Title of Presentation: Pacemakers - What's New?

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Learning Objectives:
1) Distinguish ICD device (high voltage therapy) from conventional pacemaker (low voltage device)
2) Identify the manufacturer of the device in order to obtain appropriate technical support
3) Better describe effects of electromagnetic interference in hospital settings, especially the operating room

Background:
Over 6 million patients worldwide have a cardiac pacemaker or defibrillator. Many of these patients, and many medical practitioners have limited understand of their capabilities or programmed functionality. For patients undergoing anesthesia and surgery, better understanding of these devices and their functionality (either as programmed or available) might lead to better patient outcomes.

Major Teaching Points:
1) Examine several cases where misunderstanding of cardiac implantable electrical devices (CIEDs) led to inappropriate care and possible patient harm
2) Understand why several national societies have developed practice advisories, consensus documents, and guidelines for perioperative care
3) Review these practice advisories
4) Use this knowledge to develop a consultation request for preoperative (and postoperative) evaluation

Potential Clinical Implications:
Patients with cardiac implantable electrical devices might suffer harm owing to several issues that surround their care. The literature suggests that many CIED patients fail to undergo timely evaluation of their pacing or defibrillation systems, some CIEDs might be improperly programmed, and interaction with monitoring equipment can lead clinicians to improper decisions, leading to patient harm.

Future Areas of Research:
1) Does the presence of a cardiac implantable electrical device portend poorer perioperative outcome? This issue has not been studied in a rigorous fashion although two reports and one abstract suggest increased complication rates. One other abstract suggests otherwise
2) Can an aggressive intervention program to include expert-guided reprogramming of pacemakers or ICDs reduce perioperative complications

Key References / Further Reading:
3) Rozner MA. The patient with a cardiac pacemaker or implanted defibrillator and management during anaesthesia. Curr Opin Anaesthesiol 2007; 20(3):261-68.