**QIBA FDG PET/CT Imaging Site Checklist**

The following questionnaire/checklist may be used to ascertain a PET imaging site’s qualification for quantitative imaging according to the QIBA FDG PET/CT profile. Answers may be provided either as “current practice” or as “feasible”, depending on the context, but it should be made clear both which was expected and how the site answered.

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|  | ***Site and Personnel Qualifications*** |  |
|  | The site is accreditated (ACR, IAC, TJC, etc.) or has Qualified status for clinical trials (ACRIN, SNM-CTN, CALGB, CROs, etc.) | \_\_ yes \_\_no |
|  | The site has the support of technologists, physicists, and physicians experienced in the use of FDG-PET/CT, and meeting the qualifications described below. | \_\_ yes \_\_no |
|  | Technologists: PET studies are performed by techologists whose certification is equivalent to the recommendations published by the representatives from the Society of Nuclear Medicine Technologists Section (SNMTS) and the American Society of Radiologic Technologists (ASRT) and should also meet all local, regional, and national regulatory requirements for the administration of ionizing radiation to patients. | \_\_ yes \_\_no |
|  | Physicists: The medical physicist is certified in Medical Nuclear Physics or Radiological Physics by the American Board of Radiology (ABR); in Nuclear Medicine Physics by the American Board of Science in Nuclear Medicine (ABSNM); in Nuclear Medicine Physics by the Canadian College of Physicists in Medicine; or equivalent certification in other countries; or have 3 years of PET experience. Regardless of certification, the physicist should have specific experience in PET and its quantitative use. | \_\_ yes \_\_no |
|  | Physicians overseeing and interpreting PET/CT scans are qualified by the ABR (Diagnostic and/or Nuclear Radiology) or American Board of Nuclear Medicine (ABNM) or equivalent within the United States or an equivalent entity appropriate for the geographic location in which the imaging study(ies) will be performed and/or interpreted. | \_\_ yes \_\_no |
|  | ***Imaging Procedures*** |  |
|  | Patient height and weight are entered into scanner during PET/CT acquisition. | \_\_ yes \_\_no |
|  | Blood glucose is measured for each patient within 2 hours preceding FDG administration. Measurement and measurement time are documented. | \_\_ yes \_\_no |
|  | If and when glucose threshold is not exceeded, the reason shall be documented. | \_\_ yes \_\_no |
|  | For each patient, the pre-injection FDG activity is measured and injected and residual activity is measured. Initial and residual measurement times and injection time are entered into the console. | \_\_ yes \_\_no |
|  | FDG is administered through a 24 gauge or larger indwelling catheter placed anatomically remote to any sites of suspected pathology, preferably in an antecubital vein. Intravenous ports should not be used, unless no other venous access is available.  In the case of manual administration, a three-way valve system should be attached to the intravenous cannula so as to allow at least a 10 cc normal (0.9% NaCl) saline flush following FDG injection. For automated injection devices alternate flushing mechanisms are allowed. | \_\_ yes \_\_no |
|  | For follow-up scans patients are imaged with the same workflow as for baseline scans. | \_\_ yes \_\_no |
|  | The FDG uptake time (from injection to scan) is 60 minutes, with an acceptable range of 55-75 minutes. When repeating a scan on the same subject, uptake time for the 2nd scan is within 10 minutes of that for the first scan. | \_\_ yes \_\_no |
|  | If the patient is observed to take a deep breath during the CT scan it is documented and a repeat CT study is considered. | \_\_ yes \_\_no |
|  | When a patient is rescanned, the same scan direction is used. | \_\_ yes \_\_no |
|  | Reconstructed PET images, with and without attenuation correction, and CT images are archived at the imaging site. | \_\_ yes \_\_no |
|  | ***QA/QC*** |  |
|  | The site performs all PET/CT scanner QA/QC procedures recommended by the manufacturer and at the recommended frequency (e.g., daily, weekly, quarterly) and assures that the output values are acceptable. | \_\_ yes \_\_no |
|  | Daily QA procedures are performed prior to any subject scan. | \_\_ yes \_\_no |
|  | A water or water-equivalent phantom is scanned and evaluated daily and acceptable output is ensured. | \_\_ yes \_\_no |
|  | Dose calibrator constancy is evaluated daily on the F-18 setting. Day-to-day differences no greater than 2.5% are allowed. Cs-137, Co-57, or simulated F-18 may be used. | \_\_ yes \_\_no |
|  | The dose calibrator accuracy is evaluated monthly with measured values differing no more than 2.5% from the actual source value. Cs-137, Co-57, or simulated F-18 may be used. | \_\_ yes \_\_no |
|  | Dose calibrator linearity is assessed at least annually over a range of 37-1110 MBq, with deviation of no more than 2.5% over the entire range. | \_\_ yes \_\_no |
|  | Scales for patient weight measurement are evaluated annually or after any repair by qualified personnel, with error no more than 2.5% from expected values using a NIST-traceable or equivalent standard. | \_\_ yes \_\_no |
|  | The glucose measuring device is measured and tested according to a CLIA-approved, CLIA-cleared, or equivalent (outside US) procedure. | \_\_ yes \_\_no |
|  | The PET/CT scanner computer and all clocks in the Imaging facility used to record activity/injection measurements are synchronized to standard time reference within +/-1 minute.  Synchronization of all clocks used in the conduct of the FDG-PET/CT study is checked weekly and after power outages or civil changes for Daylight Savings (NA) or Summer Time (Eur). | \_\_ yes \_\_no |
|  | Quantitative Calibration Accuracy: PET scanner quantitative accuracy relative to the dose calibrator is verified quarterly and after scanner upgrades, maintenance or repairs, new setups and modifications to the dose calibrator via a uniform phantom scan of activity measured in the dose calibrator, achieving a large central ROI mean SUV value of 1.0 (acceptable range 0.9-1.1). | \_\_ yes \_\_no |
|  | Axial Uniformity: Using a uniform cylinder phantom or equivalent shall obtain a slice-to-slice variability of less than 10% for the slices within the central 80% of the axial FOV. | \_\_ yes \_\_no |
|  | PET Resolution: Cold rods (as in the Jaszczak or ACR PET phantoms) of diameter 9.5 mm or smaller must be visible. A hot cylinder (as in the ACR PET phantom) of 12 mm or smaller must be visible OR the 13 mm sphere of the NEMA image quality phantom must be visible. | \_\_ yes \_\_no |
|  | PET noise: In a uniform phantom of 0.1 to 0.2 µCi/ml F-18 concentration the coefficient of variation of voxel values within a rectangular or circular region of at least 3 cm (side or diameter) must is no greater than 15% for all slices within the central 80% of the axial FOV. | \_\_ yes \_\_no |
|  | ***Specific Personnel Responsibilities*** |  |
|  | A technologist or physicist assesses uniformity (within-plane and across slices) and compares with previous results. Quarterly and following software upgrades. | \_\_ yes \_\_no |
|  | A technologist or physicist shall perform the Quantitative Calibration Accuracy test. Quarterly and following software upgrades or changes to the dose calibrator | \_\_ yes \_\_no |
|  | A physicist shall perform and document performance of a quantitative assessment (using a phantom with differing size defined targets such as the ACR or NEMA IQ phantoms processed with routine image reconstruction protocols) for lesion resolution. Annually. | \_\_ yes \_\_no |
|  | A physicist Shall perform qualitative or quantitative assessment of image noise in phantom images to be of consistent and acceptable quality. Annually. | \_\_ yes \_\_no |