LINQ Project, Green Ward Competition 2016, Dartford & Gravesham NHS Trust

Project Description

Background: The Heart Centre Ward in 2016 developed this project to introduce LINQ devices to replace implantable loop recorders (ILRs), heart rhythm monitors that are implanted under the skin. The LINQ devices can be implanted out of the pacing lab setting by physiologists instead of consultants. For the patient, this created a more streamlined system with single point of expertise through the lead physiologist.

The LINQ devices require fewer follow up appointments for patients and could free up lab time and resources for other procedures.

Approach: Undertaking this project required the team work of the consultant cardiologists, the heart centre manager and at least 2 senior cardiac physiologists. Guidance from the device company on the device and infection control for creating a 'clean room' was needed. A clinic room, small drape, and Medtronic programmer were needed as well.

Intended Benefits

Patient outcomes: Using the new system, there is a reduction in waiting time for the patient, leading to earlier diagnosis and potential improvements to patient safety.

Environmental, Financial, Social: Overall, the switch to LINQ devices reduced the environmental impact and financial costs associated with repeated and prolonged hospital admissions. In addition, there have been social benefits to the patients from switch to a smaller device, reduced length of inpatient stay and move to remote follow up on discharge. Due to unavailability of good quality local data on the financial and environmental impacts, the following savings have been estimated based on a study comparing the LINQ device with a previous model in the UK, the Netherlands, and France (Kanters et al., 2016). The potential savings have been identified as:

Per Procedure	Implantable Loop Recorder				LINQ			
		£	kgCO2e	Social		£	kgCO2e	Social
Hospital Admission	Admission into day-care	336.44	37.9		Admission not required	0	0	Potentially improved patient satisfaction
Healthcare facility	Pacing lab (instruments / equipment)	121.90	36.57		Clean room (instruments / equipment)	6.10	1.83	Pacing lab and consultant are freed up for more complex cases
Healthcare facility	Cleaning pacing lab	69.48	44.05		Cleaning clean room	4.88	3.09	
Staff Time	Consultant Cardiologist, Nurse for 1 hour*	136.53			Physiologist (or technician) for 55 minutes**	59.73		Enhanced job role for physiologist
Device	Implantable Loop Recorder	***	***		LINQ	***	***	Smaller and more discrete device, meaning less discomfort / body image issues for patient; MRI safe
Materials	Dressing	28.04	43.18		Less dressing	24.38	37.55	
Medication	Anaesthetic and antibiotics used	7.31	3.15		Only anaesthetic used	2.44	1.05	
Total impacts		699.70	164.85			97.53	43.52	

Notes:
*based on estimated operation time (Kanters et al., 2016)
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***cost of devices were unavailable, but will depend on Trust

Overall, per device changed, there is an estimated £602.17 and 121.33 kgCO2e in savings. Based on the number of devices implanted each year, the savings would be higher.

Potential Barriers

Challenges to shifting towards the new system would be:

- Change in job role for physiologists
- Required training for new device for staff
- Set-up of the clean room
- National shortage of physiologists

What the team had to say:

"Utilising this new technology has made a positive green impact." – Robert Sargent

Key Aspects of the Project

This project considered the different inputs into the patient pathway for a particular procedure in the ward and changed the patient journey. By using a new device that reduced waste and streamlined the patient experience, this project was able to focus on patient outcomes and financial, economic, and social impacts altogether.

For more information please contact:

Robert Sargent, Chief Cardiac Physiologist, Robert.Sargent@dvh.nhs.uk, 01322 428106

References:

Kanters, T. A., Wolff, C., Boyson, D., Kouakam, C., Dinh, T., Hakkaart, L., … P.m.h, M. (2016). Cost comparison of two implantable cardiac monitors in two different settings: Reveal XT in a catheterization laboratory vs. Reveal LINQ in a procedure room. *EP Europace*, *18*(6), 919–924. https://doi.org/10.1093/europace/euv217