



NEONATOLOGY

MODIFIED SELDINGER TECHNIQUE
INTRODUCTION KIT

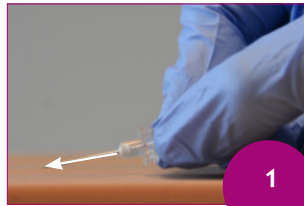
microsite

MST: MODIFIED SELDINGER TECHNIQUE

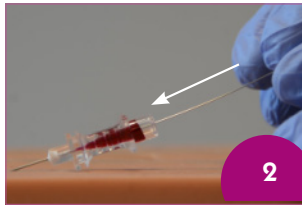


MINIMIZE VENOUS TRAUMA AND INCREASE THE RATE OF SUCCESSFUL INSERTION using the modified seldinger technique.

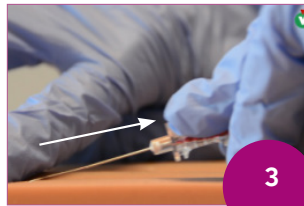
Procedure



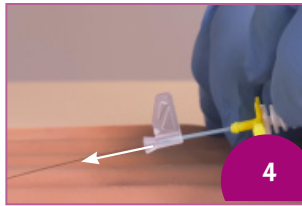
Needle puncture



Guidewire insertion



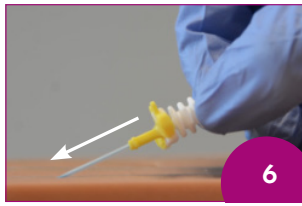
Needle removal



Sheath dilator insertion thanks to the aid



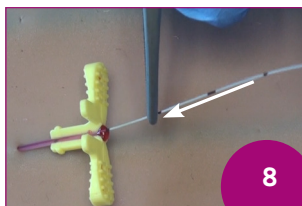
Guidewire insertion aid removal



Sheath dilator introduction



Guidewire and dilator removal



Catheter insertion

International recommendations and studies

PICCs : Guideline for Practice, 4th edition – NANN – 2022¹

“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 – 2009²

“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 - 2020³

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

CLINICAL STUDY: microsite VS microflash⁴

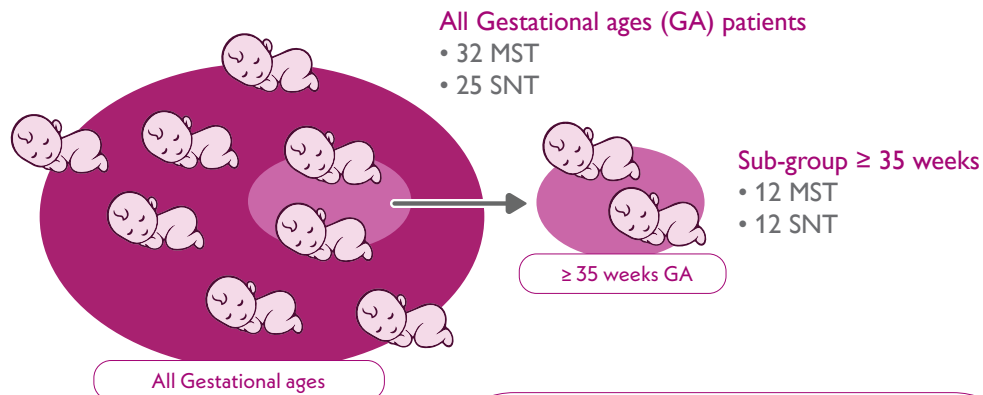
microsite

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



Why was a subgroup created?
Confirmation of the results as birthweight and gestational age were lower in MST group

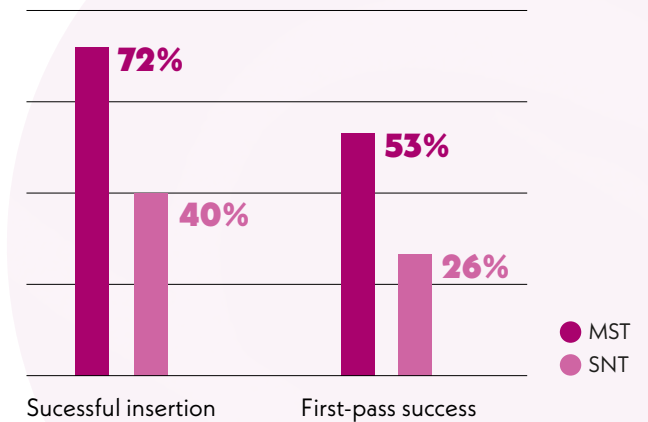
Conclusion

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

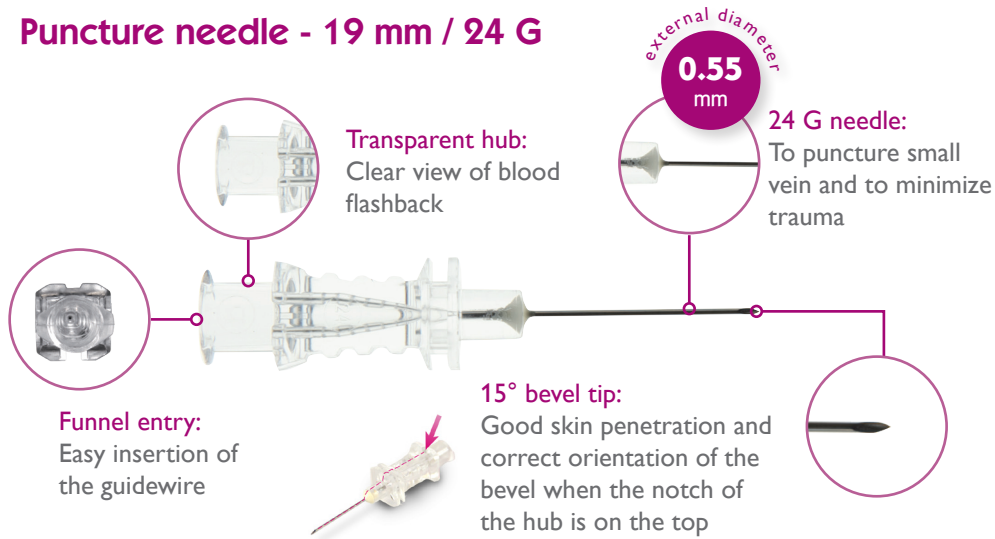


Significant higher successful insertion and first-pass success with MST

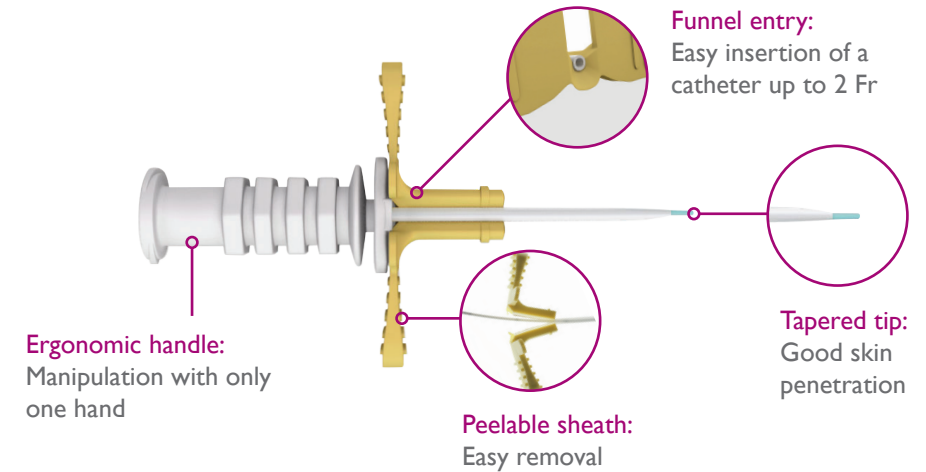


Similar cost per successful insertion

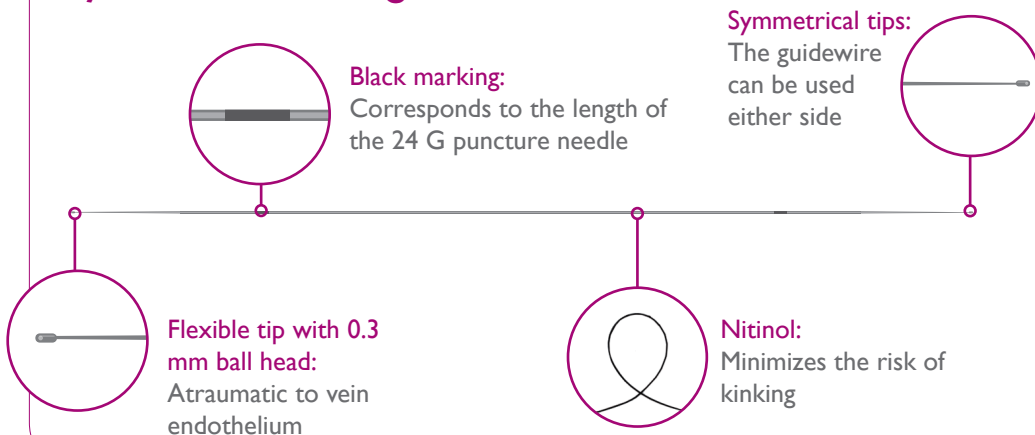
Puncture needle - 19 mm / 24 G



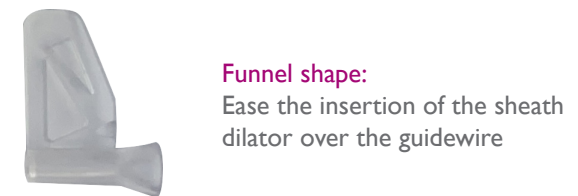
Sheath dilator for 1 Fr & 2 Fr catheters - 18 mm / 20 G



Symmetrical Nitinol guidewire - 20 cm



Guidewire insertion aid



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 star premi cath epicutane o cave epicutane o2 nutri line nutri line twinflo	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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