ARDS risk factor	No	Yes (direct or indirect)
Necessary ventilator parameter	None	CPAP/PEEP $\geq$ 5 cmH ₂ O
Necessity of Pulmonary capillary wedge pressure evaluation	Yes	No – possible Echocardiography evaluation (no risk factor)

Pathogenesis

- Heterogeneity of lung injury
- Parenchymal destruction & airway collapse



Hypoxic pulmonary
vasoconstriction

What should we do?

Restrict fluid?

Heterogeneity of lung injury
Prone?

Surfactant?

high PEEP? **FiO₂?**

Steroid?

Hypoxic pulmonary
vasoconstriction
**Inhaled nitric
oxide?**