

PICC/CVC stabilization - Literature review



LITERATURE REVIEW

Performance review of **November 2021**
Version: **3.0**

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 dislodgement¹.

Various guidelines on catheter securement



"Use a sutureless securement device to reduce risk of infection"⁹
"Use sterile gauze or dressing to cover catheter site"⁹
"Replace transparent dressings at least every 7 days"⁹



"Standard dressings, tape, or sutures are not considered effective alternatives for catheter securement"¹⁰
"Use a securement device is recommended to control movement and unintentional dislodgement"¹⁰



"Use transparent dressing to cover the exit site and replace every 7 days"¹⁰
"Use a stabilization device to prevent dislodgement and complications"¹¹
"Do not rely on transparent dressings for stabilization of catheters"¹¹
"Avoid use of tape or sutures; they are associated with needlestick injury and increasing risk of catheter-related bloodstream infection (CRBI)"¹¹
"Use transparent dressing to cover exit site"¹¹
"Replace transparent dressing when damp or loosened"¹¹
"Replace transparent dressing every 7 days"¹¹

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%⁶.

Pirson, 2004

Prevention

CLABSI has the highest number of preventable deaths and has the highest cost impact of all HAI's⁷.

Umscheid, 2011

Costs in the US

In the US, the cost of an infection ranges from \$33.000 to \$75.000 for a patient in the ICU⁸.

Hollenbeak, 2011

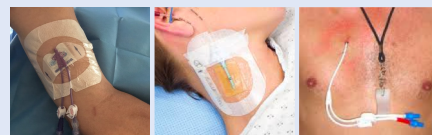
Economic impact of PICC stabilization³

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 device⁴.

80% reduction of CLABSI

Complications

A reduction of complications associated with PICC lines is observed of 24%⁵.

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 restarts³.

71% reduction of unplanned removals

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