

# Type of physician certification associated with risk of complications from ICDs

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Patients whose implantable cardioverter-defibrillators (ICDs) are implanted by nonelectrophysiologists are at increased risk of complications and are less likely to receive a specific type of ICD when clinically indicated, according to a study in the April 22/29 issue of *JAMA*.

Increases in the population of patients eligible for ICD (a device implanted in the body that converts abnormal heart rhythms back to normal by delivering an electrical shock to the heart) therapy have led to a controversy over which physicians should implant ICDs. Currently, physicians with different training implant ICDs. The training paths range from completion of an electrophysiology fellowship accredited by the American Board of Internal Medicine to industry-sponsored training programs, according to background information in the article.

"Differences in training, experience, and technique may result in differences in rates of procedural complications," the authors write. However, it is not known whether outcomes of ICD implantation vary by physician specialty.

In addition, appropriate device selection is particularly important for patients who may benefit from an ICD that also is capable of providing cardiac resynchronization therapy (CRT-D), a device that may improve survival and quality of life in patients with certain heart abnormalities.

Jeptha P. Curtis, M.D., of Yale University School of Medicine, New Haven, Conn., and colleagues analyzed data from the ICD Registry, a

national procedure-based registry of ICD implantations, to assess the association of physician certification with rates of ICD procedural complications and CRT-D implantation. Cases from the ICD Registry were grouped by the certification status of the implanting physician into mutually exclusive categories: electrophysiologists, nonelectrophysiologist cardiologists, thoracic surgeons, and other specialists.

Of 111,293 ICD implantations included in the analysis, the researchers found that the majority of implants were performed by electrophysiologists (70.9 percent), with about 29 percent performed by nonelectrophysiologists (nonelectrophysiologist cardiologists, 21.9 percent; thoracic surgeons, 1.7 percent; and other specialists, 5.5 percent). The rates of overall and major complications were 3.5 percent and 1.3 percent, respectively, among electrophysiologists, and 5.8 percent and 2.5 percent, respectively, among thoracic surgeons.

"The mechanisms underlying the observed differences in complication rates are not clear, but they may reflect differences in training, experience, and operative technique," the authors write.

Among 35,841 patients (32.2 percent) who met criteria for CRT-D, those whose ICD was implanted by physicians other than electrophysiologists were significantly less likely to receive a CRT-D device compared with [patients](#) whose ICD was implanted by an electrophysiologist.

"Given the substantial benefits associated with CRT-D both in terms of improved survival and quality of life, the decision not to implant a CRT-D device carries significant implications for patient care."

The researchers also found that the majority of ICD implantations performed by nonelectrophysiologists took place at or relatively near

hospitals in which an electrophysiologist also implanted ICDs.

"If confirmed, these findings may warrant a reappraisal of the need for and methods of training nonelectrophysiologists to implant ICDs," the authors conclude.

More information: *JAMA*. 2009;301[16]:1661-1670.

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