**Presenter:** Ronnie Sebro, MD, PhD  
**Title of Abstract:** Frequency of incidentally discovered additional synchronous primary malignancies and resulting clinical implications for patients staged or restaged with 18FDG-PET/CT  
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**Modality:** Multi  
**Organ System:** Multi  
**Purpose:** The objective of this study is to assess the incidence of additional synchronous primary malignancies in patients undergoing PET/CT for staging or restaging, and to assess the clinical importance of these findings.  
**Methods Used:** Retrospective evaluation of 804 true whole body (vertex to toes) non-contrast enhanced PET/CT scans done for staging/restaging of 556 patients with known or suspected malignancy.  
**Results of Abstract:** 7.7% (43/556 patients) had hypermetabolic foci outside of the typical metastatic spread typical for the malignancy given as the indication for the PET/CT. The hypermetabolic foci in 30 of these 43 patients were not confirmed by biopsy secondary to poor patient condition, because evaluation of the underlying lesion was unlikely to change clinical management or patient refusal. Of the remaining 13 patients (15 lesions), 12 patients (14 lesions) underwent biopsy, and the other patient had a lesion that was evaluated by MRI. 10 of these lesions (71.4 %) were malignant or pre-malignant, 3 lesions (21.4 %) were benign and one biopsy (7.1 %) was non-diagnostic due to insufficient tissue for definitive diagnosis. 1.4% (8/556) of patients had a synchronous malignant or pre-malignant lesions. Two of these 8 patients had a third synchronous malignant or pre-malignant lesion. In this analysis, 0.8% (1/125) of patients referred for evaluation of a solitary pulmonary nodule, the solitary pulmonary nodule turned out to be consistent with a metastasis from colon cancer where the primary lesion in the colon was detected by PET/CT.  
**Discussion:** 1.4% (8/556) of patients had additional synchronous primary malignancies that were detected by PET/CT. All malignant lesions changed clinical management. Synchronous primaries should be considered when findings do not conform to that expected.  
**Scientific and/or Clinical Significance?** Radiologists and Nuclear physicians need to consider synchronous primary malignancies when interrogating hypermetabolic foci that do not conform to that expected based on the original primary malignancy.  
**Relationship to existing work** This is the largest analysis of PET/CT data for incidental synchronous primary malignancies.