

Cost impact of the use of a universal cardiac implantable electronic devices remote monitoring solution: results of the EVIDENCE RM study

E. Marijon¹, E. Vicaut², A. Abraham³, I. Ibnouhsein³, C. Henry³, G. Faedda³, A. Rosier³, N. Varma⁴

(1) Hopital Europeen Georges Pompidou, Paris, France (2) Hospital Lariboisiere, Paris, France (3) Implicity, Paris, France (4) Cleveland Clinic, USA



Background

- Remote monitoring (RM) is the standard of care for patients with CIEDs.
- In 2023 the HRS/EHRA/APHPRS/LAHRs expert consensus highlighted the potential interest of alert-based monitoring and the use of third-party platforms for RM management.
- Lightening RM workload enhances focus on patient care.

Purpose

- The study assessed the impact on healthcare costs of the adoption of a universal, vendor-neutral, alert-focused RM platform for CIED, versus Conventional RM operated via device specific manufacturers' platforms in France.

Methods

- Data source:
 - Patients followed with Implicity universal RM platform in 2019 paired with the French National Healthcare Database (SNDS) (Universal RM group).
 - Patients from the SNDS database followed with another RM solution (Conventional RM)
- Inclusion: ICD patients
- Exclusion: inconsistent RM or device type throughout 2019
- Biases mitigation: costs were adjusted according to age, gender, device type, year of first implantation, year of RM initiation, medical center experience with RM, and Elixhauser score for comorbidities.

Results

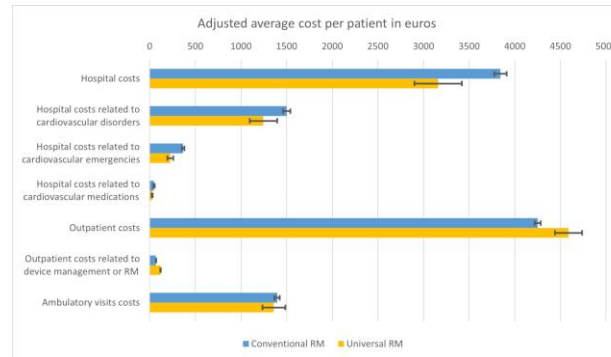
- 36,401 patients included: 1482 followed with the Universal RM, 34,919 with a conventional RM
- Among patients using the Universal RM system, a 4% decrease was noted in corrected total costs and a 17.8% reduction in hospital costs, primarily driven by decreased costs in cardiovascular disease care.
- Conversely, those same patients saw a 7.9% increase in total outpatient costs compared to those using Conventional RM.
- The Universal platform showed a negative Incremental Cost-Effectiveness Ratio (ICER) of -103€ per Day Alive Out of the Hospital
- Costs incurred by patients were excluded which could lead to a potential underestimation of total costs
- The Universal RM could be beneficial through more proactive preventive measures in outpatient care, possibly preventing critical conditions and reducing hospital costs.

Population	Universal RM	Conventional RM	P-value
Patients nbr	1,482	34,919	/
Age (years)	67.7 ± 11.1	67.7 ± 13.0	0.97
Sex (Male)	80.3 %	80.4 %	0.99
ICD/CRT-D (%)	60.3 / 39.7	60.3 / 39.7	0.98
Elixhauser index	12.6 ± 11.4	12.6 ± 11.8	0.99
1 st implant yr	2014.2 ± 2.8	2014.2 ± 2.8	0.99
1 st RM activation	2016.2 ± 2.0	2016.2 ± 2.0	0.99

Table 1: Patients population after IPW correction for mortality

	Universal RM	Conventional RM	Difference
Costs (€/year)	9,108 ± 353	9,490 ± 425	-382 ** (-4.0%)
DAOH (days/year)	355,5 ± 1.1	351,8 ± 1.4	+3.7** (+0.9%)
ICER (€ / days)			-103**

Table 2: Total costs, Days Alive Out of Hospital, incremental Cost-Effectiveness Ratio. ** p<0.0001



Conclusion

The use of a third-party Universal RM platform showed a positive impact in terms of costs reduction for the French healthcare system on this ICD population.