Number	Number Covidence Complications (Original listing)	Author, year	Extraction completed Checking completed	Study type	Inclusion criteria	Exclusion criteria	No of biopsies / participants	Variables	Median Age	Median PSA (range)	Abnormal DRE	Prostate volume	PSA density	PSA velocity >0.75 ng/ml/yr	Population	(%, N), control, overall	Initial biopsy
1	#2	Abugosh 2012 The PDF in Covidence is the PDF of Abugosh 2013. Can we reject Abugosh 2012? ('=older paper on the same study) or do we need the correct PDF?	This is a repeat of later work Extraction: Checking:												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
2	#1	Abugosh 2013	Extraction: Philip Checking:	Randomized controlled trial, parallel group	Anyone needing prostate biopsy	A UTI after TRUS or in the last 3 months Unwilling to consent Cipr in last 3/12 Allergies to Cipro or Iodine									**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	 na 10%, 8%, 9% 1%, 2%, 1% 2%, 3.6%, 3%	
37 1	#3976	Adamczyk 2017 Antibiotics Patient assessment	Checked: Netty Tiago Tiago	Prospective study	elevated PSA (cut-off value was set at 4 ng/ml), and/or suspicious DRE, and/or the presence of changes in the TRUS image.		159 patients	Acetylsalicylic acid and oral anticoagulants were discontinued 7 days before prostate biopsy. All patients had antibiotic prophylaxis with ciprofloxacin which was administrated orally (500 mg) after biopsy, and prescribed for 5 following days (500 mg twice a day).	55-80						**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
38 2	#3638	Anastasi 2016 Local anesthesia Tiago	Checked: Netty Tiago	Randomized study	Patients submited to 12-core Trus biopsy		150 patients		Group A (47-78); Group B (49-72); Group C (48-77)	Group A (4.90-52); Group B (4.3-45.2); Group C (5.2-36.8)		Group A (30-65); Group B (32-69); Group C (30-63)			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
3	#9	Anup 2013 Extraction: Corinne Checked: Philip	 Randomized study: 3 arms	 PSA ≥4ng/ml or abnormal digital rectal examination or both	History of previous prostate biopsy, active anorectal pathology, chronic prostatis/pelvic pain syndrome, concomittant analgesic medidation/medical condition interfering with pain assesment, allergy to local analgesic, ongoing anticoagulant/antiplatelet, impaired intellectual ability	240 patients: group A= 78 participants. Group B= 80 participants. Group C= 82 partipants. For all the patients: 12 cores TRUS guided biopsies	Age, PSA, prostate volume, No prostate Ca detected (%), VAS score, urosepsis, hematuria, rectal bleeding, hemospermis, vasovagal respons	Group A (periprostatic block + perianal-intrarectal lignocaine-prilocaine): 65.1 +/-6.4 Group B periantal-intrarectal cream alone): 64.4 +/- 5.9 Group C (PPNB only): 65.7 +/- 6.9	Group A: 8.9 +/-5.2 Group B: 8.4 +/- 5.5 Group C: 8.7 +/- 5.3	 Not mentioned	Prostate volume in ml Group A: 60.8 +/-11.8 Group B: 58.4 +/- 12.9 Group C: 59.1 +/- 13.3	 Not mentioned	 Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Not mentioned Exclusion criteria Not mentioned Not mentioned Exclusion criteria	 Yes
39 3	#3737	Ates 2016 Local anesthesia Pain	Checked: Netty Checking: Tiago	Retrospective study	elevated PSA (>3 ng/mL) and abnormal DRE	previous TRUS-guided PBx; chronic pelvic pain; inflammatory bowel diseases; active UTI; anorectal problems like hemorrhoids; anal fissures; strictures; local anesthetic allergy	Total= 288 - Group 1 (103); Group 2 (98); Group 3 (87)	All patients received standard antibiotic prophylaxis one day before and at least for four days after the procedure with oral ciprofloxacin 500 mg twice a day. Bowel preparations were performed with Fleet® enema two hours before the biopsy	Total (median): 65.6±8.4 Group 1: 67.2± 8.2 Group 2: 65.0±8.7 Group 3: 64.9±8.5	Total (median): 11.8±3.4 Group 1: 10.0±1.4 Group 2: 14.9±3.6 Group 3: 8.1±7.9		Total: 58.2±34.8 Group 1: 61.1±39.7 Group 2: 59.2±40.5 Group 3: 53.7±26.2			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Not mentioned Not mentioned Not mentioned Not mentioned Not mentioned	
40 4	#4053	Bloomfield 2017 **Antibiotics/resistance**	 Checking: Tiago Checked: Netty	prospective cohort study		no exclusion criteria	Overall: 326 patients		65 (58-69)						**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
41 5	#3811	Cai 2017 **Antibiotics**	 Checking: Tiago	Retrospective cohort study	patients older than 18 years; candidates for prostate biopsy, in line with the indications of EAU; urine culture taken before the procedure	Charlson comorbidity index >3; known anatomical abnormalities of the urinary tract; patients who reported previous symptomatic UTIs due to fluoroquinolone-resistant and fosfomycin-resistant strains	Overall: 1109 patients Group 1: 632		Group 1: 65.9 (±8.3) Group 2: 66.9 (±8.9)	Group 1: 7.14 (±4.31) Group 2: 7.69 (±5.09)	Group 1: 76 (12.02) Group 2: 58 (12.1)				**Afro-American %** **Anticoagulation** **Diabetes**	 Group 1: 542 Group 1: 62 (9.8); Group 2: 40 (8.3)	 Group 2: 414

			Extraction: Netty				Group 2: 477								**Immunocompromised** **Recurrent UTI**		All patients had 12-core biopsies
4	#12 (covidance #832)	Cantiello 2012	Extraction: Corinne Checked: Philip	Randomized study: 2 arms	PSA ≥4ng/ml, abnormal digital rectal examination and/or TRUS suspicious lesion	previous prostate biopsies, chronic prostatitis, chronic pelvic pain syndrome, inflammatory bowel disease, anorectal fissure/fistula, active urinary tract infection, bleeding disorder, and allergy to local anesthetic and myorelaxant agents	180 patients: group IRLA + PPB (pelvic plexus block)= 90 participants. Group IRLA+ PNB (periprostatic nerve block)= 90 participants. 12 cores TRUS guided biopsies	Age, PSA, prostate volume, VAS score	p=0.539 (NS) Group IRLA (10 mls lidocaine 1.5% -nifedipine 0.3% cream) +PPB (pelvic plexus block): 63.7 +/-5.4 Group IRLA+PNB pelvic: 63.2 +/- 5.5	p=0.094 (NS) Group IRLA+PPB: 7.5 +/-3.4 Group IRLA+PNB: 8.5 +/- 4.5	Not mentioned	Prostate volume in ml p=0.209 (NS) Group IRLA+PPB: 45.8 +/-7.7 Group IRLA+PNB: 47.5 +/- 10.9	Not mentioned	Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Not mentioned stop 7 days before bx Not mentioned Not mentioned Not mentioned	Yes
5	#15	Chan 2012 Chan 2012	Extraction: Corinne Checked: Philip	Randomized. 2 arms	PSA ≥4ng/ml and/or abnormal digital rectal examination	allergic to penicillin or required additional intravenous antibiotics because of valvular heart disease	6-14 cores biopsies (average 10 cores) 367 participants all had a phosphate enema: Group A: Amoxicillin clavulanate: n=179. GroupB: Amoxicillin Clavulanate+ ciprofloxacine n=188 (1 dose before and 2 doses after.	Age, PSA, number of cores, patients with infection	p=0.010 (NS) Group A: 69 +/- 7 Group B: 67 +/- 7	p=0.280 (NS) Group A: 36 +/-132 Group B: 23 +/-88	Not mentioned	Not mentioned	Not mentioned	Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Only chinese patients Not mentioned Not mentioned Not mentioned Not mentioned	Not mentioned. Repeated prostate biopsies were not in exclusion criteria
6	#16 (#796)	Chen 2016	Extraction: Philip Checking: Corinne	Audit of outcomes CT: retrospective study	CT: abnormal digital rectal examination and/ or T-PSA ≥ 4 ng/ml, and no previous biopsy	CT: Not mentioned	409 CT: 13 cores biopsies vs theoretical 10 cores bx excluding biopsy results from the midline around the urethra/ n=409 patients	10 vs 13 by excluding biopsy results from the midline around the urethra CT: Variables concerning the complications: Bleeding included hematuria and bloody stools, infection, pain, vaso vagal reaction	73 (41-90) CT: 73 (41-90)	19 CT: 19 ng/ml	CT: Not mentioned	54.5 ± 38.3 mls CT: 54.5 ± 38.3 ml	CT: Not mentioned	na CT: Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	0,00%. CT: Only chinese patients CT: Patients should have normal prothrombin level and discontinue anticoagulant therapy 7 days before the operation	100,00% CT: yes
7	#18	Chowdhury 2012	Extraction: Corinne Checked: Philip	single-centre prospective study	patients referred for TRUS guided biopsy	patients who had not returned their questionnaires and any incomplete questionnaires were excluded as well as any individuals with a known bleeding disorder	No of biopsies: 8 cores (n=579/64,2%) 9 cores (n=47/5,2%), 10 cores (n=276/30,6%). In total 902 patients eligible	hematuria, rectal bleeding, haematospermia	Warfarin group 72 yrs +/- 8.6. Aspirin group 71+/-7.7 and others 68+/-8.7	Warfain group 14.4+/-32.2, Aspirin 18.6+/-30.7, others 19+/-26.2	na	warfarin group 56.6ml+/-11.5, Aspirin 63.7+/-58.8 and others 59.2+/-58.4	na	na	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	na Warfarin: n=68 (7,5%). Low dose aspirin: n=216 (23,9%). Both warfarin and low dose aspirin: n=1 (0,1%). No blood thinning medication: n=617 (68,4%) na na na	na
8	#19	Ciclone 2012	Extraction: Corinne Checked: Philip	Randomized single centre study (compared prostate biopsies with 16 and 18 gauge needle)	Prostate bx indicated because of: PSA levels (6 4 ng/ml) and/or a suspected digital rectal examination	previous PBx, daily narcotic use, chronic prostatitis and chronic pelvic pain, pelvic floor tension myalgia, and other chronic pain syndromes as well as those with active anorectal disease, active urinary tract infection, or allergy to local anesthetic	12 core biopsies/ 250 participants. 125 in group A (16 gauge needle) and 125 in Group B (18 gauge needle)	Comparison between 16 and 18 gauge needle. Age, prostate volume, PSA, VAS, bleeding, specimen quality Pbx, % cancer detected, Gleasonscore.	Group A: 66 (51-83), Group B: 66 (44-83)	Group A: 7,1 (1-26,4), Group B: 6,9 (1,35-16)	No mentioned	Group A: 56,6 (24,5-116), Group B:54 (23-115)	In %. Group A: 16 (9-45), Group B: 16 (5-39)	NA	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned not mentioned Chronic prostatitis excluded	Yes
9	#20	Cook 2015	Extraction: Corinne Checked: Philip	Retrospective study	DIP urine analysis before TRUSBx to confirm nitrite negative, leukocyte esterase-negative urine	Bacteriuria (symptomatic or not)	n= 508. Most of the patients underwent 12 core TRUS bx (could be aso less or more)	Age, prostate volume, biopsy cores, prostate biopsy results (benign or cancer), race, rectal swab results, infectious complications (not specified sepsis or just infection), presence of diabetes, organisms which were resistant to ciprofloxacine (in swab group)	Group non swab (n=264): 67,9 (+/- 6,2) Group swab (n=244): 65,4 (+/- 6) p<0,001	Group non swab:6,07 (+/-3,9) Group swab: 8,48 (+/- 12,4) p<0,01	Not mentioned	Group non swab:43,5cc (+/-21,6) Group swab: 43,8 (+/- 21,6) not significant	Not mentioned	Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes**	Group non swab: n= 28/264. Group swab: n=27/244 not mentioned Group non swab: n= 82/264. Group swab: n=72/244	Not mentioned

																Immunocompromised	not mentioned. But in the discussion chapter, it is mentioned that one patient had a bullous pemphigoid and had immunosuppressed state (patient was in the non swab group but appropriate modification of his medications pre-TRUSBx likely would have eliminated this single infectious complication in the rectal swab group)	
																Recurrent UTI	Not mentioned	
10	#22 (#854)	Cormio 2012	Extraction: Philip Checking: Corinne	Audit of outcomes CT. Randomized study	C.T. serum PSA levels (≥ 4 ng/mL) and/or abnormal DRE	C.T. previous TPB, severe active anorectal pathology, known allergy to the study substances, chronic prostatitis/pelvic pain syndrome, concomitant analgesic medications, and impaired intellectual ability	1081 C.T.: n=200. Group 1 Perianal-intrarectal (PI) lidocaine-prilocaine (LP) cream and lidocaine-ketorolac (LK) gel (PI LP+LK group): n=100. Group 2 PI LP cream and periprostatic nerve block (PPNB) (Group PI LP+PPNB) n=100	6 v 10 v 14 v 18 C.T. Age,prostate volume, PSA, prostate cancer (%), VAS, fever, acute urinary retention, rectal bleeding	67 (43-90) C.T. Group 1 PI LP+LK: 66,9 (8,43) Group 2 PI LP+PPNB: 65,61 (7,47) Not significant (NS)	7.2 (0.6-1000) C.T. Group 1 PI LP+LK: 8,87 (4,72) Group 2 PI LP+PPNB: 8,04 (4,67) NS	C.T. Not mentioned	58.05 ± 26.43 C.T. Group 1 PI LP+LK: 61,53ml (22,89) Group 2 PI LP+PPNB: 56,24ml (19,71) NS	0.26 ± 0.71 C.T. Not mentioned	na C.T. Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	na C.T. not mentioned C.T. stop antiplatelet drugs at least 5 days before the TPB, or stop anticoagulation drugs and replace them with low molecular weight heparin at least 5 days before the TPB C.T. Not mentioned C.T. Not mentioned C.T. Not mentioned	100,00% C.T Yes
11	#23	Culkin 2014	Extraction: Corinne Checked Philip	Review about anticoagulants. Little chapter over TRUS bx	na	na	na	na	na	na	na	na	na	na	na	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	na continue aspirin or low dose aspirin. Warfarin na na na	na
12	#24	Cussans 2016	Extraction: Corinne Checking: Philip	systematic review of the literature about role of targeted prophylactic antimicrobial therapy before transrectal ultrasonography-guided prostate biopsy in reducing infection rates	studies of patients undergoing TRUS-guided biopsy that compared infective outcomes of those who received targeted antimicrobial therapy based on the results of preprocedural rectal swab cultures, with those receiving empiric fluoroquinolone antimicrobial prophylaxis	Papers in languages other than English. Studies that just reported from one cohort, i.e. either empirical only or only reporting on the cohort that had swabs and targeted antibiotics only, were excluded. Studies by Womble et al. [10] and Liss et al. [11] were excluded primarily as the control groups were contaminated by patients receiving augmented multi-drug prophylaxis rather than just fluoroquinolones	na	na	na	na	na	na	na	na	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	na na na na na	na
42 6	#3531	Dadashpour 2016 Antibiotics	Extraction: Netty Checking: Tiago	RCT (double blind)	Raised psa, abnormal DRE		10 -12 Bx		66	17							Not mentioned	
43 7	#4131	Du 2017 Pain	Extraction: Tiago Checking: Netty	Prospective randomized controlled trial	First TRUS biopsy; elevated PSA; abnormal DRE and/or high clinical suspicion of prostate cancer	Patients who had previous biopsies.	Total- 115 patients Group 1- 39 Gtoup 2- 53		Group 1: 62.4 (59.9–64.8) Group 2: 64.2 (61.9–66.5)	Group 1: 7.2 (6.1–8.4) Group 2: 12.1 (6.6–17.6)		Group 1: 49.7 (43.5–56.0) Group 2: 47.8 (42.1–53.5)				**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Not mentioned Not mentioned Not mentioned Not mentioned Not mentioned	
13	#27	Duplessis 2012	Extraction: Corinne Checked: Philip	Prospective study (one group patients) and retrospective analysis of patient's group who underwent TRUS bx 6 months before implementation rectal Swab screening protocol	All men who underwent TRUS bx in one institution	Not mentioned	235 rectal swabs	PSA levels, antibiotics exposure, Fluroquinolone (FQ) and/or cephalosporins exposure, ethnicity, history of prior prostatic biopsies, presence versus absence of FQ-resistant rectal flora before TRUS guided biopsy	60,0 (9,6)	not mentioned	na	na	na	na		**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	16,00% Not mentioned not mentioned not mentioned not mentioned	**No**. 25% of the patients had prior TRUS bx
14	#29	Efesoy 2013														**Afro-American %**	not mentioned	

			Extraction: Corinne Checked: Philip	Descriptive prospective study.	Abnormal DRE, PSA level >or =4ng/ml,	Not mentioned	n=2049 participants	age, PSA, prostate volume, minor complications (hematuria, hematospermia,rectal bleeding, vasovagal symptoms, genitourinary infections, fever, dysuria), serious complications (urosepsis, rectal bleeding requiring intervention, acute urinary retention, hematuria requiring bloedtransfusion, Fournier's gangrene, myocardial infarct)	65,4 (+/- 9,6) (42-79)	18,6 (+/-22,4 ng/ml) range: 2,5-200 ng/ml	not mentioned	51,3 cc (+/-22,4) range 23-130 cc	na	na	**Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	acetylsalicylic acid, anticoagulants (low-molecular weight heparin, and warfarin) were discontinued 7, and 3 days before biopsy, respectively not mentioned not mentioned not mentioned	NOT MENTIONED
15	#30	Ehdaie 2014	Extraction: Corinne Checked: Philip	Prospective observational cohort study	Men with prostate cancer who had at least one previous TRUS bx (active surveillance). 14 biopsy core scheme	No previous TRUS biopsy. No cancer	14 biopsy core scheme/ 403 participants	Number of previous TRUS bx, age, PSA, previous prophylactic antibiotics, current prophylactic antibiotics, diabetes, BPH, coronary arteria disease, COPD. infection within 14 days after procedure (defined as hospitalization for infection, positive blood or urine culture, or fever greater than 100.3F= 37.7 degrees celsius)	64 (60-69)	4,5 (3,1-6,4)	No. USA AS series	NA	NA	NA	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned n=36 (9%) not mentioned not mentioned	No only repeated biopsies in active surveillance scheme
44 8	#3678	Fabiani 2016 Pain	Extraction: Tiago Checking: Netty	Prospective randomized study	first biopsy; no history of chronic prostatic pain or pelvic pain syndrome, anal surgery, concomitant analgesic medication or any other medical condition that could potentially interfere with pain assessment. abnormal PSA and/or a suspicious findings on DRE		114 patients	Group 1: 61 patients underwent TRUS biopsies with a convex probe end-fire sized 74 mm. Group 2: 53 patients underwent TRUS biopsies with a probe end-fire sized 58 mm. Antibiotic prophylaxis was given (oral fluoroquinolone 1-2 h before the procedure and three days after)	Overall: 68.03 ± 8.51 (range 50-85) Group 1: 65.93 ± 7.54 (range 51-81) Group 2: 70.43 ± 8.98 (range 50-85)	Overall: 7.75 ± 4.83 (range 0.66-31) Group 1: 7.93 ± 4.69 (range 0.66-24.81) Group 2: 7.55 ± 5.03 (range 0.82-31)		Overall: 45.17 ± 17.70 (range 20-120) Group 1: 46.79 ± 19.86 (range 20-120) Group 2: 43.30 ± 14.79 (range 20-78 ml)			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned not mentioned not mentioned	
45 9	#3731	Fahmy 2016 Antibiotics	Extraction: Tiago Checked: Netty	Prospective randomised study	elevated PSA and/or abnormal DRE	history of allergy or intolerance to anyone of the study drugs; UTI with positive urine culture; indwelling urinary catheters; antibiotic use during the previous 4 weeks	Overall: 412 patients Group 1: 202 Group 2: 210	urine analysis and urine cultures were conducted 5 days before the TRUSBx and were negative for infection in all patients.	Group 1: 68.8 (4.2) Group 2: 62.5 (2.8)	Group 1: 23.9 (5.8) Group 2: 17.8 (3.2)		Group 1: 67.3 (31.2) Group 2: 59.8 (28.5)			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned not mentioned not mentioned	Group 1: 189 were inicial biopsies and 13 patients had prior biopsies Group 2: 205 were inicial biopsies and 5 patients had prior biopsies
16	#34 (#1103)	Ghafoori 2015	Extraction: Philip Checking: Corinne	Randomised comparison CT: Randomized study	CT: Abnormal DRE, elevated PSA	CT: previous TRUS bx, history of prostatic TUR due to BPH, symptoms and signs of urinary tract infections and receiving antibiotic treatment for any reason	180 CT: 6 vs 12 vs 18 core bx/ n=180 participants (60 in 6 core scheme, 60 in 12 core scheme and 60 in 18 core scheme)	6 v 12 v 18 CT: 6 vs 12 vs 18 core bx, age, mean PSA, positive core prostate cancer, signs of UTI, prostatitis (and dysuria), patient temperature, urine analysis and urine culture	58.4 v 57.6 v 58.7 ns CT: Group 6 core scheme 58.4 ± 7.8 years. Group 12 core scheme 57.6 ± 8.6 years. Group 18 core scheme 58.7 ± 8 years. Not significant	8.7 vs 7.9 vs 8.6 ns CT: Group 6 core scheme 8.7 ± 4.6 ng/mL. Group 12 core scheme 7.9 ± 4.3 ng/mL. Group 18 core scheme 8.6 ± 4.2 ng/mL. Not significant	CT: NA	CT: not mentioned	na CT: NA	na CT: NA	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	0,00% CT: none CT: NA CT: not mentioned CT: not mentioned CT: not mentioned	100,00% CT: only initial biopsy
17	#35 covidance no. #1115	Gil-Vernet Sedo 2012	Extraction: Corinne Checked: Philip	Prospective cohort study	PSA> 4ng/ml on 2 consecutive readings or abnormal DRE and previous negative urine culture	Allergy to iodine and quinolones, patients with urinary catheter, risk of infective endocarditis and patients who were receiving immunosuppressive therapy.	10-40 cores dependant of the Vienna Nomogram criteria/ 530 participants	Age, PSA, number of cores, previous bx, initial bx, presence of adenocarcinoma in Bx, post bx urinary culture, diabetes mellitus.	63,8 (41-82)	11,2 (2,7-97,4)	Not mentioned	Not mentioned	Not mentioned	Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised**	na not mentioned n= 76 (14,1%) Exclusion criteria	Initial bx: n= 384 (72,4%). Second bx: n= 146 (27,6%)

															Recurrent UTI	not mentioned	
18	covidance no. #1129	Goluza 2011	Extraction: Corinne Checked: Philip	Randomized double-blind study	Elevated PSA or/ and abnormal DRE	Allergy to local anesthetic, rectoanal pathology, chronic prostatitis, chronic pelvic pain, urge urinary symptoms, hemorrhagic diathesis, anticoagulation therapy, renal and hepatic insufficiency. Patients with a history of daily analgesic use which could have influenced their pain perception	160 patients, 80 patients in each group	Age, PSA, prostate volume, unfavorable PHD (signification of this variable is not clear to me), VAS	Group Lidocaine: 67 (62-73) Group Placebo- Glycerine 68 (62-74) Not significant	Group Lidocaine: 8,4 (5,6-13,6) Group Placebo- Glycerine 7,5 (5,3-11,9) Not significant	Not mentioned	Group Lidocaine: 39,0 (27,8-60,0) Group Placebo- Glycerine 36,5 (28,4-45,0) Not significant	Not mentioned	Not mentioned	**Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	excluded not mentioned not mentioned not mentioned	Not mentioned
19	#38	Gyorfi 2014	Extraction: Giulia Checked: Netty	retrospective study	men undergoing TRUSPB	not mentioned	570 participants 14-mean core biopsies	Age, baseline, PSA, DRE status, history of prior biopsy, immunosuppression, antibiotic use/hospitalization within the previous 6 months, use of preoperative enema, prostate volume,number of biopsy cores obtained, presence of cancer on pathology	64 (mean)	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned 2,00% not mentioned	361 (63.33%)
46 10	#3974	Hamarat 2017 Resistance antibiotics	Extraction: Tiago Checked: Netty	Retrospective study	abnormal DRE and/or PSA levels above 2.5 ng/mL		Overall: 142 patients Group 1: 76 Group 2: 66	Group 1 (C reactive protein): 9.11±1.80 Group 2 (C reactive protein): 6.30±0.81	Group 1: 66.11±0.83 Group 2: 66.41±0.94	Group 1: 10.41±1.10 Group 2: 18.49±3.19	Group 1: 17 (22.3) Group 2: 20 (30.3)	Group 1: 51.27±2.70 Group 2: 46.91±2.31			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
47 11	#4190	Hasanzadeh 2017 Antibiotics/resistance	Extraction: Tiago Checked: Netty	Retrospective study not randomised		failure to complete the form; failure to follow-up after biopsy; use of other antibiotics alongside fluoroquinolones	Overall: 158 Group 1: 85 Group 2: 73	Other patients chatacteristics data: BMI; Hospitalization in past 1 months; Ciprofloxacin use in past 6 months; Diabetes mellitus; Prostatitis in past 4 months; UTI in past 4 months; Hypertension; Presence of a catheter; enema; Frequent urination; Smoking	Overall: 64.37 ± 8.71 Group 1: 62.47 ± 8.23 Group 2: 66.60 ± 8.78	Overall: 9.5 ± 12.7 Group 1: 9.1 ± 6.81 Group 2: 10.2 ± 8.21		Overall: 49.46 ± 22.02 Group 1: 46.46 ± 16.43 Group 2: 52.94 ± 26.8		Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned Overall 25 (15.8%); Group 1: 11 (12.9%); Group 2: 14 (19.2%) not mentioned not mentioned	Overall: 128 patients Group 1: 76 Group 2: 52
48 12	#3287	Hsieh 2016 also PICO 3 Antibiotics	Extraction: Tiago Checked: Netty	Retrospective non randomized study.	Elevated PSA level (>4 ng/mL); abnormal DRE; findings in a first prostate biopsy that necessitated a repeat biopsy such as the presence of an atypical gland or persistent elevation of PSA	Patients who did not receive levofloxacin as a prophylactic antibiotic	Overall: 263 patients Group 1: 129 Group 2: 134		Group 1: 68.4 ± 8.747 Group 2: 69.20 ± 10.394	Group 1: 38.653 ± 112.9249 (4.4-2626) Group 2: 34.843 ± 127.1309 (2.11-1423)		Group 1: 32.65 ± 10.82 Group 2: 35.46 ± 12.35			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned Group 1: 22 patients ; Group 2: 20 patients not mentioned not mentioned	
20	#42	Huang 2014	Extraction: Giulia Checked: Netty	retrospective study	men undergoing TRUSPB	not mentioned	5027 participants but in the analysis: 70 fever-participants, 140 non-fever participants 12-core biopsies	prostate pathology, medical comorbidities, risk factors for urosepsis, prophylactic antibiotic protocol, causative organisms, antibiotic sensitivity patterns in blood and urine cultures	not mentioned 71 (febrile group), 74 (non-febrile)	8.48 ng/ml	not mentioned	average prostate weight: 50.5±2 g	not mentioned	Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes**	not mentioned not mentioned Fever group: 9 (12.9%); non-fever group: 23 (16.4%)	not mentioned

															Immunocompromised	not mentioned	
															Recurrent UTI	Pyuria in 8.6% (Febrile), 7.9% (non-febrile)	
49 13	#4176	Izadpanahi 2017 Antibiotics	Extraction: Corinne Checking: Kaljit												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
21	#45	Jeremiah 2013	Extraction: Giulia Checked: Netty	retrospective study	men undergoing TRUSPB	not mentioned	459 participants 12-core biopsies	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned not mentioned not mentioned	 not mentioned
50 14	#3845	Kandil 2016 Resistance antibiotics	Extraction: Corinne Checking: Kaljit												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
22	#48	Kim 2014	Extraction: Giulia Checked: Netty	retrospective study	korean men undergoing TRUSBNP	not mentioned	223 participants 12-core biopsies	Clinical variables: underlying disease, infectious complications, antibiotics associated with resistance Variables: age, underlying disease, PSA, prostate volume, kind of prophylactic antibiotics, infectious complications after biopsy, results of rectal swabs, pathophysiologic results	not mentioned	not mentioned	not mentioned	35.2±22.6 ml	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	0,00% not mentioned 16.1% (26/233) not mentioned not mentioned	 217/223 (96.3%)
51 15	#3795	Klemann 2017 Antibiotics	Extraction: Corinne Checking: Kaljit												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised**		
18	#36	Goluza 2011													**Afro-American %** **Recurrent UTI**	na	
23	#52	Lee 2015	Extraction: Giulia Checked: Netty	Retrospective study	men undergoing TRUSBNP	receiving other antibiotic prophylaxis, patients who did not visit the ER due to febrile illness after PNB	5577 participants 12-core biopsies	age, diabetes mellitus, cerebro-vascular accidents, PSA level, prostate volume, prior prostate needle biopsy, infectious complication, nr of ICU admissions	not mentioned	not mentioned 64 (mean)	not mentioned	group 1: 41.6±26.0 group 2: 43.5±27.3 group 3: 44.6±25.1	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	0,00% not mentioned Group 1: 216 (12.4%), Group 2: 313 (11.5%), Group3: 109 (9.8%) not mentioned not mentioned	 Group 1: 91.9%, Group 2: 91.3%, Group 3: 95.5%
52 16	#3694	Lee 2016 Antibiotics	Extraction: Corinne Checking: Kaljit												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
53 17	#4173	Li 2017 Local anesthesia Pain	Extraction: Kaljit Checking: Corinne Note added by Corrine Dec 2017 -Meta-analysis. Not for data extraction but could be interesting for the text of the guidelines												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
24	#53	Linden-Castro 2014		Retrospective study	men undergoing TRUSBNP	hypersensitivity to the drug (levofloxacin), indwelling catheter, lower urinary symptoms, history of febrile UTI 1 month before the procedure, history of acute retention urine and hematuria	425 participants Group A: 205 participants Group B: 220 participants 12-core biopsies	diabetes mellitus, BMI, prostate volume	not mentioned	66	not mentioned	71.14 ml (mean) Group A: 65.80 ml Group B: 75.61 ml	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned Group A: 43.90%, Group B: 31.80% not mentioned (exclusion criteria)	 100,00%
25	#54	Loeb 2013	1:58 pm, 14 Dec 2017 Checked: Netty	Systematic review	Articles regarding: hematuria, rectal bleeding, hematospermia, infection, pain, LUTS, UR, ED,mortality/ english-language publications, PubMed-Embase, hand search, discussion with experts, secondary searches	non-english language articles, duplicates	213 studies	na	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned range not mentioned range not mentioned range not mentioned range not mentioned	 na
26	#55	Lorber 2013	Extraction: Giulia Checked: Netty	retrospective study	men undergoing TRUSBNP	not mentioned	4655 participants 8-12 core biopsies (84%)	age, PSA level, number of cores obtained, biopsy results	not mentioned	Group A (FQ only): 5.8 ng/ml Group B (FQ + gentamicin 80 mg): 5.7 ng/ml Group C (FQ + gentamicin 160 mg): 5.5 ng/ml	na	not mentioned	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes**	not mentioned not mentioned not mentioned	 100,00%

							>12 core biopsies (7%)			Group D (FQ + gentamicin 240 mg): 5.6 ng/ml					**Immunocompromised** **Recurrent UTI**	not mentioned not mentioned	
54 18	#3560	Luan 2016	Extraction: Kaljit Checking: Corinne	Retrospective study	Men who underwent prostate biopsy between May 2013-Sept 2015		568 patients - Local anaesthesia grop (LAG); 264 patients Nerve block group (NBG); 304 patients		67,5	LAG group - 22.5 NBG - 23.5					**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	 N/A N/A N/A N/A	
55 19	#4089	Meng 2017 Resistance antibiotics	Extraction: Kaljit Checking: Corinne Note added by Corrine Dec 2017 -Meta-analysis. Not for data extraction but could be interesting for the text of the guidelines	Review											**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
27	#59	Minamida 2011	Extraction: Giulia Checked: Netty	Prospective study	men undergoing TRUSBNP	not mentioned	100 participants 12-core biopsies	age, PSA level, prostate volume, PSA density, pathology, acute prostatitis after biopsy, previous biopsy, diabetes, history of hospitalization, history of antibiotic use, FQ use	not mentioned	not mentioned	not mentioned	Mean: 35.71 cm_3 Range: 14-134 cm_3	Mean: 0.22 ng/ml/ml Range: 0.06-8.45 ng/ml/ml	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned 7 (7%) not mentioned not mentioned	89,00%
28	#62 covidance no. #1929	Otunctemur 2013	Extraction: Giulia Checked: Netty	retrospective study	men undergoing TRUSBNP with increased PSA level, abnormal DRE findings and serum PSA levels > 2.5 ng/ml	bleeding, diathesis and/ore use of anticoagulant, anorectal diseases, acute prostatitis, pelvic pain syndrome, lidocaine allergies. Inability to rate VAS scale	473 participants Group 1: 159 , Group 2: 314	age, PSA levels, prostate volumes, complication rates	65	13	not mentioned	Group 1: 60.3 ± 24 ml Group 2: 65.3 ± 26.5	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned (exclusion criteria) not mentioned not mentioned not mentioned	100,00%
56 20	#4077	Pascual Jr 2016 Antibiotics	Extraction: Kaljit Checking: Corinne I ordered the full text and received it: it is an abstract. I moved the study back to full text in Covidence. no need to extract. hl												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
21	Geen naam op referenc!	Antibiotics	Extraction: Netty Checking: Giulia	prospective, multi-center, randomized, control, open-label clinical study	All pts suspected of CaP	patients with pre-operative positive urine culture (colony count ≥105 CFU/ml), preoperative pyuria (routine urine test > 5 WBCs/HPF), pre-operative fever, disease causing low immunity or patients using immunosuppressors, coagulation disorders, severe car- diopulmonary insufficiency, abnormal liver function (ALT or AST > 2 × upper limits of normal, ULN), abnormal renal function (serum creatinine > 1.5 × ULN), patients allergic to test drugs, patients having taken antibacterial agents within 2 weeks before the inclusion, patients with preoperative in- dwelling urinary catheter, or any condition that the investiga- tor considered	10-13 cores	70	50						
58 22	#3714	Ryu 2016 Antibiotics Rectal cleansing	Extraction: Ingrid Checking: Giulia												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
59 23	#3586	Samarinas 2016 Antibiotics/resistance Profylaxis	Extraction: Ingrid Checking: Giulia												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
29	#69	Sen 2015	Extraction: Giulia Checking: NK	prospective, randomized, controlled trial	men undergoing TRUSPNB	patients with history of UTI, indwelling urinary catheters, antibiotic use within a month of study initiation	300 participants 12-core biopsies	age, PSA level, prostate volume, afebrile UTI, febrile UTI	not mentioned	not mentioned	not mentioned	Group 1: 53.1 ±22.5 cm3 Group 2: 51.3 ±24.6 cm3	63	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned not mentioned (exclusion criteria)	100,00%
60 24	#4005	Singh 2017 Rectal cleansing	Extraction: Ingrid Checking: Giulia												**Afro-American %** **Anticoagulation** **Diabetes**		

															Immunocompromised		
															Recurrent UTI		
61 25	#3416	Summers 2015 Profylaxis Rectal cleansing	Extraction: Ingrid Checking: Giulia												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
30	#78	Taylor 2013	Extraction: Giulia Checked: Netty	Prospective clinical trial	men undergoing TRUSBNP	inability to provide consent, allergy to ciprofloxacin, allergy to iodine or povidone-iodine, History of UTI or sepsis after previous Bx	856 participants	age, PSA level, prostate volume, rectal swabs taken, medical comorbidities, hypertension, DM, easy bleeding, immunosuppression, haemorrhoids, diagnosed prostate cancer, prior pelvic radiation, heart valve replacement, prostatitis, UTI in past 3 months, ciprofloxacin use in past 3 months, other antibiotic use, previous biopsy	not mentioned	not mentioned	not mentioned	42.6 ml (range: 4-943)	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned 73/865 (8.6%) 76/865 (9.0%) 11/865 (1.3%) 21/865 (2.5%)	 644 (74.00%)
62 26	#3848	Trujillo 2016 Rectal cleansing	Extraction: Ingrid Checking: Giulia												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
31	#80	Unnikrishnan 2015	Extraction: Giulia Checked: Netty	retrospective study	men undergoing TRUSBNP	patients on antibiotics, patients that received variants of the regimen	1189 participants	age, race, diabetes, BMI, PSA level, number of cores, prostate volume, history of biopsy	63 (MEAN)	not mentioned	Group 1: 133/510 (26.1%) Group 2: 125/601 (20.8%)	Group 1: 44.4 ml (25.0%) Group 2: 47.6 ml (26.8%)	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Group 1: 59/535 (11.0%), Group 2: 93/654 (14.2%) not mentioned NID Group 1: 60/535 (11.2%), Group 2: 50/654 (7.7%) / ID Group 1: 20/535 (3.7%), Group 2: 22/654 (3.4%) not mentioned not mentioned	 Group 1: 312 (61.1%) Group 2: 356 (58.6%)
63 27	#4198	Urabe 2017 Local anesthesia	Extraction: Tiago Checking: Giulia		Overall: 532 patients Group 1: 266 Group 2: 266										**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
32	#81	Utrera 2011	Extraction: Giulia Checked: Netty	prospective non-randomised study	suspicious DRE, PSA > 10 ng/ml, free/total ratio of PSA assessed in patients with PSA 4-10 ng/ml	having an indwelling urinary catheter, administration of antibiotics in the week before the biopsy, manipulation of the UT in the week before the biopsy, allergy to quinolones and endocarditis, failure to comply with the antibiotic prophylaxis regimen, loss to follow up	220 participants 13.5 (mean) core biopsies	age, PSA level, number of cores, prostate volume, number of biopsies, histopathology, prebiopsy/postbiopsy urine culture, microorganisms, risk factors, complications related with infection	69.5 (mean)	12.7 (mean), 6-8 each lobe.	not specified	50.6 ml ± 29.6	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned 29/220 (13.2%) 3/220 (1.4%) 8/220 (3.6%)	 169/220 (76.8%)
64 28	#4236	Valdez-Flores 2017 Local anesthesia	Extraction: Tiago Checking: Ingrid	randomized prospective study	increased serum PSA (≥ 4 ng/ml) and/or abnormal DRE	previous TRUSbx; treated with anticoagulants; acute prostatitis, active anal/rectal pathology; chronic pelvic/rectal pain; allergy tolocal anesthesia; concomitant analgesic medication.	Overall: 120 patients Group 1: 30 Group 2: 30 Group 3: 30 Group 4: 30		Mean age: Group 1: 61.6 ± 7.8 Group 2: 62.5 ± 5.6 Group 3: 62.9 ± 5.4 Group 4: 63.4 ± 5.8	Mean PSA: Group 1: 10.3 ± 7.9 Group 2: 12.9 ± 24.2 Group 3: 19.3 ± 18.3 Group 4: 10.0 ± 6.0		Mean prostate volume: Group 1: 54.7 ± 19.6 Group 2: 51.2 ± 28.3 Group 3: 59.2 ± 25.1 Group 4: 53.1 ± 26.8			**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
65 29	#3733	Walker 2016 Profylaxis Antibiotics	Extraction: Giulia Checking: Ingrid												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
33	#84 covidacen no. 2580	Wang 2015	Extraction: Giulia Checked: Netty	systematic review / meta-analysis	studies comparing pain control efficacies and safety of the IRLA+PPNB modalities/PPNB during TRUS-guided PB, pain intensity (VAS)	non-comparative studies, duplicates, incomplete data reported, sample size < 10 per arm	18 studies involving 2076 participants	na	na	na	na	na	na	na	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	na na na na na	 na
34	#86	Williamson 2013	Extraction: Giulia Checked: Netty	narrative review	published literature relating to infectious complications of TRUS biopsy with a focus on antimicrobial-resistant E. Coli	not specified	52 articles	na	not specified	not specified	not mentioned	not specified	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	range not mentioned range not mentioned range not specified range not specified range not specified	 na
66 30	#3832	Yan 2016 Pain	Extraction: Giulia Checking: Ingrid												**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		

35	#91	Zani 2011	Extraction: Giulia Checking: NK	narrative review	types of studies: randomized, controlled trials (RCT) in which patients received TRPB and prophylactic antibiotics versus placebo/no treatment, and all RCTs looking at one type of antibiotic versus another, compared dosage, route of administration, frequency of administration, or duration of treatment participants: men who required TRPB and received prophylactic antibiotics or placebo/no treatment.	history of hypersensitivity to antibiotic in study, significant gastrointestinal disease or inability to tolerate oral medication, presence of culture-proven urinary tract infection prior to intervention, presence of indwelling bladder catheters, history of endoscopic manipulation of the urinary tract within 7 days prior to the study enrollment, antibiotic(s) given during the preceding 10 days, patients with prostheses (e.g. hip replacement, prosthetic cardiac valves) and congenital heart disease requiring prophylactic antibiotics, Patients with co-morbid conditions potentially	3599 studies	na	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	range not specified (for all studies) (exclusion criteria in some studies) (exclusion criteria) (exclusion criteria) (exclusion criteria in some studies)	 (exclusion criteria) range not specified
36	#93	Zaytoun 2011	Extraction: Giulia Checked: Gijs	retrospective study	men undergoing TRUSBNP	not mentioned	1446 participants	age, number of biopsy cores, prostate volume, PSA level, method of preparation, biopsy (initial/repeated)	not mentioned	not mentioned	not mentioned	46.2 (17-142) ml	not mentioned	not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	not mentioned not mentioned not mentioned not mentioned not mentioned	 1073 / 1446
67 31	#4121	Zembower 2017 Antibiotics Profylaxis	Extraction: Giulia Checking: Ingrid	prospective non randomized cohort study	Eligible patients were men 18 years or older selected to undergo TRUSP to evaluate for prostate cancer	(1) they did not complete or withdrew informed consent; (2) their rectal swab cultures were CS-GNB but they did not receive ciprofloxacin as pre-procedure prophylaxis (i.e. ciprofloxacin-allergic patients); (3) their rectal swab cultures showed CR-GNB but they received ciprofloxacin; or (4) they did not complete the pre-biopsy questionnaire or the two post-biopsy phone screening evaluations		1. rate of infection following TRUSP in subjects with and without CRGNB 2. determination of risk factors for infection and antimicrobial resistance traits of rectal swab isolates. Infectious complications were clinically defined as 1) uncomplicated urinary tract infection (UTI): dysuria, urgency, frequency or hematuria without fever and with or without pyuria (> 5 white blood cells per high-powered field or positive leukocyte esterase on urine dipstick) or bacteriuria (≥ 105 colony-forming units/mL); 2) complicated UTI: fever, flank pain, nausea or vomiting with or without pyuria and bacteriuria; 3) urosepsis: criteria for sepsis, severe sepsis, and septic shock [21] were combined and categorized as urosepsis.						**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**		
68 32	#3278	Zhang 2017 also PICO 4 Rectal cleansing	Extraction: Gijs Checking: Ingrid	retrospective study in a single center	An abnormally elevated prostate specific antigen (PSA) level and/or abnormal digital rectal examination (DRE). All the patients received prostate biopsy for the first time	(1) patients who had indwelling urinary catheters; (2) patients with symptomatic urinary tract infection or suspected prostatitis before prostate biopsy consumed antibiotics; (3) patients with known immune deficiency; (4) patients with severe hemorrhoids; (5) patients with abnormal state of coagulation.	The patients 1130 in total were divided into three groups according to the bowel preparation methods: patients in Group A (n = 402); patients in Group B (n = 413); patients in Group C (n = 315).	Infectious complications - fever - UTI - sepsis - Asdverse events	Group A 71.65 ± 7.62 Group B 71.94 ± 7.60 Group C 71.49 ± 7.76	Group A 23.38 ± 18.31 Group B 21.82 ± 17.24 Group C 22.48 ± 16.90	Not mentioned	Group A 56.79 ± 14.15 Group B 57.06 ± 13.37 Group C 59.01 ± 12.27	Not mentioned	Not mentioned	**Afro-American %** **Anticoagulation** **Diabetes** **Immunocompromised** **Recurrent UTI**	Not mentioned Exlusion criteria: abnormal state of coagulation Group A 37 (9.20%) Group B 42(10.17%) Group C 31 (9.84%) Exclusion criteria Exclusion criteria	 100,00%

Number	Number Covidence Complications (Original listing)	Author, year	Positive pick-up rate	Number of positive cores	Number of clinically significant cancers	Tumour Volume	Intervention	Time between the anesthetic administration and the start of the biopsy	Complication outcomes Infection (Any evidence of infection including but not limited to sepsis) , 7 days (%, N)	Complication outcomes Sepsis or admission with infection, 7 days (%, N)	Complication outcomes Retention, 7 days (%, N)	Complication outcomes Haematuria, 7 days (%, N)	Complication outcomes Rectal bleeding, 7 days (%, N)	Complication outcomes Haematospermia, 7 days (%, N)	**Complication outcomes Dysuria (%, N)**	Complication outcomes Pain during gel administration, VAS (%, N)
1	#2	Abugosh 2012														
							Intra-rectal EMLA + lignocaine (PPNB)									
		The PDF in Covidence is the PDF of Abugosh 2013. Can we reject Abugosh 2012? ("=older paper on the same study) or do we need the correct PDF?					Intra-rectal EMLA									
							Lubricating gel + lignocaine (PPNB)									
							Peri-procedural povidone-iodine									
2	#1	Abugosh 2013														
							Intra-rectal EMLA + lignocaine (PPNB)									
							Intra-rectal EMLA									
							Lubricating gel + lignocaine (PPNB)									
							Peri-procedural povidone-iodine		2.6%, n=11 (control: 4.6%, n=20)	0.95%, n=4 (control: 1.6%, n=7)		59%, n=249 (control: 59%, n=262)	27%, n=112 (control: 27%, n=118	40%, n=169 (control: 41%, n=180)		
37	#3976	Adamczyk 2017														
1		Antibiotics														
							In all patients was perform rectal swab and microbiological culture with antibiogram before prostate									
		Patient assessment														
38	#3638	Anastasi 2016														
2		Local anesthesia														
							Group A (mixture of 2.5% lidocaine and 2.5% prilocaine 1h before - 50 patients)									
							Group B (intrarectal local anesthetic (lidocaine 5ml 10%) + lidocaine local spray 15% - 50 patients)									
							Group C (PPNB with lidocain 10ml 10% - 50 patients)									
3	#9	Anup 2013	In %				Group A: combined periprostatic nerve blok (PPNB) and perianal/intrarectal lidocaine-prilocaine (PILP) cream		Only urosepsis specified.	Not specified within 7 days or not		p=0.33 (Not Significant- NS)	p=0.41 (NS)	p=0.29 (NS)		Value in mean +/- Standard deviation p=0.88 (NS)
			Group A: 26 (33)	Not mentioned	Not mentioned	Not mentioned			Not mentioned	Group A: n=0	Not mentioned	Group A: n=39 (50%)	Group A: n=23 (29.4%)	Group A: n=21 (26.9%)		Group A: 3.7 +/- 1.1
			Group B: 23 (28.7)				Group B: PILP cream Group C: PPNB			Group B: n=1		Group B: n=37 (46.2%)	Group B: n=21 (26.3%)	Group B: n=20 (25%)		Group B: 3.6+/- 1.3
			Group C: 24 (30)							Group C: n= 0		Group C: n=35 (42.7%)	Group C: n=22 (26.8%)	Group C: n=19 (23.1%)		Group C: 3.4+/- 1.2
39	#3737	Ates 2016														
3		Local anesthesia														
							Group 1: perianal intrarectal application of 10 mL 2% lidocaine gel	2 minutes in all groups								
		Pain					Group 2: 2 mL of 2% lidocaine PPNV after rectal installation of lidocaine gel									
							Group 3: 4 mL of 2% lidocaine PPNB after rectal instillation of lidocaine gel									
40	#4053	Bloomfield 2017														
4		**Antibiotics/resistance**					Intra-rectal EMLA + lignocaine (PPNB)									
							Intra-rectal EMLA									
							Lubricating gel + lignocaine (PPNB)									
							Peri-procedural povidone-iodine									
41	#3811	Cai 2017														
5		**Antibiotics**	Group 1: 285 (45.1)				Intra-rectal EMLA + lignocaine (PPNB)		Group 1: symptomatic UTI 10 (1.6). Of those 2 were urosepsis		Group 1: 41 (70.6)	Group 1: 442 (69.9 %)	Group 1: 17 (29.4)	Group 1: 34 (5.7)	Group 1: 62 (10.3)	
			Group 2: 210 (44.0)				Intra-rectal EMLA		Group 2: symptomatic UTI 62 (12.9). Of those 9 were urosepsis		Group 2: 36 (87.8)	Group 2: 338 (70.8 %)	Group 2: 5 (12.2)	Group 2: 22 (5.1)	Group 2: 37 (8.4)	

							Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
4	#12 (covidance #832)	Cantiello 2012	p=0.75 (NS) Group 1 IRLA+PPB: N=31 (34.4%) Group 2 IRLA+PNB: n= 28(31%)	Not mentioned	Not mentioned	Not mentioned	Group 1: IRLA+ PPB: intrarectal local anesthesia (lidocaine 1.5%-nifedipine 0.3% cream) plus pelvic plexus block (2.5 ml lidocaine 1% plus naropine 0.75% injected on each side into the pelvic neurovascular plexus lateral to the seminal vesicle tip Group 2: IRLA+PNB: intrarectal local anesthesia plus periprostatic nerve block (2.5 ml of the same mixture injected on each side into the neurovascular bundles at the prostate-bladder-seminal vesicle angle)		Group 1: n=1 had iv antibotics but not admitted to hospital Group 2: n=0	No severe complication in both groups	Group 1: n=2 Group 2: n=2	No severe complication in both groups	No severe complication in both groups	No severe complication in both groups			not specified
5	#15	Chan 2012	p=0.900 (NS)						p=0.008 (S) Be careful significance with only 8 patients with complications!!!	5/8 patients with sepsis.						
		Chan 2012	Group A: n=37 (21%) Group B: n=37 (20%)	Not mentioned	Not mentioned	Not mentioned	Group A: Amoxicillin Clavulanate 1gr Group B: Amoxicillin Clavulanate 1 gr and ciprofloxacine 250mg		Group A: n=7 (3,91%) Group B: n=1 (0,53%)	Group A: n=4 Group B: n=1	Not mentioned	Not mentioned	Not mentioned	Not mentioned		NA
6	#16 (#796)	Chen 2016	10 cores would identify cancer in 44.3% whilst 13 cores found cancer in 45.2% CT: 10 cores would identify cancer in 44.3% whilst 13 cores found cancer in 45.2%	na CT: na	na CT: na	CT: na	CT: None concerning compications Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine		1.5% sepsis (13 cores) CT: n=6 (1,5%) in 13 cores	1.5% sepsis (13 cores) CT: n=5 (1.2%) in 13 cores	CT: Not mentioned	53.3%, n=218 haematuria. 14.9%, n=61 rectal bleeding (13 cores) CT: n=218 (53.3%)	CT: n=61 (14.9%)	CT: Not mentioned		CT: Not mentioned
7	#18	Chowdhury 2012	na	na	na	na	Warfarin versus low dose aspirin versus no blood thinning medication Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine		na	na	na	Warfarin group: 27,9% (19/68). Low dose aspirin group: 33,8% (73/216). No blood thinning medication group: 37% (228/617)	Warfarin group: 13,2% (9/68). Low dose aspirin group:14,4 % (31/216). No blood thinning medication group:11,5 % (71/617)	Warfarin group:7,4 % (5/68). Low dose aspirin group:12 % (26/216). No blood thinning medication group:13,8 % (85/617)		na
8	#19	Ciclone 2012	n (%). Group A: 37 (29,6), Group B: 38 (30,4)	not mentioned	not mentioned	not mentioned	16 gauge needle core versus 18 needle core. Periprostatic analgesic block		not mentioned	not mentioned	not mentioned	In this study not specified hematuria or rectal bleeding. Only bleeding which include hematuria and rectal bleeding I think. Grade 0 bleeding (very small or absent bleeding), Group A: n=117/125 (93,6%) and group B: n= 117/125 (93,6%) Grade 1 bleeding (bleeding without the need for endoscopic therapy and electrolyte infusion or hemostatic drugs, manageable by compression of rectal mucosa) Group A: n= 7/125 (5,6%) Group B: n= 6 (4,8%). Grade 2 bleeding (need either endoscopic treatment or pharmacological support) Group A: n=1/125 (0,8%) Group B: n=2/125 (1,6%)	In this study not specified hematuria or rectal bleeding. Only bleeding which include hematuria and rectal bleeding I think. Grade 0 bleeding (very small or absent bleeding), Group A: n=117/125 (93,6%) and group B: n= 117/125 (93,6%) Grade 1 bleeding (bleeding without the need for endoscopic therapy and electrolyte infusion or hemostatic drugs, manageable by compression of rectal mucosa) Group A: n= 7/125 (5,6%) Group B: n= 6 (4,8%). Grade 2 bleeding (need either endoscopic treatment or pharmacological support) Group A: n=1/125 (0,8%) Group B: n=2/125 (1,6%)	not mentioned		Not mentioned
9	#20	Cook 2015	Group non swab: n=125/264 (47%). Group swab: n=149/244 (61%) p<0,01	not mentioned	na	na	Rectal swab and no rectal swab. In rectal swab group targeted profylaxis antibiotics Intra-rectal EMLA		Group non swab: n=7/264. Group swab: n=1/244 p<0,05	not mentioned	NA	NA	NA	NA		NA

							Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
10	#22 (#854)	Cormio 2012	6 cores would detect cancer in 33.1% whlist 10 cores detected cancer in 39.2%, 14 in 41.6% and 18 in 41.8% C.T. Group 1 PI LP+LK: 41% Group 2 PI LP+PPNB: 41% NS	na C.T. Not mentioned	na C.T. Not mentioned	C.T. Not mentioned	C.T. Perianal-intrarectal (PI) lidocaine-prilocaine (LP) cream and lidocaine-ketorolac (LK) gel versus PI LP cream and periprostatic nerve block (PPNB)		0,18% C.T.Only fever > 38.0 C which has required intervention Group 1 PI LP+LK: 0% Group 2 PI LP+PPNB: 1% NS	C.T. Not mentioned	0,90% C.T. Only retention which has required intervention Group 1 PI LP+LK: 1% Group 2 PI LP+PPNB: 0% NS	0.18% rectal bleeding plus 0.18% clot retention C.T. Not mentioned	0.18% rectal bleeding plus 0.18% clot retention C.T. Only rectal bleeding which has required intervention Group 1 PI LP+LK: 0% Group 2 PI LP+PPNB: 1% NS	C.T. Not mentioned		C.T. pain at probe insertion and movements (VAS-1) Group 1 PI LP+LK: 0,33 (0,53) Group 2 PI LP+PPNB: 0,37 (0,58) NS
11	#23	Culkin 2014	na	na	na	na	Review of prospective, controlled trials and meta-analysis. In total 3000 patients		na	na	na	Severe hematuria in 4/3000 patients	occurrence of rectal bleeding and hemospermia not statistically different between patients taking aspirin or not	occurrence of rectal bleeding and hemospermia not statistically different between patients taking aspirin or not		na
12	#24	Cussans 2016	na	na	na	na	Targeted prophylactic antimicrobial therapy and empirical antimicrobial therapy. Rectal swab or not		Empirical prophylaxis 4.55% vs 0.72% for those recieving targated therapy	Sepsis empirical 2.21% vs 0.48% in the targeted group	na	na	na	na		na
42 6	#3531	Dadashpour 2016 Antibiotics					Group B - amikacin + metro + cipro + cetazadime Group A - Cipro 500 BD + metronidazole 250mgs tds - 3 days + ceftazadime 500mg IV		Fever > 38oC was detected in 2 patients in group A (0.9%) and in 1 patient in group B (0.5%)							
43 7	#4131	Du 2017 Pain					Goup 1- PPNB with 4 mL 1% lidocaine infiltrated at the junction of the prostate and seminal vesicles and 1 mL at the apex bilaterally. Goup 2- PPNB with 4 mL 1% lidocaine infiltrated at the junction of the prostate and seminal vesicles and 1 mL at the apex bilaterally.	Group 1: 5 minutes (probe was removed during that time) Group 2: no waiting time. Biopsy started immediately							
13	#27	Duplessis 2012	32%	na	na	na	Rectal swab before TRUS Bx		**No infectious complications.** To compare current incidence rates of infectious complications with those of the 6 months before study implementation, the author cross referenced all ICD codes pertaining to admissions to the urological service for infectious complications post prostatic-biopsy,including sepsis (038.9), bacteremia (790.7), urinary tract infections (600.21), pyelonephritis (590.1), prostatitis (601.9), and fever (780.6).	Not clear	na	na	na	na		na
14	#29	Efesoy 2013														

			29.1% (n=596/2049)	not mentioned.	not mentioned	not mentioned	12 core TRUS biopsy. Antibiotic prophylaxis ciprofloxacin twice daily for 2 days. To prevent voiding dysfunction, the night before the biopsy alpha-blocker therapy was initiated, and continued further for 30 days. For rectal cleansing the night before the biopsy patients used rectal enemas		16,9% (n=348/2049)	0,5% (n=11/2049)	0,3% (n=7/2049)	66,3% (n=1358/2049). Hematuria requiring blood transfusion: 0,05% (1/2049)	28,4% (n=581/2049). Rectal bleeding requiring intervention: 0,3% (n=6/2049)	38,8% (n=795/2049)		na
15	#30	Ehdaie 2014	NA	NA	NA	NA	Observational study on infection within 14 days after TRUS bx procedure (defined as hospitalization for infection, positive blood or urine culture, or fever greater than 100.3F= 37.7 degrees celsius)		n= 14 (3,4%) of whom 5 had positive urinary culture (4 with ciprofloxacine resistant E-coli, including 2 EBSL and 1with aminoglycoside resistant Enterococcus) and 9 negative urinary culture	Sepsis n= 2 (see chapter discussion). All the 14 patients with infection were hospitalized (see again discussion chapter)	NA	NA	NA	NA		NA
44 8	#3678	Fabiani 2016 Pain														
45 9	#3731	Fahmy 2016 Antibiotics					Group 1: single-dose fosfomycin, 3mg orally, 1-2h before biopsy Group 2: f oral ciprofloxacin 500 mg and metronidazole 500 mg at least 1 h before biopsy and continued this twice daily for 3 days after biopsy		Group 1: 3 patients had afebrile UTI and 1 patient had febrile UTI. No cases of septic shock Group 2: 14 patients had afebrile UTI and 4 patient had febrile UTI. No cases of septic shock							
16	#34 (#1103)	Ghafoori 2015	6 core detectd cancer in 13.3%, 12 core 35% and 18 cores 40% CT: Group 6 core scheme n=8 (13,3%). Group 12 core scheme n= 21 (35%). Group 18 core scheme n=24 (40%). p= 0,003	na CT: NA	na CT: NA	CT: NA	CT: 6 vs 12 vs 18 core bx		28.3% in 6 core, 38.3% in 12 core and 58.3% in 18 core group CT: Group 6 core scheme n=17 (28,3%). Group 12 core scheme n= 23 (38,3%). Group 18 core scheme n=35 (58,3%). p= 0,003	CT: not mentioned	na CT: NA	na CT: NA	CT: NA	CT: NA		CT: NA
17	#35 covidance no. #1115	Gil-Vernet Sedo 2012	n= 215 (40,6%)	not mentioned		na	Peri-procedural povidone-iodine. 30g of 10% povidone-iodine gel was applied intrarectally, covering the entire surface of the anorectal mucosa as well as the tip of the transducer		n=1/530 (0,2%)	n=0/530	not mentioned	not mentioned	not mentioned	not mentioned		Patients were under sedation with intravenous propofol and remifentanil

18	covidance no. #1129	Goluza 2011	Group Lidocaine: n=44/80 (55%). Group Glycerol: n=35 (43,8%)	not mentioned	not mentioned	not mentioned	Group L: 60-mg lidocaine suppositories intrarectally at different time points from 15 to 120 min before biopsy. Group G: glycerin suppositories in the same way. All the patients received intrarectal lubricant jelly before digital rectal examination and probe insertion, prophylaxis Ciprofloxacin during 5 days and acleansing enema was self-administered on the morning of the biopsy		na	Group L: n= 3/80 (3,75%). Group G: n=5/80 (6,25%)	na	Not mentioned but mild and no differencence in group	Not mentioned but mild and no differencence in group	Not mentioned but mild and no differencence in group		not mentioned
19	#38	Gyorfi 2014	100,00% 41,00%	not mentioned	41% (233/570) Significance not mentioned	not mentioned	Group 1: 3 days of antibiotic regimen (ciprofloxacin/bactrim) VS * Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) * Group 2: 3 days of antibiotic regiment (ciprofloxacin/bactrim) + Peri-procedural povidone-iodine		Sepsis - 0.9% (1) 0,00% Sepsis - 0.9% (1) Sepsis - 5.3% (6) 0,00%	100% of the control group (7/8: admitted to the hospital; 2/8 ICU) 7/8 patients admitted to hopital. 2 to ITU	na	na	na	na		na
46 10	#3974	Hamarat 2017 Resistance antibiotics	Group 1: 21(27%) Group 2: 17 (25%)				PPNB: all patients Povidone-iodine: all patients before and after biopsy 12-core biopsies to all patients (standard sextant cores plus bilateral base, middle lobe, apex, and lateral lobes)		Overall: High fever grade 1 (0) grade 2 (6) grade 3 (3); total: 9 patients Group 1: Infectious complications: 11 (14.5%); Non-infectious complications 30 (39.5%); Lack of complications 43 (56.6%) Group 2: Infectious complications: 5 (7.6%); Non-infectious complications 26 (39.4%); Lack of complications 38 (57.6%)		Overall: grade 1 (4) grade 2 (0) grade 3 (1); total: 5 patients	Overall: grade 1 (22) grade 2 (3) grade 3 (1); total: 26 patients	Overall: grade 1 (14) grade 2 (2) grade 3 (2); total: 18 patients	Overall: grade 1 (18) grade 2 (0) grade 3 (0); total: 18 patients	Overall: grade 1 (7); grade 2 (4); grade 3 (1); total: 12 patients	
47 11	#4190	Hasanzadeh 2017 Antibiotics/resistance					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
48 12	#3287	Hsieh 2016 also PICO 3 Antibiotics	Group 1: 29 cancers detected Group 2: 36 cancers detected				Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine		Group 1: 8 patients (3%) Group 2: 1 patient (0.4%)							
20	#42	Huang 2014	100,00%	not mentioned	fever group: 20 (28.6%); non-fever group: 44 (31,4%)	not mentioned	Different protocols: single IM injection of 80 mg gentamicin + oral 500 mg cefadroxil every 12 hours for 5 days after biopsy; IV injection of 1 g cefazolin + oral 500 mg cefadroxil every 12 hours for 5 days after biopsy; oral pipedemic acid (250 mg) every 12 hours for 3 days from the day before the biopsy Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA		Sepsis - 1.39% (70/5027)	1/70 ICU	na	na	na	na		na

			fever group: 20 (28.6%); non-fever group: 44 (31,4%)		significance not recorded		Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
49 13	#4176	Izadpanahi 2017 Antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
21	#45	Jeremiah 2013	not mentioned	not mentioned	not mentioned	not mentioned	All participants: gentamicin (3mg/kg IV before procedure) and norfloxacin (400 mg orally, twice daily for 3 days starting 1 day before the procedure) + enema Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine		1/459 (0,22%): positive culture 2 days after the procedure;	0.43% (2/459) - admission with infective complications	na	na	na	na		na
50 14	#3845	Kandil 2016 Resistance antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
22	#48	Kim 2014	not specified	not mentioned	64/223 (39.8%) not specified	not mentioned	Self-administered enema + prophylactic antibiotics: 74% FQ, 26% third-generation cephalosporin in a 3-day regimen on the day before the biopsy and following Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine		2.5% (4/223)	0,00%	na	na	na	na		na
51 15	#3795	Klemann 2017 Antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB)									
18	#36	Goluza 2011					Peri-procedural povidone-iodine									
23	#52	Lee 2015	Not reported	not mentioned	not mentioned	not mentioned	All participants: self-administered enema (2). Group 1: 500 mg FQ orally twice daily for 3 days beginning 12 hours before the biopsy VS Group 2: 2 g IV ceftriaxone once before biopsy and 500 mg FQ orally twice daily beginning 12 hours before the biopsy for 3 days VS 2 g IV ceftriaxone once before biopsy and 500 mg FQ orally twice daily beginning 12 hours before the biopsy for more than 7 days Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine		Overall: 0.48% (27/5577) Group 1: 1.0%, Group 2: 0.3%, Group 3: 0.2%	Group 1: 0.1%; Group 2: 0.0%, Group 3: 0.0%	Overall: 0.23% (13/5577)	na	Bleeding (general) 0.41% (23/5577)	na		na
52 16	#3694	Lee 2016 Antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
53 17	#4173	Li 2017 Local anesthesia Pain					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
24	#53	Linden-Castro 2014	not mentioned	not mentioned	not mentioned	not mentioned	All participants: bowel preparation with polyethylene glycol orally on the day of the biopsy. Group A (single dose of 500 mg Levofloxacin) vs Group B (500 mg Levoflaxacin every 24 hours for 2 days) Periprostatic lidocaine (all patients)		Group A: 4,30% Group B: 4.45%	Group A:0.97% Group B: 0.00%	not mentioned	na	na	na		na
25	#54	Loeb 2013	na	na	na	na			not specified	range: 0-6.3%	range: 0.2%-1.7%	range: 10%-84%	range: 1.3%-45%	range: 1.1%-93%		not specified
26	#55	Lorber 2013	A = 8%, B= 31.5%, C = 10%, D = 0%	not mentioned	not specified	not mentioned	Group A (FQ only) vs Group B (FQ + 80 mg gentamicin) vs Group C (FQ+ 160 mg gentamicin) vs Group D (FQ + 240 mg gentamicin)		Group A: 21 (3.6%), Group B: 19 (3.5%), Group C: 10 (2.7%), Group D: 1 (0.6%)	Total: 110 (2.4%)	na	na	na	na		na

54 18	#3560	Luan 2016					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine	Not considered	LAG - 5.4% NBG - 3.6%		LAG - 5.2% NBG - 3.9%	LAG - 53% NBG - 46.2 %	Not considered	LAG - 7% NBG - 5.8 %	Not considered	Not considered
55 19	#4089	Meng 2017 Resistance antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
27	#59	Minamida 2011	58%	not mentioned	Not specified	not mentioned	500 mg Levofloxacin orally once daily for 3 days, beginning 2 hours before biopsy		13% (13 pts) - Ecoli	0,00%	na	na	na	na		na
28	#62 covidance no. #1929	Otunctemur 2013	Not mentioned	not mentioned	not mentioned	not mentioned	All participants: 500 mg Ciprofloxacin starting 2 days before and at least 5 days after+ 2 fleet enema. Group 1 (159): perianal intrarectal lidocaine gel vs Group 2 (314): periprostatic nerve blockade		na	na	na	na	na	na		na
56 20	#4077	Pascual Jr 2016 Antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
57	#3536	Qiao 2016														
21	Geen naam op reference! A multicenter, controlled, randomized, open-label clinical study of levofloxacin for preventing infection during the perioperative period of ultrasound-guided transrectal prostate biopsy.	Antibiotics					Test group - levofloxacin 500mgs - 3 days Control group - IVabs (centre sepecific)		Test group - 4.6%, Control group - 4.4%	Test group - 0.3% Control group - 1%						
58 22	#3714	Ryu 2016 Antibiotics Rectal cleansing					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
59 23	#3586	Samarinas 2016 Antibiotics/resistance Profylaxis					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
29	#69	Sen 2015	Group 1: 36 (24.0%) Group 2: 39 (26.0%)	not mentioned	Not specified	not mentioned	All participants: self-administered enema. Group 1: single dose of 3 g oral fosfomycin the night before the procedure VS Group 2: 500 mg oral ciprofloxacin 60 min before the procedure		Afebrile uti-Group 1: 2 (1.3%) Afebrile uti-Group 2: 9 (6.0%) Febrile UTI-Group 1: 1 (0.6%) Febrile UTI-Group 2: 2 (1.3%)	Group 1: 1 (0.6%) Group 2: 2 (1.3%)	na	na	na	na		na
60 24	#4005	Singh 2017 Rectal cleansing					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA									

							Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
61 25	#3416	Summers 2015 Profylaxis Rectal cleansing					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
30	#78	Taylor 2013	162 (19.1%)	not mentioned	Not specified	not mentioned	All participants: 3-day course of 1000 mg ciprofloxacin administered daily + self-administered enema; Group 1 antibiotic only VS Group 2 antibiotic + rectal cleansing with a gauze soaked with povidone-iodine Rectal swabs pre-biopsy.		18 (2.1%)	11 (1.3%), transient fever -18 (2.1%), UTI - 2 (0.2%), sepsis - 11 (1.3%)	na	na	na	na		na
62 26	#3848	Trujillo 2016 Rectal cleansing					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
31	#80	Unnikrishnan 2015	Group 1: 228/497 (45.9%) Group 2: 268/598 (44.8%)	not mentioned	Not recorded Not recorded	not mentioned	Group 1: AG + 500 mg ciprofloxacin VS Group 2: AG + 750 mg levofloxacin		Group 1: 17/535 (3.18%) Group 2: 14/654 (2.14%)	Group 1: 11/13 Group 2: 4/6	na	na	na	na		na
63 27	#4198	Urabe 2017 Local anesthesia					Intra-rectal local anesthesia + lignocaine (PPNB) Caudal block									
32	#81	Utrera 2011	84/220 (38.2%)	not mentioned	not recorded	not mentioned	Enema + anxiolytic medication + 500 mg ciprofloxacin on the morning of the procedure + 2 tablets of 500 mg ciprofloxacin 12 and 24 hours after the first tablet Mepivacine.		3,20%	0,50%	25,00%	na	na	na		na
64 28	#4236	Valdez-Flores 2017 Local anesthesia					Group 1: 10 ml non-medicated lubricating gel 30 minutes before; Group 2: 10 ml 2% lidocaine gel 30 minutes before Goup 3: 100 mg indomethacin suppository 30 minutes before Group 4: 10 ml of prilocaine/lidocaine (EMLA) cream to reach a final concentration of 5%, 1 hour before					Group 1: 2 Group 2: 1 Group 3: 1 Group 4: 1	Group 1: 0 Group 2: 0 Group 3: 3 Group 4: 1				
65 29	#3733	Walker 2016 Profylaxis Antibiotics					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									
33	#84 covidacen no. 2580	Wang 2015	na	na	na	na			not specified	not specified	not specified	not specified	not specified	not specified		range not specified
34	#86	Williamson 2013	na	na	na	na			range: 2%-6%	range not specified	na	na	na	na		na
66 30	#3832	Yan 2016 Pain					Intra-rectal EMLA + lignocaine (PPNB) Intra-rectal EMLA Lubricating gel + lignocaine (PPNB) Peri-procedural povidone-iodine									

35	#91	Zani 2011					antibiotic VS placebo or no treatment; antibiotic class A VS class B; single-dose VS multiple-dose treatment; short-course (one day) VS long-course treatment (three days); oral VS systemic administration (intravenous (IV) and intramuscular (IM)); antibiotic VS enema		range not specified	range not specified	na	na	na	na		na
							Intra-rectal EMLA + lignocaine (PPNB)									
			not specified	not mentioned	not mentioned	not mentioned	Intra-rectal EMLA									
							Lubricating gel + lignocaine (PPNB)									
							Peri-procedural povidone-iodine									
36	#93	Zaytoun 2011					Group 1: single dose of 500 mg ciprofloxacin 1 hour before bipsy VS Group 2: fleet enema + 3 day course ciprofloxacin tablets (500 mg/d) beginning 1 day before biopsy		40/1446 (2.77%)	9/40 (0.62%)	na	na	na	na		na
			100,00%	not mentioned	not mentioned	not mentioned	Intra-rectal EMLA + lignocaine (PPNB)			Group 1: 5/9						
							Intra-rectal EMLA			Group 2: 4/9						
							Lubricating gel + lignocaine (PPNB)									
							Peri-procedural povidone-iodine									
67	#4121	Zembower 2017														
31		Antibiotics Profylaxis					Intra-rectal EMLA + lignocaine (PPNB)									
							Intra-rectal EMLA									
							Lubricating gel + lignocaine (PPNB)									
							Peri-procedural povidone-iodine									
68	#3278	Zhang 2017														
32		also PICO 4 Rectal cleansing	not mentioned	not mentioned	not mentioned	not mentioned	Group A received conventional soft soap enema; Group B received self–administrated polyethylene glycol (PEG) electrolytes powder (7.14 grams/1 liter of water); Group C received self–administrated PEG electrolytes powder (7.14 grams/1 liter of water) the night before the prostate biopsy, plus the retention enema with povidone iodine (PVP-I) (about 100 ml, 0.5%) for at least 10 minutes approximately 0.5 h before the prostate biopsy.	Group A 2 h before the biopsy Group B the night before the prostate biopsy Group C self–administrated PEG electrolytes powder the night before the prostate biopsy, plus the retention enema with povidone iodine for at least 10 minutes approximately 0.5 h before the prostate biopsy	Fever and UTI: Group A 23 (5.72%) Group B 20 (4.84%) Group C 5 (1.59%)	No sepsis in all 3 groups	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not mentioned

Number	Number Covidence Complications (Original listing)	Author, year	Complication outcomes Pain during DRE, VAS (%, N)	Complication outcomes Pain during probe insertion, VAS (%, N)	Complication outcomes Pain during TRUS, VAS (%, N)	Complication outcomes Pain during PPNB, VAS (%, N)	Complication outcomes Pain at the end of TRUS, VAS (%, N)	Complication outcomes Overall pain, VAS (%, N)	Complication outcomes Pain, 7 days, VAS (%, N)	Complication outcomes Erectile dysfunction, 7 days (%, N)	Complication outcomes Prostatitis (%, N)	Complication outcomes Pyelonephitis (%, N)	Complication outcomes Vaso-vagal attack,7 days (%, N)	**Complication outcomes Mortality, 7 days (%, N)**	Bacterial resistance to antibiotics:	Other. Please add any data you feel is interesting.	Conclusion / remarks
1	#2	Abugosh 2012 The PDF in Covidence is the PDF of Abugosh 2013. Can we reject Abugosh 2012? ("=older paper on the same study) or do we need the correct PDF?															Randomisation process not explained
2	#1	Abugosh 2013											n=0 (control: n=3)				
37 1	#3976	Adamczyk 2017 Antibiotics Patient assessment													Ampicilin (59.8%); Amoxicillin + clavulonian acid (14.28%); I generation cephalosporin - Cephalexin (7.14%); IIgeneration cephalosporin - Cefuroxim (5.35%); Trimetoprim/sulphametoxazole (36%); Ciprofloxacin (52%)	On the rectal swab, E. Coli was found in 112 patients. Of those, after incubation, in 47 was not found.	In fluoroquinolone-resistant E.coli, 1º generation of cephalosporins seems to be a best choice for transrectal ultrasound-guided biopsy prophylaxis. 2º generation of cephalosporins should be considered for treatment of the eventual subsequent infection. The evaluation of rectal swabs before prostate biopsy is crucial in determining targeted antimicrobial prophylaxis.
38 2	#3638	Anastasi 2016 Local anesthesia					Group A: VAS I - 1.32 ± 0.65; VAS II - 2.47 ± 0.80 Group B: VAS I - 1.09 ± 0.47; VAS II - 1.65 ± 0.61 Group C: VAS I - 2.63 ± 0.78; VAS II - 1.70 ± 0.85									Vas I - evaluation at the end of biopsy; Vas II - evaluation 30 minutes after biopsy	The study determines that the most effective method for pain control was intrarectal local anesthetic administration + lidocaine local spray 15%
3	#9	Anup 2013			Value in mean +/- Standard deviation p<0.001 (S) Group A: 1.3 +/- 0.3 Group B: 1.4+/- 0.4 Group C: 5.1+/- 0.6	Value in mean +/- Standard deviation p<0.001 (S) Group A: 1.1 +/- 0.2 Group B: 1.3+/- 0.2 Group C: 3.5+/- 0.3			Value in mean +/- Standard deviation p<0.001 (S) Group A: 0.6 +/- 0.3 Group B: 3.5+/- 0.4 Group C: 1.4+/- 0.4	Not mentioned	Not mentioned		Group A: n=0 Group B: n=0 Group C: n=0	None			Combined periprostatic nerve blok (PPNB) and perianal/intrarectal lidocaine-prilocaine (PILP) cream compared to other form of analgesia result in beter analgesia without increase of complications. A multivariate linear analysis has showed that the effect of PPNB+PILP is more significant in patients >60 years of age, prostate volume >50 ml and lower anorectal compliance
39 3	#3737	Ates 2016 Local anesthesia Pain					Total: 2.1±1.8 Group 1: 2.4±1.8 Group 2: 2.5±1.9 Group 3: 1.6±1.6									All patients underwent 12-core biopsies.	A combined use of perianal intrarectal lidocaine gel and PPNB with 4 mL 2% lidocaine is recomended for better pain control when compared to perianal intrarectal application of 10 mL 2% lidocaine gel alone and PPNB with injection of 2 mL 2% lidocaine.
40 4	#4053	Bloomfield 2017 **Antibiotics/resistance**													**Pre-biopsy rectal swab**: ESBL/AmpC-E: 18 (6.4%); Ciprofloxacin-resistant Enterobacteriaceae: 15 (9%); Acinetobacter spp 19 (5.8%); Pseudomonas spp 67 (20.6%); Stenotrophomonas maltophilia 6 (1.8%); Other oxidase positive non-lactose fermenter: 4 (1.2%); Total: 96 (29.4%) Post-biopsy rectal swab: Enterobacteriaceae with isolated reductions in ertapenem susceptibility 3 (0.9%); Acinetobacter spp 10 (3.1%); Pseudomonas spp 73 (22.4%); Stenotrophomonas maltophilia 6 (1.8%); Other oxidase positive non-lactose fermenter: 7 (2.1%); Total: 96 (29.4%)	All patients had a rectal swab prior to receive antibiotic prophylaxis and after the biopsy (4-6weeks later) Antibiotic prophylaxis (one gram of ertapenem intramuscularly one hour before biopsy	ertapenem may represent a better option for prophylaxis from both an efficacy and an antimicrobial stewardship perspective, particularly in areas where fluoroquinolone resistance is becoming increasingly common Our approach using a single dose of ertapenem is effective, safe, and not associated with the development of resistance in our population.
41 5	#3811	Cai 2017 **Antibiotics**													Group 1: E. Coli 8 (80) (of those was noticed 6 FQ-resistant E. Coli and 3 ESBL); Enterococcus faecalis 1 (10); Klebsiella spp 1 (10) Group 1: E. Coli 39 (67.2) (of those was noticed 15 FQ-resistant E. Coli and 9 ESBL); Enterococcus faecalis 11 (18.9); Klebsiella spp 8 (13.9)	Group 1: patients who received a dose of 3 g FT (fosfomycin trometamol) orally 3 h before and 3 g 24 h after the first administration Group 2: all patients who received 500 mg CIP (ciprofloxacin) as prophylaxis administered orally twice daily for 5 days starting 1 day before the procedure	Prophylaxis with fosfomycin trometamol for TR-PB had a lower rate of adverse events and a lower rate of symptomatic UTIs as compared with ciprofloxacin. Results show that fosfomycin trometamol seems to be a good prophylatic regimen

																All patients received a self-administered fleet enema 2 h before the biopsy Charlson comorbidity index - Group 1: 0 (598 (94.6)), 1 (32 (5.0)), 2 (2 (0.4)9, Group 2: 0 (461 (96.6)), 1 (16 (3.4)), 2 (0)	
4	#12 (covidance #832)	Cantiello 2012			Value in mean +/- Standard deviation p=0.198 (NS) Group 1: 1.36 +/- 0.53 Group 2: 1.22 +/- 0.44	Value in mean +/- Standard deviation p=0.749 (NS) Group 1: 1.32+/- 0.71 Group 2: 1.34+/- 0.69			Not mentioned	Not mentioned	Not mentioned		Not mentioned	None			IRLA+Pelvic plexus blok is a better analgesia than IRLA+ Periprostatic Nerve Blok Possible Bias: complications were taken in data (patients were asked to full a questionnaire at home but results are not specified (no table). Just specified in text no serious complications (definition of serious complication was not given- could have be done according the common terminology criteria adverse events (CTCAE)
5	#15	Chan 2012 Chan 2012			NA	NA			NA	NA	Group A: n=5 Group B: n=0		Not mentioned	None			Bia's: Number of cores was dependant of prostate volume (volume was not specified and neither number of cores, only average). PSA was very high in both groups!! Only Chinese population. It is not clear to me why the author has chosen for one arm with Amoxicillin Clavulanate and Ciprofloxacine and one arm with only Amoxicillin Clavulanate instead to compare Amoxicillin to Ciprofloxacine. Allergy Chinolone was not an exclusion criteria. Chronic prostatitis was not an exclusion criteria. No urine culture before biopsies. Repeated biopsies not as exclusion criteria. To many BIA'S to take the results of this study in the guidelines PC: This study looked at standard of care Cipro + Augmentin and compared it to Augmentin alone really to see if the Cipro was still useful and it was. There are often an increased number of cores taken in larger glands which might be discussed in the guidelinesElevated PSA related to chineese population with no regular screening and late presentation.
6	#16 (#796)	Chen 2016			CT: Not mentioned	CT: Not mentioned			CT: Not mentioned	CT: Not mentioned	CT: Not mentioned		CT: n=11 (2.7%)	CT: None		CT: Complication outcomes Pain during biopsies, VAS (%, N) CT: n=308 (75.3%) no pain (VAS 0), n=97 (23.7%) mild pain (VAS 1-3), n=4 (1%) moderate pain (VAS 4-5), n=0 (0%) severe pain (VAS 6-10)	No difference regardless of prostate volume or PSA, but more haemauria in 13 cores CT: Bia's: retrospective study. Profylaxis antibiotica fluoroquinolones or cephalosporin. 10-core biopsy bears a much lower risk of hematuria complication as compared with 13-core biopsy
7	#18	Chowdhury 2012			na	na			na	na	na		na	none		significant (but weak)association between number of core biopsies and bleeding . According to me because of the weakness of significanty, we **cannot** write in the guidelines that more core biopsies=more chance of hematuria, rectal bleeding and hemosperma	Warfarin and low dose aspirin during TRUS biopsies do not cause more bleeding and can be continued.
8	#19	Ciclone 2012			not mentioned	During biopsies procedure: VAS (mean). Group A: 1,4. Group B: 1,4. 30 minutes after the procedure: Group A: 1,3 Group B 1,2. The evening at the same day: Group A: 0,3 Group B: 0,2			not mentioned	not mentioned	not mentioned		not mentioned	None		Bia's: one of the variable is bleeding but it is not specified if the participants were using aspirin or other anticoagulant or if they discontinue this medicine before the biopsies	No difference in bleeding or pain when using a 16 or 18 gauge needle. Milde bleeding rate after TRUSbx is conform to other studies. PC this is a useful paper because it says something about the size of needle to use for the biopsy butdoesnt say anything very useful about complications
9	#20	Cook 2015			NA	NA			NA	NA	Not mentioned		NA	None		Significant difference in age, PSA and prostate cancer in group swab/ non swab which is a Bias. It seems that the decision to perform a rectal swab or not was influenced by this variables. That's the weakness of a retrospective study. You may select your intervention group. You do not have this issue in a randomized study. Resistance to ciprofloxcine in swab: n=43/244 (18%) which is conform to the literature (10-40%). Most organism found was e-coli (n=33)	patients with targeted antibiotics before TRUS biopsies have signicant less infections than patients with standard profylaxis (ciprofloxacine). Rectal swab before TRUS bx could be done to detect a resistance to ciprofloxacine before performing TRUS Bx but cannot be recommanded (this study is retrospective and has some Bias) PC: Because this is a retrospective study there was great variability in the antibotics used prior to the introduction of TAP so you are not comparing TAP to best practice without a rectal swab. It has a very high risk biasis and should be excluded as only retrospective case series

10	#22 (#854)	Cormio 2012			C.T. pain at prostate sampling (VAS-3) Group 1 PI LP+LK: 0,52 (0,69) Group 2 PI LP+PPNB: 0,51 (0,67) NS	C.T. pain during periprostatic infiltration (VAS-2) Group 1 PI LP+LK: NA Group 2 PI LP+PPNB: 1,35 (1,13)										C.T: Data extraction of Philip doesn't concern this article but Cormio 2014 (#854). Probably mistake with the # number of Cormio 2012 (cannot be the same as Cormio 2014) C.T Maximal procedural pain (MPP).Group 1 PI LP+LK: 0,68 (0,69) Group 2 PI LP+PPNB: 1,53 (1,03) Significant (p<0,001)	Addition of 4 lateral samples did not increase cancer detection over 10 cores. The addition of 4 paramedian samples was only beneficial for men with a low PSA density (<0.15) C.T. PI LP cream was very effective on probe- but not on periprostatic infiltration-related pain,which was found to be the most painful part of the procedure. Combined PI LP cream and PPNB, currently advocated as the best topical anaesthesia. by preventing the non-negligible periprostatic infiltration-related pain, the novel combination of PI LP cream and LK gel can provided significantly better overall patient compliance to the procedure but can not become the new "gold standard anesthesia"procedure. Therefore more studies are needed
11	#23	Culkin 2014			na	na			na	na	na		na	na			Uninterrupted use of aspirin does not increase the risk of moderate/severe hematuria, hemospermia or rectal bleeding after TRUSBx.Thus, halting aspirin before such biopsies for the patient with moderate to high thromboembolic complications cannot be recommended. PC: AUA consensus statement on anticoagulation and antiplatlet therapy of which part is relevant to TRB as this is assessed
12	#24	Cussans 2016			na	na			na	na	na		na	na			Targeted prophylactic antimicrobial therapy before TRUS-guided prostate biopsy is associated with lower rates of sepsis.Findingsof this review support incorporation of rectal swabs before TRUS-guided biopsy in to diagnostic pathways when the prevalence of fluoroquinolone resistance (FQ-R) flora is similar to that seen in these studies. PC: Targeted antibiotics makes sence if the rate of fluroquinolone resistance is equivalent to this group from USA and western Europe (22.8%)
42 6	#3531	Dadashpour 2016 Antibiotics																
43 7	#4131	Du 2017 Pain		Group 1: 2.21 (1.60–2.82) Group 2: 2.55 (1.93–3.17)	Group 1: 3.00 (2.40–3.60) Group 2: 2.81 (2.28–3.34)		Group 1: 2.11 (1.44–2.78) Group 2: 1.46 (0.79–2.13)	Group 1: 2.85 (2.27–3.43) Group 2: 2.66 (2.18–3.14)								All patients underwent 12-core biopsies. Group 1 Anxiety: 4.23 (3.26–5.20) Group 2 Anxiety: 3.98 (3.16–4.80)	There is no advantage in waiting 5 min after PPNB prior to TRUS-guided prostate biopsy when compared to no waiting in reducing the pain related to the procedure.
13	#27	Duplessis 2012			na	na			na	na	56% identified prostatic inflammation		na	none		Patient population: 25% had prior TRUS bx, 56% had prior antibiotics exposure, 25% had Fluroquinolone exposure within 1 year before TRUS, 15% had Cephalosporin exposure within 1 year before TRUS. 79% received prophylactic Fluroquinolone, 14% (n=32) had FQ-resistant isolates on rectal swabs (1,3%- n=3, had ESBL producing isolates). A total of 12% FQ resistance was identified in patients with prior prostatic biopsies. No difference between FQ-resistant flora and ethnicity (P ⍰.073). But in univariate analysis Asian had significant FQ- resistant flora (p=0,02) and older patients too (p=0,003)	Prior prostatic biopsies are the most significant risk factor (positive correlation) of prostatic inflammation after bx, in addition to FQ-resistant rectal flora, and prior FQ-antibiotic exposure (both negatively correlated. Low rate of infectious complications of TRUSguided biopsies compared to the prevalence of Cipro resistant E. coli in stool cultures from patients (ciprofloxacin resistance is a necessary but not sufficient explanation for postprocedure infection!). As conclusion: rectal swab prior TRUS bx can be done to identify FQ- resistant flora but cannot be recommanded in our TRUS guidelines (low rate of infection unless FQ resistant flora found, probably due to prior antibiotics used/ prior TRUS bx). More studies are needed to recommend rectal swab prior bx PC: This paper is old and has been superceeded by the meta-analysis above. The only really useful thing is they point out that repeat biopsy is more likely to be quinolone resistant (because they are likely to have had Cipro last time)
14	#29	Efesoy 2013																

					na	na			na	Not mentioned	Not mentioned direcctly but 68/2049 (3.3%) had persistant dysuria		7,7% (n=158/2049)	none		79,2% had minor complications and 1,3% serious complications. **In 137/348 (39.4%) of patients with sign of infection, culture positivity was observed. Escherichia coli (78.1%), Enterococcus spp. (9.5%), Enterobacter spp. (7.3%), Pseudomonas spp. (2.2%), Klebsiella spp. (2.2%).**	No control group (no randomisation). Just descriptive study. No recomandation possible. The author suggest that the use of profylaxis alfa blokkers can decrease voiding disorders but this study is not proper to affirm that (then you need a control group/randomized study and you need to use a regression analysis for prediction). In culture positivity, e-coli as other studies remains the main organism responsible for infection. All the patients received Ciprofloxacin prophylactic but this study didn't describe resistance to ciprofloxacin (it is not possible that none cases had resitance to antibiotics!). Other BIAS: not mentioned if patients had previous TRUS bx (probably included in this study because it was not an exclusion criteria) PC: Above true but as a descriptive study of the complications seen after TRB this is a large series. Normally you worry about under-reporting of complications but the patients were seen at 10 and 30 days to minimize the risk. I think this will be useful in deciding what baseline looks like
15	#30	Ehdaie 2014			NA	NA			NA	NA	NA		NA	None		BIAS: Age is low mean 63 (60-69). Prostate cancer is mostly diagnosed in late age. Could be a patient selection. Old men have more comorbidities (higher risk of infection after bx?). The authors found that increased patient age was also not associated with infectious complications but maximal age was 69 years old. What if most of patients were 75 years old? All the patients had previous exposure to antibiotics (prior bx) which had altered bowel flora and harbored resistant organisms. Patients with diabetes do not have an increase risk of infection	The risk of post-biopsy infection for a man who has undergone 1 or 2 previous biopsies is about 2%. Risk then starts to increase until it reaches 15% for patients who have undergone 5 or more biopsies. More studies are needed to confirm that! PC: Increasing risk of infection with number or previous biopsies is useful information but this remains a cohort study
44 8	#3678	Fabiani 2016 Pain	Group 1: 0.42 ± 0.66 Goup 2: 0.45 ± 0.72	Group 1: 3.49 ± 3.17 Goup 2: 1.09 ± 1.68	Group 1: Group 1: 3.49 ± 3.17 Group 2: 1.09 ± 1.68 Goup 2: 2.0 ± 2.03											All patientd underwent 12-core biopsies	Patients experienced less pain with the 58mm circumference probe not only during the insertion of the probe trough the anal sphincter, but also at the moment of needle piercing and so ultrasound probe geometry may influence pain perception.
45 9	#3731	Fahmy 2016 Antibiotics									Group 1: the patient who had febrile UTI was diagnosed with prostatitis. Group 2: from the patients who had febrile UTI 2 were diangosed with prostatitis	Group 2: from the patients who had febrile UTI 2 were diangosed with pyelonephitis		Group 1: 0 Group 2: 0	Group 1: patients with febrile UTI performed urine cultures. It was identified E. coli (2 patients), Streptococcus (1 patient) and Pseudomonas (1 patient). 3 of the 4 patients were fluoroquinolones resistant. Group 2: patients with febrile UTI performed urine cultures. It was identified E. coli (13 patients), Klebsiella pneumoniae (4 patient) and Staphylococus epidermidis (1 patient). 13 of the 18 patients were fluoroquinolones resistant.		Single-dose fosfomycin before TRUS biopsy significantly reduces infectious complications when compared with standard FQ-based therapy E. coli was the most common isolated pathogen in the urine cultures in all patients with infectious complications (68%)
16	#34 (#1103)	Ghafoori 2015			CT: NA	CT: NA			CT: NA	CT: NA	CT: not mentioned		CT: NA	C.T: none		CT: All patients received antibiotic prophylaxis as follows: Metronidazole 250 mg every eight hours and Ciprofloxacin 500 mg every 12 hours, from two days before to five days after the biopsy, also 500 mg of Amikacin was administered by intravenous infusion, 6 and 1 hour before biopsy. This prophilactic antibiotica scheme is very unsual!!	Small groups but randomised. V high rates of infection despite aggressive antibiotic regime. 12 cores best. CT: infection rate in 18-core biopsy protocol was significantly higher the in 12-core and 6-core biopsy protocols, respectively (P = 0.028 and P = 0.001)
17	#35 covidance no. #1115	Gil-Vernet Sedo 2012			Patients were under sedation with intravenous propofol and remifentanil	Patients were under sedation with intravenous propofol and remifentanil			not mentioned	not mentioned	not mentioned		not mentioned	None		BIAS: no control group (not randomized study), patients were "selected" (inclusion criteria, only patients with negative urinary culture before bx). In many studies or in practice, no urinary cultures before the procedure. Patients are mostly excluded if they have an active urinary infection (it means with symptoms and of course positive urinary culture). A positive urinary culture doesn't mean that patients have an active urinary infection. It means asymptomatic bacteriuria. In the conclusion the author mentioned the low cost of endorectal povidone-iodine gel as a bactericidal agent for prophylaxis against infection. I DO NOT AGREE! The author forget the cost of sedation which is more expensive than local anesthesia PC: we would dip test a urine sample prior to performing TRB and not proceed if it is possible so I dont think the negative culture is such a bias. It certainly has no control group and is begging for a study to compair targeted antibiotic vs Cipro plus iodine. The interesting question is why they had sedation. When we used to use Iodine washout there was an increased risk of vaso-vagal issues but this is not clear from the paper and may be cultural	Intrarectal application of 30gr of 10% povidone-iodine gel in addition to antibiotic prophylaxis can reduce the risk of infection after TRUS bx in patients with negative urine culture before TRUS bx, independant of the number of Bx cores (10-40)

18	covidance no. #1129	Goluza 2011			The median (interquartile range) pain score in the L group, 3.0 (2.2–3.8), was significantly lower than the median pain score in the G group, 4.0 (3.2–4.8), p = 0.001 Group Lidocaine, time of the placement of the suppository before the procedure: 15-45 minutes median VAS 3,6. 45-90 minutes median VAS 3,0. >90 minutes median VAS 2,5. Group Glycerol, time of the placement of the suppository before the procedure: 15-45 minutes median VAS 3,8. 45-90 minutes median VAS 3,9. >90 minutes median VAS 4,3.	na			not mentioned	not mentioned	not mentioned		not mentioned	None		Bias: not specified if previous biopsies or not. In patients with previous TRUS bx, they know what they can expect (the pain they can expect because they already have the experience). It is a pity that this study didn't compare the Gold standard anesthesia procedure (PPNB) with Lidocaine suppositories. PC: agree completely it is not surprising that some analgesia works better than no analgesia	Lidocaine suppositories could be used before TRUS bx as local anesthesia. Biopsies could be started biopsy approximately 1 h after the placement of the suppository.
19	#38	Gyorfi 2014			na	na			na	na	na		na	na		the 8 participants who had a febrile post-biopsy infection had positive cultures. 5/8: + E. Coli 1/8: + ESBL E. Coli 2/9: + mixed flora	
46 10	#3974	Hamarat 2017 Resistance antibiotics														Before the procedure, microscopic analysis, and cultures of the urine samples were performed, and rectal swabs were obtained from all patients patinents receiving anticoagulants stoped 7days before biopsy prophylaxis done with oral ciprofloxacin for a total of 7 days (500 mg bid the day before the biopsy, 500 mg in the morning of the biopsy, and 500 mg bid for 5 days after biopsy) bowel cleansing enemas were used before biopsy Group 1: Ciprofloxacin-resistant E.coli Group 2: Ciprofloxacin-sensitive E.coli	A significant difference was not detected between age groups as for E.coli in rectal swab cultures resistant to antibiotherapy Higher rates of infectious complication was observed in ciprofloxacin-resistant E. coli detecte in rectal swab group.
47 11	#4190	Hasanzadeh 2017 Antibiotics/resistance													From the 73 patients with bacterial resistance do ciprofloxacin 70 patients (95.9%) had E.Coli, 2 patients (2.7%) had Citrobacter, and 1 patient had Pseudomonas spp. 94% resistance to Ampicilline; 89.5% resistance to trimethoprim-sulfamethoxazole; 36.8% to 52.6% resistance to cephalo- sporin generations; 5.3% resistance to Fosfomycin; 0% resistance to imipenem; 63.2% resistance to gentamicin; 36.8% resistance to amoxicillin/clavulanic acid; 10.5% resistance to piperacillin–tazobactam and amikacin	All patients receive oral fluoroquinolone as the prophylactic antibiotic (500 mg, 2 hours before the biopsy up to 4 days after biopsy twice daily) rectal swabs were collected from all the patients immediately before biopsy Group 1: Ciprofloxacin susceptible; Group 2: Ciprofloxacin resistant.	Patients characteristics connected to an increased risk of fluoroquinolon resistance are: history of hospitalization in the last year; use of fluoroquinolones in the last 6 months; history of UTI; prostatitis in the last 4 months; previous biopsy; aging. Evaluation of risk factors can predict the presence of antibiotic-resistant bacteria carried The conclusion is that Identification of antibiotic-resistant bacteria in the rectum along with their ntibiotic susceptibility patterns could beuseful factors in the determination of appropriate antibiotic therapy and targeted prophylaxis
48 12	#3287	Hsieh 2016 also PICO 3 Antibiotics														Group 1: received one oral dose of levofloxacin (500 mg) daily 2 days before the biopsy, on the day of the biopsy, and for 2 days after the biopsy Group 2: received a single IM gentamicin injection (80 mg) 30 minutes before the biopsy in addition to the same oral levofloxacin protocol as Group 1 Bowel preparation: Bisacodyl (Dulcolax) suppositories at the previous night, and a cleansing enema before the biopsy. Cores: patients with superhigh PSA levels demonstrating osteoblast bone metastasis received 10 cores prostate biopsy; all other patients received 12e16 cores biopsy. Cores were obtained at the apex, middle, and base of the bilateral prostate lobes in the parasagittal plane	There was no statistically significant association between comorbidities including diabetes, hypertension, age, biopsy core number, and the pathology with postbiopsy infection-related complications, except antibiotics prophylaxis The addition of IM gentamicin (80 mg) is beneficial in improving the efficacy of fluoroquinolones and reducing the post-TRUS biopsy infection rate. Once a post-TRUS biopsy-related infection is noted, third or fourth generation cephalosporins, carbapenem, or piperacillin/tazobactam are the recommended empirical treatments.
20	#42	Huang 2014			na	na			na	na	na		na	0,00%		21/70 fever-participants had a + urine culture: 33% -> + E. Coli, 47.6% -> + Gram-negative bacilli	

49 13	#4176	Izadpanahi 2017 Antibiotics															
21	#45	Jeremiah 2013			na	na			na	na	na		na	0,00%		2/50 patients only received antibiotics as per local guidelines (usually insufficient dosing).	
50 14	#3845	Kandil 2016 Resistance antibiotics															
22	#48	Kim 2014			na	na			na	na	na		na	na		161/233 participants had positive rectal cultres 130/161 (80.7%) -> + E. Coli ; 16/161 (9.9%) -> + K. Pneumoniae	
51 15	#3795	Klemann 2017 Antibiotics															
18	#36	Goluza 2011															
23	#52	Lee 2015			na	na			na	na	na		na	0,00%		Group 1: 7/18 admitted to hospital -> + E. Coli Group 2: 2/7 infectious complications > + E. Coli	
52 16	#3694	Lee 2016 Antibiotics															
53 17	#4173	Li 2017 Local anesthesia Pain															
24	#53	Linden-Castro 2014			na	na			na	na	na		na	not mentioned		Group A: 4.3% -> K. Pneumoniae, E. Coli Group B: 4.45 % -> K. Pneumoniae, E. Coli	
25	#54	Loeb 2013			not specified	not specified			not specified	0-91% (week 4), 0-88% (week 12) - Mild to severe	not mentioned		not mentioned	not specified		range not specified	Haemataspermia - 0.3% to common
26	#55	Lorber 2013			na	na			na	na	na		na	not mentioned		Of the 110 participants with an infection: 90 (82%) -> + urine/blood culture or both; 82 (74.6%) -> + urine culture; 35	

																(31.8%) -> + blood culture. 86% (of the 90 participants) -> + E. Coli	
54 18	#3560	Luan 2016	Not considered	Not considered	Not considered	Not considered	LAG - median=3.5 NBG - median=2.5		Not considered	Not considered	Not considered	Not considered	Not considered				Compared with local anaesthesia, ultrasound guided PNB has superior analgesic effect and equal safety, but for large prostate volume, the analgesic effect is inefficient.
55 19	#4089	Meng 2017 Resistance antibiotics															
27	#59	Minamida 2011			na	na			na	na	4% (4 patients)		na	not mentioned		13 participants (13%) -> + FQ resistant E. Coli 87 participants (87%) -> + normal E. Coli	
28	#62 covidance no. #1929	Otunctemur 2013			Group 1: 2.19 ± 0.9 Group 2: 2.18 ± 0.9	Group 1: 4.54 ± 1.02 Group 2: 2.06 ± 0.79			not mentioned	na	na		na	na		na	
56 20	#4077	Pascual Jr 2016 Antibiotics															
57 21	#3536 Geen naam op reference! A multicenter, controlled, randomized, open-label clinical study of levofloxacin for preventing infection during the perioperative period of ultrasound-guided transrectal prostate biopsy.	Qiao 2016 Antibiotics															Oral abs are equal to IVAbs.
58 22	#3714	Ryu 2016 Antibiotics Rectal cleansing															
59 23	#3586	Samarinas 2016 Antibiotics/resistance Profylaxis															
29	#69	Sen 2015			na	na			na	na	Group 1 - 26%, group 2 - 37%		na	not mentioned		78.6% -> + E. Coli 21.4% -> K. Pneumoniae	
60 24	#4005	Singh 2017 Rectal cleansing															

61 25	#3416	Summers 2015 Profylaxis Rectal cleansing															
30	#78	Taylor 2013			na	na			na	na	19 (2.2%)		na	not mentioned		Rectal swabs before the biopsy were performed on 849 participants (98.2%): 405/849 (47.7%) -> Gram + 30/849 (3.5%) -> no growth 414/849 (48.8%) -> Gram -; 80.9% -> E. Coli, 7.71% -> K. Pneumoniae	
62 26	#3848	Trujillo 2016 Rectal cleansing															
31	#80	Unnikrishnan 2015			na	na			na	na	na		na	0,00%		81% -> + E. Coli	
63 27	#4198	Urabe 2017 Local anesthesia		Group 1: Group 2:	Group 1: Group 2:	Group 1: Group 2:										Group 1: Intra-rectal local anesthesia + lignocaine (PPNB) Group 2: caudal bloack (CB)	
32	#81	Utrera 2011			na	na			na	na	not specified		na	0,00%		Positive prebiopsy cultures: E. Coli: 2%, E. faecalis: 0.9%, K. Pneumoniae: 0.5% Positive postbiopsy cultures: E. Coli: 4.6, Enterococcus: 1.9%, Pseudomona: 0,90%	
64 28	#4236	Valdez-Flores 2017 Local anesthesia		Median and interquartile Group 1: 5.0 [2.0] Group 2: 5.0 [2.0] Group 3: 3.0 [2.0] Group 4: 2.0 [2.0]	Median and interquartile Group 1: 5.0 [1.0] Group 2: 5.0 [4.0] Group 3: 3.0 [4.0] Group 4: 2.5 [3.0]											No. Of biopsy cores Group 1: 11.9 ± 0.9 Group 2: 11.9 ± 0.8 Group 3: 11.8 ± 0.6 Group 4: 12.2 ± 0.8	The study shows that application of 5% EMLA cream decreased pain intensity without increasing the complication incidences so it is recomended
65 29	#3733	Walker 2016 Profylaxis Antibiotics															
33	#84 covidacen no. 2580	Wang 2015			range not specified	range not specified			range not specified	not specified	not mentioned		not mentioned	not mentioned			
34	#86	Williamson 2013			na	na			na	na	na		na	range not specified		E. Coli: 75%-90%	Narrative - poor value paper
66 30	#3832	Yan 2016 Pain															

35	#91	Zani 2011			na	na			na	na	(exclusion criteria)		na	range not specified			
36	#93	Zaytoun 2011			na	na			na	na	na		na	na		9 participants developed sepsis; 7/9 -> + E. Coli	
67	#4121	Zembower 2017															
31		Antibiotics Profylaxis															
68	#3278	Zhang 2017															
32		also PICO 4 Rectal cleansing	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Abnormal Pain: Group A 4 (1.00%) Group B 10 (2.42%) Group C 9 (2.86%)	Not mentioned	Not mentioned	Not mentioned	Not mentioned	weakness, nausea, vomitting, abnormal distension Group A 54 (13.44%) Group B 97 (23.49%) Group C 73 (23.81%)	Not mentioned	Not mentioned		Doesn't answer to any PICO but it is giving us some information about complication rates after biopsy within different kinds of bowel cleansing. Small number of participants in the 3 groups, single center. Small evidence should be the conclusion.