Title	Quality Control	**Policy #**	02-001

POLICY

The Division of Diagnostic Imaging and Radiology will maintain a Quality Control program consistent with the desire to minimize patient, personnel, and public risks and maximize the quality of diagnostic information.

PURPOSE

To ensure the quality of diagnostic information and to minimize risk to patients, personnel and public.

PROCEDURE

1. Training
   a. All personnel that operate equipment will be trained on the proper and safe use before operating equipment for patient care. There are different training programs for each of the radiological modalities. Training on Quality Control for technologists shall be guided by the regulations of federal, local government, and certifying bodies (such as the Joint Commission and American College of Radiology (ACR)). Competency of quality control will be assessed periodically in accordance to the modality.

2. Equipment Purchase
   a. Before purchasing new equipment, the department will determine the desired performance specifications for the equipment. Performance specifications shall also be guided by the regulations of federal, local government, and certifying bodies (such as the Joint Commission and American College of Radiology (ACR)). Consideration should be given to the specification recommendations of a Medical Physicist (MP) and/or modality expert.
   b. The final purchase specifications should be in writing and include performance specifications. Experienced service personnel will be included in making the final purchase decisions.
   c. Before installation, vendor must provide proof of license to install in the locality (i.e. DC, VA, MD). The contract should state that vendor will submit required documentation for the installation and/or removal of radiation emitting equipment, such as FDA form 2579, to the local authority and Radiation Safety Officer. For radiation emitting devices or materials, a Medical Physicist will review the radiation shielding designs to ensure that adequate radiation shielding is provided to protect patients, personnel, and the general public. Magnetic, radiofrequency and acoustic shielding and interior room metal placement will be evaluated by a Medical Physicist.

d. After installation, the equipment shall be tested, and verified to meet purchase specifications, and applicable Federal, State, and certifying body (such as the Joint Commission and ACR) regulatory requirements. All MRI systems and radiation emitting devices will be acceptance tested by a medical physicist. For radiation emitting devices or areas where radioactive materials are stored, a medical physicist will perform a radiation protection survey to verify the adequacy of installed shielding. The equipment shall not be formally accepted until any necessary corrections have been performed by the vendor.
e. There may be further requirements required by local authorities and the vendor must test and certify and submit to those local authorities, when this happens the Radiation Safety Officer should receive a copy with interpretation/report from the installer. The purchase specifications and Acceptance documentation will be retained throughout the life of the equipment.

3. Equipment performance
   a. A routine quality control monitoring and maintenance program will be established and conducted on a regular schedule. The purpose of monitoring is to permit evaluation of the performance of imaging equipment in terms of the standards for image quality established by the department and compliance with applicable Federal and State regulatory standards. The maintenance program should include corrective maintenance to eliminate problems revealed by monitoring or other means before they have a serious detrimental impact on patient care. The maintenance program should also include preventive maintenance, which could prevent unexpected breakdowns of equipment and disruption of services.

4. QC Schedule
   Equipment will be monitored as follows:
   a. Basic operation, mechanical & electrical integrity (daily).
   b. Image acquisition display for CT, PET, NM, and MRI (annually)
   c. Equipment-specific performance characteristics:
      i. Fluoroscopic x-ray units (annually)
      ii. Radiographic x-ray units (annually)
      iii. Computed tomography (CT) (daily, weekly, and annually)
      iv. Nuclear medicine (NM):
         1. Dose calibrator (daily, quarterly, and annually)
         2. SPECT & Gamma Cameras (daily, weekly, quarterly, and annually)
         3. Positron Emission Tomography (PET) (daily, weekly, quarterly, and annually)
      v. MRI (daily physical environment, weekly image quality and annual medical physics survey)
      vi. Ultrasound (both daily and annually)

The maintenance program shall consist of a vendor provided routine preventive maintenance schedule as well as corrective actions to fix imaging deficiencies detected during quality control surveys or during normal operation.

Records of the results of monitoring and corrective and preventive maintenance including difficulties detected, corrective measures implemented, and the effectiveness of these measures shall be maintained by the manager of the specific modality and copies should be provided to the Radiation Safety Officer. These records shall be used as a tool for maintaining an effective quality control program and as a basis for the evaluation of the program by the Quality Assurance Committee.

Approved by:

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