APPENDICES

Appendix A. Search strategies

Electronic Searches: Exact Search Strings

Databases searched for relevant studies

Database	Years/issues	Date of search
MEDLINE®	2002 - 2008	12 March, 2008
EMBASE	2002 - 2008	12 March, 2008
CENTRAL (Cochrane Central Register of Controlled Trials, NHS Economic Evaluation Database)	1rst Quarter 2008	20 March, 2008
Scopus	2002-2008	19 March, 2008

Table A1. MEDLINE® - Ovid Version

Years/issue searched: 2002 to 2008
Search date: 12 March, 2008

Bladder cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. (bladder adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
10. 8 and 9
11. limit 10 to yr="2002 - 2008"

Brain cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Brain Neoplasms/
10. (brain adj3 (cancer$ or neoplasm$ or tumor$ or tumour$ or carcino$)).mp.
11. (glioblastoma$ or astrocytoma$ or oligodendroglioma$).mp.
12. or/9-11
13. 8 and 12
14. limit 13 to yr="2002 - 2008"

Cervical cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7

9. Uterine Cervical Neoplasms/
10. Uterine Cervical Dysplasia/
11. Cervical Intraepithelial Neoplasia/
12. or/9-11
13. Cervix Uteri/
14. (cancer or neoplas$ or dysplas$ or carcinoma$ or tumor$ or tumour$).mp.
15. and/13-14
16. ((cervical or cervix) adj (cancer$ or carcinoma$ or neopla$ or dysplas$ or tumor$ or tumour$)).mp.
17. or/12,15-16
18. 8 and 17
19. limit 18 to yr="2002 - 2008"

Kidney cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Kidney Tumor/
10. ((kidney or renal) adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. clear cell$.mp.
12. or/9-11
13. 8 and 12
14. limit 13 to yr="2002 - 2008"

Ovarian cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Ovarian Neoplasms/
10. (ovar$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Pancreatic cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Pancreatic Neoplasms/
10. (pancrea$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Prostate cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. (prostat$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
10. 8 and 9
11. limit 10 to yr="2002 - 2008"

Small cell lung cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. (small-cell adj4 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
10. 8 and 9
11. limit 10 to yr="2002 - 2008"

Testicular cancer:

1. exp Tomography, Emission-Computed/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Testicular Neoplasms/
10. (teste$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. (testi$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
12. (seminoma$ or teratoma$).mp.
13. or/9-12
14. 8 and 13
15. limit 14 to yr="2002 - 2008"

Table A2. EMBASE – Ovid Version

Years/issue searched: 2002 to 2008
Search date: 12 March, 2008

Bladder cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Bladder Tumor/
10. (bladder adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Brain cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Brain Tumor/
10. (brain adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. (glioblastoma$ or astrocytoma$ or oligodendroglioma$).mp.
12. or/9-11
13. 8 and 12
14. limit 13 to yr="2002 - 2008"

Cervical cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.

7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Uterine Cervix Cancer/
10. 8 and 9
11. limit 10 to yr="2002 - 2008"

Kidney cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Kidney Tumor/
10. ((kidney or renal) adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. clear cell$.mp.
12. or/9-11
13. 8 and 12
14. limit 13 to yr="2002 - 2008"

Ovarian cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Ovary Cancer/
10. (ovar$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Pancreatic cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/

6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Pancreas Cancer/
10. (pancrea$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Prostate cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Prostate Cancer/
10. (prostat$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Small cell lung cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.
4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. Lung Small Cell Cancer/
10. (small-cell adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. 9 or 10
12. 8 and 11
13. limit 12 to yr="2002 - 2008"

Testicular cancer:

1. exp emission tomography/
2. positron$.mp.
3. pet.mp.

4. emission compute$ tomography.mp.
5. Fluorodeoxyglucose F 18/
6. fdg.mp.
7. fluorodeoxyglucose.mp.
8. or/1-7
9. exp Testis Tumor/
10. (testi$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
11. (teste$ adj3 (cancer$ or neopla$ or tumor$ or tumour$ or carcino$)).mp.
12. (seminoma$ or teratoma$).mp.
13. or/9-12
14. 8 and 13
15. limit 14 to yr="2002 - 2008"

Table A3. CENTRAL (Cochrane Central Register of Controlled Trials, NHS Economic Evaluation Database) - Wiley

Years/issue searched: 2002 to 2008
Search date: 20 March, 2008

Bladder cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 cancer* or carcino* or neopla* or tumor* or tumour*:ti,ab,kw in Clinical Trials
#3 bladder:ti,ab,kw in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Brain cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 neopla* or cancer* or tumor or tumour* or carcino*:ti,ab,kw in Clinical Trials
#3 brain or intracranial:ti,ab,kw in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Cervical cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 cancer* or carcino* or neopla* or tumor* or tumour* or dysplasia:ti,ab,kw in Clinical Trials
#3 cervi*:ti,ab,kw in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Kidney cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 cancer* or carcino* or neopla* or tumor* or tumour*:ti,ab,kw in Clinical Trials
#3 kidney or renal in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Ovarian cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 cancer* or carcino* or tumor* or tumour* or neopla*:ti,ab,kw in Clinical Trials
#3 ovar*:ti,ab,kw in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4)

Pancreatic cancer:

#1 (positron* or pet or fdg or fluorodeoxyglucose or tomography):ti,ab,kw in Clinical Trials
#2 pancrea*:ti,ab,kw in Clinical Trials
#3 cancer* or neopl* or tumor* or tumour* or carcino* in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Prostate cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 cancer* or carcino* or tumor* or tumour* or neopla*:ti,ab,kw in Clinical Trials
#3 prostat*:ti,ab,kw in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Small cell lung cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 (small cell lung cancer):ti,ab,kw in Clinical Trials
#3 small cell:ti,ab,kw in Clinical Trials
#4 cancer* or neopla* or tumor* or tumour* or carcino* in Clinical Trials
#5 (#3 AND #4)
#6 (#2 OR #5)
#7 (#1 AND #6), from 2002 to 2008

Testicular cancer:

#1 (positron* or pet or tomography or fdg or fluorodeoxyglucose):ti,ab,kw in Clinical Trials
#2 cancer* or carcino* or tumor* or tomour* or neopla*:ti,ab,kw in Clinical Trials
#3 testi* or teste*:ti,ab,kw in Clinical Trials
#4 (#2 AND #3)
#5 (#1 AND #4), from 2002 to 2008

Table A4. Scopus

Years/issue searched: 2002 to 2008
Search date: 19 March, 2008

Bladder cancer:

((TITLE-ABS-KEY(bladder) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Brain cancer:

((TITLE-ABS-KEY(brain OR intercranial) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Cervical cancer:

((TITLE-ABS-KEY(cervical OR cervix) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Kidney cancer:

((TITLE-ABS-KEY(kidney OR renal) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Ovarian cancer:

((TITLE-ABS-KEY(ovar*) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Pancreatic cancer:

((TITLE-ABS-KEY(pancrea*) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Prostate cancer:

((TITLE-ABS-KEY(prostat*) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Small cell lung cancer:

((TITLE-ABS-KEY(small cell) AND NOT (non) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

Testicular cancer:

((TITLE-ABS-KEY(testic* OR testi* OR teste*) AND TITLE-ABS-KEY(cancer OR carino* OR neopla* OR tumor OR tumour))) AND (TITLE-ABS-KEY(pet OR positron OR fdg OR fluorodeoxyglucose OR emission comput* tomography) AND DOCTYPE(ar OR re OR cp OR cr) AND PUBYEAR AFT 2001)

All

(ALL(nopr) AND ALL(national oncologic pet registry)) AND PUBYEAR AFT 2001

Grey Literature Searches

Internet Searches:

Internet searches were performed using the Google search engine in the following sites:

Website	Database - Organization	Date of search
www.anzctr.org.au	Australian New Zealand Clinical Trial Register (Australia)	20 March, 2008
www.bcbsa.com	BlueCross BlueShield Association (U.S.)	20 March, 2008
www.cc.nih.gov	NIH Clinical Center; National Institutes of Health (U.S.)	20 March, 2008
www.clinicaltrials.gov	National Institutes of Health (U.S)	12 March, 2008
www.controlled-trials.com	International Standard Randomised Controlled Trial Number Register; Science Navigation Group (U.K.)	20 March, 2008
www.nice.org.uk	Emergency Care Research Institute (U.K.)	20 March, 2008
www.who.int/ictrp/en/	International Clinical Trials Registry Platform; World Health Organization	20 March, 2008
www.wellcome.ac.uk	Wellcome Trust's Clinical Trial Register; Wellcome Trust (U.K.)	20 March, 2008

Conference Proceedings:

Scientific Meetings	Years
American Society of Clinical Oncology (ASCO) annual scientific meeting	2006-2007
American Society for Therapeutic Radiology and Oncology (ASTRO) annual scientific meeting	2006-2007
European Association of Nuclear Medicine (EANM) annual scientific meeting	2006-2007
European Congress of Radiology annual scientific meeting	2006-2007
Society of Nuclear Medicine (SNM) annual scientific meeting	2006-2007

Appendix B. TA Forms

B1. Title and Abstract Screening Form

For each citation, go through the following screening criteria. Citationsmust clearly satisfy all of the criteria below in order to be considered potentially relevant. Stop at the first "No" and classify the study as “Do not retrieve article”. Otherwise, classify it as “Retrieve article”. If it is unclear whether the article meets any one of the criteria below, the article will be considered eligible for retrieval and further review.

Please assess each citation according to the criteria below.

Preliminary:

1a. Does this article contain original research? **Yes** ☐ **No** ☐
If a systematic review/meta-analysis/HTA report include under the REVIEW group

1b. Was the study published in English? **Yes** ☐ **No** ☐
(*Foreign literature with English abstracts are excluded)*

1c. Were the study participants living humans? **Yes** ☐ **No** ☐
(Exclude animal, in vitro studies; Include economic evaluations)

Population:

2a. Does the study refers to an ADULT population with? **Yes** ☐ **No** ☐
- [ ] bladder cancer
- [ ] brain cancer
- [ ] cervical cancer
- [ ] kidney
- [ ] ovarian cancer
- [ ] pancreatic cancer
- [ ] prostate cancer
- [ ] small cell lung cancer
- [ ] testicular cancer
- [ ] cancer (if general, non-specified)
- [ ] not reported (but assumed. i.e, tumour, metastasis, malignancy, etc)

Note: Adults = 16 years and/or older.

Test:

3. Does the study uses **Yes** ☐ **No** ☐
[ ] 2-[18F]fluoro-2-D-glucose (FDG) PET
(Exclude studies that use other radioisotope tracer)

Power:

4. Does the study include: **Yes** ☐ **No** ☐
- [ ] > 12 humans with the disease of interest
- [ ] not reported

(*exclude if sample size is CLEARLY 11 or less)*

Final decision:

Should this study be included in the next stage? **Yes** ☐ **No** ☐
(Answer yes if all the above are yes)

B2. Eligibility Criteria Form

1. Preliminary			
a. Was the study published in English?	Yes ☐	No ☐	Unsure ☐
b. Does this article contain primary research? (*Exclude reviews, commentaries, letters, editorials)*	Yes ☐	No ☐	Unsure ☐
2. Population			
a. Does the study include ≥12 human participants? (*Exclude in vitro, phantom, animal studies or studies with sample size clearly 11 or less*)	Yes ☐	No ☐	Unsure ☐
b. Does the study provide separate data for a population consisting of adults (>16 years) with primary cancer or metastasis of the following type:*(Check all that apply)* ☐ Bladder cancer ☐ Brain cancer ☐ Cervical cancer ☐ Kidney cancer ☐ Ovarian cancer ☐ Pancreatic cancer ☐ Prostate cancer ☐ Small cell lung cancer ☐ Testicular cancer	Yes ☐	No ☐	Unsure ☐
3. Diagnostic test			
a. Did one arm or arms of the study undergo FDG-PET or PET/CT? *(Exclude PET or* PET/CT *using other radioisotope tracers)*	Yes ☐	No ☐	Unsure ☐
4. Study design			
a. Did the study use a matched study design? Was FDG-PET or PET/CT compared to a reference standard? (*e.g., MRI, CT, biopsy/histology, X rays, ultrasound, PET with other radioisotope tracer)*	Yes ☐	No ☐	Unsure ☐
b. Does the study evaluate (*check all that apply*) ☐ Q1. The diagnostic accuracy of FDG-PET or PET/CT (*The study provides primary data sufficient to allow calculations of the efficacy of the test (e.g., sensitivity, specificity, positive and negative predictive values, likelihood ratios*) ☐ Q2. Diagnostic thinking impact of FDG-PET or PET/CT (*decision making process, choice of therapy, pretest probability vs. posttest probability*) ☐ Q3. Impact of FDG-PET or PET/CT as part of a management strategy on patient-centered outcomes ☐ Q4. Cost-effectiveness of FDG-PET or PET/CT	Yes ☐	No ☐	Unsure ☐
5. Additional information (Not for I/E purposes)			
a. Does the study deal with questions related to: ☐ Establishing diagnosis ☐ Staging of the disease ☐ Restaging disease during and post therapy ☐ Monitoring response to treatment? ☐ Establishing degrees of malignancy ☐ Other (Describe) _____			

FINAL DECISION

Should this study be included in the next stage? *(Answer yes if all the above are "yes")* (*KEEP UNMATCHED STUDIES IF THEY ADDRESS Q3 AND Q4 IN 3b.*)	Yes ☐	No ☐	Unsure ☐

Consensus decision:

Yes ☐ No ☐ 3rd Party ☐

Guidelines for Eligibility Criteria

1. Preliminary

a. Was the study published in English?

- Exclude all non-English articles, even if the abstract is published in English.

b. Does this article contain primary research?

- Exclude erratum notes, editorials, reviews that synthesize other primary studies, letters to the editors (even if they include data; these letters are not peer-reviewed).

2. Population

a. Does the study include ≥12 human participants?

- Exclude animal or phantom studies.
- Exclude studies with 11 participants or less.

b. Does the study provide separate data for a population consisting of adults (>16 years) with primary cancer or metastasis?

- If the study evaluates several types of cancer (listed, or not listed in 2a), they should provide separate data for any of the nine types of cancer included in the TA.
- Exclude studies that combine data from several types of cancer.

3. Diagnostic test

a. Did one arm or arms of the study undergo FDG-PET or PET/CT?

- PET/CT is a medical imaging device that combines both PET and CT into a single superposed image.
- Exclude if PET or PET/CT uses other radioisotope tracers (e.g., [11C]choline, 11C/18F-acetate, FET, FLT, 18FAZA, 18FMISO).
- Studies evaluating SPECT should be excluded (unless they use SPECT as a reference standard to compare FDG-PET or PET/CT.

4. Study design:

a. Did the study use a matched study design?

- The studies should have compared FDG-PET or PET/CT to a reference standard.
- Examples of possible reference standards: MRI, CT, biopsy/histology, X rays, surgery, ultrasound, PET with other radioisotope tracer.
- Matched study design means two things: a) A same patient underwent both FDG-PET or PET/CT and the reference standard; or b) One group of patients underwent FDG-PET or PET/CT and the other underwent the reference standard.

For 4b below, please check all that apply. One study may address more than one question.

b. Does the study evaluate?

Q1. The diagnostic accuracy of FDG-PET or PET/CT

- The study should provide data (or sufficient data to allow calculations) of the efficacy of FDG-PET or PET/CT (e.g., sensitivity, specificity, positive and negative predictive values, likelihood ratios, ROC curve)
- The objective is to have data to complete a diagnostic table as follows:

		Condition (as determined by "Reference test)		
		True	*False*	
Test outcome	*Positive*	**True Positive**	**False Positive**	→Positive predictive value
	Negative	**False Negative**	**True Negative**	→ Negative predictive value
		↓ Sensitivity	↓ **Specificity**	Totals

Q2. Diagnostic thinking impact of FDG-PET or PET/CT (*decision making process, choice of therapy, pretest probability vs. posttest probability*)

- Examples: The study provides information on:
- Number of additional diagnostic tests triggered by PET scan findings.
- If the PET scan altered the clinical stage assignment.
- Change in the diagnostic evaluation (a procedure was pursued or avoided solely on the basis of PET scan findings).
- Change in therapy was documented if the treatment plan was altered because of PET scan findings

Q3. Impact of FDG-PET or PET/CT as part of a management strategy on patient-centered outcomes

- Studies should compare the effects of FDG-PET or PET/CT versus other diagnostic test upon patient outcomes.
- A study is relevant for Q3 if patient clinical outcomes are reported as a result of using FDG-PET or PET/CT.
- It may be possible to find RCTs here.

Q4. Cost-effectiveness of FDG-PET or PET/CT

- Studies should assess the cost-effectiveness of employing versus not employing FDG-PET or PET/CT, or compare the cost-effectiveness of FDG-PET or PET/CT versus other techniques.
- Costs are measured as dollars spent, whereas effectiveness or outcome is measured as changes in patient outcomes (e.g. survival, quality of life, QALYs, etc)
- Papers reporting hypothetical cost analyses or modelling exercises will be excluded.

5. Additional questions:

The following question should not be used for I-E purposes. It will help to guide classification of studies for data extraction.

a. Does the study deal with questions related to:

- Establishing diagnosis: FDG-PET to establish a diagnosis of cancer for any of the 10 types of cancer considered in the TA
- Staging of the disease: Cancer stages are denoted by Roman numerals I through IV, or are classified as "recurrent". They can also use a TNM system (TNM stands for Tumor, Nodes, and Metastases).
- Restaging disease during and post therapy: FDG-PET is used to re-evaluate cancer stages
- Monitoring response to treatment: FDG-PET is used both at the end of and during treatment as a prognostic indicator of response to treatment
- Establishing degrees of malignancy: It is different to staging of the disease. It refers to the aggressiveness of the cancer and how likely the tumour/cancer is to develop a malignancy or a metastatic process. It is possible to have a Stage I cancer with a high degree of malignancy. Degree of malignancy is usually measured through the SUV. The degree of malignancy is a very important factor for determining the prognosis of the disease.

FINAL DECISION:
Should this study be included in the next stage?

- Answer yes if your responses to questions 1 to 4 are “yes”.
- The only case in which a “no” is accepted and the study would still be included is when the study addresses Q3 or Q4 under 4a and it does not use a matched design.
- DO NOT EXCLUDE If the study is unmatched (with a negative answer in 4a) but addresses Q3 and Q4.

GENERAL RECOMMENDATIONS:

- We are not making distinctions between prospective or retrospective studies at this stage of the TA. Both will be included in the TA.

B3. Methodological Quality Assessment Forms

Scottish Intercollegiate Guidelines Network
Methodology Checklist (Q1, Q2)

Ref ID #:		Reviewer ID #:	

1. Internal validity of the study				
1.1. The spectrum of patients is representative of the patients who will receive the test in practice	☐ Yes	☐ Partially	☐ No	☐ Unclear
1.2. Selection criteria are clearly described	☐ Yes	☐ Partially	☐ No	
1.3. The reference standard is likely to classify the condition correctly	☐ Yes	☐ Partially	☐ No	☐ Unclear
1.4. The period between reference standard and index test is short enough to be reasonably sure that the target condition did not change between the two tests	☐ Yes	☐ Partially	☐ No	☐ Unclear
1.5. The whole sample, or a random selection of the sample, received verification using a reference standard of diagnosis	☐ Yes	☐ Partially	☐ No	☐ Not applicable
1.6.a. Patients received the same reference standard regardless of the index test result	☐ Yes	☐ Partially	☐ No	☐ Not applicable
1.7. The reference standard was independent of the index test (i.e. the index test did not form part of the reference standard)	☐ Yes	☐ No	☐ Not applicable	
1.8. The execution of the index test was described in sufficient detail to permit replication of the test	☐ Yes	☐ Partially		☐ No
1.9. The execution of the reference standard was described in sufficient detail to permit replication of the test	☐ Yes	☐ Partially		☐ No
1.10. Index test results were interpreted without knowledge of the results of the reference standard	☐ Yes	☐ No	☐ Unclear	☐ Not applicable
1.11. Reference standard results were interpreted without knowledge of the results of the index test	☐ Yes	☐ No	☐ Unclear	☐ Not applicable
1.12. Uninterpretable or intermediate test results are reported	☐ Yes	☐ No	☐ Unclear	
1.13. An explanation is provided for withdrawals from the study	☐ Yes	☐ No	☐ Unclear	
1.14. Were the same clinical data available when test results were interpreted as would be available when the test is used in practice?	☐ Yes	☐ No	☐ Unclear	

2. Overall assessment of the study			
2.1. How reliable are the conclusions of this study?	☐ ++	☐ +	☐ -

Scottish Intercollegiate Guidelines Network
Methodology Checklist

Guidelines for interpretation

Section 1: Internal validity
This section is to help you check that the study has been carried out carefully, and that the results reflect the accuracy of the test being evaluated. Each statement covers an aspect that research has shown makes a significant difference to the conclusions of a study.

1.1 The spectrum of patients is representative of the patients who will receive the test in practice

What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This statement is about spectrum bias. You should have a clear idea of the population, or spectrum, of patients you would expect to see in practice, taking into account factors such as disease prevalence and severity, age, and gender. Different demographic and clinical features between populations may lead to considerable differences in measures of diagnostic accuracy. It is difficult to generalise from reported estimates of diagnostic accuracy if the spectrum of tested patients is not similar to the patients on whom the test will be used in practice. A description of the spectrum of patients should refer to the severity of the target condition, demographic features, and the presence of differential diagnosis and/or comorbidity. Diagnostic test evaluations should include an appropriate spectrum of patients for the test under investigation. Inclusion criteria for patients should be clearly defined.	Always applies.	Yes if you believe, based on the information provided by the authors, that the spectrum of patients included in the study was representative of those on whom the test will be used in practice. This judgement should be based on both the method of recruitment and the characteristics of those recruited. Partially if it seems likely that the spectrum of patients was representative of those seen in practice but the paper is unclear or lacking some information. No where a group of patients known to have the target disorder are recruited along with a group of healthy controls. Unclear where there is not enough information to make a judgment

1.2: Selection criteria are clearly described

What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
Have the authors provided a clear definition of the criteria used to select patients for entry into the study?	Always applies.	Yes if you think that all relevant information regarding how participants were selected for inclusion in the study has been provided. Partially if some information is provided, but not enough to make you confident you understand what the selection criteria were and how they were applied. No if some information is provided but you are unclear about what the criteria were or how they were applied.

1.3: The reference standard is likely to classify the condition correctly.		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
The reference standard is the method or test used to determine the presence or absence of the target condition. The choice of reference standard depends on the defined target condition and the purpose of the study. To assess the diagnostic accuracy of the new or "index test", results from the index test are compared with results from the reference standard. If no single reference test is available, then careful clinical follow-up, a consensus between observers, or the results of two or more combined tests may be used to determine the presence or absence of the target condition. Estimates of the performance of the index test are based on the assumption that the reference standard that is 100% sensitive and specific. If there are any disagreements between the reference standard and the index test then it is assumed that the index test is incorrect.	Always applies. Your key question may specify the use of a particular reference standard.	Yes if you believe that the reference standard is likely to classify the target condition correctly. Partially if you think the authors have not fully justified their choice of reference standard. No if you do not think that the reference standard was likely to have classified the target condition correctly. Unclear if there is insufficient information to make a judgement.
1.4. The period between reference standard and index test is short enough to be reasonably sure that the target condition did not change between the two tests.		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This statement is about disease progression bias. Ideally, results from the index test and the reference standard are collected from the same patients at the same time. Delay between the two measurements could allow either spontaneous recovery or disease progression to occur. The length of time causing such bias will depend on the condition. A delay of a few days is unlikely to be a problem for chronic conditions. For some diseases a delay between tests may be critical. This type of bias may occur in chronic conditions in which the reference standard involves clinical follow-up of several years.	Usually applies	Yes For rapidly developing conditions, delays of hours to a few days are acceptable. For chronic conditions, disease status is less likely to change rapidly and a delay of weeks is acceptable. Partially if you think the delay is lengthy, but still acceptable. You should decide when you set your key questions what constitutes an acceptable delay. No. If you think the period between the performance of the index test and the reference standard was sufficient to allow disease status to change between the performance of the two tests Unclear if insufficient information is provided.

1.5. The whole sample, or a random selection of the sample, was verified using a reference standard of diagnosis.		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This statement is about partial verification bias, also known as work-up bias, (primary) selection bias or sequential ordering bias. If only some of the study group receive confirmation of the diagnosis by a reference standard, and the results of the index test influence the decision to perform the reference standard, then biased estimates of test performance may arise. True random selection of patients to receive the reference standard will address this problem.	Generally only occurs when patients are tested by the index test before the reference standard.	Yes if it is clear that all patients who received the index test went on to receive verification of their disease status using the same reference standard. Partially if the reference standard was not the same for all patients. No if not all of the patients who received the index test received verification of their true disease state. Not applicable if the reference standard was applied first, and you are confident that verification bias could not have occurred.
1.6.a. Patients received the same reference standard regardless of the index test result.		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This statement is about differential verification bias. This occurs when different reference standards are used to verify the index test results. Different reference standards may vary in their definition of the target condition (e.g. histopathology of the appendix and natural history for the detection of appendicitis). It often occurs when patients testing positive on the index test receive a more accurate, often invasive, reference standard than those with negative test results. The correlation between a particular (negative) test result and being verified by a less accurate reference standard will affect measures of test accuracy in a similar way to partial verification, but less seriously.	Generally only occurs when all patients are tested by the index test before the reference standard.	Yes if it is clear that all patients who received the index test had their disease status verified using the same reference standard. Partially if the reference standard was not the same for all patients. No if some of the patients who received the index test did not have their true disease state verified. Not applicable in case-control designs where the order of the tests is reversed (i.e. reference standard first).
1.7. The reference standard was independent of the index test (i.e. the index test did not form part of the reference standard).		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This statement is about incorporation bias. Incorporation bias may occur when the result of the index test is used to establish the final diagnosis. This will probably increase the agreement between index test results and the reference standard, and hence overestimate the measure of diagnostic accuracy. Note: knowledge of the results of the index test does not automatically mean	Only applies when a composite reference standard is used to verify disease status.	Yes It is clear that the index test did not form part of the reference standard No if the index test formed part of the reference standard. Not applicable if it is clear that the index test did not form part of the reference standard. ***NOTE***: "Poorly addressed" does not refer to whether or not incorporation bias is described or discussed as it may be quite clearly described. "Poorly addressed" refers to the fact that including the index text in the reference standard introduces a potential bias.

that the results are incorporated in the reference standard. For example, a study investigating magnetic resonance imaging (MRI) for diagnosing multiple sclerosis could have a reference standard composed of clinical follow-up, cerebrospinal fluid analysis and MRI. In this case the index test forms part of the reference standard. If the same study used a reference standard of clinical follow-up and the results of the MRI were known when the clinical diagnosis was made but were not specifically included as part of the reference, then the index test does not form part of the reference standard.		
1.8. The execution of the index test was described in sufficient detail to permit replication of the test. **1.9. The execution of the reference standard was described in sufficient detail to permit replication of the test.**		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
A sufficient description of the execution of index test and reference standards is important for two reasons. First, variation in measures of diagnostic accuracy can sometimes be traced back to differences in the execution of index/reference standards. Second, a clear and detailed description (or references) is needed to implement the test in another setting. If tests are executed in different ways then this could affect test performance. The extent to which this would alter results would depend on the type of test.	Usually applies.	Yes if the study reports sufficient details to permit replication of the index test and reference standard. Partially if only the bare minimum of information has been provided. No if detail is insufficient.

1.10. Index test results were interpreted without knowledge of the results of the reference standard. **1.11. Reference standard results were interpreted without knowledge of the results of the index test.**		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This statement is about review bias. Review bias is similar to blinding in intervention studies. Interpretation of the results of the index test may be influenced by knowledge of the results of the reference standard, and vice versa. The effect on results will depend on the degree of subjectivity in the interpretation of the test result. The more subjective the interpretation the more likely that the interpreter can be influenced by the results of the index test in interpreting the reference standard, and vice versa.	If the index test is always performed first then interpretation of the results of the index test will usually be without knowledge of the results of the reference standard. If the reference standard is always performed first then the results of the reference standard will be interpreted without knowledge of the index test. In certain situations the results of both the index test and reference standard are blinded in both directions before being interpreted.	Yes if the study clearly states that the test results (index or reference standard) were interpreted blind to the results of the other test. No if you regard the blinding procedure as inadequate. Unclear if you are uncertain of the reliability of the blinding procedure. Not applicable where test results are entirely objective or tests were carried out in an independent laboratory.

1.12. Uninterpretable or intermediate test results are reported		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
A diagnostic test can produce an uninterpretable/ indeterminate/intermediate result with varying frequency, depending on the test. Uninterpretable results are often removed from the analysis which may lead to biased assessment of the test characteristics. Any bias will depend on the correlation between uninterpretable test results and true disease status. If uninterpretable results occur randomly then they should not affect test performance. Whatever the cause of uninterpretable results it is important for them to be reported so that their impact on test performance can be determined.	Always applies.	Yes if it is clear that all test results are reported. No if there is no mention of whether such results occurred, or how they were handled. Unclear if it is clear that such results occurred, but it is not clear to what extent they have been reported.
1.13. An explanation is provided for withdrawals from the study.		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
This occurs when patients withdraw from the study before the results of both the index test and reference standard are known. If patients lost to follow-up differ systematically from those who remain, for whatever reason, then estimates of test performance may be biased.	Always applies.	Yes if it is clear what happened to all patients who entered the study (eg a flow diagram of study participants is reported). No if some of the participants who entered the study did not complete it and are not accounted for. Unclear if it is not clear whether all patients who entered the study are accounted for.
1.14. The same clinical data were available when test results were interpreted as would be available when the test is used in practice.		
What does this statement mean?	*When does this statement apply?*	*Studies should be scored as:*
The availability of clinical data (anything relating to the patient that can be obtained by direct observation) during the interpretation of test results may affect estimates of test performance. Such knowledge can influence the test result if it involves an interpretative component. If clinical data will be available when the test is interpreted in practice then it should be available when the test is evaluated.	Does not apply to tests which are fully automated and involve no interpretation, or where the index test is intended to replace other clinical tests.	Yes if it is clear that the index test was evaluated in circumstances identical to those that apply in routine practice. No if there is discussion of any differences between the circumstances of test evaluation and routine practice. Unclear if the circumstances of test evaluation and routine practice are not discussed.
Section 2: Section 2 relates to the overall assessment of the paper. It rates the methodological quality of the study, based on the responses in section 1, using the following coding system:		
++	All or most of the criteria have been rated as YES. Where they have not been fulfilled the conclusions of the study or review are thought very unlikely to alter	
+	Some of the criteria have been rated as YES. Those criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions	
-	Few or no criteria fulfilled. The conclusions of the study are thought likely or very likely to alter	

Quality assessment checklist (Q3)

Ref ID: _____ Reviewer's Initials _____

Objective/hypothesis of study	Well defined	Poorly defined (vague)		Not defined
Selection description (setting, inclusion, exclusion criteria)	Adequate (all)	Partial (just 2)		Inadequate
The study used a prospective design	Yes	No		Unclear
Were participants randomized to study groups?	Yes	No		Unclear
Was allocation concealment described?	☐ Adequate	☐ Inadequate	☐ Unclear	☐ NA
The study compared PET-FDG (as part of a management strategy) versus a control group	Yes	No		Unclear
PET-FDG group and control group were comprised of comparable populations	Yes	No		Unclear
Description of PET-FDG or PET/CT characteristics (scanner model, resolution, acquisition mode, FDG dose)	Adequate	Partial (just 3)		Inadequate
Co-interventions were the same in each group	Yes	No		Unclear
The timing of outcome assessment/follow up in all groups was similar	Yes	No		Unclear
Defined criteria were used for FDG-PET or PET/CT interpretation		Yes	No	Unclear
More than one person interpreted FDG-PET or PET/CT results		Yes	No	Unclear
Person interpreting FDG-PET or PET/CT were blinded to results of other dx		Yes	No	Unclear
The outcomes are clearly defined	Adequate	Partial		Inadequate
The assessment of outcome is made blind to treatment group	Yes	No (open label)		Unclear
Participants description (Table 1; at least age, gender and something else)	Adequate (≥3 variables)	Partial (2≤ variables)		Inadequate
Was there a description of withdrawals and drop-outs *(*number by group must be included*)*?	Adequate (numbers and reasons per group)	Partial (only numbers per group)		Inadequate

Funding (check all that apply)

Government	Society
☐ Internal	☐ Other (specify)
Private industry	NR
Foundation	No funding

CHEC List for Economic Evaluations
Methodology Checklist (Q4)

Ref ID #:		Reviewer ID #:	

1. Is the study population clearly described	☐ Yes	☐ Partially	☐ No
2. Are competing alternatives clearly described?	☐ Yes	☐ Partially	☐ No
3. Is a well-defined research question posed in answerable form?	☐ Yes	☐ Partially	☐ No
4. Is the economic study design appropriate to the stated objective?	☐ Yes	☐ Partially	☐ No
5. Is the chosen time horizon appropriate to include relevant costs and consequences?	☐ Yes	☐ Partially	☐ No
6. Is the actual perspective chosen appropriate?	☐ Yes	☐ Partially	☐ No
7. Are all important and relevant costs for each alternative identified?	☐ Yes	☐ Partially	☐ No
8. Are all costs measured appropriately in physical units?	☐ Yes	☐ Partially	☐ No
9. Are costs valued appropriately	☐ Yes	☐ Partially	☐ No
10. Are all important and relevant outcomes for each alternative identified?	☐ Yes	☐ Partially	☐ No
11. Are all outcomes measured appropriately?	☐ Yes	☐ Partially	☐ No
12. Are outcomes valued appropriately?	☐ Yes	☐ Partially	☐ No
13. Is an incremental analysis of costs and outcomes of alternatives performed?	☐ Yes	☐ Partially	☐ No
14. Are all future costs and outcomes discounted appropriately?	☐ Yes	☐ Partially	☐ No
15. Are all important variables, whose values are uncertain, appropriately subjected to sensitivity analysis?	☐ Yes	☐ Partially	☐ No
16. Do the conclusions follow from the data reported?	☐ Yes	☐ Partially	☐ No
17. Does the study discuss the generalizability of the results to other settings and patient/client groups?	☐ Yes	☐ Partially	☐ No
18. Does the article indicate that there is no potential conflict of interest of study researcher(s) and funder(s)?	☐ Yes	☐ Partially	☐ No
19. Are ethical and distributional issues discussed appropriately?	☐ Yes	☐ Partially	☐ No

CHEC List to assess the methodological quality of economic evaluations

Guidelines for interpretation

Guidelines were based on the following document: Canadian Coordinating Office for Health Technology Assessment. *Guidelines for economic evaluation of pharmaceuticals: Canada*. 2nd ed. Ottawa: Canadian Coordinating Office for Health Technology Assessment (CCOHTA); 1997

1. Is the study population clearly described?
The study must clearly specify the target population for the study. Any investigations of patient subgroups, disease subtypes, severity levels, comorbidity groups, etc., should be clearly identified by an explicit hypothesis in the study protocol. Economic evaluation should be performed overall and, data permitting, for those subgroups that were identified in the protocol for their possible differential effectiveness, costs and/or preferences.

2. Are competing alternatives clearly described?
The procedure should be compared with both existing practice and minimum practice. The relevant comparators may be other similar procedures, other medical care such as surgery, or even no intervention. Existing practice would either be the single most prevalent clinical practice (if there is one that is dominant), or it could be current practice weighted by market share. Minimum practice would normally be either the lowest cost comparator that is more effective than the do-nothing alternative,. In addition to these two formal comparators, all other reasonable alternative therapies should be at least discussed in the report.

3. Is a well-defined research question posed in answerable form?
Objective clearly defined

4. Is the economic study design appropriate to the stated objective?
If all consequences are essentially identical between the procedure and the relevant comparators, a cost-minimization analysis (CMA) is adequate. In other instances, a cost-consequence analysis (CCA) is required plus one or more of the following: cost-effectiveness analysis (CEA), cost-utility analysis (CUA), and cost-benefit analysis (CBA). Consistent with the desire to permit broad comparisons, CUA or CBA are preferred. Researchers should present the data using a variety of techniques, to maximize the information content and to contribute to the development of these methodologies.

5. Is the chosen time horizon appropriate to include relevant costs and consequences?
Every effort should be made to extend the analytic horizon to capture all relevant outcomes. When modelled data are needed to meet this requirement, the structure and rationale of the model must be presented

6. Is the actual perspective chosen appropriate?
Studies should report at least from a comprehensive societal perspective. That perspective should be transparently broken down into those of other relevant viewpoints, including that of the primary decision-maker.

7. Are all important and relevant costs for each alternative identified?
A probability tree of the therapeutic pathway which describes all relevant downstream events should be provided, when appropriate. From the societal viewpoint, cost items that should be included are all direct health care costs, social services costs, spillover costs on other sectors, and costs that fall on the patient and family. Cost items that should be excluded are those not relevant to the therapeutic pathway such as those not related to the treatment being evaluated,

costs relevant only to the study, and transfer payments such as sickness pay, unemployment insurance and welfare payments.

8. Are all costs measured appropriately in physical units?
Resources used in treatment must first be described in natural (non-dollar) units. All resource utilization data derived from international studies must be validated for American practice

9. Are costs valued appropriately?
Economic definitions of costs must be used and the concept of opportunity cost recognized.

10. Are all important and relevant outcomes for each alternative identified?
11. Are all outcomes measured appropriately?
12. Are outcomes valued appropriately?
All results must be reported in disaggregated detail first, with aggregations and the use of value judgements (e.g. preference scores) being introduced into the presentation as late as possible. A probability tree of clinical outcomes should be provided for the relevant alternatives. Detailed technical reports, with patient confidentiality protected, should be made available to decision-makers.
Reports should either follow the standardized reporting structure or be linked to it.

13. Is an incremental analysis of costs and outcomes of alternatives performed?
Costs and effects must be reported as increments (that is, as differences between two alternatives) and as totals. All pharmacoeconomic studies must be comparative and express results in incremental terms. The procedure under study must be compared to one or more relevant alternative procedure, which may include a “do nothing” alternative (if clinically relevant). Costs and consequences must be measured as increments; that is, as differences between the two alternatives. Cost-effectiveness ratios, cost-utility ratios and cost-benefit differences (i.e. net cost or **net benefit**) must be based on incremental results, not totals or averages.

14. Are all future costs and outcomes discounted appropriately?
Future outcomes should be discounted at the same rate as costs. The base case discount rate is 5% per year. This rate must be varied in a sensitivity analysis, with a discount rate of 0% (no discounting) at minimum. Analysts should also consider using a 3% rate for comparability with future studies. When it is believed the analysis should differentiate between discount rates for outcomes and costs, these results should be presented as a supplementary analysis and the relevance fully explained

15. Are all important variables, whose values are uncertain, appropriately subjected to sensitivity analysis?
Subgroups must be definable based on explicitly outlined parameters prior to the study, and a minimum of subgroup analyses should be carried out within a single study. If the subgroups differ in any controversial or discriminatory fashion, **sensitivity analysis** should be used to demonstrate the effect of group-specific estimates.

16. Do the conclusions follow from the data reported?
Verify consistency between data reported and conclusions stated by the authors of the study.

17. Does the study discuss the generalizability of the results to other settings and patient/client groups?
The portability of an economic evaluation is an issue which should be considered during the development of the study, as well as during the interpretation and dissemination of study results. Consideration must be given to two aspects of the applicability of the analysis to the local setting. The first aspect is the distinction between efficacy and effectiveness. The second aspect is the validity of transferring results (i.e. economic, clinical and humanistic) from one country or health care jurisdiction to another. These considerations are especially important when working in the context of multinational, multi-centre studies.

18. Does the article indicate that there is no potential conflict of interest of study researcher(s) and funder(s)?
Funding and reporting relationships must be clearly described. The investigators must have independence regarding methodological considerations at all stages of the study, and must have the right of publication in the journal of their choice. The important principle is that the investigators should have independence regarding methodological considerations at all stages of the study.

19. Are ethical and distributional issues discussed appropriately?
If data collection is not regulated by HPB, ethical considerations and process indicators should be defined specifically in the study documents. In the case of secondary data collection (e.g. databases, interviews), studies should provide a description and validation of the data collection methods, as well as evidence of the means of review and approval by interviewees regarding the data collected.

B4. Data Extraction Forms

Section 1: General characteristics

1. Study characteristics

Geographic location *(Country)*:	Study Setting (*Where does the population come from?)* Inpatient (1) ☐ Outpatient (2) ☐ Research /academy (3) ☐ ND (4)☐ Other (describe) (5)☐
Study Source Abstract (1)☐ Journal article (2) ☐	
Type of study Prospective (1) ☐ Retrospective (2) ☐ ND (3)☐	Number of Centers Single centre (1) ☐ Multicentre (2) ☐ ND (3)☐
Dates of Data Collection: From: _____	To: _____
Source of funding ☐ Government (1) ☐ Society (2) ☐ Internal (3) ☐ Private industry (4) ☐ Other (5) ☐ No funding (6) ☐ NR (7)	

2. Selection criteria and testing conditions

Type of Primary Cancer Bladder (1) ☐ Brain (2) ☐ Cervical (3) ☐ Kidney (4) ☐ Ovarian (6) ☐ Pancreatic (7) ☐ Prostate (8) ☐ SCLC (9) ☐ Testicular (10) ☐	Patients Enrolled Consecutively Yes (1) ☐ No (2) ☐ ND (3) ☐ Comparisons Done Matched study (*Reference standard same for all patients*) (1) ☐ Reference standard is different for some patients (non-*randomly assigned*) (3) ☐ Reference standard is different for some patients (*randomly assigned*) (2) ☐ No reference standard done (4) ☐
Reference standard Histology/biopsy (1) ☐ Follow-up (*clinical course)* (2) ☐ _____ months Other (3) ☐ (*Describe*):	Time elapsed between PET and reference standard (*indicate if days/months)* _____ Time elapsed between PET and other comparators _____ Which was performed first? FDG-PET (1) ☐ Reference standard (2) ☐ Unclear (3) ☐)
Other comparators used:	
Selection criteria Inclusion criteria (1) (*also mention any formal criteria used for staging/diagnosis)* ND (3) ☐	Exclusion criteria (2) ND (4) ☐
Additional information:	

3. PET technical characteristics

FDG-PET (1) ☐ FDG-PET/CT (2) ☐	Scanner Model (Describe) ND (2) ☐
Acquisition Mode 2-D (1) ☐ 3-D (2) ☐ ND (3) ☐	Resolution Specified Intrinsic spatial resolution (1)_____ ND (2) ☐
Number of FOV _____ ND(2) ☐	Image resolution (FWHM) (1)_____ mm ND (2) ☐
Acquisition Time per Field of View (*often referred as "per bed position"*) Emission Scan acquisition time per FOV (1) ☐ _____min Transmission Scan acquisition time per FOV (2) ☐ _____min Other acquisition time per FOV (*describe type*) (3) ☐ _____min _____	Width per Image or "Slice" _____ (mm) ND (2) ☐
Number of counts per FOV (1) _____ counts /slices ND(2) ☐	Method and amount of FDG dosing (units: mCi ☐ or MBq ☐) (list both units, if given) Fixed dose (1) ☐ _____ Minimum dose (3) ☐ _____ Dose range (2) ☐ _____ Weight-based dose (4) ☐ _____
Time between FDG injection and scan _____ (min) ND(2) ☐	Other (5) ☐ (Specify) ND (6) ☐
Reconstruction Algorithm Used Filtered back position (1) ☐ Iterative (2) ☐ ND (3) ☐	Glucose Monitoring Fasting (1) ☐ Nonfasting (2) ☐ ND (3) ☐
SUV used (Standardized Uptake Value) Yes (1) ☐ No (2) ☐	Duration of fasting (1) _____ (*hours*) ND (2) ☐
SUV calculation reported Yes (1) ☐ (Specify): No (2) ☐	Glucose measured (blood glucose) Yes (1) ☐ No (2) ☐ ND (3) ☐
How was attenuation correction performed?	Max glucose permitted (1) _____ __ (g/dL) ND (2) ☐
Criteria for Abnormality by PET Qualitative (1) ☐ Quantitative (2) ☐ NR (3) ☐ Describe qualitative criteria / Describe quantitative criteria	Criteria for Abnormality by Reference Standard Qualitative (1) ☐ Quantitative (2) ☐ ND (3) ☐ Describe qualitative criteria / Describe quantitative criteria
PET Assessment Blinded (1) ☐ Unblinded (2) ☐ ND (3) ☐	Reference Standard Assessment Blinded (1) ☐ Unblinded (2) ☐ ND (3) ☐
Number of assessors:	Number of assessors: ☐ NA
Additional information:	

4. Sociodemographic information

Please describe study group(s) using relevant description i.e. Stage I, II, III, IV, recurrent

Variable	Total sample	Sample data grouped by _____ (*define variable; it can be stage, age groups, etc)*			
		Group 1 (*Describe*)	Group 2 (*Describe*)	Group 3 (*Describe*)	Group 4 (*Describe*)
N enrolled (*n*)					
N analyzed (*n*)					
N dropouts/withdrawals (*n*)					
Males n ☐ %☐					
Age Mean ☐ SD ☐ SE ☐					
Median ☐ IQR ☐					
Range ☐					
Time from diagnosis (*months*)					
Ethnic distribution (*list* and n ☐ %☐)					
Distribution by stage (*list* and n ☐ %☐*)*					
Other relevant information (*list* and n ☐ %☐*)*					
Additional information: (e.g. % participants at different TNM stages)					

Section 1: Diagnostic accuracy of FDG-PET and PET/CT

Please describe the diagnostic test performance of FDG-PET and FDG-PET/CT and how it compares to conventional imaging modalities (e.g., CT and MRI) or other diagnostic procedures (e.g. biopsy, serum tumor markers) with respect to the following clinical situations: establishing diagnosis of cancer; staging of the cancer; restaging of the cancer during and post therapy; monitoring response to treatment

1.) Complete the following tables of the efficacy of PET or PET/CT. Complete each table by including the Reference / Comparator in question; the population in question (e.g. some studies may subdivide subject groups); the size of the population.

Table 1: _____ (descriptive title if desired)

Type of PET: _____		Comparator: _____ (e.g. MRI, CT, histology)		
Type of Subjects: _____ (e.g. stage? metastases?)		Purposes of PET:		
		Condition / Comparator Test Result:		
		Positive	Negative	
Test Result:	Positive			**PPV:**_____
	Negative			**NPV:**_____
Totals				
		Sensitivity: _____	**Specificity:** _____	

Overall Efficiency of PET: _____
Accuracy or Precision: _____
Info on ROC curve: Yes No Page: _____
Specify any other outcomes (e.g. False Positive Rate, False Negative Rate, Power etc.):

Table 2: _____ (descriptive title if desired)

Type of PET: _____		Comparator: _____ (e.g. MRI, CT, histology)		
Type of Subjects: _____ (e.g. stage? metastases?)		Purposes of PET:		
		Condition / Comparator Test Result:		
		Positive	Negative	
Test Result:	Positive			**PPV:**_____
	Negative			**NPV:**_____
Totals				
		Sensitivity: _____	**Specificity:** _____	

Overall Efficiency of PET: _____
Accuracy or Precision: _____
Specify any other outcomes (e.g. False Positive Rate, False Negative Rate, Power etc.):

Table 3: _____ (descriptive title if desired)

Type of PET: _____		Comparator: _____ (e.g. MRI, CT, histology)		
Type of Subjects: _____ (e.g. stage? metastases?)		Purposes of PET:		
		Condition / Comparator Test Result:		
		Positive	Negative	
Test Result:	Positive			**PPV:_____**
	Negative			**NPV:_____**
Totals				
		Sensitivity: _____	**Specificity: _____**	

Table 3 cont'd…
Overall Efficiency of PET: _____
Accuracy or Precision: _____

Specify any other outcomes (e.g. False Positive Rate, False Negative Rate, Power etc.):

Table 4: _____ (descriptive title if desired)

Type of PET: _____		Comparator: _____ (e.g. MRI, CT, histology)		
Type of Subjects: _____ (e.g. stage? metastases?)		Purposes of PET:		
		Condition / Comparator Test Result:		
		Positive	Negative	
Test Result:	Positive			**PPV:_____**
	Negative			**NPV:_____**
Totals				
		Sensitivity: _____	**Specificity: _____**	

Overall Efficiency of PET: _____
Accuracy or Precision: _____

Specify any other outcomes (e.g. False Positive Rate, False Negative Rate, Power etc.):

Table 5: _____ (descriptive title if desired)

Type of PET: _____		Comparator: _____ (e.g. MRI, CT, histology)		
Type of Subjects: _____ (e.g. stage? metastases?)		Purposes of PET:		
		Condition / Comparator Test Result:		
		Positive	Negative	
Test Result:	Positive			**PPV:**_____
	Negative			**NPV:**_____
Totals				
		Sensitivity: _____	**Specificity:** _____	

Overall Efficiency of PET: _____
Accuracy or Precision: _____

Specify any other outcomes (e.g. False Positive Rate, False Negative Rate, Power etc.):

2.) Provide any additional relevant data related to the accuracy and effectiveness of PET or PET/CT

3.) Reference to Formulas used in Diagnostic Accuracy Outcomes:

Sensitivity

$$Sensitivity = \frac{number\ True\ Positives}{(number\ True\ Positives + number\ False\ Negatives)}$$

Sensitivity alone does not tell us how well the test predicts about the negative cases. This is captured by **specificity t**est (in binary cases as we are extracting).
Sensitivity is not the same as the **PPV** (ratio of true positives to combined true and false positives. It also does not take into account indeterminate test results. The options are to exclude indeterminate samples from analyses (but the number of exclusions should be stated when quoting sensitivity), or, alternatively, indeterminate samples can be treated as false negatives (which gives the worst-case value for sensitivity and may therefore underestimate it).

Specificity

$$Specificity = \frac{number\ True\ Negatives}{(number\ True\ Negatives + number\ False\ Positives)}$$

Specificity alone does not telll how well the test recognizes positive cases. This is captured by the **sensitivity** of the test to the class.
Specificity is sometimes confused with the **precision** or the **PPV**, both of which refer to the fraction of returned positives that are true positives. The distinction is critical when the classes are different sizes. A test with very high **specificity** can have very low **precision** if there are far more true negatives than true positives, and vice versa.

Positive Predictive Value (PPV) or Negative Predictive Value (NPV)

The Positive Predictive Value can be defined as

$$PPV = \frac{number\ True\ Positives}{(number\ of\ True\ Positives + number\ false\ positives)}$$

(*For NPV, simply replace TP with TN etc.)

or, alternatively,

$$PPV = \frac{(sensitivity)\ (prevalence)}{(sensitivity)(prevalence) + (1 - specificity)(1 - prevalence)}$$

$$NPV = \frac{(sensitivity)\ (1 - prevalence)}{(specificity)(1 - prevalence) + (1 - specificity)(prevalence)}$$

False Positive Rate; False Negative Rate, Power

- False positive rate (α) = FP / (FP + TN) = 1 - specificity
- False negative rate (β) = FN / (TP + FN) = = 1 - sensitivity
- Power = 1 − β

Accuracy or Precision

Accuracy is the proportion of true results (both TP and TN) in the population. It is a parameter of the test.

$$Accuracy = \frac{number\ True\ Positives + number\ True\ Negatives}{(numbers\ of\ true\ positives + false\ positives + false\ negatives + true\ negatives)}$$

Accuracy may be determined from Sensitivity and Specificity, provided Prevalence is known, using the equation:

$$Accuracy = (sensitivity)(prevalence) + (specificity)(1\text{-}prevalence)$$

Section 2: Diagnostic Thinking Impact of FDG-PET and PET/CT

Please describe the magnitude of the impact of PET scanning on physician decision-making. The impact of the information obtained from the PET imaging may influence: DIAGNOSIS, MANAGEMENT STRATEGY, STAGING & RE-STAGING; MONITORING RESPONSE to TREATMENT

Outcomes may include:

- *Difference in clinician's subjectively estimated diagnosis probabilities pre- and post- PET scan*
- *Number times the image was deemed to be "helpful" in making Dx or treatment plan (subjective)*
- *Positive / Negative predictive values (e.g. regarding treatment modalities, response to treatment?)*
- *% times the therapy plan was altered after PET scan.*
- *Calculation of GTV (gross target volume) for radiotherapy planning*

PET used for: (If >1, please use * to indicate the primary aim of study)		
Diagnosis (1) ☐	Staging (2) ☐	Restaging (3) ☐
Monitor tx response (4) ☐	Recurrence (5) ☐	Other (specify) (6) ☐
Radiotherapy Planning (GTV determination) ☐		

A) DIAGNOSTIC IMPACT ON TREATMENT PLANNING:

Management decision evaluated:	
Treatment decision	Additional Diagnostic workup

Summary of data:

Pre-PET Decision	**Post-PET Decision**	**Detail Post-PET Changes (N or %, please specify)**				**N =_____**
		ALL	Diagnosis	Staging	Restaging	Recurrence
Treat	Treat					
Non-treat	Non-treat					
TOTAL NO-CHANGE						
Non-treat	Treat					
Treat	Non-treat					
Treatment 1	Treatment 2					
TOTAL CHANGE						

Reporting option 2:

Post PET:	**PET +_____**	**(e.g. CT, if applic)**	**PET +_____**	**(e.g. CT, if applic)**	**Other:**	
	N =_____	**%**	**N =_____**	**%**	**N =_____**	**%**
Same Diagnosis						
Minor change Diag						
Major Change Diag						
Upstage (or ↑ **GTV**)						
Downstage (or ↓**GTV**)						
Change In Dx Impacts Treatment						

B) SPECIFIC ALTERATIONS TO TREATMENT PLANS: (e.g changes in plan as stratified by pre-PET mgmt strat

	Pre-PET:						
	Image	Biopsy	Watch or Palliative (specify w/ circle)	Treat-Radiation	Treat-Chemo	Treat - Surgery	Treat – Other:
Post-PET:							
Image							
Biopsy							
Watch or Palliative (specify w/ circle)							
Treat-Radiation							
Treat-Chemo							
Treat- Surgery							
Treat-Other:							

C) DETERMINATION OF TUMOR VOLUMET (e.g. used for Radiotherapy planning)**:**
******* If study considered the impact PET had on the calculation of **Gross Target Volume (GTV)** for Radiotherapy, please provide a reference to the relevant tables, including any with toxicity data *******

GTV (Radiotherapy) considered? YES NO
* Refer to **PAGE** _____ and **Tables/Figures** _____

D) OTHER outcomes (Qualitative? Quantitative? :General comments? References to paper)
* Refer to **PAGE** _____ and **Tables/Figures** _____

E) AUTHORS CONCLUSIONS regarding impact of PET on management strategy? (for any of following clinical situations: diagnosis, staging, restaging, monitoring treatment response)

F) REVIEWER/Extractor COMMENT on study (e.g. methods/conclusions/data supportive of conclusions etc.):

Section 3: FDG-PET and PET/CT as part of a management strategy

Study duration: _____ Follow-up period _____

PET purpose: _____

Clinical decision: _____

A) Characteristics of the interventions

Name	Group 1 (*Describe*)	Group 2 (*Describe*)	Total
Description			
Co-interventions (*list*)			

B) Outcomes assessment

Primary outcome:	Reported by authors ☐	First listed in results ☐
Secondary outcomes:		

a. Continuous outcomes

1. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ _____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

2. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

3. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

4. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

5. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

6. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ ____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

Categorical outcomes

Outcome	**Group 1**		**Group 2**		**Total**	
	n	**N**	**n**	**N**	**n**	**N**
1.						
2.						
3.						
4.						
5.						
6.						
7.						

n = # subjects with outcome
N = total # subjects per group

7. Study conclusion

It reports statistically significant differences between groups for the primary outcome/first outcome listed	Yes (1) ☐	No (2) ☐	ND (3) ☐

Describe conclusions: (*Please, also describe such as: "Compared to B and C, A-----was-superior/inferior in ----", or "There were no differences between A and B in -----, but B was superior/inferior to C")*

8. Additional comments / additional information

Section 4: Economic evaluations of FDG-PET and PET/CT

A. General information and study characteristics

Alternatives compared: Efficacy analysis	Type of analysis (*Where does the population come from?)* COI (1) ☐ CMA (2) ☐ CEA (3) ☐ CUA (4) ☐ CBA (5)☐ Other (describe) (6)☐	
Study perspective Societal (1) ☐ Hospital (2) ☐ Other (3)☐	Source of effectiveness data Literature (1) ☐ Primary study (2) ☐ Other (3)☐	
Describe other perspective:		
Time horizon described ☐ Yes (1) ☐ No (2) Analysis of Uncertainty ☐ Yes (1) ☐ No (2)	Sensitivity analysis ☐ Yes (1) ☐ No (2)	Decision-tree reported ☐ Yes (1) ☐ No (2)

B) Outcomes assessment

Primary outcome:	Reported by authors ☐	First listed in results ☐
Secondary outcomes:		

a. Continuous outcomes

1. Outcome: _____ Unit of measure _____

Group 1	Group 2
Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ _____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____	Baseline: N _____Mean☐/Median☐ _____ SD☐ SE☐ IQR☐ _____ Endpoint : N ____ Mean☐/Median☐ _____ SD☐ SE☐ IQR ☐ _____ Change: N _____ Mean☐/Median☐ _____SD☐ SE☐ IQR ☐ _____

Categorical outcomes

Outcome	Group 1		Group 2		Total	
	n	N	n	N	n	N
1.						
2.						
3.						
4.						
5.						
6.						
7.						

n = # subjects with outcome
N = total # subjects per group

7. Study conclusion

It reports statistically significant differences between groups for the primary outcome/first outcome listed	Yes (1) ☐	No (2) ☐	ND (3) ☐

Describe conclusions: (*Please, also describe such as: "Compared to B and C, A-----was-superior/inferior in ----", or "There were no differences between A and B in -----, but B was superior/inferior to C")*

8. Additional comments / additional information

Appendix C. Excluded Studies

Two hundred and ninety studies were excluded. The reasons for exclusion are as follows: (1) the study did not provide data to evaluate any of the research questions considered in the TA (n= 93), (2) the study did not use a matched design (n= 28), (3) the study did not evaluate ^{18}FDG-PET or^{18}FDG-PET/CT (n= 12), (4) the study provided data for less than 12 participants only (n= 31), (5) the study was not primary research (n = 13), (6) the study was not published in English (n = 21), and (7) the study did not provide separate data for any of the 10 types of cancer considered in the TA (n= 192).

Excluded – Did not evaluate any of Q1 to Q4 (N = 93)

The following studies were excluded because they did not provide data to evaluate any of the research questions considered in the TA:

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lung cancer. Eur J Nucl Med Mol Imaging 2004;31(7):964-8.

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93. Zhang ZJ, Chen JH, Meng L, et al. 18F-FDG uptake as a biologic factor predicting outcome in patients with resected non-small-cell lung cancer. Ch Medical J 2007;120(2):125-31.

Excluded – Did not use a matched design (N = 28)

The following studies were excluded because they did not use a matched design:

1. Avril N, Sassen S, Schmalfeldt B, et al. Prediction of response to neoadjuvant chemotherapy by sequential F-18-fluorodeoxyglucose positron emission tomography in patients with advanced-stage ovarian cancer[erratum appears in J Clin Oncol. 2005 Dec 20;23(36):9445]. J Clin Oncol 2005;23(30):7445-53.

2. Borbely K, Nyary I, Toth M, et al. Optimization of semi-quantification in metabolic PET studies with 18F-fluorodeoxyglucose and 11C-methionine in the determination of malignancy of gliomas. J Neurol Sci 2006;246(1-2):85-94.

3. Cerfolio RJ, Bryant AS, Eloubeidi MA. Routine mediastinoscopy and esophageal ultrasound fine-needle aspiration in patients with non-small cell lung cancer who are clinically N2 negative: a prospective study. Chest 2006;130(6):1791-5.

4. Chen W, Cloughesy T, Kamdar N, et al. Imaging proliferation in brain tumors with 18F-FLT PET: comparison with 18F-FDG. J Nucl Med 2005;46(6):945-52.

5. Choi SJ, Kim JS, Kim JH, et al. [18F]3-deoxy-3-fluorothymidine PET for the diagnosis and grading of brain tumors. Eur J Nucl Med Mol Imaging 2005;32(6):653-9.

6. Cobben DC, Elsinga PH, Hoekstra HJ, et al. Is 18F-3-fluoro-3-deoxy-L-thymidine useful for the staging and restaging of non-small cell lung cancer? J Nucl Med 2004;45(10):1677-82.

7. Conrad GR, Sinha P. Narrow time-window dual-point 18F-FDG PET for the diagnosis of thoracic malignancy. Nucl Med Commun 2003;24(11):1129-37.

8. Fox JL, Rengan R, O'Meara W, et al. Does registration of PET and planning CT images decrease interobserver and intraobserver variation in delineating tumor volumes for non-small-cell lung cancer? Int J Radiat Oncol Biol Phys 2005;62(1):70-5.

9. Hong R, Halama J, Bova D, et al. Correlation of PET standard uptake value and CT window-level thresholds for target delineation in CT-based radiation treatment planning. Int J Radiat Oncol Biol Phys 2007;67(3):720-6.

10. Hoopes DJ, Tann M, Fletcher JW, et al. FDG-PET and stereotactic body radiotherapy (SBRT) for stage I non-small-cell lung cancer. Lung Cancer 2007;56(2):229-34.

11. Kurosaki H, Oriuchi N, Okazaki A, et al. Prognostic value of FDG-PET in patients with ovarian carcinoma following surgical treatment. Ann Nucl Med 2006;20(3):171-4.

12. Lee KH, Lee SH, Kim DW, et al. High fluorodeoxyglucose uptake on positron emission tomography in patients with advanced non-small cell lung cancer on platinum-based combination chemotherapy. Clin Cancer Res 2006;12(14 Pt 1):4232-6.

13. Lerman H, Metser U, Grisaru D, et al. Normal and abnormal 18F-FDG endometrial and ovarian uptake in pre- and postmenopausal patients: assessment by PET/CT. J Nucl Med 2004;45(2):266-71.

14. Lin LL, Mutic S, Malyapa RS, et al. Sequential FDG-PET brachytherapy treatment planning in carcinoma of the cervix. Int J Radiat Oncol Biol Phys 2005;63(5):1494-501.

15. Lin LL, Yang Z, Mutic S, et al. FDG-PET imaging for the assessment of physiologic volume response during radiotherapy in cervix cancer. Int J Radiat Oncol Biol Phys 2006;65(1):177-81.

16. Mac Manus MP, Hicks RJ, Matthews JP, et al. Metabolic (FDG-PET) response after radical radiotherapy/chemoradiotherapy for non-small cell lung cancer correlates with patterns of failure. Lung Cancer 2005;49(1):95-108.

17. Marom EM, Munden RF, Truong MT, et al. Interobserver and intraobserver variability of standardized uptake value measurements in non-small-cell lung cancer. J Thorac Imaging 2006;21(3):205-12.

18. Murakami M, Imahori Y, Kimura S, et al. Positron emission tomography elucidates transport system and tumor proliferation in meningiomas. Oncol Reports 2005;14(4):853-9.

19. Nestle U, Kremp S, Schaefer-Schuler A, et al. Comparison of different methods for delineation of 18F-FDG PET-positive tissue for target volume definition in radiotherapy of patients with non-small cell lung cancer. J Nucl Med 2005;46(8):1342-8.

20. Pardo FS, Aronen HJ, Fitzek M, et al. Correlation of FDG-PET interpretation with survival in a cohort of glioma patients. Anticancer Res 2004;24(4):2359-65.

21. Pirotte B, Goldman S, Massager N, et al. Combined use of 18F-fluorodeoxyglucose and 11C-methionine in 45 positron emission tomography-guided stereotactic brain biopsies. J Neurosurg 2004;101(3):476-83.

22. Purcell DD, Coakley FV, Franc BL, et al. Anterior layering of excreted 18F-FDG in the bladder on PET/CT: frequency and cause. AJR Am J Roentgenol 2007;189(2):W96-9.

23. Raz DJ, Odisho AY, Franc BL, et al. Tumor fluoro-2-deoxy-D-glucose avidity on positron emission tomographic scan predicts mortality in patients with early-stage pure and mixed bronchioloalveolar carcinoma. J Thorac Cardiovasc Surg 2006;132(5):1189-95.

24. Sasaki R, Komaki R, Macapinlac H, et al. [18F]fluorodeoxyglucose uptake by positron emission tomography predicts outcome of non-small-cell lung cancer. J Clin Oncol 2005;23(6):1136-43.

25. Schoder H, Erdi YE, Chao K, et al. Clinical implications of different image reconstruction parameters for interpretation of whole-body PET studies in cancer patients. J Nucl Med 2004;45(4):559-66.

26. Seemann MD, Schaefer JF, Englmeier KH. Virtual positron emission tomography/computed tomography-bronchoscopy: possibilities, advantages and limitations of clinical application. Eur Radiol 2007;17(3):709-15.

27. Seung JC, Jae SK, Jeong HK, et al. [[18]F]3-deoxy-3-fluorothymidine PET for the diagnosis and grading of brain tumors. Eur J Nucl Med Mol Imaging 2005;32(6):653-9.

28. Van Laere K, Ceyssens S, Van Calenbergh F, et al. Direct comparison of 18F-FDG and 11C-methionine PET in suspected recurrence of glioma: sensitivity, inter-observer variability and prognostic value. Eur J Nucl Med Mol Imaging 2005;32(1):39-51.

Excluded – Did not use ^{18}FDG-PET or ^{18}FDG-PET /CT (N = 12)

The following studies were excluded because they did not evaluate the use ^{18}FDG-PET or ^{18}FDG-PET/CT:

1. Anderson H, Yap JT, Wells P, et al. Measurement of renal tumour and normal tissue perfusion using positron emission tomography in a phase II clinical trial of razoxane. Br J Cancer 2003;89(2):262-7.

2. Beuthien-Baumann B, Bredow J, Burchert W, et al. 3-O-methyl-6-[18F]fluoro-L-DOPA and its evaluation in brain tumour imaging. Eur J Nucl Med Mol Imaging 2003;30(7):1004-8.

3. Bicher H, Al-Bussam N. Thermoradiotherapy with curative intent: breast, head, neck and prostate tumors. Dtsch Z Onkol 2006;38(3):116-22.

4. Divgi CR, Pandit-Taskar N, Jungbluth AA, et al. Preoperative characterisation of clear-cell renal carcinoma using iodine-124-labelled antibody chimeric G250 (124I-cG250) and PET in patients with renal masses: a phase I trial. Lancet Oncol 2007;8(4):304-10.

5. Halter G, Buck AK, Schirrmeister H, et al. [18F] 3-deoxy-3-fluorothymidine positron emission tomography: alternative or diagnostic adjunct to 2-[18f]-fluoro-2-deoxy-D-glucose positron emission tomography in the workup of suspicious central focal lesions? J Thorac Cardiovasc Surg 2004;127(4):1093-9.

6. Narayan K, McKenzie AF, Hicks RJ, et al. Relation between FIGO stage, primary tumor volume, and presence of lymph node metastases in cervical cancer patients referred for radiotherapy. Int J Gynecological Cancer 2003;13(5):657-63.

7. Nathoo N, Ugokwe K, Chang AS, et al. The role of 111indium-octreotide brain scintigraphy in the diagnosis of cranial, dural-based meningiomas. J Neuro-Oncol 2007;81(2):167-74.

8. Nimsky C, Ganslandt O, Buchfelder M, et al. Intraoperative visualization for resection of gliomas: the role of functional neuronavigation and intraoperative 1.5 T MRI. Neurol Res 2006;28(5):482-7.

9. Scher B, Seitz M, Albinger W, et al. Value of PET and PET/CT in the diagnostics of prostate and penile cancer. Recent Results Cancer Res 2008;170:159-79.

10. Scher B, Seitz M, Albinger W, et al. Value of 11C-choline PET and PET/CT in patients with suspected prostate cancer. Eur J Nucl Med Mol Imaging 2007;34(1):45-53.

11. Walker C, du Plessis DG, Fildes D, et al. Correlation of molecular genetics with molecular and morphological imaging in gliomas with an oligodendroglial component. Clin Cancer Res 2004;10(21):7182-91.

12. Wallace MB, Block MI, Gillanders W, et al. Accurate molecular detection of non-small cell lung cancer metastases in mediastinal lymph nodes sampled by endoscopic ultrasound-guided needle aspiration. Chest 2005;127(2):430-7.

Excluded – Less than 12 participants (N = 31)

The following studies were excluded because they provided data for less than 12 participants only:

1. Ahmed M, Aslam M, Ahmed J, et al. Renal metastasis from thyroid cancer masquerading as renal angiomyolipoma on ultrasonography. J Ultrasound Med 2006;25(11):1459-64.

2. Andrieux A, Switsers O, Chajari MH, et al. Clinical impact of fluorine-18 fluorodeoxyglucose positron emission tomography in cancer patients. A comparative study between dedicated camera and dual-head coincidence gamma camera. Q J Nucl Med Mol Imaging 2006;50(1):68-71.

3. Anjos DA, Etchebehere EC, Ramos C, et al. 18F-FDG PET/CT delayed images after diuretic for restaging invasive bladder cancer. J Nucl Med 2007;48(5):764-70.

4. Buchmann I, Vogg ATJ, Glatting G, et al. [18-F]5-fluoro-2-deoxyuridine-PET for imaging of malignant tumors and for measuring tissue proliferation. Cancer Biother Radiopharm 2003;18(3):327-37.

5. Cwikla JB, Nasierowska-Guttmejer A, Jeziorski KG, et al. Diagnostic imaging approach to gastro-entero-pancreatic carcinomas of neuroendocrine origin: single NET center experience in Poland. Neuroendocrinol Lett 2007;28(6):789-800.

6. De Pas TM, de Braud F, Catalano G, et al. Oligometastatic non-small cell lung cancer: a multidisciplinary approach in the positron emission tomographic scan era. Ann Thorac Surg 2007;83(1):231-4.

7. Donaldson MJ, Pulido JS, Mullan BP, et al. Combined positron emission tomography/computed tomography for evaluation of presumed choroidal metastases. Clin Exp Ophthalmol 2006;34(9):846-51.

8. Eloubeidi MA, Cerfolio RJ, Chen VK, et al. Endoscopic ultrasound-guided fine needle aspiration of mediastinal lymph node in patients with suspected lung cancer after positron emission tomography and computed tomography scans. Ann Thorac Surg 2005;79(1):263-8.

9. EvenSapir E, Lerman H, Gutman M, et al. The presentation of malignant tumours and pre-malignant lesions incidentally found on PET-CT. Eur J Nucl Med Mol Imaging 2006;33(5):541-52.

10. Garcia JR, Simo M, Huguet M, et al. Usefulness of 18-fluorodeoxyglucose positron emission tomography in the evaluation of tumor cardiac thrombus from renal cell carcinoma. Clin Transl Oncol 2006;8(2):124-8.

11. Goerres GW, Burger C, Schwitter MR, et al. PET/CT of the abdomen: optimizing the patient breathing pattern. Eur Radiol 2003;13(4):734-9.

12. Gulec SA, Hoenie E, Hostetter R, et al. PET probe-guided surgery: applications and clinical protocol. World J Surg Oncol 2007;5(65):doi:10.1186/1477-7819-5-65.

13. Holloway CL, Robinson D, Murray B, et al. Results of a phase I study to dose escalate using intensity modulated radiotherapy guided by combined PET/CT imaging with induction chemotherapy for patients with non-small cell lung cancer. Radiotherapy Oncol 2004;73(3):285-7.

14. Hustinx R, Lemaire C, Jerusalem G, et al. Whole-body tumor imaging using PET and 2-18F-fluoro-L-tyrosine: preliminary evaluation and comparison with 18F-FDG. J Nucl Med 2003;44(4):533-9.

15. Langen KJ, Hamacher K, Pauleit D, et al. Evaluation of new 18F-labeled amino acids for brain PET. Anat Embryol 2005;210(5-6):455-61.

16. Murakami M, Imahori Y, Kimura S, et al. Positron emission tomography elucidates transport system and tumor proliferation in meningiomas. Oncol Reports 2005;14(4):853-9.

17. Nestle U, Schaefer-Schuler A, Kremp S, et al. Target volume definition for 18F-FDG PET-positive lymph nodes in radiotherapy of patients with non-small cell lung cancer. Eur J Nucl Med Mol Imaging 2007;34(4):453-62.

18. Osman MM, Cohade C, Fishman EK, et al. Clinically significant incidental findings on the unenhanced CT portion of PET/CT studies: frequency in 250 patients. J Nucl Med 2005;46(8):1352-5.

19. Pauleit D, Stoffels G, Schaden W, et al. PET with O-(2-18F-Fluoroethyl)-L-Tyrosine in peripheral tumors: first clinical results. J Nucl Med 2005;46(3):411-6.

20. Pinker K, Noebauer-Huhmann IM, Stavrou I, et al. High-resolution contrast-enhanced, susceptibility-weighted MR imaging at 3T in patients with brain tumors: correlation with positron-emission tomography and histopathologic findings. Am J Neuroradiol 2007;28(7):1280-6.

21. Schneider BJ, Avram AM, Shulkin BL, et al. False-positive findings with positron emission tomography in the staging of non-small-cell lung cancer. Clin Adv Hematol Oncol 2005;3(7):571-3.

22. Strong VE, Humm J, Russo P, et al. A novel method to localize antibody-targeted cancer deposits intraoperatively using handheld PET beta and gamma probes. Surg Endoscopy 2008;22(2):386-91.

23. Sung YM, Lee KS, Kim BT, et al. Nonpalpable supraclavicular lymph nodes in lung cancer patients: preoperative characterization with 18F-FDG PET/CT. AJR Am J Roentgenol 2008;190(1):246-52.

24. Tann M, Sandrasegaran K, Jennings SG, et al. Positron-emission tomography and computed tomography of cystic pancreatic masses. Clin Radiol 2007;62(8):745-51.

25. Thie JA, Smith GT, Hubner KF. 2-deoxy-2-[F-18]fluoro-D-glucose-positron emission tomography sensitivity to serum glucose: a survey and diagnostic applications. Mol Imaging Biol 2005;7(5):361-8.

26. Tian M, Zhang H, Higuchi T, et al. Oncological diagnosis using (11)C-choline-positron emission tomography in comparison with 2-deoxy-2-[(18)F] fluoro-D-glucose-positron emission tomography. Mol Imaging Biol 2004;6(3):172-9.

27. Tian M, Zhang H, Oriuchi N, et al. Comparison of 11C-choline PET and FDG PET for the differential diagnosis of malignant tumors. Eur J Nucl Med Mol Imaging 2004;31(8):1064-72.

28. Tillmanns T, Lowe MP. Safety, feasibility, and costs of outpatient laparoscopic extraperitoneal aortic nodal dissection for locally advanced cervical carcinoma. Gynecol Oncol 2007;106(2):370-4.

29. Torizuka T, Kanno T, Futatsubashi M, et al. Imaging of gynecologic tumors: comparison of (11)C-choline PET with (18)F-FDG PET. J Nucl Med 2003;44(7):1051-6.

30. Wang F, Wang Z, Yao W, et al. Role of 99mTc-octreotide acetate scintigraphy in suspected lung cancer compared with 18F-FDG dual-head coincidence imaging. J Nucl Med 2007;48(9):1442-8.

31. Yi JG, Marom EM, Munden RF, et al. Focal uptake of fluorodeoxyglucose by the thyroid in patients undergoing initial disease staging with combined PET/CT for non-small cell lung cancer. Radiology 2005;236(1):271-5.

Excluded – Not primary research (N = 13)

The following studies were excluded because they were not primary research:

1. Anonymous. Notice of correction: results of ACOSOG Z0050 trial: the utility of FDG-PET in staging potentially operable non-small cell lung cancer. J Thorac Cardiovasc Surg 2007;133(4):864.

2. Avril N. Erratum: prediction of response to neoadjuvant chemotherapy by sequential F-18-fluorodeoxyglucose positron emission tomography in patients with advanced-stage ovarian cancer (Journal of Clinical Oncology (October 20, 2005) 23 (7445-7453)). J Clin Oncol 2005;23(36):9445.

3. Bujenovic S. The role of positron emission tomography in radiation treatment planning. Sem Nucl Med 2004;34(4):293-9.

4. Calculli L, Pezzilli R, Casadei R, et al. The imaging of pancreatic exocrine solid tumors: the role of computed tomography and positron emission tomography. JOP 2007;8(Suppl 1):77-84.

5. DeGrendele H, Belani CP, Naumann R, et al. Fluorodeoxyglucose positron emission tomography as a staging and prognostic tool in non-small-cell lung cancer. Clin Lung Cancer 2003;4(4):213-6.

6. Eschmann SM, Friedel G, Paulsen F, et al. Erratum: is standardised 18F-FDG uptake value an outcome predictor in patients with stage III non-small cell lung cancer? (European Journal of Nuclear Medicine and Molecular Imaging (2006) 33 (389) DOI: 10.1007/s00259-005-1953-2). Eur J Nucl Med Mol Imaging 2006;33(3):389.

7. Irshad A, Ravenel JG . Imaging of small-cell lung cancer. Curr Probl Diagn Radiol 2004;33(5):200-11.

8. Kernstine KH. Positron emission tomography with 2-[18f]fluoro-2-deoxy-D-glucose: can it be used to accurately stage the mediastinum in non-small cell lung cancer as an alternative to mediastinoscopy?[comment]. J Thorac Cardiovasc Surg 2003;126(6):1700-3.

9. Konety B. 11C-acetate positron emission tomography imaging and image fusion with computed tomography and magnetic resonance imaging in patients with recurrent prostate cancer. Urol Oncol 2007;25(1):90.

10. Miller JC, Fischman AJ, Aquino SL, et al. FDG-PET CT for tumor imaging. JACR 2007;4(4):256-9.

11. Schmid RA, Hautmann H, Poellinger B, et al. Staging of recurrent and advanced lung cancer with 18F-FDG PET in a coincidence technique (hybrid PET). Nucl Med Commun 2003;24(1):37-45.

12. Sloka JS, Hollett PD. Cost effectiveness of positron emission tomography in Canada. Med Sci Monit 2005;11(10):PH1-6.

13. Viney RC, Boyer MJ, King MT, et al. Staging lung cancer using positron emission tomography and the impact on care. J Clin Outcome Manag 2004;11(8):486-8.

Excluded – Non-English publications (N = 21)

The following studies were excluded because they were not published in English:

1. Ai B, Pan T, Zheng Z, et al. The relationship of expression of GLUT1, HIF-1alpha and the uptake of FDG in non-small cell lung cancer. Ch J Lung Cancer 2007;10(6):508-12.

2. Fujino M, Taguchi T, Kato T, et al. Utilization the fusion image of CT and FDG-PET for radiation therapy planning in lung cancer. Jpn J Clinical Radiol 2007;52(1):137-44.

3. He S, Guan Y, Zhao J. The effect of standardized uptake value of[18]F-FDG-PET on prognosis of non-small cell lung cancer. Ch J Clin Oncol 2006;33(3):167-70.

4. Kawada S, Suzuki Y, Hinohara S, et al. Cancer screening with PET: advantages and limitations. Rinsho Byori 2007;55(7):656-67.

5. Kawamoto K, Nakagawa M, Jinnouchi S. Possibilities of FDG-PET in diagnosis of urological tumors. Nishihon J Urol 2004;66(5):386-92.

6. Kim GH, Jo MK, Cheon GJ, et al. Clinical role of F-18 fluorodeoxyglucose positron emission tomography for follow-up of patients with renal cell carcinoma. KJU 2007;48(8):765-70.

7. Li Q, Tan T. The application of 18F-FDG PET in diagnosis and treatment of pancreatic cancer. Ch J Clin Oncol 2006;33(5):296-9.

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Excluded – Not on any of the nine types of cancer (N = 192)

The following studies were excluded because they did not provide separate data for any of the nine types of cancer considered in the TA:

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Appendix D: Characteristics of Included Studies for Q1 on the diagnostic test performance of ^{18}FDG-PET and ^{18}FDG-PET/CT

Bladder Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Drieskens O, 2005[23] **Country:** Belgium **Cancer type:** Bladder **Questions:** Q1 **Funding:** ND	**Dates of data collection:** June 1997 to Oct 2000 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** Bone scan, CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 40 **Mean age (range):** 63.7 yr; (33-82 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 37 d **Distribution by stage:** T1 = 16%; T2 = 47%; T3 = 31%; T4 = 6% **Inclusion criteria:** 1) Histopathological diagnosis of endoscopically resected invasive transitional cell carcinoma **Exclusion criteria:** 1) Previous partial cystectomy, radiotherapy, systemic chemotherapy	FDG-PET **Scanner model:** ECAT 931 or HR+; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 6.5 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (120 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** ND	**Purpose of FDG-PET:** Staging Detection NM-positive disease - FDG-PET alone Reference: + / - PET +: 8 / 7 PET -: 7 / 18 Sensitivity= 53% Specificity= 72% Detection NM positive disease - FDG-PET and CT Reference: + / - PET +: 9 / 3 PET -: 6 / 22 Sensitivity= 60% Specificity= 88%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Jadvar H, 2008[24] **Country:** USA **Cancer type:** Bladder **Questions:** Q1 **Funding:** Government	**Dates of data collection:** 2000 to 2006 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (60 mo) **Other comparators used:** Chest and abdomen CT, bone scintigraphy **Time elapsed between FDG-PET and reference standard:** 3 mo	**N enrolled =** 35 **Mean age (range):** ND; (39-86 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) History of bladder transitional cell carcinoma, 2) initial stages B2 and C **Exclusion criteria:** ND	1) FDG-PET (n = 17), 2) FDG-PET/CT (n = 18) **Scanner model:** 1) Siemens 953/A; 2) Biograph; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **FDG dose:** 555 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (120 mg/dL) **Contrast (for CT):** po contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative **Description:** Visual interpretation. Focal accumulation above nonworking muscle background	**Purpose of FDG-PET:** Staging and restaging Detection NM-positive disease Reference: + / - PET +: 19 / 2 PET -: 2 / 12 Sensitivity= 90% Specificity= 85%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Liu IJ, 2003[25] **Country:** USA **Cancer type:** Bladder **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 46 **Mean age (range):** 66.2 yr; (50-81 yr) **Time from diagnosis:** 12 mo **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Primary bladder, upper tract or metastatic transitional cell carcinoma **Exclusion criteria:** ND	FDG-PET **Scanner model:** ND **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 60 min **-Transmission:** ND **FDG dose:** 15 mCi **Time between FDG injection and scan:** 20 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging M detection - no systemic chemotherapy Reference: + / - PET +: 10 / 2 PET -: 3 / 33 Sensitivity= 76% Specificity= 94% M detection - after systemic chemotherapy Reference: + / - PET +: 4 / 0 PET -: 4 / 2 Sensitivity= 50% Specificity= 100%	C

CT = computer tomography; d = days; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; M = metastasis ; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imagine; NA = not applicable; ND = not described; NM = node-metastasis; PET = positron emission tomography; po = oral; SUV = standardized uptake value; yr = years

Brain Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chen W, 2006[26] **Country:** USA **Cancer type:** Brain **Questions:** Q1 **Funding:** Government	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (20 mo) **Other comparators used:** F-F-Dopa-PET, MRI **Time elapsed between FDG-PET and reference standard:** 1 wk	**N enrolled =** 30 **Mean age (range):** ND; (23-68 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** II=22%, III=16%, IV=42%, Nontumor=1%; with postreatment changes=14%, long term remission = 5% **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT HR or ECAT HR+; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 30 min **-Transmission:** 5 min **-Total scan time:** 30 min **FDG dose:** 2.4 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Any tracer activity above background levels	**Purpose of FDG-PET:** Primary diagnosis and recurrences High and low-grade tumor detection Reference + | - PET + | 14 | 4 PET - | 9 | 3 Sensitivity= 60% Specificity= 42%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Cher LM, 2006[27] **Country:** Australia **Cancer type:** Brain **Questions:** Q1 **Funding:** Government	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** F-FMISO, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 16 **Mean age (range):** 49 yr; (23-76 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 7%; II = 20%; III = 20%; IV = 47%; Not biopsed = 6% **Inclusion criteria:** 1) Suspected primary glioma on imaging and suitable for surgery **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT 951/31 R PET scanner (ND) **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Standard algorithm **SUV reported (formula):** Yes (ND)	Qualitative **Description:** Visual interpretation. ROIs for tumor and reference tissue in the contralateral normal hemisphere	**Purpose of FDG-PET:** Staging High grade tumor detection Reference: + / - PET +: 10 / 0 PET -: 6 / 0 Sensitivity= 62% Specificity= Not calculated	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Liu RS, 2006[28] **Country:** Taiwan **Cancer type:** Brain **Questions:** Q1 **Funding:** Government	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** C-acetate PET **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 26 **Mean age (range):** 42 yr (median); (20-76 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** II = 27%; III = 42%; IV = 31% **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** Scanditronix 4096; GE Scanditronix Medical AB **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 5 min **-Total scan time:** 20 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position (Hanning filter) **SUV reported (formula):** Yes (SUV = ROI activity/(injected dose/body weight))	Qualitative and quantitative **Description:** Visual interpretation. Clearly lower (–), almost equal (+) and clearly higher (++). Positive: visual grading of ≥1+	**Purpose of FDG-PET:** Staging Tumor uptake detection (+ and ++); visual grading≥1 Reference: + / - PET +: 12 / 0 PET -: 7 / 7 Sensitivity= 63% Specificity= 100% Tumor uptake detection (++) Reference: + / - PET +: 5 / 0 PET -: 21 / 0 Sensitivity= 19% Specificity= Not calculated Tumor uptake detection (+) Reference: + / - PET +: 22 / 0 PET -: 4 / 0 Sensitivity= 84% Specificity= Not calculated	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Potzi C, 2007[29] **Country:** Austria **Cancer type:** Brain **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients MRI **Other comparators used:** MRI, MET-PET **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 28 **Mean age (range):** 47 yr; (26-65 yr) **Time from diagnosis:** 12.7 mo **Time from last treatment to FDG-PET:** Chemotherapy: 4 mo (range, 1–20), radiotherapy: 12 mo (range, 1–38) and surgery: 13 mo (range, 4–33) **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically verified supratentorial GBM **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 3 min **-Total scan time:** 15 min **FDG dose:** 200-300 MBq **Time between FDG injection and scan:** 30 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position (Hanning filter) **SUV reported (formula):** Yes (SUV = ROI activity/(injected dose/body weight))	Qualitative and quantitative **Description:** Visual interpretation. Visual scoring from –1 to +3. (–1 and 0 classified as negative; +1 ato 3 rated as positive)	**Purpose of FDG-PET:** Recurrences FDG-PET vs. MRI Reference + | - PET + | 2 | 0 PET - | 16 | 0 Sensitivity= 11% Specificity= 100% FDG-PET vs. survival > 12 mo Reference + | - PET + | 1 | 12 PET - | 12 | 2 Sensitivity= 7% Specificity= 14%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Stockhammer F, 2007[30] **Country:** Germany **Cancer type:** Brain **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Aug 2003 to Feb 2006 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 25 **Mean age (range):** 42.5 yr; (25-68 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 64%; II = 36% **Inclusion criteria:** 1) Evidence of diffuse glioma demonstrated on clinical and imaging examinations, 2) enhancement was either not present or present to only a slight degree on Gd-enhanced MRI images, consistent with low-grade glioma, 3) Karnofsky Performance Scale score of 100 before surgery **Exclusion criteria:** 1) Patients with clear or ring-shaped contrast enhancement	FDG-PET **Scanner model:** ECAT Exact 47 PET scanner; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** 10 min **-Total scan time:** 30 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (12 h) **Glucose measured (Max glucose):** Yes (5.6 mmol/L) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position (Hanning filter) **SUV reported (formula):** No	Qualitative **Description:** ND	**Purpose of FDG-PET:** Staging Detection Grade II astrocytomas Reference: + / - PET +: 12 / 9 PET -: 4 / 0 Sensitivity= 75% Specificity= 0%	B

CT = computer tomography; FDG = fluorodeoxyglucose F18; F-FMISO = 18F-fluoromisonidazole; FOV = field of view; GBM = glioblastoma multiforme; h = hour; MET = Carbon-11-methionine min = minutes; mo = month; MRI = magnetic resonance imaging; NA=not applicable; ND = not described; PET = positron emission tomography; ROI = region of interest SUV = standardized uptake value; vs. = versus; wk = week; yr = years

Cervical Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Amit A, 2006[31] **Country:** Israel **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 75 **Mean age (range):** 50.4 yr; (26-78 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** GE Light Speed Plus + GE Advance NXi; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370-555 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (200 mg%) **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 9 / 1 PET -: 6 / 17 Sensitivity= 60% Specificity= 94%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bjurberg M, 2007[32] **Country:** Sweden **Cancer type:** Cervical **Questions:** Q1 **Funding:** Foundation	**Dates of data collection:** Oct 2004 and ongoing **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (> 6 mo) **Other comparators used:** CT, MRI, clinical workup **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 42 **Mean age (range):** 50.3 yr; (24.7-79.6 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 6.3 mo **Distribution by stage:** IA2 = 12%, IB1 = 31%, IB2 = 5%, IIA = 2%, IIB = 33%, IIIB = 5%, IVA = 10%, IVB = 2% **Inclusion criteria:** 1) Biopsy-proven cervical carcinoma **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** 4096 Plus; GEMS PET Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 282-452 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Any focus of elevated metabolism if not located in areas of normal uptake	**Purpose of FDG-PET:** Staging and restaging Early disease group Reference: + / - PET +: 0 / 0 PET -: 0 / 10 Sensitivity= Not calculated Specificity= 100% Locally advanced cervical cancer Reference: + / - PET +: 16 / 0 PET -: 1 / 0 Sensitivity= 94% Specificity= Not calculated Relapse group Reference: + / - PET +: / 0 PET -: 1 / 3 Sensitivity= 92% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang TC, 2004[33] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government, internal	**Dates of data collection:** Feb 2001 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 27 **Mean age (range):** 53.9 yr; (34.8-75.8 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3 mo **Distribution by stage:** I = 44%; II = 42%, III = 7%, IV = 7% **Inclusion criteria:** 1) Cervical carcinoma who experienced complete responses to primary treatment or salvage therapy and who had no evidence of recurrent disease as detected by conventional methods but had serum SCC-Ag levels ≥ 2.0 ng/mL on 2 consecutive occasions, 2) ECOG performance status 0–2 **Exclusion criteria:** 1) Cytotoxic therapy within the previous 3 months; 2) prior diagnosis of malignant disease other than nonmelanoma skin malignancy; 3) unsuited for treatment with curative intent in the event of disease recurrence, 4) skin or pulmonary lesions or impaired renal function that could contribute to the elevation of SCC-Ag levels, 5) body weight > 145 kg	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Five-level grading system (0=no visible lesions; 1=visible lesion without significance; 2=equivocal lesion; 3=probable malignant or metastatic lesion; 4=obvious malignant or metastatic lesion	**Purpose of FDG-PET:** Recurrences Local (lesion-based) Sensitivity=88% Specificity=50% Distant (lesion-based) Sensitivity=100% Specificity=100%	B

		Reference	
		+	-
PET	+	24	2
	-	3	2

		Reference	
		+	-
PET	+	50	0
	-	0	6

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang WC, 2004[34] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** No **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT, US, X-rays **Time elapsed between FDG-PET and reference standard:** >1 yr	**N enrolled =** 20 **Mean age (range):** ND; (45-65 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** >6 mo **Distribution by stage:** IIA = 5%, IIB = 30%, IIIA = 20%, IIIB = 10%, IVA = 20%, IVB = 15% **Inclusion criteria:** 1) Patients who received treatment for cervical cancer, 2) serum levels of SCC-Ag >1.5 mg/mL **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 47 or Exact HR +; CTI **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** 7 min **-Transmission:** 3 min **Total scan time:** 70 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 30 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Local (lesion) Reference: + / - PET +: 24 / 2 PET -: 3 / 2 Sensitivity=88% Specificity=50% Distal (lesion) Reference: + / - PET +: 54 / 0 PET -: 0 / 6 Sensitivity=100% Specificity=100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang YC, 2005[35] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Feb 2001 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 219 **Mean age (range):** 55.4 yr; (42-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** 1) For primary diagnosis: 75 (34.2%); 2) for recurrence: 144 (65.8%) **Inclusion criteria:** 1) Untreated locally advanced primary cervical carcinoma (FIGO staging IB–IVB), 2) curable documented recurrent cervical carcinoma or suspected recurrence on conventional images, 3) unexplained elevated tumour marker levels **Exclusion criteria:** 1) Patients on cytotoxic chemotherapy or radiotherapy, 2) not suitable for curative salvage therapy	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** 2-D, 3-D **Acquisition time per FOV -Emission:** ND **-Transmission:** 3 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (99.4 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (SUV = maximum ROI activity/(injected dose/body weight))	Qualitative and quantitative **Description:** Visual interpretation. Five-grade scoring system (0=no visible lesion, 1=visible lesion of probable benign nature, 2=equivocal lesion, 3=lesion of probable malignant nature, 4=significant malignancy). Lesions with score of 3 or 4 were judged as positive and those with a score of 0, 1 or 2 as negative	**Purpose of FDG-PET:** Primary diagnosis and recurrences Metastatic lesions, DM patients only, lesion-based Reference: + / - PET +: 37 / 5 PET -: 3 / 226 Sensitivity= 92% Specificity= 98% Primary tumors/local recurrence, DM patients only, lesion-based Reference: + / - PET +: 16 / 0 PET -: 2 / 10 Sensitivity= 88% Specificity= 100% All lesions, DM patients only, lesion-based Reference: + / - PET +: 53 / 5 PET -: 5 / 241 Sensitivity= 91% Specificity= 98%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Choi HJ, 2006[36] **Country:** Korea **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Oct 2003 to Jan 2005 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** MRI **Time elapsed between FDG-PET and reference standard:** 2-18 d	**N enrolled =** 22 **Mean age (range):** 50 yr; (25-65 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1-IIA = 32%, IB2 or ≥ IIB = 68% **Inclusion criteria:** 1) Stage IB–IVA cervical carcinoma, 2) no evidence of distant metastasis, 3) ECOG status 0-1 **Exclusion criteria:** 1) Tumors other than squamous cell carcinoma	FDG-PET/CT **Scanner model:** 1) Biograph LSD; Siemens Medical Solutions, 2) Discovery LS; GE Medical Systems **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** 3-4 min **-Transmission:** ND **FDG dose:** 444-740 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV = [decay corrected activity (kBq)/mL of tissue volume] / [injected FDG activity (kBq)/body mass (g)])	Qualitative and quantitative **Description:** Visual interpretation. Five-grade scoring system (0=no visible FDG accumulation, 1=less than liver accumulation, 2=around liver accumulation, 3=over liver accumulation and less than the brain cortex accumulation, 4=comparable to the brain cortex accumulation) SUV>2.5 g/mL or 2 mg/dL	**Purpose of FDG-PET:** Staging Detection of lymph node groups (lesion-based) Reference: + / - PET +: 19 / 9 PET -: 14 / 112 Sensitivity=57% Specificity=92%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chou HH, 2006[37] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government, internal	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** MRI **Time elapsed between FDG-PET and reference standard:** 1 wk	**N enrolled =** 60 **Mean age (range):** 48 yr (median); (28-75 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA2 = 2%, IB1 = 90%, IB2 = 5%, IIA = 3% **Inclusion criteria:** 1) Histologically confirmed invasive carcinoma of the uterine cervix, 2) FIGO stage IA2, IB, or IIA, 3) SCC, AD, ASC, 4) MRI showed no suspicious LNs (score 2), 5) no medical or surgical contraindications to RH-PLND **Exclusion criteria:** 1) Small-cell carcinoma, 2) suspected pelvic LNs, 3) histologically proven metastasis to PALN, 4) previous diagnosis of cancer other than nonmelanoma skin cancer	FDG-PET **Scanner model:** ECAT Exact HR+; CTI **Acquisition mode:** 1) 2-D, 2) 3-D **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (ND)	Qualitative **Description:** Visual interpretation. Five-grade scoring system (0=normal; 1=visible LNs less than 0.5 cm in size considered reactive and unrelated to metastasis; 2 any LN of 1 cmor a little less in length, giving an overall equivocal impression; 3=LNs more than 1 cm in length in the short axis and/or multiple LNs (n 3) with sizes of 0.5 to 1 cm for PALNs or bilaterally situated for pelvic LNs; and 4=confluent LNs with central necrosis or irregular contours. Positive lesion: score of 3 or 4	**Purpose of FDG-PET:** Staging Reference + | - PET + | 1 | 3 PET - | 9 | 47 Sensitivity= 10% Specificity= 94%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chung HH, 2007[38] **Country:** South Korea **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Dec 2003 to Sept 2005 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** 6 mo	**N enrolled =** 52 **Mean age (range):** 53 yr; (32-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 42 mo **Distribution by stage:** I = 50%; II = 40%, III = 2%, IV = 8% **Inclusion criteria:** 1) Histologically confirmed squamous cell carcinoma, adenocarcinoma, adenosquamous carcinoma of the uterine cervix that reached complete remission after primary treatment **Exclusion criteria:** 1) Previous malignant disease other than non-melanoma skin malignancy, (2) diagnosed as unsuited for treatment with curative intent at the time of disease recurrence, (3) skin or pulmonary lesions or impaired renal functions contributable to the elevation of serum SCC-Ag level or other hepatic or colonic pathology contributable to the elevation of serum CEA level	FDG-PET/CT **Scanner model:** Philips; Gemini **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 555–740 MBq (0.22 mCi/kg) **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** 900 ml of po contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Reference: + / - PET +: 28 / 4 PET -: 3 / 17 Sensitivity= 90% Specificity= 81%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chung HH, 2006[39] **Country:** Korea **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Sept 2001 to Oct 2004 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** Other imaging studies **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 517 **Mean age (range):** 54 yr (median); (24-95 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA1 = 9%, IA2 = 1%, IB1 = 35%, IB2 = 7%, IIA = 6%, IIB = 30%, IIIA = 1%, IIIB = 7%, IVA = 2%, IVB = 2% **Inclusion criteria:** 1) Minimum of 6 months follow-up after post-treatment FDG-PET scan, 2) histologically confirmed squamous cell carcinoma, AC, ASC, papillary squamous carcinoma or small cell carcinoma of the uterine cervix that reached complete remission after primary treatment, 3) ECOG performance status 0–2 **Exclusion criteria:** 1) Previously diagnosed with malignant disease other than non-melanoma skin malignancy, 2) unsuited for treatment with curative intent, 3) skin or pulmonary lesions or impaired renal functions	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** 3 min **FDG dose:** 370-555 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Five-grade scoring system (0 = no visible FDG accumulation, 1 = less than liver accumulation, 2 = around liver accumulation, 3 = over liver accumulation and less than the brain cortex accumulation, 4 = comparable to the brain cortex accumulation) SUV>2.5 g/mL	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 73 | 7 PET - | 3 | 38 Sensitivity= 96% Specificity= 84%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Havrilesky LJ, 2003[40] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jul 1998 to Apr 2002 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 3 mo	**N enrolled =** 28 **Mean age (range):** 42 yr (median); (28-69 yr) **Time from diagnosis:** 14.3 mo **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1 = 11%, IB2 = 14%, IIA = 4%, IIB = 35%, IIIB = 32%, IVB = 4%. **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** 2.5 min **FDG dose:** 0.14 mCi/kg **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (4-6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position or iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Lesion-based Reference: + / - PET +: 12 / 2 PET -: 2 / 13 Sensitivity=85% Specificity=86%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Hope AJ, 2006[41] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 1998 to Jun 2004 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Chest X-rays **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 58 **Mean age (range):** 53.7 yr; (24-83 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1 = 17%, IB2 = 14%, IIA = 2%, IIB = 43%, IIIB = 19%, IVB = 5% **Inclusion criteria:** 1) FIGO clinical stages IB1 to IVB **Exclusion criteria:** ND	FDG-PET **Scanner model:** ND **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 25 / 5 PET -: 11 / 16 Sensitivity= 69% Specificity= 76%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lai CH, 2004[42] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government, internal	**Dates of data collection:** May 2001 to Sep 2002 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 40 **Mean age (range):** 51 yr (median); (25-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 33%; II = 50%, III = 7%, IV = 10% **Inclusion criteria:** 1) Biopsy-documented recurrent or persistent cervical carcinoma (including squamous cell carcinoma, adenocarcinoma, and adenosquamous carcinoma) after definitive RT or surgery, 2) potentially curable disease and willingness to receive curative salvage therapy if restaging with PET confirmed the possibility of curing the disease **Exclusion criteria:** 1) Re-recurrence after salvage therapy; 2) superficial lesion on the cervix or vaginal cuff, 3) disseminated abdominal or pleural lesions with positive fluid cytology, 4) more than two involved regions, 5) medically or psychologically unfit to receive curative salvage therapy, 6) history of other malignancy, excluding basal cell carcinoma of skin	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal) Visual score > 3	**Purpose of FDG-PET:** Restaging By region of interest Reference + | - PET + | 61 | 6 PET - | 6 | 327 Sensitivity= 91% Specificity= 98%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lin CT, 2006[43] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Internal	**Dates of data collection:** Feb 2001 to Dec 2004 **Study type:** Prospective **Enrolled consecutively:** ND Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 26 **Mean age (range):** 56 yr; (34-75 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3-6 mo **Distribution by stage:** I = 42%; II = 38%, III = 16%, IV = 4% **Inclusion criteria:** 1) Histologically documented re-recurrent cervical cancer after curative salvage therapy or unexplained tumor marker elevation (negative CT-MRI) proven to be a re-recurrence **Exclusion criteria:** 1) Previously diagnosed with other malignant disease, 2) small cell carcinoma	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal). A score of 3 or 4 considered positive	**Purpose of FDG-PET:** Recurrences Peritoneum site Reference: + / - PET +: 4 / 2 PET -: 3 / 17 Sensitivity= 57% Specificity= 89% Bone site Reference: + / - PET +: 1 / 1 PET -: 1 / 23 Sensitivity= 50% Specificity= 96% Liver/spleen site Reference: + / - PET +: 2 / 0 PET -: 0 / 24 Sensitivity= 100% Specificity= 100% Lung site Reference: + / - PET +: 3 / 0 PET -: 1 / 22 Sensitivity= 75% Specificity= 100% MLN site Reference: + / - PET +: 1 / 3 PET -: 0 / 22 Sensitivity= 100% Specificity= 88%	B

SLN site

		Reference	
		+	-
PET	+	3	1
	-	1	21

Sensitivity= 75%
Specificity= 95%

PALN site

		Reference	
		+	-
PET	+	9	1
	-	1	15

Sensitivity= 90%
Specificity= 94%

PLN site

		Reference	
		+	-
PET	+	3	0
	-	3	20

Sensitivity= 50%
Specificity= 100%

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lin WC, 2003[44] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 14 **Mean age (range):** ND **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Advanced cervical cancer confined to the pelvis with negative abdominal CT findings, 2) stage IIB through IVA or stage IB or IIA, 3) tumor diameter of at least 5 cm or involvement of pelvic lymph nodes **Exclusion criteria:** 1) DM, 2) pregnancy	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 3 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Staging Reference + | - PET + | 12 | 2 PET - | 2 | 34 Sensitivity= 86% Specificity= 94%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Loft A, 2007[45] **Country:** Denmark **Cancer type:** Cervical **Questions:** Q1 **Funding:** Foundation	**Dates of data collection:** Nov 2002 to Oct 2005 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 119 **Mean age (range):** ND **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1 =24%, IB2 = 3%, 2A = 6%, 2B = 26%, 3A = 1%, 3B = 36%, 4A = 4% **Inclusion criteria:** 1) Newly diagnosed cervical cancer ≥IB **Exclusion criteria:** 1) Current previous or malignant disease of another type, 2) DM, 3) extreme obesity	FDG-PET/CT **Scanner model:** CiE Discovery LS PET/CT Scanner; LG Medical Systems **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 3 min **-Transmission:** ND **FDG dose:** 400 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** 500 mL po contrast (Ioxitalamat) **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 21 / 7 PET -: 0 / 50 Sensitivity= 100% Specificity= 88%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Ma SY, 2003[46] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Feb 2001 to Feb 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (imaging) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 38 **Mean age (range):** 53.8 yr; (25-86 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 6 mo **Distribution by stage:** ND **Inclusion criteria:** 1) Histologic diagnosis of epithelial cervical carcinoma, 2) previously untreated lesions and scheduled for radiotherapy or surgery with curative intent, 3) at least 1 enlarged pelvic LN (maximum dimension ≥1.0 cm), 3) persistent cancer after definitive radiotherapy or surgery, 4) SCC-Ag >2 ng/mL or CEA >10 mg/mL **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min and 3 h **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV=(decay-corrected activity/milliliter of tissue volume)/(injected 18F-FDG activity/body mass). RI=(SUV 3h-SUV 40 min)/(SUV 40min))	Qualitative **Description:** Visual interpretation. Five-grade scoring system (0 = no visible lesion, 1 = visible lesion of probable benign nature, 2 = equivocal lesion, 3 = lesion of probable malignant nature, 4 = significant malignancy). Lesions with score of 3 or 4 were judged as positive and those with a score of 0, 1 or 2 as negative SUV 40 min ≥3, RI>10%	**Purpose of FDG-PET:** Staging Reference + | - PET + | 31 | 2 PET - | 7 | 64 Sensitivity= 82% Specificity= 97%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Park W, 2005[47] **Country:** Korea **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** 1997 to 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** MRI **Time elapsed between FDG-PET and reference standard:** 1 wk	**N enrolled =** 36 **Mean age (range):** 50 yr (median); (22-74 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1 = 33%, IB2 = 25%, IIA = 42% **Inclusion criteria:** 1) Cervical cancer **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 322 MBq (5 MBq/kg) **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation. FDG uptake significantly higher than background in at least 2 consecutive axial slices	**Purpose of FDG-PET:** Staging Reference + | - PET + | 6 | 0 PET - | 8 | 22 Sensitivity= 43% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Roh JW, 2005[48] **Country:** Korea **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** May 2002 to Aug 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Clinical workup **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 59 **Mean age (range):** 43 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA2 = 2%, IB1 = 83%, IB2 = 7%, IIA = 8% **Inclusion criteria:** 1) Cervical cancer at FIGO stages IB–IVA who were about to undergo lymphadenectomy, 2) ECOG score 0-1 **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** 5 min **-Transmission:** 3 min **FDG dose:** 370-555 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Abnormal FDG uptake relative to uptake in normal surrounding tissue SUV >2.5 g/mL	**Purpose of FDG-PET:** Staging Pathology-confirmed LN metastases Reference: + / - PET +: 2 / 1 PET -: 3 / 84 Sensitivity= 40% Specificity= 97%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Ryu SY, 2003[49] **Country:** Korea **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Sep 1997 to Mar 2000 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6-12 mo) **Other comparators used:** CT, MRI, FNA **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 80 **Mean age (range):** 51 yr (median); (31-78 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB = 40%, IIA = 20%, IIB = 33%, III or IV = 7% **Inclusion criteria:** 1) Histologically proven cervical cancer treated with surgery or radiotherapy with or without chemotherapy, 2) no evidence of disease after treatment **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 8 min **-Transmission:** 3-5 min **FDG dose:** 370-555 MBq **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (Overnight) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV = radioactive concentration in a hot spot/injected dose/body weight)	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 28 | 52 PET - | 3 | 166 Sensitivity= 90% Specificity= 76%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sakurai H, 2006[50] **Country:** Japan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Jan 1999 to Mar 2005 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 25 **Mean age (range):** ND; (27-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 23.3 mo **Distribution by stage:** I = 16%, II = 32%, III = 40%, IV = 12% **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** SET 2400W; Shimazu Corporation **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 8 min **-Transmission:** ND **FDG dose:** 200-400 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (SUV = (decay corrected activity/mL of tissue volume)/(injected FDG activity/body mass))	Quantitative **Description:** SUV >2 g/mL	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 43 | 3 PET - | 4 | 4 Sensitivity=91% Specificity= 57%	D

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sironi S, 2006[51] **Country:** Italy **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 2003 to Aug 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Clinical workup **Time elapsed between FDG-PET and reference standard:** 7-16 d	**N enrolled =** 47 **Mean age (range):** 45.3 yr; (29-71 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 7-16 d **Distribution by stage:** IA1 = 9%, IB1 = 74%, IB2 = 17% **Inclusion criteria:** 1) Histopathologically confirmed diagnosis of primary cervical carcinoma, 2) FIGO IA or IB stage **Exclusion criteria:** 1) Blood glucose level >140 mg/d, 2) DM	FDG-PET/CT **Scanner model:** Cti/CPS Reveal-HD; CTI PET Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (140 mg/dL) **Contrast (for CT):** No **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Abnormal FDG uptake relative to uptake in normal surrounding tissue	**Purpose of FDG-PET:** Staging Node-based Reference + / - PET + : 13 / 3 PET - : 5 / 1060 Sensitivity=72% Specificity=99%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sironi S, 2007[52] **Country:** Italy **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 2002 to Jun 2005 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2.3 wk	**N enrolled =** 12 **Mean age (range):** 49.5 yr; (28-69 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 18.4 mo **Distribution by stage:** IIB = 50%, IIIA = 42%, IIIB = 8% **Inclusion criteria:** 1) Radical hysterectomy + postoperative radiotherapy or chemotherapy for uterine cancer **Exclusion criteria:** 1) Negative or normal findings at routine follow-up, 2) serum glucose >200 mg/dl	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Abnormal FDG uptake relative to uptake in normal surrounding tissue	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 5 | 0 PET - | 1 | 6 Sensitivity= 83% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Tran BN, 2003[53] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 1998 to Jan 2002 **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Sono-guided FNA, CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 172 **Mean age (range):** 52 yr; (39-75 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically confirmed cervical cancer **Exclusion criteria:** ND	FDG-PET **Scanner model:** ND **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 14 / 0 PET -: 0 / 172 Sensitivity= 100% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Unger JB, 2004[54] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** 2000 to 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** >6 mo	**N enrolled =** 46 **Mean age (range):** 42.9 yr; (27-64 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 12.6 mo **Distribution by stage:** IB1 = 17%, IB2 = 45%, IIA = 9%, IIB = 18%, IIIA = 2%, IIIB = 9% **Inclusion criteria:** 1) Minimum of 6 months follow-up after the posttreatment PET scan **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Total scan time:** 60 min **FDG dose:** 550 MBq **Time between FDG injection and scan:** 90 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Asymptomatic women Reference: + / - PET +: 8 / 0 PET -: 2 / 16 Sensitivity= 80% Specificity= 100% Symptomatic women Reference: + / - PET +: 15 / 0 PET -: 0 / 6 Sensitivity= 100% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Unger JB, 2005[55] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Feb 2001 to Sep 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 14 **Mean age (range):** 40.8 yr; (30-53 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1 = 93%, IB2 = 7% **Inclusion criteria:** 1) FIGO stage IB1 or IB2 cervical cancer, 2) candidates for radical hysterectomy who are at low risk for subsequent chemoradiation **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 550 MBq **Time between FDG injection and scan:** 90 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference + | - PET + | 2 | 0 PET - | 5 | 7 Sensitivity= 29% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Van Der Veldt AAM, 2006[56] **Country:** The Netherlands **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jun 1997 to Jun 2004 **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (median 17 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 38 **Mean age (range):** 42 yr; (26-79 yr) **Time from diagnosis:** 13 mo **Time from last treatment to FDG-PET:** 13 mo **Distribution by stage:** IB = 32%, IIA = 11%, IIB = 24%, IIIA = 5%, IIIB = 25%, IVA = 3% **Inclusion criteria:** 1) Confirmed cervical carcinoma **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 5 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Abnormal FDG uptake relative to uptake in normal surrounding tissue. Four-grade system (0 = negative, 1 = weak, 2 = moderate, 3 = intense	**Purpose of FDG-PET:** Recurrences |		Reference	
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		+	-
PET	+	NA	NA
	-	NA	NA	 Sensitivity=96% Specificity=100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Wong TZ, 2004[57] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Apr 1998 to Nov 2002 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 41 **Mean age (range):** ND **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** 4 min **-Transmission:** 2.5 min **FDG dose:** 5.2 MBq/kg **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (4-6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position or iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Staging and restaging Staging, distant lesion Reference: + / - PET +: 5 / 0 PET -: 0 / 4 Sensitivity= 100%;Specificity= 100% Restaging, local lesions Reference: + / - PET +: [illegible] / 1 PET -: 3 / 32 Sensitivity= 64%;Specificity= 96% Restaging, distant lesions Reference: + / - PET +: 23 / 3 PET -: 0 / 26 Sensitivity= 100%;Specificity= 89% Local lesions (overall) Reference: + / - PET +: 26 / 1 PET -: 3 / 32 Sensitivity= 89%;Specificity= 96% Distant lesions (overall) Reference: + / - PET +: 28 / 3 PET -: 0 / 30 Sensitivity= 100%;Specificity= 90%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Wright JD, 2005[58] **Country:** USA **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 1999 to Sep 2004 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Clinical workup **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 54 **Mean age (range):** 46 yr; (22-65 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB1 = 35%, IB2 = 9%, IIA = 9%, IIB = 43%, IIIB = 4% **Inclusion criteria:** 1) Stage IA-IIA cervical carcinoma **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** 1) Conventional PET scanner (NS), 2) Biograph LSO2; Siemens Medical Solutions **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 2-4 min **-Transmission:** ND **FDG dose:** 15-20 mCi **Time between FDG injection and scan:** 45-60 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** No **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	ND **Description:** Visual interpretation. Lymph nodes >10 mm	**Purpose of FDG-PET:** Staging Patien-based analyses Pelvic lymph node metastases Reference: + / - PET +: 10 / 4 PET -: 9 / 36 Sensitivity= 52% Specificity= 90% Paraaortic lymph node metastases Reference: + / - PET +: 1 / 1 PET -: 3 / 40 Sensitivity= 25% Specificity= 97% Lesion-based analyses Pelvic lymph node metastases Reference: + / - PET +: 12 / 8 PET -: 14 / 84 Sensitivity= 46%; Specificity= 91% Paraaortic lymph node Reference: + / - PET +: 2 / 1 PET -: 3 / 84 Sensitivity=40%, Specificity=98%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Yen TC, 2006[59] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Feb 2001 to Aug 2005 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 0 **Mean age (range):** 54.9 **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA = 3%, IB = 39%, IIA = 7%, IIB = 29%, IIIA = 1%, IIIB = 13%, IVA = 4%, IVB = 4% **Inclusion criteria:** 1) ECOG performance status score 0–2. Three groups: A) patients with biopsy-documented recurrent or persistent cervical cancer, B) patients with suspicion of potentially curable recurrent tumor on CT-MRI without biopsy proof, C) patients in complete remission after previous definitive treatment for histologically confirmed cervical carcinoma but with elevated serum SCC-Ag **Exclusion criteria:** 1) Medical or psychological unfitness to receive curative salvage therapy, 2) history of another malignancy, except basal cell carcinoma of the skin	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D, 3-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Five-points grade system (0 = normal, 1 = probably normal, 2 = equivocal, 3 = probably abnormal and 4 = definitely abnormal)	**Purpose of FDG-PET:** Recurrences Peritoneum site PET: + (11, 3); - (6, 129) Sensitivity= 65% Specificity= 98% Bone site PET: + (7, 4); - (0, 139) Sensitivity= 100% Specificity= 97% Liver/spleen site PET: + (2, 1); - (1, 144) Sensitivity= 67% Specificity= 99% Lung site PET: + (11, 4); - (1, 129) Sensitivity= 92% Specificity= 97% MLN site	B

PET	+	13	5
	-	0	118

Sensitivity= 100%
Specificity= 96%

SLN site

		Reference	
		+	-
PET	+	21	3
	-	5	118

Sensitivity= 81%
Specificity= 98%

PALN site

		Reference	
		+	-
PET	+	37	1
	-	5	102

Sensitivity= 88%
Specificity= 99%

PLN site

		Reference	
		+	-
PET	+	20	2
	-	4	117

Sensitivity= 83%
Specificity= 98%

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Yen TC, 2003[60] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Feb 2001 to Oct 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 135 **Mean age (range):** 56 yr; (28-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** Newly diagnosed: 35% (IB2 = 34%, IIA = 9%, IIB = 32%, IIIA = 4%, IIIB = 11%, IV = 1%, IVB = 9%); recurrent cancer: 65% **Inclusion criteria:** 1) Previously untreated and scheduled for definitive RT, with at least one enlarged pelvic lymph node or groups of small PLNs, without suspected PALN metastasis or other extrapelvic lesions, 2) suspicious PALNs on MRI-CT or clinically palpable SLNs or inguinal nodes without other overt distant metastasis, with treatment of curative intent feasible, 3) histologically proven recurrent or persistent cancer after definitive RT or surgery, 4) unexplained squamous cell carcinoma antigen or carcinoembryonic antigen elevation **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation. Five-grade scoring system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal)	**Purpose of FDG-PET:** Staging Lesion-based Reference + / - PET + : 202 / 6 PET - : 16 / 836 Sensitivity= 92% Specificity= 99%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Yen TC, 2004[61] **Country:** Taiwan **Cancer type:** Cervical **Questions:** Q1 **Funding:** Government, internal	**Dates of data collection:** Feb 2001 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 55 **Mean age (range):** 51 yr (median); (25-86 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB-IIA = 45%; IIB-IVA = 55% **Inclusion criteria:** 1) Completion of definitive radiotherapy or surgery; 2) no contraindications to and willing to undergo contrast-enhanced CT/MRI and PET scans; 3) potentially curable and willing to receive curative salvage therapy **Exclusion criteria:** 1) Prior salvage therapy for previous recurrence, 2) medically or psychologically unfit to receive curative salvage, 3) history of another malignancy excluding basal cell carcinoma of the skin	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal)	**Purpose of FDG-PET:** Recurrences Peritoneum site |		Reference	
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		+	-
PET	+	7	2
	-	1	45 | Sensitivity= 88% Specificity= 96% Bone site |		Reference	
---	---	---	---
		+	-
PET	+	0	1
	-	0	54 | Sensitivity= not calculated Specificity= 98% Liver/spleen site |		Reference	
---	---	---	---
		+	-
PET	+	2	1
	-	0	52 | Sensitivity= 100% Specificity= 98% Lung site |		Reference	
---	---	---	---
		+	-
PET	+	7	0
	-	2	46 | Sensitivity= 78% Specificity= 100% MLN site |		Reference	
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		+	-		B

PET	+	10	1
	-	0	44

Sensitivity= 100%
Specificity= 98%

SLN site

		Reference	
		+	-
PET	+	11	1
	-	2	41

Sensitivity= 85%
Specificity= 98%

PALN site

		Reference	
		+	-
PET	+	15	0
	-	2	38

Sensitivity= 88%
Specificity= 100%

PLN site

		Reference	
		+	-
PET	+	10	1
	-	1	43

Sensitivity= 91%
Specificity= 98%

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Yildirim Y, 2008[62] **Country:** Turkey **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 2006 to Nov 2006 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** ECG, chest X-rays, complete physical and gynecological examination, upper abdominal and pelvic US, chest CT **Time elapsed between FDG-PET and reference standard:** 8.3 d	**N enrolled =** 16 **Mean age (range):** 48.7 yr (median); (42-67 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 8.3 d **Distribution by stage:** IIB = 81%, IIIA = 13%, IIIB = 6% **Inclusion criteria:** 1) Locally advanced cervical cancer, 2) negative CT findings for para-aortic nodal metastasis **Exclusion criteria:** 1) Age >70 yr, 2) concurrent or previous malignant disease, 2) previous radiation therapy, 3) adenocarcinoma or adenosquamous carcinoma histology, 4) performance status ≥3, 5) BMI ≥40	FDG-PET/CT **Scanner model:** ND **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370-555 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference + | - PET + | 2 | 2 PET - | 2 | 10 Sensitivity= 50% Specificity= 83%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Grisaru D, 2004[63] **Country:** Israel **Cancer type:** Cervical **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, Follow-up (clinical course) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 21 **Mean age (range):** 56 yr; (20-85 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Proven gynecologic malignancy **Exclusion criteria:** ND	FDG-PET **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 5 min **FDG dose:** 370-666 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	ND	**Purpose of FDG-PET:** 1) Staging, 2) Recurrences Staging Reference: + / - PET +: 2 / 1 PET -: 1 / 5 Sensitivity= 100% Specificity= 100% Recurrence Reference: + / - PET +: 10 / 0 PET -: 0 / 2 Sensitivity= 100% Specificity= 100%	B

AD = adenocarcinoma; ASC = adenosquamous carcinoma; BMI = body mass index; CEA = carcinoembryonic antigen; CT = computer tomography; d = days; DM = diabetes mellitus; ECOG = Eastern Cooperative Oncology Group; FDG = fluorodeoxyglucose F18; FIGO = Federation Internationale de Gynecologie et d'Obstetrique; FNA = Fine Needle Aspiration; FOV = field of view; h = hours; ILN = inguinal lymph node; LN = lymph node; Max = maximum; min = minutes; MLN = mediastinal lymph node; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; PALN = para-aortic lymph node; PET = positron emission tomography; PLN = pelvic lymph node; po = oral; RH-PLND = radical hysterectomy + pelvic lymphadenectomy; RI = retention index; ROI = region of interest; RT = radiotherapy; SCC Ag = squamous cell carcinoma antigen; SLN = supraclavicular lymph node; SUV = standardized uptake value; US = ultrasound; wk = weeks; yr = years

Kidney Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Aide N, 2003[64] **Country:** France **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 2000 to Jul 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (3-6 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 53 **Mean age (range):** 60 yr; (33-86 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected RCC, 2) RCC after radical or partial nephrectomy **Exclusion criteria:** ND	FDG-PET **Scanner model:** HR+; Siemens **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** 7 min **-Transmission:** 3 min **FDG dose:** 2 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Presence of a focus of FDG uptake which a) had an intensity greater than physiological accumulation by the renal parenchyma, b) was distinct from the pelvicalyceal physiological excretion, and c) corresponded to a CT anomaly	**Purpose of FDG-PET:** Primary diagnosis and staging Characterisation of renal masses Reference: + / - PET +: 14 / 1 PET -: 16 / 4 Sensitivity= 47% Specificity= 80%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Ak I, 2005[65] **Country:** Turkey **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT, US **Time elapsed between FDG-PET and reference standard:** 10 d	**N enrolled =** 19 **Mean age (range):** 58.1 yr; (45-74 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected primary renal tumors based on conventional imaging techniques **Exclusion criteria:** ND	FDG-PET **Scanner model:** Axis; Philips Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370-444 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (135 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Primary diagnosis Reference + | - PET + | 13 | 1 PET - | 2 | 3 Sensitivity= 86% Specificity= 75%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang CH, 2003[66] **Country:** Taiwan **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 15 **Mean age (range):** ND; (23-76 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically proven RCC and a solitary pulmonary lesion suspicious of lung metastasis **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 47 or Exact HR +; CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 7 min **-Transmission:** 3 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (150 mg%) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position **SUV reported (formula):** Yes (SUV = mean ROI activity/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation SUV >2.5 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging Reference: + / - PET +: 9 / 1 PET -: 1 / 4 Sensitivity= 90% Specificity= 80%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Dilhuydy MS, 2006[67] **Country:** France **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 2003 to Jul 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 mo	**N enrolled =** 24 **Mean age (range):** ND; (29-74 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically proven renal cell carcinoma with metastatic diseas, 2) patients awaiting a therapeutic decision for surgery, radiofrequency ablation, general specific treatment (immunotherapy) before surgery, or monitoring **Exclusion criteria:** ND	FDG-PET **Scanner model:** Axis; Philips Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 1.5 mCi **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference + | - PET + | 12 | 1 PET - | 4 | 2 Sensitivity= 75% Specificity= 66%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Jadvar H, 2003[68] **Country:** USA **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 3-12 mo	**N enrolled =** 25 **Mean age (range):** ND; (42-81 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3-24 mo **Distribution by stage:** ND **Inclusion criteria:** 1) Non-diabetic patients with known or suspected metastatic RCC **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT PET 953; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Acquisition time per FOV:** 4 min **FDG dose:** 370-555 MBq **Time between FDG injection and scan:** 45-60 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation + clinical information + CT data	**Purpose of FDG-PET:** Restaging Reference + | - PET + | 15 | 1 PET - | 6 | 3 Sensitivity= 71% Specificity= 75%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kang DE, 2004[69] **Country:** USA **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** May 1995 to Jan 2002 **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT + bone scan **Time elapsed between FDG-PET and reference standard:** 2 mo	**N enrolled =** 66 **Mean age (range):** 58.8 yr; (28-79 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) One year of follow-up or death due to rapidly progressive renal cell carcinoma within 1 year of the PET **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 951-R; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** 45 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation	**Purpose of FDG-PET:** Primary diagnosis and staging Reference + | - PET + | 9 | 0 PET - | 6 | 2 Sensitivity= 60% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kumar R, 2005[70] **Country:** USA **Cancer type:** Kidney **Questions:** Q1 **Funding:** Society	**Dates of data collection:** 1999 to 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 24 **Mean age (range):** 64 yr; (40-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected or known malignancies **Exclusion criteria:** 1) Serum glucose levels >140 mg/dL	FDG-PET **Scanner model:** Allegro Philips Medical System and CPET; ADAC UGM **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 2.516-5.2 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (140 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (SUV = mean ROI activity/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation. Positive if FDG uptake was localized and its intensity was greater than the surrounding normal renal parenchyma	**Purpose of FDG-PET:** Primary diagnosis and staging |		Reference	| |		+	- | | PET | + | 8 | 0 | | | - | 1 | 1 | Sensitivity= 88% Specificity= 100% Metastatic renal tumors |		Reference	| |		+	- | | PET | + | 15 | 0 | | | - | 3 | 0 | Sensitivity= 83% Specificity= Not calculated	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Majhail NS, 2003[71] **Country:** USA **Cancer type:** Kidney **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 27.5 d	**N enrolled =** 24 **Mean age (range):** 63 yr (median); (45-82 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 17%; II = 8%, III = 17%, IV = 29%, Unknown = 29% **Inclusion criteria:** 1) Histologically proven RCC undergoing surgical evaluation for possible resection of recurrent disease **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR + PET scanner; Siemens **Acquisition mode:** 2-D, 3-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 395.9 MBq (300-643 MBq) **Time between FDG injection and scan:** 45-60 min **Glucose monitoring:** Fasting (Overnight) **Glucose measured (Max glucose):** No **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** 1) Staging, 2) Recurrences Sites detection Reference: + / - PET +: 21 / 0 PET -: 12 / 3 Sensitivity= 63% Specificity= 100%	C

CT = computer tomography; d = days; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; Max = maximum; min = minutes; mo = months; NA = not applicable; ND = not described; PET = positron emission tomography; RCC = renal cell carcinoma; ROI = region of interest; SUV = standardized uptake value; US = ultrasound; yr = years

Ovarian Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bristow RE, 2003[72] **Country:** USA **Cancer type:** Ovarian **Questions:** Q1 **Funding:** Foundation	**Dates of data collection:** Jul 2001 to Aug 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 mo	**N enrolled =** 22 **Mean age (range):** 55.1 yr; (40-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ≥ 6 mo **Distribution by stage:** IIIA = 5%, IIIB = 5%, IIIC = 77%, IV = 14% **Inclusion criteria:** 1) Biochemical evidence suggestive of recurrent epithelial ovarian cancer, 2) serum CA125>35 U/mL, 3) disease-free interval of at least 6 mo from completion of primary therapy, 4) potential candidates for secondary cytoreductive surgery **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 16.9 mCi **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** po contrast **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity in comparison with that of comparable normal contralateral structures or surrounding tissues	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 15 | 1 PET - | 3 | 3 Sensitivity= 83% Specificity= 75%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bristow RE, 2005[73] **Country:** USA **Cancer type:** Ovarian **Questions:** Q1 **Funding:** Foundation	**Dates of data collection:** Jul 2001 to Jun 30 2004 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 mo	**N enrolled =** 14 **Mean age (range):** 53 yr (median); (40-66 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ≥ 6 mo **Distribution by stage:** IIB = 7%, IIC = 7%, IIIC = 86% **Inclusion criteria:** 1) History of epithelial ovarian cancer with a disease-free interval of at least 6 mo, 2) CA-125 >35 U/ml **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 16.9 mCi **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 10 | 0 PET - | 3 | 11 Sensitivity= 77% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Castellucci P, 2007[74] **Country:** Italy **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 2004 to Jan 2006 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Transvaginal US, CT **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 50 **Mean age (range):** 64 yr; (23-89 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Patients with suspected ovarian cancer, already scheduled for surgery **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 4 min **FDG dose:** 5.5 MBq/kg **Time between FDG injection and scan:** 60-90 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Focally increased FDG uptake SUV >3 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging Reference + | - PET + | 28 | 18 PET - | 4 | 0 Sensitivity= 87% Specificity=0%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chung HH, 2007[75] **Country:** South Korea **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Nov 2003 to Apr 2005 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 77 **Mean age (range):** 51 yr; (28-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA = 1%; IC = 9, IIC = 1%, IIIA = 4%, IIIB = 8%, IIIC = 70%, IV = 7% **Inclusion criteria:** 1) Ovarian cancer, 2) undergone primary cytoreductive surgery **Exclusion criteria:** 1) Blood glucose >140 mg/dl, 2) DM, 3) claustrophobia	FDG-PET/CT **Scanner model:** Gemini PET/CT System; Philips **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 555–740 MBq (0.22 mCi/kg) **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** 900 ml of po contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Focal uptake corresponding to abnormal soft tissue SUV >3 g/mL	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 42 | 1 PET - | 3 | 31 Sensitivity= 93% Specificity= 97%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Drieskens O, 2003[76] **Country:** Belgium **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 wk	**N enrolled =** 13 **Mean age (range):** 57 yr; (41-70 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Primary, residual or recurrent ovarian cancer **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** ECAT 931; Siemens/CTI **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** 10 min **-Transmission:** ND **FDG dose:** 6.5 MBq/kg (Max dose: 555 MBq) **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Regions characterization Reference: + / - PET +: 25 / 2 PET -: 13 / 33 Sensitivity= 66% Specificity= 94%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Garcia-Velloso MJ, 2007[77] **Country:** Spain **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CA-125, conventional imaging modalities **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 86 **Mean age (range):** 57 yr (median); (49-65 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** >6 mo **Distribution by stage:** IC = 13%, IIC = 7%, IIIA = 5%, IIIB = 12%, IIIC = 46%, IV = 17% **Inclusion criteria:** 1) Treated epithelial ovarian carcinoma **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370-400 MBq **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (7.5 mmol/L) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (SUV = mean ROI activity/injected dose/body weight)	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 7 PET - | 12 | 26 80 Sensitivity= 86% Specificity= 78%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Grisaru D, 2004[63] **Country:** Israel **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, Follow-up (clinical course) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 18 **Mean age (range):** 56 yr; (20-85 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Proven gynecologic malignancy **Exclusion criteria:** ND	FDG-PET **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 5 min **FDG dose:** 370-666 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	ND	**Purpose of FDG-PET:** 1) Staging, 2) Recurrences Recurrences Reference: + / - PET +: 13 / 0 PET -: 1 / 4 Sensitivity= 92% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Hauth EA, 2005[78] **Country:** Germany **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 19 **Mean age (range):** 67 yr; (49-80 yr) **Time from diagnosis:** 12 mo (median) **Time from last treatment to FDG-PET:** ND **Distribution by stage:** II = 16%, III = 68%, IV = 16% **Inclusion criteria:** 1) History of surgically resected ovarian cancer and suspected tumour recurrence **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 4 min **FDG dose:** 350 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** po and iv contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation SUV >2.5 g/mL	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 11 | 0 PET - | 0 | 8 Sensitivity= 100% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kawahara K, 2004[79] **Country:** Japan **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Sep 2001 to Aug 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 38 **Mean age (range):** 55.3 yr; (24-89 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected ovarian malignancy **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Total scan time:** 12-14 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-60 min **Glucose monitoring:** Fasting (12 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm and segmented method) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Hypermetabolic lesions, which were more intense than the physiologic liver uptake and could not be attributed to adjacent structures	**Purpose of FDG-PET:** Primary diagnosis Reference + | - PET + | 18 | 2 PET - | 5 | 13 Sensitivity= 78% Specificity= 86%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kim CK, 2007[80] **Country:** Korea **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Dec 2003 to Jul 2005 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (26.8 mo) **Other comparators used:** MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 36 **Mean age (range):** 51.3 yr; (25-75 yr) **Time from diagnosis:** 24 mo (median) **Time from last treatment to FDG-PET:** 3.6 mo **Distribution by stage:** I = 5.6%, II = 13.8%, III = 75%, IV = 5.6% **Inclusion criteria:** 1) Suspected recurrent ovarian cancer **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 260-485 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** None **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 16 | 1 PET - | 6 | 13 Sensitivity= 73% Specificity= 93%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Murakami M, 2006[81] **Country:** Japan **Cancer type:** Ovarian **Questions:** Q1 **Funding:** Internal	**Dates of data collection:** Jun 1997 to Nov 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** CT, MRI, US **Time elapsed between FDG-PET and reference standard:** 24 mo (median)	**N enrolled =** 90 **Mean age (range):** 53 yr (median); (35-76 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I=26%, II=5%, III=64%%, IV=6%% **Inclusion criteria:** 1) Suspected recurrences of ovarian cancer that could not be confirmed by conventional imaging modalities **Exclusion criteria:** 1) Metastasis apparently confirmed by conventional imaging	FDG-PET **Scanner model:** ECAT Exact 47; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 7 min **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (140 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 42 | 0 PET - | 4 | 44 Sensitivity= 91% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Nanni C, 2005[82] **Country:** Italy **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CA-125, conventional imaging modalities **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 41 **Mean age (range):** 59.4 yr; (33-78 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I=15%, II=7%, III=44%, IV=34% **Inclusion criteria:** 1) Previously treated for ovarian cancer with surgery and radio-chemotherapy or radio-chemotherapy alone **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery ST4; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 4 min **Total scan time:** 24-30 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60-90 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Focal areas of increased metabolic activity	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 30 | 2 PET - | 4 | 5 Sensitivity= 88% Specificity= 71%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Pannu HK, 2004[83] **Country:** USA **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Aug 2001 to Jul 2002 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CA-125 **Time elapsed between FDG-PET and reference standard:** 31.7 d	**N enrolled =** 16 **Mean age (range):** 50.8 yr; (17-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ≤3 mo **Distribution by stage:** ND **Inclusion criteria:** 1) History of ovarian cancer and prior debulking surgery **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 0.22 mCi/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** 900 ml of po contrast (in 8 patients) **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 8 | 3 PET - | 3 | 2 Sensitivity= 73% Specificity= 40%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Picchio M, 2003[84] **Country:** Italy **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 2002 to Jun 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 wk	**N enrolled =** 25 **Mean age (range):** 53.6 yr; (36-72 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 30 d **Distribution by stage:** ND **Inclusion criteria:** 1) Diagnosis of ovarian cancer that underwent primary debulking surgery followed by platinum chemotherapy **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** 3 min **FDG dose:** 5.2 MBq/kg **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation. Increased FGD uptake	**Purpose of FDG-PET:** Restaging FDG-PET and CT (not fused images) - lesions Reference: + / - PET +: 19 / 1 PET -: 4 / 11 Sensitivity= 82% Specificity= 91%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Risum S, 2007[85] **Country:** Denmark **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Sep 2004 to Mar 2006 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CA-125 **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 97 **Mean age (range):** 60 yr; (24-85 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) No previous cancer history, presenting with a pelvic mass, 2) RMI>150 **Exclusion criteria:** 1) Severe obesity, 2) DM or other severe medical condition, 3) history of previous cancer or borderline tumor	FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Total scan time:** 25 min **FDG dose:** 350-400 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** po and iv contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Primary diagnosis Reference: + / - PET +: 57 / 3 PET -: 0 / 37 Sensitivity= 100% Specificity= 92%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sebastian S, 2008[86] **Country:** USA **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (22.7 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 53 **Mean age (range):** 53 yr; (47-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically proven epithelial ovarian cancer **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Biograph sensation 16 PET/CT system; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 350-400 MBq **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** 900 ml of po contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. No pre-established criteria	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 37 | 3 PET - | 1 | 12 Sensitivity= 97% Specificity= 80%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sironi S, 2004[87] **Country:** Italy **Cancer type:** Ovarian **Questions:** Q1 **Funding:** No funding	**Dates of data collection:** Oct 2002 to Nov 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CA-125 **Time elapsed between FDG-PET and reference standard:** 5 d	**N enrolled =** 31 **Mean age (range):** 55.9 yr; (33-79 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 29 d **Distribution by stage:** II=10%, III=74%, IV=16% **Inclusion criteria:** 1) Ovarian carcinoma treated with primary cytoreductive surgery and followed up with platinum regimen chemotherapy **Exclusion criteria:** 1) DM, 2) glucose levels >140 mg/dL	FDG-PET/CT **Scanner model:** CTI/CPS Reveal-HD; CTi PET Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (140 mg/dL) **Contrast (for CT):** None **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity in comparison with that of comparable normal contralateral structures or surrounding tissues SUV >3 g/mL	**Purpose of FDG-PET:** Restaging Patient-based Reference: + / - PET +: 9 / 2 PET -: 8 / 12 Sensitivity= 53% Specificity= 86% Lesion-based Reference: + / - PET +: 32 / 4 PET -: 9 / 12 Sensitivity= 78% Specificity= 75%	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Takekuma M, 2005[88] **Country:** Japan **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Apr 1998 to Dec 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (3 mo) **Other comparators used:** CA-125, CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 29 **Mean age (range):** 57.7 yr; (32-75 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I=10%, III=72%, IV=11%, unclear=7% **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 **Scanner model:** ND **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Quantitative **Description:** SUV >3 g/mL	**Purpose of FDG-PET:** Recurrences |		Reference	| | --- | --- | --- | --- | |		+ | - | | PET | + | 22 | 0 | | | - | 4 | 3 | Sensitivity= 85% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Thrall MM, 2007[89] **Country:** USA **Cancer type:** Ovarian **Questions:** Q1 **Funding:** Society	**Dates of data collection:** Aug 2000 to Dec 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 39 **Mean age (range):** 53 yr (median); (31-71 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 3%; II = 15%, III = 69%, IV = 8%, Unknown = 5% **Inclusion criteria:** 1) Histopathologically confirmed ovarian cancer, 2) primary cytoreductive surgery **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** LSO PET/CT; Siemens **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** 4 min **FDG dose:** 370–550 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** 400–600 ml of po contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Increased FDG uptake	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 35 | 0 PET - | 2 | 14 Sensitivity= 95% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Yoshida Y, 2004[90] **Country:** Japan **Cancer type:** Ovarian **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Sep 2001 to Jul 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 2 wk	**N enrolled =** 15 **Mean age (range):** 58.2 yr; (33-89 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA=7%, IC=26%, IIB=7%, IIC=20%, IIIB=7%, IIIC=33% **Inclusion criteria:** 1) Suspected ovarian cancer **Exclusion criteria:** 1) Pregnancy, 2) pelvic–abdominal surgery within 6 mo of study entry	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **Total scan time:** 12-14 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-60 min **Glucose monitoring:** Fasting (12 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm ad segmented method) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Hypermetabolic lesions, which were more intense than the physiologic liver uptake and could not be attributed to adjacent structures	**Purpose of FDG-PET:** Staging Lesion-based – inside the pelvis Reference: + / - PET +: 13 / 13 PET -: 4 / 60 Sensitivity= 76% Specificity= 82% Lesion-based – outside the pelvis Reference: + / - PET +: 15 / 2 PET -: 9 / 124 Sensitivity= 62% Specificity= 98%	A

CA-125 = cancer antigen 125; CT = computer tomography; d = days; DM = diabetes mellitus; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; iv = intravenous; Max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; po = oral; PET = positron emission tomography; RMI = Risk of Malignancy Index; ROI = region of interest; SUV = standardized uptake value; US = ultrasound; wk = weeks; yr = years

Pancreatic Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bang S, 2006[91] **Country:** Korea **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jun 1999 to Oct 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT, CA19-9 >400 U/mL **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 102 **Mean age (range):** 61 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic cancer **Exclusion criteria:** 1) Mass with already confirmed diagnosis, 2) pancreatic mass asociated with other than pancreatic diseases	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** 1) Primary diagnosis and staging Reference: + / - PET +: 90 / 2 PET -: 3 / 7 Sensitivity= 97% Specificity= 78%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Borbath I, 2005[92] **Country:** Belgium **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jul 1998 to Nov 2002 **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (> 6 mo) **Other comparators used:** MRI, EUS **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 59 **Mean age (range):** 63 yr (median); (24-84 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Undetermined pancreatic or periampullary tumor suspected to be malignant **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 260-370 MBq **Time between FDG injection and scan:** 60-120 min **Glucose monitoring:** Fasting (Overnight) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation SUV>2.5 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging Reference + | - PET + | 42 | 5 PET - | 6 | 6 Sensitivity= 87% Specificity= 54%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Casneuf V, 2007[93] **Country:** Belgium **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Oct 2004 to Apr 2006 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 0 **Mean age (range):** 62.5 yr (median); (33-79 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic disease **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** Philips; Gemini **Acquisition mode:** 3-D **Acquisition time per FOV -Emission:** 3 min **-Transmission:** ND **FDG dose:** 4 mCi/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** 140 ml of iv contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Two 3-point scales; localization: 0=uncertain; 1=uncertain; 3=definite; characterization: 0=uncertain; 1=uncertain; 3=definite) LN > 10 mm	**Purpose of FDG-PET:** Primary diagnosis, staging and restaging Reference + | - PET + | 19 | 1 PET - | 5 | 9 Sensitivity= 79% Specificity= 90%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Giorgi MC, 2004[94] **Country:** Brazil **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 15 **Mean age (range):** 52 yr; (37-70 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic lesion **Exclusion criteria:** ND	FDG-PET **Scanner model:** ADAC Vertex Plus; ADAC **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** 40 sec **-Transmission:** ND **FDG dose:** 120 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (12 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Primary diagnosis Reference + | - PET + | 9 | 0 PET - | 4 | 2 Sensitivity= 69% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Heinrich S, 2005[95] **Country:** Switzerland **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jul 2001 to Apr 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (15 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 59 **Mean age (range):** 61 yr (median); (40-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Focal lesions in the pancreas **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** GEMS Discovery LS **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **-Total acquisition time:** 30 min **FDG dose:** 350–450 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4-6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** po contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Anatomic delineation of all FDG positive lesions	**Purpose of FDG-PET:** Primary diagnosis and staging |		Reference	
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		+	-
PET	+	41	4
	-	5	9	 Sensitivity= 89% Specificity= 69%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lemke AJ, 2004[96] **Country:** Germany **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Aug 1999 to Dec 2001 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (1 yr) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** 16 d	**N enrolled =** 100 **Mean age (range):** 64 yr (median); (23-84 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic lesion **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** ECAT Exact 47; Siemens **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 5 MBq/kg **Time between FDG injection and scan:** 60-90 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** Yes (110 mg/dL) **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation SUV max >3.5 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging Reference + - PET + 54 14 - 10 22 Sensitivity= 84% Specificity= 61% Reference + - PET + 57 13 - 7 23 Sensitivity= 89% Specificity= 64%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lytras D, 2005[97] **Country:** UK **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** June 2000 to Aug 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** Laparoscopic US, CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 112 **Mean age (range):** 66 yr (median); (25-83 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic cancer, 2) presence of a mass in the head of the pancreas **Exclusion criteria:** ND	FDG-PET **Scanner model:** IGE Sopha DST-XL-11; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Total acquisition time:** 15 min **FDG dose:** 400 MBq **Time between FDG injection and scan:** 20 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (10 mmol/L) **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Primary diagnosis and staging Reference + | - PET + | 58 | 13 PET - | 21 | 20 Sensitivity= 73% Specificity= 61%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Maemura K, 2006[98] **Country:** Japan **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Aug 2002 to Apr 2005 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 42 **Mean age (range):** 56.4 yr (median); (44-82 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic cancer **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 2 min **-Transmission:** 1 min **FDG dose:** 200 MBq (3.7 MBq/kg) **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (5-6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation SUV max >3 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging |		Reference	
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		+	-
PET	+	26	1
	-	4	2	 Sensitivity= 87% Specificity= 67%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Mansour JC, 2006[99] **Country:** USA **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 1997 to May 2005 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 21 **Mean age (range):** 66 yr; (39-84 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Pancreatic cyst or pseudocyst, 2) cystic lesion of the pancreas on imaging studies **Exclusion criteria:** ND	FDG-PET **Scanner model:** ND **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** ND	**Purpose of FDG-PET:** 1) Primary diagnosis Resected patients Reference: + / - PET +: 4 / 2 PET -: 3 / 12 Sensitivity= 57% Specificity= 85%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Nishiyama Y, 2005[100] **Country:** Japan **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jun 2002 to Feb 2004 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI, US, ERCP, CRP level **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 86 **Mean age (range):** 62.4 yr; (21-93 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic cancer **Exclusion criteria:** 1) DM	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** 3 min **-Transmission:** 2 min **FDG dose:** 3 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (5 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** Yes (SUV=(decay-corrected activity/milliliter of tissue volume)/(injected 18F-FDG activity/body mass). RI=(SUV 3h-SUV 40 min)/(SUV 40min))	Qualitative and quantitative **Description:** Visual interpretation. Four-grade scoring system (0=no uptake, 1=equivocal uptake, 2=mildly increased uptake, 3=definitely increased uptake SUV max >3.5 g/mL, ROI=0	**Purpose of FDG-PET:** Primary diagnosis Reference + | - PET + | 49 | 11 PET - | 6 | 20 Sensitivity= 89% Specificity= 65%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Nishiyama Y, 2005[101] **Country:** Japan **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jun 2002 to Feb 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** Citology **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 42 **Mean age (range):** 65.8 yr; (33-93 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histopathologically confirmed pancreatic cancer, 2) no previous treatment **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 3 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Hypermetabolic areas that were more intense than physiologic liver uptake	**Purpose of FDG-PET:** Staging Reference + | - PET + | 13 | 3 PET - | 3 | 23 Sensitivity= 81% Specificity= 88%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Rasmussen I, 2004[102] **Country:** Sweden **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** Internal	**Dates of data collection:** Jan 1999 to Jul 2000 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** US, CT, MRI, ERCP, PTC **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 20 **Mean age (range):** 59.7 yr; (38-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Indeterminate mass in the head of the pancreas **Exclusion criteria:** 1) Small mass in the head of the pancres without clinical suspicion of chronic pancreatitis, 2) pregnancy, 3) acute pancreatitis, 4) uncontrolled DM	FDG-PET **Scanner model:** 1) GE Scanditronics 4096; GE Scanditronix Medical AB, 2) ECAT Exact HR + scanner; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Total acquisition time:** 50 min **FDG dose:** 400 MBq **Time between FDG injection and scan:** 35-50 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position (Hanning filter) **SUV reported (formula):** Yes (SUV=injected dose/body weight x average uptake in ROI)	Qualitative and quantitative **Description:** Visual interpretation. Focally increased FDG uptake SUV >3 g/mL	**Purpose of FDG-PET:** Primary diagnosis Reference + | - PET + 9 | 1 PET - 3 | 7 Sensitivity= 75% Specificity= 88%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Ruf J, 2006[103] **Country:** Germany **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** Laparotomy, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 32 **Mean age (range):** 56.6 yr; (24-74 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Suspected pancreatic cancer **Exclusion criteria:** 2) Known sensitivity to gadopentetate dimeglumine, 2) Liver metastasis, 3) Mental retardation	FDG-PET **Scanner model:** ECAT Exact 921/47; Siemens **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 8 min **-Transmission:** 4 min **FDG dose:** 5 MBq/kg **Time between FDG injection and scan:** 90 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** Yes (110 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation SUV max >3.5 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging Reference + - PET + 14 10 - 1 7 Sensitivity= 93% Specificity= 41%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Ruf J, 2005[104] **Country:** Germany **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 31 **Mean age (range):** 59 yr; (36-79 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 12 mo **Distribution by stage:** I=6%; II=23%; III=65%, IVA=6% **Inclusion criteria:** 1) Suspected recurences after surgery, 2) sudden weight loss, 3) pain, 4) increased CA 19-9 levels **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 921; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 8 min **-Transmission:** 4 min **FDG dose:** 5 MBq/kg **Time between FDG injection and scan:** 90 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** Yes (110 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Local recurrences Reference: + / - PET +: 22 / 0 PET -: 1 / 8 Sensitivity= 95% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sperti C, 2007[105] **Country:** Italy **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Jan 1998 to Dec 2005 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (25 mo) **Other comparators used:** Citology **Time elapsed between FDG-PET and reference standard:** 6 mo	**N enrolled =** 64 **Mean age (range):** 63.6 yr; (37-84 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Intraductal papillary mucinous neoplasms **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 47; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 15 min **-Transmission:** 15 min **FDG dose:** 444 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (Overnight) **Glucose measured (Max glucose):** Yes (120 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position (Hanning filter) **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation SUV>2.5 g/mL	**Purpose of FDG-PET:** Primary diagnosis and staging |		Reference	
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		+	-
PET	+	24	1
	-	2	37	 Sensitivity= 92% Specificity= 97%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
van Kouwen MC, 2005[106] **Country:** The Netherlands **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Mar 2000 to Mar 2004 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (22.1 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 0 **Mean age (range):** CP=45.9, CA+CP=64.5, CA=59.5 **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) CP, or 2) CP+CA, 3) pancreatic cancer **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 10 min **-Transmission:** ND **FDG dose:** 200-220 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation. Focally increased FDG uptake	**Purpose of FDG-PET:** Primary diagnosis Reference + | - PET + | 29 | 10 PET - | 3 | 67 Sensitivity= 91% Specificity= 87%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Wakabayashi H, 2008[107] **Country:** Japan **Cancer type:** Pancreatic **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 2004 to Jan 2007 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT, cytology, CEA and CA19-9 levels **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 53 **Mean age (range):** 70.1 yr; (44-84 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Proven primary pancreatic cancer **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 5 mCi **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Staging Preoperative staging - para-aortic regional lymph nodes metastases Reference: + / - PET +: 8 / 0 PET -: 6 / 0 Sensitivity= 57% Specificity= Not calculated Preoperative staging - hepatic metastases Reference: + / - PET +: 10 / 0 PET -: 9 / 0 Sensitivity= 52% Specificity= Not calculated Preoperative staging - bone metastases Reference: + / - PET +: 8 / 0 PET -: 8 / 8 Sensitivity= 50% Specificity= Not calculated	D

CEA = carcinogenic embryonic antigen; CP = chronic pancreatitis;CT = computer tomography; CRP = C-reactive protein; d = days; DM = diabetes mellitus; ERCP = endoscopic retrograde cholangiopancreatography; EUS = endoscopic ultrasound; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; iv = intravenous; LN = lymph node; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; PET = positron emission tomography; po = oral; PTC = percutaneous transhepatic cholangiography; RI = retention index; ROI = region of interest; sec = seconds; SUV = standardized uptake value; yr = years

Prostate Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang CH, 2003[108] **Country:** Taiwan **Cancer type:** Prostate **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 24 **Mean age (range):** 60.1 yr; (55-65 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3.2 yr **Distribution by stage:** T1N0M0=13, T2N0Mo=11 **Inclusion criteria:** 1) Prostate cancer patients with PSA levels > 4 mg/ml after treatment **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT HR + scanner. Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** 3 min **FDG dose:** 10 mCi **Time between FDG injection and scan:** 30-45 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Positive lesions: foci of increased FDG uptake above the intensity of surrounding soft tissue radioactivity, excluding physiologically FDG uptake areas of ureters and urinary bladder)	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 12 / 0 PET -: 4 / 8 Sensitivity= 75% Specificity= 100%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Jadvar H, 2003[109] **Country:** USA **Cancer type:** Prostate **Questions:** Q1 **Funding:** Society	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** Skeletal X-rays, CT of chest, abdomen, and pelvis, skeletal scintigraphy **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 12 **Mean age (range):** ND; (65-81 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 6 mo **Distribution by stage:** ND **Inclusion criteria:** 1) History of prostate cancer, 2) suspected recurrent and metastatic disease (serum PSA level = 5-206 ng/ml), 3) original tumor Gleason score 5 to 8 **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT 953 PET camera; Siemens **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370–555 MBq **Time between FDG injection and scan:** 45-60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** 1) Staging, 2) Recurrences Reference + | - PET + | 4 | 1 PET - | 4 | 3 Sensitivity= 50% Specificity= 75%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Oyama N, 2003[110] **Country:** USA **Cancer type:** Prostate **Questions:** Q1 **Funding:** Foundation, society	**Dates of data collection:** Jun 2000 to Feb 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, CT, bone scintigraphy **Other comparators used:** AC-PET **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 46 **Mean age (range):** 65 yr (median); (49-79 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Prior radical prostatectomy, 2) preoperative PSA level >10 ng/mL, detectable postoperative PSA, 3) Gleason score ≥7 for the original diagnostic biopsy, 4) one of the following: positive tumor margin at surgery, seminal vesicle involvement by tumor, extracapsular extension of tumor, 5) involvement of ≥25% of the prostate by tumor, or positive nodes at surgery **Exclusion criteria:** 1) No treatment with hormone ablation	FDG-PET **Scanner model:** ECAT Exact HR + tomograph; CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **Dynamic emission scan time:** 15 min **FDG dose:** 555 MBq **Time between FDG injection and scan:** 40-90 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Recurrences Reference + | - PET + | 8 | PET - | 38 | Sensitivity=17% Specificity=Not calculated	D

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Schoder H, 2005[111] **Country:** USA **Cancer type:** Prostate **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Feb 1997 to Mar 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI , bone scan **Time elapsed between FDG-PET and reference standard:** 3 mo	**N enrolled =** 91 **Mean age (range):** 65 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 43.2 mo **Distribution by stage:** ND **Inclusion criteria:** 1) Initial treatment of prostate cancer with radical retropubic prostatectomy, 2) PSA relapse, (PSA >0.1 ng/mL), 3) no systemic therapy (hormonal or chemotherapy) between prostatectomy and PET **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** 1) Advance PET scanner; GE Medical Systems; 2) Biograph; Siemens/CTI or Discovery; GE Medical Systems) **Acquisition mode:** ND **Acquisition time per FOV -Emission:** 4 min **-Transmission:** 4 min **FDG dose:** 555 MBq **Time between FDG injection and scan:** 45-60 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation. FDG accumulation abnormal when it was located outside of normal anatomic structures and of an intensity greater than that in adjacent normal tissue or greater than background blood pool activity	**Purpose of FDG-PET:** 1) Staging, 2) Recurrences Reference + | - PET + | 28 | 3 PET - | 60 | 0 Sensitivity=31% Specificity=0%	C

AC-PET = carbon-11 acetate; CT = computer tomography; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; PET = positron emission tomography; PSA = prostate specific antigen; SUV = standardized uptake value; yr = years

Small Cell Lung Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Blum R, 2004[112] **Country:** Australia **Cancer type:** SCLC **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Dec 1996 to Jan 2001 **Study type:** Retrospective **Enrolled consecutively:** No **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 36 **Mean age (range):** 64 yr (median) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** LD = 78%, ED = 22% **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** GE Quest 300-H scanner; UGM Medical Systems Inc **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation Lesions > 10 mm in transverse diameter	**Purpose of FDG-PET:** Staging and restaging Identification of definite sites of disease Reference: + / - PET + : 36 / NA PET - : 0 / NA Sensitivity= 100% Specificity= Not calculated	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bradley JD, 2004[113] **Country:** USA **Cancer type:** SCLC **Questions:** Q1 **Funding:** Society	**Dates of data collection:** Feb 2001 to Mar 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** Chest X-rays, CT, MRI **Time elapsed between FDG-PET and reference standard:** 28 d	**N enrolled =** 24 **Mean age (range):** 60 yr; (33-90 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Newly diagnosed, untreated, histologically or cytologically confirmed SCLC; 2) have completed standard staging procedures; 3) no evidence of disease beyond one hemithorax and the mediastinum; 4) patients with bilateral hilar involvement; 5) patients with ipsilateral supraclavicular adenopathy on physical examination or CT **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT HR + scanner; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 5 min **-Transmission:** 2 min **FDG dose:** 10-15 mCi **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (150 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Presence of abnormal FDG accumulation	**Purpose of FDG-PET:** Staging Reference + - PET + 24 0 - 0 0 Sensitivity= 100% Specificity= not calculated	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Brink I, 2004[114] **Country:** Germany **Cancer type:** SCLC **Questions:** Q1 **Funding:** Foundation	**Dates of data collection:** 1999 to 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, conventional staging **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 120 **Mean age (range):** 60.8 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically confirmed SCLC **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 922; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 8 min **-Transmission:** 2 min **FDG dose:** 5 MBq/kg **Time between FDG injection and scan:** 90 min **Glucose monitoring:** Fasting (12 h) **Glucose measured (Max glucose):** Yes (6 mmol/L) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal increased tracer uptake that exceeded the normal limits of regional FDG accumulation	**Purpose of FDG-PET:** Staging Reference + | - PET + | 120 | 0 PET - | 0 | 0 Sensitivity= 100% Specificity= not calculated	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Fischer BM, 2006[115] **Country:** Denmark **Cancer type:** SCLC **Questions:** Q1 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Follow-up (clinical course) (>12 mo or until death) **Other comparators used:** Conventional staging (CT, chest X-rays) **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 20 **Mean age (range):** ND; (51-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** LD = 25%; ED = 75% **Inclusion criteria:** 1) Histological or cytologically proven SCLC **Exclusion criteria:** 1) Type I DM, 2) former or present malignant diseasea apart from SCLC, 3) pregnancy	FDG-PET/CT **Scanner model:** GE Discovery LS, GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** 3-5 min **-Transmission:** ND **FDG dose:** 400 MBq **Time between FDG injection and scan:** 84 min (Median) **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (4.6 mmol/L) **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Staging and restaging Reference: + / - PET +: 11 / – PET -: – / 1 Sensitivity=92% Specificity=Not calculated	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Fischer BM, 2007[116] **Country:** Denmark **Cancer type:** SCLC **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Feb 2003 to Dec 2004 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Conventional staging (CT, bone scintigraphy) **Time elapsed between FDG-PET and reference standard:** 1 wk	**N enrolled =** 29 **Mean age (range):** 63 yr; (47-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** LD = 24%; ED = 59%; NA = 17% **Inclusion criteria:** 1) Histological or cytologically proven SCLC **Exclusion criteria:** 1) Type I DM, 2) former or present malignant diseasea apart from SCLC, 3) pregnancy	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** Discovery LS Integrated System; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 3-5 min **-Transmission:** ND **FDG dose:** 400 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (4.7 mmol/L) **Contrast (for CT):** iv contrast **Reconstruction algorithm:** Filtered back position **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Increased tracer uptake exceeded the normal limits of regional FDG uptake in specific areas	**Purpose of FDG-PET:** Staging FDG-PET - Differentiation of ED and LD Reference: + / - PET +: 13 / 1 PET -: 1 / 5 Sensitivity= 93% Specificity= 83% FDG-PET/CT - Differentiation of ED and LD Reference: + / - PET +: 13 / 0 PET -: 1 / 6 Sensitivity= 93% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kamel EM, 2003[117] **Country:** Switzerland **Cancer type:** SCLC **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Feb 1999 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (13 mo) **Other comparators used:** Chest and abdomen CT, bone scan, and brain CT or MRI **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 42 **Mean age (range):** 62 yr; (45-83 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** ND **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** 1) Advance NXi PET scanner; GE Medical Systems; 2) Discovery LS; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** 2 min **FDG dose:** 300–400 MBq **Time between FDG injection and scan:** 50-60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging and restaging Limited-extensive disease Reference: + / - PET +: 14 / 3 PET -: 1 / 6 Sensitivity=93% Specificity=66%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kut V, 2007[118] **Country:** USA **Cancer type:** SCLC **Questions:** Q1 **Funding:** Internal	**Dates of data collection:** Dec 2001 to Feb 2004 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Conventional imaging (CT, bone scintigraphy, MRI) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** 3 wk	**N enrolled =** 21 **Mean age (range):** 61.3 yr; (47-75 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** >2 wk **Distribution by stage:** LD = 29%; ED = 57%; ND = 14% **Inclusion criteria:** 1) Pathologically confirmed SCLC, 2) presence of unidimensional measurable disease **Exclusion criteria:** 1) Uncontrolled DM, 2) active infections, 3) inflammatory diseases, 4) diagnosis of priox malignancy, 5) pregnant or lactating women	FDG-PET **Scanner model:** ECAT Exact B60 PET scanner; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 15 mCi **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (<150 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Increased tracer uptake exceeded the normal limits of regional FDG uptake in specific areas	**Purpose of FDG-PET:** Staging Reference + | - PET + | 18 | 0 PET - | 0 | 0 Sensitivity= 100% Specificity= not calculated	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Niho S, 2007[119] **Country:** Japan **Cancer type:** SCLC **Questions:** Q1 **Funding:** Government	**Dates of data collection:** Jul 2003 to Dec 2006 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Follow-up (clinical course), CT, US and bone scan **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** 16 d	**N enrolled =** 63 **Mean age (range):** 64 yr (median); (48-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 4 d (median) **Distribution by stage:** LD = 100% **Inclusion criteria:** 1) Newly diagnosed LD-SCLC **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** 1) GE Advance PET scanner; GE Medical Systems; 2) GE Discovery ST scanner **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 1) 5 min; 2) 4 min **-Transmission:** 1 min **FDG dose:** 300 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Uptake stronger than mediastinal blood pool activity was indicator of malignancy	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 9 / 0 PET -: 54 / 0 Sensitivity= 14% Specificity= Not calculated	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Pandit N, 2003[120] **Country:** USA **Cancer type:** SCLC **Questions:** Q1 **Funding:** ND	**Dates of data collection:** 1995 to 2000 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 46 **Mean age (range):** 63.8 yr; (43-82 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 207 d (median) **Distribution by stage:** ND **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** 4-5 min **-Transmission:** 3-4 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (SUV = maximum dose injected in lesion/(injected dose corrected for body weight)	Qualitative and quantitative **Description:** Visual interpretation. Ffocal intense uptake considered positive	**Purpose of FDG-PET:** Staging FDG-PET vs. histology/pathology (Number of scans) Reference: + / - PET +: 19 / 4 PET -: 0 / 7 Sensitivity= 100% Specificity= 63% FDG-PET vs. clinical outcome (Number of scans) Reference: + / - PET +: [illegible] / 5 PET -: 1 / 18 38 Sensitivity= 97% Specificity= 78%	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Vinjamuri M, 2008[121] **Country:** USA **Cancer type:** SCLC **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 1998 to Dec 2004 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Follow-up (clinical course) (≥ 1 yr) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 51 **Mean age (range):** ND **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically confirmed SCLC **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 15-20 mCi **Time between FDG injection and scan:** 45-60 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging Reference: + / - PET +: 51 / 0 PET -: 0 / 0 Sensitivity= 100% Specificity= not calculated	C

CT = computer tomography; d = days; DM = diabetes mellitus; ED = extensive disease; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; LD = limited disease; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; PET = positron emission tomography; SUV = standardized uptake value; wk = weeks; yr = years

Testicular Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Becherer A, 2005[122] **Country:** Austria **Cancer type:** Testicular **Questions:** Q1 **Funding:** ND	**Dates of data collection:** 1995 to 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 48 **Mean age (range):** 39 yr; (22-61 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 4-12 wk **Distribution by stage:** ND **Inclusion criteria:** 1) Metastatic seminoma and a CT-documented mass after chemotherapy **Exclusion criteria:** 1) Presence of nonseminomatous elements, 2) residual lesions <1 cm, 3) radiotherapy after completion of chemotherapy	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position or iterative (OSEM) algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Every focally increased uptake not explainable by physiologic circumstances was suspected to be a malignant lesion	**Purpose of FDG-PET:** Restaging Detection of lesion viability (N scans) Reference: + / - PET +: 12 / 0 PET -: 3 / 59 Sensitivity= 80% Specificity= 100% Detection of lesion viability (lesions >3 cm) (N scans) Reference: + / - PET +: [illegible] / 0 PET -: 3 / 43 1 Sensitivity= 25% Specificity= 100% Detection of lesion viability (lesions ≤3 cm) (N scans) Reference: + / - PET +: [illegible] / 0 PET -: 0 / 16 11 Sensitivity= 100% Specificity= 100%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Hinz S, 2008[123] **Country:** Germany **Cancer type:** Testicular **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Nov 1999 to Sep 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 11 d	**N enrolled =** 20 **Mean age (range):** 42 (median); (34-53 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 29 d (median) **Distribution by stage:** IIb = 10%; IIc = 70%; III 20% **Inclusion criteria:** 1) Residual or recurrent disease after cisplatin based chemotherapy for seminoma **Exclusion criteria:** 1) Increase of AFP at any time	FDG-PET **Scanner model:** ECAT Exact 921/47 and HR+/47; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (Normal level) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position or iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Visual scoring model for malignancy: 1=clearly negative, 2=most likely negative, 3=uncertain negative, 4=uncertain positive, 5=most likely positive and 6=clearly positive SUV>2 g/mL	**Purpose of FDG-PET:** Recurrences Prediction of viable tumor residuals Reference: + / - PET +: 3 / 9 PET -: 0 / 8 Sensitivity= 100% Specificity= 47%	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Karapetis CS, 2003[124] **Country:** UK **Cancer type:** Testicular **Questions:** Q1 **Funding:** No funding	**Dates of data collection:** Jul 1996 to Jun 1999 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Follow-up (clinical course) (ND) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N enrolled =** 15 **Mean age (range):** 33.5 yr; (22-58 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 6.4 wk (median) **Distribution by stage:** I = 20%; II = 47%, III = 33% **Inclusion criteria:** 1) Metastatic or extragonadal germ cell tumours treated with chemotherapy **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 951; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 320 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Three categories (I=normal, no abnormal FDG uptake; II=equivocal, FDG uptake with uncertain significance; III abnormal, FDG uptake considered to indicate germ cell malignancy)	**Purpose of FDG-PET:** Recurrences After chemotherapy Reference: + / - PET +: 1 / 3 PET -: 0 / 8 Sensitivity= 100% Specificity= 72%	D

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lassen U, 2003[125] **Country:** Denmark **Cancer type:** Testicular **Questions:** Q1 **Funding:** ND	**Dates of data collection:** Jan 1995 to May 1999 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (median 48 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 mo	**N enrolled =** 46 **Mean age (range):** 30 yr (median); (20-62 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histological diagnosis of non-seminomatous germ cell tumor or mixed tumors, 2) stage I, 3) patients with seminoma and serum β-HCG- >200 U/l prior to orchiectomy **Exclusion criteria:** ND	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 5 min **-Transmission:** ND **FDG dose:** 10 mCi, (350–400 MBq) **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Staging Patients at clinical stage I Reference: + / - PET +: 7 / 0 PET -: 3 / 36 Sensitivity= 70% Specificity= 100%	B

β-HCG = human chorionic gonadotropin; AFP = alpha-Fetoprotein; CT = computer tomography; d= days; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; Max = maximum; min = minutes; mo = months; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; PET = positron emission tomography; SUV = standardized uptake value; wk = weeks; yr = years

Appendix E: Characteristics of Included Studies in Q2 on the diagnostic thinking impact of ^{18}FDG-PET and ^{18}FDG-PET/CT

Bladder Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Jadvar H, 2008[24] **Country:** USA **Cancer type:** Bladder **TA question addressed:** Q2 **Funding:** Government	**Dates of data collection:** 2000 to 2006 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (60 mo) **Other comparators used:** Chest and abdomen CT, bone scintigraphy **Time elapsed between FDG-PET and reference standard:** 3 mo	**N analyzed =** 35 **Mean age (range):** ND; (39-86 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) History of bladder transitional cell carcinoma, 2) initial stages B2 and C) **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** 1) Siemens 953/A, 2) Biograph; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **FDG dose:** 555 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (120 mg/dL) **Contrast (for CT):** po contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative **Description:** Visual interpretation. Focal accumulation above nonworking muscle background	**Purpose of FDG-PET:** Staging and restaging **Management decision:** Treatment -Changes in treatment strategy for 6 / 35 cases (17%) -Additional chemotherapy (n = 5) -Regime of surveillance (n = 1)	C

CT = computer tomography; FDG = Fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; ND = not described; PET = positron emission tomography; po = oral; SUV = standardized uptake value; yr = years

Cervical Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bjurberg M, 2007[32] **Country:** Sweden **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Foundation	**Dates of data collection:** Oct 2004 and ongoing **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (> 6 mo) **Other comparators used:** CT, MRI, clinical workup **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 42 **Mean age (range):** 50.3 yr; (24.7-79.6 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 6.3 mo **Distribution by stage:** IA2 = 12%, IB1 = 31%, IB2 = 5%, IIA = 2%, IIB = 33%, IIIB = 5%, IVA = 10%, IVB = 2% **Inclusion criteria:** Biopsy-proven cervical carcinoma **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** 4096 Plus; GEMS PET Systems **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 282-452 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** ND **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Any focus of elevated metabolism if not located in areas of normal uptake	**Purpose of FDG-PET:** Staging and restaging **Management decision:** Treatment and diagnostic testing impact Study groups: 1) early disease (N = 10), 2) locally advanced disease (N = 17), 3) relapsing disease (N = 15) Group 2 (local advanced disease): -Treatment strategy changed due to identification of new metastasis for 4 / 17 cases (24%) Group 3 (relapsing disease): -PET did not confirm clinical suspicion of recurrence. PET deemed to be true negative upon follow-up 3 / 15 cases; -Treatment strategy changed for 3 / 12 positive recurrence cases (25%) Additional diagnostic testing occurred in 6 / 12 positive recurrence cases	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang TC, 2004[33] **Country:** Taiwan **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Government, internal	**Dates of data collection:** Feb 2001 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N analyzed =** 27 **Mean age (range):** 53.9 yr; (34.8-75.8 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3 mo **Distribution by stage:** I = 44%, II = 42%, III = 7%, IV = 7% **Inclusion criteria:** 1) Cervical carcinoma who experienced complete responses to primary treatment or salvage therapy and who had no evidence of recurrent disease as detected by conventional methods but had serum SCC-Ag levels ≥ 2.0 mg/mL on 2 consecutive occasions, 2) ECOG 0–2 **Exclusion criteria:** 1) Cytotoxic therapy within the previous 3 mo, 2) prior diagnosis of malignant disease other than nonmelanoma skin malignancy, 3) unsuited for treatment with curative intent in the event of disease recurrence, 4) skin or pulmonary lesions or impaired renal function that could contribute to the elevation of SCC-Ag levels, 5) body weight > 145 kg	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Five-level grading system (0 = no visible lesions; 1 = visible lesion without significance; 2 = equivocal lesion; 3 = probable malignant or metastatic lesion; 4 = obvious malignant or metastatic lesion	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment Treatment strategy changed for 17 / 27 cases (63%): -Curative therapy (n = 7) -Palliative chemotherapy (n = 4) -Supportive care (n = 6) 7 / 18 (39%) patients with recurrence received curative therapy based on PET, compared to 53% (16 / 30) in historical control	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chung HH, 2007[38] **Country:** South Korea **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Government	**Dates of data collection:** Dec 2003 to Sep 2005 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** 6 mo	**N analyzed =** 52 **Mean age (range):** 53 yr; (32-77 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 42 mo **Distribution by stage:** I = 50%; II = 40%, III = 2%, IV = 8% **Inclusion criteria:** Histologically confirmed squamous cell carcinoma, AD, ASC of the uterine cervix that reached complete remission after primary treatment **Exclusion criteria:** 1) Previous malignant disease other than non-melanoma skin malignancy, 2) diagnosed as unsuited for treatment with curative intent at the time of disease recurrence, 3) skin or pulmonary lesions or impaired renal functions contributable to the elevation of serum SCC-Ag level or other hepatic or colonic pathology contributable to the elevation of serum CEA level	FDG-PET/CT **Scanner model:** Philips; Gemini **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 555-740 MBq (0.22 mCi/kg) **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** 900 ml of po contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. FDG uptake with intensity higher than that of surrounding tissue	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment & Diagnostic Testing Impact Treatment strategy changed for 12 / 52 cases (23%): -Initiated previously unplanned treatment (n = 4) -Changed previously planned therapeutic approach (n = 5) -Eliminate previously planned diagnostic procedure (n = 3) PET/CT guided additional invasive diagnostic procedures (n = 9)	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lai CH, 2004[42] **Country:** Taiwan **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Government, internal	**Dates of data collection:** May 2001 to Sep 2002 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N analyzed =** 40 **Mean age (range):** 51 yr (median); (25-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 33%, II = 50%, III = 7%, IV = 10% **Inclusion criteria:** 1) Biopsy-documented recurrent or persistent cervical carcinoma (including squamous cell carcinoma, AD, and ASC) after definitive RT or surgery, 2) potentially curable disease and willingness to receive curative salvage therapy if restaging with PET confirmed the possibility of curing the disease **Exclusion criteria:** 1) Re-recurrence after salvage therapy, 2) superficial lesion on the cervix or vaginal cuff, 3) disseminated abdominal or pleural lesions with positive fluid cytology, 4) more than two involved regions, 5) medically or psychologically unfit to receive curative salvage therapy, 6) history of other malignancy, excluding basal cell carcinoma of skin	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal)	**Purpose of FDG-PET:** Restaging **Management decision:** Treatment and diagnostic testing impact Treatment strategy changed for 22 / 40 cases (55%): -Changed from curative to palliative treatment (n = 15) -Curative treatment continued, treatment field or modality changed (n = 7) Diagnostic testing impact due to PET findings in 14 patients: -Additional guided biopsy (n = 11); -Exploratory surgery (n = 3)	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lin CT, 2006[43] **Country:** Taiwan **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Internal	**Dates of data collection:** Feb 2001 to Dec 2004 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N analyzed =** 26 **Mean age (range):** 56 yr; (34-75 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3-6 mo **Distribution by stage:** I = 42%; II = 38%, III = 16%, IV = 4% **Inclusion criteria:** Histologically documented re-recurrent cervical cancer after curative salvage therapy or unexplained tumor marker elevation (negative CT-MRI) proven to be a re-recurrence **Exclusion criteria:** 1) Previously diagnosed with other malignant disease, 2) small cell carcinoma	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 =probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal). A score of 3 or 4 considered positive	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment and diagnostic testing impact PET had positive clinical impact on 12 / 26 cases treatment strategy (46%): -Changed from curative to palliative treatment (n = 9) -Isolated in field failure successfully resected due to PET (n = 3) -PET led to unnecessary and invasive additional procedures, (n = 4) (e.g. biopsies) -PET stated to have had overall negative impact in management (n=2)	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Yen TC, 2004[61] **Country:** Taiwan **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Government, internal	**Dates of data collection:** Feb 2001 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N analyzed =** 55 **Mean age (range):** 51 yr (median); (25-86 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IB-IIA = 45%; IIB-IVA = 55% **Inclusion criteria:** 1) Completion of definitive radiotherapy or surgery, 2) no contraindications to and willing to undergo contrast-enhanced CT/MRI and PET scans, 3) potentially curable and willing to receive curative salvage therapy **Exclusion criteria:** 1) Prior salvage therapy for previous recurrence, 2) being medically or psychologically unfit to receive curative salvage, 3) history of another malignancy excluding basal cell carcinoma of the skin	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** Yes (ND)	Qualitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal)	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment Treatment strategy changed for 36 / 55 cases (65%): -Field or modality of radiation changed (n = 9) -Changed from curative to palliative therapy (n = 27)	B

AD = adenocarcinoma; ASC = adenosquamous carcinoma; CEA = carcinoembryonic antigen; CT = computer tomography; ECOG = Eastern Cooperative Oncology Group; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; HR = hazard ratio; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; PET = positron emission tomography; po = oral; RT = radiotherapy; SCC Ag = squamous cell carcinoma antigen; SUV = standardized uptake value; wk = weeks; yr = years

Kidney Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Dilhuydy MS, 2006[67] **Country:** France **Cancer type:** Kidney **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Mar 2003 to Jul 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** 1 mo	**N analyzed =** 24 **Mean age (range):** ND; (29-74 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histologically proven RCC with metastatic disease, 2) patients awaiting a therapeutic decision for surgery, radiofrequency ablation, general specific treatment (immunotherapy) before surgery, or monitoring **Exclusion criteria:** ND	FDG-PET **Scanner model:** Axis; Philips Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 1.5 mCi **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging **Management decision:** Treatment and diagnostic testing impact Treatment strategy changed for 5 / 24 cases (21%). Treatment instead of monitoring strategy changed (n = 4): -Received surgery (n = 2) or immunotherapy (n = 2) -Treatment type altered (n = 1) (surgery instead of immunotherapy) Treatment strategy changed in 2/5 patients assessed as “complete response” to prior treatment by conventional CT + bone scans	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kang DE, 2004[69] **Country:** USA **Cancer type:** Kidney **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** May 1995 to Jan 2002 **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT + bone scan **Time elapsed between FDG-PET and reference standard:** 2 mo	**N analyzed =** 66 **Mean age (range):** 58.8 yr; (28-79 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** One year of follow-up or death due to rapidly progressive renal cell carcinoma within 1 yr of the PET **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 951-R; Siemens/CTI **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** 45 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Focal areas of increased metabolic activity not consistent with inflammation	**Purpose of FDG-PET:** Primary diagnosis and staging **Management decision:** Treatment and diagnostic testing impact 66 patients received 90 PET scans Treatment strategy changed for 12 / 90 cases (13%): -Recurrences identified lead to surgery (n = 2) -Additional diagnostic by MRI ordered (n = 1) -Reinterpretation of previous imaging (n = 9) **Prognostic value** for immunotherapy: -Accuracy of metastatic lesion detection by PET assessed: 81% of PET positive lesions progressed vs. 67% of PET negative lesions	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kumar R, 2005[70] **Country:** USA **Cancer type:** Kidney **TA question addressed:** Q2 **Funding:** Society	**Dates of data collection:** 1999 to 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 24 **Mean age (range):** 64 yr; (40-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Suspected or known malignancies **Exclusion criteria:** Serum glucose levels >140 mg/dL	FDG-PET **Scanner model:** Allegro Philips Medical System and CPET; ADAC UGM **Acquisition mode:** ND **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 2.516-5.2 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (140 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (SUV = mean ROI activity/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation. Positive if FDG uptake was localized and its intensity was greater than the surrounding normal renal parenchyma	**Purpose of FDG-PET:** Primary diagnosis and staging **Management decision:** Treatment Treatment strategy changed for 3 / 10 (30%) primary renal tumor cases. No changes were mentioned in the 14 cases of renal cancer metastasis. Thus, overall 3/24 cases changed (13%): -Identified to have a benign mass, and surgery avoided (n = 1) -Unsuspected bone metastasis, radical surgery cancelled (n = 1) -Ruled out lung metastasis, surgery proceeded (n = 1)	C

CT = computer tomography; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; ND = not described; NA = not applicable; PET = positron emission tomography; RCC = renal cell carcinoma; ROI = region of interest; SUV = standardized uptake value; yr = years

Ovarian Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chung HH, 2007[75] **Country:** South Korea **Cancer type:** Ovarian **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Nov 2003 to Apr 2005 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 77 **Mean age (range):** 51 yr; (28-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** IA = 1%; IC = 9%, IIC = 1%, IIIA = 4%, IIIB = 8%, IIIC = 70%, IV = 7% **Inclusion criteria:** 1) Ovarian cancer, 2) undergone primary cytoreductive surgery **Exclusion criteria:** 1) Blood glucose >140 mg/dl, 2) DM, 3) claustrophobia	FDG-PET/CT **Scanner model:** Gemini PET/CT System; Philips **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 555–740 MBq (0.22 mCi/kg) **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (ND) **Contrast (for CT):** 900 ml of po contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Focal uptake corresponding to abnormal soft tissue	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment & Diagnostic Imaging Impacts Treatment strategy changed for 19 / 77 cases (24.7%): -11 cases without clinical symptoms or abnormal CA-125 were changed from surveillance to chemotherapy -8 cases with elevated CA-125 had negative PET/CT, so additional diagnostic tests were cancelled	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Mangili G, 2007[126] **Country:** Italy **Cancer type:** Ovarian **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Dec 2001 to Apr 2004 **Study type:** Retrospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 32 **Mean age (range):** 57.3 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Suspected ovarian carcinoma recurrence based on CA-125 results **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS; GE Healthcare **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **-Total acquisition time:** 24 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 45 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** No **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Pathological FDG uptake	**Purpose of FDG-PET:** Restaging **Management decision:** Treatment and diagnostic testing impact Treatment strategy changed for 14 / 32 cases (44%) Changed from surveillance to treatment or further diagnostics (n = 6): -Changed to surgery (n = 3) -Underwent further diagnostic examination (n = 2) -Changed to chemotherapy (n = 1) Treatment modality changed (n = 8): -Surgery to chemotherapy (n = 3) -Diagnostic surgery to chemotherapy (n = 3) -Chemotherapy to surgery (n = 1) -Chemotherapy to additional diagnostic examination (n = 1)	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Simcock B, 2006[127] **Country:** Australia **Cancer type:** Ovarian **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Jan 2002 to Jul 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (21 mo) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 56 **Mean age (range):** ND **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Recurrent epithelial ovarian cancer **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** No **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. FDG uptake typically darker than hepatic uptake	**Purpose of FDG-PET:** Restaging **Management decision:** Treatment 32 cases high impact of PET/CT on management (57%): -20 / 32 of high impact changes in patients with “uncertain disease” based on conventional diagnostics -Surveillance changed to treatment (n = 7) -Active treatment changed to surveillance (n = 6) -Surgery changed to chemotherapy (n = 6) -Biopsy changed to treatment (e.g., chemotherapy) (n = 4) -Changed between various other treatment modalities (n = 8) (e.g., radiation, chemotherapy, surgery) -Changed from treatment to biopsy (n = 1) Minor impact of PET/CT on management 29 / 56 (43%)	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Soussan M, 2008[128] **Country:** France **Cancer type:** Ovarian **TA question addressed:** Q2 **Funding:** Foundation	**Dates of data collection:** Oct 2004 to Nov 2006 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (3 mo) **Other comparators used:** CT, serum CA-125 **Time elapsed between FDG-PET and reference standard:** 13 d	**N analyzed =** 29 **Mean age (range):** 61 yr (median); (44-80 yr) **Time from diagnosis:** 27 mo. **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 7%; II = 10%, III = 73%, IV = 10% **Inclusion criteria:** Suspected ovarian carcinoma recurrence based on CA-125 results **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** Discovery LS; GE Healthcare and CTI/CPS Reveal-HD **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** 5 min **FDG dose:** 4-5 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (8 mmol/L) **Contrast (for CT):** 120 ml of iv contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Increased FDG uptake	**Purpose of FDG-PET:** Restaging **Management decision:** Treatment 16 cases were diagnosis altered by PET (52%) -Upstaged (n = 11); downstaged (n = 4); different disease distribution (n = 1) Treatment strategy changed 10 / 29 cases (34%) -Changed from surveillance to chemotherapy (n = 6) -Additional treatment modality added to care plan (n = 2) -Changed from chemotherapy to surveillance (n = 1)	A

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Thrall MM, 2007[89] **Country:** USA **Cancer type:** Ovarian **TA question addressed:** Q2 **Funding:** Society	**Dates of data collection:** Aug 2000 to Dec 2003 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 39 **Mean age (range):** 53 yr (median); (31-71 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 3%; II = 15%, III = 69%, IV = 8%, Unknown = 5% **Inclusion criteria:** 1) Histopathologically confirmed ovarian cancer, 2) primary cytoreductive surgery **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** LSO PET/CT; Siemens **Acquisition mode:** 3-D **Acquisition time per FOV -Emission:** ND **-Transmission:** 4 min **FDG dose:** 370–550 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** Yes (200 mg/dL) **Contrast (for CT):** 400-600 ml of po contrast **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Increased FDG uptake	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment and diagnostic testing impact Treatment strategy changed for 14 / 39 cases (36%): -Changed from treatment to palliative (n = 4) -Assisted with treatment modality plan (n = 10) In cases with no clinical symptoms and normal CA-125, 3 recurrences identified by PET (8% of population) Negative PET allowed cancellation of SSL in 4 surveillance cases	C

CA-125 = cancer antigen 125; CT = computer tomography; d = days; DM = diabetes mellitus; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; iv = intravenous; max = maximum; min = minutes; mo = months; ND = not described; po = oral; PET = positron emission tomography; SLL = second-look laparotomy; SUV = standardized uptake value; yr = years

Pancreatic Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bang S, 2006[91] **Country:** Korea **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Jun 1999 to Oct 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (12 mo) **Other comparators used:** CT, CA19-9 >400 U/mL **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 102 **Mean age (range):** 61 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Suspected pancreatic cancer **Exclusion criteria:** 1) Mass with already confirmed diagnosis, 2) pancreatic mass associated with other than pancreatic diseases	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation	**Purpose of FDG-PET:** Primary diagnosis and staging **Management decision:** Treatment Treatment strategy and staging was impacted for 25 / 93 cases (27%): -Upstaged: 20 / 25 changes -Downstaged: 5 / 25 changes Treatment modality changed in 20 / 25 cases (80%): -Upstaged and deemed to be unresectable: 17 / 20 -Downstaged and deemed to be resectable: 3 / 20 Previously unidentified distant metastases were found in the 17 cases determined to be unresectable	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Heinrich S, 2005[95] **Country:** Switzerland **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Jul 2001 to Apr 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (15 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 59 **Mean age (range):** 61 yr (median); (40-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Patients with focal lesions in the pancreas **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** GEMS Discovery LS **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **-Total acquisition time:** 30 min **FDG dose:** 350–450 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4-6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** po contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Anatomic delineation of all FDG positive lesions	**Purpose of FDG-PET:** 1) Diagnosis, 2) Staging **Management decision**: Treatment and diagnostic testing impact Treatment strategy changed for 6 / 37 patients (16%) judged to have resectable cancer. -Distant metastasis detected by PET/CT only (n = 5) -Simultaneous cancer found & led to change in surgery (n = 2, one with curative intent, one palliative) PET/CT enabled minimally invasive histological assessment by exact anatomic delineation of lesions. Detected benign lesions in 17 patients, 10 of which were not identified by conventional CT. Some lesions required further diagnostic evaluation and no change in treatment made	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Nishiyama Y, 2005[101] **Country:** Japan **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Jun 2002 to Feb 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** Citology **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 42 **Mean age (range):** 65.8 yr; (33-93 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Histopathologically confirmed pancreatic cancer, 2) no previous treatment **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact HR+ camera; Siemens/CTI **Acquisition mode:** 3-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 3 MBq/kg **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Hypermetabolic areas that were more intense than physiologic liver uptake	**Purpose of FDG-PET:** Staging **Management decision:** Treatment Treatment strategy impacted for 5 / 42 cases (12%): -Changed from curative to palliative treatment (n = 3); -Changed from palliative to curative treatment (n = 2)	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Ruf J, 2006[103] **Country:** Germany **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** ND **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (24 mo) **Other comparators used:** Laparotomy, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 32 **Mean age (range):** 56.6 yr; (24-74 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Suspected pancreatic cancer **Exclusion criteria:** 1) Known sensitivity to gadopentetate dimeglumine, 2) liver metastasis, 3) mental retardation	FDG-PET **Scanner model:** ECAT Exact 921/47; Siemens **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** 8 min **-Transmission:** 4 min **FDG dose:** 5 MBq/kg **Time between FDG injection and scan:** 90 min **Glucose monitoring:** Fasting (8 h) **Glucose measured (Max glucose):** Yes (110 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Primary diagnosis and staging **Management decision:** Treatment and diagnostic testing impact Interpretation of PET foci improved through fusion of PET/MRI images 8 / 32 patients (25%) Image fusion resulted in a change of treatment in only 1 patient (surgery was expanded to curative)	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Sperti C, 2007[105] **Country:** Italy **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** Government	**Dates of data collection:** Jan 1998 to Dec 2005 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (25 mo) **Other comparators used:** Surgery, citology **Time elapsed between FDG-PET and reference standard:** 6 mo	**N analyzed =** 64 **Mean age (range):** 63.6 yr; (37-84 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Intraductal papillary mucinous neoplasms **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 47; Siemens **Acquisition mode:** ND **Acquisition time per FOV -Emission:** 15 min **-Transmission:** 15 min **FDG dose:** 444 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (overnight) **Glucose measured (Max glucose):** Yes (120 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position (Hanning filter) **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Primary diagnosis and staging **Management decision:** Treatment Treatment strategy changed for 44 / 64 cases (69%) -Positive PET results impacted treatment in 10 patients -Negative PET results impacted management in 34 patients	B

CT = computer tomography; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; NA = not applicable; ND = not described; OSEM = ordered subset expectation maximization; po = oral; PET = positron emission tomography; po = oral; SUV = standardized uptake value; yr = years

Small Cell Lung Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Blum R, 2004[112] **Country:** Australia **Cancer type:** SCLC **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Dec 1996 to Jan 2001 **Study type:** Retrospective **Enrolled consecutively:** No **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (6 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 36 **Mean age (range):** 64 yr (median) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** LD = 78%, ED = 22% **Inclusion criteria:** ND **Exclusion criteria:** ND	FDG-PET **Scanner model:** GE Quest 300-H scanner; UGM Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** ND **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	Qualitative and quantitative **Description:** Visual interpretation (ND)	**Purpose of FDG-PET:** Staging and restaging **Management decision:** Treatment Treatment strategy changed for 17 / 36 cases (43%) overall. Initial staging: 7 / 15 plans changed (all upstage): -Radical concurrent chemotherapy to palliative therapy (n = 5) -Radiotherapy target volume increased (n = 2) Restaging: 10 / 25 plans changed (3 upstage, 5 downstage, 2 ND): -PCI in patients with positive CT but negative FDG uptake (n = 3) -PCI omitted in cases that did not have complete response (n = 3) -Surveillance in cases with no FDG uptake, but positive CT (n = 2) -Type of change not specified (n = 2) **Prognostic outcomes:** Complete metabolic responders on PET had a longer median time to progression (13.7 mo vs. 9.7 mo)	C

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bradley JD, 2004[113] **Country:** USA **Cancer type:** SCLC **TA question addressed:** Q2 **Funding:** Society	**Dates of data collection:** Feb 2001 to Mar 2003 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (ND) **Other comparators used:** Chest x-rays, CT, MRI **Time elapsed between FDG-PET and reference standard:** 28 d	**N analyzed =** 24 **Mean age (range):** 60 yr; (33-90 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Newly diagnosed, untreated, histologically or cytologically confirmed SCLC, 2) have completed standard staging procedures, 3) no evidence of disease beyond one hemithorax and the mediastinum, 4) bilateral hilar involvement, 5) ipsilateral supraclavicular adenopathy on physical examination or CT **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT HR + scanner; Siemens/CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** 2 min **FDG dose:** 10-15 mCi **Time between FDG injection and scan:** 50 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** Yes (150 mg/dL) **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Presence of abnormal FDG accumulation	**Purpose of FDG-PET:** Staging **Management decision:** Treatment Major change in diagnosis of 7 / 25 patients (29%); all upstaged. Unsuspected primary tumor identified in 6 patients (not detected by CT), lead to significant change to radiation therapy portal. Identification of 2 patients with extensive-stage disease, who were diagnosed as limited-stage SCLC by conventional staging	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kamel EM, 2003[117] **Country:** Switzerland **Cancer type:** SCLC **TA question addressed:** Q2 **Funding:** Government	**Dates of data collection:** Feb 1999 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** Chest and abdomen CT, bone scan, and brain CT or MRI **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 42 **Mean age (range):** 62 yr; (45-83 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** ND **Exclusion criteria:** ND	1) FDG-PET, 2) FDG-PET/CT **Scanner model:** 1) Advance NXi PET scanner; GE Medical Systems, 2) Discovery LS; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** 2 min **FDG dose:** 300-400 MBq **Time between FDG injection and scan:** 50-60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** ND **Reconstruction algorithm:** Iterative **SUV reported (formula):** No	ND **Description:** ND	**Purpose of FDG-PET:** Staging and restaging **Management decision:** Treatment Treatment strategy changed for 12 / 42 patients (29%) overall. Initial staging: 9 / 24 changes in management: -Upstaged & palliative chemotherapy (n = 3) -Downstaged and curative resection (n = 1) -Minor change to diagnosis & radiation field altered (n = 5) Restaging after therapy, 3 / 20 changes in management: -Chemotherapy reinstituted (n = 1); -Discontinued (n = 2)	C

CT = computer tomography; d = days; ED = extensive disease; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; LD = limited disease; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; ND = not described; PET = positron emission tomography; SUV = standardized uptake value; yr = years

Testicular Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Karapetis CS, 2003[124] **Country:** UK **Cancer type:** Testicular **TA question addressed:** Q2 **Funding:** No funding	**Dates of data collection:** Jul 1996 to Jun 1999 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Follow-up (clinical course) (ND) **Other comparators used:** CT **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 15 **Mean age (range):** 33.5 yr; (22-58 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 6.4 wk (median) **Distribution by stage:** I = 20%, II = 47%, III = 33% **Inclusion criteria:** Patients with metastatic or extragonadal germ cell tumours treated with chemotherapy **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 951; Siemens **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 5 min **-Transmission:** ND **FDG dose:** 320 MBq **Time between FDG injection and scan:** ND **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Three categories (I = normal, no abnormal FDG uptake; II = equivocal, FDG uptake with uncertain significance; III = abnormal, FDG uptake considered to indicate germ cell malignancy)	**Purpose of FDG-PET:** Recurrences **Management decision:** Treatment Treatment strategy changed for only 1 / 15 patients (7%): -Changed from surveillance to surgical excisions of residual mases Confirmation of small residual masses in 4 / 15, subsequent treatment not altered	D

CT = computer tomography; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; ND = not described; PET = positron emission tomography; SUV = standardized uptake value; wk = weeks; y = years

Appendix F: Characteristics of Included Studies in Q3 on ^{18}FDG-PET and ^{18}FDG-PET/CT as part of a management strategy

Brain Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Padma MV, 2003[129] **Country:** USA **Cancer type:** Brain **TA question addressed:** Q2 **Funding:** Government	**Dates of data collection:** 1990 to 2000 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard same for all patients Histology/biopsy **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 331 **Mean age (range):** 46.5 yr; (2-82 yr) **Time from diagnosis:** 2 mo-10 yr **Time from last treatment to FDG-PET:** ND **Distribution by stage:** III = 52%, IV = 48% **Inclusion criteria:** 1) Histollogically-proven brain tumors according to WHO criteria, 2) patients with follow-up until death or at least 1 yr **Exclusion criteria:** ND	FDG-PET **Scanner model:** 1) ECAT 951/31 (<1997); Siemens, 2) ECAT Exact HR; Siemens (>1997) **Acquisition mode:** 1) 2-D (<1997), 2) 3-D (>1997) **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 5-10 mCi **Time between FDG injection and scan:** 40 min **Glucose monitoring:** ND **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Four-points system (0 = no uptake; 1 = uptake less or equal to contraleteral white matter; 2 = uptake greater than contralateral white matter and less than grey matter; 3 = equal to or greater than contralateral grey matter)	**FDG-PET used for:** Predicting survival **Patient-centered Outcomes:** Comparators: 1) High FDG-uptake (n = 165), 2) Low FDG-PET uptake (n = 166) Survival / High uptake / Low Uptake < 1 y / 117/165 / 10/166 > 1 y / 48/165 / 156/166 > 2 y / 0/165 / 104/166 > 3 y / 0/165 / 65/166 4 and 5 y / 0/165 / 49 and 26/166 Uptake by hemisphere of brain: Sites in right hemisphere showed a significant difference in HR between sites of high uptake (HR = 4.6) versus no uptake. Sites in left hemisphere showed a significant difference between HRs for low or medium uptake sites were marginally significant (0.05 < P < 0.10) from no uptake. HR for high uptake (HR = 11) was significantly different from no uptake Any single scan with high uptake was associated with poor prognosis in cases were serial PET scans were performed (37 / 40 patients with serial scans died over course of follow-up). Survival decreases steadily as grade of uptake increases	D

CT = computer tomography; FDG = Fluorodeoxyglucose F18; FOV = field of view; HR = hazard ratio; max = maximum; min = minutes; MRI = magnetic resonance imaging; NA=not applicable; ND = not described; PET = positron emission tomography; SUV = standardized uptake value; yr = years

Cervical Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Chang TC, 2004[33] **Country:** Taiwan **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Government, internal	**Dates of data collection:** Feb 2001 to Jan 2003 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, Follow-up (clinical course) (6 mo) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N analyzed =** 27 **Mean age (range):** 53.9 yr; (34.8-75.8 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** 3 mo **Distribution by stage:** I = 44%, II = 42%, III = 7%, IV = 7% **Inclusion criteria:** 1) Cervical carcinoma who experienced complete responses to primary treatment or salvage therapy and who had no evidence of recurrent disease as detected by conventional methods but had serum SCC-Ag levels ≥ 2.0 ng/mL on 2 consecutive occasions, 2) ECOG 0–2 **Exclusion criteria:** 1) Cytotoxic therapy within the previous 3 mo, 2) prior diagnosis of malignant disease other than nonmelanoma skin malignancy, 3) unsuited for treatment with curative intent in the event of disease recurrence, 4) skin or pulmonary lesions or impaired renal function that could contribute to the elevation of SCC-Ag levels, 5) body weight > 145 kg	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV -Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (accelerated maximum reconstruction and OSEM algorithm) **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Five-level grading system (0 = no visible lesions; 1 = visible lesion without significance; 2 = equivocal lesion; 3 = probable malignant or metastatic lesion; 4 = obvious malignant or metastatic lesion	**FDG-PET used for:** Recurrences **Patient-centered Outcomes:** Comparators: 1) PET assessment (n = 27), 2) historical patient data (n = 30) Mean overall survival PET group: 22 mo (95%CI: 17.3, 26.7) vs. historical control: 12.7 mo (95% CI: 7.9,17.5) Significant difference in median survival (P = 0.0202)	B

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Lai CH, 2004[42] **Country:** Taiwan **Cancer type:** Cervical **TA question addressed:** Q2 **Funding:** Government, internal	**Dates of data collection:** May 2001 to Sep 2002 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, Follow-up (clinical course) (ND) **Other comparators used:** CT, MRI **Time elapsed between FDG-PET and reference standard:** 2 wk	**N analyzed =** 40 **Mean age (range):** 51 yr (median); (25-87 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 33%, II = 50%, III = 7%, IV = 10% **Inclusion criteria:** 1) Biopsy-documented recurrent or persistent cervical carcinoma (including squamous cell carcinoma, adenocarcinoma, and adenosquamous carcinoma) after definitive RT or surgery, 2) potentially curable disease and willingness to receive curative salvage therapy if restaging with PET confirmed the possibility of curing the disease **Exclusion criteria:** 1) Re-recurrence after salvage therapy, 2) superficial lesion on the cervix or vaginal cuff, 3) disseminated abdominal or pleural lesions with positive fluid cytology, 4) more than two involved regions, 5) medically or psychologically unfit to receive curative salvage therapy, 6) history of other malignancy, excluding basal cell carcinoma of skin	FDG-PET **Scanner model:** ECAT Exact HR+ camera; CTI **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 40-96 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative **SUV reported (formula):** Yes (ND)	Qualitative and quantitative **Description:** Visual interpretation. Five-level grading system (0 = normal; 1 = probably normal; 2 = equivocal; 3 = probably abnormal; 4 = definitely abnormal)	**FDG-PET used for:** Restaging **Patient-centered Outcomes** Comparators: 1) Restaged with PET (n = 40), 2) Historical controls restaged without PET (n = 125) All 7 patients treated with a treatment field altered post-PET remained alive Patients who were treated with primary RT or CCRT had no significant differences among the two groups (HR, 0.99; CI, 0.53-1.85; P=0.996) In the cases treated with primary surgery, the PET group had a significant difference in the 2-yr overall survival rate compared to the historical controls restaged without PET (HR, 0.21; CI, 0.05-0.83; P=0.020). Note: At 24 mo, 2 / 15 patients who had received PET survived, vs. 16 / 40 of the historical controls	C

95%CI=95% confidence interval; CCRT=concurrent chemotherapy and radiotherapy; CT = computer tomography; ECOG = Eastern Cooperative Oncology Group; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; HR=hazard ratio; max = maximum; min = minutes; mo = months; MRI = magnetic resonance imaging; ND = not described; OSEM = ordered subset expectation maximization; PET = positron emission tomography; RT=radiotherapy; SCC Ag = squamous cell carcinoma antigen; SUV = standardized uptake value; wk = weeks; y = years

Ovarian Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Kim S, 2004[130] **Country:** South Korea **Cancer type:** Ovarian **TA question addressed:** Q2 **Funding:** NR	**Dates of data collection:** 1996 to 2001 **Study type:** Retrospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, Follow-up (clinical course) (ND) **Other comparators used:** Laparotomy **Time elapsed between FDG-PET and reference standard:** 6.8 mo	**N analyzed =** 55 **Mean age (range):** 49.2 yr; (25-78 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** I = 2%, II = 5%, III = 49%, IV = 44% **Inclusion criteria:** 1) Ovarian cancer (FIGO III to IV), 2) undergone primary cytoreductive surgery **Exclusion criteria:** ND	FDG-PET **Scanner model:** ECAT Exact 921/47; Siemens **Acquisition mode:** 2-D **Acquisition time per FOV** **-Emission:** 6 min **-Transmission:** 2 min **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Filtered back position **SUV reported (formula):** Yes (SUVmax = activity concentration/(injected dose/body weight))	Qualitative and quantitative **Description:** Visual interpretation	**FDG-PET used for:** Primary diagnosis and staging **Patient Centered Outcomes and Prognosis:** Comparators: 1) PET assessment (n = 25), 2) SLL assessment (n = 30) Progression-free interval: PET: 28.8 mo (SD 12.7); SLL: 30.6 mo (SD 13.7) Disease free interval in patients with negative test results: PET: 40.5 mo (SD 11.6); SLL: 48.6 mo (SD 12.1) Disease free interval in patients with positive test results: PET: 23.7 mo (SD 5.3); SLL: 26.2 mo (SD 6.7)	C

CT = computer tomography; FDG = fluorodeoxyglucose F18; FIGO = Federation Internationale de Gynecologie et d'Obstetrique; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; ND = not described; PET = positron emission tomography; SLL = second-look laparotomy; SD = standard deviation; SUV = standardized uptake value; yr = years

Pancreatic Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Bang S, 2006[91] **Country:** Korea **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Jun 1999 to Oct 2002 **Study type:** Prospective **Enrolled consecutively:** ND **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, Follow-up (clinical course) (12 mo) **Other comparators used:** CT, CA19-9 >400 U/mL **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 102 **Mean age (range):** 61 yr **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** Suspected pancreatic cancer **Exclusion criteria:** 1) Mass with already confirmed diagnosis, 2) pancreatic mass asociated with other than pancreatic diseases	FDG-PET **Scanner model:** Advance; GE Medical Systems **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** ND **-Transmission:** ND **FDG dose:** 370 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** NA **Reconstruction algorithm:** Iterative (OSEM algorithm) **SUV reported (formula):** Yes (SUV = tissue tracer concentration/injected dose/body weight)	Qualitative and quantitative **Description:** Visual interpretation	**FDG-PET used for:** Primary diagnosis and staging **Patient Centered Outcomes and Prognosis:** Comparators: 1) PET assessment of response to chemoradiation therapy in 15 patients, 2) Dynamic CT follow-up to chemoradiation therapy in same 15 patients Discrepancy between two imaging modalities: 9 / 15 (60%) PET uniquely identified cases as “responders” to therapy: 5 / 15 (33%) CT identified 0 / 15. TTP was significantly longer in PET “responders” (399 d, CI, 282-526) than in “nonresponders” (233 d, 95%CI 181-235) Serial changes in serum CA19-9 did not correlate with results of PET or CT	B

95% CI = 95% confidence interval; CT = computer tomography; d = days; FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; ND = not described; OSEM = ordered subset expectation maximization; PET = positron emission tomography; SUV = standardized uptake value; TTP = time to progression; yr = years

Appendix G: Characteristics of Included Studies in Q4 on the cost-effectiveness of ^{18}FDG-PET and ^{18}FDG-PET/CT

Pancreatic Cancer

Study	Study Design	Participant Characteristics	PET Technical Characteristics	Criteria for Abnormality by FDG-PET	Results	Grading the evidence
Heinrich S, 2005[95] **Country:** Switzerland **Cancer type:** Pancreatic **TA question addressed:** Q2 **Funding:** ND	**Dates of data collection:** Jul 2001 to Apr 2004 **Study type:** Prospective **Enrolled consecutively:** Yes **Reference standard for final diagnosis:** Reference standard is different for some patients (non-randomly assigned) Histology/biopsy, follow-up (clinical course) (15 mo) **Other comparators used:** ND **Time elapsed between FDG-PET and reference standard:** ND	**N analyzed =** 59 **Mean age (range):** 61 yr (median); (40-80 yr) **Time from diagnosis:** ND **Time from last treatment to FDG-PET:** ND **Distribution by stage:** ND **Inclusion criteria:** 1) Patients with focal lesions in the pancreas **Exclusion criteria:** ND	FDG-PET/CT **Scanner model:** GEMS Discovery LS **Acquisition mode:** ND **Acquisition time per FOV** **-Emission:** 4 min **-Transmission:** ND **-Total acquisition time:** 30 min **FDG dose:** 350–450 MBq **Time between FDG injection and scan:** 60 min **Glucose monitoring:** Fasting (4-6 h) **Glucose measured (Max glucose):** ND **Contrast (for CT):** po contrast **Reconstruction algorithm:** ND **SUV reported (formula):** No	Qualitative **Description:** Visual interpretation. Anatomic delineation of all FDG positive lesions	**FDG-PET/CT used for:** Primary diagnosis and staging **Economic evaluation** Alternatives compared: a) Standard, routine staging; b) FDG-PET/CT + standard staging PET/CT identified metastasis & avoided surgery in 5 / 59 patients. Total net savings from PET/CT: $62,912 ($1,066 per patient). Total net savings for patients eligible for surgery after routine staging: $105,262 ($2,844 per patient)	B

FDG = fluorodeoxyglucose F18; FOV = field of view; h = hours; max = maximum; min = minutes; mo = months; ND = not described; po = oral; PET = positron emission tomography; SUV = standardized uptake value; yr = years

Appendix H: Methodological Characteristics of Studies Relevant to Questions 1 and 2

	Quality Components						
	Representative-ness of patient spectrum	**Reference standard likely to classify the condition correctly**	**Whole sample, or a random selection of the sample received verification**	**Reference standard independent of the index test**	**Reference standard described in sufficient detail to permit replication**	**Reference results interpreted without knowledge of index test results**	**Explanation for withdrawals from the study**
	Selection criteria clearly described	**Period between reference standard and index test is reasonable**	**Same reference standard regardless of the index test result**	**Index test described in sufficient detail to permit replication**	**Index test results interpreted without knowledge of reference standard results**	**Uninterpretable or intermediate test results reported**	**Clinical data available when test results were interpreted as would be available when the test is used in practice**
Drieskens O, 2005[23]	Partially	Yes	No	Yes	Partially	Unclear	Yes
Cancer type: Bladder	Yes	Yes	Partially	Partially	Yes	Yes	Yes
Questions: Q1							
Jadvar H, 2008[24]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Bladder	Partially	Unclear	Partially	Yes	No	Yes	Yes
Questions: Q1, Q2							
Liu IJ, 2003[25]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Bladder	Partially	Unclear	Partially	Partially	Yes	Yes	Unclear
Questions: Q1							
Chen W, 2006[26]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Brain	No	Yes	Partially	Partially	Yes	Yes	Yes
Questions: Q1							
Cher LM, 2006[27]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type:							

Brain	Partially	Yes	Partially	No	Yes	Yes	Yes
Questions: Q1							
Liu RS, 2006[28]	Yes	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Brain	Partially	Unclear	Yes	Yes	Unclear	Yes	Yes
Questions: Q1							
Potzi C, 2007[29]	Yes	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Brain	Yes	Yes	Partially	Yes	No	Yes	No
Questions: Q1							
Stockhammer F, 2007[30]	Unclear	Yes	Yes	Yes	Yes	Unclear	Yes
Cancer type: Brain	Yes	Unclear	Yes	Partially	Yes	Yes	Unclear
Questions: Q1							
Amit A, 2006[31]	Unclear	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Cervical	Partially	Unclear	Partially	Partially	Yes	Yes	Yes
Questions: Q1							
Bjurberg M, 2007[32]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Cervical	Yes	Unclear	Partially	Partially	Unclear	Yes	Yes
Questions: Q1, Q2							
Chang TC, 2004[33]	Partially	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Cervical	Yes	Yes	Partially	Yes	Unclear	Yes	Yes
Questions: Q1, Q2							

Chang WC, 2004[34]	Yes	Yes	Yes	Yes	No	No	Yes
Cancer type: Cervical	Yes	Partially	Partially	Yes	Yes	Yes	Yes
Questions: Q1							
Chang YC, 2005[35]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Cervical	Yes	Yes	Partially	Yes	Yes	Yes	No
Questions: Q1							
Choi HJ, 2006[36]	Unclear	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Cervical	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Chou HH, 2006[37]	Partially	Yes	Yes	Yes	Yes	Unclear	Yes
Cancer type: Cervical	Yes	Yes	Yes	Partially	Yes	Yes	Unclear
Questions: Q1							
Chung HH, 2006[39]	Yes	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Cervical	Yes	Unclear	Partially	Partially	Yes	Yes	Unclear
Questions: Q1							
Chung HH, 2007[38]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Cervical	Yes	Unclear	Partially	No	Yes	Yes	Yes
Questions: Q1, Q2							
Havrilesky LJ, 2003[40]	Yes	Yes	Yes	Yes	No	Unclear	Yes

Cancer type: Cervical **Questions:** Q1	Yes	Yes	Partially	Yes	Yes	Yes	Yes
Hope AJ, 2006[41] **Cancer type:** Cervical **Questions:** Q1	Unclear	Yes	Yes	Yes	No	Yes	Yes
	Yes	Unclear	Yes	No	Unclear	Yes	Unclear
Lai CH, 2004[42] **Cancer type:** Cervical **Questions:** Q1, Q2	Partially	Yes	Yes	Yes	Yes	Unclear	Yes
	Yes	Yes	Partially	Yes	Unclear	Yes	Unclear
Lin CT, 2006[43] **Cancer type:** Cervical **Questions:** Q1, Q2	Partially	Yes	Yes	Yes	Yes	Unclear	Yes
	Yes	Yes	Partially	Partially	Yes	Yes	No
Lin WC, 2003[44] **Cancer type:** Cervical **Questions:** Q1	No	Yes	Yes	Yes	No	Unclear	Yes
	Yes	Unclear	Yes	Yes	No	Yes	Unclear
Loft A, 2007[45] **Cancer type:** Cervical **Questions:** Q1	Partially	Yes	Yes	Yes	Partially	No	Yes
	Yes	Yes	Partially	Yes	Yes	Yes	Unclear
Ma SY, 2003[46] **Cancer type:**	Yes	Yes	Yes	Yes	Partially	Unclear	Yes

Cervical	Yes	Yes	Partially	Partially	Yes	Yes	No
Questions: Q1							
Park W, 2005[47]	Partially	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Cervical	No	Yes	Yes	Partially	Yes	Yes	No
Questions: Q1							
Roh JW, 2005[48]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Cervical	Yes	Unclear	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Ryu SY, 2003[49]	Yes	Yes	Partially	Yes	No	Unclear	Yes
Cancer type: Cervical	Yes	Unclear	Partially	Yes	Yes	Yes	No
Questions: Q1							
Sakurai H, 2006[50]	Partially	Partially	Yes	Yes	No	Unclear	Yes
Cancer type: Cervical	No	Partially	Partially	Partially	Unclear	Unclear	Unclear
Questions: Q1							
Sironi S, 2006[51]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cancer type: Cervical	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Questions: Q1							
Sironi S, 2007[52]	Yes	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Cervical	Yes	Yes	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							
Tran BN, 2003[53]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type:							

Cervical	Yes	Unclear	Yes	Partially	Yes	Yes	Yes
Questions: Q1							
Unger JB, 2004[54]	Partially	Yes	Yes	Yes	No	No	No
Cancer type: Cervical	Yes	Yes	Partially	Partially	Yes	Yes	Unclear
Questions: Q1							
Unger JB, 2005[55]	Partially	Yes	Yes	Yes	No	No	Yes
Cancer type: Cervical	Yes	Unclear	Yes	Partially	Yes	Yes	Unclear
Questions: Q1							
Van Der Veldt AAM, 2006[56]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Cervical	Yes	Partially	Partially	Partially	Yes	Yes	No
Questions: Q1							
Wong TZ, 2004[57]	Partially	Yes	Yes	Yes	No	No	Yes
Cancer type: Cervical	Yes	Yes	Partially	Yes	No	Yes	Yes
Questions: Q1							
Wright JD, 2005[58]	Partially	Yes	Yes	Yes	No	No	Yes
Cancer type: Cervical	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Questions: Q1							
Yen TC, 2003[60]	Yes	Yes	Yes	No	No	Unclear	Yes
Cancer type: Cervical	Yes	Yes	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							

Yen TC, 2004[61] **Cancer type:** Cervical **Questions:** Q1, Q2	Unclear	Yes	Yes	Yes	Partially	Unclear	Yes
	Yes	Yes	Partially	Partially	Unclear	Yes	Unclear
Yen TC, 2006[59] **Cancer type:** Cervical **Questions:** Q1	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
	Yes	Partially	Partially	Partially	Yes	Yes	Unclear
Yildirim Y, 2008[62] **Cancer type:** Cervical **Questions:** Q1	Partially	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Partially	Yes	Yes	No
Grisaru D, 2004[63] **Cancer type:** Cervical and Ovarian **Questions:** Q1	Yes	Yes	Yes	Yes	No	Unclear	Yes
	Yes	Unclear	Partially	Partially	Yes	Yes	Unclear
Aide N, 2003[64] **Cancer type:** Kidney **Questions:** Q1	Yes	Yes	Yes	Yes	Partially	No	Yes
	Partially	Yes	Partially	Yes	Yes	Yes	Unclear
Ak I, 2005[65] **Cancer type:** Kidney **Questions:** Q1	Partially	Yes	Yes	Yes	No	Unclear	Yes
	No	Yes	Yes	Partially	Yes	Yes	Yes
Chang CH, 2003[66]	Partially	Yes	Yes	Yes	No	No	Yes

Cancer type: Kidney **Questions:** Q1	Yes	Unclear	Yes	Yes	Yes	Yes	Unclear
Dilhuydy MS, 2006[67] **Cancer type:** Kidney **Questions:** Q1, Q2	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
	Partially	Yes	Partially	Partially	No	Yes	Yes
Jadvar H, 2003[68] **Cancer type:** Kidney **Questions:** Q1	Partially	Yes	Yes	Yes	No	No	Yes
	Partially	Yes	Partially	Partially		Yes	Yes
Kang DE, 2004[69] **Cancer type:** Kidney **Questions:** Q1, Q2	Yes	Yes	Yes	Yes	Partially	Unclear	Unclear
				Yes			
	Yes	Yes	Partially	No	No	Yes	Yes
Kumar R, 2005[70] **Cancer type:** Kidney **Questions:** Q1, Q2	Partially	Yes	Yes	No	No	Unclear	Yes
	Partially	Yes	Partially	Partially	Unclear	Yes	Yes
Majhail NS, 2003[71] **Cancer type:** Kidney **Questions:** Q1	Yes	Yes	Yes	Yes	No	Unclear	Yes
	Partially	Yes	Yes	Yes	Yes	Yes	Yes
Bristow RE, 2003[72]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes

Cancer type: Ovarian	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Bristow RE, 2005[73]	Yes	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Ovarian	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Castellucci P, 2007[74]	Yes	Yes	Yes	Yes	Yes	Unclear	Yes
Cancer type: Ovarian	Yes	Yes	Yes	Partially	Yes	Yes	Yes
Questions: Q1							
Chung HH, 2007[75]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Ovarian	Yes	Unclear	Partially	Yes	Yes	Yes	Unclear
Questions: Q1, Q2							
Drieskens O, 2003[76]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Ovarian	Partially	Yes	Partially	Partially	Yes	Yes	No
Questions: Q1							
Garcia-Velloso MJ, 2007[77]	Partially	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Ovarian	Partially	Unclear	Partially	Partially	Yes	Yes	Unclear
Questions: Q1							
Hauth EA, 2005[78]	Unclear	Yes	Yes	No	Partially	Unclear	Yes
Cancer type: Ovarian	Partially	Yes	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							

Kawahara K, 2004[79]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Ovarian	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Kim CK, 2007[80]	Yes	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Ovarian	Partially	Yes	Partially	Yes	Yes	Yes	No
Questions: Q1							
Mangili G, 2007[126]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cancer type: Ovarian	Partially	Unclear	Partially	Partially	No	Yes	Yes
Questions: Q2							
Murakami M, 2006[81]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Ovarian	Yes	Yes	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							
Nanni C, 2005[82]	Yes	Yes	Yes	No	Partially	Unclear	Yes
Cancer type: Ovarian	Partially	Yes	Partially	Partially	Yes	Yes	No
Questions: Q1							
Pannu HK, 2004[83]	Partially	Yes	Yes	Yes	No	No	Yes
Cancer type: Ovarian	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Picchio M, 2003[84]	Unclear	Yes	Yes	Yes	Yes	No	Yes

Cancer type: Ovarian **Questions:** Q1	Partially	Yes	Yes	Yes	Yes	Yes	Yes
Risum S, 2007[85] **Cancer type:** Ovarian **Questions:** Q1	Yes	Yes	Yes	Yes	Yes	Unclear	Yes
	Yes	Yes	Yes	Yes	Yes	Yes	Unclear
Sebastian S, 2008[86] **Cancer type:** Ovarian **Questions:** Q1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Partially	Partially	Yes	Yes	Unclear
Simcock B, 2006[127] **Cancer type:** Ovarian **Questions:**Q2	Partially	Yes	Yes	Yes	No	No	Yes
	Yes	Partially	Partially	Partially	No	Yes	Unclear
Sironi S, 2004[87] **Cancer type:** Ovarian **Questions:** Q1	Yes	Yes	Yes	Yes	Yes	No	Yes
	Yes	Yes	Yes	Yes	Yes	Yes	No
Soussan M, 2008[128] **Cancer type:** Ovarian **Questions:** Q2	Partially	Yes	Yes	Yes	Yes	Unclear	Yes
	Partially	Yes	Yes	Yes	Unclear	Yes	No
Takekuma M, 2005[88] **Cancer type:** Ovarian **Questions:** Q1	Partially	Yes	Yes	Yes	No	Unclear	Yes
	Yes	Yes	Partially	No	Yes	Yes	Unclear

Thrall MM, 2007[89]	Yes	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Ovarian	Yes	Partially	Partially		Yes	Yes	Unclear
Questions: Q1, Q2							
Yoshida Y, 2004[90]	Yes	Yes	Yes Yes	Yes	Yes	Unclear	Yes
Cancer type: Ovarian	Yes	Yes	Yes	Yes	Yes	Yes	No
Questions: Q1							
Bang S, 2006[91]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Pancreatic	Yes	Partially	Partially	Partially	Yes	Yes	No
Questions: Q1, Q2							
Borbath I, 2005[92]	Yes	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Pancreatic	Partially	Partially	Partially	Partially	Yes	Yes	Yes
Questions: Q1							
Casneuf V, 2007[93]	Yes	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Pancreatic	Partially	Unclear	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							
Giorgi MC, 2004[94]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Pancreatic	Partially	Unclear	Partially	Partially	Yes	Yes	Unclear

Questions: Q1							
Heinrich S, 2005[95]	Partially	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Pancreatic	Partially	Yes	Yes	Yes	Unclear	Yes	Unclear
Questions: Q1, Q2							
Lemke AJ, 2004[96]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Pancreatic	Yes	Yes	Partially	Partially	Unclear	Yes	Unclear
Questions: Q1							
Lytras D, 2005[97]	Partially	Yes	Yes	Yes	Partially	No	Yes
Cancer type: Pancreatic	Partially	Unclear	Partially	Partially	Yes	Yes	Unclear
Questions: Q1							
Maemura K, 2006[98]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Pancreatic	Partially	Unclear	Partially	Yes	Yes	Unclear	Unclear
Questions: Q1							
Mansour JC, 2006[99]	Partially	Yes	Partially	Yes	No	No	Yes
Cancer type: Pancreatic	Yes	Partially	Partially	No	Yes	Yes	No
Questions: Q1							
Nishiyama Y, 2005[101]	Yes	Yes	Yes	Yes	Yes	Unclear	Yes
Cancer type: Pancreatic	Partially	Yes	Partially	Yes	Yes	Yes	Unclear
Questions: Q1, Q2							

Nishiyama Y, 2005[100]	Partially	Yes	Yes	No	No	No	Yes
Cancer type: Pancreatic	Yes	Yes	Partially	Yes	Yes	Yes	No
Questions: Q1							
Rasmussen I, 2004[102]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Pancreatic	Yes	Unclear	Yes	Yes	Yes	Yes	Unclear
Questions: Q1							
Ruf J, 2005[104]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Pancreatic	Yes	Unclear	Partially	Yes	Yes	Yes	No
Questions: Q1							
Ruf J, 2006[103]	Partially	Yes	Yes	Yes	Yes	No	Yes
Cancer type: Pancreatic	Yes	Yes	Partially	Yes	No	Yes	Unclear
Questions: Q1, Q2							
Sperti C, 2007[105]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cancer type: Pancreatic	Partially	Unclear	Partially	Yes	Yes	Yes	Unclear
Questions: Q1, Q2							
van Kouwen MC, 2005[106]	Partially	Yes	Yes	Yes	No	Unclear	Yes
Cancer type: Pancreatic	Yes	Unclear	Partially	Partially	Yes	Yes	No
Questions: Q1							

Wakabayashi H, 2008[107]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Pancreatic	Partially	Unclear	Partially	No	Yes	Yes	Unclear
Questions: Q1							
Chang CH, 2003[108]	Partially	Yes	Yes	Yes	Yes	Unclear	Yes
Cancer type: Prostate	Partially	Unclear	Yes	Yes	Yes	Yes	No
Questions: Q1							
Jadvar H, 2003[109]	Partially	Partially	Yes	Yes	No	Unclear	Yes
Cancer type: Prostate	Partially	Partially	Partially	Partially	No	Yes	Yes
Questions: Q1							
Oyama N, 2003[110]	Partially	Yes	No	Yes	No	Unclear	Yes
Cancer type: Prostate	Yes	Unclear	Partially	Partially	Yes	Yes	No
Questions: Q1							
Schoder H, 2005[111]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Prostate	Yes	Yes	Partially	Partially	Unclear	Yes	Yes
Questions: Q1							
Blum R, 2004[112]	Yes	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: SCLC	Partially	Unclear	Partially	Partially	No	Yes	Yes
Questions: Q1, Q2							
Bradley JD, 2004[113]	Partially	Yes	Yes	Yes	Partially	No	Yes

Cancer type: SCLC **Questions:** Q1, Q2	Yes	Yes	Yes	Partially	Yes	Yes	Yes
Brink I, 2004[114] **Cancer type:** SCLC **Questions:** Q1	Yes	Yes	Partially	Yes	Partially	Yes	Yes
	Partially	Unclear	Partially	Yes	Yes	Yes	Unclear
Fischer BM, 2006[115] **Cancer type:** SCLC **Questions:** Q1	Partially	Partially	Yes	No	No	Unclear	Yes
	Yes	Yes	Yes	Partially	Unclear	Yes	Unclear
Fischer BM, 2007[116] **Cancer type:** SCLC **Questions:** Q1	Partially	Yes	Yes	Yes	Yes	Unclear	Yes
	Yes	Yes	Partially	Partially	Yes	Yes	Unclear
Kamel EM, 2003[117] **Cancer type:** SCLC **Questions:** Q1, Q2	Yes	Yes	Yes	Yes	Partially	No	Yes
	Partially	Unclear	Yes	Yes	No	Yes	Yes
Kut V, 2007[118] **Cancer type:** SCLC **Questions:** Q1	Partially	Yes	Yes	Yes	No	Unclear	Yes
	Yes	Yes	Partially	Partially	Unclear	Yes	Unclear
Niho S, 2007[119] **Cancer type:**	Yes	Yes	Yes	No	Partially	Yes	Yes

SCLC	No	Yes	Partially	Yes	No	Yes	Unclear
Questions: Q1							
Pandit N, 2003[120]	Yes	Yes	Yes	Yes	Partially	No	Yes
Cancer type: SCLC	Partially	Unclear	Partially	Yes	Yes	Yes	No
Questions: Q1							
Vinjamuri M, 2008[121]	Yes	Yes	Yes	Yes	No	No	Yes
Cancer type: SCLC	Yes	Partially	Partially	No	Yes	Yes	Yes
Questions: Q1							
Becherer A, 2005[122]	Partially	Yes	Yes	Yes	No	No	Yes
Cancer type: Testicular	Yes	No	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							
Hinz S, 2008[123]	Partially	Yes	Yes	Yes	Partially	Unclear	Yes
Cancer type: Testicular	Yes	Yes	Yes	Partially	Yes	Yes	Unclear
Questions: Q1							
Karapetis CS, 2003[124]	Yes	Unclear	Yes	Yes	No	No	Yes
Cancer type: Testicular	Partially	Unclear	Partially	Partially	Yes	Yes	Yes
Questions: Q1, Q2							
Lassen U, 2003[125]	Yes	Yes	Yes	Yes	No	No	Yes
Cancer type: Testicular	Yes	Partially	Partially	Yes	Yes	Yes	Unclear
Questions: Q1							

Appendix I: Methodological Characteristics of Studies Relevant to Question 3

	Quality Components						
	Objective/hypothesis of study	**Use of prospective design**	**Allocation concealment**	**PET-FDG group and control group comparable**	**Co-interventions were the same in each group**	**Defined criteria for FDG-PET interpretation**	**FDG-PET interpretation blinded to other results**
	Selection criteria clearly described	**Randomization to study groups**	**Control group for comparison**	**PET-FDG described in sufficient detail to permit replication**	**Time for outcome assessment/follow-up similar in all groups**	**More than one person interpreted test results**	**Outcome assessment blind to treatment group**
Padma MV, 2003[129]	Well defined	No	Unclear	No	Yes	Yes	Yes
Cancer type: Brain	Partial	No	No	Inadequate	Yes	Yes	Yes
Questions: Q3							
Chang TC, 2004[33]	Well defined	Yes	Unclear	Unclear	Yes	Yes	Unclear
Cancer type: Cervical	Adequate	No	Yes	Partial	Unclear	Yes	Yes
Questions: Q3							
Lai CH, 2004[42]	Well defined	Yes	NA	Unclear	Yes	Yes	Unclear
Cancer type: Cervical	Adequate	No	Yes	Adequate	Yes	Yes	Unclear
Questions: Q3							
Kim S, 2004[130]	Well defined	No	Unclear	Yes	Yes	Yes	Unclear
Cancer type: Ovarian	Inadequate	No	Yes	Adequate	Yes	Yes	Unclear
Questions: Q3							
Bang S, 2006[91]	Well defined	Yes	NA	Unclear	Yes	Yes	Yes
Cancer type: Pancreatic	Inadequate	No	Yes	Adequate	Yes	Yes	No
Questions: Q3							

Appendix J: Methodological Characteristics of Studies Relevant to Question 4

	Quality Components						
	Study population clearly described	**Appropriate economic study design**	**Perspective appropriate**	**Costs measured appropriately in physical units**	**Outcomes valued appropriately**	**Future costs and outcomes discounted**	**Discussion of generalizability of results**
	Competing alternatives clearly described	**Time horizon appropriate**	**Relevant costs for each alternative identified**	**Costs valued appropriately**	**Incremental cost analysis performed**	**Sensitivity analysis**	**Ethical and distributional issues discussed**
Heinrich S, 2005[95]	Yes	Yes	Partial	Partial	Yes	Yes	Yes
Cancer type: Pancreatic	Partial	Yes	Partial	Partial	Yes	Partial	Partial
Questions: Q4							