

# PICC/CVC stabilization - Literature review



Literature Review

Literature review of **March 2020**  
Version: **1.0**

Bedal literature review of the  
impact of stabilization devices for  
PICC and CVC catheters

## Advantages of PICC/CVC stabilization

Catheter stabilization is recognized increasingly as an important intervention in reducing complications of phlebitis, infection, catheter migration, and catheter dislodgment<sup>1</sup>.

## INS standards of practice

The Infusion Nurse Society (2011) states that, whenever feasible, a stabilization device is preferred<sup>2</sup>. The recommendation includes preferred use of a manufactured catheter stabilization device, but not a particular device<sup>1</sup>.

## Device criteria

Device should:

- Preserve the integrity of the access device
- minimize catheter movement at the hub
- Prevent catheter dislodgement and loss of access
- Should not interfere with monitoring of access site or impede vascular circulation or delivery of the therapy

## Practice criteria

- The use of a catheter stabilization device should be considered the preferred alternative to tape or sutures when feasible
- These devices should be considered to mitigate risk of needlestick injury
- Sutures may increase the risk of infection due to suture wounds near insertion site

## Studies

### Costs

A hospital acquired bacteraemia leads to an increased cost of 12.853€ per case in Belgium, a longer stay (up to 21 days) and a mortality rate of 32%<sup>6</sup>.

Pirson, 2004

### Prevention

CLABSI has the highest number of preventable deaths and has the highest cost impact of all HAI's<sup>7</sup>.

Umscheid, 2011

### Costs in the US

In the US, the cost of an infection range from \$33.000 to \$75.000 for a patient in the ICU<sup>8</sup>.

Hollenbeak, 2011

## Economic impact of PICC stabilization<sup>3</sup>

Costs associated with PICC placement and maintenance: using a stabilization device results in a **43% reduction of cost**

COST COMPONENT	Sutures	Stabilization device
Insertion cost per PICC	\$268	\$270
Maintenance cost per PICC	\$7,83	\$3,07
Complication cost per PICC	\$329	\$71

## Devices

The literature review focusses on central venous catheters, both Central Venous Catheters (CVC) as Peripherally Inserted Central Catheters (PICC)



PICC line



CVC line



Tunneled CVC line

## Complications

### CLABSI

Central Line associated blood stream infections are reduced by 80% when using a stabilization device<sup>4</sup>

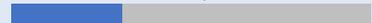
80% reduction of CLABSI



### Complications

A reduction of complications associated with PICC lines is observed of 24%<sup>5</sup>

24% reduction of overall complications



### Unplanned removals

A reduction in unplanned removals of the PICC line of 71% is observed, so a reduced need for PICC restarts<sup>3</sup>.

71% reduction of unplanned removals



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