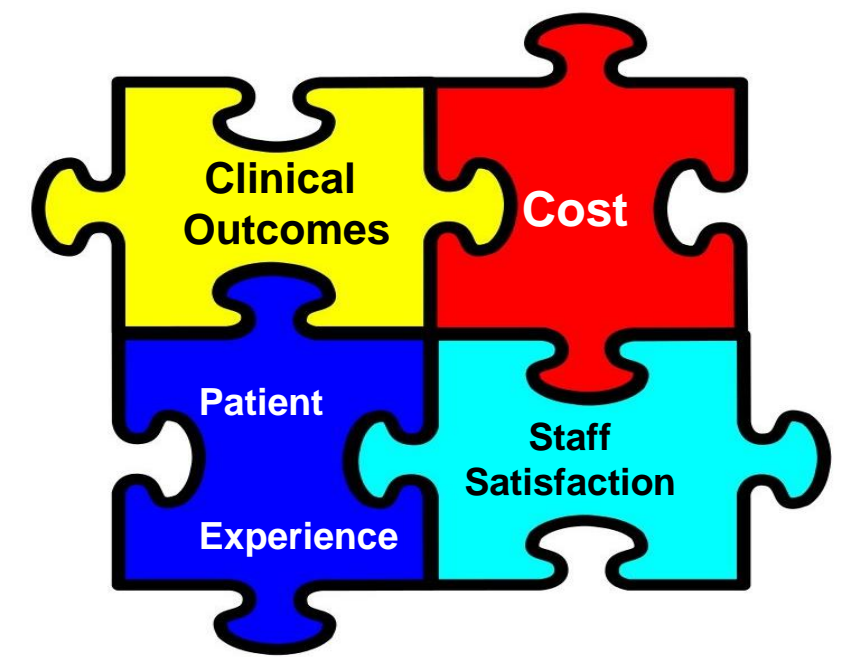


# Value Creation Through the Introduction of A Seven Day Per Week Pacemaker Implantation Pilot Program

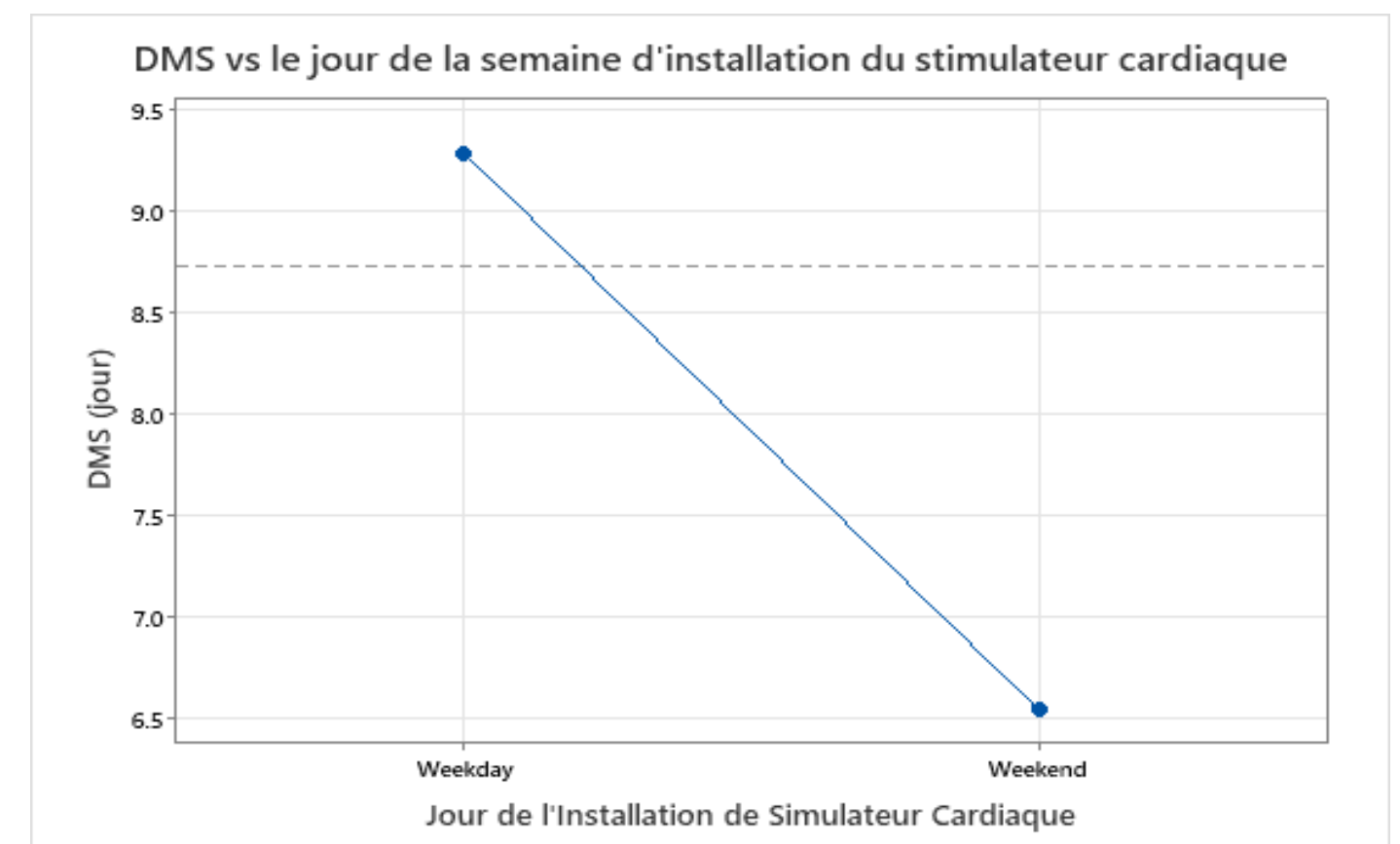
Ani Galstyan, Marc Bouffard, Bruno Benzaquen, Vartan Mardiavan, Nadira Ramrup, Anderson Darote, Sonia Boccardi, Erin Cook, Lawrence Rudski  
Jewish General Hospital, CCOMTL, Montreal, Quebec, Canada



## Introduction

Value-based care is founded on principles of outcomes that matter, costs, and healthcare worker satisfaction. The traditional healthcare system is built principally around a five-day work week while illness and access are a seven-day problem. Many believe that VBHC principles are in conflict when trying to apply these principles 7-days per week.

Elderly patients admitted for urgent pacemaker implantation are currently confined to bed while waiting, resulting in significant deconditioning. Additionally, there are fewer discharges on weekends with a maintained need to admit patients for specialized Monday procedures. Our site initiated a pilot project to study the hypothesis that value can be created by deploying a 7-day per week pacemaker program.



2.8 day reduction in LOS per patient

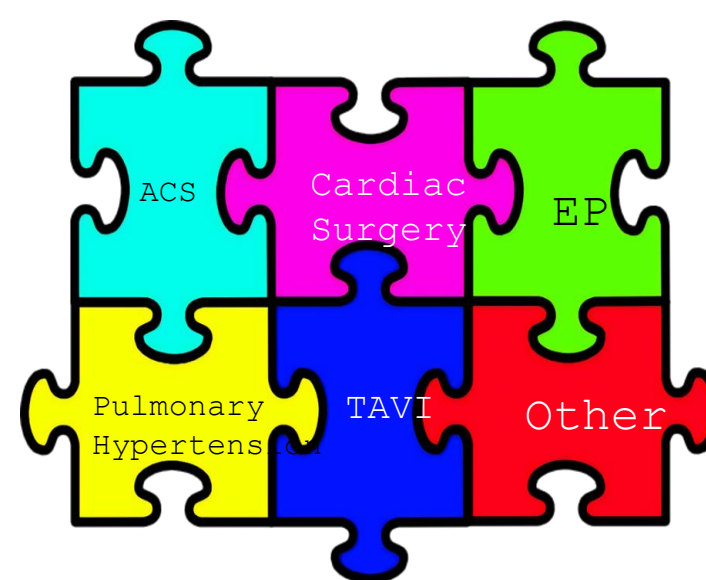
ED service faced with overcapacity of 250% with more than 300 visits per day.

Integrated Heart Center with 13 inflows

Tertiary/quaternary Missions in Cardiology and Cardiac Surgery

High demand for beds/resources Sunday for surgeries and interventions scheduled Monday

Procedures accumulate on weekend, creating additional stress and overtime to clear cases on Monday



## Methods

In a ground-up effort, physicians and catheterization lab nursing and electrophysiology staff were empowered to decide if a weekend pacemaker implant was indicated to improve flow and access.

We retrospectively analyzed patients entering through the emergency department between April 1, 2023 and March 30, 2024 for a clinically indicated pacemaker admitted on Friday, Saturday and Sunday and stratified them into two groups -those who received their device implant on the weekend for a “flow” indication, vs those who received their device on a weekday.

Total cost of hospitalization based on 2022-2023 tables was calculated based on time driven activity-based costing method (TDABC) using provincial software -Power Performance Manager (PPM). Costs were broken down into catheterization lab costs (salary, supplies and pacemaker) and cardiology unit costs (nursing, allied healthcare, pharmacy) and included both direct and indirect costs. Catheterization lab expenses were bonified for overtime pay – a key incentive for personnel buy-in. Average length of stay (LOS) was calculated for each group.

## Results

There were 74 patients admitted on Friday, Saturday and Sunday of which 15 had a pacemaker on the weekend for “flow reasons” (average age 87, 40% female) and 59 had a weekday implant (average age 80, 39% female). The average LOS was 9.3 days for the weekday group and 6.5 days for the weekend implant group, a reduction of 2.8 days. The daily cost for an admitted patient was \$1,484.17 and the salary costs on the weekend was \$2006.35, vs \$1337.57 on weekdays. After factoring in the additional weekend salary costs, the net cost difference for a weekend implant for “flow” indications was \$3486.88, principally driven by significant reduction in LOS.

Flow	n	Avg Age	DRG Acuity	Sex	LOS
Weekend	15	87	2.53	F=40%	6.5
Weekday	59	80	2.47	F=39%	9.3

Care Unit	
Costing Sector	Total Cost
Nursing	\$ 1,847,907.65
Pharmacy	\$ 84,585.55
Professional services (PT, OT, Nutri, SW etc.)	\$ 160,774.25
<b>Total Inpatient Cost</b>	<b>\$ 2,093,267.45</b>
TOTAL LOS	1410.4
<b>Daily Cost</b>	<b>\$ 1,484.17</b>

Cathlab	
Costing Sector	Total Cost
Pacemaker Supply	\$ 407,799.56
Pacemaker Salary	\$ 215,348.14
Nb of Patients	161
<b>Cathlab Salary Cost per patient (weekday)</b>	<b>\$ 1,337.57</b>
<b>Cathlab Salary Cost per patient (weekend)</b>	<b>\$ 2,006.35</b>

Total Savings	
Average LOS decrease related to weekend pacemaker	2.8 jours/patient
LOS realted cost savings per patient	\$ 4,155.66
Cathlab Weekend Salary Cost per patient	\$ 668.78
<b>Total Saving per patient</b>	<b>\$ 3,486.88</b>

## Discussion and Limitations

While not measured in this retrospective pilot, downstream savings in terms of reduced pressure on the emergency department and increased access for admissions for other cardiac procedures, and reduced overtime on Monday to “catch up”, would add to the benefits of this strategy. In addition PROMs and PREMs were not captured in this retrospective pilot.

This study was non-randomized, which may have privileged healthier patients to be done for “flow” indications to speed up discharge. The average age was higher in the weekend implant group however, and many frail elderly stand to benefit from an earlier procedure enabling earlier initiation of rehabilitation.

## Conclusion and Next Steps

In a staff-initiated and empowered program to implant pacemakers on weekends for improved flow, there were important reductions in cost per case principally related to reduction in LOS. Staff overtime pay – perceived as a benefit by those employees already on call – was more than offset by the financial savings from reduced LOS.

Further analysis will include specific PT/OT resource utilization and an expanded sample size, as this process becomes part of our heart center’s culture. Prospective tracking of patient and staff reported outcomes, as well as quantification of downstream value creation will be performed.