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# Appendix E1

## PET/CT Imaging

As part of this study, all PET/CT scanners were qualified by the ACRIN PET Core Laboratory. The details of the qualification process have been described previously (20).

All patients underwent FDG PET/CT prior to surgery. Patients fasted for at least 4 hours and had to have a blood glucose level of less than 200 mg/dL before FDG injection. Approximately 60 minutes (±10 minutes) after 10–20 mCi (0.14–0.21 mCi/kg) of FDG was administered, a contrast-enhanced diagnostic CT examination or a low-dose CT examination was performed; this was followed by PET emission scanning. The number of bed positions and the acquisition time per bed position were scanner specific (typical parameters were six bed positions and 3–5 minutes per bed position). The region imaged extended from the base of the skull to the upper thighs. Depending on the site's preferred workflow, low-dose CT or diagnostic CT was performed covering the same axial field of view. If low-dose CT was performed prior to PET emission scanning, diagnostic CT was performed immediately after PET without moving or repositioning the patient. We recommend 111 mAs (effective), 130 kVp, a 5-mm section thickness, and a 4-mm interval for low-dose CT studies. For diagnostic CT, patients received oral contrast material (eg, MD-Gastroview [Mallinckrodt, St Louis, Mo]) and nonionic intravenous contrast material (eg, Optiray 350 [Guerbet, Princeton, NJ) when there was adequate intravenous access and no contradictions to contrast agent. The use of a Foley catheter and administration of 20 mg of furosemide were allowed. There was no problem with image interpretation in cases where the Foley catheter was not placed. A Foley catheter would be useful if back projection reconstruction was used to decrease the image artifacts around the urinary bladder. In this trial, however, an iterative image reconstruction process was used that made the Foley catheter not essential. As the result of iterative reconstruction, most institutions have currently abandoned the use of the Foley catheter.

The PET data were corrected for dead time, random coincidence events, and attenuation by using standard algorithms provided by the scanner manufacturers. Image reconstruction was dependent on the scanner manufacturer. However, an iterative reconstruction with the ordered subset expectation maximization algorithm in a 128 × 128 matrix with a zoom of 1 and with a 5-mm Gaussian filter was recommended. A difference of the trial as compared with the standard of care was the mandate that both examinations were to be performed concurrently.