AbstractID: 5963 Title: Physics Procedures for ACR MRI Accreditation

In recent years, the American College of Radiology (ACR) Magnetic Resonance Accreditation Program (MRAP) has been adopted by over 3000 sites, nearly half of the estimated MRI facilities in the United States. Those sites agree to follow a weekly QC program set up and monitored by a qualified medical physicist or MR scientist. They also agree to undergo initial and annual equipment performance evaluations by a qualified medical physicist/MR scientist. There are several published documents, including the *ACR Phantom Testing Guidance* and the *2004 ACR MRI QC Manual*, which describe the tests and the performance criteria. These documents are helpful in providing guidance on submitting phantom images for accreditation. However, they allow considerable discretion to physicists doing these tests, and the scanners change more frequently than the published guidance.

A consulting medical physicist may see a variety of scanners, each for a short period of time, and needs to provide the sites with useful recommendations beyond the pass/fail status of the phantom tests. The physicist must gather this information from existing data and tests performed with the ACR and other available phantoms. This lecture will describe information which can be derived from those data and how it may be used for improving MR image quality.

Educational objectives:

1. Learn the current status of the ACR MRAP program and the role of the medical physicist in that program.
2. Understand how to perform required phantom and annual tests on various scanners and the performance criteria for those tests.
3. Understand how the results of those tests can be combined and analyzed to troubleshoot problems.
4. Understand how QC test and phantom availability and results may vary depending on scanner manufacturer.