



Pacemakers and external factors

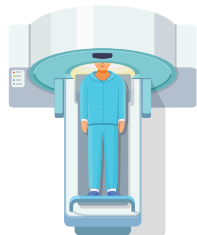
Pacemakers and magnetic resonance imaging

Pacemakers and MRI



It is estimated that 50 to 75% of pacemaker patients will have a medical need for an MRI over the lifetime of their device.

Kalin R, et al. Pacing Clin. Electrophysiol. 2005;28(4):320-328

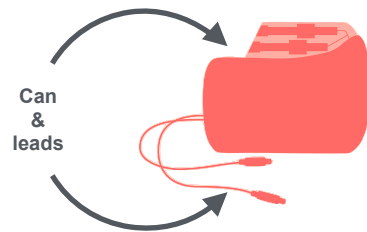


- Static field
- RF field
- Gradient field

What is the problem?

Interaction	Hazard	Field
Pacing leads act as an antenna and transmit this as heat to the cardiac tissue	Tissue damage (this may further affect pacing therapy)	RF
Fields induce voltages in the leads large enough to stimulate cardiac tissue	Uncontrolled pacing—single, intermittent, or sustained tachycardia	RF and gradient
Direct interaction with the electrical components of the pacemaker	Pacemaker malfunction	RF, gradient, and static

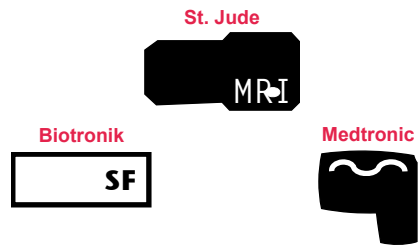
Problem with the fields



MRI-conditional



Check the patient ID card



X-ray markers

Takeaway message



Most **MRI-conditional** devices require their MRI mode to be programmed on for the scan.