Nasal High Flow Humidification Delivery:

AIRVO 2

using Optiflow Nasal Cannula

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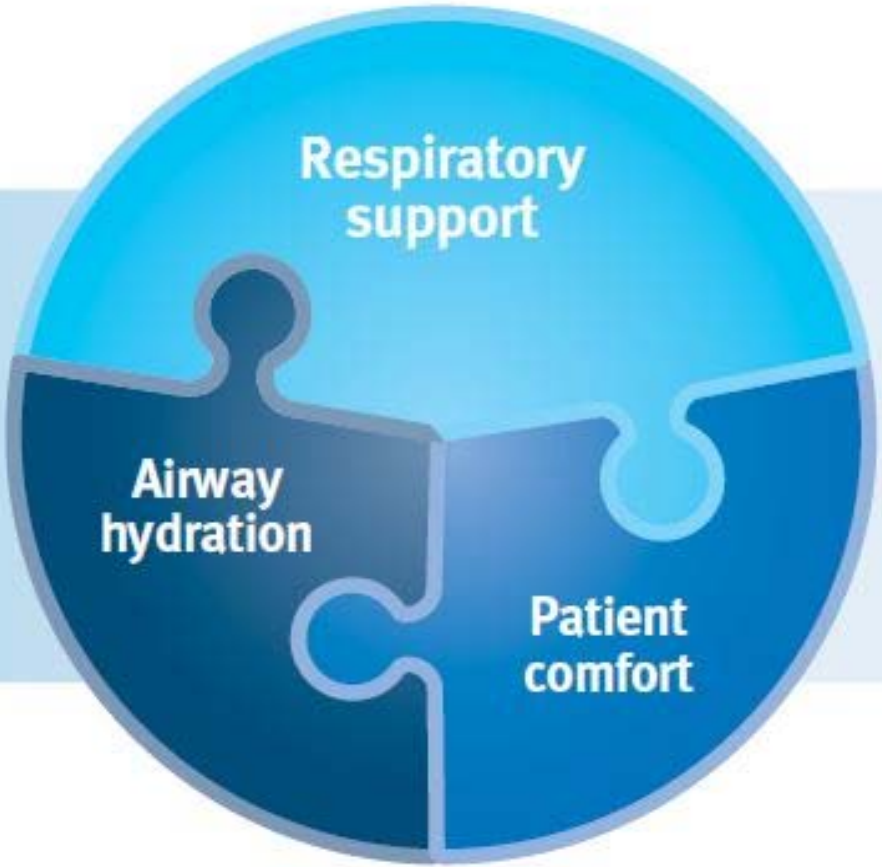

Our goal:
to optimize
spontaneous
breathing

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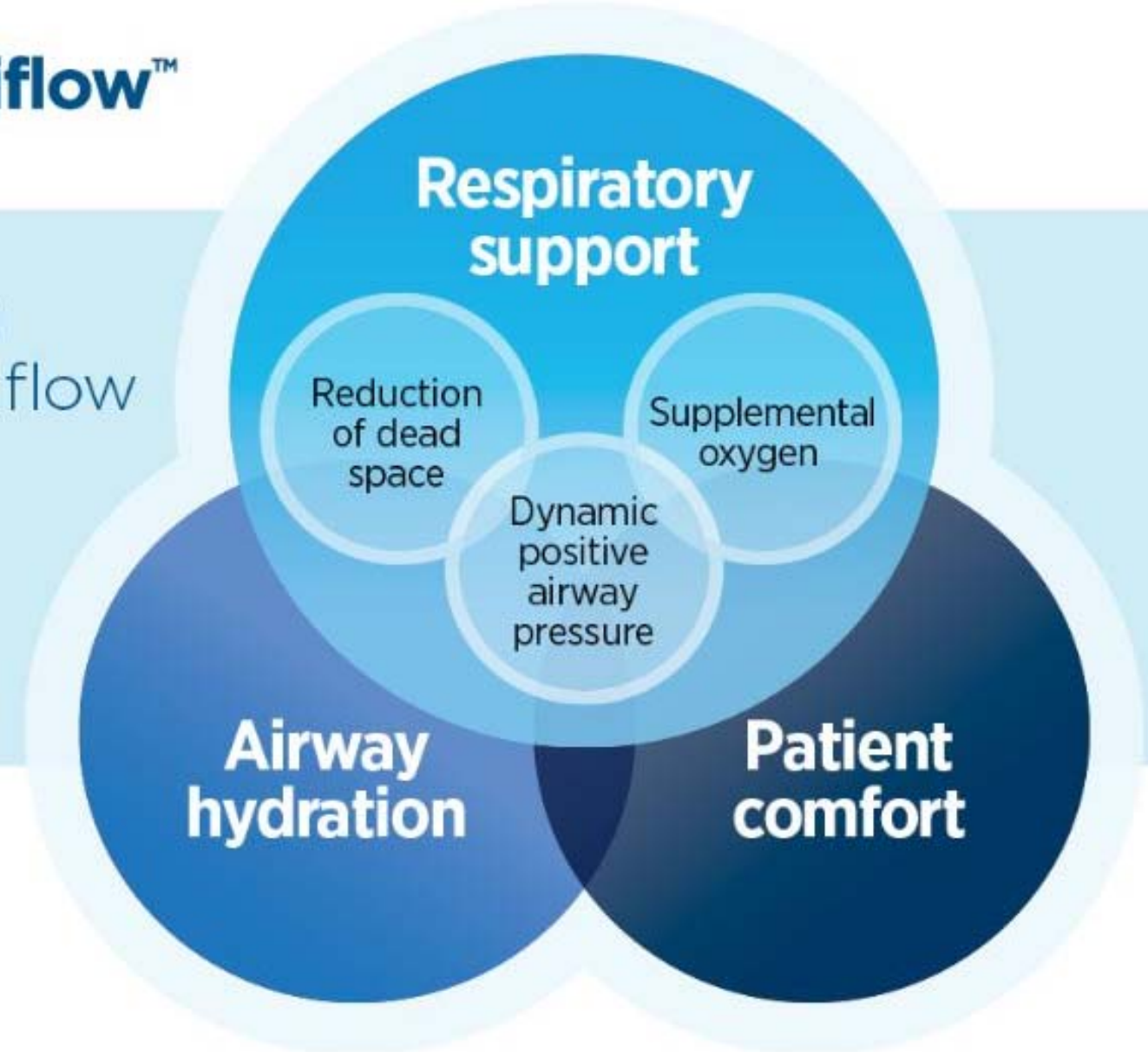
Three Components of High Flow

F&P Optiflow™

Enhancing nasal high flow therapy



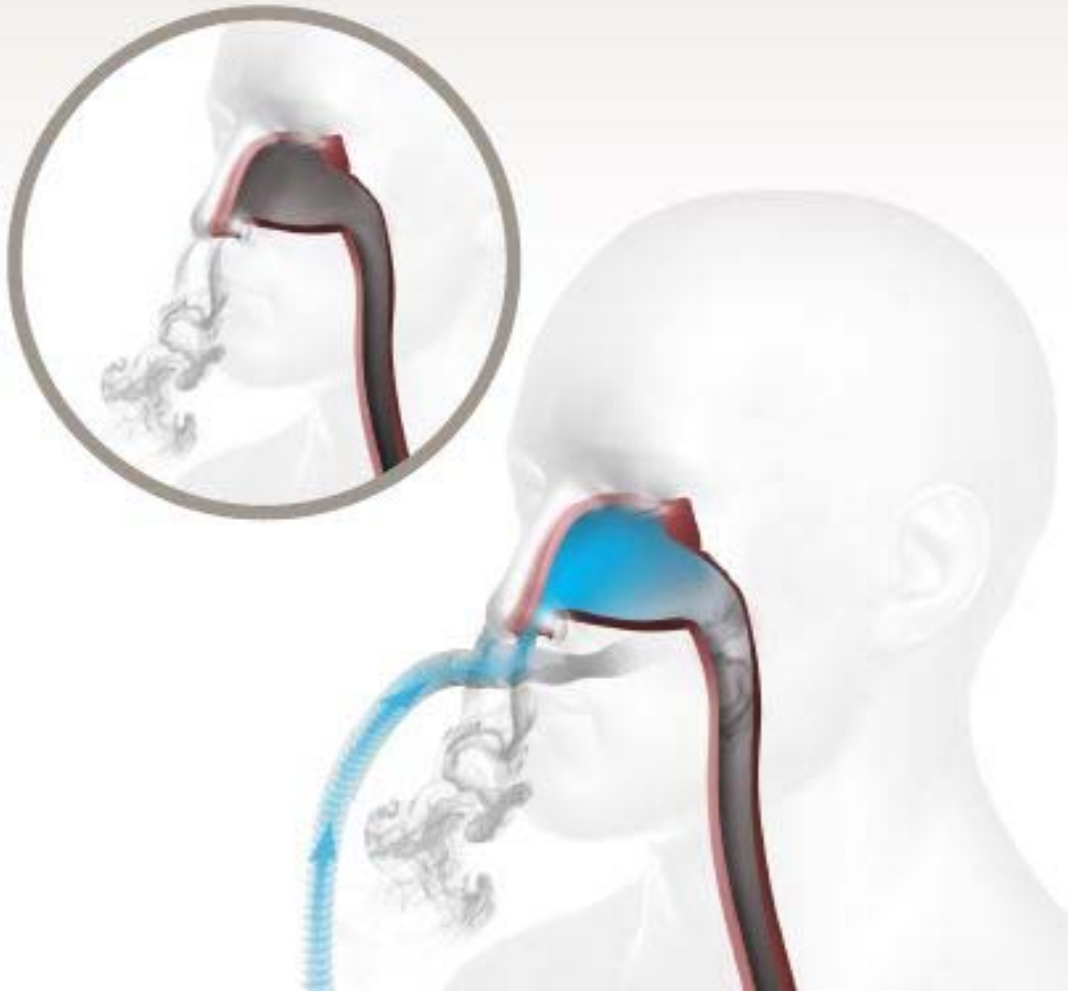
Reducing Anatomical Dead Space (C02 rebreathing)

1. REDUCTION OF DEAD SPACE

Clearance of expired air in the upper airways[7]

Reduces rebreathing of gas with high CO_2 and depleted O_2[7,8]

Increases alveolar ventilation[7]



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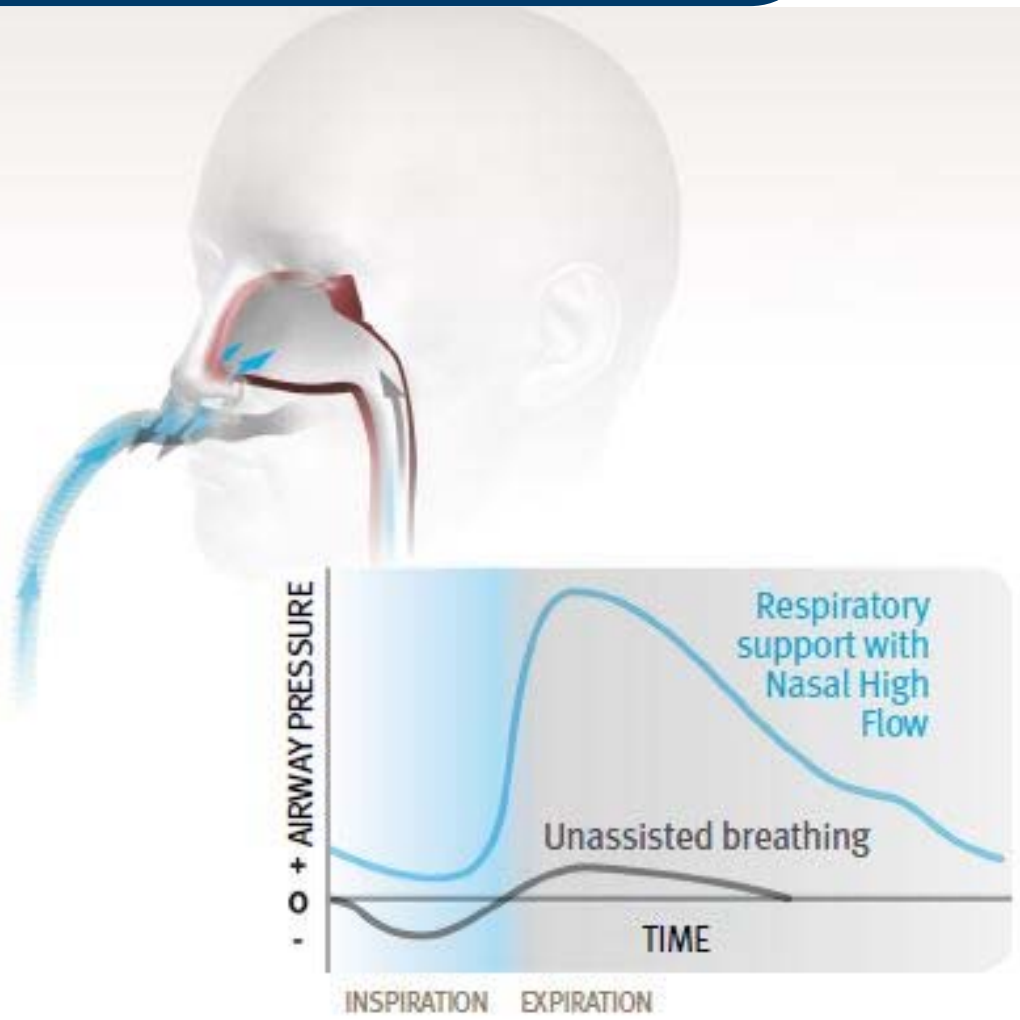
Simulating ‘Pursed Lip Breathing’ with Airflow Pressure

2. DYNAMIC™ POSITIVE AIRWAY PRESSURE

Breath- and flow-dependent airway pressure[7]

Promotes slow and deep breathing[7]

Increases alveolar ventilation[7]



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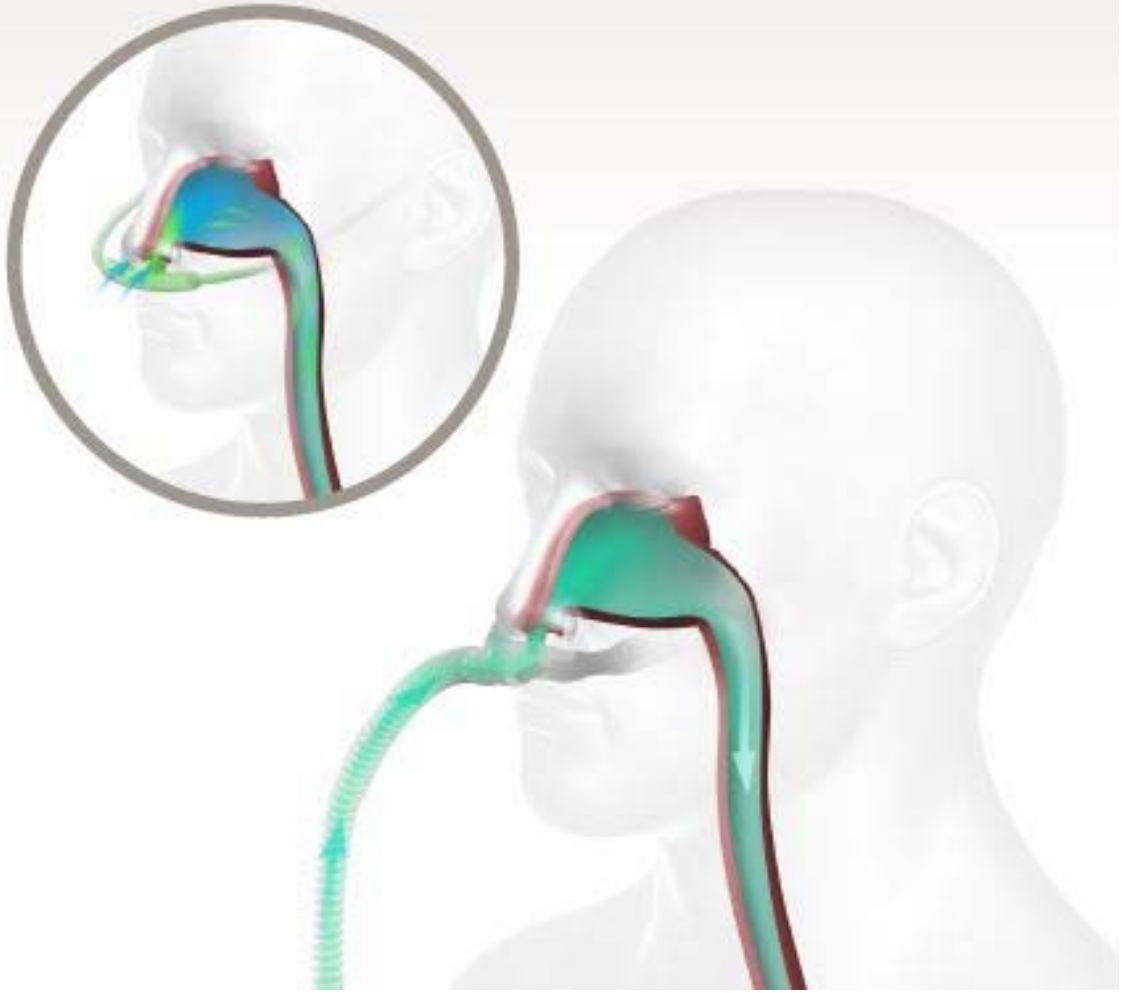
Supplemental O2 – Accurate 02 Delivery

3. SUPPLEMENTAL OXYGEN AS REQUIRED

Confidence in the delivery of blended, humidified oxygen[9,10]



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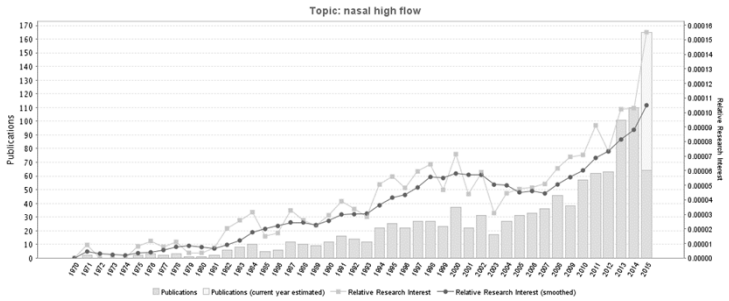
High Flow Humidification

Today in the hospital environment, HFH is being utilized for a variety of patients with different diseases.



Research:

- 1970 – 1 study
- 2015 ytd – 110 studies published (165 predicted)
- F&P - 40 currently underway worldwide (9 in US)
- Frat et al, NEJM 2015:
  - Reduced re-intubation compared to 02 therapy or NIV
  - Improved mortality at 90 days

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Patients being Treated in Acute Setting:

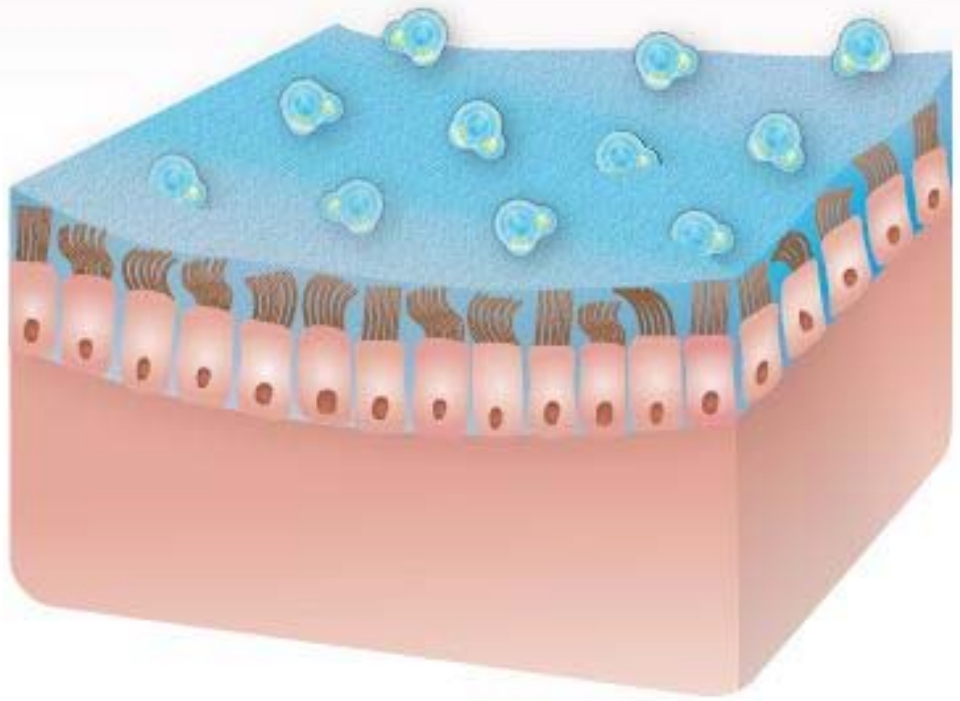
Bronchitis	Asthma	Chronic Pulmonary Fibrosis	Atelectasis	Viral pneumonia (H1N1)
COPD	Post Cardiac Surgery	Cystic Fibrosis	Emphysema	Burns
Bronchiectasis	Carbon monoxide poisoning	Pneumonia	Do-not-intubate	Palliative Care
Community acquired pneumonia	Pneumoconiosis	Post-extubation respiratory distress	Pulmonary embolism	Chest Trauma

Humidification for Secretion Clearance and Comfort

OPTIMAL HUMIDITY

Prevents desiccation of the airway epithelium[10,11]

Improves mucus clearance[10,11]



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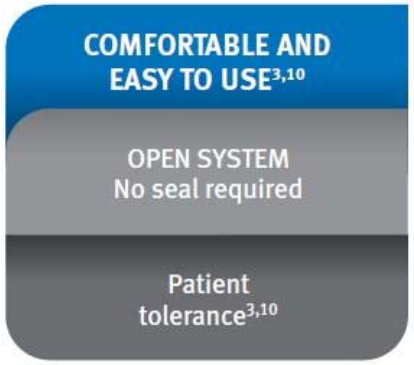
Nasal High Flow in the Home

10-60 LPM of respiratory gas, at a level close to 100% RH.

The gas (room air, or a mix with 02 titrated), is delivered via heated hose and a unique nasal interface, which is comfortable to use and contributes to greater compliance to therapy.



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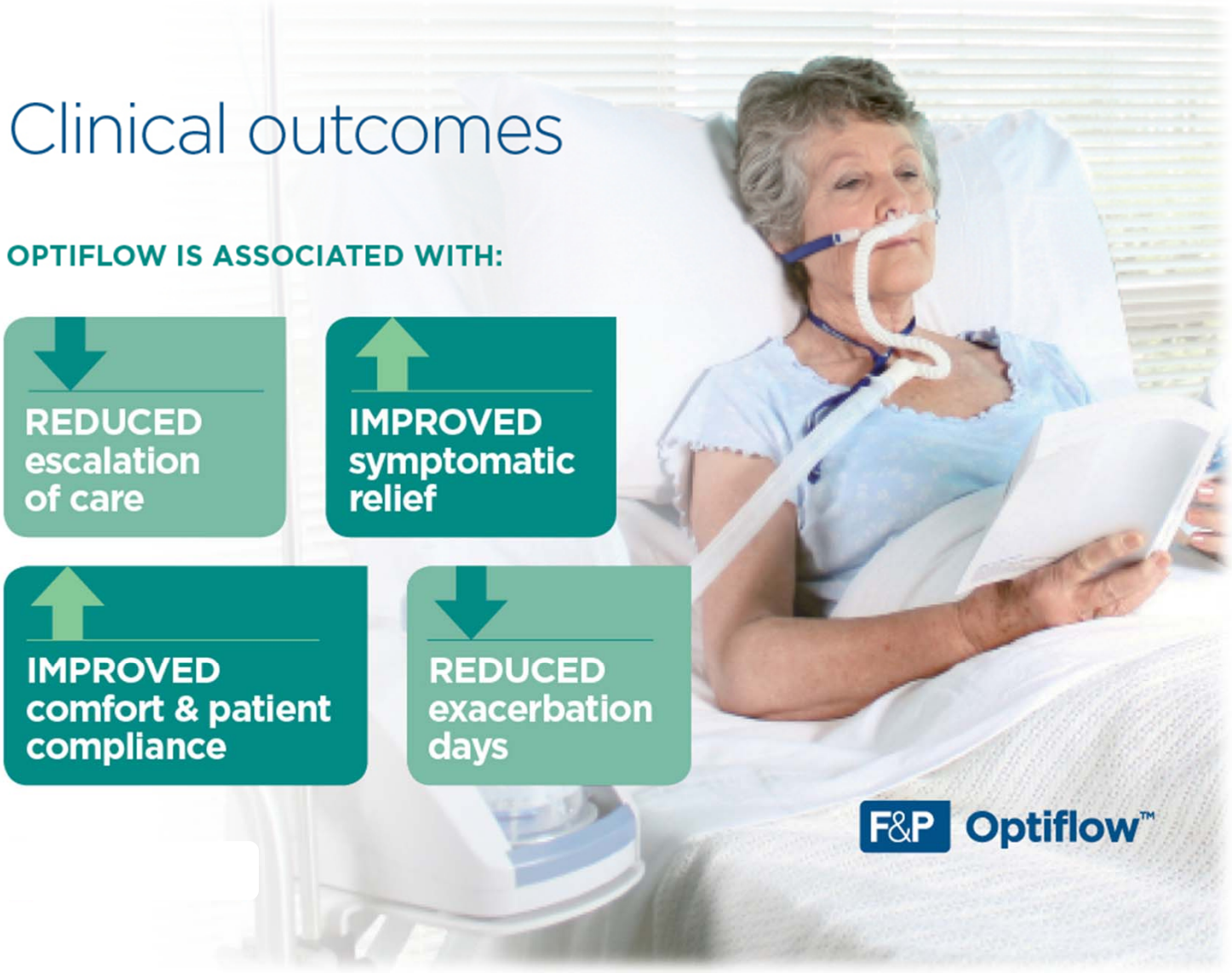
Research Supports Clinical Outcomes



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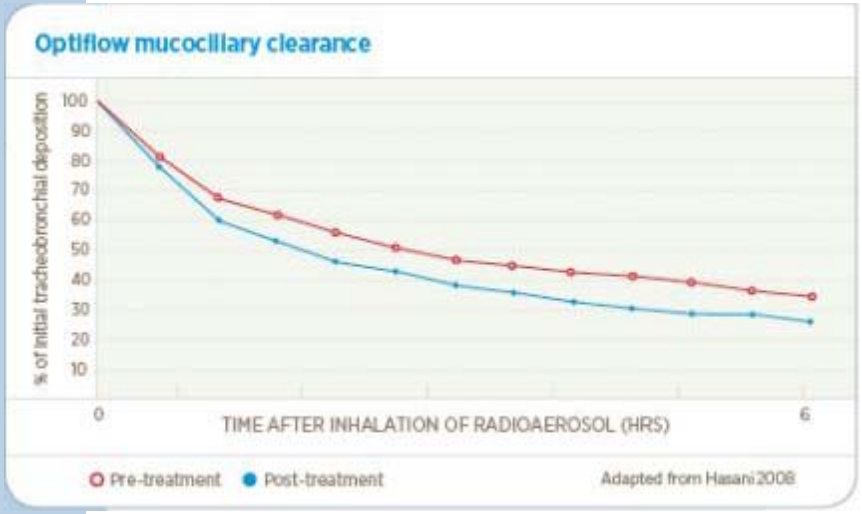
IMPROVED
mucociliary clearance

Hasani et al, 2008

STUDY

Used a radio-aerosol technique to measure mucociliary clearance, before and after 7 days of humidification



METHOD

- 10 Bronchiectasis patients
- Delivered optimally humidified flow of 20-25 L/min via nasal cannula

RESULTS

- Following humidification, mucociliary clearance was considerably improved
- Improved mucociliary clearance may slow the rate of disease progression

1. Hasani A. et al. *Chron Respir Dis.* 2008.

DEVICES USED:
F&P MR880 and F&P Optiflow

REDUCED exacerbation days

Rea et al, 2010

STUDY

Compared long-term humidification therapy (LTHT with Optiflow) with usual care on frequency of exacerbations, lung function, quality of life and exercise capacity in COPD patients.

METHOD

- COPD or bronchiectasis pts
- N = 48 usual treatment
- N = 60 LTHT group (≥ 2 hours every day for 12 months)
- Optiflow was delivered at 37°C at a flow rate of 20 or 25 L/min

RESULTS

- Significantly lower number of exacerbation days over 12 months from **33.5 to 18.2 days**
- Median time to first exacerbation was significantly longer from **27 to 52 days**
- Improvement in lung function
- Significant improvement in quality of life (SGQL)

1. Rea H. et al. *Respir Med.* 2010.

DEVICES USED:
F&P MR880 and F&P Optiflow

REDUCED hospital admissions

Aalborg University Hospital

STUDY

To investigate whether using AIRVO 2 would reduce exacerbations (AECOPD) and hospital admissions.

METHOD

Randomized, placebo-controlled 12 mo study, 200 patients with COPD requiring long-term oxygen therapy (LTOT)

Treatment group used NHF (43) for a median of 7.7 hours/day @ 20-30L/min vs. control (43) group using a placebo.

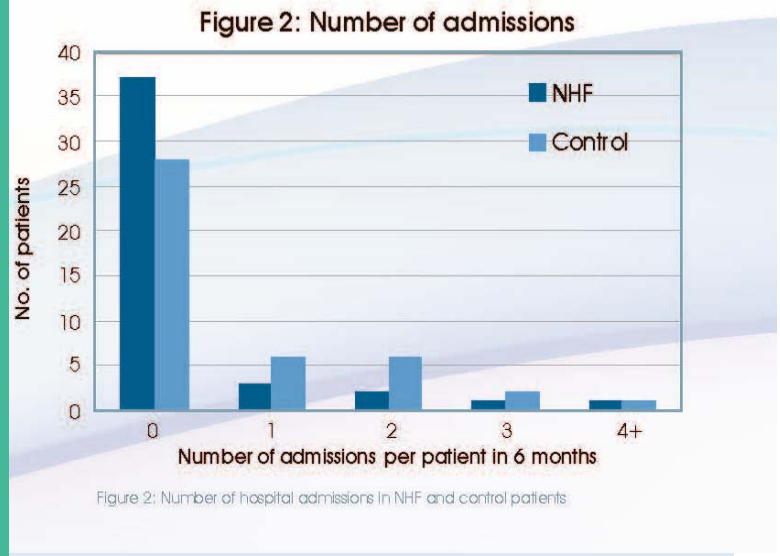


Figure 2: Number of hospital admissions in NHF and control patients

INTERIM RESULTS

- Fewer exacerbations - 71 Treatment vs. 119 Control (p= <0.01)
- Reduced hospital admissions (p= <0.05)
- Demonstrated compliance with therapy

Case Study: Reducing Escalation to Ventilation

CASE STUDY: **ESCALATION**

BON SECOURS ST. FRANCIS HEALTH SYSTEM, GREENVILLE, SC

Joseph Whitten, Director Respiratory Care Services

SITUATION

Bon Secours St. Francis Health System was looking to identify ways to reduce cost and improve patient outcomes within their hospitals as part of a system-wide transformation program.

SOLUTION

After learning about heated humidification and nasal high flow they introduced Optiflow in their 15-bed ICU (and other critical care areas), then measured and managed data for 12+ months.

Disclaimer: Any clinical opinions in this Case Study are the opinions of the contributing author and are given for information purposes only. The clinical opinions are not intended as and do not substitute medical advice. Performed on F&P MR850 and Optiflow.

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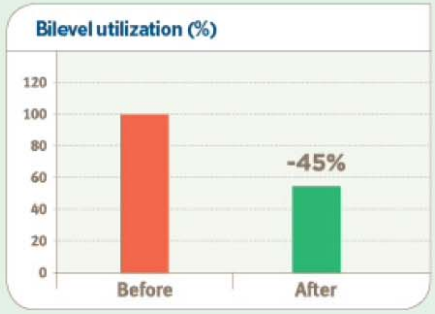
Case Study: Reducing Escalation to Ventilation

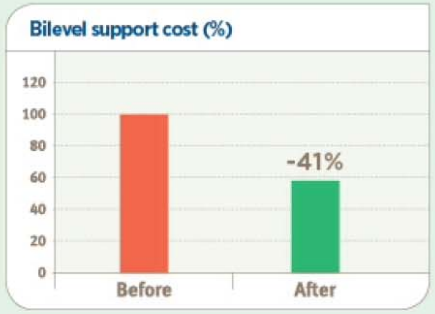
CASE STUDY: ESCALATION

BON SECOURS ST. FRANCIS HEALTH SYSTEM, GREENVILLE, SC

Joseph Whitten, Director Respiratory Care Services

RESULTS





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CONCLUSION

Proactive use of nasal high flow delivered results:

- Reduced Bilevel patient days by 1320 days
- Reduced mechanical ventilation patient days by 641 days

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Case Study: Reduce Bi-level Costs + Improve Outcomes

CASE STUDY: **ESCALATION**

OKLAHOMA UNIVERSITY MEDICAL CENTER
OKLAHOMA CITY, OK
Julie Fanselau, Respiratory Care Director

SITUATION

As an academic facility, OU Medical Center attempts to stay at the forefront of new medical developments and from their review of potential patient and economic benefits they established an Optiflow evaluation with three aims:

- **Reduce Bilevel usage to reduce Bilevel rental costs**
- **Increase patient comfort and improve patient care**
- **Provide better patient outcomes**

SOLUTION

OU Medical Center instigated a three-month evaluation of Optiflow in their 28-bed MICU.

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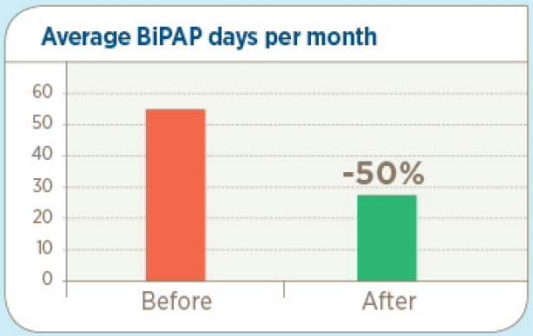
Case Study: Reduce Bi-level Costs + Improve Outcomes

CASE STUDY: ESCALATION

OKLAHOMA UNIVERSITY MEDICAL CENTER
OKLAHOMA CITY, OK
Julie Fanselau, Respiratory Care Director

RESULTS

Initial analysis after the three-month evaluation found:



- **Bilevel rental savings per month of $1,500 to $4,000**
- **Potential increase in patient comfort compared to Bilevel**
- **Patients found Optiflow less stressful to wear than Bilevel mask**
- **RNs, RTs and MDs found it easy to get patients setup with Optiflow**
- **Early intervention [with Optiflow] in patients with respiratory distress may prevent escalation**

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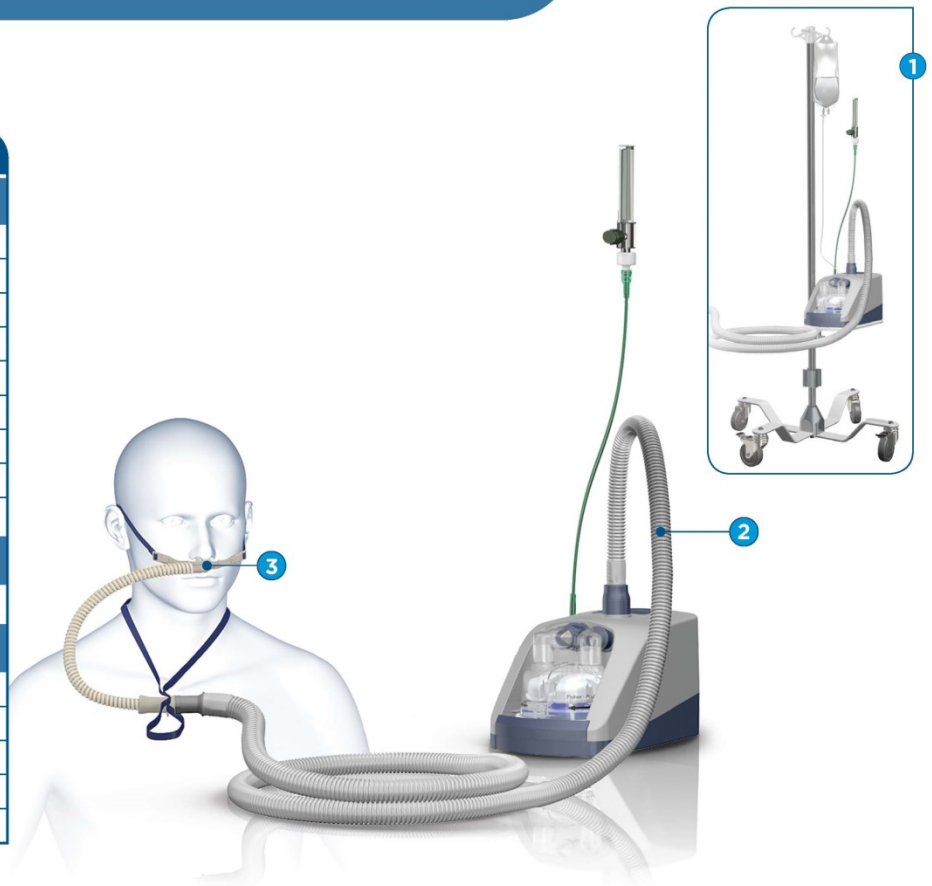
AIRVO2 Setup

F&P Optiflow™

AIRVO™

PART NO	DESCRIPTION	QUANTITY
1	**Humidifier and Accessories**	
AIRVO	Humidifier with Integrated Flow Generator	1/each
900PT421	Hospital Pole Stand	1/each
900PT405	Pole Mounting Tray	1/each
900MR306	Humidifier Stand Basket	1/each
900PT600	Disinfection Kit	1/each
900PT402	Oxygen Inlet Extension Kit	1/each
900PT406	Filter Cover	1/each
900HC240	Air Filter	2/pack
900PT404	Oxygen Table Sticker	1/each
2	**Humidification Chambers, Breathing Circuits and Kits**	
900PT501	Heated Breathing Tube & Chamber Kit	10/box
3	**Interfaces and Accessories**	
OPT842	Adult Optiflow Cannula - Small	20/box
OPT844	Adult Optiflow Cannula - Medium	20/box
OPT846	Adult Optiflow Cannula - Large	20/box
OPT870	Adult Optiflow Tracheostomy Interface	20/box
RT013	Mask Interface Adapter	20/box



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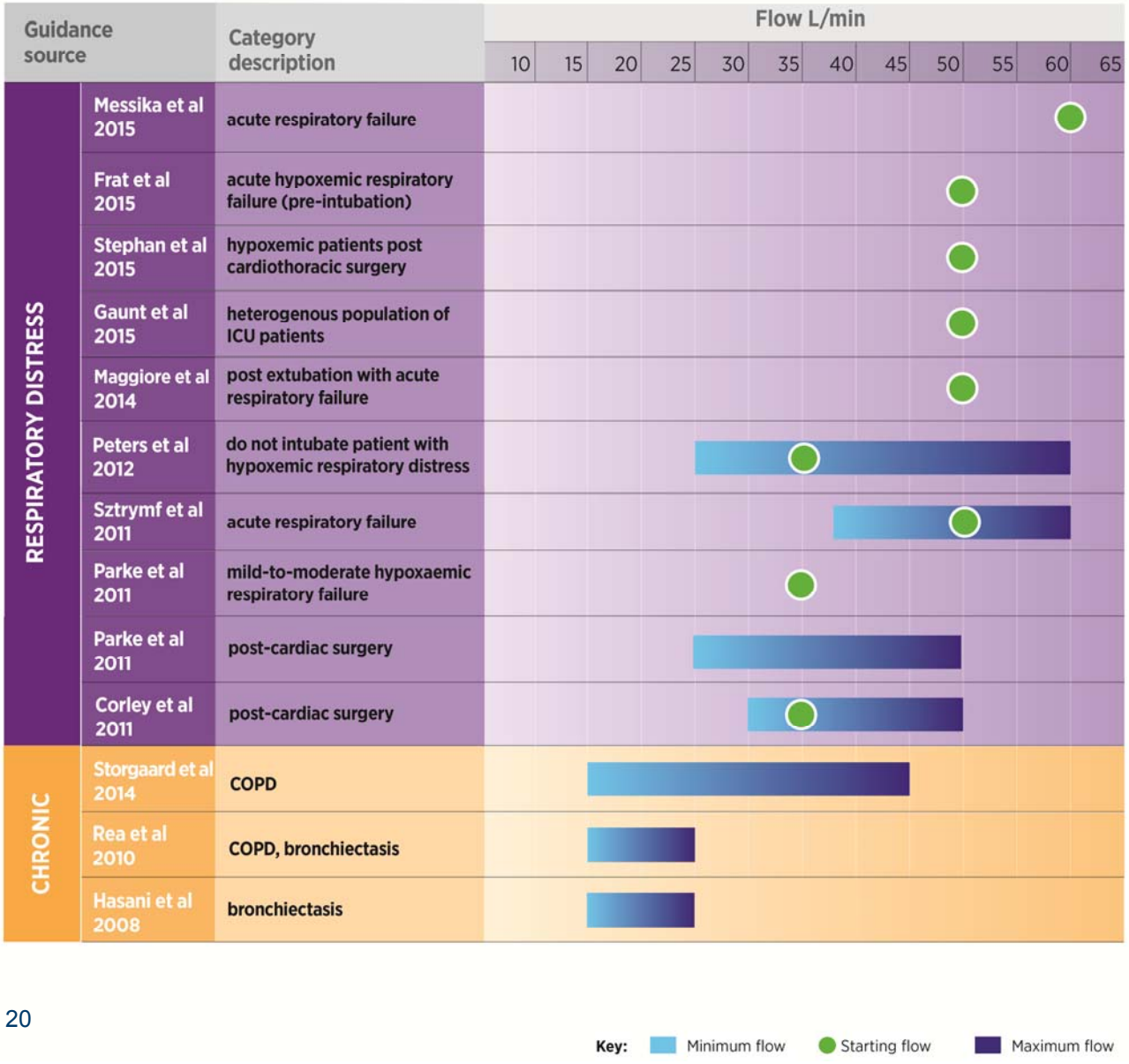
Recommended Flow Rates



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Guide to Water Usage (hours):

L/min	2	5	10	15	20	25	30	35	40	45	50	55	60
HC360 Chamber	106	42	21	14	11	8	7	6	5	5	4	4	4
MR290 Chamber*	189	76	38	25	19	15	13	11	9	8	8	7	6

**Note: MR290 Chamber using 1L Water bag*

Guide to Consumables Change Out:

Maximum period of use	Part number and description
1 week	*Optiflow Junior interfaces* OPT316 / OPT316E Nasal Cannula - Infant OPT318 / OPT318E Nasal Cannula - Pediatric
1 month	*All other patient interfaces* OPT842 / OPT842E Nasal Cannula - Small OPT844 / OPT844E Nasal Cannula - Medium OPT846 / OPT846E Nasal Cannula - Large OPT870 / OPT870E Tracheostomy Interface RT013 / RT013E Mask Interface Adapter - 22mm
2 months	*All tube & chamber kits* 900PT500 / 900PT500E Heated breathing tube 900PT530E Heated breathing tube (for use with OPT316/OPT318 only) 900PT290E MR290 auto-fill chamber and adapter 900PT501 Heated breathing tube, MR290 auto-fill chamber and adapter 900PT531 Heated breathing tube, MR290 auto-fill chamber and adapter (for use with OPT316/OPT318 only)
3 months or 1000 hours	900PT913 Air filter (or more often if significantly discolored)
Reusable	HC360 Reusable water chamber

**based on the drying mode being activated daily and cleaning/mainentence schedule followed*

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Further Information:

Use this QR code to view the **AIRVO 2** Video guide, using the MR290 Chamber on YouTube

Use this QR code to view the **myAIRVO 2** Video guide for using the HC360 (reusable) Chamber on YouTube

AIRVO 2 App: visit the app store to download interactive program