

Evaluation of the Clinical and Economic Impact of the Cosman G4 Generator and Electrodes for Radiofrequency Ablation in Chronic Pain Treatment: an HTA in medical devices

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Objectives

Lumbar pain presents a significant global health challenge, prevalent in up to 90% of the population, with 12–40% exhibiting radicular symptoms. In 2020, approximately 619 million individuals worldwide reported lower back pain, marking a 60% increase since 1990. Radiofrequency ablation (RFA) is a minimally invasive procedure used in the treatment of chronic pain, in cardiac electrophysiology for the therapy of heart arrhythmias, and in the reduction or elimination of tumors. When utilized as a method for pain management, RFA, also known as radiofrequency denervation, destroys nerve tissues to disrupt pain signaling pathways to the brain.

Methods

The economic model chosen for the evaluation of the medical device—radiofrequency ablation for treating chronic pain—is a cost–outcome analysis that only considers direct costs. The budget impact analysis considers the cost of the medical device and the generated saving from avoided complications. The time frame for the BIM is 3 years.

RESULTS

The results show that the implementation of radiofrequency ablation costs EUR 1 600,62 per patient for a single procedure. These costs include 306.77 EUR for the necessary medical devices and EUR 1 290.85 for application fees.

The 3-year **budget impact analysis**, with 100% reimbursement, forecasts additional costs of **EUR 32 012.58** in Year 1 and **EUR 64 025,16** annually in Years 2 and **EUR 64 025,16 in Year 3**.

CONCLUSIONS

Despite the initial expenditure of EUR **1 600,62** per intervention, radiofrequency ablation (RFA) for chronic pain offers substantial long-term reductions in healthcare costs. By effectively managing symptoms and reducing the need for more costly treatments, RFA enhances patient quality of life and optimizes healthcare resource utilization.