

# The Perfect Fit

It pays to be patient when searching for the right airway interface.

BY LAUREN MEADE

**S**electing the right mask for continuous positive airway pressure therapy is like shopping for a pair of jeans. The perfect fit — one that is not too snug and hugs the curves — is crucial.

Chad Copp, RPSGT, lab manager of a Toledo, Ohio-based durable medical equipment supplier Positive Sleep Solutions, understands full well the jean-theory of airway interfaces. Copp usually spends 90 minutes with his customers, discussing how to clean their airway interfaces, check for leaks, and stay on top of Medicare's replacement schedule.

"The more they understand, the less likely they're going to have problems," Copp said.

Discomfort and inconvenience associated with masks are among the top reasons why half of patients abandon their CPAP therapy within a year.<sup>1,2</sup> At least 40 mask designs have emerged on the market as manufacturers aim to improve comfort and compliance. They range in cost from \$79 to more than \$200, according to an online supplier.

## Coding change

Despite the number of masks on the market, coding for airway interfaces is straightforward, according to Diane Krier-Morrow, MBA, MPH, CCS-P, coding and reimbursement consultant to the American College of Chest Physicians and the American Thoracic Society. But providers should be aware of the latest change.

The Centers for Medicare and Medicaid Services revised the code set for combination oral/nasal masks and their accessories when used with CPAP. Hybrid masks were added to the code set in July 2007 and classified as temporary K-codes. As of January, hybrid masks now are billed as A-codes.

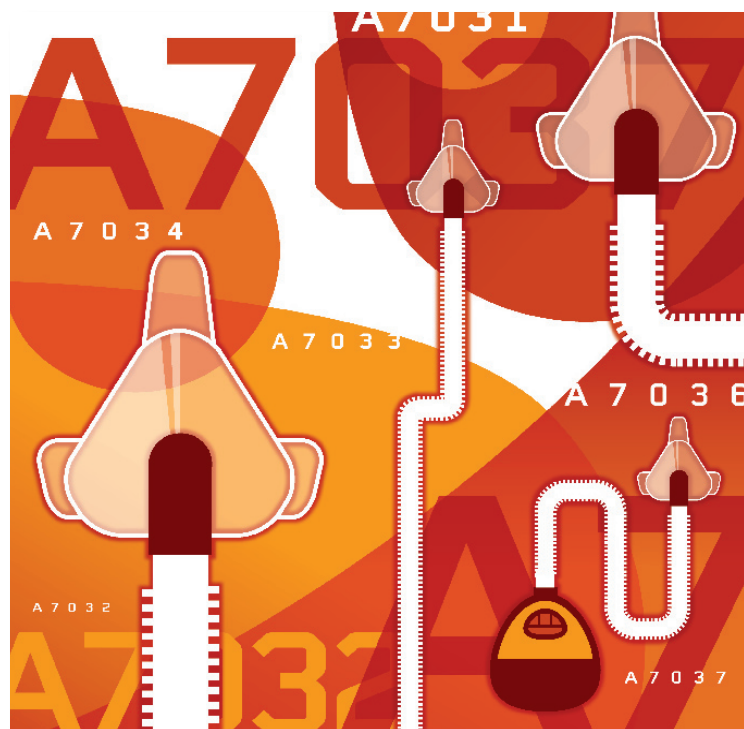
The codes are as follows:

- Combination oral/nasal mask used with a CPAP device changed from K0553 to A7027.
- Oral cushion for combination oral/nasal mask changed from K0554 to A7028.
- Nasal pillows for combination oral/nasal mask changed from K0555 to A7029.

"It sometimes takes a long time for the word to spread that those codes are obsolete," Krier-Morrow said. But watch out. Providers who submit outdated claims could be denied payment for the services and supplies involved.

Masks used with CPAP devices fall under the CMS Healthcare Common Procedure Coding System (HCPCS) Level II Code Set, which was established in the 1980s for submitting claims for products, supplies, and services when used outside a physician's office.

Medicare does not pay for accessories such as hose insulators, software and card readers, and battery packs.



## Replacement policies

Masks typically need to be replaced every six to eight months because oils from the skin break down the silicone. The newer gel-filled masks are more durable. Some models allow patients to replace only the worn-out parts. CMS has established a replacement schedule for masks and accessories. For instance, Medicare will reimburse for a full face and nasal mask every three months. (See Table.)

If a mask or part breaks before Medicare's replacement schedule, Copp usually will exchange the part, even if that means absorbing some of the costs.

"In sleep, you see many different situations where someone's dog ate the tubing or their kids got a hold of it," he said. Copp is available by cell phone 24 hours a day, seven days

## Airway Interfaces Company Listings

At-a-glance charts on pages 66-71 detail the various airway interface products available.

### Cardinal Health

22745 Savi Ranch Pkwy.  
Yorba Linda, CA 92887  
(714) 919-3333

**Website:** [www.cardinalhealth.com](http://www.cardinalhealth.com)

**Email:** [steve.birch@cardinalhealth.com](mailto:steve.birch@cardinalhealth.com)

**Product line:** Avea, Vela, Bear, Bird, and Pulmonetic Systems ventilators, SomnoStar sleep diagnostics, Vmax pulmonary function system, Micro Medical spirometry

**Company description:** Cardinal Health

is a global company serving the health care industry with products and services designed to help hospitals physicians offices and pharmacies reduce costs, improve safety, productivity, and profitability, and deliver better patient care.

### DeVilbiss Healthcare

100 DeVilbiss Dr.  
Somerset, PA 15501  
(800) 338-1988

**Fax:** (800) 552-7379

**Website:** [www.devilbisshealthcare.com](http://www.devilbisshealthcare.com)

**Product line:** Oxygen therapy, pulmonary drug delivery, sleep therapy, suction therapy

**Company description:** DeVilbiss Healthcare designs, manufactures, and markets respiratory medical products that address the needs of patients in institutional and home care settings.

### Fisher & Paykel Healthcare

15365 Barranca Pkwy.  
Irvine, CA 92618  
(949) 453-4002; (800) 446-3908

**Fax:** (949) 453-4001

**Website:** [www.fphcare.com](http://www.fphcare.com)

**Email:** [info@fphcare.com](mailto:info@fphcare.com)

**Product line:** CPAP, CPAP interfaces,

respiratory humidifiers, neonatal resuscitators, infant warmers

**Company description:** Fisher & Paykel Healthcare designs, manufactures, and markets a range of health care devices that incorporate features designed to improve patient care.

### Hans Rudolph Inc.

8325 Cole Pkwy.  
Shawnee, KS 66227  
(913) 422-7788; (800) 456-6695

**Fax:** (913) 422-3337

**Website:** [www.rudolphkc.com](http://www.rudolphkc.com)

**Email:** [hri@rudolphkc.com](mailto:hri@rudolphkc.com)

**Product line:** Masks — reusable series: 7500, 7600, 7700, 7900, 8900; disposable series: 6500, 6600, 6700; and valves for CPAP/bilevel and ventilation masks, PFT masks, exercise testing masks, and metabolic measurement masks

**Company description:** Hans Rudolph manufactures respiratory masks and valves for CPAP, bilevel, NIV, PFT, HBO<sub>2</sub>T, and offers full-face, silicone, rubber V2 masks.

### MVAP Medical Services

1415 Lawrence Dr.  
Newbury Park, CA 91320  
(877) 735-6827

**Fax:** (877) 735-7213

**Website:** [www.mvapmed.com](http://www.mvapmed.com)

**Company description:** MVAP Medical Supplies offers a wide selection of supplies for sleep disorders testing.

### ResMed Corp.

14040 Danielson St.  
Poway, CA 92064  
(858) 746-2400; (800) 424-0737

**Fax:** (858) 746-2900

**Website:** [www.resmed.com](http://www.resmed.com)

**Email:** [reception@resmed.com](mailto:reception@resmed.com)

**Product line:** S8™ series of CPAP and APAP devices, VPAP™ III series of bilevel devices, and Mirage™ series of patient interfaces.

**Company description:** ResMed is a global provider of medical equipment for the screening, treatment, and management of sleep-disordered breathing and other respiratory disorders, selling a comprehensive range of products.

### Respironics

1010 Murry Ridge Ln.  
Murrysville, PA 15668  
(724) 387-4000; (800) 345-6443

**Fax:** (724) 387-5012

**Website:** [www.respironics.com](http://www.respironics.com)

**Company description:** Respironics develops, manufactures, and distributes products and programs that serve the global sleep and respiratory markets.

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Table. HCPCS Level II Codes and Replacement Frequencies

Item	Code	Replacement Frequency
Full face mask	A7030	1 every 90 days
Full face cushion	A7031	1 every 30 days
Nasal mask	A7034	1 every 90 days
Nasal mask cushion	A7032	2 every 30 days
Nasal pillows	A7033	2 pair every 30 days
Chinstrap	A7036	1 every 180 days
Tubing	A7037	1 every 90 days

a week to answer patients' questions about their masks.

### Design trends

Nasal masks have been one of the most important innovations in the last decade,

Copp said. These interfaces are designed not to block vision and to allow patients to sleep on their sides.

Other trends include mask designs that are easier for elderly patients with poor coordination to put on and clean. And some CPAP machines are equipped with a mask-fit button to help patients make sure the mask fits correctly and there are no leaks along the entire circuit,

from the humidifier to the interface.

"Manufacturers try to provide the best application for the patient so it's not as cumbersome," Copp said.

They typically have 60- to 90-day return policies. Manufacturers realize it may take

patients a few tries before they find a mask that is just right. ■

### References

- Ballard RD, Gay PC, Strollo PJ. Interventions to improve compliance in sleep apnea patients previously non-compliant with continuous positive airway pressure. *J Clin Sleep Med.* 2007 Dec 15;3(7):706-12.
- Pépin JL, Krieger J, Rodenstein D, et al. Effective compliance during the first 3 months of continuous positive airway pressure: a European prospective study of 121 patients. *Am J Respir Crit Care Med.* 1999;160:1124-9.

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Company name	Cardinal Health								DeVilbiss Healthcare
Product name	SNAPP 2.0 direct nasal interface	Advantage Series™ nasal mask	Advantage Series™ full face mask	Advantage Series™ NV full face mask	IQ™ by SleepNet	MiniMe™ by SleepNet	Mojo® by SleepNet	Phantom® by SleepNet	FlexAire® Mask
Product type	Nasal pillows	Nasal	Full face	Full face	Nasal	Nasal	Full face	Nasal	Full face
Cost/warranty	90 days	90 days	90 days	90 days	30 days	30 days	30 days	30 days	Warranty for defects in materials and workmanship up to six months, depending on specific model
Used for:									
CPAP	X	X	X	X	X	X	X	X	X
APAP		X	X	X	X	X	X	X	X
Bilevel		X	X	X	X	X	X	X	X
Interface design	Locator prongs project from an inflatable bellows that helps to maintain the seal; no contact at the bridge of the nose; swivels on either side connect to tubes in a "Y"; tubes can be positioned at any time over the head or under the chin; multi-orifice exhalation port array quietly diffuses exhaled gas	Triple-layer silicone seal; collapsible bellow at bridge of nose; silicone forehead pad	Triple-layer silicone seal; collapsible bellow at bridge of nose; silicone forehead pad	Triple-layer silicone seal; collapsible bellow at bridge of nose; silicone forehead pad; non-vented for use with positive pressure devices that have integrated exhalation valve	Gel cushion, adjustable flexible shell	Gel cushion, adjustable flexible shell	Gel cushion, adjustable flexible shell, dual-beam element redistributes force to the center of the mask, gel forehead cushion with tension wheel to fine-tune fit	Gel cushion, adjustable flexible shell, pliable nose clip, side tubing adapters, plug for supplemental oxygen or pressure measurement	Quick-release detaches mask without removing headgear; pump to inflate foam-filled air bladder cushion for improved flexibility and seal; mask swivel can be locked in over-the-head position for greater flexibility; dual-pivoting forehead rest and mask bridge with forward/backward adjustability
Headgear design	Velcro® headgear attaches in two places to the bellows; with six points of adjustment, it can fit a wide range of sizes and shapes yet is easy to apply and remove.	Four-point mesh; Velcro® headgear with clips for easy removal and reapplication	Four-point or optional five-point headgear, Velcro®	Four-point or optional five-point headgear, Velcro®	Three-point for greater stability, Breath-O-Prene® SILVERtec antimicrobial fabric	Two-point with magnetic clips for easy application and removal, Breath-O-Prene® SILVERtec antimicrobial fabric	Four-point with magnetic clips for easy application and removal, Breath-O-Prene® SILVERtec antimicrobial fabric	Two-point attachment, Breath-O-Prene® SILVERtec antimicrobial fabric	Soft Breathe-O-Prene® and ultra-plush forehead pad designed to reduce pressure, eliminate skin indentation, and ensure comfort; clipless tusk for lower headgear strap allows for easy on/off
Sizes available	S, M, L, XL	S, M, L	S, M, L, XL	S, M, L, XL	Single size	Single size with petite, petite small, and petite xsmall headgear	S, M, L	Single size with petite, petite small, and petite xsmall headgear	Standard - 9353D; shallow - 9353S
Aids for patient fitting	Sizing gauge, simple instructions	Sizing gauge, instructions for use	Sizing gauge, instructions for use	Sizing gauge, instructions for use	Instructions for use, fitting tips sheet	Instructions for use, fitting tips sheet	Instructions for use, fitting tips sheet	Instructions for use, fitting tips sheet	Free sizing gauge
Pressure range (cm H <sub>2</sub> O)	3 to 20	3 to 20	3 to 20	3 to 20	3 to 20	3 to 20	3 to 20	3 to 20	
Connection ports	None	None	One	One	One		One	One	
Special features:									
Built-in air vent	X	X	X	X	X	X	X	X	X
Latex free	X	X	X	X	X	X	X	X	X
360-degree elbow rotation	X	X	X	X					X
Replacement parts available	X	X	X	X	X	X	X	X	X
Maintenance/cleaning	Wash with mild soap and dry	Wash with mild soap and dry	Wash with mild soap and dry	Wash with mild soap and dry	Wash with mild detergent and dry	Wash with mild detergent and dry	Wash with mild detergent and dry	Wash with mild detergent and dry	Disassemble mask and immerse for minimum of one minute in mild detergent prepared with cool-to-lukewarm water, clean with a soft-bristle brush, then rinse in deionized water for minimum of one minute, and allow mask to dry.
Other features	Allows user to wear glasses; quiet exhalation port array	Quiet exhalation port array	Anti-asphyxia valve, quiet exhalation port array	Swivel without exhalation ports or anti-asphyxia valve			Anti-asphyxia valve, also available as a non-vented mask for noninvasive ventilation — Mojo® NV	Tubing quick release	

Company name	DeVilbiss Healthcare		Fisher & Paykel						
Product name	FlexSet®	Serenity®	Oracle™ 452	FlexiFit™ 405	FlexiFit™ 406	FlexiFit™ 407	FlexiFit™ 431	FlexiFit™ 432	Opus™ 360
Product type	Nasal	Nasal	Oral mask	Nasal	Nasal	Nasal	Full face	Full face	Nasal pillows
Cost/warranty	Warranty for defects in materials and workmanship up to six months, depending on specific model	Warranty for defects in materials and workmanship up to six months, depending on specific model							
Used for:									
CPAP	X	X	X	X	X	X	X	X	X
APAP	X	X	X	X	X	X	X	X	X
Bilevel	X	X	X	X	X	X	X	X	X
Interface design	Modular design with four cushion options; dual-pivoting forehead rest and mask bridge with forward/backward adjustability; adjustable exhaust port to direct escaping air	Interchangeable cushions, snap-in forehead rests easily changed; solid thermoplastic frame able to withstand repeated cleanings; adjustable exhaust port to direct escaping air, headgear included	Oral mask for the delivery of positive airway pressure	FlexiFit™ Technology automatically adjusts to a wide range of nasal and facial contours with one-step fitting and no complicated adjustments.	FlexiFit™ Technology automatically adjusts to a wide range of nasal and facial contours with one-step fitting and no complicated adjustments.	FlexiFit™ Technology automatically adjusts to a wide range of nasal and facial contours with one-step fitting and no complicated adjustments.	FlexiFit™ Technology automatically adjusts to a wide range of nasal and facial contours with one-step fitting and no complicated adjustments.	Automatically adjusts to a wide range of nasal and facial contours with one-step fitting and no complicated adjustments; under-chin fit provides stability by providing a constant point of reference and maintaining the seal even with jaw movement at night	Anatomically shaped pillows provide easy fitting with excellent seal; contours designed to provide greater comfort; range of sizes ensures comfort and seal are not compromised.
Headgear design	Silicone or gel cushion, ultra-plush forehead pad; memory headgear can set and forget; quick-release detaches mask without removing headgear	Soft replaceable silicone or gel cushions, quick-release buckle available for easy fitting and removal	Breathe-O-Prene® headgear	Four-strap Breathe-O-Prene® headgear; can be removed completely without altering individual settings	Four-strap Breathe-O-Prene® headgear; can be removed completely without altering individual settings; elastic headgear segment maintains equal mask force when head tilts up or down	Four-strap Breathe-O-Prene® headgear; can be removed completely without altering individual settings; elastic headgear segment maintains equal mask force when head tilts up or down	Four-strap Breathe-O-Prene® headgear; can be removed completely without altering individual settings	Four-strap Breathe-O-Prene® headgear; can be removed completely without altering individual settings	Facially contoured mask frame with three-dimensional support structures, conforms naturally to shape of the face; slim-line design allows side-sleeping without mask displacement
Sizes available	Standard – 9354D (silicone), 9354G (gel); shallow – 9354S (silicone), 9354GS (gel)	Standard – 9352D (silicone), 9352G (gel); shallow – 9352S (silicone), 9352GS (gel)	Two sizes in one box	S and L (packaged together)	Petite	One-size	Three sizes in one box	S, M, L, XL	S, M, L (in one box)
Aids for patient fitting	Free sizing gauge; DeVilbiss SureFit Kit® (Model 9532D-SK)	DeVilbiss SureFit Kit® (Model 9532D-SK)	User instructions, fitting guide, Vigor™ 8 online support	User instructions, fitting guide, Vigor™ 8 online support	User instructions, fitting guide, Vigor™ 8 online support	User instructions, fitting guide, Vigor™ 8 online support	User instructions, fitting guide, Vigor™ 8 online support	User instructions, fitting guide, Vigor™ 8 online support	User instructions, fitting guide, Vigor™ 8 online support
Pressure range (cm H <sub>2</sub> O)			4 to 25	4 to 25	4 to 25	4 to 25	4 to 25	4 to 25	4 to 25
Connection ports									
Special features:									
Built-in air vent	X	X	X	X	X	X	X	X	X
Latex free	X	X	X	X	X	X	X	X	X
360-degree elbow rotation	X		X	X	X	X	X	X	X
Replacement parts available	X	X	X	X	X	X	X	X	X
Maintenance/cleaning	Disassemble mask, immerse for minimum of one minute in mild detergent prepared with cool-to-luke-warm water, clean with a soft-bristle brush, then rinse in deionized water for minimum of one minute, and allow mask to dry.	Disassemble mask, immerse for minimum of one minute in mild detergent prepared with cool-to-luke-warm water, clean with a soft-bristle brush, then rinse in deionized water for minimum of one minute, and allow mask to dry.	High-level disinfection procedures available; routine patient cleaning instructions provided	High-level disinfection procedures available; routine patient cleaning instructions provided	High-level disinfection procedures available; routine patient cleaning instructions provided	High-level disinfection procedures available; routine patient cleaning instructions provided	High-level disinfection procedures available; routine patient cleaning instructions provided	High-level disinfection procedures available; routine patient cleaning instructions provided	High-level disinfection procedures available; routine patient cleaning instructions provided
Other features				FlexiFit™ technology, Glider™ strap	FlexiFit™ technology, Glider™ strap	FlexiFit™ technology, Glider™ strap	FlexiFit™ technology, Glider™ strap	FlexiFit™ technology, Glider™ strap	Soft-Lip™ cushion, tube anchoring system, contoured mask frame

Company name	Hans Rudolph Inc.			MVAP Medical Services	ResMed Corp.				Respironics	
Product name	7500 V2 mask (NIV)	7600 V2 mask	7700 V2 mask	CPAP Multi-mask Sleep Aid Pillow	Mirage Quattro	Mirage Liberty	Mirage Swift II	Mirage Micro	OptiLife™	ComfortFusion™
Product type	Full face	Full face	Full face	Pillows	Full face	Full face, nasal pillows	Nasal pillows	Nasal	Nasal Pillows	Nasal
Cost/warranty	\$80-\$215/One year	\$80-\$215/One year	\$80-\$215/One year	\$59.99/Six months					90 days	90 days
Used for:										
CPAP		X		X	X	X	X	X	X	X
APAP		X			X	X	X	X	X	X
Bilevel		X	X		X	X	X	X	X	X
Interface design	Soft, silicone, rubber, leak-free seal; fits under chin; integral ribbed soft cushion; single-piece mold design; no hard frame; no skin sores	Soft, silicone, rubber, leak-free seal; fits under chin; integral ribbed soft cushion; single-piece mold design; no hard frame; no skin sores	Soft, silicone, rubber, leak-free seal; fits under chin; integral ribbed soft cushion; single-piece mold design; no hard frame; no skin sores		Microfit dial, Mirage dual-wall cushion with spring air technology	Dual-wall mouth cushion, dual-wall nasal pillows with trampoline action	Soft, flexible pillow sleeve; rotating pillow sleeve assembly; tube with rotating elbow and swivel (four interchangeable conditions)	MicroFit dial for personalized fit and comfort; cushion loop for easy removal of cushion; Mirage dual-wall cushion	Pillows cushion: rests gently inside the nostrils, robust seal, individually wrapped, visual indicators provide orientation for proper cushion assembly, simple attachment and removal, rotates for optimal fit; Interface: flexible tube allows numerous tubing positions	Replaceable blue cushion with great seal and comfort, both sizes fit on same frame, easy attachment and removal, softer forehead pad, stability selector optimizes seal and fit with less movement and more stability
Headgear design	Soft foam type; four straps with simple, quick clip; three sizes; easy-grab tabs for simple adjustments; no forehead pads	Soft foam type; four straps with simple, quick clip; three sizes; easy-grab tabs for simple adjustments; no forehead pads	Soft foam type; four straps with simple, quick clip; three sizes; easy-grab tabs for simple adjustments; no forehead pads		Set-and-forget headgear slots	Supportive headgear, set-and-forget headgear clips	Soft and secure headgear design, set-and-forget headgear buckle design	Streamlined forehead support, set-and-forget headgear clips	Blue and black color scheme, provides visual indicator, high-quality, comfortable headgear materials, easy to assemble and adjust	Softer backpanel design; ergonomically designed mushroom-shaped ball-and-socket clips
Sizes available	Petite, XS, S, M, L	Petite, XS, S, M, L	Petite, XS, S, M, L	Regular, S	XS, S, M, L	S, L	S, M, L	S, M, L, L-wide, XL	One size with petite, S, M, L pillows cushions	S, M, FitPack™ (S + M), DuoPack™ (Small + S cushion) or (Med + M cushion)
Aids for patient fitting	Gauge for sizing	Gauge for sizing	Gauge for sizing	Guide	Quick-fitting guide, user guide	Quick-fitting guide, user guide	Quick-fitting guide, user guide	User guide	Instruction manual, fitting guide, video clips on website, patient/clinician DVD	Instruction manual, fitting guide, video clips on website, patient/clinician DVD
Pressure range (cm H <sub>2</sub> O)	3 to 40	3 to 40	3 to 40						Supports up to 25; bench tests up to 40	Supports up to 25; bench tests up to 40
Connection ports	Four different types; color-coded green	Two easily detachable types; color-coded blue	One easily detachable type with 22 mm ID; color-coded yellow						Exhalation port, tubing connector	Exhalation port, tubing connector
Special features:										
Built-in air vent		X	X		X	X				
Latex free	X	X	X		X	X	X	X	X	X
360-degree elbow rotation	X	X	X	X				X	X	X
Replacement parts available	X	X	X	X	X	X	X	X	X	X
Maintenance/cleaning	Reusable, multi-patient, multi-use; safe in dishwashers, liquid chemicals, hot-water pasteurization, steam autoclaving, hot water and soap, and boiling water. Clean assembled or simply pull swivel port off.	Reusable, multi-patient, multi-use; safe in dishwashers, liquid chemicals, hot-water pasteurization, steam autoclaving, hot water and soap, and boiling water. Clean assembled or simply pull swivel port off.	Reusable, multi-patient, multi-use; safe in dishwashers, liquid chemicals, hot-water pasteurization, steam autoclaving, hot water and soap, and boiling water. Clean assembled or simply pull swivel port off.		Mask care DVD	Mask care DVD			Pillows cushions, nasal interface, and tubing should be cleaned daily. Headgear and chin support band should be cleaned weekly. Hand wash mask in warm water with mild soap or detergent. Rinse thoroughly, pat with a paper towel, and air dry completely before use. Inspect all parts and replace mask if cushion becomes hardened or if any parts become damaged.	Comfort Series masks all can be cleaned in the same manner. Wash mask in warm water with mild soap and air dry; no need to disassemble the mask. Wash face thoroughly before using mask. Inspect mask and replace if cushion becomes hardened or any parts become damaged. Even by following these tips, the natural oils in your face will interact with the mask, and over time, the mask will lose its seal.
Other features	Green swivel for use with traditional two-limb vents in noninvasive ventilation	Blue swivel for use with CPAP/bilevel blowers	Yellow swivel for use with hospital vents with circuits that have CO <sub>2</sub> vent ports		Travel and storage bag	Travel and storage bag	Venting angled downward in a direction aligned with natural breath; vent hole design disperses air quietly away from patient; unobstructed field of view	Travel and storage bag	Not necessary to disconnect headgear and support band for daily use and cleaning.	Patients should be aware of the mask replacement benefits under their health care plan. If a plan does not meet their mask replacement needs, advise them to talk to their home health care provider.