Supplementary material

Comparison of EUS-guided conventional smear cytology and liquid based cytology in pancreatic lesions: A systematic review and meta-analysis

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SUPPLEMENTARY MATERIALS:

APPENDIX-A: Literature Search Strategy

APPENDIX-B: MOOSE Check List

Table 1: Quality Assessment

Figure 1: PRISMA Flow Chart

Figures 2-6: Forest Plot, Pooled accuracy/sensitivity/specificity/PPV/NPV of techniques

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Appendix A Literature Search Strategy.

ClinicalTrials.gov

fine-needle AND (liquid OR smear) | Pancreas Neoplasm

EBM Reviews:

((pancrea* adj3 (mass* or lesion* or tumor* or tumour* or carcinoma* or adenoma* or neoplas* or cancer* or malignan*)).ab,kf,kw,ti.) AND ((EUS-FNA or (endoscop* adj5 (fine-needle or aspiration or biopsy))).ab,kf,kw,ti.) AND (("liquid*".ab,kf,kw,ti.) OR ("smear*".ab,kf,kw,ti.))

Embase (1974+)

((exp pancreas tumor/ or exp pancreas/ or exp pancreas disease/ or (pancrea* adj3 (mass* or lesion* or tumor* or tumour* or carcinoma* or adenoma* or neoplas* or cancer* or malignan)).ab,kw,ti.) AND (exp fine needle aspiration biopsy/ or (EUS-FNA or (endoscop* adj5 (fine-needle or aspiration or biopsy))).ab,kw,ti.) AND ((liquid*.ab,kw,ti.) OR ("smear*".ab,kw,ti.))) NOT (exp animal/ not exp human/, exp child/ not exp adult/, "case report".kw,pt,ti.) Limit to English

Ovid MEDLINE(R) 1946 to Present and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) Daily:

((exp Pancreatic Neoplasms/ or exp Pancreas/ or exp Pancreatic Diseases/ or (pancrea* adj3 (mass* or lesion* or tumor* or tumour* or carcinoma* or adenoma* or neoplas* or cancer* or malignan*)).ab,kf,ti.) AND (exp Biopsy, Fine-Needle/ OR (EUS-FNA or (endoscop* adj5 (fine-needle or aspiration or biopsy))).ab,kf,ti.) AND ((liquid*.ab,kf,ti.) OR ("smear*".ab,kf,ti.))) NOT (exp Animals/ not Humans/, exp CHILD/ not exp ADULT/, "case report".kf,pt,ti.) Limit to English

Scopus:

(TITLE-ABS-KEY (pancrea* W/3 (mass* OR lesion* OR tumor* OR tumour* OR carcinoma* OR adenoma* OR neoplas* OR cancer* OR malignan*)) AND TITLE-ABS-KEY (eus-fna OR (endoscop* W/5 (fine-needle OR aspiration OR biopsy))) AND TITLE-ABS-KEY (liquid* OR smear*)) AND (LIMIT-TO (LANGUAGE , "English")) Limit to English

Web of Science:

TOPIC: (pancrea* NEAR/3 (mass* OR lesion* OR tumor* OR tumour* OR carcinoma* OR adenoma* OR neoplas* OR cancer* OR malignan*)) AND TOPIC: (EUS-FNA OR (endoscop* NEAR/5 (fine-needle OR aspiration OR biopsy))) AND TOPIC: (liquid* OR smear*) Limit to English

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Appendix B MOOSE checklist. From: Stroup DF, Berlin JA, Morton SC et al. for the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) Group. Meta-analysis of Observational Studies in Epidemiology. A Proposal for Reporting. JAMA. 2000;283(15):2008-2012. doi: 10.1001/jama.283.15.2008

Item No	Recommendation	Reported on page no
Reporting of background should include		
1	Problem definition	6
2	Hypothesis statement	6
3	Description of study outcome(s)	7
4	Type of exposure or intervention used	6
5	Type of study designs used	7
6	Study population	7
Reporting of search strategy should include		
7	Qualifications of searchers (eg, librarians and investigators)	7
8	Search strategy, including time period included in the synthesis and key words	7
9	Effort to include all available studies, including contact with authors	7
10	Databases and registries searched	7
11	Search software used, name and version, including special features used (eg, explosion)	7-8
12	Use of hand searching (eg, reference lists of obtained articles)	7
13	List of citations located and those excluded, including justification	8, Suppl Fig. 1
14	Method of addressing articles published in languages other than English	-
15	Method of handling abstracts and unpublished studies	8
16	Description of any contact with authors	8

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Reporting of methods should include		
17	Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	7-8
18	Rationale for the selection and coding of data (eg, sound clinical principles or convenience)	8
19	Documentation of how data were classified and coded (eg, multiple raters, blinding and interrater reliability)	7
20	Assessment of confounding (eg, comparability of cases and controls in studies where appropriate)	7
21	Assessment of study quality, including blinding of quality assessors, stratification or regression on possible predictors of study results	8
22	Assessment of heterogeneity	8-9
23	Description of statistical methods (eg, complete description of fixed or random effects models, justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	8-9
24	Provision of appropriate tables and graphics	Tables 1-3, Fig. 1-6
Reporting of results should include		
25	Graphic summarizing individual study estimates and overall estimate	Fig. 1-6 Suppl Fig. 2-6
26	Table giving descriptive information for each study included	Table 1
27	Results of sensitivity testing (eg, subgroup analysis)	12-13
28	Indication of statistical uncertainty of findings	13

Supplementary material

Supplementary Table 1 Quality assessment.

Study	Selection				Comparability		Outcome		Score	Quality
	Representativeness of the average adult in community	Cohort size	Information on clinical outcomes	Outcome not present at start	Factors comparable between the groups	Adequate clinical assessment	Follow up time	Adequacy of follow-up	**Max = 8**	**High > 6, medium 4 to 6, low < 4**
	Population based: 1; multi-center: 0.5; single-center: 0	> 40 patients: 1; 39 to 20: 0.5; < 20: 0	Information with clarity: 1; information derived from percentage value: 0.5; unclear: 0	Not present: 1; present: 0	Yes: 1; no: 0	Yes: 1; no: 0	Yes: 1; not mentioned: 0	All patients followed up: 1; > 50% followed up: 0.5; < 50% followed up or not mentioned: 0		
Chun, 2020	0	1	1	1	1	1	1	1	7	**High**
Zhou, 2020	0	1	1	1	1	1	1	1	7	**High**
Hashimoto, 2017	0	1	1	1	1	1	0	0	5	**Medium**
De luna, 2004	0	1	1	1	1	1	1	1	7	**High**
Lee, 2016	0	1	1	1	1	1	1	1	7	**High**
Qin, 2014	0	1	1	1	1	1	1	1	7	**High**
Lee, 2011	0	1	1	1	1	1	0	0	5	**Medium**
Van riet 2020	0.5	1	1	1	1	1	1	1	7.5	**High**
Yeon 2018	0	1	1	1	1	1	1	1	7	**High**

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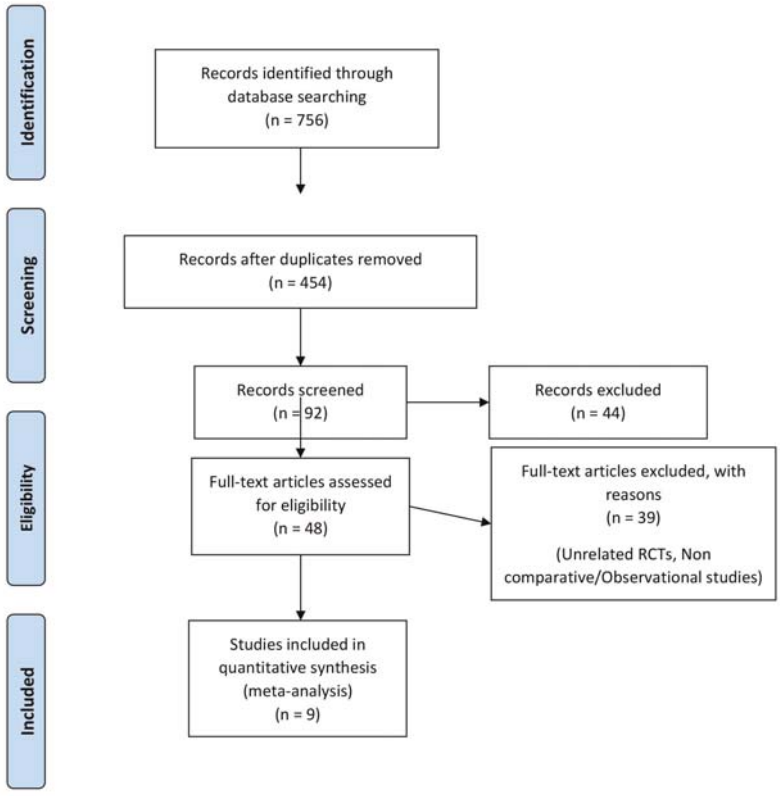
Supplementary Fig. 1 PRISMA Flowchart. From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097



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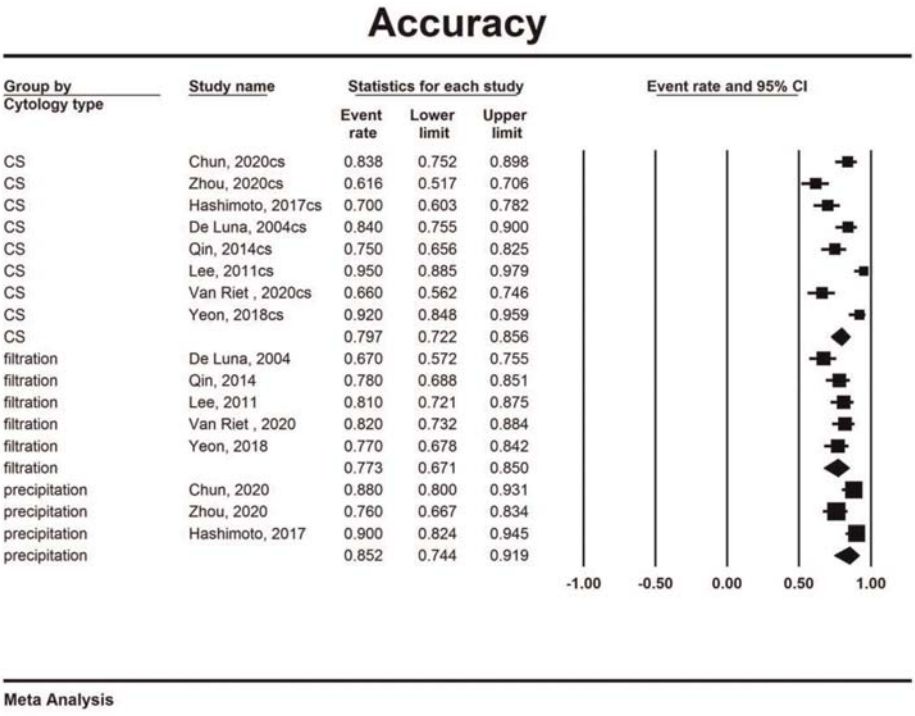
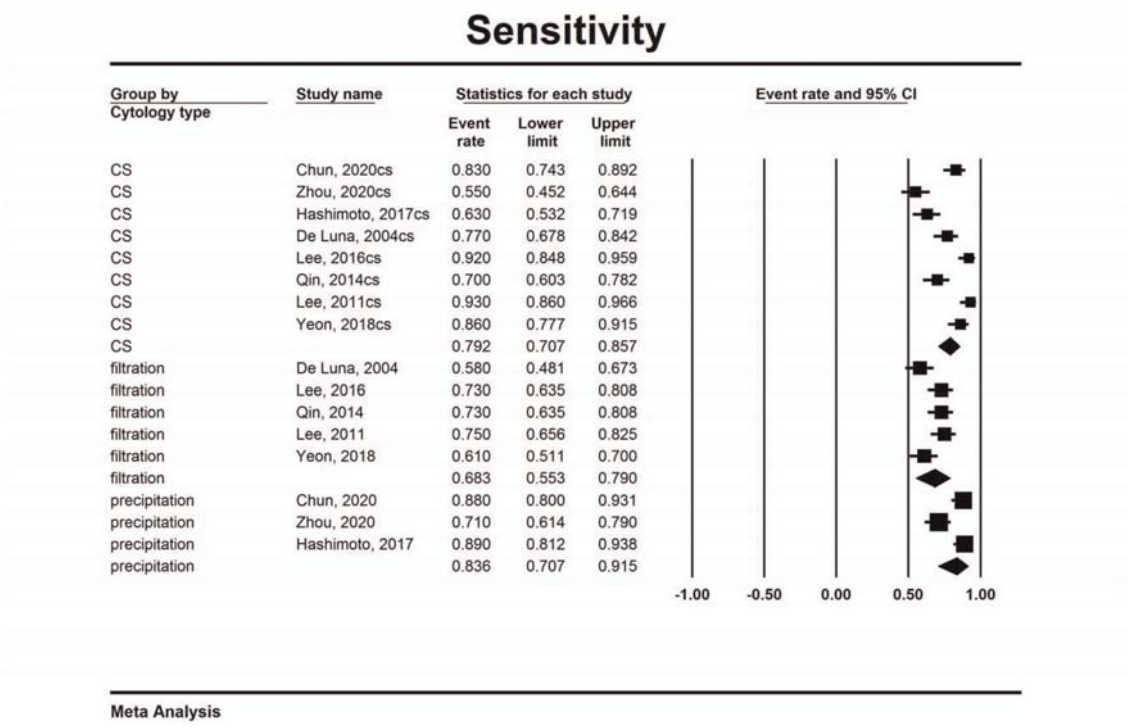
Supplementary Fig. 2 Accuracy.



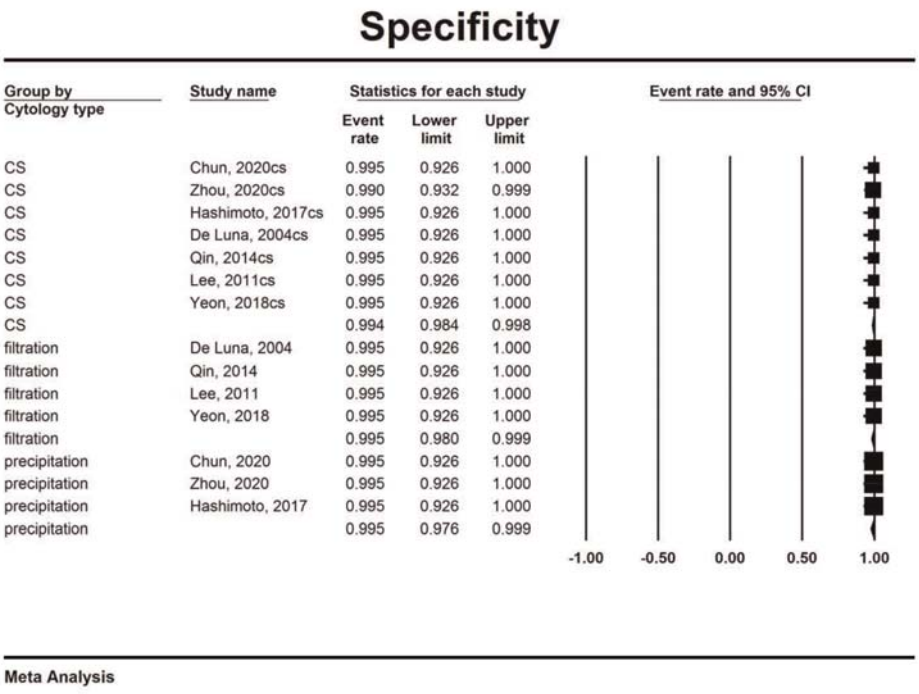
Supplementary material

Supplementary Fig. 3 Sensitivity.



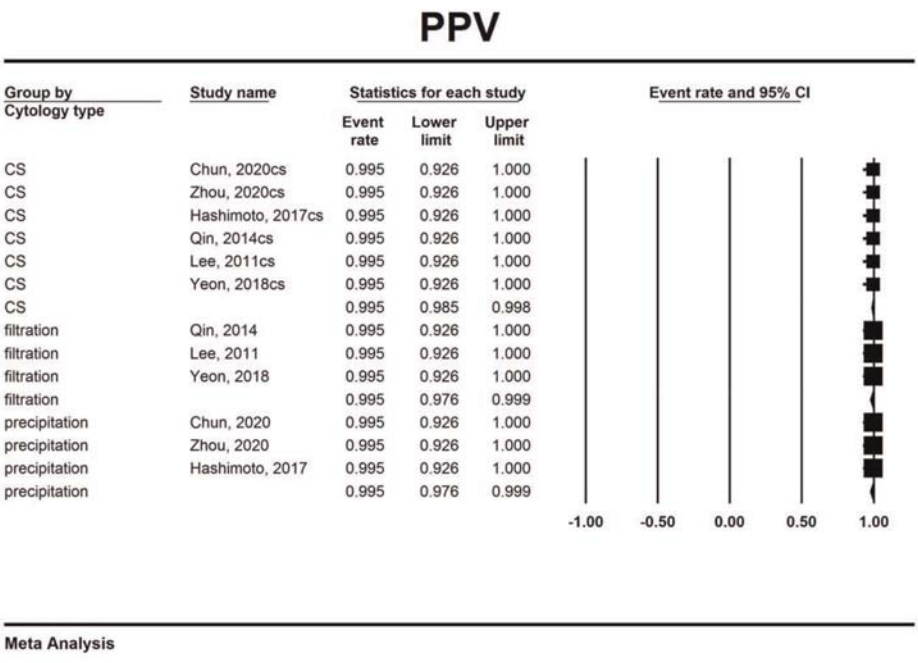
Supplementary material

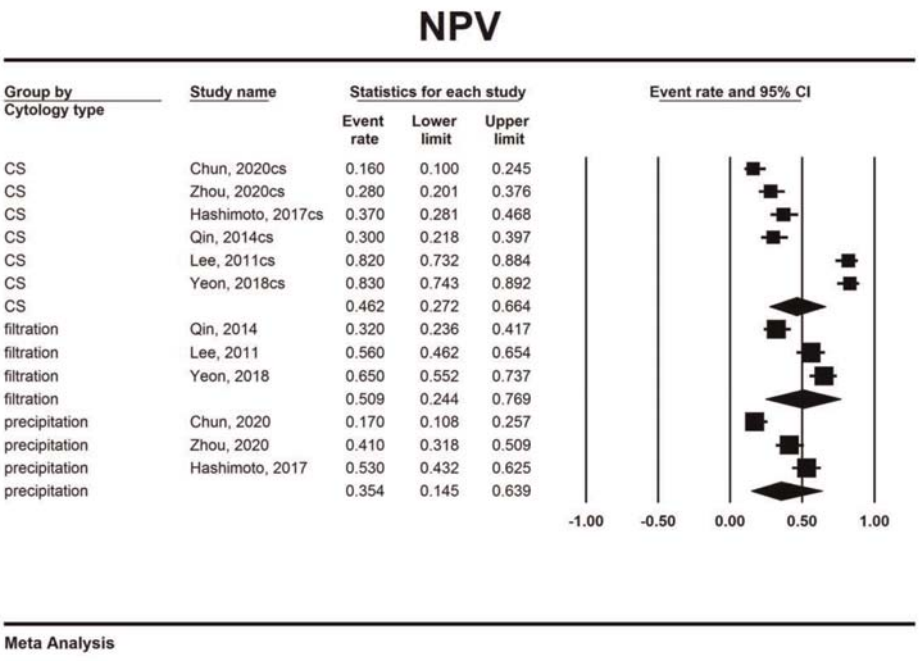
Supplementary Fig. 4 Specificity.



Supplementary material

Supplementary Fig. 5 Positive predictive value.



Supplementary material

Supplementary Fig. 6 Negative predictive value