

ULTRASOUND QC – DOES IT MATTER?

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Background:

Ultrasound QC has lagged other modalities when it comes to quality control (QC) and quality assurance (QA) measures. Phantoms are not prescribed by any of the compliance or regulatory organizations such as the American College of Radiology (ACR) or the American Institute of Ultrasound in Medicine (AIUM) with oversight over ultrasound equipment. It does take time to determine the best phantom and the most relevant quality program to follow and is not to be undervalued.

Rationale:

With the opening of new hospitals, it was decided that it was opportune to set up a quality control program that was the most effective, not time consuming on the part of the quality control sonographers, and yielded the best outcomes. From the start of the discussions, management was on-board and supported those efforts through its many phases.

Method:

Part of the quality program was determining the most effective phantom the QC sonographers could use. A few were purchased and after some testing for ease of use, image information and phantom material sturdiness, it was determined that the Gammex Sono TE was the most effective for our purposes. It is comprised of three (3) surfaces that can accommodate either linear, curvilinear, or endocavity type probes. It is a homogeneous phantom where most artifacts can be easily identified. The phantom withstands being manipulated by various probes because of the unique surfaces. The QC sonographers were trained by the Medical Physicist in how to use and the imaging parameters that should be used consistently with the phantom. Management with the support of the Medical Physicist decided that quarterly checks would be optimal as is reported by other groups.

Results:

It takes less than 5 minutes per ultrasound machine to acquire homogenous images from each clinical probe. Images are sent to PACS and reviewed by the Medical Physicist. The program has been in place since mid-2017. During that time probe failures such as drop outs, other artifacts such as gel penetrating under the probe cover, electronic noise image interference, monitor gray-scale degradation have been catalogued along with other parameters that are not directly related to the phantom but are part of our QC program.

Conclusion:

Indeed, yes, it does matter for better patient outcomes being imaged with constantly optimal probes. The fact that the phantom is so easy to use but yields high value information has meant the program being accepted by sonographers in the Ultrasound imaging departments. Because of its acceptance and enthusiastic support of management, this program has now rolled out into Interventional Radiology and Vascular Interventional Radiology.