

pacemakers. When a patient receives a biventricular device upgrade, why not send their extracted generator with substantial battery life to My Heart Your Heart? Project My Heart Your Heart, based out of the University of Michigan, works with funeral homes and outside hospitals to sterilize and redistribute devices.

A survey indicated that most patients with pacemakers would willingly donate their device to underdeveloped countries after death (8). Fellows can encourage their clinic patients to create a “living pacemaker/defibrillator will” and send a donor form to the project.

Last, the international sessions at major cardiology conferences provide occasions to network and approach physicians involved with humanitarian EP. Furthermore, the American College of Cardiology created an International Cardiovascular Exchange Database to facilitate global health initiatives (9).

It is healthy and eye-opening to leave the comfort zone and daily routines of a resource-laden U.S.

medical center, especially for physicians-in-training. Most of all, it is humbling to realize a basic truth about the lottery of life: a person’s zip code or country of citizenship better predicts their prognosis than their genetic code or left ventricular ejection fraction.

Over several days of the excursion, our team evaluated 300 patients and performed 50 procedures, fueled by the dedicated local staff of physicians, nurses, anesthesiologists, fluoroscopy technicians, and clinic coordinators.

Although complications can occur, the benefit of humanitarian EP is overwhelmingly for good. To paraphrase Albert Camus (10), we cannot prevent this world from being a world in which young patients die from heart block, but we can reduce the number of preventable deaths.

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RESPONSE: Should We Prevent Death When Death Is Preventable, or Should We Just Stand There?

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Pacemakers have been in clinical use in the United States for 6 decades. Pacing is widely available in the United States and other high-income countries. We take for granted that once a patient makes it to a medical facility in complete heart block, he or she

will walk out of the hospital with a pacemaker, and quite likely be able to maintain their typical level of activity as before pacemaker implantation. Dr. Rubin awakens us from our complacency. Bradycardia is an infinitely curable condition, but that is not the case

in *most* of the world. His sentiment is very close to our hearts.

The concept of pacemaker reuse is not new. Large and small, mostly observational studies spanning several decades, have shown that pacemaker reuse is associated with a rate of infections comparable to new device implants, and the rate of malfunction, while several-fold higher than with new pacemakers, is still exceedingly small. We hope that you will find it hard to resist Dr. Rubin's call to action to help bridge the gap between access to pacemaker therapy in resource-rich and resource-poor nations. The call is based on a moral imperative to save lives when lives can be saved.

While we trust pacemaker reuse to be safe and efficacious, there is no legal or regulatory framework to support pacemaker and implantable cardioverter-defibrillator reuse. For understandable reasons, the World Health Organization has opposed donations of medical equipment from high-income to low- and middle-income countries when those items are not acceptable in the donor country. My Heart Your Heart and our partners are working to challenge this notion. We believe that it is possible to alter the regulatory landscape, provided there is a substantial body of

evidence showing beneficial outcomes of pacemaker reuse. My Heart Your Heart has developed validated cleaning and sterilization protocols, as well as electrical testing protocols, to ensure a predictable level of pacemaker reliability. We are on the cusp of a multicenter, prospective, randomized clinical trial to demonstrate that using this protocol can provide pacing to patients who simply would never be able to get a device otherwise.

We partner in this endeavor with other medical centers, professional societies, and the U.S. Food and Drug Administration. We are working with relevant stakeholders to create a registry for refurbished pacemakers and to create pacemaker implantation training cooperatives. To make widespread pacemaker reuse a reality, we must work together.

The equal value and dignity of every human being, regardless of his or her place of birth, is the underpinning of our profession. In our busy lives, our moral compass steers us to do the right thing and away from the wrong thing, but what about the omission of not doing the right thing? It is our conviction that when it comes to providing a reconditioned pacemaker to extend life, inaction is not ethically justifiable.