feellife®

The Third Way of Dosing

AirICU®

Acute Care-Aerosol Drug Delivery

provider@feellife.com

www.Air-ICU.com

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The Third Way of Dosing

About Us

Founded in 2013, feellife is a high-tech medical nebulizer company that provides solutions for the treatment of the upper and lower respiratory tract of the human body. It has created a nebulizer ecological technology business consisting of pulmonary testing, pulmonary treatment, and pulmonary training.

VISION

The third way of dosing

PROFESSIONAL STRENGTH

Completed R&D,production, marketing and service network

feellife owns more than 250+ international invention patents and certificates, taking the leading position in the field of nebulized drug delivery

MARKET LAYOUT

More than 160 countries and regions "AirICU" has already benefited millions of patients in more than 40 countries and regions.

AWARD& RECOGNITION

HEALTHCAREASIA MEDTECH AWARDS

ghp Feellife Health Inc. 2023 WINNER

TOP MEDTECH PROVIDER 2023 Feellife Health Inc. Awarded By MEDTECH OUTLOOK

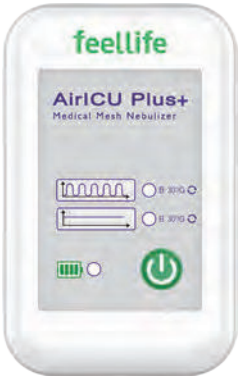
Health, Beauty & Wellness awards

AirICU Scenarios

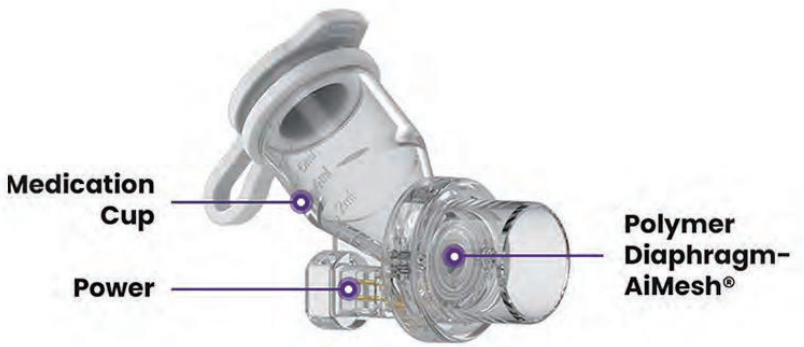
AirICU®

The AirICU series is a medical mesh nebulizer that can be used in combination with a ventilator for the nebulization of aerosols.

It facilitates the administration of medication at all stages of the patient's respiratory process (invasive mechanical ventilation, invasive ventilation, high flow and self-ventilation).

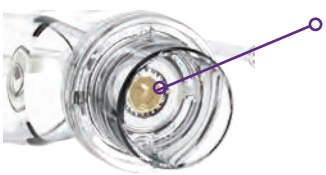


AirICU has two nebulization modes: induction mode (trigger mode) and continuous mode.Induction nebulization mode can only be used in conjunction with a ventilator that can provide aerosol inspiratory therapy to patients who cannot breathe on their own to meet the nebulization needs of different patients.



- Core medical material to ensure the safety of nebulization
- Liquid cup capacity up to 10mL
- AiMesh® nebulizer tablets revolutionize drug delivery pass rates

AiMesh®



Polymer diaphragm

Corrosion and high temperature resistance.
Generates 1-5 um aerosol particles

The nebulizer has a built-in AiMesh® polymer nebulizer diaphragm and a wide range of flexible accessories to form a comprehensive nebulization solution for critical care.

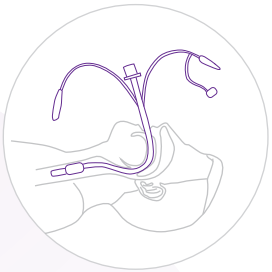
Dr. Fernando
PICU based experts
Respiratory Physician

Dr. Maite
Critical Care Specialist

AirICU is groundbreaking & more intelligible in its full-scenario support of nebulization solutions for critical care!

Dr. Thais
General practitioner (GP)

Little Michelle
Self-ventilation user



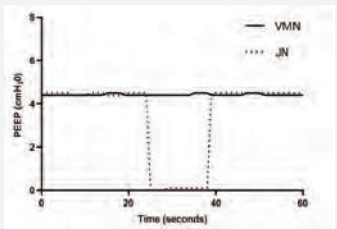
Invasive mechanical ventilation with AirICU

Closed-loop nebulization, with stable pressure within the loop, has a slight effect on mechanical ventilation parameters.

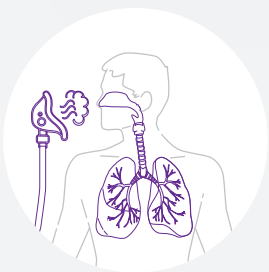
The use of various nebulizers impacts patient bioaerosol emissions and ventilation. Closing the circuit lowers pulmonary edema risk during mechanical ventilation. Disconnecting the circuit to refill the JN during simulated ventilation releases patient bioaerosols, decreasing PEEP. JN refilling decreases circuit pressure, possibly causing pulmonary edema.

Closed loop atomization reduces aerosol contamination caused by open system dosing.

Open system pressurization contaminates aerosols. Maintaining a closed circuit during mechanical ventilation is crucial for safety and reduces patient bioaerosol risks. Nebulizer choice affects bioaerosol release; open-system jets release more. Interrupting ventilation circuit during jet nebulizer refilling releases patient bioaerosols. No particles released during VMN drug refill as circuit stayed intact.



Comparison of PEEP during nebulized drug injection
in patients with simulated mechanical ventilation [2]

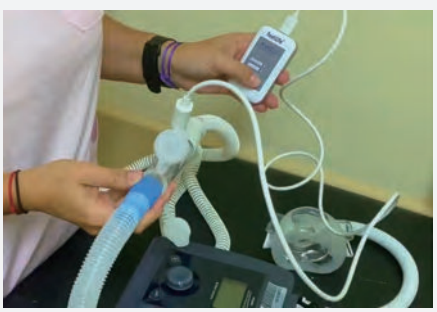


Non-invasive ventilation with AirICU

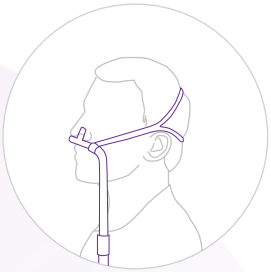
Nebulisation through the AirICU during non-invasive ventilation compared to nebulisation during non-invasive ventilation intervals:

Mechanical ventilation time is shortened	The incidence of adverse events is lower
COPD patients with respiratory failure are more comfortable	The probability of pharyngeal discomfort may be lower

Noninvasive ventilation combined with nebulised inhalation can effectively improve clinical symptoms in patients with acute exacerbation of COPD (AECOPD). Two different modes of nebulised inhalation can be used when applying sputum chemotherapeutic agents, bronchodilators and hormonal nebulised therapy in patients with non-invasive ventilation.



High flow nasal cannula with AirICU



VMN （AirICU) should be selected for atomization during HFNC use

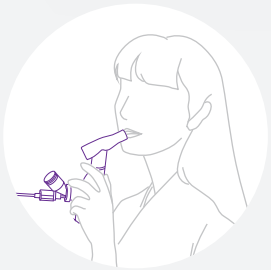
Higher inhaled doses of drugs:
In vitro and in vivo imaging scanning studies in pediatric and adult populations have shown that the inhalation dose delivered via VMN using HFNC is 2 to 3 times higher than using jet nebulizer [1] [2]

Fewer drug residues:
There was little or no residue of VMN, which was explained by a residue of 0.5 to 1.5 ml of JN, and the residue of jet nebulizer resulted in at least 25% to 50% wasted dose.

VMN JET

For infants and young children:
The Jet nebulizer is driven by a compressed gas source to generate aerosols and typically has a minimum gas flow rate of 6 L/min, which means that once it is used in conjunction with an HFNC, the total HFNC gas flow rate will be in excess of 6 L/min. this limits its use in children, especially those infants and toddlers whose HFNC gas flow rate cannot be higher than 6 L/min [3].

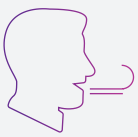
Ratios that do not change the concentration of oxygen intake:
Driven gases mixed into the HFNC system alter the proportion of inspired oxygen concentration (FiO2) in the HFNC delivered to the patient, so for patients with stringent FiO2 requirements (e.g., patients with COPD or children), the Jet nebulizer should not be placed in the HFNC for use.



Self-ventilating with AirICU

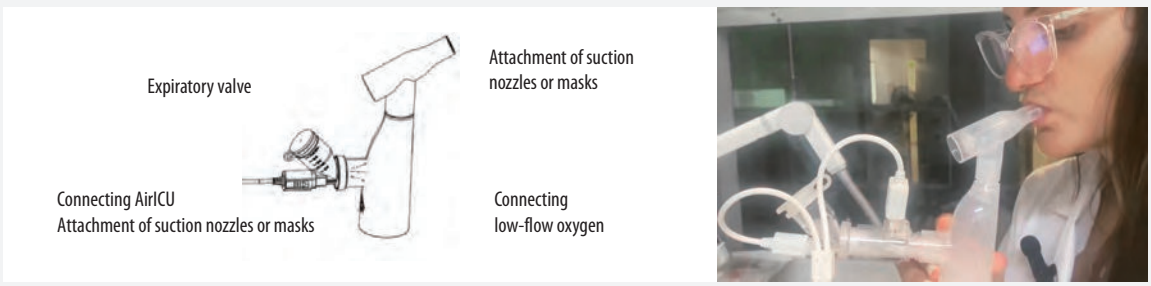
Aerotank can be used with AirICU to deliver nebulized medication
to spontaneously breathing patients, enabling nebulized therapy during non-mechanical ventilation, and can be used for intermittent and continuous treatment of pediatric and adult patients.

How the Aerotank with one-way valves maximizes the assurance that the aerosol is inhaled by the patient:

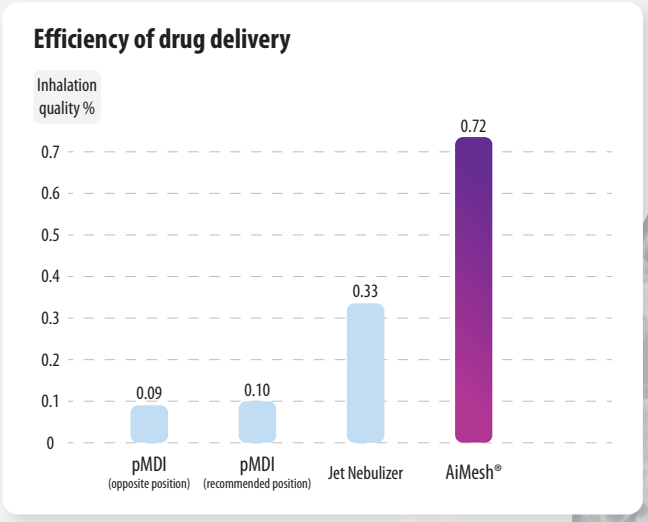


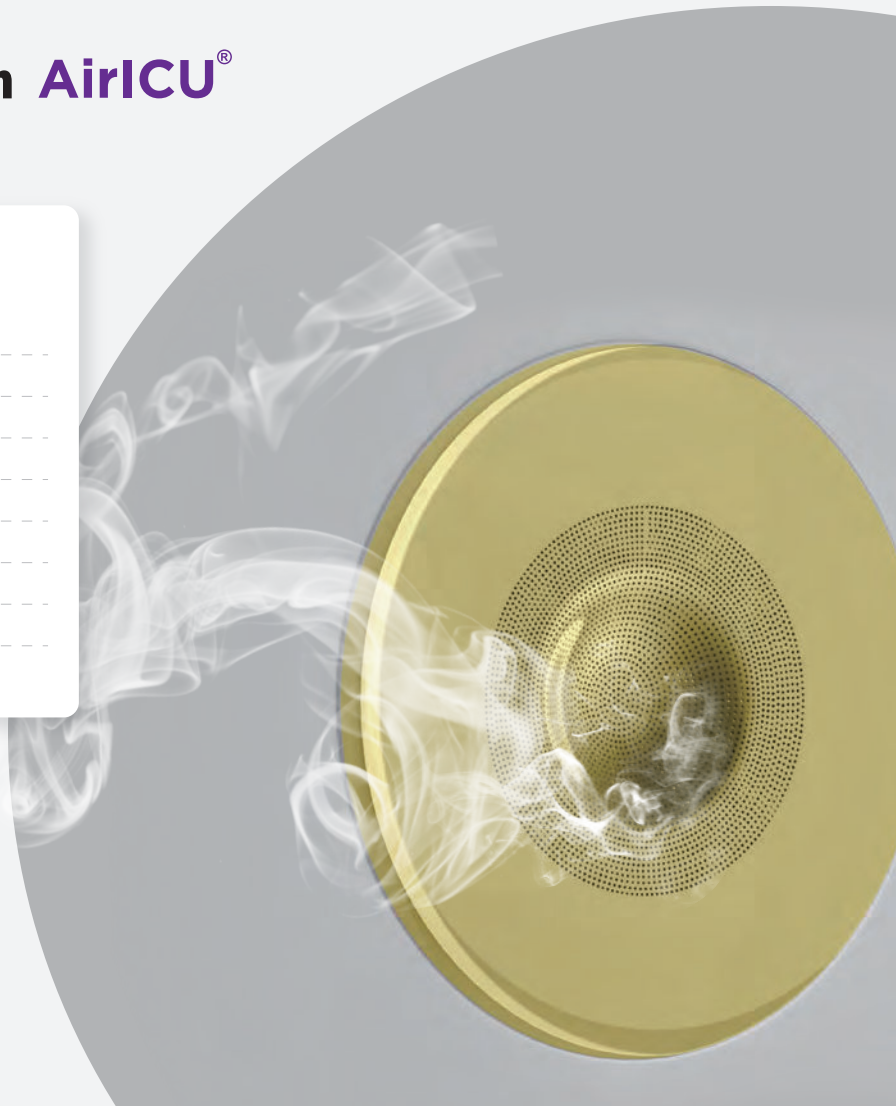
For inhalation, air is drawn through an intake valve at the bottom of the device, creating an airflow (or low-flow oxygen passage). The airflow drives the aerosol in the aerosol chamber through the suction nozzle to deliver the medication to the patient.

During exhalation, the inlet valve is closed and the exhalation valve is open. The patient will exhale through the open exhalation valve on the suction nozzle, reducing the loss of drug aerosols from the aerosolized chamber and being refilled by the AirICU.



Core Technology-AiMesh® in AirICU®





Revolutionary polymer material

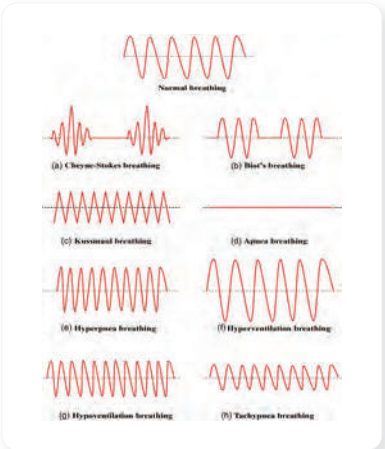
High Bio-elastic

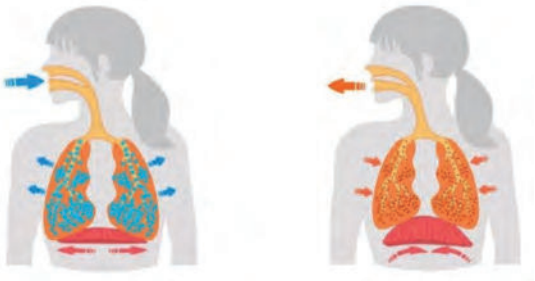
No clogging of holes

Core Technology-Air 360® in AirICU®

Breath Sensing Technology

Software Algorithms Recognize Multiple Patient Breathing Patterns, AirICU with Sensor Module Empowers Nebulization Efficiency in Critical Care Solutions





Multiple aerosol delivery settings and connection types for EVERY Patient

At the Wye(Adult)
At the Wye(Paediatric)
At the Wye(Neonate)

Dry Side of the Humidifier

Adult Nasal High Flow
Paediatric Nasal High Flow
Neonate Nasal High Flow

AirICU Aerotank

Adult off-ventilator
Paediatric off-ventilator

Why Air 360® breathe-sensing is important in critical care neb solution?

Studies have shown that the quality of breath-sensing mode inhalation is 1.7 to 3.6 times higher than continuous nebulized inhalation in certain levels of environment. Antibiotic levels in body sputum were 4 to 7 times higher.

TABLE 1. Inhaled mass percentage* (mean ± sem) effects of breath-actuated nebulization and humidification

	Inhaled Mass %					
Nebulization Mode	**Nonhumidified**	**n**	**Humidified**	**n**	**NH/H**	**p Value**
Breath-actuated nebulization†	37.4 ± 1.6	8	9.6 ± 1.0	19	3.84	< 0.0001
Continuous nebulization‡	10.4 ± 0.8	21	5.7 ± 0.5	17	1.81	< 0.0001
All ventilators	17.9 ± 2.4	29	7.7 ± 0.7	36	2.09	< 0.0001

*Value of inhaled mass reported as a percentage of nebulizer charge.

†Ventilator type used for breath-actuated nebulization was PB 7200 and Drager Evita 4.

‡Ventilator type used for continuous nebulization was T-Bird.

Definition of abbreviation: NH/H = ratio of nonhumidified to humidified values.

TABLE 6. Sputum levels of deposited antibiotics (mean ± sem)

		Sputum levels (µg/ml/mg)			
Nebulizer Activation	**n**	**Nonhumidified**	**Humidified**	**NH/H**	**p Value**
Breath actuation	14	12.6 ± 1.8	3.2 ± 0.5	3.89	< 0.001
Continuous	10	1.8 ± 0.3	0.8 ± 0.1	2.20	0.0005
All ventilators	24	8.1 ± 1.5	2.2 ± 0.4	3.63	0.0002

Definition of abbreviation: NH/H = ratio nonhumidified to humidified.

Citation: Aerosol Delivery and Modern Mechanical Ventilation In Vitro/In Vivo Evaluation
Dorisanne D. Miller , Mohammad M. Amin , Lucy B. Palmer , Akbar R. Shah , and Gerald C. Smaldone

Certain Nebulized drugs for acute and critical illnesses

Drugs	Nebulizer solution	Notes
Albuterol	0.63 mg/3 mL 1.25 mg/3 mL 0.5 mg/3 mL 2.5 mg/3 mL (0.085%)	
Arformoterol	15 µg/2 mL	
Epinephrine	1%	
Formoterol	20 mg/2 mL	Inhalation solution for nebulization; administer solution immediately after removal from foil pouch
Levalbuterol	0.31 mg/3 mL 0.63 mg/3 mL 1.25 mg/3 mL	
Metaproterenol	4 mg/mL (0.4%)	Add 2.5–3 mL of 0.9% sodium chloride injection to 0.2–0.3 mL of drug for nebulization
Budesonide	6 mg/mL(0.6%) 0.25 mg/2 mL 0.5 mg/2 mL	
Cromolyn sodium	1 mg/2 mL	
Ipratropium bromide	20 mg/2 mL	
Acetylcysteine	2 mL (0.2%) 100 mg/mL (10%)	
Colistimethate	200 mg/mL (20%)	
Tobramycin	150 mg powder for reconstitution to 75 mg/mL with sterile water for injection (2 mL)	Further dilute 50–75 mg in 3–4 mL 0.9% sodium chloride injection can be nebulized; immediate use after mixing recommended
Sodium chloride solution	60 mg/mL (5 mL) 0.9%, 3%, 7%, 12%	The driving gas should be oxygen 0.9% solution used as diluent in most inhalation solutions
Dornase alfa	2.5 mg/2.5 mL	

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[1] Ari A. Effect of nebulizer type, delivery interface, and flow rate on aerosol drug delivery to spontaneously breathing pediatric and infant lung models[J]. Pediatr Pulmonol, 2019, 54(11):1735-1741.
[2] Dugernier J, Hesse M, Jumetz T, et al. Aerosol delivery with two nebulizers through high-flow nasal cannula: A randomized cross-over single-photon emission computed tomography-computed tomography study[J]. J Aerosol Med Pulm Drug Deliv, 2017, 30(5):349-358.
[3] Li J, Fink J B, MacLoughlin R, et al. A narrative review on trans-nasal pulmonary aerosol delivery[J]. Crit Care, 2020, 24(1):506.
[4] Miller A G, Gentle M A, Tyler L M, et al. High-flow nasal cannula in pediatric patients: A survey of clinical practice[J]. Respir Care, 2018, 63(7):894-899.

[1] Global Initiative for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease: 2023 report.
[2] Joyce, M.; McGrath, J. A.; Mac Giolla Eain, M.; O'Sullivan, A.; Byrne, M.; MacLoughlin, R. Nebuliser Type Influences Both Patient-Derived Bioaerosol Emissions and Ventilation Parameters during Mechanical Ventilation. Pharmaceutics 2021, 13 (2), 199. https://doi.org/10.3390/pharmaceutics13020199.