



# Direct and Indirect Economic Burden due to Chronic Limb Threatening Ischemia (CLTI) in Germany

EE331

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## Background and Objective

**Why burden of disease analyses are important?** Analyses of health and economic consequences of a disease play a critical role in quantifying the societal and economic impact of health conditions<sup>1</sup>, —but their value extends beyond policy or academic insight. For medtech companies, studies that evaluate the health and economic consequences of a disease represent a powerful tool to guide strategic decisions, inform investment priorities, and enhance alignment with healthcare system needs<sup>2</sup>.

**What skills are required for a burden of disease analysis?** **Table 1** provides a summary of the most important stages of such an analysis along with the required skillset<sup>3</sup>.

Stage Title	Key Skillsets Required
Defining the scope and health context	<ul style="list-style-type: none"><li>▪ Disease epidemiology and population health analysis</li><li>▪ Clinical knowledge and understanding of care pathways</li></ul>
Gathering and synthesising evidence	<ul style="list-style-type: none"><li>▪ Evidence synthesis and critical appraisal</li><li>▪ Familiarity with real-world data sources</li><li>▪ Communication and stakeholder engagement (e.g. clinicians, data holders)</li></ul>
Economic modelling and cost quantification	<ul style="list-style-type: none"><li>▪ Health economics (cost-of-illness, cost-effectiveness analysis)</li><li>▪ Proficiency in modelling tools (Excel, R, Python)</li><li>▪ Application of discounting, sensitivity, and scenario analyses</li></ul>
Interpreting results and drawing insights	<ul style="list-style-type: none"><li>▪ Critical thinking and problem-solving</li><li>▪ Data interpretation and health communication</li><li>▪ Ability to tailor outputs for policy, payer, or industry audiences</li></ul>
Communicating findings and supporting decision-making	<ul style="list-style-type: none"><li>▪ Cross-functional collaboration (medical, market access, commercial)</li><li>▪ Strategic thinking</li><li>▪ Strong presentation and storytelling skills</li></ul>

Table 1: Key skills required for a burden of disease analysis

## Objectives

To maintain and futureproof Ireland as a global leader in medtech manufacturing and innovation, it is essential that both the industry and the research community strengthen their familiarity with value assessment methodologies. This study supports that goal by highlighting that a burden of disease analysis represents the critical first step in setting healthcare priorities. The primary objective of this case study is to demonstrate how health economic modelling can serve as a strategic tool for medtech companies. Our study focuses on measuring the direct and indirect economic burden of **Chronic Limb Threatening Ischaemia (CLTI)** to illustrate how such analyses can quantify the broader socioeconomic impact of disease.

## Method

We distinguished our patient population in gender (male/female) and diabetes subgroups (yes/no), as diabetes is an important risk factor for CLTI. A Markov model with six-month cycles was developed to simulate the lifetime progression and treatment of patients with CLTI. **Figure 1** shows the cost elements included in our analysis. Stabilized patients were assumed to receive ongoing care, including rehabilitation and condition management, to reflect the chronic nature of CLTI.

## Methods (continued)

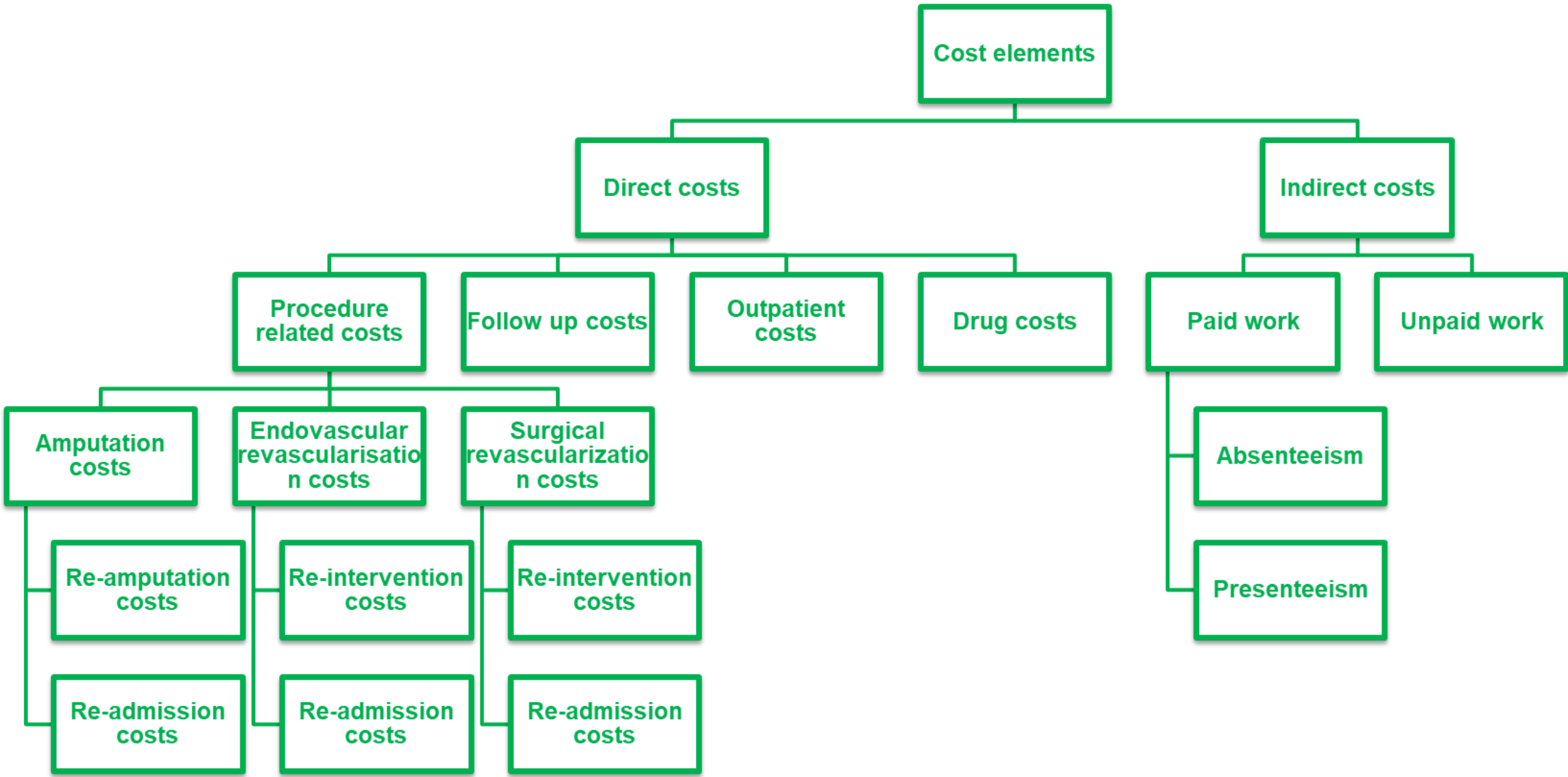


Figure 1: Economic elements of the model

## Results

The total economic burden of CLTI was substantial, amounting to €8.99 billion over a lifetime horizon (**Figure 2**). Notably, productivity losses represented a significant portion of the overall costs, with unpaid productivity losses being particularly impactful. These losses, which often arise from the inability of older patients to engage in unpaid work, underscore the need to account for this aspect, especially in an ageing population.

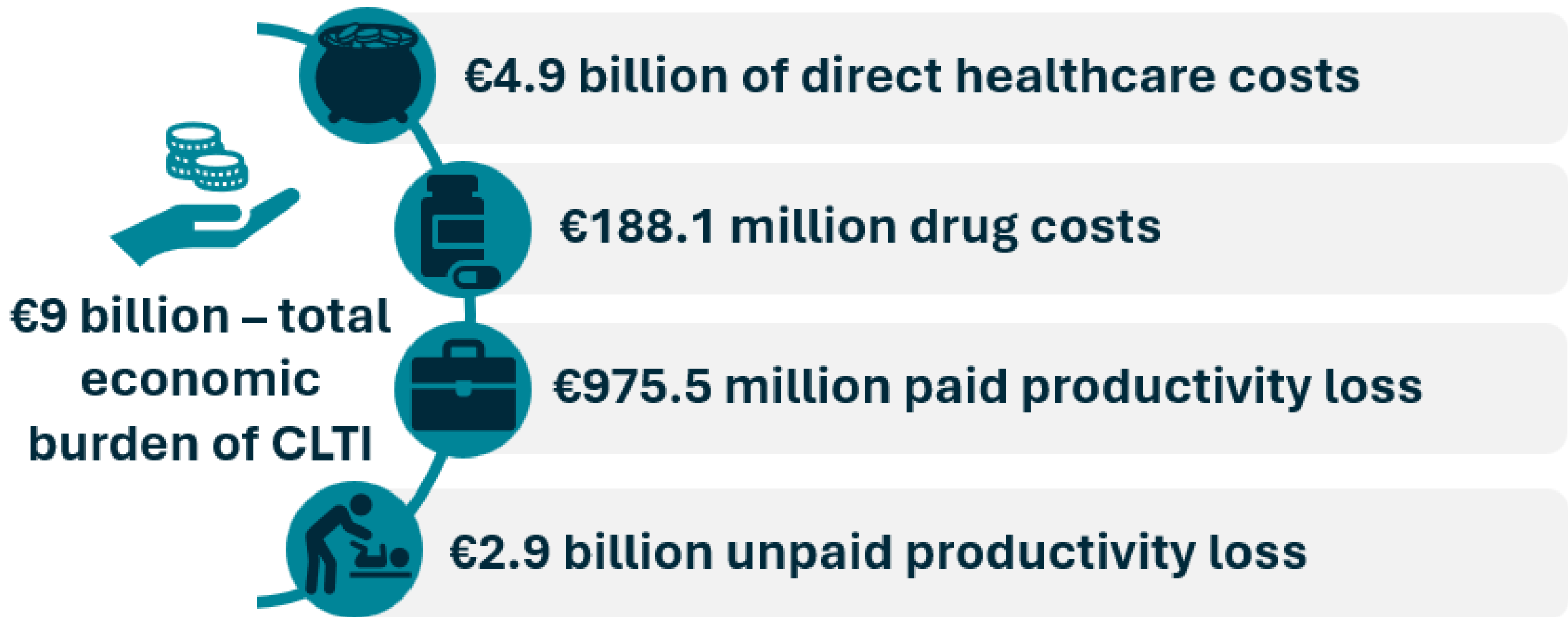


Figure 2: Direct and indirect economic burden of CLTI

## Conclusion

Burden of disease analyses provide far more than an academic understanding of health challenges — they serve as a strategic foundation for evidence-based decision-making. By quantifying both direct and indirect costs, these analyses enable medtech companies, policymakers, and healthcare systems to identify where innovations may deliver the greatest impact. The approach demonstrated here underscores how health economic modelling can inform R&D investment, guide market access strategies, and support data-driven prioritization of unmet needs — ultimately aligning innovation with societal and healthcare system value.

## Funding

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## References

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