



# Cost-effectiveness of Use of Trailblazer<sup>™</sup> Support Catheter In Endovascular Interventional Procedures of Peripheral Vascular Diseases In Türkiye Şentürk E<sup>1</sup>, Şentürk A<sup>1</sup>, Özatkan Y<sup>2</sup>, Turgut G<sup>3</sup>, Öztürk C<sup>3</sup>, Yurter S<sup>3</sup>, Çankaya İ<sup>3</sup>, Karakaş G<sup>3</sup>

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# **INTRODUCTION AND OBJECTIVE**

The TrailBlazer<sup>™</sup> support catheter is a single-lumen, percutaneous catheter specifically designed for use in the peripheral vascular system. The aim of this study was to evaluate the cost-effectiveness of the TrailBlazer<sup>™</sup> support catheter when used in high-risk patient groups undergoing endovascular interventional procedures for peripheral vascular disease in Türkiye.

Table 1 illustrates the comparative effectiveness data between the use of TrailBlazer<sup>™</sup> and without it across various categories. Notably, the success rate of the procedure increases significantly with TrailBlazer<sup>™</sup>, from 45% to 90%, while the need for surgical treatment (bypass) decreases from 30% to 5%. Furthermore, the usage of the second guidewire and the rates of complications, including stroke and infection, are notably lower

## **MATERIAL AND METHODS**

An economic model for the use of the TrailBlazer<sup>™</sup> support catheter was developed from the payer's perspective in Türkiye, including direct medical costs. A simple decision analysis model was used to compare the cost-effectiveness of procedures with and without the TrailBlazer<sup>™</sup> support catheter. Given the limited availability of clinical trials and medical device comparator studies, effectiveness data for the TrailBlazer<sup>™</sup> arm and the comparator arm (procedures without the support catheter) were derived from expert opinion. Key outcome measures included procedural success rates, bypass rates, use of second guide wire, and complication rates, with associated costs calculated for each treatment arm. The results were expressed as the incremental cost-effectiveness ratio (ICER), which represents the cost per event prevented, including when TrailBlazer<sup>™</sup> is used.

## Table 2: Cost Inputs

| Costs (TRY) |
|-------------|
| 8.994,90    |
| 23.674,82   |
| 640,19      |
| 57.394,46   |
| 9.673,88    |
| 5.659,50    |
|             |

# RESULTS

#### Table 3: Events and Costs

|                                | Procedures | TrailBlazer™ + Events<br>Costs (TRY) |
|--------------------------------|------------|--------------------------------------|
| With TrailBlazer <sup>TM</sup> | 2.024      | 38.117.874                           |
|                                | Events     | Events Prevented                     |

successful procedures, bypasses, reduced guidewire use, and complications prevented. Unit costs were obtained from the Social Security Institution's (SSI) official price list, and comparisons were made between procedures with and without the TrailBlazer<sup>™</sup> catheter.

## INPUTS

#### Figure 1: Model Structure



|                                   | 992        | 2.307              |
|-----------------------------------|------------|--------------------|
| Without TrailBlazer <sup>TM</sup> | Procedures | Events Costs (TRY) |
|                                   | 2.024      | 48.920.468         |
|                                   | Events     |                    |
|                                   | 3.298      |                    |

#### Table 4: Cost Effectiveness Results

| Arms                                 | Adverse<br>Events | Adverse<br>Events<br>Prevented | Total Costs<br>(TRY) | Incremental<br>Cost (TRY) | Incremental<br>Cost<br>Effectiveness<br>Rate(ICER) |
|--------------------------------------|-------------------|--------------------------------|----------------------|---------------------------|--|
| With<br>TrailBlazer <sup>TM</sup>    | 992               | 2.307                          | 38.117.874           | -10.802.594               | - 4.683 TRY<br>Dominant                            |
| Without<br>TrailBlazer <sup>TM</sup> | 3.298             |                                | 48.920.468           |                           |  |

The cost-effectiveness analysis showed that the ICER was -4,683 TRY, indicating that the use of the TrailBlazer<sup>™</sup> support catheter was dominant, meaning that it provided greater clinical benefit at a lower total cost. The analysis estimated that the use of the

#### Table 1: Clinical Inputs

| <b>Effectiveness Rates</b>  | Without<br>TrailBlazer <sup>TM</sup> | With<br>TrailBlazer <sup>TM</sup> |
|-----------------------------|--------------------------------------|-----------------------------------|
| Procedural Success          | 45%                                  | 90%                               |
| Surgical Treatment (Bypass) | 30%                                  | 5%                                |
| Use of Second Guide wire    | 70%                                  | 30%                               |
| Complication 1 (stroke)     | 4%                                   | 2%                                |
| Complication 2 (infection)  | 4%                                   | 2%                                |

TrailBlazer<sup>™</sup> catheter would prevent 2,307 adverse events and result in total savings to the SSI budget of 10,802,594 TRY (approximately €311,585, using exchange rate of 34.67 TRY/€).

# CONCLUSIONS

The use of the TrailBlazer<sup>™</sup> support catheter in endovascular interventions for peripheral vascular disease represents a cost-effective treatment option in Türkiye, offering both improved clinical outcomes and reduced healthcare costs.