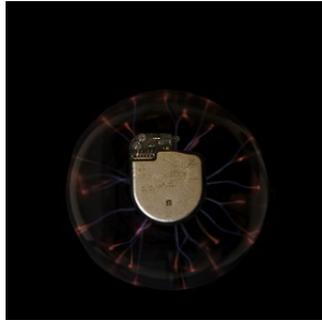


## Monitoring cardiac implantable electronic device complications



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The use of cardiac implantable electronic devices (CIEDs) is constantly increasing because of expanding indications as well as an ageing population. With a continuous advancement of therapies for heart failure and myocardial infarction, a larger number of patients are now eligible to receive implantable cardioverter defibrillator (ICDs) for primary prevention. However, device-related complications are still an important concern as they can be a source of morbidity and mortality in patients with cardiac implantable electronic devices.

There is currently no monitoring strategy of CIED-related complications. A study was conducted in patients with newly implanted pacemakers, pacemaker system revisions and implantable cardioverter defibrillators to determine the utility of administrative data to track CIED complications. 1327 patients were included in the study out of which 742 had pacemakers, and 585 had ICDs.

### Study Findings

Findings showed that the rate of complications was 8% in the pacemaker population and the rate of complications in the ICD population was 12%. Thirty-day mortality was 1.8% in the pacemaker population and 0.3% in the ICD population.

With respect to the use of administrative data to monitor and track device-related complications, the overall sensitivity for the detection of complications was 83.1% in the pacemaker population and 92.1% in the ICD population. Specificity for both groups was 100%, and sensitivity and specificity for device-related infection was 100%.

### Conclusion

The fact is that a focused surveillance system is imperative for CIED follow-up mainly because CIEDs provide life-saving therapies. Any complication or malfunction of a CIED could result in significant morbidity and/or mortality. Infection is also a major concern as it could lead to seeding within the heart which could cause bacterial endocarditis.

By closely monitoring the functionality and operation of these devices, it would be easier to detect any potential problems earlier before any adverse outcomes or complications occur. Also, the reduction of device-related complications could reduce costs, especially since the use of ICDs and pacemakers continues to increase. Effective use of administrative databases can thus provide a viable alternative to more costly registries or chart reviews.

Source: [Canadian Journal of Cardiology](#)

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