

# Keeping on Pace: Coordination for Patients with Cardiac Implantable Electronic Devices Undergoing Radiation when Cardiology is Not Easily Accessible

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## Significance:

Patients with cardiovascular implantable electronic devices (CIED's) undergoing radiation therapy face safety concerns due to the potential threat of interference with their device functionality. Care and monitoring for these patients require a collaborative, multidisciplinary approach with their Radiation Oncologist, Electrocardiologist, Physics team, device manufacturers, and Nursing personnel.

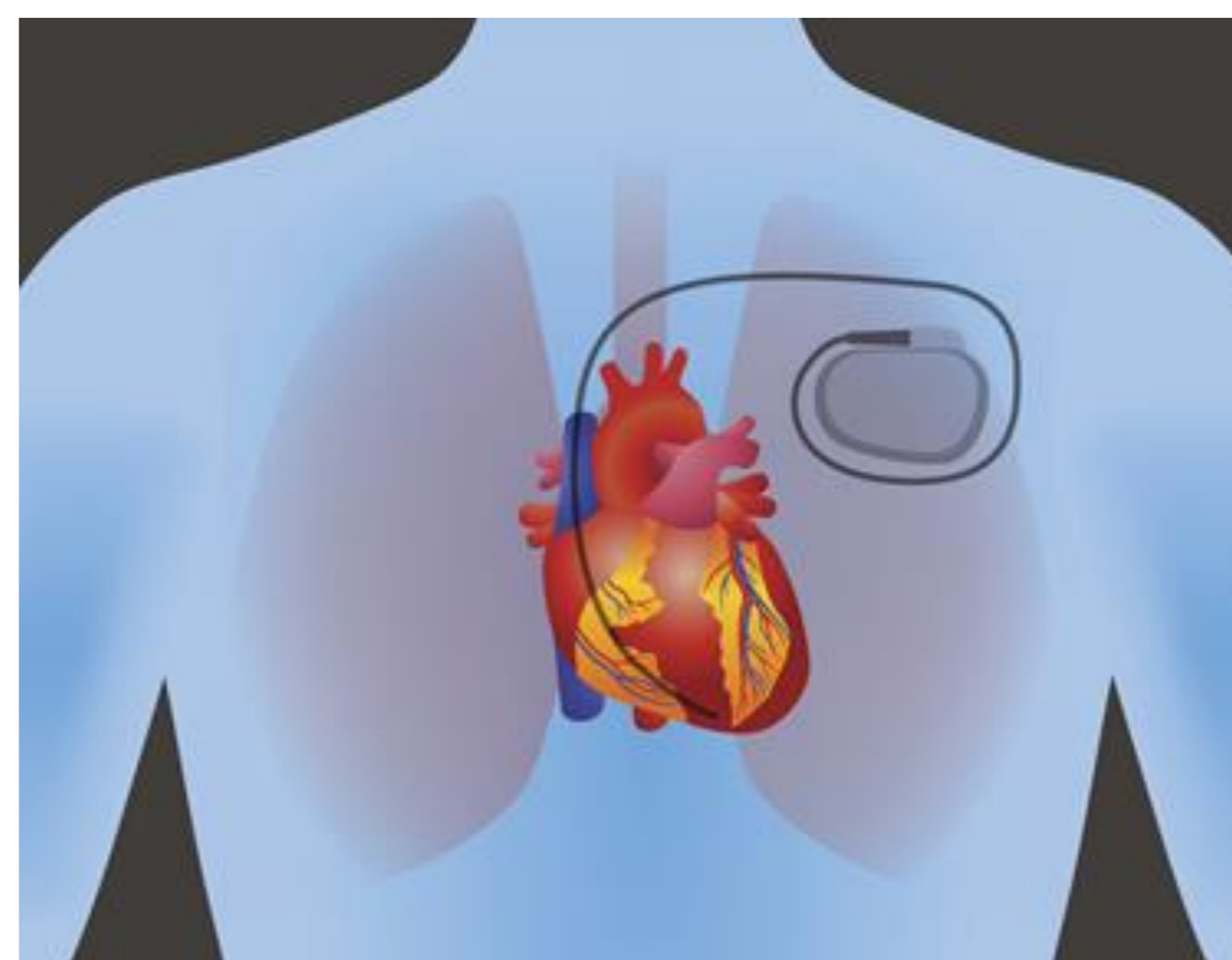


## Purpose:

Cardiology is not a service line available at Fox Chase Cancer Center, which makes the complexity of providing care greater and causes more work for the patients as well as the staff to ensure quality and safety are achieved. Reviewing literature from professional Therapeutic Radiation & Oncology organizations, national standards for best practice are not clear on methods for and frequency with which this monitoring should occur, only recommendations. Nursing should play a primary role in creating a highly reliable process to provide care and monitoring to CIED patients who will undergo radiation therapy treatment

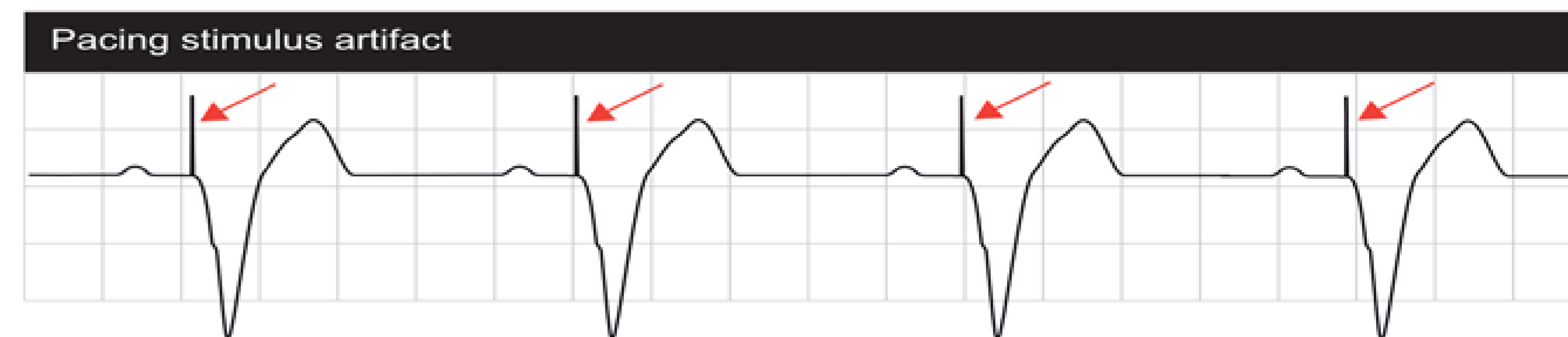
## Interventions

Nurses, administration, and a physician champion partnered to develop a policy and procedure to assure all patients with CIED's are captured for monitoring before, during and after treatment at specific intervals. This required additional support from IT to identify a location in the EHR for documentation transparency, and partnering with device representatives from 4 companies to acquire devices for CIED functionality assessment as well as a cadence of communication during care of the patient. Consent forms were altered to include identifying implanted device status, to share a level of accountability with all clinical staff for identification of patients, and a quality checklist completion was also implemented. Device champions were identified and educated to be the point people for ensuring all device patients are monitored per policy.



## Evaluation:

Device check compliance results are reported out monthly at interdisciplinary Quality Assurance Council. The team went from an 88% overall compliance in FY21, to a 97% compliance in FY22. These results demonstrate the dedication of the clinical staff to prioritize safety and optimal patient care, and the effectiveness of the department's protocols and communication efforts.



## Discussion:

Although damage to CIED's in patients undergoing radiation therapy is infrequent, a best practice standard should be followed using a multidisciplinary approach to ensure patient safety in this population. As medicine continues to modernize CIED's, more research needs to be done to identify their sensitivity to radiation, efficiency of using remote monitoring, and further policies need to be developed to guide safe clinical care. Future evaluation should also include review of the nurse and technologists role in CIED monitoring during MRI.

## References:

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Xu, B., Wang, Y., Tse, G., Chen, J., Li, G., Korantzopoulos, P., & Liu, T. (2023). Radiotherapy-induced malfunctions of cardiac implantable electronic devices: A meta-analysis. *Heart rhythm*, 20(5), 689-698. <https://doi-org.libproxy.temple.edu/10.1016/j.hrthm.2023.01.024>

