University of Miami

Member Information

Name	Year	Major
Patrick Bauer	2021	Economics & Political Science
Shravya Jasti	2021	Neuroscience
Christina Jayaraj	2021	Biochemistry & Classics
Ali Mirza	2021	Space Medicine & Classics

Advisor(s): Dr. Anita Cava
Topic: The Heart of the Problem: Reusing Pacemakers
Division: Undergraduate
Audience: Medtronic Board of Directors

Sustainable Development Goal

SDG #3: Ensure healthy lives and promote well-being for all at all ages

Target #3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

Indicator #3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease

SDG #12: Ensure sustainable consumption and production patterns

Target #12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

Indicator #12.5.1: National recycling rate, tons of material recycled

Executive Summary

With the ubiquitous rise of healthcare costs, innovative cost reduction methods are highly sought after. We believe Medtronic has much to gain by implementing a novel pacemaker recycling program and can do so in an ethical, lawful and sustainable manner. We propose making use of surplus, discarded pacemakers in the United States by refurbishing said medical devices and introducing them to markets in developing countries at a significantly reduced cost to the patients. Medtronic can thus position itself as a leader in the refurbished medical devices industry, and serve as a paragon of moral virtue to clients around the globe. Such a program is based upon fundamental economic principles of supply and demand; it will work to not only directly and sustainably reduce cardiovascular related mortality rates, but also indirectly provide the industry impetus for a further reduction in pacemaker installation costs through novel research and increased supply. It is also important to note that the reclamation of pacemakers affords Medtronic the opportunity to conduct further research for all of their products and develop novel refurbishment techniques. Ultimately, the medical refurbishment industry is a rapidly developing field, and the excess of discarded pacemakers in the U.S. presents a unique opportunity for gaining mass market share while investing in the research and development of superior refurbishment processes.