Standard Operating Procedure: Independent Scanning

Background: There is currently no formalized process to determine who can safely perform independent scanning.

Purpose: Establish a set of standards and define who is eligible to safely perform scanning independently, that is, without a registered MRI Technologist present. Failure to follow the process and requirements described below may result in suspension or permanent termination of any previously approved scanning privileges.

I. Approval Process:

Certain Principal Investigators (PI) may be eligible to perform scanning independently using the MRI scanners within the Medical Imaging Research Core. Trainees of PIs may also be eligible to perform scanning independently.

1. PI Requirements for Independent Scanning:
   A. Previous training in MRI operations, including familiarity with the safe operation of the scanner make and model for which access is requested, including:
      - scanner start-up/restart
      - RF-coil handling
      - patient registration and scanning procedures
      - data handling, including approved procedures for archiving/downloading scan data
      - scanner shutdown
      - recovery from error conditions
      - approved procedures regarding subject participation in MRI and others approved to be in the scanner control area or magnet room

   B. A research need for access to independent scanning.
   C. Primary faculty appointment at the University of Virginia.
   D. Completion of MRI screening form and online MRI safety training.
   E. Completion of walkthrough of MRI space with checklist completion.
   F. Received formal approval from Radiology Imaging Core staff for independent scanning.

2. Trainee Requirements for Independent Scanning:
   A. Active mentorship by PI that has been approved to scan independently.
   B. Received documented approval by mentor to perform scanning independently.
   C. Meets other requirements as listed above in items I.1 (except C).

II. Study types eligible for independent scanning:

1. Phantom Scanning

Scanning of a physical, non-biological object, or a preserved (e.g., in formalin) and sealed biological object, that is designed to simulate human tissues for the purposes of sequence testing and/or development.

2. Preclinical scanning

Scanning of living or non-living animal models. For these studies, in addition to the criteria listed above in (I), sufficient animal support resources must be available for the safe conduct of the study and the procedures must be fully approved through the institutional animal care and use committee (IACUC). All individuals having contact with animals must be approved as animal handlers on the specific IACUC protocol supporting the study as well.

3. Human Scanning: Sequence Development and Protocol Testing in Normal Volunteers

Scanning of normal human volunteers for the purposes of sequence development and protocol testing. Normal volunteers can be defined as anyone who has no identified acute or chronic existing disease that may create safety issues while performing imaging. For these studies, in addition to the criteria listed above in (I), the procedures must be fully approved through the Institutional Review Board (IRB). All individuals having contact with human subjects must be listed on the IRB protocol and their required human subjects training must be up to date.

III. Study types that are not eligible for independent scanning:

Independent scanning with human subjects can only be performed in normal volunteers for the purposes of sequence development and protocol testing. All other human subjects studies must be scanned by a Medical Imaging Research Core registered MRI technologist.