

Guzmán Robledo X, et al. Accuracy of molecular diagnostic techniques in patients with a confirmed urine culture: A systematic review and meta-analysis

APPENDIX

Supplementary Table 1. Characteristics of included studies																			
Autor, year	Study type	Time	Setting	No. subjects	No. samples	Age	Female	L-UTI	U-UTI	C-UTI	UN-UTI	Out-patient	ICU	Urine collection method	Positive culture (cfu)	Culture agar plate	Molecular test	Tradename of molecular test	Most frequent germ by culture and molecular test
Lehmann L.E, 2011	Cross-sectional	NR	Germany	81	82	Mean 49 /range (18-79)	43 (53%)	39 (48%)	43 (52%)	NR	NR	NR	NR	Midstream URINE	>10 ⁵ CFU/ml	Cled-, macconkey-agar, and malt extract agar	RT-PCR	SEPTIFAST®	E. coli
McDonald M, 2017	Clinical trial	Jan to Dec 2016	United Sates	44		NR	29 (66%)	44 (100%)	0 (0%)	19 (43%)	25 (57%)	NR	NR	Midstream urine	>10 ⁵ CFU/ml	NR	RT-PCR + DNA pyrosequencing method	Microgen dx-decodextm	NR
DeMarco ML, 2014	Cross-sectional	NR	United Sates	100	100	NR	NR	NR	NR	NR	NR	NR	NR	NR	≥10 ⁵ CFU/ml	Sheep blood agar and macconkey agar	Diafiltration MALDI-TOF MS	NR	NR
Ishihara T, 2020	Case-series	Jan 2017 to Dec 2017	Japan	10	10	Median 85/range (66-89)	7 (70%)	2 (20%)	8 (80%)	7 (70%)	3 (30%)	6 (60%)	3 (30%)	NR	NR	NR	NGS methodology (bacterial 16s RRNA amplicon sequencing analysis)	Ionpgm	E. Coi
Wojno KJ, 2020	Cross-sectional	March to July 2018	United States	582	582	Mean 77/range (60-95)	235 (40%)	NR	NR	NR	NR	582 (100%)	NR	Clean catch or catheterization	≥10 ⁴ CFU/ml	Blood agar plates, colistin and nalidixic acid agar/macconkey agar plates	Multiplex-PCR	Guidance UTI test	E. Coi
Guzman-Puche J, 2019	Cross-sectional	NR	Spain	320	320	Men mean 60.6±20.4	277 (86.6%)	NR	NR	NR	NR	258 (80.6%)	NR	Nr	>10 ⁴ CFU/ml	Cysteine lactose electrolyte deficient (cled) agar	MALDI- TOF MS	MALDI- TOF microflex It mass spectrometer	E. Coi
Raja B, 2017	Retrospective cohort	Aug 5 to 18, 2014	United States	50	50	Median 80.5/range (13-104)	35 (70%)	NR	NR	NR	NR	NR	NR	NR	>10 ⁴ CFU/ml	SHEEP BLOOD AGAR PLATES	Panel of recombinase polymerase amplification assays	RPA	E. Coi
Felt JR, 2017	Prospective cohort	Sept 2015 to June 2016	United States	200	193	9 months (IQR 5-13.5)	135 (70.5%)	NR	NR	NR	NR	132 (68.4%)	NR	Bladder catheterization or suprapubic needle aspiration	>10 ⁴ CFU/ml	Nr	RT-QPCR	NR	E. Coi
Montgomery S, 2017	Prospective cohort	August to Sept 2016	United States	439	439	7 years (IQR 3-15)	NR	NR	NR	NR	NR	NR	NR	Clean-catch or catheterization	>10 ⁴ CFU /ml	Sheep blood and macconkey agar plates	Narrow-angle forward laser light scattering	Bacterioscan 216dx	E. Coi
Tchesnokova V, 2017	Prospective cohort	July 2014 to Nov 2015	United States	750	750	Mean 52.5/range (18-90)	615 (82%)	NR	NR	NR	NR	NR	NR	NR	>10 ⁴ CFU /ml	Nr	QPCR-based test 7- SNP test	NR	E. Coi
Chapelet G, 2016	Prospective cohort	March to Nov 2014	France	200	200	Mean 44.5±23.0	155 (77.5%)	31 (15.5%)	124 (62%)	NR	NR	NR	NR	NR	≥10 ³ CFU /ml	Chromogenic agar culture	Triplex real-time PCR	Asec rapid test	E. Coi
Burillo A, 2014	Prospective cohort	May to June 2012	Spain	958	1000	Median 60.2 (IQR 41.2-76.3)	544 (58.6%)	NR	NR	NR	NR	25.8%	NR	Midstream voided, bladder catheterization	≥10 ³ CFU ml	Cystine lactose- electrolyte-deficient (cled) agar (bio-mex, marcy l'atelle, france)	MALDI-TOF MS mass spectrometry	NR	E. Coi
Lehmann L.E, 2010	Prospective cohort	NR	Switzerland	189	301	Median 66 /range (18-97)	96(50.7%)	76 (40.2%),	83 (43.9%)	NR	NR	NR	100	NR	NR	Cled, macconkey and malt extract agar	RT-PCR	NR	E. Coi

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Search strategy

Medline (Ovid):

(Exp Urinary Tract Infections or (urinary tract infection*).mp or Exp Lower Urinary Tract Symptoms or (storage symptom*).mp) AND (Exp Molecular Diagnostic Techniques or (Molecular Diagnostic Technique*).mp or (Molecular Diagnostic Testing).mp or Exp Polymerase Chain Reaction or (Polymerase Chain Reaction*).mp or PCR.mp or (Inverse PCR).mp or (Inverse Polymerase Chain Reaction).mp or (Nested Polymerase Chain Reaction).mp or (Nested PCR).mp or (Nested PCR).mp or (Anchored PCR).mp or (Anchored Polymerase Chain Reaction).mp or Exp Real-Time Polymerase Chain Reaction or (Real Time Polymerase Chain Reaction).mp or (Real-Time PCR).mp or (Kinetic Polymerase Chain Reaction).mp or (Quantitative Real-Time Polymerase Chain Reaction).mp or (Quantitative Real-Time PCR).mp or Exp Multiplex Polymerase Chain Reaction or (Multiplex PCR).mp or (Multiplex Ligation-Dependent Probe Amplification).mp or (Triplex Polymerase Chain Reaction).mp or (Triplex PCR).mp or Exp Reverse Transcriptase Polymerase Chain Reaction or (Reverse Transcriptase Polymerase Chain Reaction).mp or (Reverse Transcriptase PCR).mp or RT-PCR.mp or Exp Nucleic Acid Amplification Techniques or (Nucleic Acid Amplification Technique*).mp or (RNA Amplification Technique*).mp or (DNA Amplification Technique*).mp or (Nucleic Acid Amplification Test*).mp or Exp Genotyping Techniques or (Genotyping Technique*).mp or (Genotype Assignment Method*).mp or (Genotype Calling Method*).mp or (Genotype Determination Method*).mp or Exp Microarray Analysis or (Microarray Analysis).mp or (Microarray Microchip*).mp or (Nanoarray Analytical Device*).mp or Exp Mass Spectrometry or (Mass Spectroscopy).mp or (Mass Spectrum Analysis).mp or (Mass Spectrometry).mp or Exp Nucleic Acid Hybridization or (Nucleic Acid Hybridization).mp or (Genomic Hybridization).mp or Exp In Situ Hybridization or (In Situ Hybridization*).mp or Exp In Situ Hybridization, Fluorescence or (Fluorescent Hybridization in Situ).mp or (FISH Technique).mp or Exp Ligase Chain Reaction or (Ligase Chain Reaction*).mp or Exp Self-Sustained Sequence Replication or (Self Sustained Sequence Replication*).mp or (Nucleic Acid Sequence-Based Amplification*).mp or (NASBA Analysis).mp or Immunoassay*.mp or (Immunochromatographic Assay*).mp or (Flow Cytometry).mp or (Flow Microfluorometr*).mp or (Flow Cytometr*).mp or (Fluorescence Activated Cell Sorting*).mp) AND (randomized controlled trial.pt or controlled clinical trial.pt or randomized.ab or placebo.ab or randomly.ab or trial.ab or (clinical adj2 trial).mp or (randomi*ed adj2 controlled adj2 trial).mp or exp double-blind method or exp cohort studies or (cohort* adj2 stud*).mp or exp cross-sectional studies or (cross*section* adj2 stud*).mp or exp case-control studies or (case*control adj2 stud*).mp)

Embase:

((('urinary tract infection'/exp or 'urinary tract infection*':ti,ab or 'lower urinary tract symptom'/exp or 'storage symptom*':ti,ab) AND ('molecular diagnosis'/exp or 'Molecular Diagnostic Technique*':ti,ab or 'Molecular Diagnostic Testing':ti,ab or 'polymerase chain

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reaction'/exp or 'Polymerase Chain Reaction*':ti,ab or PCR:ti,ab or 'Inverse PCR':ti,ab or 'Inverse Polymerase Chain Reaction':ti,ab or 'Nested Polymerase Chain Reaction':ti,ab or 'Nested PCR':ti,ab or 'Nested PCR':ti,ab or 'Anchored PCR':ti,ab or 'Anchored Polymerase Chain Reaction':ti,ab or 'real time polymerase chain reaction'/exp or 'Real Time Polymerase Chain Reaction':ti,ab or 'Real-Time PCR':ti,ab or 'Kinetic Polymerase Chain Reaction':ti,ab or 'Quantitative Real-Time Polymerase Chain Reaction':ti,ab or 'Quantitative Real-Time PCR':ti,ab or 'multiplex polymerase chain reaction'/exp or 'Multiplex PCR':ti,ab or 'Multiplex Ligation-Dependent Probe Amplification':ti,ab or 'Triplex Polymerase Chain Reaction':ti,ab or 'Triplex PCR':ti,ab or 'reverse transcription polymerase chain reaction'/exp or 'Reverse Transcriptase Polymerase Chain Reaction':ti,ab or 'Reverse Transcriptase PCR':ti,ab or RT-PCR:ti,ab or 'nucleic acid amplification'/exp or 'Nucleic Acid Amplification Technique*':ti,ab or 'RNA Amplification Technique*':ti,ab or 'DNA Amplification Technique*':ti,ab or 'Nucleic Acid Amplification Test*':ti,ab or 'genotyping technique'/exp or 'Genotyping Technique*':ti,ab or 'Genotype Assignment Method*':ti,ab or 'Genotype Calling Method*':ti,ab or 'Genotype Determination Method*':ti,ab or 'microarray analysis'/exp or 'Microarray Analysis':ti,ab or 'Microarray Microchip*':ti,ab or 'Nanoarray Analytical Device*':ti,ab or 'mass spectrometry'/exp or 'Mass Spectroscopy':ti,ab or 'Mass Spectrum Analysis':ti,ab or 'Mass Spectrometry':ti,ab or 'nucleic acid hybridization'/exp or 'Nucleic Acid Hybridization':ti,ab or 'Genomic Hybridization':ti,ab or 'in situ hybridization'/exp or 'In Situ Hybridization*':ti,ab or 'fluorescence in situ hybridization'/exp or 'Fluorescent Hybridization in Situ':ti,ab or 'FISH Technique':ti,ab or 'ligase chain reaction'/exp or 'Ligase Chain Reaction*':ti,ab or 'self-sustained sequence replication'/exp or 'Self Sustained Sequence Replication*':ti,ab or 'Nucleic Acid Sequence-Based Amplification*':ti,ab or 'NASBA Analysis':ti,ab or Immunoassay*':ti,ab or 'Immunochromatographic Assay*':ti,ab or 'Flow Cytometry':ti,ab or 'Flow Microfluorometr*':ti,ab or 'Flow Cytometr*':ti,ab or 'Fluorescence Activated Cell Sorting*':ti,ab) AND ('randomized controlled trial'/exp or (randomi*ed NEXT/2 controlled NEXT/2 trial):ti,ab or 'clinical trial'/exp or (clinical NEXT/2 trial):ti,ab or 'double blind procedure'/exp or 'cohort analysis'/exp or 'case control study'/exp or 'cross-sectional study'/exp or (cohort* next/2 stud*):ti,ab or (case*control next/2 stud*):ti,ab or (Cross*section* next/2 stud*):ti,ab)) AND [embase]/lim

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