

cap-ONE Information





# Optin moni sedation

# Optimal respiratory monitoring during sedation for all patients



cap-ONE mask fits different face shapes and sizes

# Patient benefits from capnography monitoring as recommended by ASA and APSF Guidelines

Currently clinical guidelines, including those of the American Society of Anesthesiologists (ASA) and Anesthesia Patient Safety Foundation (APSF), recommend capnography as one of the most reliable non-invasive methods to continuously monitor and assess the adequacy of the patient's respiratory condition during procedural sedation and analgesia.<sup>1,2</sup> Favorable benefits to patient's safety which may be associated with using capnography have also been shown.<sup>3</sup> Capnography is becoming more widely adopted as a means to detect respiratory depression and avoid serious complications in all care levels including ER, OR, ICU and recovering room.

### cap-ONE mask enhances patient safety

cap-ONE mask is an oxygen mask with integrated cap-ONE mainstream capnometer sensor (TG-980P, Nihon Kohden). It can measure end-tidal carbon dioxide (ETCO<sub>2</sub>) while supplying oxygen thanks to a unique design which catches the exhaled gas from the nose and mouth without interference from the oxygen supply.



#### Efficient oxygen supply while measuring ETCO2

cap-ONE mask has a unique structure designed to measure ETCO<sub>2</sub> while supplying oxygen. This structure keeps oxygen concentration inside the mask consistent and stable.<sup>4</sup>



## Performance of cap-ONE mask in measuring ETCO<sub>2</sub> and supplying oxygen

Accurate ETCO<sub>2</sub> monitoring at high oxygen flow

The accuracy of non-invasive  $CO_2$  monitoring can be influenced by several factors including oxygen flow rate, tidal volume and measurement site (oral or nasal). The performance of cap-ONE mask to measure ETCO<sub>2</sub> during oxygen administration has been evaluated using a breathing simulator (ASL5000, IngMar Medical, USA).



Simulation evaluation of CO<sub>2</sub> measurement performance of cap-ONE mask As shown in the graphs above, relatively high quality capnogram was obtained by cap-ONE mask at high flow oxygen (6 L/min) in both nasal and oral simulation evaluation (tidal volume 500 ml, RR 12/min).

#### Efficient oxygenation with cap-ONE mask

The efficacy of cap-ONE mask was also evaluated using the same simulator. cap-ONE mask provided  $FiO_2$  of about 40% at oxygen flow of 2 L/min. The cap-ONE mask  $FiO_2$  was comparable to  $FiO_2$  of conventional nasal oxygen cannula and oxygen mask.<sup>5</sup>

#### cap-ONE mask suits all face shapes

A 3-D digital scan (Kinect, Microsoft, WA) was used to measure the facial features of individuals of different ages, gender and ethnicities including Asian, Hispanic, Caucasian and African American. Next, we confirmed whether gaps between the cap-ONE mask and different parts of the face such as nose, chin, and cheek are sufficiently minimal so that the mask can accurately measure  $CO_2$  and supply oxygen for different face shapes.

Oxygen flow [L/min]	cap-ONE mask FiO₂ [%]	Nasal oxygen cannula FiO₂ [%]	Oxygen mask FiO₂ [%]
2	40	28	
3	-	32	
4	45	36	
5	-	40	40
6	50	44	40
7	-		50
8	55		60



### cap-ONE mask product line



#### References

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