Tracheostomy Risks

A collaborative overview of the risk factors in veterinary and human-centred critical care nursing

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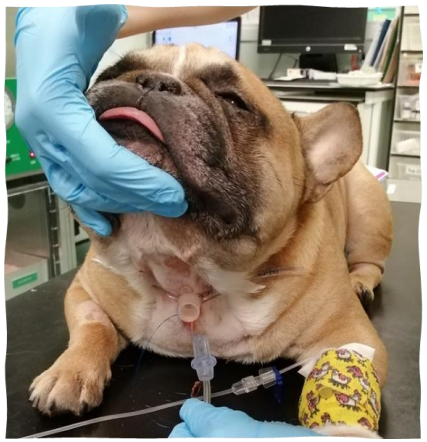
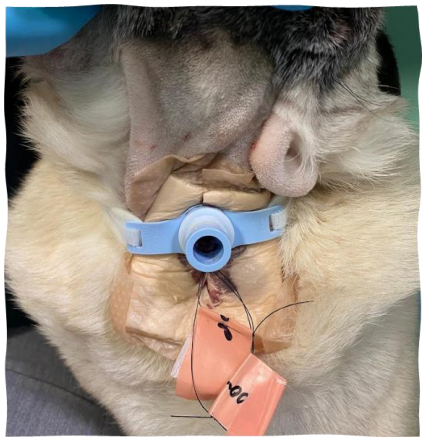
What we will cover

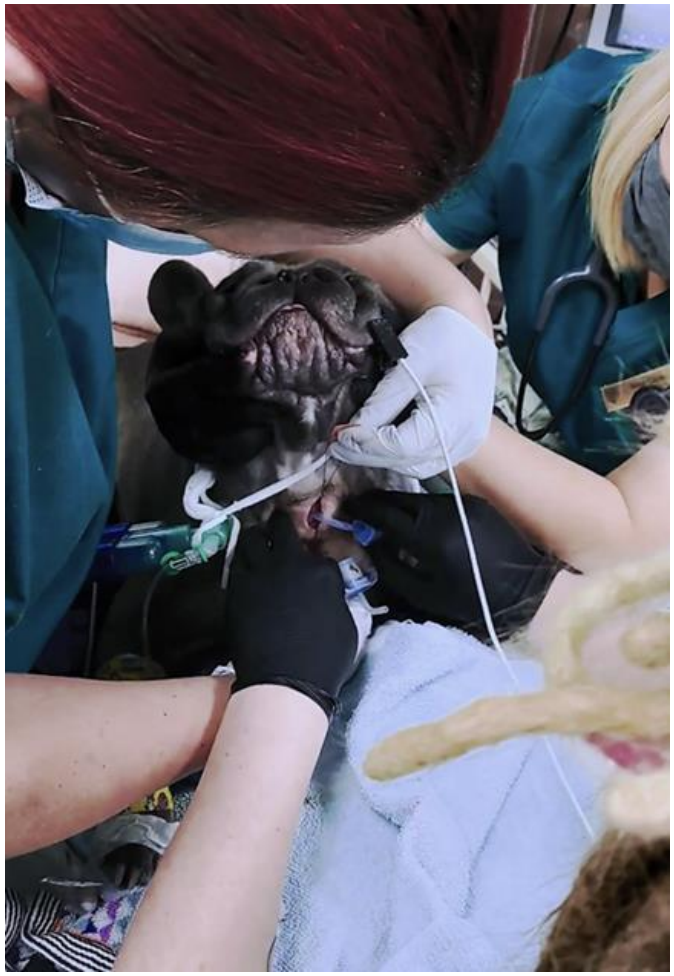
- **Common reasons for tracheostomy in veterinary patients**
- **Veterinary complication rates**
- **Human patient complication rates**
- **Safety initiatives within human medicine**
- **Recommendations for the veterinary sector**

Common reasons we see tracheostomy in veterinary patients

- Laryngeal paralysis
- Obstructing foreign bodies
- Inflammation
- Tracheal collapse
- Laryngeal trauma
- Brachycephalic airway syndrome







75% French Bulldogs and 64% Pugs have some form of moderate to severe stenotic nares and Brachycephalic Obstructive Airway syndrome. (Liu et al, 2017)

Veterinary Complications

- **Post op complication rate 83.3%**
- **Obstruction 32/42**
- **Cough 25/42**
- **Tube dislodgement 16/42**

PAPER

Outcome of temporary tracheostomy tube-placement following surgery for brachycephalic obstructive airway syndrome in 42 dogs

M. B. Stordalen ✉, F. Silveira, J. V. H. Fenner, J. L. Demetriou

First published: 16 March 2020 | https://doi.org/10.1111/jsap.13127 | Citations: 9

Veterinary Complications

- 86% complication rate
- 12/15 have major post op complications

J Small Anim Pract. 2012 Feb;53(2):108-14. doi: 10.1111/j.1748-5827.2011.01167.x.

Complications associated with temporary tracheostomy tubes in 42 dogs (1998 to 2007)

I Nicholson [1], S Baines

Affiliations + expand

PMID: 22283793 DOI: 10.1111/j.1748-5827.2011.01167.x

ORIGINAL ARTICLE - CLINICAL

Long-term outcome of permanent tracheostomy in 15 dogs with severe laryngeal collapse secondary to brachycephalic airway obstructive syndrome

Matteo Gobbetti DVM, PhD, Stefano Romussi DVM, PhD, Paolo Buracco DVM, Diplomate ECVS, Valerio Bronzo DAS, Samuele Gatti DVM, Matteo Cantatore DVM, PhD, Diplomate ECVS MRCVS

First published: 12 June 2018 | https://doi.org/10.1111/vsu.12903 | Citations: 12

Human patient complications

- Major haemorrhage up to 7% in surgical tracheostomies / 0% in percutaneous
- Accidental decannulation up to 15% in surgical / 4% in percutaneous
- Pneumothorax 4% in both surgical and percutaneous
- False placement 0% in surgical / 4% in percutaneous (Durbin, 2005)
- 40% incidence of bleeding in 50 patients with percutaneous tracheostomy insertion (Kruit et al., 2018)
- Self-limiting in majority of patients

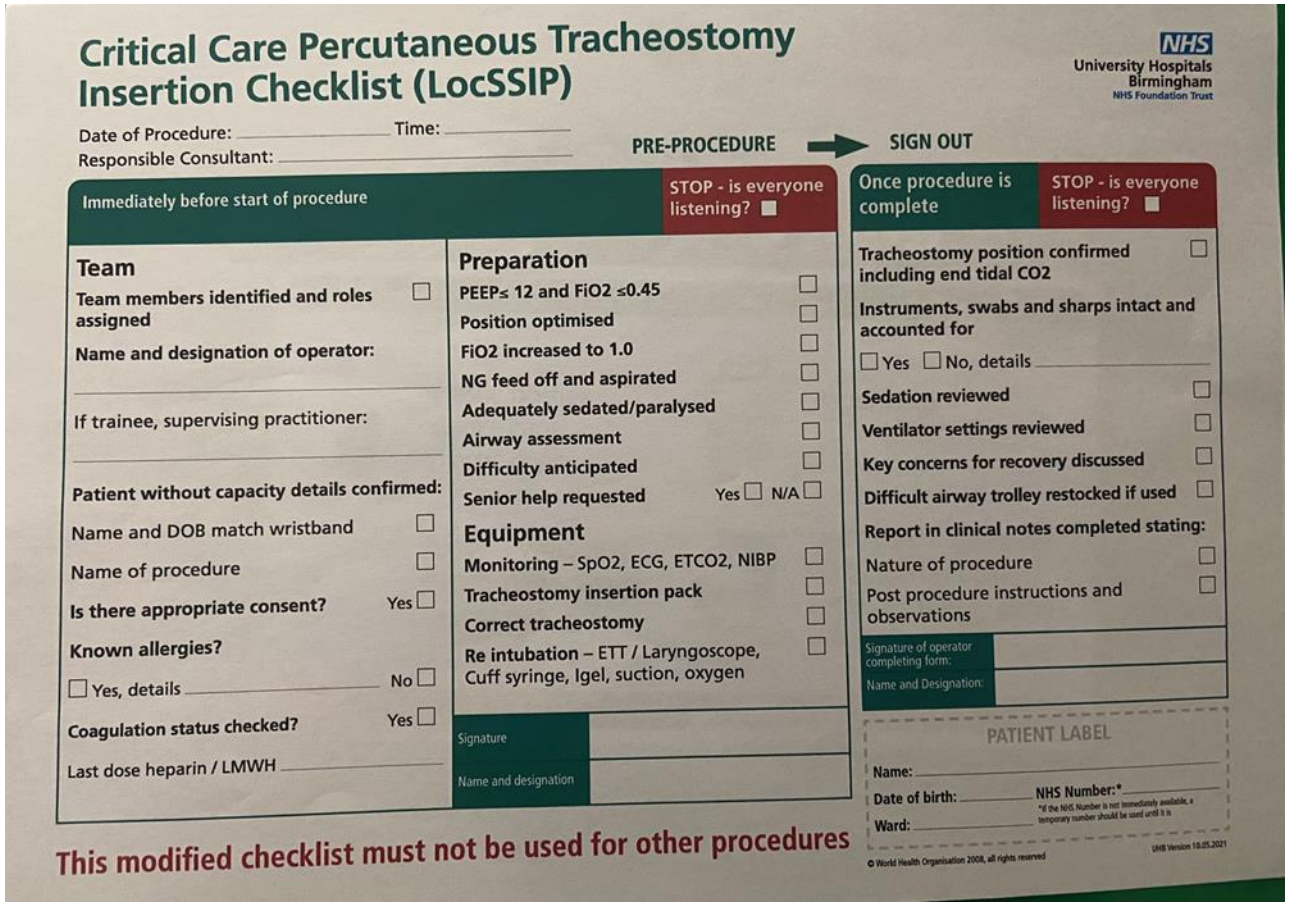
Human Aspiration Risk

- 87 % of patients provided with oral intake reported to aspirate
- Majority of those are silently aspirating (Swallow Disorder Foundation, 2023)
- Study 272 new tracheostomies found 59% aspirated on a least one consistency when undergoing swallow assessment and 81% of these were silent aspirations (Marvin and Thibeault, 2021)

Safety initiatives within Human Centred medicine

LocSSIPs

- National Safety Standards for Invasive Procedures (NatSSIPs)
- Local Safety Standards for Invasive procedures (LocSSIPs)



Critical Care Percutaneous Tracheostomy Insertion Checklist (LocSSIP)

NHS University Hospitals Birmingham NHS Foundation Trust

Date of Procedure: _____ Time: _____

Responsible Consultant: _____

PRE-PROCEDURE → SIGN OUT

Immediately before start of procedure — STOP - is everyone listening? ☐

Team

- Team members identified and roles assigned ☐
- Name and designation of operator: _____
- If trainee, supervising practitioner: _____
- **Patient without capacity details confirmed:**
- Name and DOB match wristband ☐
- Name of procedure ☐
- **Is there appropriate consent?** Yes ☐
- **Known allergies?**
- ☐ Yes, details _____ No ☐
- **Coagulation status checked?** Yes ☐
- Last dose heparin / LMWH _____

Preparation

- PEEP≤ 12 and FiO2 ≤0.45 ☐
- Position optimised ☐
- FiO2 increased to 1.0 ☐
- NG feed off and aspirated ☐
- Adequately sedated/paralysed ☐
- Airway assessment ☐
- Difficulty anticipated ☐
- Senior help requested Yes ☐ N/A ☐

Equipment

- Monitoring – SpO2, ECG, ETCO2, NIBP ☐
- Tracheostomy insertion pack ☐
- Correct tracheostomy ☐
- Re intubation – ETT / Laryngoscope, Cuff syringe, Igel, suction, oxygen ☐

Signature _____

Name and designation _____

Once procedure is complete — STOP - is everyone listening? ☐

- Tracheostomy position confirmed including end tidal CO2 ☐
- Instruments, swabs and sharps intact and accounted for
- ☐ Yes ☐ No, details _____
- Sedation reviewed ☐
- Ventilator settings reviewed ☐
- Key concerns for recovery discussed ☐
- Difficult airway trolley restocked if used ☐
- Report in clinical notes completed stating:
- Nature of procedure ☐
- Post procedure instructions and observations ☐

Signature of operator completing form: _____

Name and Designation: _____

PATIENT LABEL

Name: _____

Date of birth: _____ NHS Number:* _____

*If the NHS Number is not immediately available, a temporary number should be used until it is

Ward: _____

This modified checklist must not be used for other procedures

UHB Version 10.05.2021

LocSSIPs

- High level of safety principles (Nathwani and Rahman, 2021)
- Checklist / set of instructions for whole team (sign in, pre procedure, post procedure / sign out)
- Identifies patient, roles of team members and any anticipation of problems
- Vocalises ‘Plan B’ if difficulty arises
- Used for invasive procedures: RSI, insertion of CVC, A lines and insertion of tracheostomy
- Recently updated to include insertion of NGT

LocSSIPs

- Aims to improve safety and reduce ‘never events’
- Localised, specific and detailed standards
- Created by members of the MDT alongside education of human factors and team working (Roberts and Wordsworth, 2022)
- Study of 79 trusts to evaluate if LocSSIPs used; six stated not in use (six years after implementation in 2015)
- 23 ‘never events’ occurred at Trusts that did not use LocSSIPs between April 2015 – March 2020 (Roberts and Wordsworth, 2022)

The Global Tracheostomy Collaborative

- MDT care
- Standardisation of care
- Education for Nurses and Doctors
  (Simulation sessions)
- Involving patients / families
- Enter data for performance tracking / benchmark (GTC, 2023

The UK National Tracheostomy Safety Project

- working alongside GTC
- Resources for basic care / emergency care
- Bedhead signs
- Emergency algorithms (National Tracheostomy Safety Project, 2023)

SALT Review

Speech and Language Therapy with swallow assessment

- Assessment of dysphagia caused by intubation trauma, prolonged intubation and presence of tracheostomy
- Fibreoptic Endoscopic Evaluation of Swallow (FEES)

SALT involvement is significant from a safety, quality and organisational efficiency perspective (Intensive Care Society, 2020)

Recommendations for Veterinary Patients

- Introduce checklist for placement and management
- Bedside safety checklists
- More hands-on training to allow for veterinary nurses to feel more confident in emergencies.
- Standardised care package for all veterinary patients. Using the available human models.

Thank you for listening

Contact the veterinary region by email

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