



Value Life

# NEONATOLOGY

MODIFIED SELDINGER TECHNIQUE  
INTRODUCTION KIT

**microsite**

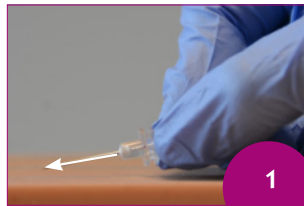


# MST: MODIFIED SELDINGER TECHNIQUE

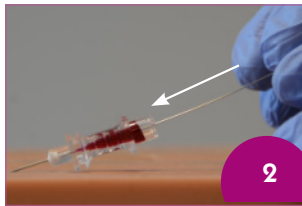


MINIMIZE VENOUS TRAUMA AND INCREASE THE RATE OF SUCCESSFUL INSERTION using the modified seldinger technique.

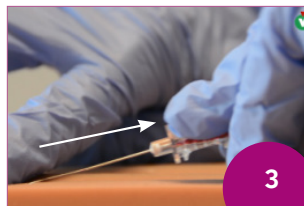
## Procedure



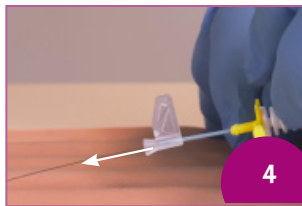
Needle puncture



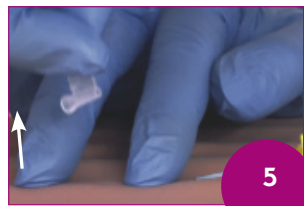
Guidewire insertion



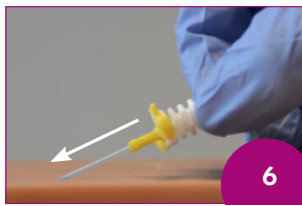
Needle removal



Sheath dilator insertion thanks to the aid



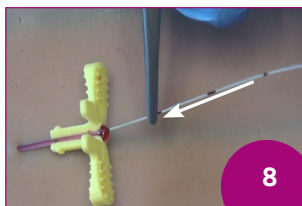
Guidewire insertion aid removal



Sheath dilator introduction



Guidewire and dilator removal



Catheter insertion

## International recommendations and studies

### PICCs : Guideline for Practice, 4th edition – NANN – 2022<sup>1</sup>

“MST can be cost effective and reduce CLABSI when used appropriately”  
“Using MST, also referred to as micropuncture, allows a smaller introducer to be used”  
“MST requires specialized training and adherence to practice protocols, which may include competency validation”  
“This method [...] reduces the amount of trauma to the vein”  
“MST provides a needed solution for some neonates”

### The Journal of The Association for Vascular Access – 2009<sup>2</sup>

“Advantages of MST include increased success rates of PICC insertion, less venous trauma and decreased insertion complications such as nerve injury and inadvertent arterial puncture”

### Inserting central lines via the peripheral circulation in neonates – van Rens - 2020<sup>3</sup>

“The modified Seldinger technique (MST) has many advantages for neonatal patients over more traditional direct introducer PICC insertion techniques”

# CLINICAL STUDY: microsite VS microflash<sup>4</sup>

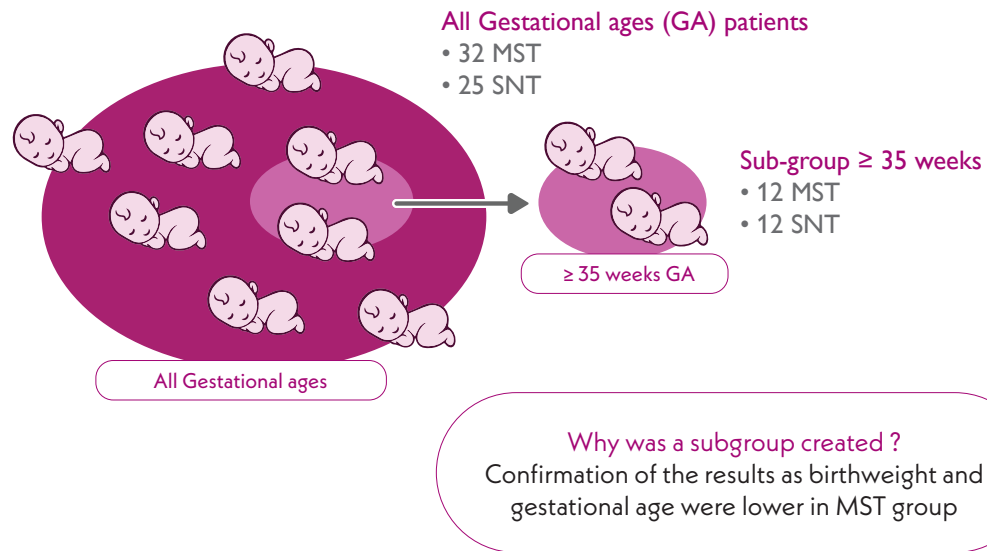
microsite

## Objective

This study aims to compare the success rates and cost of **Modified Seldinger Technique (MST, microsite)** vs. **Split Needle Technique (SNT, microflash)**.

A retrospective study at St Micheal's Neonatal Unit, Bristol, UK on routinely documented data of **1Fr and 2Fr catheters insertion**.

## Method



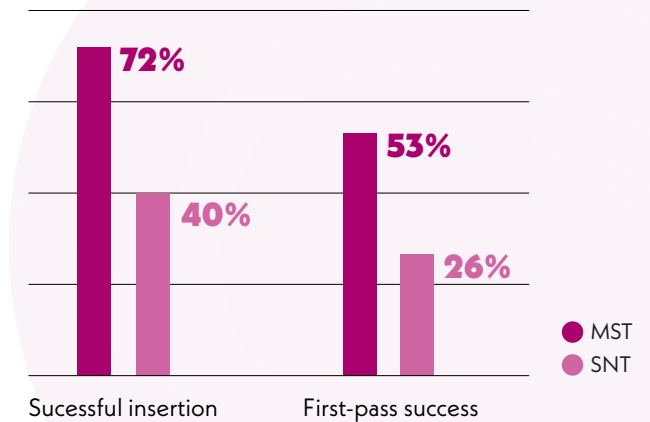
## Conclusion

Based on these results, the suggested benefits are the following

- Reduction of **pain, discomfort**, time **without central access** and **adequate nutrition**
- With every venepuncture, there's a +16% risk of developing a **CLABSI** (Central line-associated bloodstream infections)  
→ Less venepunctures = reduced risk of CLABSI

## Results

Comparison of the insertion success rate between MST and SNT for patients of all GA



A trend towards increased firstpass and overall success with MST in neonates 35weeks GA has been observed.



**Fewer venepunctures** per successful insertion for MST

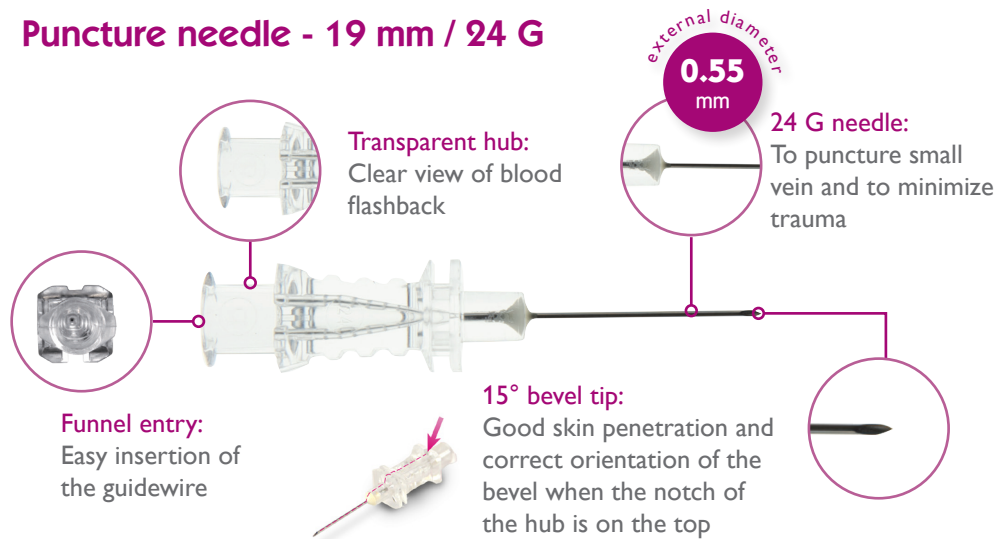


**Significant higher successful insertion and first-pass success** with MST

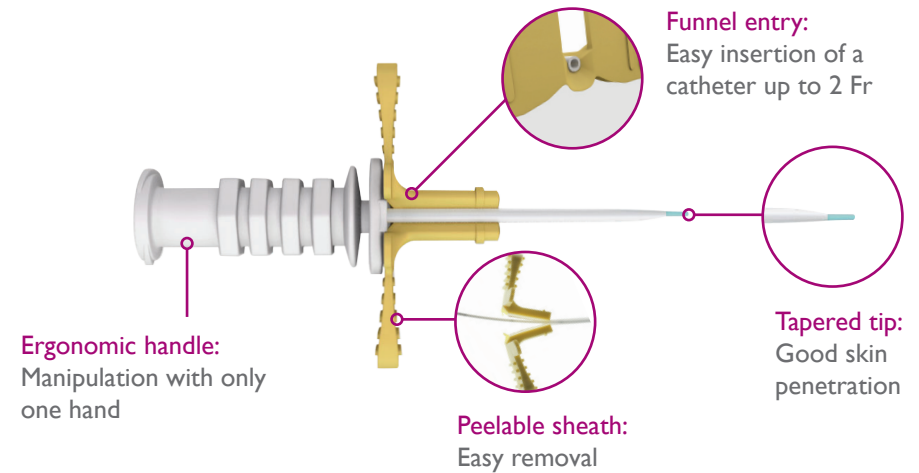


**Similar cost** per successful insertion

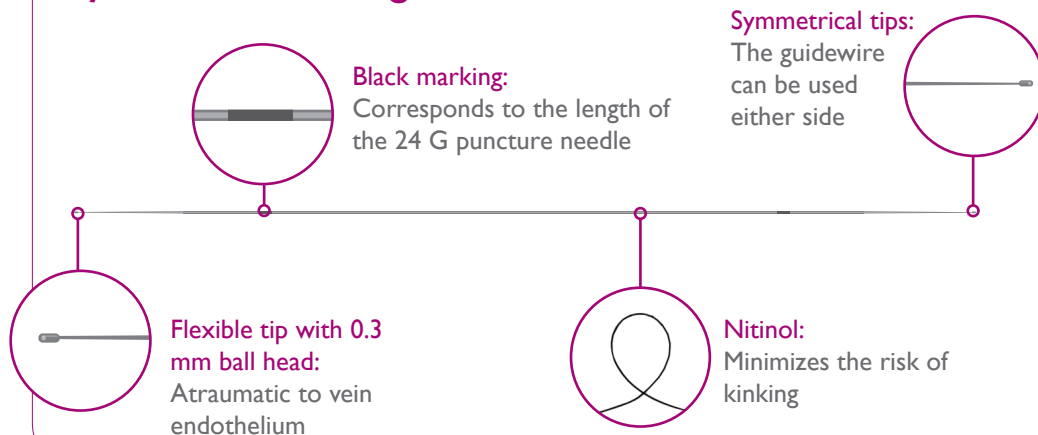
## Puncture needle - 19 mm / 24 G



## Sheath dilator for 1 Fr & 2 Fr catheters - 18 mm / 20 G



## Symmetrical Nitinol guidewire - 20 cm



## Guidewire insertion aid



**Funnel shape:**  
Ease the insertion of the sheath dilator over the guidewire

## Technical features

Designation & Code	Size		Indication	Compatible with	Quantity
	Puncture needle	Peelable sheath			
microsite 1147.02	External diameter		For the insertion of 1 Fr & 2 Fr catheters	premi <b>star</b> premi <b>cath</b> epicutan <b>neo cave</b> epicutan <b>neo2</b> nutri <b>line</b> nutri <b>line twinflo</b>	10/box
	0.55 mm	1.1 mm			
	Internal diameter				
	0.4 mm	0.7 mm			

## References

1. NANN. Peripherally Inserted Central Catheters: Guideline for Practice, 4th Edition, 2022
2. Modified Seldinger Technique with Ultrasound for PICC Placement in the Pediatric Patient:A Precise Advantage. Darcy Doellman et al. JAVA (2009) 14 (2): 93–99.
3. Hugill K, van Rens M. Inserting central lines via the peripheral circulation in neonates. Br J Nurs. 2020 Oct 22;29(19):S12-S18. doi: 10.12968/bjon.2020.29.19.S12. PMID: 33104432
4. Gibb JJ, MacLeod R, Mahoney L, Elanjikal Z. Modified Seldinger technique for neonatal epicutaneo-caval catheter insertion:A non-randomised retrospective study. J Vasc Access. 2021 Nov 11:11297298211054637. doi: 10.1177/11297298211054637

FOR FURTHER INFORMATION, PLEASE CONTACT: **questions@vygon.com**

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