

Sécurisation des CVC en réa

Suture ou non suture ?



Olivier MIMOZ

Urgences Adultes & SAMU 86, CHU Poitiers

Inserm U1070

Université de Poitiers



Conflits d'intérêt

- CareFusion – BD
- 3M
 - *Subventions de recherche*
 - *Honoraires pour conférences et consultations*

Basic bundle to prevent CR-BSI

Use written protocol for catheter insertion and maintenance

Rub hands with alcohol-based solutions before each line manipulation

Respect full-barrier precaution at catheter insertion

Cleanse the skin with a 2 % chlorhexidine/70 % isopropyl alcohol sterile solution

Select subclavian vein as preferred access in the absence of contraindications^a

Change non-adherent, soiled, or moistened dressing

Remove catheters that are clinically no longer necessary

Et la fixation des CVC ?

“Use a sutureless securement device to reduce the risk of infection for intravascular catheters - Category II”

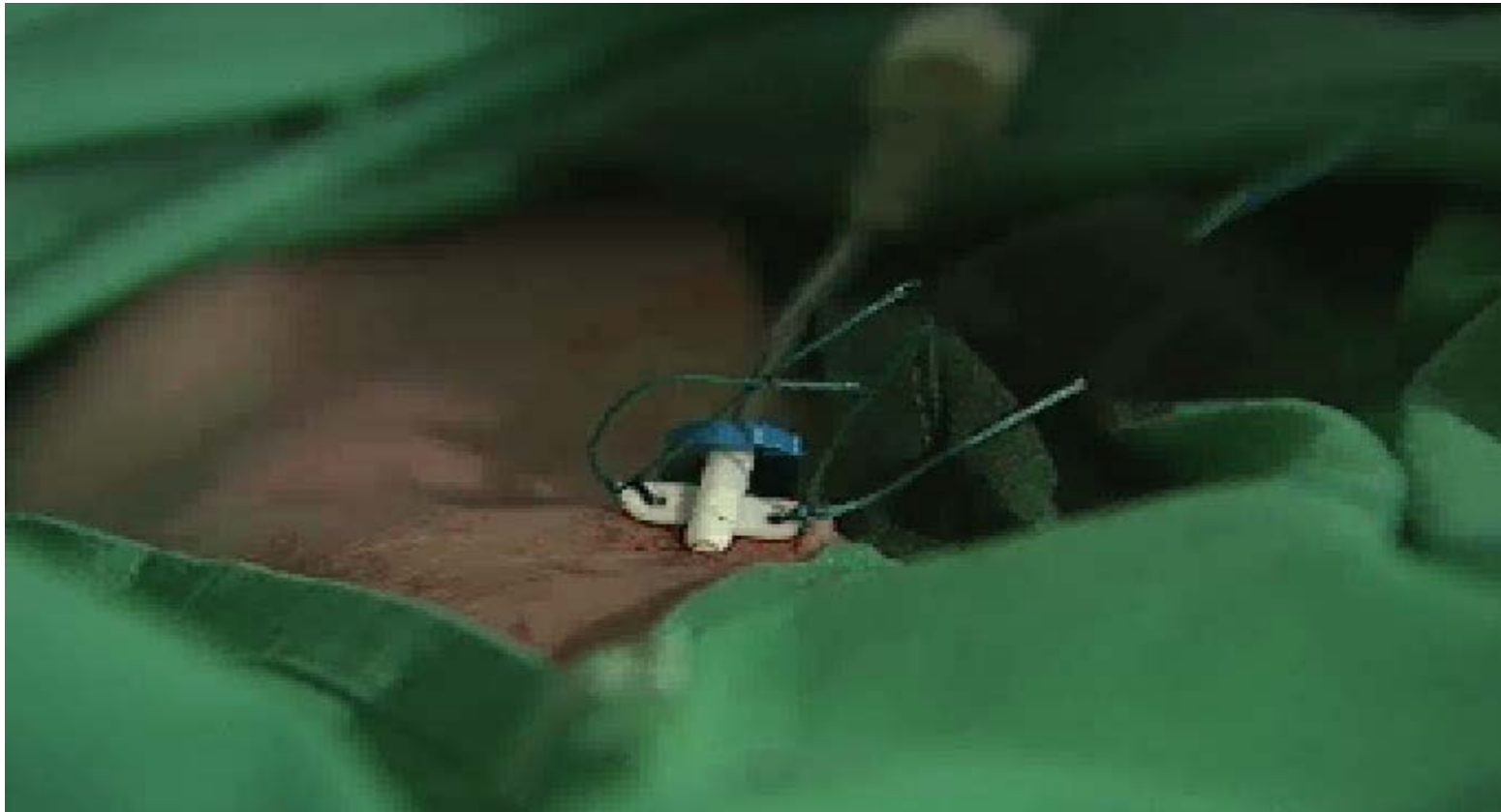
Systemes de sécurisation sans fil

- Réduction du risque d'infection et de thrombose, et donc augmentation du temps de maintien du cathéter
 - En évitant les lésions cutanées autour du site d'entrée du cathéter, un facteur augmentant la colonisation bactérienne.
 - En réduisant les déplacements du cathéter
- Amélioration du confort du patient (moins douloureux que les sutures)
- Pour les soignants, pas de risque d'AES

Mais....

- Limited evidence of efficacy from peer-reviewed RCT, especially in ICU patients where the risks of infection or displacement of the catheters are high.
- “Although sutures are widely used for intravascular catheter securement, suture colonization may increase the risk of infection. The appropriate securement of intravascular catheters in critically ill patients requires further evidence.”

En pratique....



A clinical evaluation of two central venous catheter stabilization systems

Dr Tarja Karpanen^a

Dr Anna Casey^a

Dr Tony Whitehouse^b

Prof Jean-Francois Timsit^{c,d}

Prof Olivier Mimoz^e

Dr Mercedes Palomar^f

Prof Tom Elliott^g

Type and goal of the pilot study

- Multicentre (4), prospective, observational, randomised, non blinded clinical evaluation
- To evaluate the safety, comfort and usability of the 3M PICC/CVC securement device compared with sutures for securement of short-term CVC in critical care patients
- Approved by each national ethical committee
- Registered with the International Standard Randomized Controlled Trials Number (ISRCTN 13933744)
- Conducted between August 2015 and January 2017

Inclusion criteria

- ≥ 18 years old
- Admit to a participating critical care unit
- Requiring a single, short-term, non-cuffed, non-tunnelled central venous catheter (≤ 12 F in size)
- Consent (patients/relatives) to participate to the trial.

Exclusion criteria

- Confused
- Excessive perspiring
- Condition affecting the skin integrity at the insertion site (Burns...)
- Uncorrected bleeding diathesis
- Allergy to adhesives/device components
- >1 catheter inserted at the same location
- Previous participation to the study
- Pregnant or breast-feeding women

3M Securement device and Tegaderm IV Advanced dressing

- On the market in the US since 2013 - CE-marked
- Consists of moulded plastic device integrated onto a breathable base (with a silicone adhesive) and highly-adhesive transparent dressing.
- Accommodates the majority of CVC up to 12 F

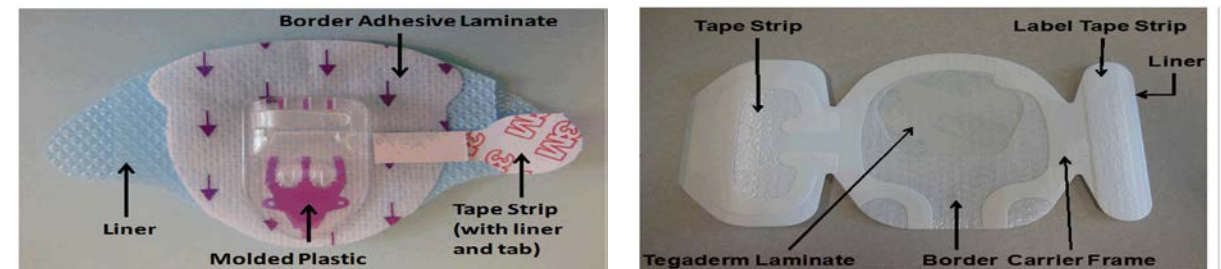
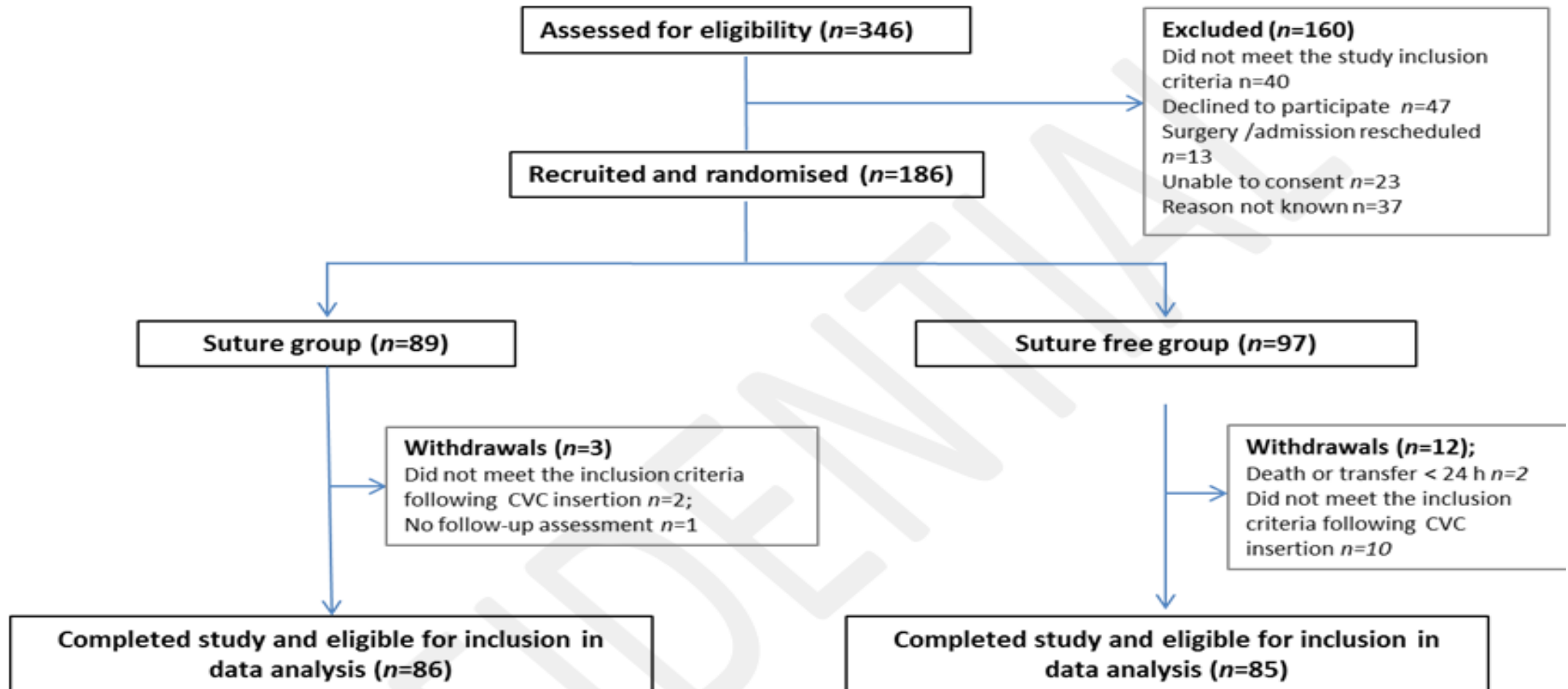


Figure. Tegaderm™ I.V. Advanced Securement Device (left) and Advance Securement Dressing (right).

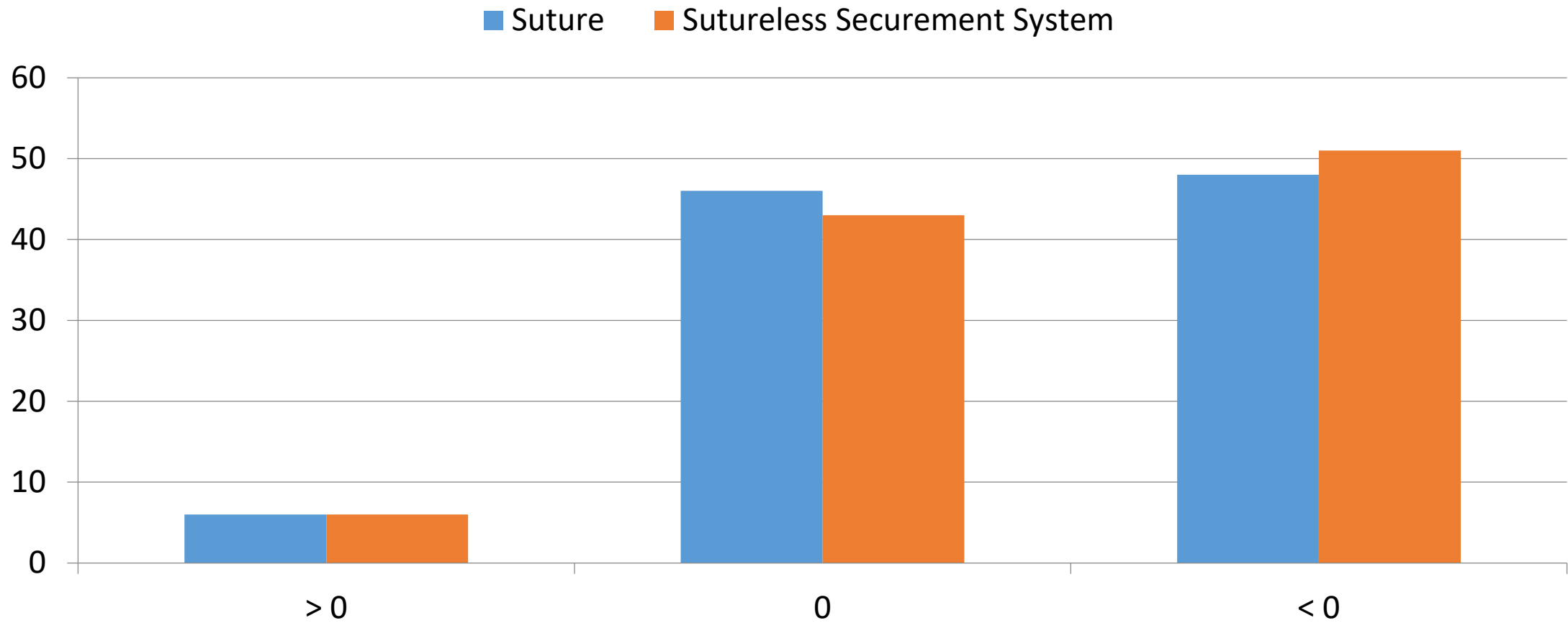
Study flow chart



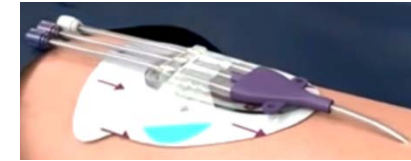
Patients' characteristics

	Sutures (n=86)	Securement system (n=85)
Male sex	69%	80%
Median (IQR) age, yrs	66 (56-74)	62 (51-72)
Median (IQR) BMI, kg/m ²	26.7 (23.0-31.9)	26.8 (24.3-30.5)
Median (IQR) APACHE II	23 (16-32)	21 (14-29)
Mechanical ventilation/NIV	53% / 21%	65% / 18%

Score RASS



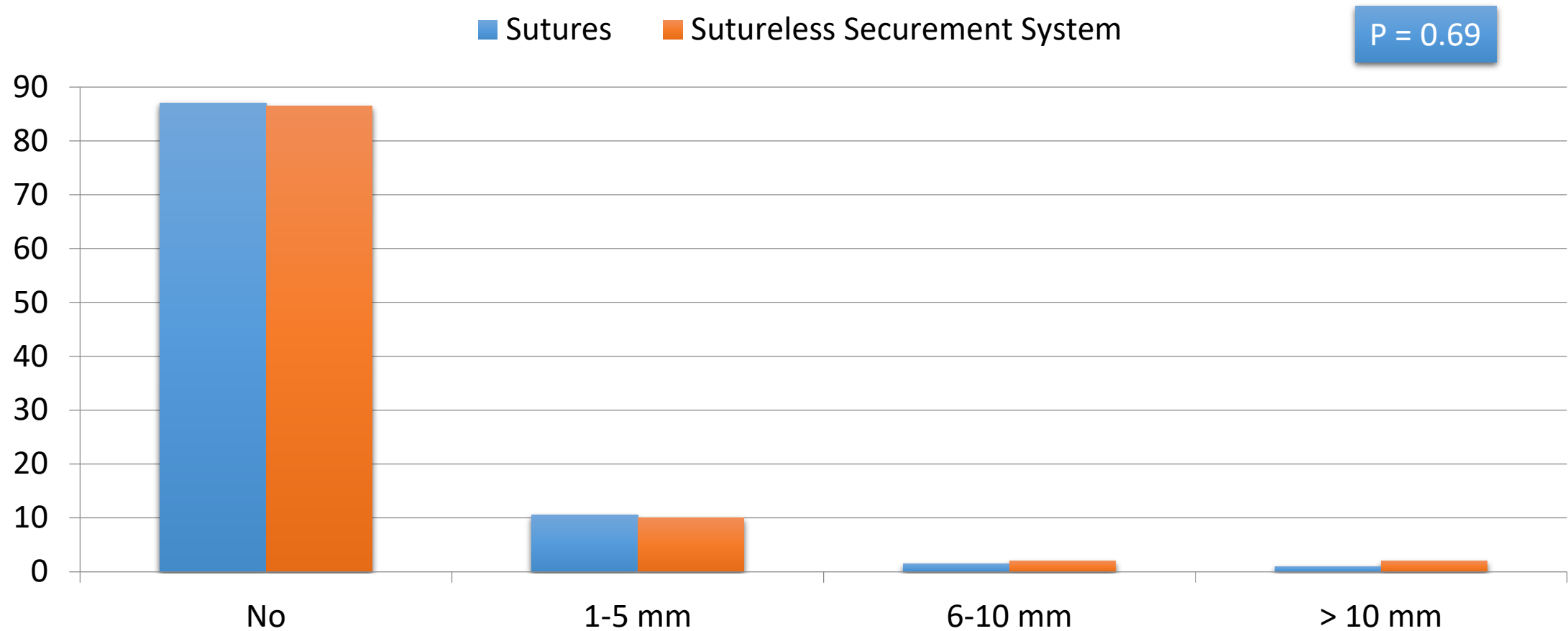
Characteristics of CVC



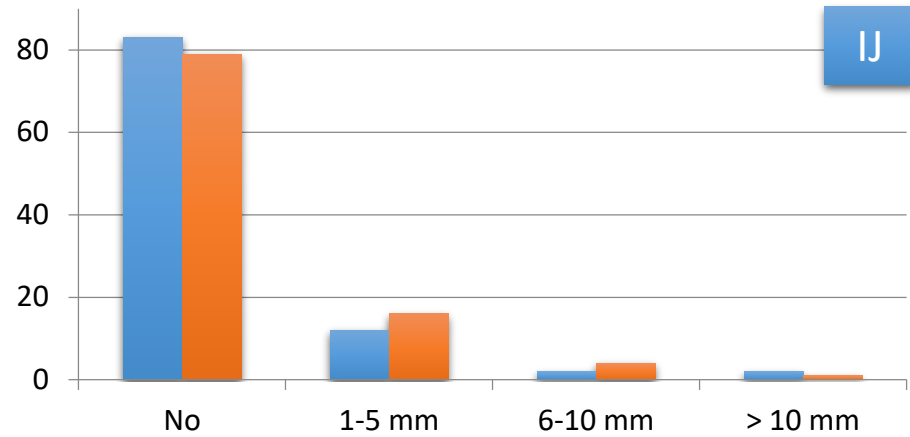
	Sutures (n=86)	Securement system (n=85)
Insertion site (IJ/SC/FEM)	39% / 33% / 28%	42% / 29% / 28%
Median (IQR) size (Fr gauge) / lumens of CVC	7 (7-8.5) / 3 (3-4)	7 (7-8.5) / 3 (3-4)
Hair removed from insertion site	17.4%	14.1%
Median (IQR) time to insert CVC, min	8 (5-15)	7 (4-14)
CVC with a box clamp	31%	3%*
Mean (95%CI) external CVC length (mm) immediately following CVC insertion	6.2 (3.9-8.5)	16.2 (10.0-22.3)*
Median (IQR) time to apply CVC securement, min	3 (2-6)	5 (3-5)
Mean (95%CI) duration the CVC in place, d	7 (5-8)	8 (7-10)

* P<0.05

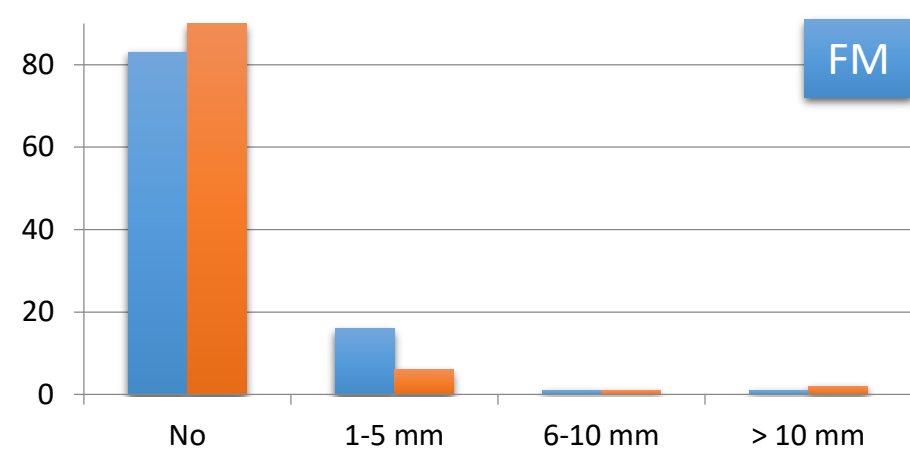
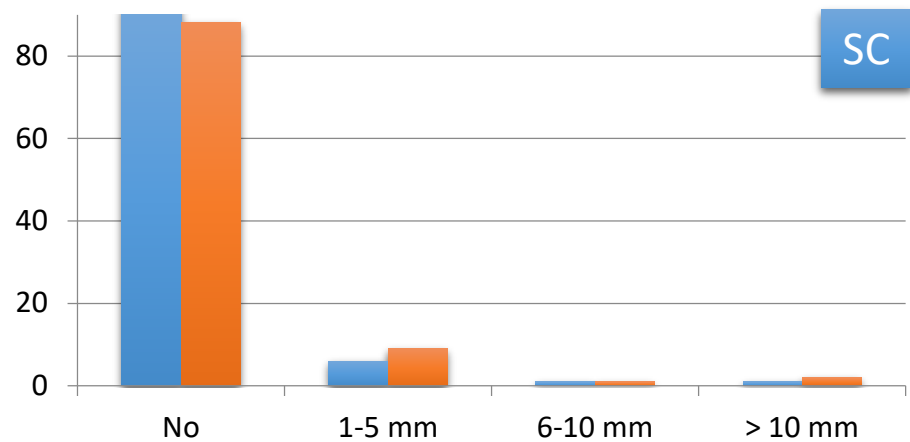
Daily CVC movement (%)



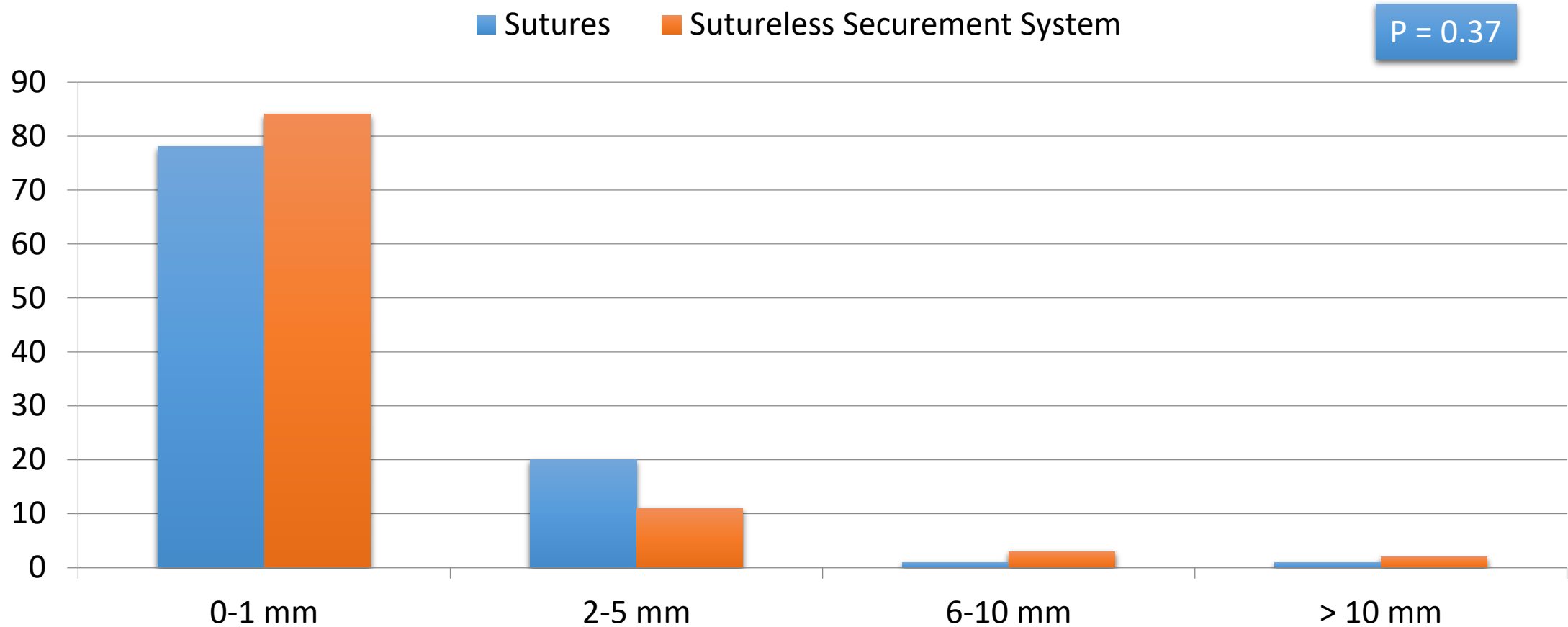
Daily CVC movement (%)



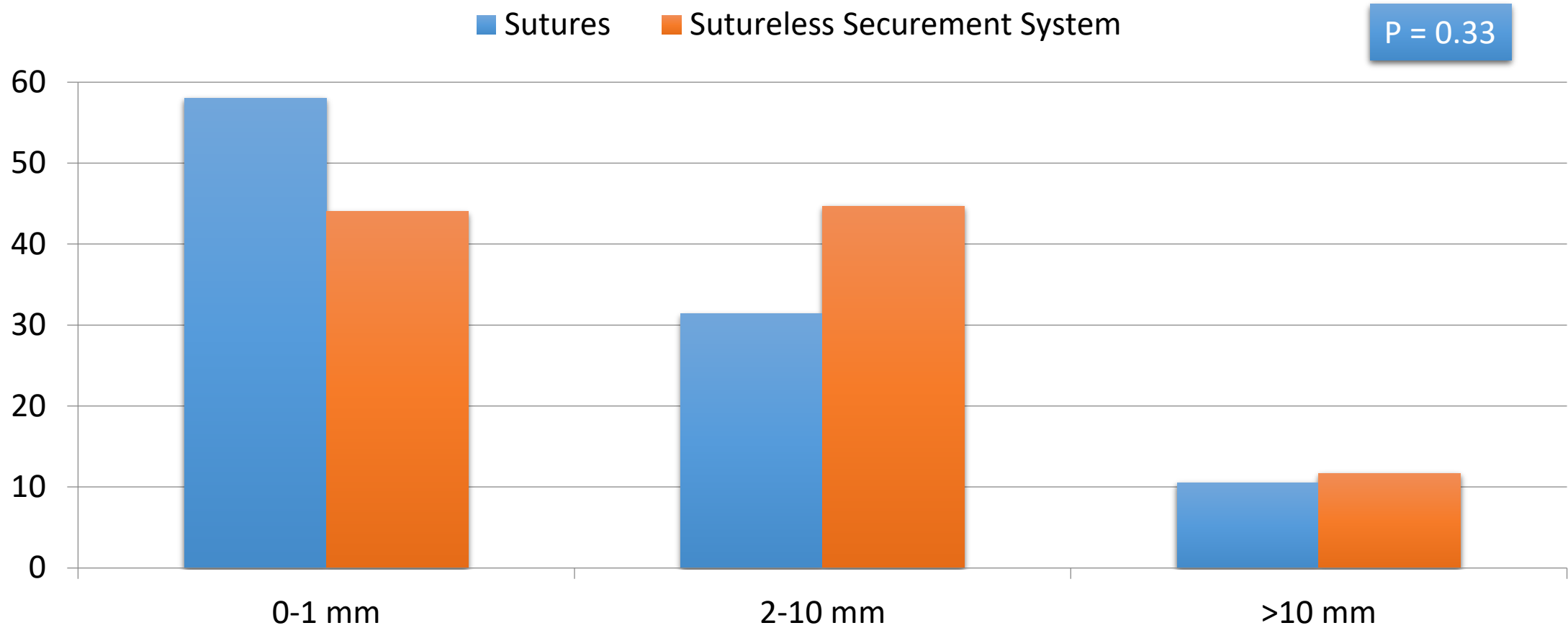
■ Sutures
 ■ Sutureless Securement System



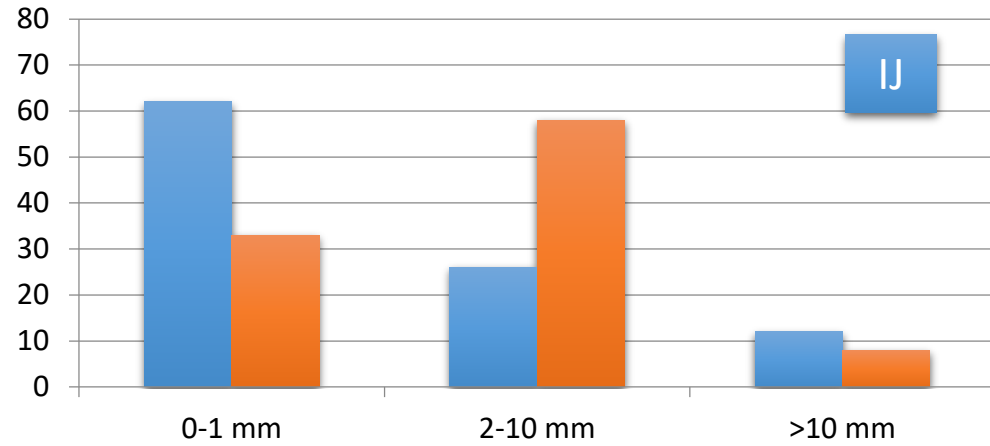
CVC movement due to securement/dressing change (%)



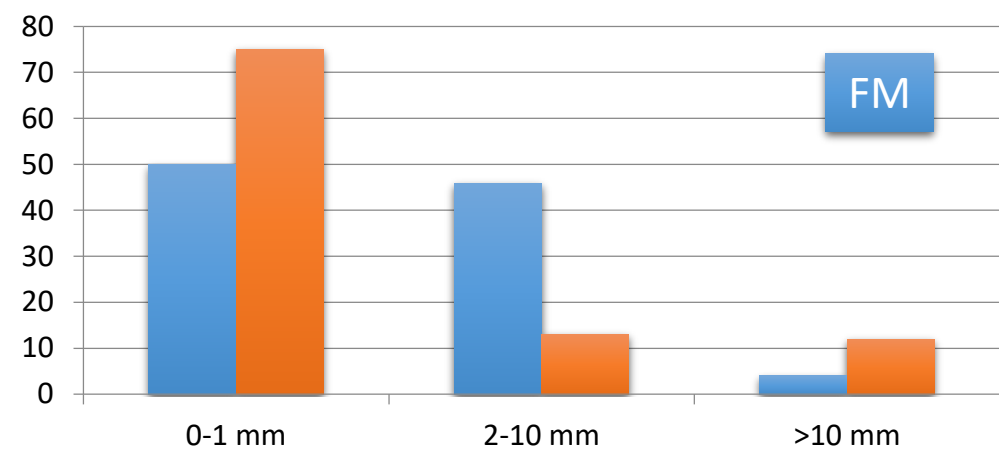
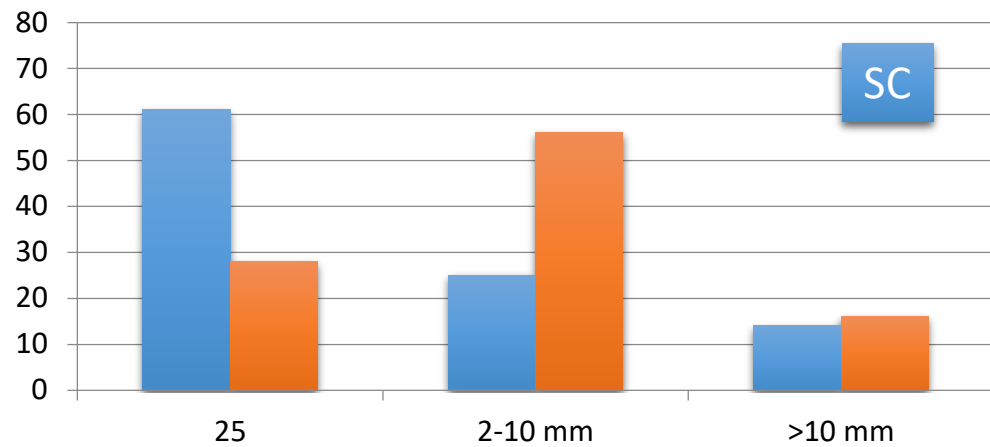
CVC movement range (%)



CVC movement range (%)



■ Sutures
 ■ Sutureless Securement System



Secondary endpoints (1)

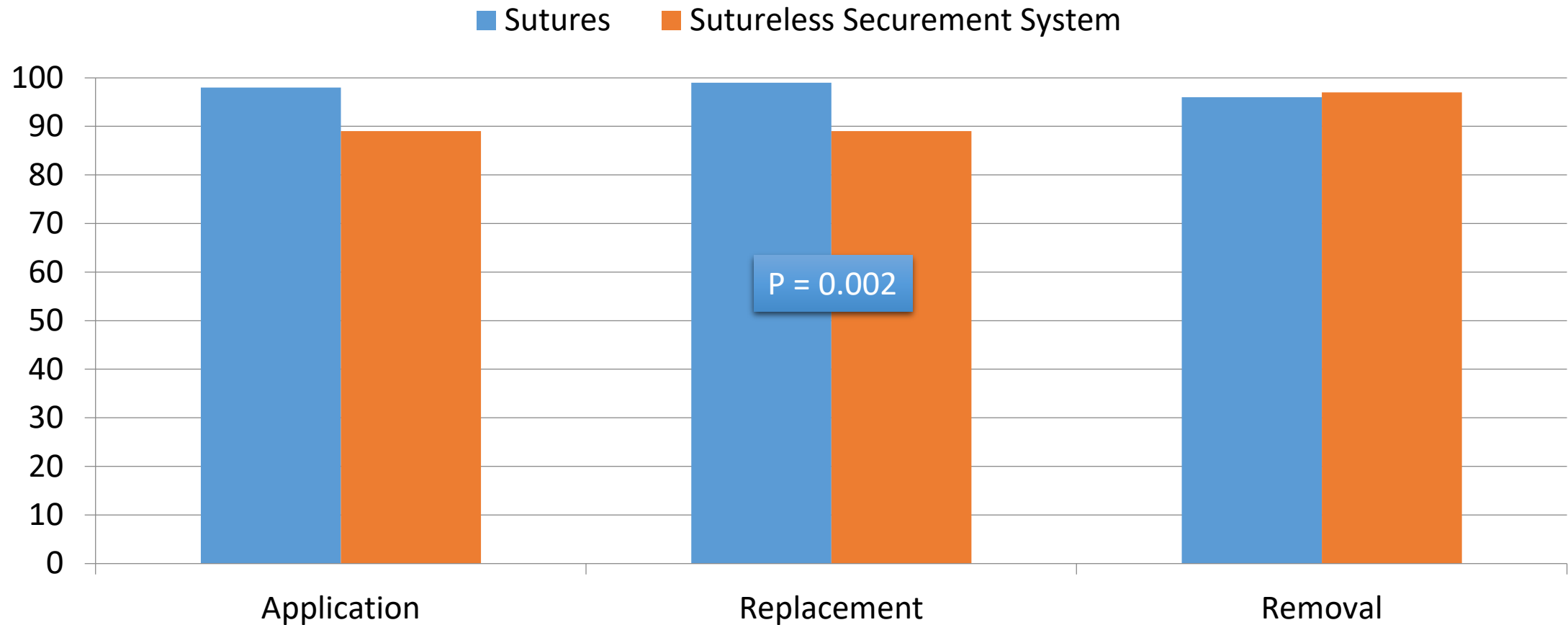
	Sutures (n=86)	Securement system (n=85)
Median (IQR) time to apply CVC securement, including dressing, min	3 (2-6)	5 (3-5)
Median (IQR) time to replace CVC securement, including dressing, min	7 (5-10)	10 (5-10)*
Median (IQR) time to remove CVC securement, including dressing, min	3 (2-5)	2 (1-4)

* $P < 0.05$

Secondary endpoints (2)

	Sutures (n=86)	Securement system (n=85)
Erythema at dressing replacement	19.8%	22.4%
Accidental CVC removal	2.3%	5.9%
Occlusion or non functional CVC	1%	1%
Needlestick injury	2 events in a single centre	0

Suture securement / dressing changes easy or reasonable



Take home messages

- With appropriate training, sutureless securement systems may offer safe and effective alternative to suture securement.
- Larger studies on efficacy and safety of these alternative CVC securement systems are needed.

Thanks to...

- Investigator in-Chief: Prof Tom SJ Elliott (UK)
- Study coordinator: Dr Tarja Karpanen (UK)
- Study centres:
 - Dr Tony Whitehouse (UK)
 - Dr Mercedes Palomar (Spain)
 - Prof Jean-Francois Timsit (France)
 - Prof Olivier Mimoz (France)
- All nurses and physicians working in these units
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