

# TOSCA 500 system



Control two vital functions  
–  $p\text{CO}_2$  plus  $\text{SpO}_2$  –  
with one simple method

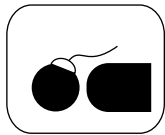
# Maximum safety – optimum comfort

TOSCA is the first system to allow the monitoring of ventilation and oxygenation through a single sensor. TOSCA provides real-time results continuously and non-invasively for optimum patients care.

TOSCA is designed to monitor non-invasively ventilation and oxygenation of patients in various clinical situations. Knowing the values of critical parameters in real time enhances efficiency and effectiveness of treatment and care. It also assists in maximizing patients safety. TOSCA uses a convenient clip to attach the sensor to the ear, providing optimum comfort to the patient during monitoring.



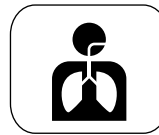
# Usage in various clinical situations



## Non-invasive ventilation

"During non-invasive ventilation with a bilevel-positive-airway-pressure (BiPAP) nose mask, continuous monitoring with a TOSCA sensor, applied to the ear lobe, delivers vital information about the patient's  $p\text{CO}_2$  and oxygenation."

Case report, PD Dr K. E. Bloch, Pneumology, University Hospital Zürich, Switzerland.



## Bronchoscopy

"In this study we could demonstrate that in 88.6 % of the patients an accurate control of ventilation is possible by non-invasive transcutaneous measurement of  $\text{CO}_2$  and  $\text{O}_2$  saturation by pulse oximetry through a heated ear-lobe sensor. This result is based on the excellent correlation of arterial and transcutaneous  $\text{CO}_2$  values as well as the sufficient depiction of  $\text{CO}_2$  changes during the examination under clinical conditions."

C. Männle, F. Herth, H. Becker, K. Wiedemann. 50. Deutscher Anästhesiekongress April 9-12, 2003, München P 405.5 (Poster).



## Jet ventilation

"Our study confirms that HFJV may assure an effective  $\text{CO}_2$  elimination during rigid bronchoscopy and demonstrates that the TOSCA system allows a reliable estimation of ventilation efficiency, with increased sensitivity during  $p\text{CO}_2$  changes with the benefit of avoiding hypercapnia."

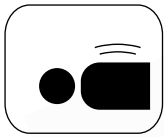
T. Principi, S. Pantanetti, D. Elisei, D. Strovegli, S. Gasparini, P. Pelaia. Critical Care 2003, 7 (Suppl 2): P159 (DOI 10.1186/cc2048) (Poster).



## Intensive care

"Our results indicate that the combination of  $\text{tcpCO}_2$  with  $\text{SpO}_2$  sensors at the ear lobe can reduce the use of arterial catheter during monitoring of patients with acute respiratory failure. The correlation with arterial values is adequate and in this preliminary study we confirm the possibility to avoid the use of invasive monitoring of blood gas in this group of patients."

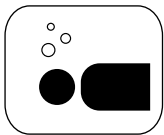
T. Principi, D. Elisei, et al. Anaesthesia, Pain, Intensive Care and Emergency Medicine (APICE) 2002; 15-19 November; Trieste, 2002:139 (Poster)



## Pneumonology

"TOSCA accurately estimates arterial oxygen saturation, carbon dioxide tension and its changes. The novel heated ear-lobe sensor has a shorter response time to detect rapid  $\text{SpO}_2$  variations compared to pulse oximeters with finger sensors. Our data suggest that TOSCA is a valuable respiratory monitoring technique for application in critical care and sleep medicine."

O. Senn, C. F. Clarenbach, V. Kaplan, M. Maggiorini, K. E. Bloch; ATS, Seattle, May 23, 2003 (Poster).



## Anesthesia

"The new combined Tosca sensor is accurate for monitoring  $p\text{CO}_2(\text{a})$  and  $\text{SpO}_2$  at the ear lobe during general anesthesia under standard conditions. These findings should be confirmed, however, during one-lung ventilation and in awake patients with spontaneous respiration."

J. P. Gardaz, M. Burion, P. Frascarolo, M. Tucci, Dr Spahn  
Euroanaesthesia 2002, Nice, France, April 6-9, 2002 (Poster)  
(A-155).

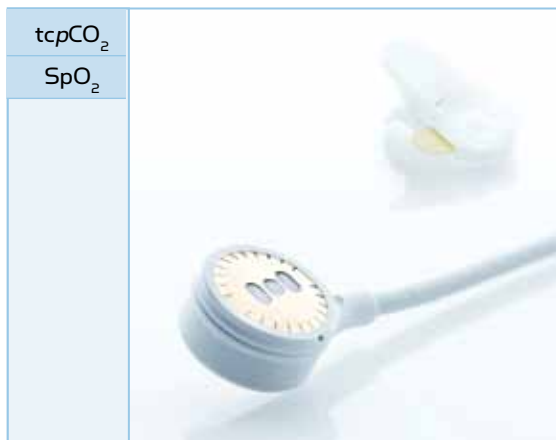


# How it works

The TOSCA sensor is generations ahead in its unique design. It comprises the elements of a transcutaneous  $p\text{CO}_2$  sensor and an optical Masimo SET® pulse oximetry sensor. The sensor is heated to a constant temperature of 42 °C and applied to a central site, the ear lobe. This yields an optimum arterialization of the tissues, allowing a fast response to changes of  $p\text{CO}_2$  and  $\text{SpO}_2$ .

The ready-to-use concept of the TOSCA system ensures reliable measurements at any time. The user-friendly design makes the unit easy to use and suitable for application in all clinical situations. Real-time trending of the measured parameters is displayed, ensuring fast and immediate clinical intervention to critical changes.

The TOSCA system employs various communication protocols to interface with any patient monitoring system and a PC. The integrated patient data memory allows the downloading of the measured patient results to a PC for detailed analysis, e.g. sleep investigation.



- Real-time monitoring provides a complete picture of the
- critical parameters of ventilation and oxygenation
- Option to connect to PCs and other patient monitoring systems
- Reduces requirement for arterial blood sampling
- Option to download patient data to a PC for analysis

# ACUTE CARE TESTING