Appendices

Appendix 1. Pubmed Search Syntax

#1 biopsy [All fields]
#2 biopsies [All fields]
#3 biops* [All fields]
#4 biopsy [MeSH terms]
#5 pathology [All fields]
#6 aspiration [All fields]

#7 OR #1-6

#8 mri [All fields]
#9 mpMRI [All fields]
#10 magnetic resonance imaging [All fields]
#11 multiparametric magnetic resonance imaging [All fields]
#12 mri [MeSH terms]

#13 OR #8-12

#14 prostate [All fields]
#15 prostate [MeSH terms]
#16 prostatic [All fields]
#17 prostat* [All fields]

#18 OR #14-#17

#19 "micro ultrasound" [All fields]
#20 "micro US" [All fields]
#21 nUS [All fields]
#22 29Mhz [All fields]
#23 "29 Mhz" [All fields]
#24 “29 Megahertz” [All fields]
#25 EXACTVU [All fields]
#26 "high resolution"

#27 OR #19-#26
#22 #7 AND #13 AND #18 AND #27
Appendix 2. Pubmed Search String

(((((((((((((((((("biopsie"[All Fields] OR "biopsy"[MeSH Terms]) OR "biopsy"[All Fields]) OR "biopsied"[All Fields]) OR "biopsies"[All Fields]) OR "biopsy s"[All Fields]) OR "biopsying"[All Fields]) OR "biopsy s"[All Fields]) OR "pathology"[MeSH Subheading]) OR "pathology"[All Fields]) OR ((((((("biopsie"[All Fields] OR "biopsy"[MeSH Terms]) OR "biopsy"[All Fields]) OR "biopsied"[All Fields]) OR "biopsies"[All Fields]) OR "biopsy s"[All Fields]) OR "biopsying"[All Fields]) OR "biopsy s"[All Fields]) OR "pathology"[MeSH Subheading]) OR "pathology"[All Fields]) OR "biops*"[All Fields]) OR "biopsy"[MeSH Terms]) OR (((("aspirant"[All Fields] OR "aspirants"[All Fields]) OR "aspirate"[All Fields]) OR "aspirated"[All Fields]) OR "aspirating"[All Fields]) OR "aspiration"[All Fields]) OR "aspirational"[All Fields]) OR "aspirations, psychological"[MeSH Terms]) OR ("aspirations"[All Fields] AND "psychological"[All Fields])) OR "aspirational aspirations"[All Fields]) OR "aspirations"[All Fields]) OR "aspirational"[All Fields]) OR "aspirating"[All Fields]) OR "aspirated"[All Fields]) OR "aspirating"[All Fields]) OR "aspiration"[All Fields]) OR "aspirational"[All Fields]) OR "aspirations, psychological"[MeSH Terms]) OR ("aspirations"[All Fields] AND "psychological"[All Fields])) OR "aspirational aspirations"[All Fields]) OR ("pathology"[MeSH Terms] OR "pathology"[All Fields]) OR "aspirations"[All Fields]) OR "pathology"[MeSH Subheading])) AND (((((((((("prostat"[All Fields] OR "prostate"[MeSH Terms]) OR "prostate"[All Fields]) OR "prostates"[All Fields]) OR "prostatic"[All Fields]) OR "prostatism"[MeSH Terms]) OR "prostatism"[All Fields]) OR "prostatitis"[MeSH Terms]) OR "prostatitis"[All Fields]) OR "prostatic"[All Fields]) OR "prostat*"[All Fields]) AND (((("micro ultrasound"[All Fields] OR "micro US"[All Fields]) OR "mUS"[All Fields]) OR "29Mhz"[All Fields]) OR "29 Mhz"[All Fields]) OR ("29"[All Fields]) OR "megahertz"[All Fields]) OR "EXACTVU"[All Fields]) OR "high resolution"[All Fields])) AND ((((((("magnetic resonance imaging"[MeSH Terms] OR ("magnetic"[All Fields] AND "resonance"[All Fields] AND "imaging"[All Fields])) OR "mri"[All Fields]) OR ("mpmris"[All Fields] OR "multiparametric magnetic resonance imaging"[MeSH Terms]) OR ("multiparametric"[All Fields] AND "magnetic"[All Fields] AND "resonance"[All Fields] AND "imaging"[All Fields]) OR ("multiparametric"[All Fields] AND "magnetic resonance imaging"[MeSH Terms]) OR ("mri"[All Fields]) OR ("mpmri"[All Fields]) OR ("multiparametric magnetic resonance imaging"[All Fields])) OR "multiparametric magnetic resonance imaging"[All Fields])) OR ("multiparametric magnetic resonance imaging"[MeSH Terms]) OR ("magnetic"[All Fields] AND "resonance"[All Fields] AND "imaging"[All Fields]) OR ("multiparametric magnetic resonance imaging"[All Fields])) OR "multiparametric magnetic resonance imaging"[MeSH Terms] OR ("multiparametric"[All Fields] AND "magnetic"[All Fields] AND "resonance"[All Fields] AND "imaging"[All Fields]) OR ("multiparametric"[All Fields] AND "mri"[All Fields]) OR ("multiparametric mri"[All Fields]) OR ("multiparametric magnetic resonance imaging"[All Fields]) OR ("multiparametric magnetic resonance imaging"[MeSH Terms]) OR ("multiparametric"[All Fields] AND "magnetic"[All Fields] AND "resonance"[All Fields] AND "imaging"[All Fields]) OR ("multiparametric magnetic resonance imaging"[All Fields])) OR ("multiparametric magnetic resonance imaging"[MeSH Terms])
Appendix 4. Flow diagram for study selection process

Records identified through database searching (n=2967) (PubMed: n=341; Scopus: n=2482; CENTRAL: n=22; Embase: n=123)

Additional records identified through other sources (n=2)

Records after duplicates removed (n=2778)

Records screened (n=2778)

Records excluded based on title or abstract (n=2713)

Full-text articles screened for eligibility (n=65)

Full-text articles excluded (n=50):
- case reports (n=2)
- micro-ultrasound or mpMRI guided biopsy only (n=16)
- overlapping records (n=19)
- biopsy proven prostate cancer as the selected population (n=2)
- patients on active surveillance protocol (n=4)
- studies which excluded negative mpMRI (n=5)
- studies which excluded positive mpMRI (n=1)
- studies not yet completed (n=1)

Studies included in qualitative synthesis (n=15)

Studies excluded from meta-analysis due to insufficient data (n=3)

Studies included in meta-analysis (n=12)
Appendix 3. Excluded studies and reason for exclusion

Full-text articles excluded – Case reports (n=2), Micro-Ultrasound or mpMRI Guided Biopsy Only (n=16), Overlapping (n=19), Biopsy Proven Prostate Cancer as Selected Population (n=2), Patients on Active Surveillance Protocol (n=4), Studies Which Excluded Negative mpMRI (n=5), Studies Which Excluded Positive mpMRI (n=1), Studies not yet completed (n=1)

Studies excluded from meta-analysis – Insufficient data (n=3)

**Biopsy Proven Prostate Cancer as Selected Population**


**Insufficient Data**


**Studies Not Yet Completed**


**Case Reports**
1) Ghai S. VdKT. Suspicious findings on micro-ultrasound imaging and early detection of prostate cancer. 2018; 16.


**Micro-Ultrasound or mpMRI Guided Biopsy Only**


Overlapping Study Records


Patients on Active Surveillance Protocol


**Studies Which Excluded Negative mpMRI**


**Studies Which Excluded Positive mpMRI**

Appendix 5. Abbreviations

CI – Confident Interval

csPCa – Clinically Significant Prostate Cancer

DRE – Digital Rectal Examination

Micro-US – micro-ultrasound

mpMRI – Multi-Parametric Magnetic Resonance Imaging

NPV – Negative Predictive Value

PCa – Prostate Cancer

PI-RADS – Prostate Imaging–Reporting and Data System

PRI-MUS – Prostate Risk Identification using Micro-Ultrasound

PSA – Prostate Specific Antigen

PPV – Positive Predictive Value

QUADAS-2 – Quality Assessment of Diagnostic Accuracy Studies-2

SBx – Systematic Biopsy

SROC – Summary Receiver Operating Characteristics

TBx – Targeted Biopsy

TRUS – Transrectal Ultrasound