

# Cost-utility analysis of the AlloMap® Test for the monitoring of patients after heart transplantation: economic evaluation alongside the CUPIDON Trial

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## BACKGROUND

- AlloMap® is a **non-invasive blood test** that can identify patients with low probability of moderate to severe acute cellular transplant rejection.
- The **International Society of Heart and Lung Transplantation recommends its use** for the monitoring of patients between 6 months and 5 years after heart transplantation.
- This test could be an alternative to systematic biopsies but is **expensive and not covered by French health insurance**.

## MAIN OBJECTIVE

- To perform an **economic evaluation of the AlloMap® test** for the monitoring of patients after heart transplantation

## METHODS

- Economic evaluation was conducted **alongside the CUPIDON multicenter randomized controlled trial** which enrolled patients between 2016 and 2020 in either the "AlloMap" or "Biopsies" strategy.
- The evaluation was conducted from a **healthcare system perspective** over a 30-month period.
- Costs were estimated using **actual hospital stay data**.
- QALYs were estimated using the **EQ5D-3L questionnaire** and preference scores validated in the French population.
- Uncertainty was handled using the nonparametric bootstrap and univariate analysis.

## RESULTS

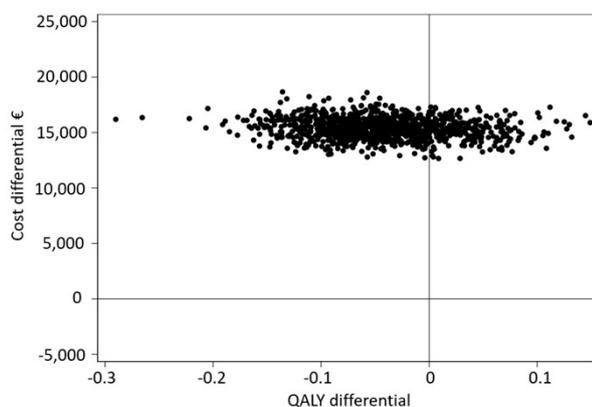
- **190 patients** were randomized and included in the cost-utility analysis. Initial characteristics of the populations were comparable.
- In the main analysis, the "AlloMap" strategy represented an **additional cost of around €15,380** compared with the "Biopsies" strategy. The average cost per patient was estimated at **€39,069 for the "AlloMap" strategy and €23,689 for the "Biopsies" strategy**.
- The average QALY per patient was estimated at **1.87 for the "AlloMap" strategy and 1.92 for the "Biopsies" strategy** but the difference was not significant.

**Table 2.** Results of the cost-utility analysis (cost/QALY)

	Biopsies strategy	Allomap strategy	Incremental	ICER*
Cost (mean in €)	23,689	39,069	15,380	-
QALY (mean)	1.92	1.87	-0.05	-336,712

\*ICER : Incremental Cost Effectiveness Ratio

**Figure 1.** Incremental cost-effectiveness ratio (ICER) Plane

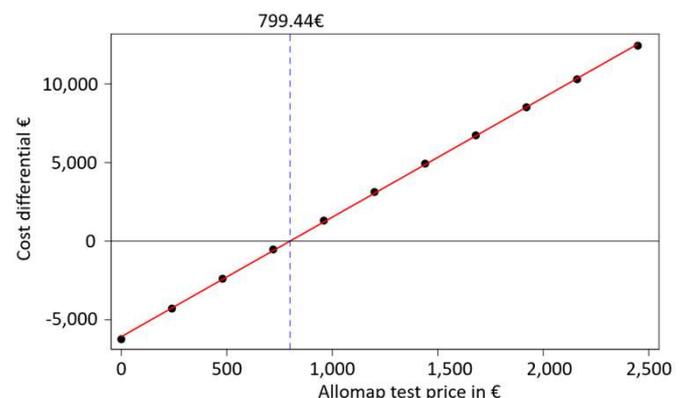


**Table 1.** Main characteristics of the study population

	Biopsies strategy	Allomap strategy	Overall population
	N=92	N=98	N=190
Gender			
	Female	19 (20.7%)	26 (26.5%)
	73 (79.3%)	72 (73.5%)	145 (76.3%)
Age			
	Mean ±SD	49.4 (13.2)	49.9 (12.3)
	51.8 (38.7, 59.2)	51.4 (43.3, 59.3)	51.5 (41.2 – 59.3)

- An **explanatory analysis** showed that the "Biopsies" strategy became more costly than the "AlloMap" strategy when the price of the test fell **below €799**.

**Figure 2.** Evolution of the cost difference between the two strategies in relation to the price of the AlloMap test



**CONCLUSION:** The AlloMap® test is expected to be cost effective for a price below €799 in a French setting. According to these results, there is a need to reflect on the optimal follow-up for heart transplantation patients.