

AIRVO HIGH FLOW NASAL CANNULA

1. Level: CCT Paramedic, RN
2. Purpose: To provide high flow, warmed, humidified, concentrated oxygen with variable FiO₂ adjustment from 21% to 100%, with a max capacity of 60 lpm of oxygen. This is achieved via nasal cannula or tracheal apparatus. High flow oxygen washes out the anatomical dead space and reduces the rebreathing of CO₂ while increasing alveolar ventilation and providing dynamic positive airway pressure. The warmed and humidified oxygen is filtered and delivered via vapor form (not droplet) to prevent the transmission of virus particles and bacteria.
3. Definition: This device is used when other forms of artificial ventilation are insufficient to achieve desired FiO₂, CO₂ displacement, and/or alveolar ventilation and a more invasive form of airway management is not indicated or optimal.
4. Indication: Spontaneously breathing patients with or at high risk for respiratory distress, including but not limited to CHF, RSV, pneumonia, influenza, pulmonary viral infections and other pulmonary conditions as directed by physician.
5. Contraindications: Critically ill patients requiring a higher level of invasive respiratory support, apnea, airway obstruction, unable to cooperate, claustrophobia, trauma or surgery to face or nasopharynx, pneumothorax
6. Adverse effects/complications: claustrophobia, pneumothorax
7. Procedure:
 - 7.1. Connect AIRVO to power source (battery or AC)
 - 7.2. Connect the water chamber
 - 7.3. Confirm oxygen source has an ample supply for anticipated use and time
 - 7.4. Select delivery system for patient
 - 7.4.1. Nasal Cannula
 - 7.4.1.1. Select Size: the nasal cannula prongs should fill at least 50% of the nares. Sizes available include:
 - 7.4.1.1.1. Small (orange)
 - 7.4.1.1.2. Medium (blue)
 - 7.4.1.1.3. Large (green)
 - 7.4.1.2. Tracheal Device
 - 7.4.1.2.1. Mask Interface Adapter- connects to tracheostomy mask with a standard 22 mm medica taper
 - 7.4.1.2.2. Tracheostomy Direct Connection- Connects directly to the tracheostomy tube
 - 7.5. Turn on the AIRVO device (DO NOT OPEN OXYGEN FLOW AT THIS TIME)
 - 7.5.1. Device will default to adult mode
 - 7.5.1.1. Adult mode should be used for flow rates of 10-60 lpm with a temperature range of 31-37° C
 - 7.5.1.2. Junior mode should be used for flow rates up to 25 lpm and temperature of 34° C
 - 7.5.2. Operation
 - 7.5.2.1. Confirm the mode
 - 7.5.2.2. Confirm the desired temperature
 - 7.5.2.3. Turn on oxygen source and set to desired liters per minute
 - 7.5.2.3.1. FiO₂ will be displayed on the screen of the device
 - 7.5.2.3.2. Connect AIRVO circuit to patient

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- 7.6. Connection:
 - 7.6.1. Connect AIRVO to oxygen source
 - 7.6.2. Connect AIRVO circuit to cannula or tracheal device. Clip device used to secure to the gown or patient covering.
 - 7.6.3. Connect gravity fed sterile water to AIRVO reservoir
 - 7.6.4. Titrate the oxygen flow to the desire FiO₂
 - 7.6.5. Reassess patient frequently to make sure that oxygenation is sufficient
 - 7.6.6. Make sure that work or breathing is minimal for patient condition
8. Positioning:
 - 8.1. Patient should be sitting at an angle of at least 30 to 45 degrees if possible
 - 8.2. Be aware of the need for suctioning, especially with trach patients
9. Documentation
 - 9.1. AIRVO should be selected in the treatment section of the ePCR
10. Cleaning:
 - 10.1. Cleaning will take place either in the unit or upon return to the station
 - 10.2. Connect the disinfectant tube to the top and front of the AIRVO device which results in a closed circuit
 - 10.3. Confirm that the AIRVO device has power and turn the device on. The device recognizes the disinfectant tubing and will begin the disinfecting process which takes 55 minutes
 - 10.4. The disinfectant tubing self-cleans and is reusable. (DO **NOT** DISCARD AFTER USE)

AIRVO Oxygen Time in Minutes

Main Oxygen (M Tank) 2,000 psi

F I O W	FiO2%																
		25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
	10 L/min	3,300	3,114	1,560	1,200	1,038	780	720	618	522	480	438	390	360	342	324	312
	15 L/min	3,120	1,560	1,038	780	624	522	444	390	348	312	282	258	240	222	216	210
	20 L/min	3,114	1,550	780	624	516	390	348	312	258	240	216	192	186	168	159	156
	25 L/min	3,102	1,038	624	516	390	312	276	240	216	192	174	156	144	138	132	126
	30 L/min	3,096	1,032	618	438	348	282	240	210	186	162	150	138	126	114	108	105
	35 L/min	1,560	780	522	348	282	240	192	174	156	138	126	114	102	96	90	88
	40 L/min	1,500	768	444	312	240	198	174	150	132	120	114	102	90	84	78	76
	45 L/min	1,485	624	360	282	222	186	156	138	120	108	96	90	84	78	72	70
	50 L/min	1,470	618	348	258	210	162	144	120	108	96	90	78	72	69	66	60
	55 L/min	1,440	528	312	222	186	150	132	114	96	84	78	72	66	60	58	57
	60 L/min	1410	522	282	210	162	138	114	102	90	81	72	66	60	58	54	52

AIRVO Oxygen Time in Minutes

Portable Oxygen (E Tank)

F l o w	FiO2%																
		25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
	10 L/min	648	600	306	240	204	156	138	120	102	94	84	78	70	65	61	59
	15 L/min	612	306	204	156	120	102	90	78	66	60	56	51	47	44	41	38
	20 L/min	612	300	162	120	100	80	66	60	52	47	43	40	36	34	32	31
	25 L/min	612	204	124	100	78	64	55	47	42	38	34	31	28	27	25	24
	30 L/min	612	198	120	90	64	55	46	41	35	30	28	26	24	22	21	20
	35 L/min	306	156	100	66	56	46	38	34	30	27	24	22	20	19	18	17
	40 L/min	304	120	90	60	51	40	34	30	26	24	21	20	18	17	16	15
	45 L/min	302	118	79	56	44	36	31	27	24	20	19	17	16	15	14	13
	50 L/min	300	102	66	50	40	32	27	24	21	18	17	15	14	13	12	11
	55 L/min	298	96	60	44	34	29	24	21	19	17	15	14	13	12	11	10
	60 L/min	296	90	56	40	34	27	23	20	17	16	14	13	12	11	10	10