

Questionnaire:

TRACHEOSTOMY PROCEDURES IN INTENSIVE CARE UNIT: A  
WORLDWIDE SURVEY

1) In which country do you practice? (Add your city and the name of your Intensive Care Unit)

2) What is your main specialty area?

- Intensive Care
- Anesthesiology
- Pulmonology
- Cardiology
- Neurology
- Surgery
- Other

3) What type of Institution is your hospital:

- Public hospital
- Private hospital
- University hospital

4) What is the type of Intensive Care that you work in (tick all that apply)?

- Neurological ICU
- Medical ICU
- Surgical ICU
- Cardiac ICU
- Mixed ICU

5) What is the number of beds in your ICU:

- $\leq 5$
- 6-10
- 11-15
- 16-20
- $\geq 21$

6) What is the approximate number of patients/year admitted to your ICU:

- $\leq 300$
- 301- 600
- 601- 999
- $\geq 1000$

7) What is the number of tracheostomies that were performed in your ICU in 2012?

8) What number tracheostomies were performed in your ICU in the 2012 using the following techniques:

- Ciaglia single dilator
- Ciaglia multiple dilator
- Guide wire dilating forceps – Griggs
- Rotational dilation technique (PercuTwist)
- Balloon dilation technique (Ciaglia Blue-dolphin)
- Translaryngeal tracheostomy
- Surgical tracheostomy
- Other (specify)

9) Do you obtain an informed written consent for tracheostomy?

- Yes
- No

10) Where are surgical tracheostomies usually performed:

- ICU
- Operation room
- Other (Specify)

11) How many ICU patients had their tracheostomies performed in the operating room in the 2012?

12) Who most commonly performs the tracheostomy procedure in ICU?

- One or more ICU physicians 1
- Intensivists with ENT specialist assistance 2
- Intensivists with the assistance of a general surgeon 3
- Intensivists with the assistance of other surgical specialists 4
- Anesthesiologists 5
- An ENT specialist 6
- A General surgeon 7
- Another surgeon (specify) 8

13) Who performs the surgical tracheostomy in operation room?

- Anesthesiologists 1
- ENT specialists 2
- Intensivists 3
- General surgeon 4
- Thoracic surgeon 5
- Plastic surgeon 6
- Maxillofacial surgeon 7
- Trauma surgeon 8
- Other (specify) 9

14) Why do you choose surgical tracheostomy?

- Insufficient expertise in Percutaneous Tracheostomy
- Surgical approach reserved for patients with predicted difficult percutaneous tracheostomy
- Surgical approach reserved for patients with predicted need for prolonged tracheostomy

Other reason (please specify):

15) The most frequent indication for tracheostomy in your ICU is: (single choice)

- Prolonged mechanical ventilation<sup>\*</sup>
- Difficult/prolonged weaning<sup>+</sup>
- Neurocritical disease (medical, surgical or trauma)
- Inability to airway protection
- Inability to cough and swallow
- Improvement of patient respiratory mechanics
- Copious secretions

<sup>\*</sup> Prolonged mechanical ventilation has been defined as a period of 21 days or more.

<sup>+</sup> Difficult/prolonged weaning has been defined as weaning requiring  $\geq 3$  spontaneous breathing trials or failure of  $\geq 3$  weaning attempts or requiring  $> 7$  days after the first attempt.

16) The most frequent timing for tracheostomy in your ICU is:  
(timing is referred to days post tracheal intubation)

- <7 days
- 7-15 days
- 15-21 days
- 21-30 days
- >30 days

17) Mechanical ventilation mostly used during tracheostomy in your ICU:

- Volume controlled ventilation
- Pressure controlled ventilation
- Minute volume ventilation/ Adaptive support ventilation
- Bi-level airway pressure
- Other (specify)

18) A sedation-analgesia-neuromuscular blocking protocol is provided for tracheostomy in your ICU?

- Yes
- No

19) Drugs used for sedation during percutaneous tracheostomy procedures: (multiple choices)

- Diazepam
- Lorazepam

- Midazolam
- Propofol
- Other sedative medication (specify)

20) Drugs used for analgesia during percutaneous tracheostomy procedures:

- Alfentanil
- Fentanyl
- Morphine
- Remifentanyl
- Sufentanil
- Other analgesic medication (specify)

21) Drugs used for neuromuscular blockade during percutaneous tracheostomy procedures:

- Atracurium
- Cis-atracurium
- Rocuronium
- Succinylcholine
- Vecuronium
- Other neuromuscular blocking (specify)

22) Is local anesthesia provided for percutaneous tracheostomy procedures?

- Yes
- No

23) Is fiber-optic bronchoscope used during percutaneous tracheostomy procedures?

- Yes
- No

24) Bronchoscopy during percutaneous tracheostomy is performed:

- through the ETT in place in the patient
- through a replacement that is larger ETT than the one in place in the patient
- through a replacement that is smaller ETT than the one in place in the patient
- through a laryngeal mask airway

25) The diameter of the fiber-optic bronchoscope used during percutaneous tracheostomy is:

- 3-4 mm
- 5 mm
- 6 mm
- 7 mm
- $\geq 8$  mm

26) The fiber-optic bronchoscope that is used is:

- chosen according the availability of bronchoscopes in the ICU
- chosen according the size of ETT in place in the patient
- In all the cases the bronchoscope with the smallest diameter is chosen
- The Bronchoscope is chosen randomly without any assessment

27) Is ultrasound (US) evaluation of neck tissue performed for tracheostomy:

- We use neck US in all procedures in order to guide needles, dilators, and cannula
- We use US only if we suspect the presence of at-risk structure
- In case of at-risk structure, we use neck ultrasound to guide needles, dilators and cannula

28) Which tracheostomy tube do you use?

- Cuffed tube
- Cuffed tube with inner cannula
- Both
- Other (Specify)

29) The most frequent complication during the tracheostomy procedure in your ICU is:

- Puncture of posterior tracheal wall
- Puncture of tracheal tube
- Accidental extubation during the procedure
- Difficult placement of the cannula
- Tracheal stoma not adequate
- False passage of seldinger and cannula
- Necessity to convert a procedure into another
- Bleeding controlled by compression
- Bleeding requiring exploration
- Desaturation (SaO<sub>2</sub> < 90%)
- Pneumothorax
- Subcutaneous emphysema
- Other (Specify)

30) The most frequent early (in the first 24 hours) complication of the tracheostomy procedure in your ICU is:

- Puncture of posterior tracheal wall
- Puncture of tracheal tube
- Accidental extubation during the procedure
- Difficult placement of the cannula
- Tracheal stoma not adequate
- False passage of seldinger and cannula
- Necessity to convert a procedure into another
- Bleeding controlled by compression

- Bleeding requiring exploration
- Desaturation (SaO<sub>2</sub> < 90%)
- Pneumothorax
- Subcutaneous emphysema
- Other (Specify)

31) The most frequent late (from the 2<sup>nd</sup> day to the discharge from the ICU) complication of the tracheostomy procedure in your ICU is:

- Bleeding controlled by compression
- Bleeding requiring exploration
- Stoma infections/inflammations\*
- Cannula extraction/malpositioning
- Other (Specify)

\* Stoma infections/inflammations has been defined as sign of inflammation and purulent discharge of the stoma