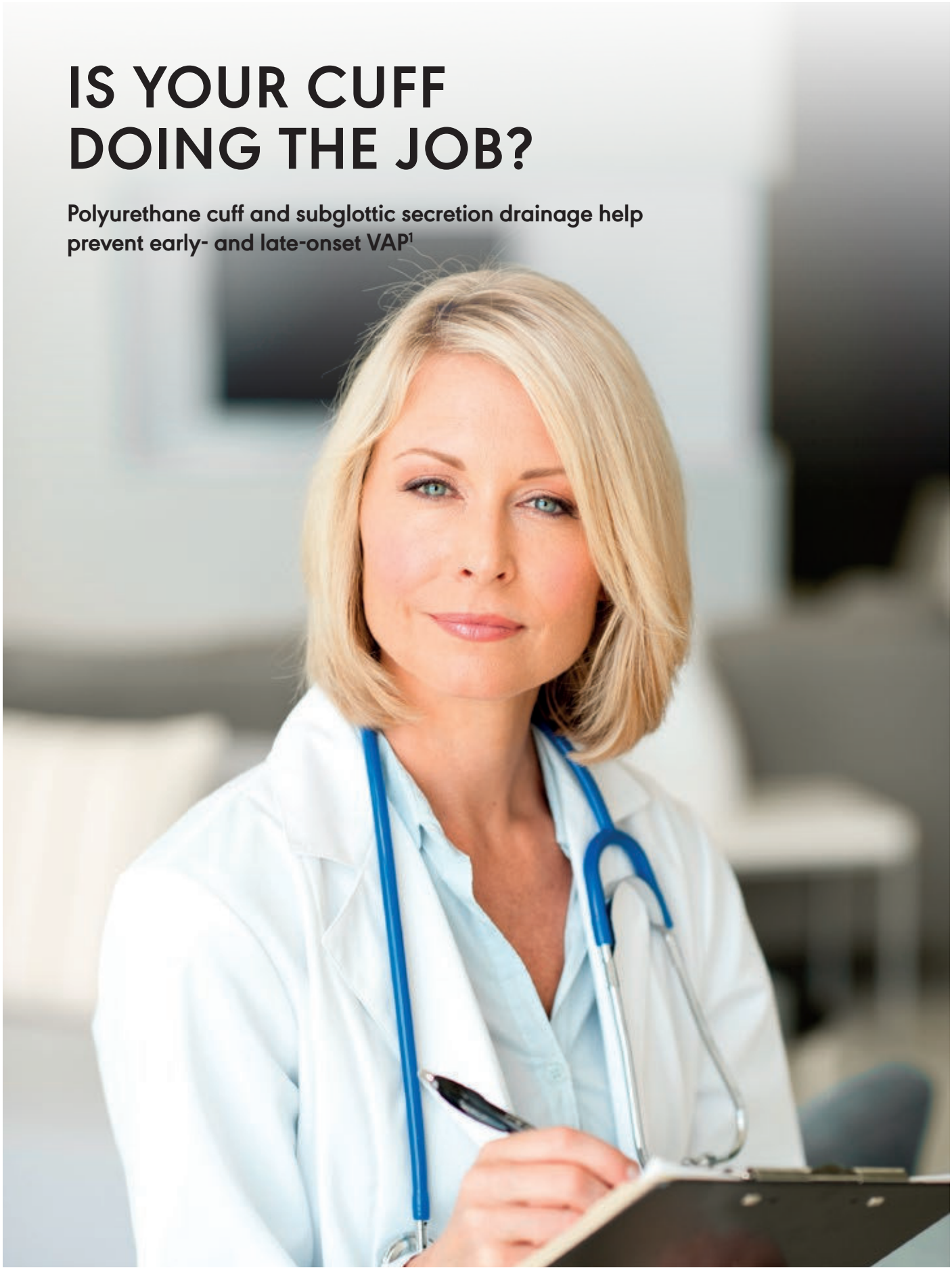
AVANOS | MICROCUFF* Endotracheal Tubes

IS YOUR CUFF DOING THE JOB?

Polyurethane cuff and subglottic secretion drainage help prevent early- and late-onset VAP[1]



LEADING AUTHORITIES: SUBGLOTTIC SUCTIONING IS A BEST PRACTICE

AMERICAN THORACIC SOCIETY INFECTIOUS DISEASES SOCIETY OF AMERICA

"Continuous aspiration of subglottic secretions can reduce the risk of early-onset VAP, and should be used, if available[2]."

THE SOCIETY FOR HEALTHCARE EPIDEMIOLOGY OF AMERICA

"[Providing ET] with subglottic secretion drainage ports for patients expected to require greater than 48 or 72 hours of mechanical ventilation.

Considered "basic practice" for preventing ventilator-associated pneumonia in adult patients[3]."

AMERICAN ASSOCIATION OF CRITICAL-CARE NURSES

"Use an endotracheal tube (ET) with a dorsal lumen above the endotracheal cuff to allow drainage by continuous suctioning of tracheal secretions that accumulate in the subglottic area[4]."

CENTERS FOR DISEASE CONTROL (CDC)

"...use an endotracheal tube with a dorsal lumen above the endotracheal cuff to allow drainage (by continuous or frequent intermittent suctioning) of tracheal secretions that accumulate in the patient's subglottic area[5]."

RECOMMENDATION OF THE COMMISSION FOR HOSPITAL HYGIENE AND INFECTION PREVENTION (KRINKO) AT THE ROBERT KOCH INSTITUTE

"The use of a subglottic suctioning endotracheal tube to prevent pneumonia in patients who require ventilation for more than 72 hours (Cat. IA). The risk of pneumonia from reintubating the patient should be weighed against the benefits of achieving a subglottic secretion drainage by replacing a regular endotracheal tube with an endotracheal tube with subglottic suctioning. To date, no evidence has yet been provided for the type of secretion drainage - intermittent or continous - and the preventive benefit of tubes with polyurethane cuff / newly designed cuff geometry (Cat. III)[6]."

UK DEPARTMENT OF HEALTH

"The use of tracheal tubes with subglottic drainage ports can reduce VAP by preventing contaminated oral secretions that accumulate above the tracheal cuff intubated patients leaking past the cuff into the lungs."

"A tracheal tube (endotracheal or tracheostomy) which has a subglottic secretion drainage port is used if the patient is expected to be intubated for >72 hrs[7]."

POLYURETHANE CUFF MATERIAL: BETTER FIT & BETTER SEAL

THE AVANOS* MICROCUFF* TUBE FEATURES AN ADVANCED MICROTHIN POLYURETHANE CUFF MATERIAL

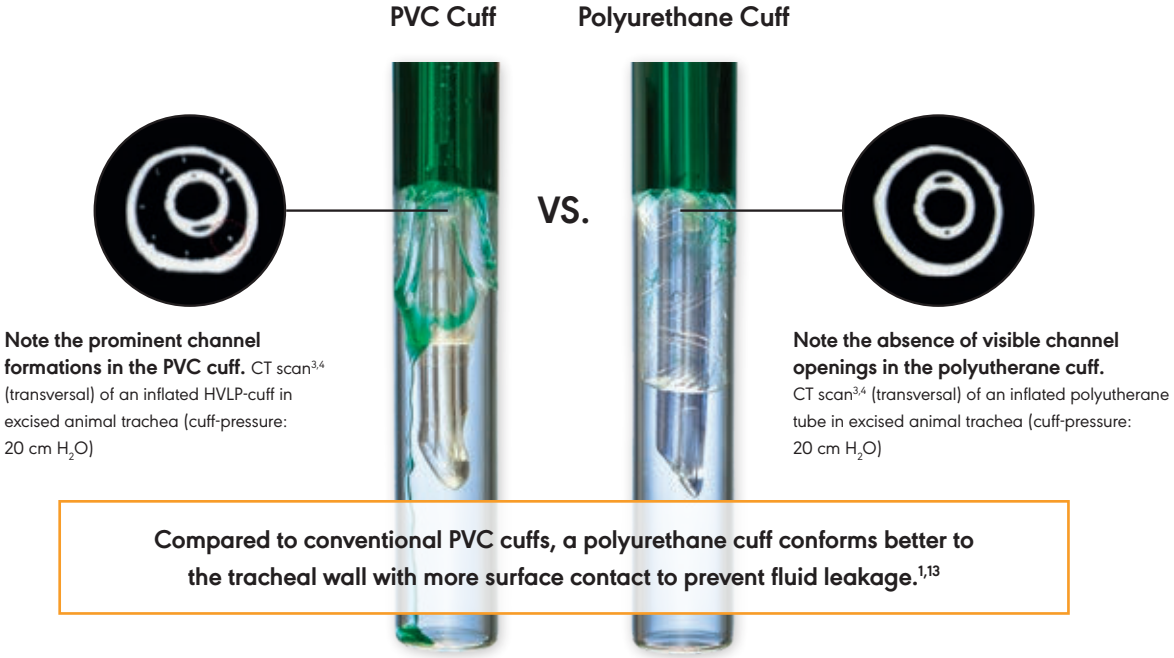
- Provides an effective seal at low cuff pressure
- May reduce micro-aspiration of potentially infectious pharyngeal secretions[14] – Potentially lowers risk of VAP in prolonged ventilation[1]
- Designed for better contact with tracheal contour[14]
- Thinner material allows for greater visualisation of vocal cords when cuff is deflated

> "Polyurethane cuffs offered superior seal to PVC cuffs regardless of shape, adequate seal was maintained through 24 h."
>
> *Rihard Knafelj. Critical Care, 2016.*[15]

> "Significantly less fluid leakage was observed among PU-cuffed tubes than in PVC-cuffed tubes, regardless of PEEP or suctioning settings."
>
> *Stijn I. Blot, et al. Critical Care, 2016.*[16]

Polyurethane can be made thinner and still maintain its strength[17]

- Polyurethane **(13 microns)** cuff membranes used in the MICROCUFF* tubes are subtantially thinner than conventional PVC cuffs **(50-80 microns[13])**
- Puncture strength of MICROCUFF* cuff is almost double compared to conventional PVC cuffs[17]
- Burst pressure of MICROCUFF* tube is more than double compared to conventional PVC cuffs[17]



Note the prominent channel formations in the PVC cuff. CT scan[3,4] (transversal) of an inflated HVLP-cuff in excised animal trachea (cuff-pressure: 20 cm H_2O)

Note the absence of visible channel openings in the polyutherane cuff. CT scan[3,4] (transversal) of an inflated polyutherane tube in excised animal trachea (cuff-pressure: 20 cm H_2O)

Compared to conventional PVC cuffs, a polyurethane cuff conforms better to the tracheal wall with more surface contact to prevent fluid leakage.[1,13]

MICROCUFF* SUBGLOTTIC SUCTIONING ENDOTRACHEAL TUBES

Demonstrated difference:

An independent laboratory, Clinimark, conducted a study to measure the subglottic suctioning efficacy of PVC-cuffed endotracheal tubes compared to polyurethane-cuffed endotracheal tubes[18].

EFFECTIVENESS - Overall performance

MICROCUFF* Subglottic Suctioning Endotracheal Tubes performed more effectively than other Subglottic Suctioning Endotracheal Tubes in both intermittent and continuous test conditions[18].

VARIABILITY - Consistency in suction efficiency over time

MICROCUFF* Endotracheal Tubes effectively prevent clogging of the suction lumen.

EFFICIENCY - Percentage of secretions removed

MICROCUFF* Endotracheal Tubes

A mean rate of 85% suctioning efficiency and less variability within the group in intermittent suctioning[18].
It was shown to have a 22% higher suction efficiency than certain competitor product in continuous suctioning. [18]

Only one FDA approved, saline rinse indication.

Integrated suctioning valve and rinse port facilitate both suctioning and rinsing of lumen without opening the suction circuit.

MICROCUFF* & MICROCUFF* SUBGLOTTIC SUCTIONING ENDOTRACHEAL TUBES[19]

	AVANOS* MICROCUFF* ENDOTRACHEAL TUBES	COMPETITOR ENDOTRACHEAL TUBES
Tube material	PVC firm, does not kink when at body temperature	Soft
DEHP free	Yes	No or not mentioned
Murphy eye	Yes	Yes
Shape of cuff	Cylindrical with maximum tracheal contact	Taper or pear shape
Cuff material	PU (ultra thin <13 microns)	PVC or PU (>15 microns)
Position of the cuff on the tube	Distal (to fit any trachea)	Higher/proximal
Cuff volume / cuff pressure	Larger volume to adapt to any size shape of trachea (typically need 12 cc syringe)	Lower
Suction valve + flush port	Yes	No
Saline rinsing FDA approved	Yes	No
Closed system when instilling air or saline	Yes	No
Sizes	7 to 9 mm MICROCUFF* Subglottic ET / 5 to 10 mm MICROCUFF* ET	6 to 10 mm

VENTILATOR-ASSOCIATED PNEUMONIA

VAP IS A MAJOR CLINICAL CONCERN ASSOCIATED WITH HIGH INCIDENCE RATES, MORTALITY AND COSTS[8]

It's worth taking measures to prevent even one case of VAP.

- Approximately **86%** of hospital-associated pneumonia is linked with mechanical ventilation[9]
- VAP may account for up to **60%** of all deaths due to Healthcare-Associated Infections (HAIs)[8]
- Approximately **8-28%** of patients on ventilation develop VAP[10]
- Hospital-associated pneumonia patients have a mortality rate of **20% to 41%**[11]
- VAP increases patient time in the ICU by **4 to 6 days**[12]
- Each incidence of VAP has been estimated to generate an increased mean cost of **more than 37 000€ (more than £31 000)**[12]

MICRO-ASPIRATION IS A MAJOR CAUSE OF VAP[10]

- Micro-aspiration of potentially infectious secretions through gaps in the endotracheal tube cuff is known to be a leading cause of VAP[10]
- The cuff seal is the final barrier that protects the lungs from aspiration of potentially infectious pharyngeal secretions[13]

MICROCUFF* & MICROCUFF* SUBGLOTTIC SUCTIONING ENDOTRACHEAL TUBES

AVANOS* MICROCUFF* endotracheal tubes, oral / nasal magill, murphy eye

CODE	TUBE SIZE I.D.	PACKAGING
35210	5.0 mm	1 case – 10/dispenser
35211	5.5 mm	1 case – 10/dispenser
35212	6.0 mm	1 case – 10/dispenser
35213	6.5 mm	1 case – 10/dispenser
35214	7.0 mm	1 case – 10/dispenser
35215	7.5 mm	1 case – 10/dispenser
35216	8.0 mm	1 case – 10/dispenser
35217	8.5 mm	1 case – 10/dispenser
35218	9.0 mm	1 case – 10/dispenser
35220	10.0 mm	1 case – 10/dispenser

AVANOS* MICROCUFF* subglottic suctioning endotracheal tubes

CODE	TUBE SIZE I.D.	PACKAGING
13220	7.0 mm	1 case - 10/dispenser
13221	7.5 mm	1 case - 10/dispenser
13222	8.0 mm	1 case - 10/dispenser
13223	8.5 mm	1 case - 10/dispenser
13224	9.0 mm	1 case - 10/dispenser

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Dr. Stijn I. Blot and Dr. Rihard Knafelj have a consulting/speaking financial relationship with Avanos Medical Inc. and/or one of its affiliates.

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For more information, please send an email to customerservice.uk.ie@avanos.com