

The COVID-19 pandemic has demanded rapid adaptations to new circumstances for the health care sector. New routines have been introduced to handle the increasing pressure on the hospitals, and to protect both health care professionals (HPCs) and patients against viral transmission. Many of these new routines may become common practice in future health care. Patients with tracheostomy or laryngectomy are at high risk of both contracting the virus and developing the more severe complications of COVID-19. In addition, due to the open airways, these patients can easily transmit the virus, which require special considerations by HPCs caring for them. Otolaryngologists and head and neck surgeons are also of particular high risk of COVID-19 infection due to handling

the upper respiratory tracts where the largest viral voids reside. The risk is particularly high during surgeries or procedures when aerosols can be generated.

In the recent months, many guidelines for HPCs working with head and neck patients in the COVID-19 pandemic have been released. The guidelines cover subjects such as personal protective equipment (PPE), procedures to reduce the generation of aerosols and viral transmission, considerations for timing of tracheostomy and measures to reduce non-critical hospital admissions. We have summarized a selection of guidelines from different countries concerning both tracheostomy and laryngectomy, as well as otolaryngology in general.

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## Commentary on the management of total laryngectomy patients during the COVID-19 pandemic

**Hennessy M, Bann DV, Patel VA, Saadi R, Kreml GA, Deschler DG, Goyal N, Choi KY.** *Head Neck.* 2020 Jun;42(6):1137-1143.

**Responsible institution:** Joint publication from 3 university/hospital departments of otolaryngology – H&N surgery in the USA (Pennsylvania State University, University of Oklahoma Health Sciences Center, Massachusetts Eye and Ear Infirmary)

This is a guideline aiming at the wider audience of health care professionals (HPCs) that may encounter total laryngectomy patients during the COVID-19 pandemic, as well as the patients themselves. The article provides a thorough overview of the special consideration of COVID-19 for total laryngectomy patients and guidelines on how to provide the best protection for patients and HPCs. The guideline covers e.g. the most appropriate personal protective equipment (PPE) for HPCs to use when handling laryngectomy patients and measures to prevent the spread of aerosols from patients. It also provides a flowchart guiding clinicians to the most suitable approach for handling tracheoesophageal voice prostheses complications. The article further provides instructions for patients on how to best protect themselves and others against COVID-19, both in the clinic and in the community.

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## COVID-19 Tracheostomy Guidance

**Jacob T et al.,** April 2020

**Responsible institution:** ENT UK (Professional membership body representing Ear, Nose and Throat surgery, as well as its related specialties, in the United Kingdom)

This is a guideline for head and neck surgeons on how to perform open tracheostomy on patients with suspected or confirmed COVID-19 to protect themselves and other hospital staff from aerosols. The guide covers all steps of the tracheostomy, from the planning stages to the post-operative procedures.

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## Managing head and neck cancer patients with tracheostomy or laryngectomy during the COVID-19 pandemic

**Maxwell P**, Kligerman MP, Vukkadala N, Tsang RKY, Sunwoo JB, Holsinger FC, Chan JYK, Damrose EJ, Kearney A, Starmer HM. *Head Neck*. 2020 Jun;42(6):1209-1213.

**Responsible institutions:** Stanford University (USA), The Chinese University of Hong Kong (Hong Kong) and University of Hong Kong (Hong Kong)

This article summarizes recommendations for minimizing the risk of aerosol generation from laryngectomy and tracheostomy patients. The recommendations cover topics such as closed-circuit ventilation, cuffed tracheostomy tubes, HMEs, appropriate personal protective equipment, hand hygiene, and minimal manipulation of tracheostomy tubes.

## Safe management of laryngectomized patients during the COVID-19 pandemic

**Parrinello G**, Missale F, Sampieri C, Luigi A, Carobbio C, Peretti. *Oral Oncol*. 2020 Apr 24;107:104742.

**Responsible institutions:** Department of Surgical Sciences and Integrated Diagnostics, University of Genoa and Department of Molecular and Translational Medicine, University of Brescia, Italy.

This Editorial discusses the risk of COVID-19 in the context of laryngectomy and tracheostomy. Different measures to protect laryngectomy and tracheostomy patients, and HCPs working with them, are suggested. For instance, the authors recommend the regular use of both a surgical face mask and an HME-F (Provox Micron HME) for all laryngectomy patients.

## NVIC tracheostomy protocol COVID-19

**Fikkers B**, April 2020

**Responsible institution:** NVIC (Dutch Society of Intensive Care Medicine)

**Weblink:** <https://nvic.nl/sites/nvic.nl/files/NVIC%20tracheotomieprotocol2020%20definitief%20april2020%20versie2.0.pdf> [In Dutch]

This is a complement to the existing NVIC tracheostomy protocol specifically adapted to protect HCPs in the COVID-19 crisis. The protocol was compiled based on recommendations from the Dutch ENT association, international scientific associations and scientific literature.



## Tracheostomy Management during the COVID-19 Pandemic

**Goldman RA**, Swendseid B, Chan JYK, Lewandowski M, Adams J, Purcell M, Cognetti DM. *Otolaryngol Head Neck Surg*. 2020 Apr 28:194599820923632.

**Responsible institution:** American Academy of Otolaryngology-Head and Neck Surgery Foundation

This commentary, aimed at health care institutions, provides guidelines for the care of open airways of both tracheostomy and laryngectomy patients. The authors recommend that the guidelines are followed for all tracheostomy and laryngectomy patients, including those without confirmed or suspected COVID-19. The article describes different measures to protect health care workers by reducing the spread of droplets, including improvised methods to create closed systems using supplies commonly available in hospital settings.

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## Multidisciplinary guidance for safe tracheostomy care during the COVID-19 pandemic: the NHS National Patient Safety Improvement Programme (NatPatSIP)

**McGrath BA**, Ashby N, Birchall M, Dean P, Doherty C, Ferguson K, Gimblett J, Grocott M, Jacob T, Kerawala C, Macnaughton P, Magennis P, Moonesinghe R, Twose P, Wallace S, Higgs A. Anaesthesia. 2020 May 12.

**Responsible institution:** Consensus guideline developed for the UK National Health Services (NHS) by expert opinions from different UK stakeholder organizations involved in tracheostomy care

This is a guideline for tracheostomy care developed for the NHS to reduce the risk of infections of hospital staff during the COVID-19 crisis. An important incentive was the concern that, due to the high pressure on the health care system, management of tracheostomy patients would be carried out by staff without prior experience. Topics covered by this guideline include: infectivity of patients with respect to tracheostomy indications and timing; aerosol-generating procedures and risks to staff; insertion procedures; and management following tracheostomy.

## NTSP considerations for tracheostomy in the Covid-19 outbreak

**Responsible institution:** UK National Tracheostomy Safety Project (NTSP)

**Weblink:** <https://www.entuk.org/sites/default/files/files/NTSP%20COVID-19%20tracheostomy%20guidance%2020-Mar-2020.pdf>

This guideline is primarily aimed at HCPs within NHS, but should also be applicable in other health care systems. It covers the care of COVID-19 patients with tracheostomy (ventilated and non-ventilated), emergency management, and consideration when performing new tracheostomies. There are also guidelines regarding how to care for existing patients with tracheostomy or laryngectomy.

## Paediatric Tracheostomy and Tracheostomy Long-Term Ventilated Care during the COVID Pandemic

**Doherty C**, Neal R, Wilkinson S, Bateman N, Bruce I, Russell J, BA McGrath BA

**Responsible institution:** Paediatric working party of the UK National Tracheostomy Safety Project (NTSP)

**Weblink:** <http://www.tracheostomy.org.uk/storage/files/NTSP%20Paed%20Tracheostomy%20and%20LTV%20during%20COVID%20FINAL%2008042020.pdf>

This is a guideline specifically developed for HCPs and social workers working with children with tracheostomy or long-term ventilation (LTV) during the COVID-19 pandemic. It was developed to protect staff, patients and the public from the spread of COVID-19. Another aim was to reduce preventable hospital admissions of children with tracheostomy or LTV to maximize available health care resources. The guideline covers recommendations for health care workers concerning PPEs in different situations, measures to reduce aerosols and special care regimes.

There are also guidelines for parents of children

with tracheostomy or LTV on how to reduce the risk of being infected or spreading the virus.



## Procedural Precautions and Personal Protective Equipment During Head and Neck Instrumentation in the COVID-19 Era

Panuganti B A, Pang J, Califano J, Jason Y K Chan J Y K. Head Neck. 2020 Apr 29. Doi: 10.1002/hed.26220.

**Responsible institutions:** University of California-San Diego, USA and The Chinese University of Hong Kong, Hong Kong.

This is a guideline for protection of otolaryngologists during the COVID-19 pandemic. It gives recommendations of the most appropriate PPE and other precautions for specific procedures and settings (COVID-19 testing, airway procedures including tracheostomy, different types of head and neck surgery and outpatient clinic).

## Chirurgische Aspekte zur Tracheostomie bei Covid-19 positiven Patienten (Translated title: Surgical aspects of tracheostomy in Covid-19 positive patients)

Lindemann J, Böhm F, Hoffmann T, Müller A, Jäckel M, Löwenheim H, Guntinas-Lichius O, Deitmer T, Dietz A.

**Responsible institution:** German Society for Otolaryngology, Head and Neck Surgery (DGHNO-KHC) and its working group on laryngology and tracheal diseases

**Weblink:** [https://cdn.hno.org/media/Corona-Ticker/SN\\_Chirurg\\_Aspekte\\_Tracheostomie\\_Covid-19.pdf](https://cdn.hno.org/media/Corona-Ticker/SN_Chirurg_Aspekte_Tracheostomie_Covid-19.pdf)

This is a German guideline with recommendation of how to plan and perform a tracheostomy during the COVID-19 pandemic to prevent viral transmissions.

## The Kelley Circuit: A solution for the management of in-hospital self-ventilating tracheostomy patients, providing humidification and filtration, with closed circuit suctioning.

Kelley J, Gallagher F, Steele A.

**Responsible institution:** The Wellington hospital London, UK

**Weblink:** <http://www.tracheostomy.org.uk/storage/files/The%20Kelley%20Circuit%20For%20Tracheostomy.pdf>

This paper presents initial observations from testing the so-called Kelley Circuit on tracheostomy patients. The Kelley Circuit is a closed suction system for non-ventilated tracheostomy patients developed for protection against viral transmission during the COVID-19 pandemic. It provides both filtration and humidification of the air by incorporating the filter HME (HME-F) ProTrach XtraCare. The system was tested on four patients and results were overall positive; two patients experienced a reduction in mucus and no adverse effects were observed. Clinicians found the system easy to use and experienced reduced anxiety among staff when caring for the patients.



## Recommendations from the CSO-HNS taskforce on performance of tracheotomy during the COVID-19 pandemic

**Sommer DD**, Engels PT, Weitzel EK, Khalili S, Corsten M, Tewfik MA, Fung K, Cote D, Gupta M, Sne N, Brown TFE, Paul J, Kost KM, Witterick IJ. *J Otolaryngol Head Neck Surg.* 2020 Apr 27;49(1):23.

**Responsible institution:** Canadian Society of Otolaryngology - Head & Neck Surgery (CSO-HNS)

This is a review by CSO-HNS that provides recommendations on how to protect HCPs during tracheostomy procedures in the COVID-19 pandemic. For instance, they recommend extended endotracheal intubation as standard care for the entire duration of ventilation. Different guidelines are given for tracheostomy procedures on patients with confirmed positive, confirmed negative or uncertain COVID-19 status.

## Systematic review of international guidelines for tracheostomy in COVID-19 patients

**Chiesa-Estomba CM**, Lechien JR, Calvo-Henríquez C, Fakhry N, Karkos PD, Peer S, Sistiaga-Suarez JA, González-García JA, Cammaroto G, Mayo-Yáñez M, Parente-Arias P, Saussez S, Ayad T. *MedRxiv* 2020 preprint.

**Responsible institutions:** Task Force COVID-19 of the Young-Otolaryngologists of the International Federations of Otorhinolaryngological Societies (YO-IFOS). International authorship by clinicians from Spain, Belgium, Italy, Greece, France, South Africa and Canada.

**Weblink:** <https://www.medrxiv.org/content/10.1101/2020.04.26.20080242v1.full.pdf>

This is a systematic review of 18 international guidelines for tracheostomy in COVID-19 infected patients. The authors present similarities and discrepancies in recommendations from the different guidelines concerning procedures and special considerations related to tracheostomy of COVID 19 patients. Topics covered are e.g. the importance of COVID-19 testing prior to tracheostomy, timing and place of tracheostomy, anesthetic precautions and post-tracheostomy care including the use of HME-Fs.

## Optimizing your telemedicine visit during the COVID-19 pandemic: Practice guidelines for patients with head and neck cancer

**Prasad A**, Brewster R, Newman JG, Rajasekaran K. *Head Neck.* 2020 Jun;42(6):1317-1321.

**Responsible institutions:** Department of Otorhinolaryngology-Head and Neck Surgery, Perelman School of Medicine, University of Pennsylvania and Stanford University School of Medicine, USA.

This is a US guideline on how to perform successful telemedicine visits specifically aimed and head and neck cancer physicians and their patients. It includes advice on e.g. suitable equipment and how the patients should be positioned during the call. It also covers instructions on how to perform online examinations of the oral cavity, oropharynx, larynx and salivary glands.

In addition, the authors provide a handout for patients in preparation of a telemedicine meeting.

