

It's all about



Choose Pencan<sup>®</sup> –  
because needle design  
matters in Spinal Anesthesia



## The role of needle design in Spinal Anesthesia success

Spinal anesthesia is a trusted technique used in millions of procedures worldwide. Yet, 5-8% of spinal anesthesia attempts fail\*, often requiring conversion to general anesthesia - leading to delays, discomfort, and increased risk of complications like post-dural puncture headache (PDPH).

While multiple factors influence the success of spinal anesthesia, needle design plays a critical- and often underestimated role in both precision and safety.<sup>2</sup>



**References**

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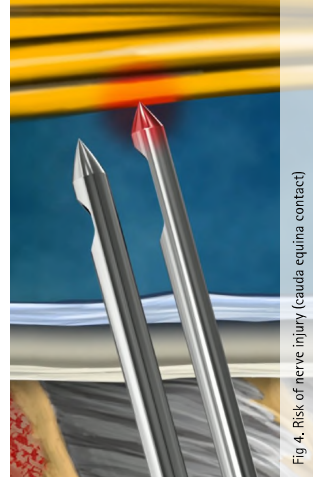
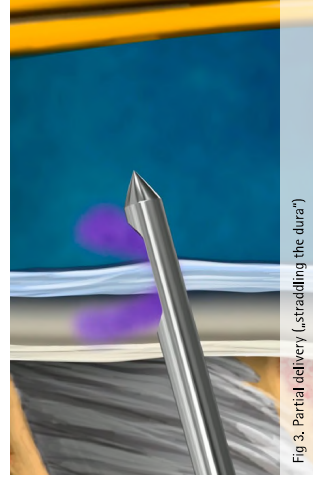
## Atraumatic Needles: Design details that make a difference

It is well established that atraumatic needle designs help reduce the risk of PDPH. However, atraumatic needles vary significantly between manufacturers in terms of tip geometry, orifice length, and eyelet positioning<sup>6</sup> (Fig 2). These differences can impact performance, safety, and user experience.<sup>7</sup>

Choosing the right atraumatic needle is essential—not just any atraumatic needle will do.

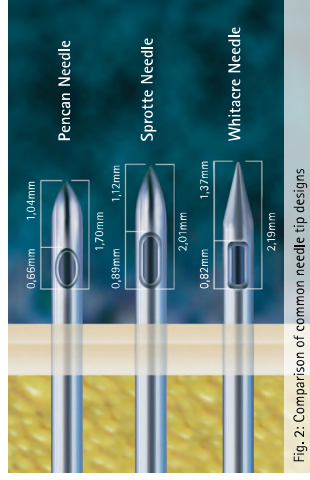
## Precision Matters: Reduce the risk of failed blocks

To deliver anesthetic effectively, the spinal needle must pass through several anatomical layers: skin, subcutaneous tissue, ligaments, and the dura mater. Success is confirmed by the appearance of cerebrospinal fluid (CSF) in the needle hub. However, needle design affects how reliably and safely this confirmation occurs. Poorly designed needles can result in partial placement, where the orifice lies between the subarachnoid and epidural spaces. This can lead to incomplete drug delivery and failed anesthesia, despite apparent CSF flashback<sup>8</sup> (Fig 3).



## Why choose Pencan as your atraumatic needle?

- ✓ **Short lateral orifice**  
Supports full intrathecal delivery and helps to reduce the likelihood of partial or incomplete anesthesia.
- ✓ **Optimized eyelet positioning**  
Designed to enable faster CSF flashback, aiding correct and quick placement – reducing the need for multiple attempts.
- ✓ **Blunt atraumatic tip**  
Provides a clear “dural pop” for tactile feedback, helps minimize nerve contact, and promotes a clean dural tear—associated with lower PDPH rates.
- ✓ **Safer geometry**  
Designed to reduce the risk of cauda equina contact, especially important in pediatric patients.



A shorter tip-to-back-of-eyellet distance helps minimize the insertion depth of the needle tip into the subarachnoid space, reducing the risk of nerve contact and ultimately lowering the chance of paresthesia.<sup>9</sup> ( Fig.4) It also enables faster CSF return for better control during placement.

**Pencan® sets the standard**  
in atraumatic spinal needle design,  
combining advanced engineering  
with clinical insight.

## Spinal needles

| Pencan®                                                                             | Color code    | Size (G) / Length (inch) | ø / Length (mm) | Units per box | Code no. (REF) NHD Luer | Code no. (REF) Pencan® NX Luer | Code no. (REF) Pencan® NX NRFit® |
|-------------------------------------------------------------------------------------|---------------|--------------------------|-----------------|---------------|-------------------------|--------------------------------|----------------------------------|
|    |               | 27 x 3 1/2"              | 0.42 x 88       | 25            | 4502027-01              | 4532702                        | 4532702N                         |
|                                                                                     |               |                          |                 |               | 4502051-13 *            | 4532703 *                      | 4532703N *                       |
|                                                                                     |               | 25 x 3 1/2"              | 0.53 x 88       |               | 4502019-01              | 4532503                        | 4532503N                         |
|                                                                                     |               |                          |                 |               | 4502043-13 *            | 4532504 *                      | 4532504N *                       |
|                                                                                     |               | 22 x 3 1/2"              | 0.73 x 88       |               | 4502035-13              | 4532201                        | 4532201N                         |
|                                                                                     | Long Length   |                          |                 |               |                         |                                |                                  |
|                                                                                     |               | 27 x 4"                  | 0.42 x 103      | 25            | 4502124-13 *            | 4532704                        | 4532704N                         |
|                                                                                     |               |                          |                 |               |                         | 4532705 *                      | 4532705N *                       |
|                                                                                     |               | 27 x 4 3/4"              | 0.42 x 120      |               | 4502132-13              | 4532706                        | 4532706N                         |
|                                                                                     |               |                          |                 |               |                         | 4532707 *                      | 4532707N *                       |
|                                                                                     |               | 25 x 4"                  | 0.53 x 103      | 20            | 4502116-13 *            | 4532505                        | 4532505N                         |
|                                                                                     |               |                          |                 |               |                         | 4532506 *                      | 4532506N *                       |
|                                                                                     |               | 25 x 4 3/4"              | 0.53 x 120      |               | 4502120-13              | 4532507                        | 4532507N                         |
|                                                                                     |               |                          |                 |               |                         | 4532508 *                      | 4532508N *                       |
|                                                                                     |               | 25 x 6.1"                | 0.53 x 156      |               | -                       | 4532510 *                      | 4532510N *                       |
|                                                                                     | Pediatric use |                          |                 |               |                         |                                |                                  |
|  |               | 27 x 2"                  | 0.42 x 50       | 25            | 4502175-13              | 4532701                        | 4532701N                         |
|                                                                                     |               | 25 x 1"                  | 0.53 x 25       |               | 4502167-13              | 4532501                        | 4532501N                         |
|                                                                                     |               | 25 x 2"                  | 0.53 x 50       |               | 4502159-13              | 4532502                        | 4532502N                         |

\*with Spinal Introducer (Luer compatible)

## Spinal introducer



| Spinal Introducer Needles<br>(for SpinoCan® and Pencan®) | Size (G)/<br>Length (inch) | ø/Length<br>(mm) | Units<br>per box | Code no. (REF)<br>NHD Luer (compatible) | Code no. (REF)<br>NX Luer (compatible) | Code no. (REF)<br>NX NRFit®** |
|----------------------------------------------------------|----------------------------|------------------|------------------|-----------------------------------------|----------------------------------------|-------------------------------|
| For Spinal Needles 27 G to 29 G                          |                            |                  |                  |                                         |                                        |                               |
|                                                          | 22 x 1"                    | 0.70 x 25        | 25               | -                                       | 4552201                                | 4552201                       |
|                                                          | 22 x 1 3⁄8"                | 0.70 x 35        |                  | 4500059-13                              | 4552202                                | 4552202                       |
|                                                          | 22 x 1 3⁄4"                | 0.70 x 45        |                  | -                                       | 4552203                                | 4552203                       |
| For Spinal Needles 24 G to 26 G                          |                            |                  |                  |                                         |                                        |                               |
|                                                          | 20 x 1"                    | 0.90 x 25        | 25               | -                                       | 4552001                                | 4552001                       |
|                                                          | 20 x 1 3⁄8"                | 0.90 x 35        |                  | 4505000-13                              | 4552002                                | 4552002                       |
|                                                          | 20 x 1 3⁄4"                | 0.90 x 45        |                  | -                                       | 4552003                                | 4552003                       |

\*\* can be used with Spinal Needles NRFit® but does not have a NRFit® connector!