Appendix C: Evidence Tables
Studies of PET for Oncology Indications
NR = not reported
ND = not done

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Bastiannet E, et al. (2006)	Melanoma	Objective: Impact of FDG PET on treatment planning Study Design: Retrospective case series with medical records review of patients with melanoma for treatment plans before and after FDG PET in three university medical centers (1992 – 2004) Intervention: Change in disease management Outcomes analyzed: Intended treatment versus actual treatment performed according to medical record, and with histopathology or clinical followup of at least 6 months (median followup 33.8 months (range 0.5 – 145 mo.))	N = 257 132 Males, 125 Females. Median age: 54 yrs (at time of scan), range (14-84 yrs). Clinical Indication for Intervention: Referred to university medical center for primary or recurrent melanoma Inclusion/Exclusion Criteria: Inclusion: availability of clinical data, adequate medical followup, and availability of report of FDG PET scan in all patients referred for primary or recurrent melanoma.	Overall sensitivity and specificity of detection of melanoma or metastases were 84.2% (CI 78.0-90.4%) and 71.3% (CI 61.8-80.8%). PPV for Stage I and II was 0.5 (CI 0.4-0.7) and for Stage III and IV was 0.9 (CI 0.9-1.0 CI). 56 patients (21%) were upstaged as a result of FDG PET. Unexpected findings were detected in 11 patients; with colorectal cancer (CRC) in 3 patients, pituitary adenoma (1 patient), colorectal polyps (5 patients), and were related as 'unknown' in 2 other patients.	Conclusion(s): FDG PET was most valuable in Stage III melanoma for detection of lymph node metastases. In 44 patients with Stage III melanoma, treatment was changed, usually from surgery to systemic treatment. Limitation(s): Total number of cases before application of inclusion criteria was not stated.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Castellucci P et al. (2007)	Ovarian	Objective: How accurate is diagnosis of pelvic lesions by FDG PET/CT and transvaginal ultrasound (TVUS); and how does FDG PET/CT compare CT alone for staging? Study Design: Prospective consecutive case series Intervention: TV-US, CA-125 level, FDG PET/CT, surgery Outcomes analyzed: Relation of preoperative with histopathologic findings from surgical specimens.	N = 50 Gender: 50 Females. Mean age 64 yrs, range (23 – 89 years). Enrollment period: January 2004 to January 2006 Clinical Indication for Intervention: Pelvic lesion suspicious for malignancy Inclusion/Exclusion Criteria: Inclusion: pelvic lesions of unknown type, with elevated CA-125 levels and imaging using transvaginal ultrasound.	Compared to TV-US, FDG PET/CT showed greater specificity (100% vs. 61%), positive predictive value (100% vs. 80%), and accuracy (92% vs. 80%). For staging, FDG PET/CT was better than CT alone in advanced (Stage III and IV) ovarian tumors. FDG PET/CT was falsely negative for 4/11 subjects with Stage I ovarian cancer. CT incorrectly downstaged 4/5 Stage IV patients by not detecting distant metastases to liver (in 1 case) or thorax (in 3 cases).	Conclusion(s): FDG PET has a role in initial treatment strategy for patients with pelvic lesions suspicious for malignancy, especially for detection of distant metastases.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Chung HH, et al. (2007)	Ovarian	Objective: Is FDG PET/CT accurate for detecting recurrence of treated ovarian cancer? Study Design: Prospective series of consecutive cases Intervention: FDG PET/CT to detect recurrence Outcomes analyzed: Comparison of FDG PET/CT findings related to recurrence, to either histopathology or clinical followup.	N = 77 77 Females. Time from completion of initial chemotherapy to PET/CT 21-35 months, mean 29 months Median age 51 yrs, range (22-80 years). Enrollment period: November 2003 – April 2005 Clinical Indication for Intervention: Suspected recurrence of ovarian cancer Inclusion/Exclusion Criteria: Inclusion: primary therapy completed. Exclusion: fasting blood glucose (FBG) > 140 mg/dL; history of diabetes; intolerance of FDG PET/CT (e.g., claustrophobia)	45/77 patients had clinically or histologically proven recurrences; 32/77 had no evidence of recurrence. FDG PET/CT was 93% sensitive, 97% specific, and 95% accurate for recurrence. FDG PET/CT findings generally agreed well with histopathology or clinical followup (kappa = 0.894) FDG PET/CT findings modified the subsequent treatment plan in 19 (25%) subjects; in 11, a therapeutic procedure was performed; in 8, a diagnostic procedure was avoided.	Conclusion(s): FDG PET/CT was valuable for detection of recurrent ovarian cancer after initial treatment, correlating well with histopathologic or clinical followup evidence of recurrence, and aids subsequent treatment strategy.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Connell CA, et al. (2007)	Head and neck squamous cell cancer (non-CNS, non-thyroid)	Objective: To determine incremental value of PET/CT beyond conventional diagnostic assessment in squamous cells cancers of the head and neck (H&N) Study Design: Prospective case series Intervention: FDG PET or FDG PET/CT Outcomes analyzed: Association of FDG PET or FDG PET/CT results with treatment planning and survival	N = 76 53 Males, 23 Females. Mean age 59 years, range (21-83 years). Enrollment period: January 2002 – December 2003 Clinical Indication for Intervention: Assessment of patients for initial therapy and for response to treatment Inclusion/Exclusion Criteria: Primary head and neck squamous cell cancers (nasopharyngeal carcinoma excluded), with conventional assessment and at least 12 months of followup.	(as separate paragraphs) 12/35 (34%) patients who underwent a FDG PET/CT scan had changes in TNM staging. In 2 of 12, disease was downstaged; in 10 of 12, disease was upstaged. 7 patients with negative neck node scans avoided futile neck dissections. Survival analysis showed that both overall and disease-free survival were signify-cantly different based on FDG PET/CT assessment of a complete metabolic response, compared with conventional imaging assessment only.	Conclusion(s): FDG PET/CT was useful to improve staging accuracy; to avoid unnecessary surgical exploration; and to evaluate tumor response to therapy. Limitation(s): FDG PET/CT scans were interpreted without blinding to clinical or other diagnostic information.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Gearhart SL, et al. (2006)	Colorectal cancer	Objective: What does FDG PET/CT contribute to initial treatment strategy for primary colorectal cancer? Study Design: Case series Intervention: FDG PET/CT, Transrectal ultrasound (TRUS), MRI and spiral CT. Outcomes analyzed: Agreement of FDG PET/CT with other diagnostic imaging findings.	N = 37 26 Males, 11 Females. Mean age 58 yrs., range (26-90 yrs.) Enrollment period: January 2003 – January 2005 Clinical Indication for Intervention: Initial evaluation of patients with colorectal cancers Inclusion/Exclusion Criteria: Inclusion: 37 patients with biopsy proven untreated adenocarcinoma of rectum from a cancer database. Exclusion: patients with 'early tumors' not at risk for sphincter loss, and patients with known metastases. Patients undergoing therapy or with a history of diabetes or with FBG > 150 mg/dL excluded.	10/37 patients were up- or down-staged based on FDG PET/CT results. 10/37 had changes in initial treatment strategy based on FDG PET/CT findings. In 4/37 patients, FDG PET/CT 'discordances' did not result in treatment changes.	Conclusion(s): In 14/37 patients, FDG PET/CT findings were discordant with those of usual assessment methods. FDG PET/CT provided additional information and led to changes in treatment in 38% of patients; especially for patients with low rectal cancers (6 cm or less from anus). Limitation(s): Lack of consistency in imaging was noted; study did not indicate whether histopathologic confirmation of rectal lesions was obtained.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Hillner BE, et al. (2008)	Various types of cancers	Objective: Large scale, multicenter study of impact of FDG PET/CT on treatment strategy Study Design: Prospective questionnaire based case series at multiple FDG PET/CT scans conducted for oncologic indications at 1,178 centers nationwide. (National Oncologic PET Registry (NOPR)) Intervention: FDG PET/CT or FDG PET scans of patients with cancer Outcomes analyzed: Pre- vs. post-PET treatment planning changes by physicians	N = 22,975 Clinical Indication for Intervention: Patients with cancer diagnoses Inclusion/Exclusion Criteria: ND	Post-PET treatment plan was three times more likely to lead to treatment than to non-treatment (OR 3.4, CI 3.2 to 3.6) Physicians surveyed reported a change in their pre- and post- PET treatment plans in 36.5% (95% CI 35.9 – 37.2%) of cases based on FDG PET/CT results.	Conclusion(s): FDG PET or FDG PET/CT findings changed management of patients with various tumors in a sizeable percentage of all cancers; effect was noted for all cancer types and indications. Limitation(s): Questionnaire-based survey of clinical intentions in patients selected for FDG PET scanning.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Kim S, et al. (2004)	Ovarian	Objective: Is FDG PET of comparable value to second-look laparotomy in detecting recurrences of ovarian cancer, following surgery and chemotherapy? Study Design: Retrospective case series in two treatment arms: 30 patients with SLL, 25 with FDG PET without SLL. Intervention: FDG PET or SLL. Outcomes analyzed: Comparison of FDG PET and SLL findings with those of histology, cytology, ultrasound, MRI or physical examination.	N = 55 0 Males, 55 Females. Mean age 49.2 yrs, range (25-78 years). Clinical Indication for Intervention: Not reported Inclusion/Exclusion Criteria: Inclusion: confirmed primary ovarian cancer, following primary treatment	Disease free and overall survivals were not significantly different between the FDG PET and SLL groups. Sites of recurrence included in 31/37 patients: 9/37 in bowel; 10/37 in pelvis; 6/37 in liver; 5/37 in lung; and 4/37 in lymph nodes.	Conclusion(s): Authors suggested that FDG PET/CT can substitute for SLL for followup of ovarian cancer.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Kubota K, et al. (2004)	Head and neck cancer	Objective: Can FDG PET detect recurrent H&N cancer after radio-chemo-therapy? Study Design: Case series of patients with recurrence of suspected H&N cancer Intervention: FDG PET, MRI/CT Outcomes analyzed: Association of results of FDG PET with histopathology and with MRI/CT scans.	N = 36 31 Males, 5 Females. Mean age 59 yrs, range (19-82 yrs.). Clinical Indication for Intervention: Suspected recurrence of H&N cancer Inclusion/Exclusion Criteria: Inclusion: patients with suspected H&N cancer recurrence after intial treatment. Exclusion: 1 patient (#37) was excluded due to high blood glucose (200 mg/dL)	Sensitivity, specificity, accuracy, PPV of FDG/PET are higher than for MRI/CT (per-lesion basis). False positive FDG PET results were found in patients to be due to osteomyelitis, inflammation, or subcutaneous injection site. False negative FDG PET results were associated with small lesions.	Conclusion(s): In detecting H&N cancer, FDG PET was better than MRI/CT. False positive results were associated with radiotherapy effect. Timing of post-therapy PET/CT scan was important for accuracy of findings – optimal timing was 2-4 months after completion of initial therapy.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Magne N, et al. (2008)	Uterine cervix	Objective: Review and summary of multiple studies about the value of FDG PET or PET/CT for detecting cervical cancer recurrences or metastases. Study Design: Summary of 14 published articles about FDG PET or PET/CT in detecting recurrent cervical cancer after therapy. Intervention: Various N/A Outcomes analyzed: FDG PET or PET/CT findings compared with either histopathology or clinical followup.	N = ~ 800 across 14 published studies. All subjects were females. Mean age NR yrs, range NR. Clinical Indication for Intervention: Literature search of MedLine and CancerLit databases. Inclusion/Exclusion Criteria: Clinical research studies published up to May 2008 with keywords 'PET', 'cervical cancer', and 'radiation or radiotherapy'	Based on 13 published studies, weighted average sensitivity and specificity or PET or PET/CT for detecting metastases or recurrence were 92% and 84% respectively. (Note: details needed for calculation of weighted average performance characteristics were not included for the 14th article.)	Conclusion(s): Authors concluded that FDG PET provides meaningful information for staging, treatment planning, and long term followup. Limitation(s): Note: this was more of a summary or articles, rather than a meta-analysis; no quantitation and estimation of effects.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Mangili G, et al. (2007)	Ovarian	Objective: What is the comparative value of FDG PET/CT vs. abdominal CT with contrast enhancement in detecting recurrence or metastases of cervical cancer? Study Design: Retrospective series of consecutive cases with medical record review Intervention: FDG PET/CT and abdominal CT with contrast; clinical, histopathological or 'instrumental' followup Outcomes analyzed: Findings of FDG PET/CT and CT; management decision changes as documented in medical record	N = 32 32 Females. Mean age 57 yrs, range NR. Clinical Indication for Intervention: Referred for suspicion of ovarian cancer recurrence. Inclusion/Exclusion Criteria: Patients with recurrent cervical cancer, following initial surgical and chemo-therapy, based on increasing tumor marker levels (CA-125) or findings on abdominal CT suggesting recurrence.	PET/CT was more sensitive in detecting recurrence than CT (29/32 (FDG PET/CT) vs. 20/32 (CT)). Treatment decisions were affected in 14/32 (44%) patients with suspected cervical cancer recurrence: - 6 began chemotherapy; - 4 avoided diagnostic surgery; - 3 required further instrumental examination; - 1 underwent salvage surgery.	Conclusion(s): FDG PET/CT is more sensitive in detecting recurrence of ovarian cancer than abdominal CT with contrast, and led to changes in subsequent treatment strategy.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Meyers BF, et al. (2007)	Esophagus	Objective: Does FDG PET scan identify distant metastases in patients who are otherwise candidates for esophagectomy as initial treatment? Study Design: Re-analysis of existing ACSOG trial Intervention: FDG PET scan in patients who by other methods of preoperative staging were considered candidates for esophageal resection; confirmation of suspected metastases by biopsy or other studies. Outcomes analyzed: Decision to pursue non-surgical treatment	N = 189 160 Males, 29 Females. Mean age 62.6 yrs, range (36-88 yrs). Clinical Indication for Intervention: Patients with esophageal carcinoma being evaluated for esophagectomy, enrolled from Feb. 2000 – July 10, 2004 Inclusion/Exclusion Criteria: Inclusion: Proven diagnosis of esophageal carcinoma and able to undergo FDG PET examination. Free from metastatic disease after clinical and radiologic assessment; candidates for esophagectomy. Exclusion: patients with history of other cancers who were not disease-free for at least five years.	FDG PET more sensitive than CT in detecting involvement of local lymph nodes by cancer (58 (30.7%) vs. 23 (12.2%)) FDG PET more sensitive for detecting involvement of distant organs by cancer (in 33 subjects (17.5%) than was CT (0 subjects, 0%). Authors commented on cost of investigating FDG PET false positives (an unnecessary adrenalectomy; surgical site infections). However, surgery was avoided in about 5% of subjects due to FDG PET evidence of distant lymph node or organ involvement.	Conclusion(s): FDG PET was more sensitive for detecting metastases prior to surgery than CT. FDG PET detected distant metastases in about 5% of patients, avoiding needless esophagectomy.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Mirallié E et al. (2007)	Thyroid, differentiated (DTC)	Objective: What is the impact of FDG PET/CT imaging in patients with iodine-negative recurrences of DTC? Study Design: Prospective multi-institutional study Intervention: FDG PET following TRH stimulation Outcomes analyzed: Effect of FDG PET findings on changes in subsequent treatment strategy of recurrent DTC.	N = 45 31 Males, 14 Females. Mean age 55 yrs, range (14-80 years). Enrollment period: 2002 – 2006. Clinical Indication for Intervention: Recurrent DTC suspected due to rising TBG levels and negative ^{131}I scan. Inclusion/Exclusion Criteria: All subjects had undergone total thyroidectomy and ^{131}I ablation; 40/45 had undergone LN dissection.	FDG PET/CT localized recurrences in 31/45 patients; in 14/45, recurrence was not localized. Of 31 patients with positive FDG PET scans, 24 patients' recurrences were documented by histology, and 7 could not be confirmed (FDG PET false positives) Of 24/31 patients with true recurrence, 16 recurred in the neck only in one or more foci; 8 recurred in the neck, mediastinum, lung and bone. Of 7/31 false positives for recurrence by FDG PET/CT, 2 were foci of second primary tumors; 1 was inflammation; 4 were benign LNs. FDG PET/CT was more sensitive if TBG was increased (67% if TBG > 10 ng/mL vs 57% if TBG < 10 ng/mL). 10/30 patients with diffuse metastatic lesions on FDG PET/CT avoided unnecessary surgery.	Conclusion(s): FDG PET/CT was able to select DTC patients who could benefit from surgery, and enabled avoidance of unnecessary surgery. However, FDG PET/CT underestimated the presence of small metastatic foci.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Nanni C, et al. (2006)	Multiple myeloma (MM)	Objective: Compare different imaging methods to assess bone involvement in MM. Study Design: Prospective case series of patients with newly diagnosed MM. Intervention: FDG PET/CT, MRI, Whole-body X-ray (WBXR: X-ray survey of skull, spine, ribs, pelvis, humeri, femora) Outcomes analyzed: Numbers of lesions detected.	N = 28 21 Males, 7 Females. Mean age: 55 yrs, range (35-74 yrs.) Enrollment period: March 2003 through September 2004. Clinical Indication for Intervention: Referral for symptomatic MM prior to therapy. Inclusion/Exclusion Criteria: NR	In terms of lesions detected, FDG PET/CT was more sensitive than WBXR in 16/28 patients; and was equally sensitive in 12/28 patients. FDG PET/CT was more sensitive than MRI in 7/28 patients, equally sensitive in 14/28 patients, and less sensitive in 7/28 patients. MRI was better in detecting infiltrating MM foci in spine. PET changed diagnosis from solitary plasmacytoma to MM in 2 patients, and showed bone lesions in 2 other patients not seen on MRI.	Conclusion(s): FDG PET/CT and MRI are complementary imaging methods for assessing bone involvement in MM; FDG PET/CT more sensitive than WBXR. Limitation(s): Did not indicate whether histopathologic confirmation was done to assess possibility of false-negative PET/CT findings.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Ng S-H, et al. (2004)	Nasopharyngeal carcinoma ('NPC')	Objective: Is FDG PET useful in detecting recurrent NPC when MRI is inconclusive? Study Design: Prospective case series Intervention: FDG PET scan for resolution of possible recurrence of NPC Outcomes analyzed: Comparison of FDG PET findings to histopathology or clinical followup after 6 or more months.	N = 37 24 Males, 13 Females. Mean age 47.2 yrs, range (16-76 yrs.) Enrollment period: January 2002 – September 2003 Clinical Indication for Intervention: Questionable MRI findings after radiotherapy, both equivocal and suggesting recurrence Inclusion/Exclusion Criteria: Questionable MRI findings were those considered to be beyond normal anatomic variation noted during periodic surveillance.	FDG PET was 89.5% sensitive and 55.6% specific for recurrence of NPC. False positive FDG PET findings in lymph nodes or distant organs were attributed to focal inflammatory activity. False negative FDG PET findings attributed to small metastatic lesions (less than 0.5 cm) or intramucosal neoplasm. Overall accuracy for FDG PET for recurrence of NPC was found to be 73%.	Conclusion(s): FDG PET has high sensitivity but only moderate specificity (following initial therapy). FDG PET provided additional information in about half of patients whose MRI imaging results were questionable for recurrence.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Nishiyama Y, et al 2005A (Nucl Med Comm 2005; 26: 895-901)	Pancreatic	Objective: To evaluate - whether FDG-PET imaging is more helpful than other diagnostic methods in differentiating between malignant and benign lesions; and - whether delayed FDG PET imaging can identify more lesions in patients in whom pancreatic cancer is suspected. Study Design: Prospective case series Intervention: Comparator: Histology/biopsy, clinical followup. In some cases other comparators were used: CT, MRI, US, ERCP, CRP level. 60 and 120 min FDG PET scans were performed. Outcomes analyzed: Diagnostic performance indicators of FDG PET for patients in whom pancreatic cancer is suspected.	N = 86 64 males, 22 Females. Mean age 62 yrs, range (21 - 93). Enrollment period: June 2002 through February 2004 Inclusion/Exclusion Criteria: Suspected pancreatic CA. Exclusion: poorly controlled diabetes mellitus	Sensitivity = 89% Specificity = 65% 55/86 patients had malignant disease identified by histopathologic findings or by clinical followup. 49/55 patients with malignancy had true positive FDG PET findings; 6/55 had false negative FDG PET findings. Diagnostic performance characteristics of 60 and 120 min FDG PET scans were identical: Sensitivity: 89% Specificity: 65% Positive Predictive Value: 82% Negative Predictive Value: 77% Accuracy: 80% Diagnostic performance of 60 and 120 min FDG PET scans did not significantly differ in detection of metastases to lymph nodes or to liver.	Conclusion(s): FDG PET is useful in evaluating pancreatic cancer. However, delay in FDG PET scanning from 60 to 120 minutes after ^{18}FDG injection does not improve diagnostic performance. Authors suggested that markers of inflammation, e.g., elevated C-reactive protein, might allow better specificity of FDG PET scans in patients with inflammatory disease of the pancreas. Limitation(s): Case series

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Nishiyama Y, et al. 2005B (Ann Nucl Med 2005; 19(6): 491-7)	Pancreatic	Objective: Evaluate contribution of FDG-PET to detect distant metastasis in initial treatment strategy Study Design: Prospective series of consecutive cases Intervention: Whole body FDG PET for initial staging, interpreted by 2 nuclear medicine specialists blinded to clinical and other imaging information Comparator: Histology/biopsy, follow up 6 months Outcomes analyzed: Presence of suspicious hypermetabolic lesions in liver, lung, bone, peritoneum, and distant lymph nodes	N =42 23 Males, 16 Females. Mean age 65 yrs, range (33-93 yrs). Enrollment period: June 2002 through February 2004 Inclusion/Exclusion Criteria: Inclusion criteria: 1) Histopathologically confirmed pancreatic cancer, 2) no previous treatment 3) conventional radiologic assessment including CT with and without contrast	26/42 patients had no evidence of metastatic disease by any modality. 16 patients were found, by histopathology or by clinicial followup, to have 22 metastatic foci in liver, lung, bone, peritoneum or (neck) lymph node. FDG PET results were true positives in 18/22 foci, and false negatives in 4/22. For these same 22 metastatic lesions, CT results were TP in 14/22, and FN in 8/22. ($p < 0.05$ for sensitivity of FDG PET vs. CT). Specificity and accuracy of FDG PET and CT were not significantly different. Of 39 metastatic lesions in the liver, FDG PET identified 22/25 lesions (88%) larger than 1 cm., and of detected 7/14 (50%) lesions smaller than 1 cm.	Conclusion(s): FDG-PET is more sensitive than, and may have a complimentary role to, CT in detection of distant metastasis from pancreatic duct cancers and therefore in initial treatment strategy. FDG-PET should not be the sole modality used for initial staging; it does not provide sufficient information alone for staging. Compared to CT alone, FDG PET had an impact in 5/42 patients (12%); patient management was altered to palliation in 3 patients, and was altered to curative treatment in 2 patients.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Nishiyama Y, et al. (2005C) (Nucl Med Comm 2005; 26; 239-44	Head and neck cancer	Objective: To evaluate clinical contribution of whole body PDF PET for head and neck cancer by detecting simultaneous primary tumors in other body regions. Study Design: Prospective series of consecutive cases with at least 6 months of clinical followup. Intervention: FDG PET scan Outcomes analyzed: Compare FDG PET vs. CT and US in detection of second primary tumor	N = 53 38 Males, 15 Females. Mean age 61 yrs, range (38-99 yrs.) Enrolled June 2002 through December 2003. Clinical Indication for Intervention: Previously untreated head and neck cancers Inclusion/Exclusion Criteria: ND	6/53 (11%) of patients had simultaneous primary tumors (stomach (2), colon, pancreas, thyroid, prostate). 1/6 was not detected by FDG PET. No other simultaneous primary tumors were found in 47/53 patients. CT and US identified 2/6 patients with simultaneous primary tumors (stomach and thyroid).	Conclusion(s): FDG PET provides relevant additional information to detect simultaneous second primary malignancies in patients with head and neck cancer.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Otsuka H, et al. (2005)	Salivary gland	Objective: What is the impact of FDG PET on staging and management of salivary gland tumors? Study Design: Case series Intervention: FDG PET or PET/CT studies Outcomes analyzed: Change in patient management due to PET findings	N = 31 (including 45 scans) 21 Males, 10 Females. Mean age 69 yrs, range (38-91 yrs.) Clinical Indication for Intervention: 12/45 scans were performed for staging; 33/45 were performed for re-staging Inclusion/Exclusion Criteria: ND	11/31 patients had a change in management due to FDG PET scan findings. In initial treatment strategy (staging), 4 patients had treatment plans changed; 3 from surgery to chemo-radiotherapy; 1 from bilaterial to ipsilateral neck dissection. In re-staging, 5 patients had changes in treatment plan from surgery to chemoradiotherapy; 1 patient had a second primary tumor identified; 1 patient had a procedure cancelled, due to an FDG PET finding of no activity in an area of suspected recurrence.	Conclusion(s): FDG PET has a significant impact on the management of patients with salivary gland cancers in both initial and subsequent treatment strategy. Limitation(s): Relatively small study; especially of initial treatment strategy (12 patients).

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Pepe G, et al. (2005)	Lung cancer, known or suspected	Objective: Impact of FDG PET findings on treatment strategy of known or suspected lung cancer Study Design: Multicenter, prospective consecutive case series with survey questionnaire to treating physicians before and after FDG PET results. Intervention: Questionnaire, CT, MRI, and FDG PET scans. Outcomes analyzed: Clinical management changes.	N = 75 58 Males, 17 Females Mean age 64 yrs, range (33 – 82 years). Enrollment period: January 2000 - October 2003 Clinical Indication for Intervention: Lung lesions by imaging or by cytopathology: - 18 patients with solitary pulmonary nodules; - 37 patients with untreated lung cancer; and - 20 patients with treated lung cancer Inclusion/Exclusion Criteria: FBG > 140 mg/dL, history of diabetes mellitus, incomplete data (7 patients excluded)	Changes in patient management after FDG PET imaging occurred in 34 (45%) of cases. - Treatment strategy changed most in the decision to employ surgical treatment, from 9 patients pre-FDG PET to 28 patients post-FDG PET (an increase of +211%). - Treatment strategy changed to avoid further diagnostic workup from 44 patients (pre-FDG PET) to 27 patients (post-FDG PET) (a decrease of 39%). The patients whose treatment strategy before FDG PET was medical therapy (17) did not change after FDG PET results.	Conclusion(s): FDG PET findings in various clinical situations regarding a known or suspected lung cancer led to significant clinical treatment strategy decisions in 34/75 patients (45%).

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Risum S, et al. (2007)	Ovarian tumor, malignant and borderline/benign	Objective: Does FDG PET/CT have greater value than transvaginal ultrasound and CA-125 levels in initial detection of malignancy in patients with a pelvic mass suggesting possible ovarian cancer? Study Design: Prospective case series Intervention: FDG PET prior to surgery Outcomes analyzed: Histopathologic correlation with diagnostic studies.	N = 97 97 Females. Median age 60 yrs, range (24-85 yrs.) Clinical Indication for Intervention: Pelvic mass suggesting ovarian tumor Inclusion/Exclusion Criteria: Patients with suspected primary ovarian cancer, based on pelvic mass on TV-US and CA-125 measurements; with no prior cancer history	Sensitivity and specificity of FDG PET/CT for detecting ovarian cancer was 100% (57/57) (cancers) and 93% (37/40) (borderline and benign lesions). FDG PET/CT detected distant metastases to lymph nodes or other organs in 16/27 subjects. In two subjects, metastases were detected by FDG PET/CT from separate primary cancers. False positive FDG PET/CT results were noted in three subjects with benign pelvic masses, including fibroma, leiomyoma, and endometriosis.	Conclusion(s): Combined PET/CT demonstrates high diagnostic value in identifying primary ovarian cancer, and is suggested as an addition to ultrasound prior to surgery for planning initial treatment strategy.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Ruf J, et al. (2005)	Pancreatic	Objective: To determine the value of FDG-PET for detecting recurrent pancreatic cancer compared to computed tomography CT & MRI Study Design: Prospective case series Comparators: Histopathology/biopsy or clinical follow up; CT/MRI	N = 31 14 Males, 17 Females. Mean age 59 yrs, range (36-79 yrs.). Clinical Indication for Intervention: Patients suspected of recurrence following surgery Inclusion/Exclusion Criteria: Inclusion criteria: 1) Suspected recurences after surgery, 2) sudden weight loss, 3) pain, 4) increased CA 19-9 levels Exclusion criteria: ND	FDG PET detected recurrences in 22/23 patients in comparison to CT/MRI (9/23). However, FDG PET detected liver metastases in 5/12 patients, while CT/MRI detecting 11/12 liver metastases. Of 9 abdominal recurrences, FDG PET identified 7, while CT/MRI identified none. Also in 2 patients, FDG PET detected extra-abdominal recurrence which were not identified by CT/MRI.	Conclusion(s): In patients suspected of pancreatic cancer relapse, FDG PET reliably detected local recurrences, but CT/MRI was more sensitive for the detection of hepatic metastases. FDG-PET also proved advantageous for the detection of non-loco-regional and extra-abdominal recurrences. Limitation(s): Case series was not specified as consecutive

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Schmidt, et al 2005	Various cancer types and both initial and recurrent cancers	Objective: Compare the accuracy in staging of various malignant tumors with whole-body magnetic resonance imaging (WB-MRI) using parallel imaging (PAT) and positron emission tomography–computed tomography (PET/CT). Study Design: Prospective; reading of FDG PET/CT studies was done in a blinded fashion regarding other imaging findings	N = 41 18 Males, 23 Females. Mean age 56 yrs, range (21-81). Clinical Indication for Intervention: Various; selection criteria ND Inclusion/Exclusion Criteria: Histologically proven malignant diseases; patients with FDG-nonavid tumors were excluded (e.g., 'renal carcinoma')	Sixty benign and 60 malignant lymph nodes were detected with a sensitivity of 98% and specificity of 83% for FDG PET/CT and 80%/75% for WB-MRI, respectively. One hundred ninety-one malignant and 77 benign distant lesions were detected with a sensitivity/specificity of 82% for FDG PET/CT and 96%/82% for WB-MRI. Accuracy for correct TNM staging was 96% for PET-CT and 91% for WB-MRI. Tendency of FDG PET/CT not to recognize lymph nodes less than 10 mm was noted.	Conclusion(s): WB-MRI and PET-CT are reliable & promising imaging modalities for tumor staging. WB-MRI is highly sensitive in detecting distant metastases; PET-CT may be superior in lymph node staging. Limitation(s): Relatively small case series including various tumor types, indications; concern for selection bias

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Suzuki R, et al. (2007)	Endometrium	Objective: Does FDG PET have value for initial treatment strategy, compared to CT/MRI? Study Design: Prospective case series of subjects with pelvic tumors. Intervention: FDG PET, whole-body CT, and MRI within two weeks of surgery. Outcomes analyzed: Correlation of FDG PET findings and other diagnostic findings (CT/MRI) compared to histopathology.	N = 30 30 Females. Mean age 55 yrs, range (27-72 years). Clinical Indication for Intervention: Histopathologically proven endometrial carcinoma Inclusion/Exclusion Criteria: Confirmed endometrial cancer	FDG PET was slightly more sensitive than CT or MRI in detecting extra-uterine metastases (5/6 (83%) vs. 4/6 (67%)). FDG PET and CT/MRI were equally specific for extra-uterine metastases (24/24 (100%)). Authors concluded that FDG PET was not sufficiently sensitive to detect small pelvic lymph node metastases, which might require surgical examination.	Conclusion(s): A negative FDG PET for LN metastases should not be a reason to omit retroperitoneal LN dissection for surgical staging. Limitation(s): Case series of relatively small size (N = 30)

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Takamochi K, et al. (2005)	Lung, non-small cell	Objective: Clarify reasons for false FDG PET results in lymph node staging. Study Design: Retrospective case series Intervention: FDG PET; CT, and surgery (thoracotomy or mediastinoscopy) Outcomes analyzed: FP and FN FDG PET scans	N = 71 41 Males, 30 Females. Median age 65 yrs, range (36-90 yrs.). Enrollment period: July 2000 – December 2001. Clinical Indication for Intervention: NSCLC for preoperative staging Inclusion/Exclusion Criteria: Inclusion: had histopathology findings and had FDG PET scan during study period.	In 71 patients, thee were 10 FP FDG PET scans, and 14 FN FDG PET scans. FP FDG PET scans were associated with - inflammation (7), - mislocalization (2), and - reason unknown (1). FN FDG PET scans were associated with - small LN size (1 – 7.5 mm), - mislocalization, and - tumor necrosis in one LN in one patient.	Conclusion(s): Inflammation effect and small size of lesions or necrosis of metastatic foci were the major factors associated with FP or FN FDG PET when FDG PET was used for LN staging in NSCLC. Limitation(s): Retrospective case series

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Takekuma M, et al 2005	Ovarian .	Objective: usefulness of FDG-PET in diagnosing recurrent ovarian cancer Study Design: Prospective case series Comparators: Histology/biopsy and clinical followup (3 mo) Other comparators used: CA-125, CT, MRI	N = 29 NR Males, NR Females. Mean age 58 yrs, range (32-75 yrs.). Inclusion/Exclusion Criteria: Inclusion criteria: 1) Epithelial ovarian cancer in whom initial treatment achieved remission, 2) clinical suspicion of recurrence of the cancer Exclusion criteria: ND	FDG PET showed the following performance characteristics for malignant epithelial ovarian cancers: Sensitivity = 85% (22/26) Specificity = 100% (3/3) Positive predictive value = 100% (22/22) Negative predictive value 43% (3/7) Accuracy = 86% (25/29)	Conclusion(s): FDG-PET may be useful for identifying sites of recurrent ovarian cancer, although this procedure had a low NPV because of the high rate of false-negative findings for microscopic or cystic lesions. Limitations: Small case series; calculations of specificity, negative predictive value are questionable due to small denominators involved and relatively brief clinical followup period (3 months).

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Trautmann TG, et al. (2005)	Colorectal (anal canal)	Objective: Determine value of FDG PET for staging, treatment response Study Design: Prospective case series Intervention: CT, FDG PET, before and one month after treatment, biopsy of primary lesion Outcomes analyzed: Association of various diagnostic modalities with FDG PET findings.	N = 21 'M:R ratio 2:5' 6 Males, 15 Females. Median age 52 yrs, range (37-81 yrs.). Enrollment period: September 1999 – August 2002 Clinical Indication for Intervention: New diagnosis of cancer of anal canal Inclusion/Exclusion Criteria: Inclusion: Anal cancer, either keratinizing or non-keratinizing. Excluded: adenocarcinomas excluded; carcinomas of anal margin excluded.	In 5/21 patients, sites of metastases not seen on CT were noted by FDG PET. FDG PET scans were falsely positive for recurrence in 3 patients; and were falsely negative for recurrence in 3 patients.	Conclusion(s): FDG PET, as an adjunct to CT, provides additional information for staging in cancers of the anal canal. Post-treatment FDG PET imaging appeared to be of little value for predicting recurrence due to increased numbers of false positives and false negatives. Limitation(s): Small case series.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Turkmen C, et al. (2007)	Lung, non-small cell ('NSCLC')	Objective: Does FDG PET have value compared with CT in initial treatment strategy NSCLC? Study Design: Prospective case series Intervention: FDG PET and CT scans preoperatively Outcomes analyzed: Histopathology examination of tissue from either thoracotomy or mediastinoscopy.	N = 59 47 Males, 12 Females. Mean age 52 yrs, range (44 – 83 years). Clinical Indication for Intervention: Untreated NSCLC being considered for surgical excision or other therapy. Inclusion/Exclusion Criteria: ND	For detecting those patients with no or broncho-pulmonary or ipsilateral hilar lymph nodes only, FDG PET was more specific and more sensitive than CT. For detecting those patients with contralateral mediastinal, supraclavicular, or scalene lymph nodes, FDG PET was more specific and more sensitive than CT. Authors concluded that FDG PET significantly improved diagnostic accuracy for assessing LN involvement by tumor ($p < 0.01$). However, FDG PET was falsely positive in lymph nodes due to foci of granulomatous disease, such as pulmonary TB, silicosis). FDG PET was falsely negative in patients with very small metastatic foci in lymph nodes.	Conclusion(s): FDG PET is more accurate than CT for the differentiation of N0 or N1 from N2 disease in NSCLC. However, due to false positives, FDG PET imaging alone cannot replace mediastinoscopy with biopsy for staging, especially in patients from regions with increased prevalence of inflammatory (granulomatous) disease in lymph nodes.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Truant S, et al.	Colorectal cancer (CRC) with metastases to liver or other sites.	Objective: Value of FDG PET vs. CT scan in CRC patients Study Design: Prospective case series Intervention: Preoperative FDG PET, CT; laparotomy and hepatectomy. Outcomes analyzed: Diagnostic performance of FDG PET and CT for detection of resectable liver and other metastases compared with histopathologic findings.	N = 53 40 Males, 13 Females. Mean age 63 yrs, range (44-78 yrs.). Enrollment period: October 2001 – November 2002 Clinical Indication for Intervention: Patients eligible for laparotomy for resection of metastatic foci identified by conventional diagnostic methods. Inclusion/Exclusion Criteria: Exclusion: 5 patients were excluded due to either a less than 3 week interval between the end of chemotherapy and FDG PET scan; or to elevated blood glucose of 200 mg/dL or more	FDG PET and CT were similar overall in sensitivity, specificity, accuracy, positive and negative predictive values. For detection of liver metastases, FDG PET and CT sensitivities were similar (both ~ 79%). In the liver, false negative FDG PET results were attributed to: small size of lesion; necrosis of lesion or mucinous content; or proximity to larger metastasis. Of eight extra-hepatic abdominal metastases, FDG PET detected 5; CT detected 2. Sensitivity for such lesions was higher for FDG PET (63%) versus CT (25%).	Conclusion(s): FDG PET may be useful in patients with potentially respectable metastatic lesions in the liver due to colorectal cancer. However, its sensitivity is similar to that of CT. Limitations: Case series.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Uchida Y, et al. (2005)	Parotid gland	Objective: What is the diagnostic value of the combination of F-18 fluorodeoxyglucose (FDG) PET and Tc-99m pertechnetate salivary gland scintigraphy in parotid tumors? Study Design: Case series Intervention: FDG PET; Tc-99m pertechnetate scintigraphy; histopathologic examination Outcomes analyzed: Association of FDG PET, TPS findings with histopathology results.	N = 71 32 Males, 39 Females. Mean age 52 yrs, range (10-84 yrs.). Clinical Indication for Intervention: Patients with parotid gland tumors, benign (52) and malignant (12), and with parotid gland inflammation (8) Inclusion/Exclusion Criteria: ND	The mean SUV of malignant parotid tumors was significantly greater than that of benign tumors, excluding Warthin's tumors from the analysis (5.82 - 3.95 vs. 2.07 - 1.33; *P* 0.01). The SUV of Warthin's tumor (cystadenoma lymphomatosum), which is usually regarded as a benign tumor, was greater than that of other benign tumors (7.06 - 3.99 vs. 2.07 -1.33; *P* 0.001) and overlapped with that of malignant tumors. Sensitivity and specificity of FDG PET were 75% and 80%, respectively (Table 2; Figs. 2 and 3). False-negative cases were found in 1 salivary duct carcinoma (SUV 2.01), 1 muco-epidermoid carcinoma (SUV 2.07), and 1 metastatic renal cell carcinoma (SUV 2.24). Tumor sizes of all FN FDG PET cases were small (10 mm, 17 mm, and 20 mm, respectively). False-positives were found in 5 pleomorphic adenomas, 2 inflammations, 1 basal cell adenoma, and 1 mono-morphic adenoma. By visual interpretation, sensitivity (58%) and specificity (72%) of Ga-67 scintigraphy were inferior to FDG PET.	Conclusion(s): The diagnostic value of FDG PET in the differentiation of malignant from benign parotid gland tumors was limited because of the high FDG uptake in some benign tumors, and particularly pleomorphic adenomas.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Van Westreenen HL, et al. (2003)	Esophagus	Objective: What is the false positive rate of FDG PET used for staging of esophageal cancer, and what are the causes of FPs? Study Design: Retrospective consecutive case series. Intervention: FDG PET; histopathological and clinical findings Outcomes analyzed: Histopathologic findings or clinical followup of false positive lesions for at least 6 months. Lesions were defined as false positive when histopatho-logical examination was negative or as absence of tumor activity with either histopathologic confirm-ation or at least six mo. of follow-up with confirm-atory FDG PET scan.	N = 86 (of 98) 72 Males, 14 Females. Median age 61 yrs, range (21-78 yrs.). Enrollment period: January 1996 – March 2002 Clinical Indication for Intervention: Patients with esophageal cancer who underwent conventional staging and FDG PET and who had at least 6 months of additional followup. Inclusion/Exclusion Criteria: Biopsy proven cancer of the esophagus; histopathologic confirmation of false positive lesions, or at least 6 months of clinical followup. (12 of 98 were excluded due to insufficient followup after FDG PET scan).	False-positive lesions were found in 13 patients (13 of 86; 15%). FDG-PET incorrectly revealed only locoregional node metastases in 5 patients in whom surgery with curative intent was performed. Ten lesions in the other 8 patients were classified as distant organ or as nonregional node metastases (M1a/1b). Finally, 5 patients upstaged to M1a/1b underwent a curative resection. Note: the number of false-positive lesions decreased from 13 (15%) to 5 (6%) after revision (see Note under Limitations, next column).	Conclusion(s): Proper interpretation of FDG-PET in staging esophageal cancer is impeded by false-positive results. Even after completion of the learning curve, positive FDG-PET findings still have to be confirmed by additional investigations. Limitations: Retrospective case series. (Note: the authors state without further explanation that the final results were 'revised' based on retrospective re-reading of all 'positive' FDG PET scans by an 'experience nuclear medicine physician', blinded to clinical and other diagnostic information, whose false-positive reading rate was 5 of 86 patients (6%), in contrast to the original FP rate of 13/86 patients (15%.))

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Van Westreenen HL, et al. (2007)	Esophagus, initial treatment strategy	Objective: To assess the additional value of FDG-PET after a state-of-the-art pre-operative staging protocol Study Design: Multicenter prospective case series Intervention: 'Conventional evaluation' consisted of - fitness assessment for surgery - staging by multi-detector CT of the neck, chest and upper abdomen, - EUS of the esophagus and external ultrasono-graphy of the neck, - aspiration cytology as indicated before FDG-PET. All tests were performed within 2 weeks. Outcomes analyzed: Effect on pre-operative staging with and without FDG PET findings.	N = 199 165 Males, 34 Females. Mean age 64 yrs., range (29-82). Enrollment period: August 2002 – October 2004 Clinical Indication for Intervention: Patients with confirmed esophageal cancer and eligible for surgery, for pre-operative staging. Inclusion/Exclusion Criteria: Inclusion: biopsy-proven esophageal cancer, without distant spread or locally unresectable disease, by conventional evaluation. Exclusion: patients younger than 18 years; uncontrolled diabetes mellitus; or pregnancy.	FDG-PET revealed suspicious hot spots in 30/199 (15 per cent) patients. Metastases were confirmed in eight/199 (4.0 per cent). Histopathologic confirmation or growth of a suspicious area after 6 months was considered proof of metastasis. In six of these, distant metastases were confirmed before surgery, but exploratory surgery was necessary for histological confirmation in the other two. All eight upstaged patients had clinical stage III–IV disease before FDG-PET (6·6 per cent of 122 with stage III–IV disease). In seven patients (3·5 per cent) hot spots appeared to be synchronous neoplasms, mainly colonic polyps. However, FDG PET hot spots in the remaining 15/199 (7.5 per cent) were false positive, leading to unnecessary additional investigations.	Conclusion(s): FDG-PET may improve the selection of patients with esophageal cancer for potentially curative surgery, especially for patients in stages III–IV. However, the diagnostic benefit is limited (due to numerous FDG PET false positives in 15/199 patients) after state-of-the-art staging. Broad implementation of FDG PET for staging of surgical candidates for esophageal cancer resection in daily clinical practice is 'questionable'. The authors noted the potential that improvements in 'conventional evaluation' imaging techniques or instruments might have improved the value of such methods relative to FDG PET.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Votrubova H, et al. (2006)	Colorectal cancer, recurrence after resection	Objective: Does FDG PET/CT have value for the detection of recurrences of colorectal cancer after initial surgical resection? Study Design: Prospective case series Intervention: FDG PET/CT performed for detection of recurrence at least one month following colorectal cancer resection Outcomes analyzed: Comparison of FDG PET/CT results against either histopathology or clinical followup of at least 6.5 months after surgery.	N = 84 54 Males, 30 Females. Mean age 64 years, range (41-78 years). Clinical Indication for Intervention: Suspected recurrence of colorectal cancer at least one month following resection. Inclusion/Exclusion Criteria: Not discussed.	FDG PET/CT sensitivity for colorectal cancer recurrence was 89% (40/45 patients), and its specificity was 69% (27/39 patients). Its overall accuracy for detecting CRC recurrence was 80%, with a 77% positive predictive value and an 84% negative predictive value. FDG-PET/CT examination correctly detected 40 out of a total of 45 patients with CRCR. Two of five patients with falsely negative FDG-PET/CT findings had local microscopic recurrences and one had widespread tiny liver metastases. Of 39 patients without recurrent CRC, three showed false positive FDG-PET/CT results. Two of these cases were due to increased accumulation in the bowel wall; one was due to intra-adrenal hemorrhage. Eighteen of the 19 patients with extra-abdominal and/or hepatic recurrence were detected by integrated FDG-PET/CT.	Conclusions: FDG-PET/CT appears to be a ‘very promising’ method for distinguishing a viable tumor from fibrous changes, thereby avoiding unnecessary laparotomy. The authors noted that FDG-PET/CT showed a significantly higher specificity and overall accuracy in comparison with the assessment of FDG PET alone in the diagnosis of extra-abdominal and/or hepatic recurrence as well as in the diagnosis of any form of recurrence.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Yen T-C, et al. (2004)	Uterine cervix	Objective: Can FDG PET be useful in deciding on treatment options in recurrent cervical cancer? Study Design: Prospective case series Intervention: FDG PET and MRI/CT scanning in candidates for surgical salvage Outcomes analyzed: Diagnostic performance; changes in subsequent treatment strategy	N = 55 55 Females. Median age 51 yrs, range (21-86 yrs.). Enrollment period: February 2001 – January 2003. Clinical Indication for Intervention: Participation in one of two earlier clinical trails relevant to recurrent cervical cancer. Inclusion/Exclusion Criteria: Participation in either of two earlier clinical trials, with proven cervical cancer and either documented recurrence or elevated tumor markers without other explanation and suggestive imaging studies.	FDG PET was more sensitive in detecting metastatic lesions than MRI/CT was (89% vs. 32%, $p < 0.0001$). For detecting local recurrences, sensitivities of the two methods were similar (90% vs. 80%, $p = 0.472$) (based on a per-lesion comparison). Treatment plans were modified (from radical surgery for cure to palliation) in 27/55 patients.	Conclusion(s): 18F-FDG PET may offer maximal benefits by selecting appropriate recurrent cervical cancer patients for salvage therapy with precise restaging information. Limitation(s): Re-analysis of data from two different clinical trials, each of which was based on a small ($n < 30$) case series.

Publication	Cancer type	Study Design	Demographics	Results	Conclusion/Limitations
Authors: Yi CA, et al. (2006)	Lung: solitary pulmonary nodules (SPNs) for initial treatment strategy assessment	Purpose: To compare the diagnostic accuracy of helical dynamic (HD) CT (HDCT) and integrated PET/CT for SPNs as part of initial treatment strategy assessment. Design: Selected case series. Intervention: Patients with SPN underwent both helical CT with and without contrast and FDG PET/CT. Outcomes: Diagnostic performance of HDCT and FDG PET/CT were established, based on histologic findings.	N = 119 62 Males, 57 Females. Mean age 55 yrs, range (31-81 yrs.). Enrollment: August 2003 – July 2004. (Some patients of these patients had been previously reported.) Clinical Indication for Intervention: Inclusion/Exclusion Criteria: Inclusion: patients had both helical CT and FDG PET/CT during evaluation period, and available followup information. Patients were non-randomly selected from larger group of eligible patients.	There were 79 malignant and 40 benign nodules. The sensitivity, specificity, and accuracy for malignancy on HDCT were 81% (64/79 nodules), 93% (37/40), and 85% (101/119), respectively, whereas those on FDG PET/CT were 96% (76/79), 88% (35/40), and 93% (111/119), respectively (P = 0.008, 0.727, and 0.011, respectively). All malignant nodules were interpreted correctly on either HDCT or FDG PET/CT. False-negative results were obtained for 9 adeno-carcinomas, 4 squamous cell carcinomas, and 2 metastatic carcinomas on HDCT. These 15 falsely interpreted malignant nodules on HDCT were correctly diagnosed as malignant on FDG PET/CT.	Conclusion(s): Integrated PET/CT is significantly more sensitive and accurate than HDCT, and not significantly different in specificity, for SPN assessment; therefore, PET/CT may be performed as the first-line evaluation tool for SPN characterization. However, because HDCT has high specificity and acceptable sensitivity and accuracy, it may be a reasonable alternative for nodule characterization when PET/CT is unavailable. Limitation(s): Non-random selection of study patients from larger group with SPNs originally enrolled was not further explained in article.