

Medtronic



PALINDROME™ PRECISION DIALYSIS CATHETER

Micro-costing analysis from an Italian experience

The Palindrome™ Precision is a tunneled central venous catheter with a unique symmetric tip and laser-cut side slots to minimise the likelihood of recirculation and positional occlusion, as well as reduce the formation of clots by decreasing fibrin adherence.



Clinical evidence for Palindrome™ Precision

Compared to other catheters available on the market, Palindrome™ Precision has demonstrated:

- A **lower rate of complications** including infections and catheter dysfunction^{1,2,*†}
- A **higher catheter survival rate**^{1-3,*†,‡}
- A **low blood recirculation rate**^{1,2}
- Its design helps **reduce thrombus formation** on the catheter tip, and, as a result, any associated complications.^{3,4}
- A **lower rate of** catheter removal due to low blood flow or infection^{2,†}
- A **higher blood flow rate**^{5,§}



70,000

Patients
in Italy with
ESRD⁶

The clinical value of Palindrome™ Precision

End Stage Renal Disease (ESRD) is the final stage of renal failure, in which the build-up of toxic substances and fluids, combined with electrolytic imbalance, can trigger the onset of uraemic syndrome. This condition can cause death if the patient is not treated with renal replacement therapy with dialysis or transplant.⁷

40,000

Patients in
haemodialysis^{6,8}

4,500

Patients in
**peritoneal
dialysis**⁸

6,500

Patients
**awaiting a
transplant**⁹



Tunnelled Central Venous Catheters (CVCs)

Haemodialysis catheters are an important temporary vascular access option in patients who need chronic haemodialysis, those awaiting renal transplant and those whose peritoneal dialysis access or arteriovenous fistula is currently under maturation or not functional.¹⁰

When are they recommended?

According to the Kidney Disease Outcomes Quality Initiative (KDOQI) guidelines, it is reasonable in valid circumstances to use tunnelled CVCs for short-term and long-term durations for incident and prevalent patients.¹¹

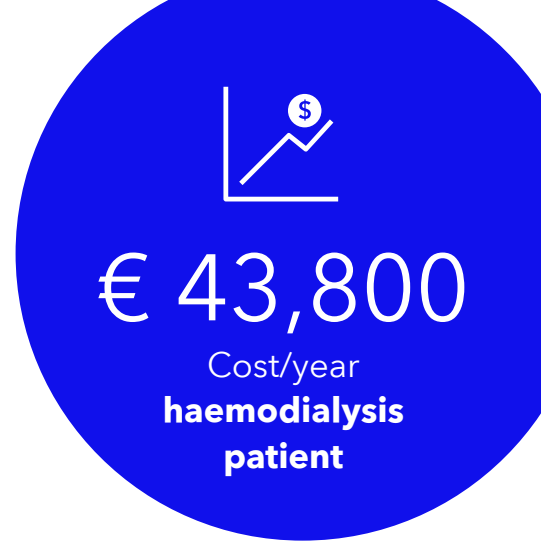
Related complications

The use of traditional tunnelled CVCs is associated with high complication rates (infections and catheter dysfunction) and mortality, with resulting negative impact on the quality of life of patients and a significant use of resources.¹ Over 40% of catheter failures are attributed to venous thrombosis and fibrin sheath formation.³

The economic value of Palindrome™ Precision

The treatment of end-stage renal failure imposes a substantial burden on the national health service.

Specifically, when considering an average cost per single service of € 281 for 3 weekly sessions, the annual health care cost of an haemodialysis patient in Italy amounts to € 43,800.¹²



Economic evidence

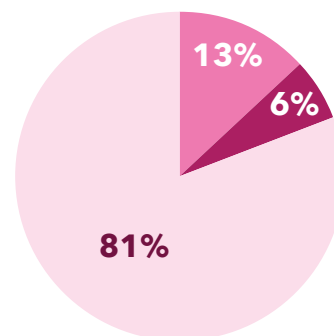
The use of tunnelled catheters in haemodialysis patients is often correlated to the onset of **infections or dysfunction**¹³, which may require revision or replacement in the operating room or in the angiographic room.¹⁴

In 2021, during the XIX *Congresso Nazionale della Società Italiana di Chirurgia Vascolare ed Endovascolare (SICVE)* [National Congress of the Italian Society for Vascular and Endovascular Surgery (SICVE)], an economic Micro-costing analysis from a hospital perspective was presented to provide an estimate of the unit cost to treat complications associated with the use of a tunnelled catheter in patients undergoing haemodialysis.¹³

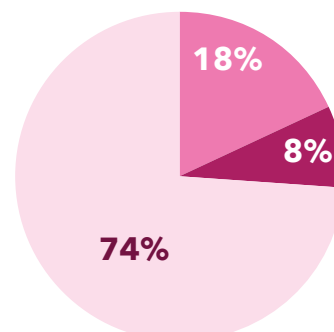


Adverse event management cost

1,270 €
Total cost / episode per
catheter dysfunction



895 €
Total cost / episode per
catheter infection



- Materials
- Operating room
- Staff

Compared to other tunnelled catheters available on the market, **Palindrome™ Precision has a higher survival rate and a lower complication rate**, including infections and dysfunction.⁵⁻⁹



Savings in handling complications

-1,270 €

Total cost / episode per
catheter dysfunction

-895 €

Total cost / episode per
catheter infection



Palindrome™ Precision is a good investment: reduces health care costs & improves patient quality of life



Note: Patient population refers to the Italian territory and economic evidence is based on the micro-costing analysis carried out by 'Azienda Ospedaliera Universitaria Ospedali Riuniti di Ancona, U.O.C. Chirurgia Vascolare' and presented during the XIX National Congress of the Italian Society for Vascular and Endovascular Surgery (SICVE).

*Compared to results previously reported in the literature †Compared to Quinton™ Permcath™ step-tip hemodialysis catheters ‡Compared to Medcomp® step-tip hemodialysis catheters §Compared to non-side-hole Mahurkar™ Maxid hemodialysis catheter, Medcomp® Split Cath hemodialysis catheter and Mahurkar™ Maxid hemodialysis catheter modified with "blunt tip"

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Important: Please refer to the package insert for complete instructions, contraindications, warnings and precautions.

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