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NEMOCNICE



KARIM



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MOHOU NOVÉ POMŮCKY ZMĚNIT ALGORITMY OBTÍŽNÉHO ZAJIŠTĚNÍ DÝCHACÍCH CEST?

Pavel Michálek

*KARIM 1.LF UK a Všeobecné fakultní nemocnice v
Praze*



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XXXI.
kongres České společnosti
anesteziologie, resuscitace
a intenzivní medicíny

9.-11. října 2025
CLARION CONGRESS HOTEL PRAGUE***
www.esaforum.cz

DEKLARACE O STŘETU ZÁJMU

- Pavel Michálek pracuje/pracoval jako vývojový konzultant pro firmy Intersurgical, CurveAir Ltd.
- PM dostal zdarma pomůcky pro zajištění dýchacích cest, honoráře za přednášky a pokrytí cestovních nákladů od firem Intersurgical (UK, CZ), Medisap (CZ), UE Medical (PRC), Ambu (DEN)





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GUIDELINES PRO PREDIKOVANOU OBTÍŽNOU INTUBACI

DAS ATI technique

OXYGENATE

- Apply HFNO early
- Titrate HFNO from 30–70 L.min⁻¹
- Continue HFNO throughout procedure

TOPICALISE

- Lidocaine 10% spray to oropharynx, tonsillar pillars, base of tongue
- 20 – 30 sprays (during inspiration, over 5 min)
- If nasal route: co-phenylcaine spray
- Test topicalisation atraumatically
- If inadequate, re-apply LA up to maximum dose:
 - Further 5 sprays of lidocaine 10% to tongue base
 - 2 ml lidocaine 2% (x 3) spray above, at and below vocal cords via epidural catheter/working channel of FB or using MAD

- Lidocaine**
- 1 spray (0.1 ml) of 10% = 10 mg
 - 1 ml of 2% = 20 mg
- Co-phenylcaine**
- 2.5 ml = 125 mg lidocaine + 12.5 mg phenylephrine

PERFORM

- Select appropriate tracheal tube
- Patient sitting up
- Ensure operator can readily see patient monitor, infusion pumps and video screen
- Clear secretions
- For ATI:FB
 - Operator positioned facing patient
 - Consider bronchoscope airway if oral route
 - Bevel facing posteriorly
- For ATI:VL
 - Operator positioned behind patient
 - Consider bougie
- Before induction of anaesthesia: two-point check

SEDATE

- Sedate if required
- Remifentanyl TCI (Minto) Ce 1.0–3.0 ng.ml⁻¹
- If second anaesthetist present, consider adding midazolam 0.5–1 mg

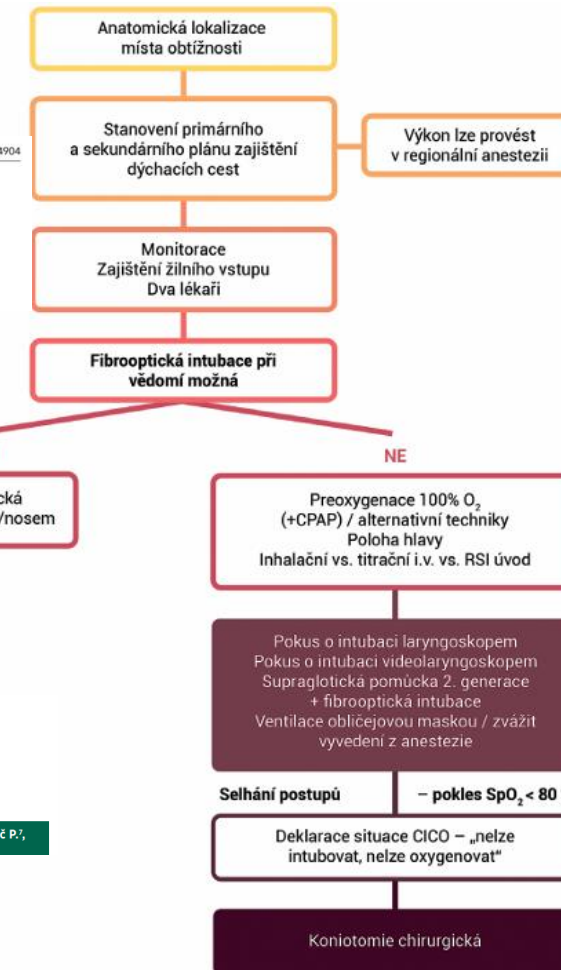
Anaesthesia 2020, 75, 509–528

doi:10.1111/anae.14904

Guidelines

Difficult Airway Society guidelines for awake tracheal intubation (ATI) in adults

I. Ahmad^{1,2}, K. El-Boghdady^{1,2}, R. Bhagath³, I. Hodzovic^{4,5}, A. F. McNarry⁶, F. Mir⁷, E. P. O'Sullivan⁸, A. Patel⁹, M. Stacey¹⁰ and D. Vaughan¹¹



DOPORUČENÝ POSTUP

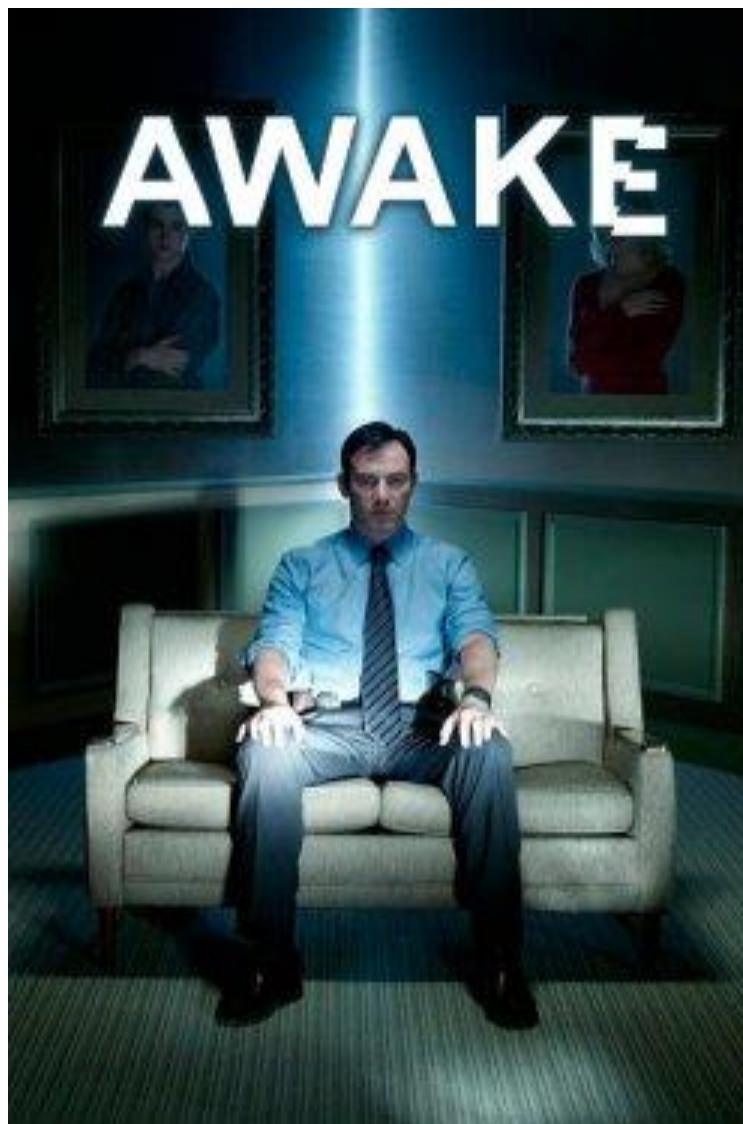
Zajištění obtížných dýchacích cest u dospělých a dětí

Černý V.^{1,4}, Chrobok V.⁴, Klučka J.², Kříkava I.², Michálek P.^{4,5}, Otáhal M.⁴, Škola J.¹, Štourač P.¹, Vymazal T.⁶

Anest intenziv Med. 2019;30:173–186



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Anaesthesia 2016, 71, 3-16

Editorial

Editorial

Time to abandon awake fiberoptic intubation?

- Relativně vysoká četnost selhání (15 neúspěšných případů v NAP4)
- Relativně dlouhé trvání AFOI
- Dlouhý trénink, pomalá výuková křivka

• *(Ahmad I, Bailie CR)*



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VIDEOSTYLETY

- Rigidní nebo semirigidní optické stylety, na něž je nasazena endotracheální rourka
- Umožní intubaci ústy i při významně sníženém otevření úst, možné použití retromolární techniky
- Semirigidní stylety (Trachway) umožní i nazotracheální intubaci

Review

Optical Devices in Tracheal Intubation—State of the Art in 2020

Jan Matek ^{1,2}, Frantisek Kolek ³, Olga Klementova ⁴, Pavel Michalek ^{5,6}  and Tomas Vymazal ^{3,*}

in 2020. *Diagnostics* **2021**, *11*, 575.

<https://doi.org/10.3390/diagnostics11030575>

diagnostics11030575

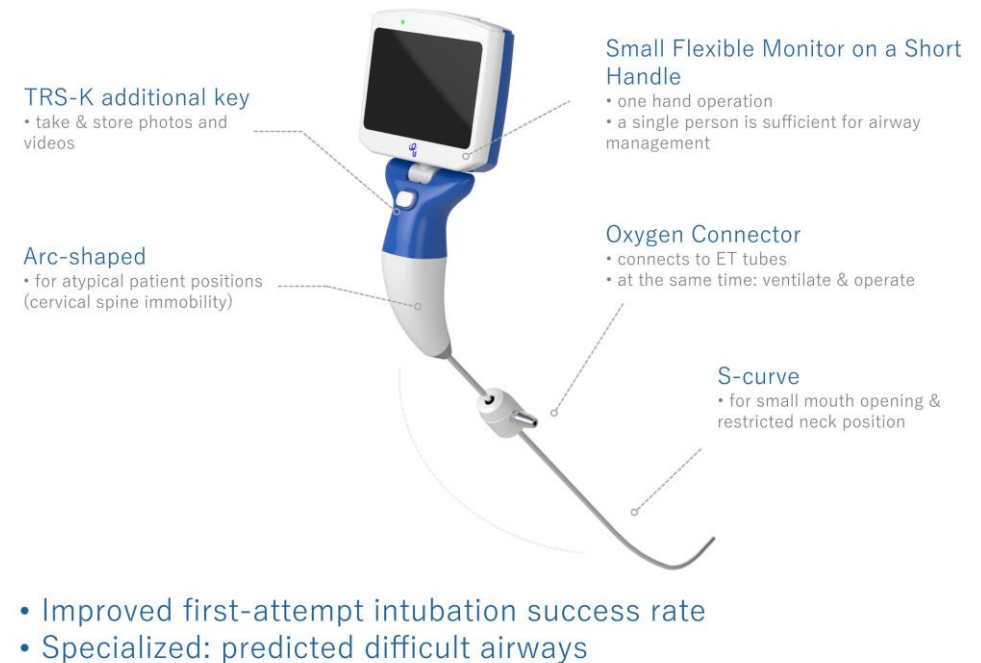


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UE VIDEOSTYLET

- Intubační videostylet s hrotem zahnutým do tvaru S
- Otočný monitor umožňující intubaci trachey z pozice za hlavou i zepředu
- Multifunkční konektor – oxygenace, topikalizace, odsávání
- Může být použit i v kombinaci s videolaryngoskopem

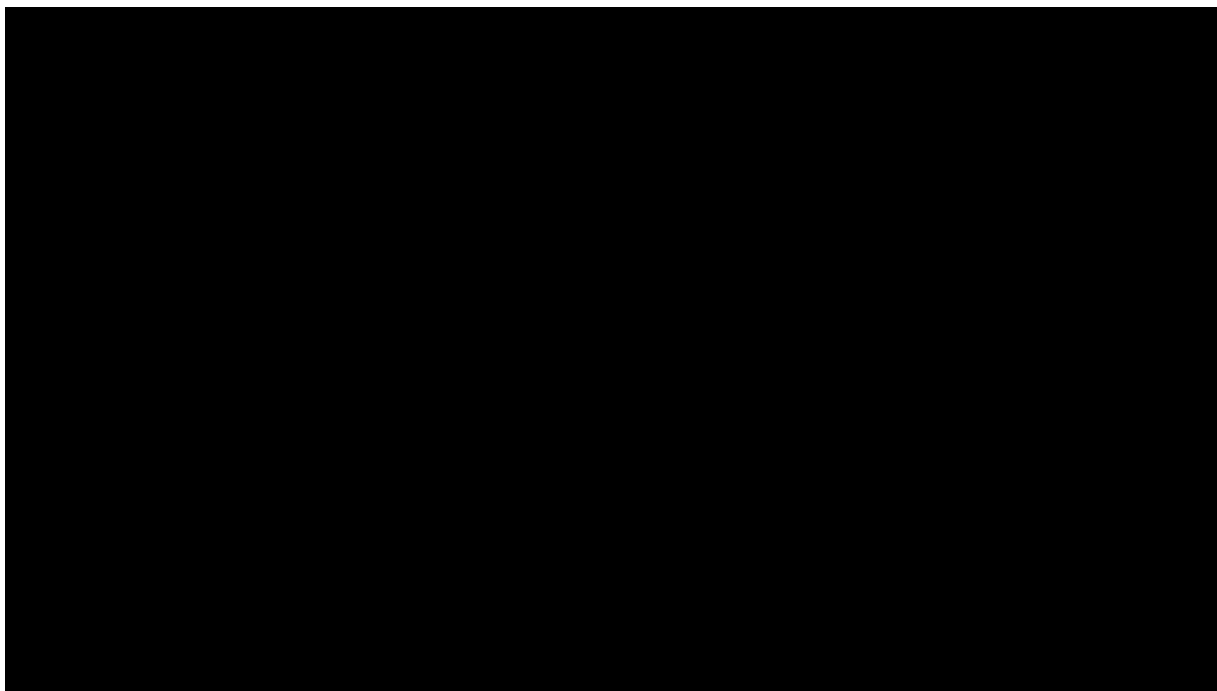




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UE VIDEOSTYLET





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UE VIDEOSTYLET





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UE SCOPE® OPTICAL STYLET IN PREDICTED AND UNEXPECTED DIFFICULT AIRWAYS: A CASE SERIES

Pavel Michalek¹, Tomasz Gaszynski², Jitka Ulrichova¹, Tomas Brozek¹

¹ Dept of Anaesthesia and Intensive Medicine, General University Hospital in Prague, Czech Republic

² Dept of Anaesthesia and Intensive Medicine, University Hospital Lodz, Poland

INTRODUCTION:

Optical intubating stylets were invented in the 1970s, and have been used in various DAM scenarios. Modern optical stylets have CMOS video chips at the distal end of the device. The UE Scope® (Newton Centre, MA, US) is a CE-marked device consisting of the rigid stylet, attachable monitor, and a special connector allowing oxygen application, administration of topical anesthesia, or effective suctioning.

CASE SERIES:

Patients with real or predicted DAM intubated orally with the UE Scope® are presented. Our series comprises 12 patients, 8 females, aged 17-82 years. 8 pts. were intubated as a Plan A, 6 of them awake under topical anaesthesia, remaining two asleep due to lack of cooperation. Four pts. with difficult/failed laryngoscopy or videolaryngoscopy were intubated using the UE Scope® in conjunction with videolaryngoscope or Macintosh blade. Ten patients (83%) were intubated on the first attempt, while two required two attempts. No failures were reported. All intubations were recorded and none of them was longer than 3 mins. Complications included $spO_2 < 90\%$ in one patient (8.3%) and temporary sore throat.



DISCUSSION AND CONCLUSION:

The UE Scope® could be used in most difficult laryngoscopy scenarios, but only isolated reports are available in the literature. Tracheal intubation seems to be fast, atraumatic, and well tolerated by the patients. The optical stylets do not have a role in DAM guidelines, however, they may become a useful adjunct when used by experienced operators. They may be used even in restricted mouth opening for a retromolar tracheal intubation. Because of their rigidity, we would not recommend their insertion in cases of intraoral/hypopharyngeal pathology such as tumours or bleeding masses. Based on our experience and published evidence they may be a faster alternative for oral tracheal intubation than flexible endoscopes.

Ethical statement: Written consent for publication was provided by all patients reported.

REFERENCES:

1. Matek J, Kolek F, Klementova O, et al. *Diagnostics* 2021;11:575.
2. Abdelgawad AF, Shi QF, Halawa MA, et al. *J Huazhong Univ Sci Technol* 2015;35:432-8.
3. Gu Y, Zhou Q, Zhou H, et al. *J Clin Med* 2023;12:540.





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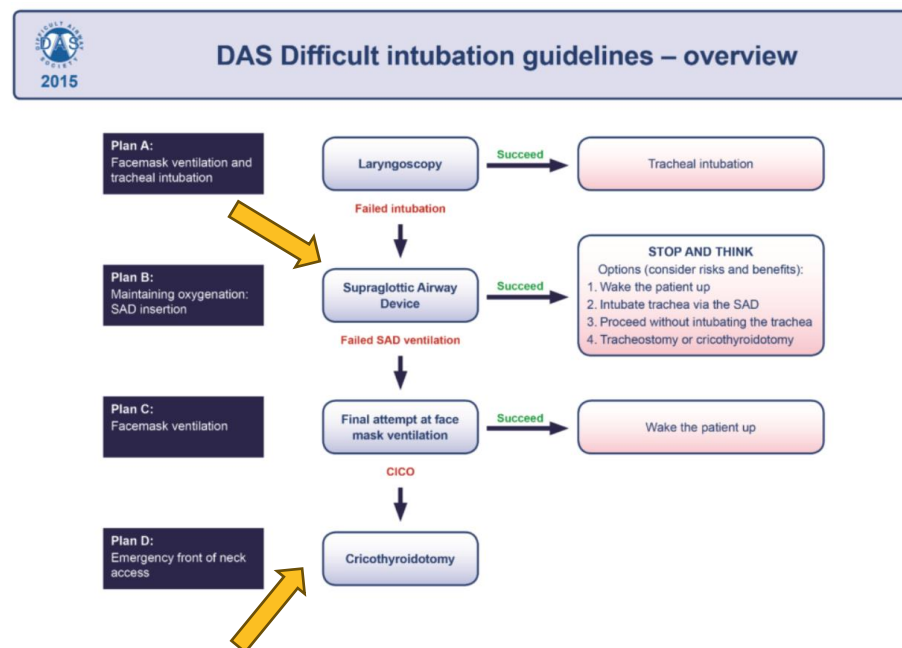


VIDEOSTYLET	VIDEOLARYNGOSCOPE	FLEXIBLE ENDOSCOPE
May be used for awake and asleep DAM Oral route (nasal traumatic) Placement of TT under direct vision Learning curve intermediate Minimum mouth opening – the diameter of TT, retromolar technique	May be used for awake and asleep DAM Oral route Placement of TT under direct vision Learning curve relatively short Minimum mouth opening – diameter of the blade	May be used for awake DAM Oral and nasal routes TT may become stuck on the arytenoids Learning curve long Minimum mouth opening – not applicable (nasal route)
Reinforced Rigid, difficult to damage	Reinforced, single-use blades Difficult to damage	Single-use and reinforced versions Prone to mechanical damage



- (Michalek, International Symposium on Safe Airway Management, 2024)

GUIDELINES PRO NEOČEKÁVANOU OBTÍŽNOU INTUBACI



Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults[†]

C. Frerk^{1,*}, V. S. Mitchell², A. F. McNarry³, C. Mendonca⁴, R. Bhagrat⁵, A. Patel⁶, E. P. O'Sullivan⁷, N. M. Woodall⁸ and I. Ahmad⁹, Difficult Airway Society intubation guidelines working group

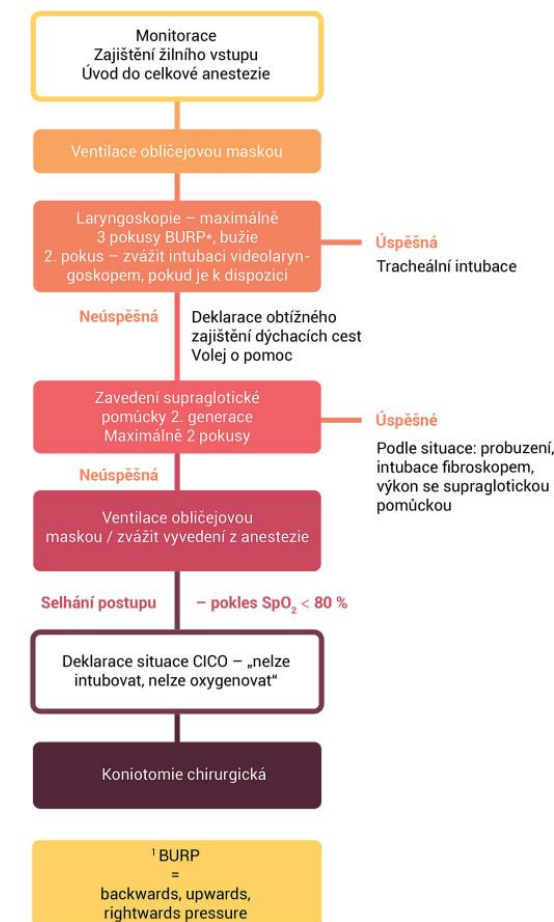
British Journal of Anaesthesia, 115 (6): 827–48 (2015)

DOPORUČENÝ POSTUP

Zajištění obtížných dýchacích cest u dospělých a dětí

Černý V.^{1,2}, Chrobok V.³, Klučka J.², Křikava I.², Michálek P.^{4,5}, Otáhal M.⁶, Škola J.¹, Štourač P.², Vymazal T.^{2*}

Anest intenziv Med. 2019;30:173–186



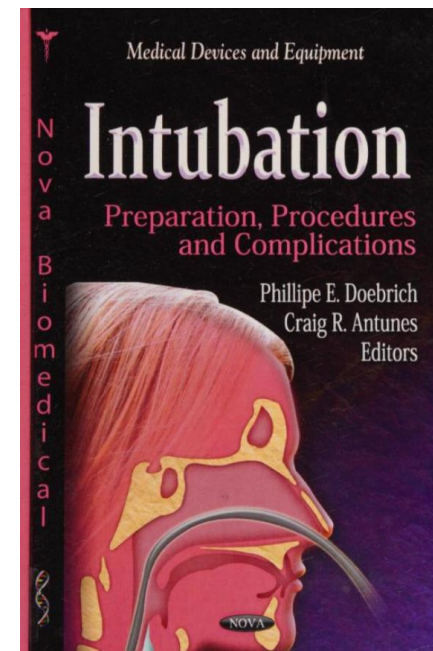


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JAKÁ SUPRAGLOTICKÁ POMŮCKA JAKO „PLÁN B“?

- Záleží na tom?
- Základní předpoklady:
 1. Dostatečně vysoká úspěšnost zavedení (> 95%)
 2. Dobré pokrytí hlasových vazů
 3. Dostatečně široký kanál pro zavedení ETR
 4. Mechanismus ochrany proti aspiraci
 5. Přímá optická kontrola intubace



The role of supraglottic airway devices in difficult intubation scenarios /
Pavel Michalek, William Donaldson



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JAKÁ SUPRAGLOTICKÁ POMŮCKA JAKO „PLÁN B“?

- 1-5 = VideoLaryngeal Mask Airway
- 1-4 = i-gel, i-gel Plus
- LMA Protector
- LM Aura Gain
- AirQ 3G
- BlockBuster LM





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VIDEOLARYNGEAL MASK AIRWAY



Trends in Anaesthesia and Critical Care 50 (2023) 101264

Contents lists available at ScienceDirect

Trends in Anaesthesia and Critical Care

Journal homepage: www.elsevier.com/locate/tacc



Using the SaCo video Laryngeal mask airway in four different scenarios — Case series[☆]

Jakub Werner^{a, b}, Jan Bruthans^{c, d, *}, Martin Lukeš^c, Katka Tošenovská^c, Eliška Vobrubová^c, Pavel Michálek^c

^a Department of Anaesthesiology and Intensive Care Medicine, University Hospital Hradec Králové, Czech Republic

^b Medical Faculty, Masaryk University, Brno, Czech Republic

^c Department of Anaesthesiology and Intensive Care, General Teaching Hospital, Czech Republic

^d Department of Biomedical Technology, Faculty of Biomedical Engineering, Czech Technical University in Prague, Czech Republic





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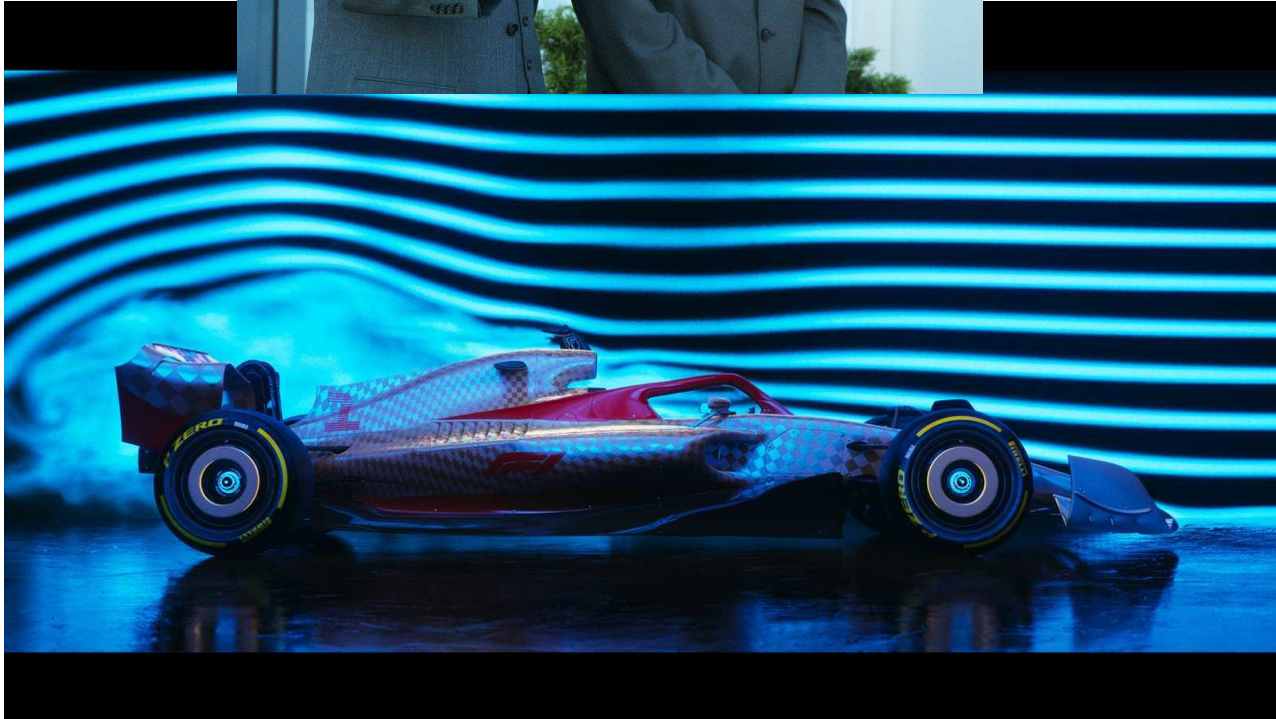
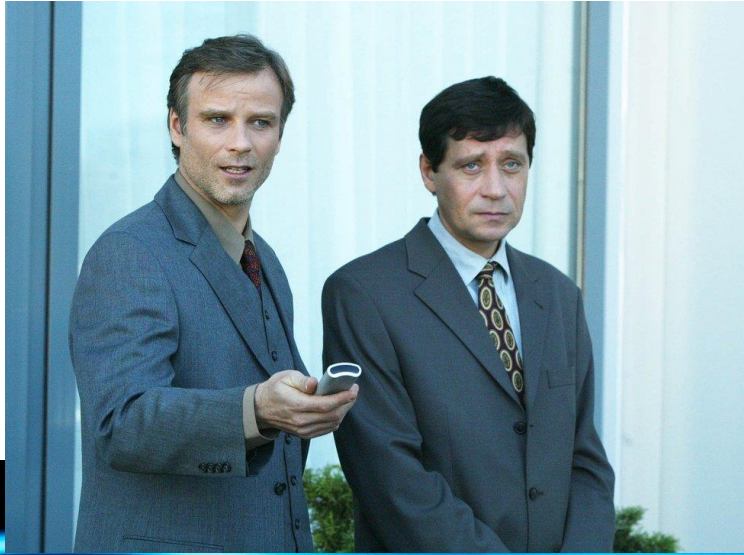
CHIRURGICKÉ ZAJIŠTĚNÍ DÝCHACÍCH CEST (BACT)

- Jsou komerčně vyráběné soupravy lepší než „home made“?





THE FUTURE





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