

# Implantable Cardiac Devices at Life's End: Is Deactivation Morally Licit?

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On May 14, 2010, the Heart Rhythm Society issued a consensus statement on the management of implantable cardiac devices (pacemakers and implantable cardioverter defibrillators) in patients nearing life's end or simply requesting deactivation.<sup>1</sup> The document was developed in conjunction with several other professional organizations--the American College of Cardiology, the American Geriatrics Society, the American Academy of Hospice and Palliative Medicine, the American Heart Association, and the European Heart Rhythm Association—and addresses several issues, among which are basic legal, ethical, and religious principles justifying deactivation, putting the process of deactivation into practice, and the logistics of deactivation.

It is estimated that several million people in this country have a pacemaker and over 650,000 have an implantable cardioverter defibrillator (ICD). Because of the beneficial nature of these devices, they are commonly employed in patients with certain cardiac abnormalities. Their numbers are likely to increase significantly in the years ahead, particularly because of our aging population and the expanding indications for their use. Consequently, clinicians are increasingly likely to encounter patients at the end of life with an implantable cardiac device. The vast majority of clinicians, however, are not sure how to deal with patients having these devices and,

therefore, do not discuss with their patients the possibility of deactivation at the end of life.<sup>2</sup> In addition, very few patients are aware that device deactivation is an option, or discuss this with their clinicians, or address it in their advance directive.<sup>3</sup> Yet it has been well documented that the presence of an implantable cardioverter defibrillator at the end of life (and less so a pacemaker) can be a source of physical and emotional suffering.<sup>4</sup>

So what is to be done with such devices at life's end? Are they to be considered a form of life-sustaining treatment? Is it ethically permissible to deactivate them? Is deactivation a form of legitimate treatment withdrawal or a form of assisted suicide or euthanasia, as some believe? This brief essay will consider the nature of these devices, major conclusions and recommendations of the Heart Rhythm Society consensus statement, and how one might think about deactivating these devices from the perspective of the Catholic moral tradition.

## **Pacemakers and ICDs: What Do They Do?**

First, it is necessary to consider the nature of each of these devices and why it might be desirable to deactivate them at the end of life. The primary purpose of a pacemaker is to correct persistent or intermittent bradycardia (slow heart beat) via electrical impulses that restore normal rhythm. They are also used of

late for patients with “heart failure, subvalvular stenosis, mitral valve disease, and treatment-resistant atrial fibrillation.”<sup>5</sup> For the most part, these devices do not prolong the life or suffering of a terminally ill person. “At the time of death, the myocardium is usually too sick to respond to the pacemaker-generated signals. ... [T]erminal events are often the result of sepsis, hemorrhage, pulmonary emboli, or arrhythmias from metabolic abnormalities associated with end-stage cancer, liver or renal failure.”<sup>6</sup> In most situations, deactivation of a pacemaker “is not indicated because the result is likely to be symptomatic bradycardia, producing signs and symptoms of worsening heart failure (fatigue, dizzy, dyspnea).”<sup>7</sup> Furthermore, contrary to popular belief, deactivation of a pacemaker will not lead to a quick and painless death because the vast majority of patients are not 100 percent pacemaker dependent. For those who are so dependent, however, deactivation will likely lead to asystole and death. However, it could also result in symptomatic bradycardia contributing to the slow failure of major organs and perhaps, something far short of a peaceful death.<sup>8</sup> In either case, symptom control is essential, and perhaps even a gradual approach to deactivation is preferable in order to periodically assess the impact on symptoms.

An implantable cardioverter defibrillator (ICD) is an electrical impulse generator implanted in patients who are at risk of sudden cardiac death due to ventricular fibrillation or ventricular tachycardia. The device detects cardiac arrhythmias and corrects them by delivering a jolt of electricity. These are permanent safeguards against sudden abnormalities. ICDs can also deliver pacing therapy which, as noted above, can actually provide comfort from the symptoms of heart failure. The dual functions of an ICD can be turned off independently. The shocks

from an ICD are known to be painful and anticipation of these shocks in the dying process can produce anxiety for both patient and family. In addition to creating physical and psychological burdens, ICDs can in fact prolong the dying process. Indications for deactivating an ICD are a DNR order, imminent death, and withdrawal of antiarrhythmic medications.<sup>9</sup>

### Key Recommendations of the Consensus Statement

Keeping the above in mind, what are the recommendations of the Heart Rhythm Society’s consensus statement? Drawing upon legal precedents and ethical principles, particularly autonomy, beneficence, nonmaleficence and justice, the report makes the following claims (among others):

- A patient with decision-making capacity has the legal right to refuse or request the withdrawal of any medical treatment or intervention, regardless of whether s/he is terminally ill, and regardless of whether the treatment prolongs life and its withdrawal results in death.
- When a patient lacks capacity, his/her legally-defined surrogate decision-maker has the same right to refuse or request withdrawal of treatment.
- Legally, carrying out a request to withdraw life-sustaining treatment is neither physician-assisted suicide nor euthanasia.
- Ethically, Cardiovascular Implantable Electronic Device (CIED) deactivation is neither physician-assisted suicide nor euthanasia. The clinician’s intent is to discontinue the unwanted treatment, one which the patient

considers to be a burden, and allow the patient to die naturally of the underlying disease—not to terminate the patient’s life.

A clinician cannot be compelled to carry out an ethically– and legally-permissible procedure (i.e. CIED deactivation) that s/he personally views in conflict with his/her personal values. In these circumstances, the clinician cannot abandon the patient but should involve a colleague who is willing to carry out the procedure.<sup>10</sup>

Communication about CIEDs should be part of a larger conversation about patients’ goals of care. The role of the clinician is to help patients determine how the benefits and burdens of device therapy align with their desired outcomes for their health care.<sup>11</sup>

### The Catholic Moral Tradition and Deactivation

How ought the deactivation of implantable cardiac devices be viewed from the perspective of the Catholic moral tradition? First, these devices should be assessed in the same manner as any other form of life-sustaining treatment. The fact that they are implanted in the body does not seem to be morally relevant. “The mere fact that a technological intervention has been placed under the skin does not seem to mark the moral difference between killing and allowing to die.”<sup>12</sup> What is morally decisive is not *where* these devices are located, but rather an assessment of their benefits and burdens to the patient.

Second, from a Catholic perspective, in contrast to the Heart Rhythm Society

statement, patient autonomy is neither the principal consideration nor the prime justification for deactivation. While patient autonomy is surely important and is an essential consideration, it is neither absolute nor, by itself, decisive. The sole fact that a patient requests the deactivation of an implantable cardiac device does not thereby make it morally licit. In fact, such a request, in certain circumstances, could constitute physician-assisted suicide.

The Catholic moral tradition begins with the basic obligation to preserve our lives, an obligation that is limited by what is beneficial and not excessively burdensome. Within the tradition, it is the principles of ordinary (proportionate) and extraordinary (disproportionate) means that should guide discussions and decisions about deactivation. As noted above, what is morally determinative is an assessment of benefits and burdens of the devices for a particular patient in light of that patient’s total condition. When the benefits of a device offer little or no hope of benefit or when the burdens of the device outweigh any benefits, there is a moral warrant for deactivation.

But deactivation of these devices is not morally licit solely because the patient no longer wants to live. Deactivation ought not be a means for bringing death about. Or, put differently, “though patients sometimes request that a pacemaker be turned off due to psychological distress caused by *other* circumstances in that patient’s life, the discontinuation of the pacemaker in this case is not itself the means by which these burdens are eliminated, insofar as the pacemaker itself is not causing those burdens.”<sup>13</sup> Rather, deactivation should be about allowing the underlying disease process to run its course unfettered, and to provide comfort to the patient in the process.

Third, because of the above, it is quite possible that in Catholic health care facilities there will be a different judgment for pacemakers than for ICDs. As noted earlier, the latter deliver painful electric shocks. They produce discomfort and anxiety, and may prolong the dying process.<sup>14</sup> In situations where the goals of treatment are palliative, defibrillator deactivation, with the consent of the patient or the patient's surrogate, is both reasonable and morally justified. Given the patient's terminal condition, it can be argued that the defibrillator is no longer providing a benefit to the patient holistically considered and, in fact, may be imposing excessive burdens. Deactivation will not usually lead to the patient's immediate death, though it will likely shorten the patient's life. But that is true of virtually any withdrawal of life-sustaining treatment.

Pacemakers, on the other hand, are different. They do not impose the same physical and even psychological burdens as ICDs and, except for those patients who are pacemaker dependent, may not prolong the dying process (though there is not complete agreement about this). Furthermore, deactivation can itself produce discomfort. Consequently, greater caution may be called for in making a decision to deactivate a pacemaker.

Some clearly do maintain that pacemaker deactivation is morally acceptable. For example, in one article, the authors state that "deactivating a CPM ... in a terminally ill patient can be considered an ethically correct indication in those cases where it is clinically determined that all the device is doing is just maintaining the heart rate artificially, preventing the progressive bradyarrhythmias that precede death."<sup>15</sup> The Heart Rhythm Society document comes to a similar conclusion when discussing the need to assess benefits and burdens:

The pacemaker is effective in addressing the potentially fatal cardiac conduction abnormality (and therefore is life-sustaining) but will not reverse the terminal illness. While the direct burdens of continuing pacemaker therapy are minimal, the indirect burdens may be substantial: prolongation of a dying process characterized by suffering, interference with a natural death that would occur without the pacemaker, resource depletion (e.g., financial), emotional and spiritual burdens associated with a prolonged illness, such as concerns about loss of dignity and control/identity and, in general, quality of life. The absence of any perceived benefit and the presence of these burdens outweigh the limited effectiveness of the pacemaker in this situation and therefore device deactivation is justifiable.<sup>16</sup> (p. 5).

Deactivation of a pacemaker, like any other withdrawal of treatment, must be assessed on a case-by-case basis. However, because of the particular nature of pacemakers and a seeming lack of understanding by clinicians and patients about how they function and what deactivation means, especially at the end of life, greater caution should probably be taken in deciding about their deactivation.

Finally, it is one thing to say that deactivation of ICDs and, in some instances, the deactivation of pacemakers, is morally licit. It is quite another thing to operationalize these practices. Given the results of various surveys noted above, health care facilities, including Catholic health care facilities cannot assume the "readiness" of either clinicians or patients. With regard to clinicians, one study concluded that:

[S]everal physicians, in particular geriatricians and general internists, reported inadequate knowledge and awareness of ICD function. Some did not realize that the defibrillator and pacemaker functions are distinct and can be deactivated separately. Others frankly reported that discussing ICD deactivation with a terminal patient had never occurred to them. Primary care providers who do not fully understand how an ICD functions may underestimate the potential burden of suffering associated with the device. ... [S]ome physicians believe that the discussion of ICD deactivation is not their responsibility. They feel that either another doctor should begin the discussion or the patient or his/her family should broach the topic first.<sup>17</sup>

These findings, confirmed by other studies, suggest the need for physician education regarding implantable cardiac devices and their possible deactivation at the end of life. The study noted above concludes by observing: "Physicians, who care for patients at EOL, must recognize the potential for suffering related to an ICD and consider discussion of device deactivation along with discussion of advance directives and DNR. This may require additional physician education about the functions of this device."<sup>18</sup>

The challenges, however, also reside with patients. "A prior study of patients' knowledge of and attitudes about ICD functions and deactivation options has not only demonstrated a significant lack of knowledge and understanding of the ICD's functions but also a strong reluctance to discuss deactivation. Many view the device as life-

giving and cannot imagine a time when it could be a source of suffering."<sup>19</sup> Patients require a better understanding of the nature of their devices and the implications of these devices for end-of-life care. Enhancing such understanding is a requirement of informed consent to which the Catholic moral tradition is fully committed as a way of respecting human dignity.<sup>20</sup>

In addition to patient education, there is also the issue of communicating with terminally ill patients about the possibility of deactivation. As the Heart Rhythm Society consensus statement points out:

Timely and effective communication among patients, families, and health care providers is essential to ensure informed consent .... Effective communication includes taking a proactive role in determining the patient's goals of care, helping that patient weigh the benefits and burdens of device therapy as his/her clinical situation changes, clarifying the consequences of deactivation, and discussing potential alternative treatments. These conversations improve outcomes for both patients and their families. They should begin at time of implant and continue over the course of the patient's illness, as part of ongoing patient education on CIEDs. As illness progresses, patient preferences for outcomes and the level of burden acceptable to a patient may change.<sup>21</sup>

## Conclusion

Determination of the moral justifiability of deactivating pacemakers and ICDs depends on an assessment of benefits and burdens to a particular patient. Generally speaking, because

of the nature of each of these devices, it seems easier to justify deactivating ICDs than pacemakers. In either case, the goal is not to bring about the patient's death, but rather to ease and not prolong the dying process for a given patient.

In order to avoid confusion and anxiety in difficult situations, Catholic health care facilities might do well to ensure that they have a clear and well-crafted policy, and also take whatever measures might be necessary to enhance the understanding of clinicians and patients and to foster appropriate and timely very helpful resource even though several early statements could be interpreted in a way that seems inconsistent with the Catholic moral tradition. As a whole, however, the document is quite consistent with the values that guide end-of-life care in a Catholic context. Because of the increasing number of individuals with implantable cardiac devices, attention to this issue can further contribute to providing good palliative and hospice care.

<sup>1</sup> Rachel Lampert et al., "HRS Expert Consensus Statement on the Management of Cardiovascular Implantable Electronic Devices (CIEDs) in Patients Nearing End of Life or Requesting Withdrawal of Therapy," [www.hrsonline.org/policy/clinicalguidelines/ceids\\_mgmt.cfm](http://www.hrsonline.org/policy/clinicalguidelines/ceids_mgmt.cfm). The statement is due to be published in the July 2010 issue of *HeartRhythm*.

<sup>2</sup> Ibid., p. 1. See also Nathan Goldstein et al., "Management of Implantable Cardioverter Defibrillators in End-of-Life Care," *Annals of Internal Medicine* 141 (2004):835-38; Amy S. Kelley et al., "Implantable Cardioverter-Defibrillator Deactivation at the End of Life: A Physician Survey," *American Heart Journal* 157 (2009): 702-708;

<sup>3</sup> Ibid., p. 6. See also A.S. Kelly et al., "Management of Patients with ICDs at the End of Life (EOL): A Qualitative Study," *American Journal of Hospice and Palliative Care* 25 (2008): 440-446; S. Sherazi et al., "Physicians' Preferences and Attitudes about End of Life Care in Patients with an Implantable Cardioverter Defibrillator," *Mayo Clinic Proceedings* 83 (2008): 1139-41; Nathan E. Goldstein et al., "That's Like an Act of Suicide' Patients' Attitudes Toward Deactivation of Implantable Defibrillators," *Journal of General Internal Medicine* 23, supplement no. 1 (2007):7-12; J.T. Berger

<sup>4</sup> See, for example, M. Glickson and P. A. Friedman, "The Implantable Cardioverter Defibrillator," *Lancet* 357 (2001): 1107-17; M. Eckert and T. Jones, "'How Does an Implantable Cardioverter Defibrillator (ICD) Affect the Lives of Patients and their Families?'" *International Journal of Nursing Practice* 8 (2002): 152-7; S. F. Sears and J. Conti, "Quality of Life and Psychological Functioning of ICD Patients," *Heart* 87 (2002): 488-93; Vinod Nambisan and David Chao, "Dying and Defibrillation: A Shocking Experience," *Palliative Medicine* 18 (2004): 482-483

<sup>5</sup> M. D. Harrington, et al., "Cardiac Pacemakers at End of Life #111," *Journal of Palliative Medicine* 8, no. 5 (2005): 1055.

<sup>6</sup> Ibid. See also, Aine McGeary and Anselm Eldergill, "Medicolegal Issues Arising when Pacemakers and Implantable Cardioverter Defibrillator Devices Are Deactivated in Terminally Ill Patients," *Medicine, Science and the Law* 50 (2010): 41.

<sup>7</sup> Ibid. See also T. C. Braun et al., "Cardiac Pacemakers and Implantable Defibrillators in Terminal Care," *Journal of Pain and Symptom Management* 18, no. 2 (1999):126-131.

<sup>8</sup> Ibid. See also Juan Pablo Beca, et al., "Deactivating Cardiac Pacemakers and Implantable Cardioverter Defibrillators in Terminally Ill Patients," *Cambridge Quarterly of Healthcare Ethics* 18 (2009): 236-240.

<sup>9</sup> Ibid.

<sup>10</sup> Rachel Lampert et al., p. 2.

<sup>11</sup> Ibid., p. 8.

<sup>12</sup> Daniel P. Sulmasy, "Within You/Without You: Biotechnology, Ontology, and Ethics," *Journal of General Internal Medicine* 23, supplement 1 (2007): 69-72.

<sup>13</sup> John Paul Slosar, "Discontinuing Implantable Cardiac Devices & the ERDs," *Health Care Ethics USA* 13, no. 2 (2005).

<sup>14</sup> Nambisan and Chao.

<sup>15</sup> Ibid., p. 239.

<sup>16</sup> Lampert et al., p. 5.

<sup>17</sup> Amy S. Kelly, p. 444.

<sup>18</sup> Ibid., p. 445.

<sup>19</sup> Ibid., p. 444. See also Goldstein, op.cit., especially pp. 11-12.

<sup>20</sup> United States Conference of Catholic Bishops, *The Ethical and Religious Directives for Catholic Health Care Services*, Part III, especially Directives 26-28, fifth edition, Washington, DC: USCCB, 2009.

<sup>21</sup> Lampert et al., p.8. See also pp. 8-12 for further discussion of these points.