

## ABSTRACT

### Problem Statement

The MRI machines at Radiology Associates are limiting the company's ability to expand and compete within the local market.

After discussing with technicians and managers at Radiology Associates, we decided to focus on hardware and software upgrades for the MRI machines. With 2 of the 3 locations purchasing new machines in the near future, our focus was on upgrades at the Santa Maria facility. The two machines at this location needed hardware and/or software upgrades to remain on par competitively both within the company and with local scanning options.

Flexible coils are beneficial in terms of size, weight, and both patient/technician experience. They are significantly lighter and smaller than their traditional, out-of-box counterparts. The flexible nature also allows for increased patient comfort and, potentially, image quality. Rejection rates may decrease as well. Several economic models were created to give decision makers of Radiology Associates options: rent, purchase, rent + purchase, etc. Based on this, we recommend renting the set of flexible coils for 1 year, then purchasing. This option provides the highest rate of returns taking into account learning curve and adjustment periods.

The software upgrades that are proposed include cardiac imaging and blood sensitive imaging of the brain. Cardiac imaging would be a new exam type since this type of imaging is not currently offered. Both machines in Santa Maria are capable of cardiac imaging with the proposed upgrades. The blood sensitive imaging is available for the Hitachi Oasis and would help diagnose PTSD, brain hemorrhaging and strokes.