

표 1 . 소아 핵심질문3 근거표

핵심질문 3

문헌정보	연구유형	대상자 수	문헌 질 KCIG
Urinary tract infection in children: diagnosis, treatment and long-term management. National Institute for Health and Clinical Excellence. August 2007.	Review/Other-Dx	N/A	
Subcommittee on Urinary Tract Infection SCoQI and Management. Urinary Tract Infection: Clinical Practice Guideline for the Diagnosis and Management of the Initial UTI in Febrile Infants and Children 2 to 24 Months. Pediatrics. 2011; 128: 595-610.	Review/Other-Dx	432 articles	
ACR Appropriateness Criteria® urinary tract infection — child. Karmazyn B, Coley BD, Binkovitz LA, Dempsey-Robertson ME, Dillman JR, Dory CE, Garber M, Hayes LL, Keller MS, Meyer JS, Milla SS, Paidas C, Raske ME, Rigsby CK, Strouse PJ, Wootton-Gorges SL, Expert Panel on Pediatric Imaging. 2012.	Review/Other-Dx	N/A	
McTaggart S, Danchin M, Ditchfield M, Hewitt I, Kausman J, Kennedy S, Trnka P and Williams G. KHA-CARI guideline: Diagnosis and treatment of urinary tract infection in children Nephrology 2015; 20(2):55-60.	Review/Other-Dx	N/A	
Stein R, Dogan HS, Hoebeke P, Kočvara R, Nijman RJ, Radmayr C, Tekgül S; European Association of Urology; European Society for Pediatric Urology. Urinary tract infections in children: EAU/ESPU guidelines. Eur Urol. 2015;67(3):546-558.	Review/Other-Dx	N/A	
Keren R, Carpenter MA, Hoberman A, et al. Rationale and design issues of the Randomized Intervention for Children With Vesicoureteral Reflux (RIVUR) study. Pediatrics 2008; 122 Suppl 5:S240-250.	Review/Other-Dx	600 children aged 2 to 72 months will be recruited	
Montini G, Rigon L, Zucchetta P, et al. Prophylaxis after first febrile urinary tract infection in children? A multicenter, randomized, controlled, noninferiority trial. Pediatrics 2008; 122(5):1064-1071.	Experimental-Tx	338 children aged 2 months to <7 years	
Pennesi M, Travan L, Peratoner L, et al. Is antibiotic prophylaxis in children with vesicoureteral reflux effective in preventing pyelonephritis and renal scars? A randomized, controlled trial. Pediatrics 2008; 121(6):e1489-1494.	Experimental-Tx	100 patients	
Hodson EM, Wheeler DM, Vimalchandra D, Smith GH, Craig JC. Interventions for primary vesicoureteric reflux. Cochrane Database Syst Rev 2007; (3):CD001532.	Review/Other-Dx	11 studies 1,148 children	
Koyle MA, Elder JS, Skoog SJ, et al. Febrile urinary tract infection, vesicoureteral reflux, and renal scarring	Review/Other-Dx	N/A	

g: current controversies in approach to evaluation. <i>Pediatr Surg Int</i> 2011; 27(4):337–346.			
Lim R. Vesicoureteral reflux and urinary tract infection: evolving practices and current controversies in pediatric imaging. <i>AJR</i> 2009; 192(5):1197–1208.	Review/Other–Dx	N/A	
Merguerian PA, Sverrisson EF, Herz DB, McQuiston L T. Urinary tract infections in children: recommendations for antibiotic prophylaxis and evaluation. An evidence-based approach. <i>Curr Urol Rep</i> 2010; 11(2):98–108.	Review/Other–Dx	N/A	
Riccabona M, Avni FE, Blickman JG, et al. Imaging recommendations in paediatric urology: minutes of the ESPR workgroup session on urinary tract infection, fetal hydronephrosis, urinary tract ultrasonography and voiding cystourethrography, Barcelona, Spain, June 2007. <i>Pediatr Radiol</i> 2008; 38(2):138–145.	Review/Other–Dx	N/A	
Williams GJ, Hodson EH, Isaacs D, Craig JC. Diagnosis and management of urinary tract infection in children. <i>J Paediatr Child Health</i> 2012; 48(4):296–301.	Review/Other–Dx	N/A	
Montini G, Tullus K, Hewitt I. Febrile urinary tract infections in children. <i>N Engl J Med</i> 2011; 365(3):239–250.	Review/Other–Dx	N/A	
Hoberman A, Charron M, Hickey RW, Baskin M, Kearney DH, Wald ER. Imaging studies after a first febrile urinary tract infection in young children. <i>N Engl J Med</i> 2003; 348(3):195–202.	Experimental–Dx	309 patients 2 independent reviewers	
Marks SD, Gordon I, Tullus K. Imaging in childhood urinary tract infections: time to reduce investigations. <i>Pediatr Nephrol</i> 2008; 23(1):9–17.	Review/Other–Dx	N/A	
Shaikh N, Abedin S, Docimo SG. Can ultrasonography or uroflowmetry predict which children with voiding dysfunction will have recurrent urinary tract infections? <i>J Urol</i> 2005; 174(4 Pt 2):1620–1622; discussion 1622	Observational	148	
Sillen U, Brandstrom P, Jodal U, et al. The Swedish reflux trial in children: v. Bladder dysfunction. <i>J Urol</i> 2010; 184(1):298–304.	Review/Other–Dx	203 children	
Sargent MA, Long G, Karmali M, Cheng SM. Interobserver variation in the sonographic estimation of renal volume in children. <i>Pediatr Radiol</i> 1997; 27(8):663–666.	Observational–Dx	90 patients (176 kidneys)	
Schlesinger AE, Hernandez RJ, Zerlin JM, Marks TI, Kelsch RC. Interobserver and intraobserver variations in sonographic renal length measurements in children. <i>AJR</i> 1991; 156(5):1029–1032.	Observational–Dx	21 consecutive patients (41 kidney)	
Foresman WH, Hulbert WC, Jr., Rabinowitz R. Does urinary tract ultrasonography at hospitalization for acute pyelonephritis predict vesicoureteral reflux? <i>J Urol</i>	Observational–Dx	184 patients	

2001; 165(6 Pt 2):2232–2234.			
Kenney IJ, Negus AS, Miller FN. Is sonographically demonstrated mild distal ureteric dilatation predictive of vesicoureteric reflux as seen on micturating cystourethrography? <i>Pediatr Radiol</i> 2002; 32(3):175–178.	Observational–D x	285 renal units in 144 patients	
Mahant S, Friedman J, MacArthur C. Renal ultrasound findings and vesicoureteral reflux in children hospitalized with urinary tract infection. <i>Arch Dis Child</i> 2002; 86(6):419–420.	Observational–D x	162 patients 6 reviewers	
Moorthy I, Wheat D, Gordon I. Ultrasonography in the evaluation of renal scarring using DMSA scan as the gold standard. <i>Pediatr Nephrol</i> 2004; 19(2):153–156.	Observational–D x	930 kidneys	
Muensterer OJ. Comprehensive ultrasound versus voiding cysturethrography in the diagnosis of vesicoureteral reflux. <i>Eur J Pediatr</i> 2002; 161(8):435–437.	Observational–D x	205 patients 407 renal units reviewed	
Shaikh N, Ewing AL, Bhatnagar S, Hoberman A. Risk of renal scarring in children with a first urinary tract infection: a systematic review. <i>Pediatrics</i> 2010; 126(6):1084–1091.	Review/Other–D x	33 studies	
Lee JH, Son CH, Lee MS, Park YS. Vesicoureteral reflux increases the risk of renal scars: a study of unilateral reflux. <i>Pediatr Nephrol</i> 2006; 21(9):1281–1284.	Observational–	48 patients	
Orellana P, Baquedano P, Rangarajan V, et al. Relationship between acute pyelonephritis, renal scarring, and vesicoureteral reflux. Results of a coordinated research project. <i>Pediatr Nephrol</i> 2004; 19(10):1122–1126.	Review/Other–D x	269 patients	
Polito C, Rambaldi PF, Signoriello G, Mansi L, La Manna A. Permanent renal parenchymal defects after febrile UTI are closely associated with vesicoureteric reflux. <i>Pediatr Nephrol</i> 2006; 21(4):521–526.	Observational–D x	206 patients with primary VUR and 77 without VUR	
Peters CA, Skoog SJ, Arant BS, Jr., et al. Summary of the AUA Guideline on Management of Primary Vesicoureteral Reflux in Children. <i>J Urol</i> 2010; 184(3):1134–1144.	Review/Other–D x	131 articles 17,972 patients	
Lin KY, Chiu NT, Chen MJ, et al. Acute pyelonephritis and sequelae of renal scar in pediatric first febrile urinary tract infection. <i>Pediatr Nephrol</i> 2003; 18(4):362–365.	Review/Other–D x	216 patients	
Chand DH, Rhoades T, Poe SA, Kraus S, Strife CF. Incidence and severity of vesicoureteral reflux in children related to age, gender, race and diagnosis. <i>J Urol</i> 2003; 170(4 Pt 2):1548–1550.	Review/Other–D x	15,504 patients	
Polito C, Rambaldi PF, La Manna A, Mansi L, Di Toro R. Enhanced detection of vesicoureteric reflux with isotopic cystography. <i>Pediatr Nephrol</i> 2000; 14(8–9):827–830.	Observational–D x	124 patients	

Sukan A, Bayazit AK, Kibar M, et al. Comparison of direct radionuclide cystography and voiding direct cystography in the detection of vesicoureteral reflux. <i>Ann Nucl Med</i> 2003; 17(7):549–553.	Observational–D x	25 patients	
Unver T, Alpay H, Biyikli NK, Ones T. Comparison of direct radionuclide cystography and voiding cystourethrography in detecting vesicoureteral reflux. <i>Pediatr Int</i> 2006; 48(3):287–291.	Observational–D x	41 patients (82 kidney ureter units)	
Bisset GS, 3rd, Strife JL, Dunbar JS. Urography and voiding cystourethrography: findings in girls with urinary tract infection. <i>AJR</i> 1987; 148(3):479–482.	Review/Other–D x	523 examinations 2 independent readers	
Majd M, Nussbaum Blask AR, Markle BM, et al. Acute pyelonephritis: comparison of diagnosis with 99mTc – DMSA, SPECT, spiral CT, MR imaging, and power Doppler US in an experimental pig model. <i>Radiology</i> 2001; 218(1):101–108.	Observational–D x	35 piglets (70 kidneys)	
Rossleigh MA, Farnsworth RH, Leighton DM, Yong J L, Rose M, Christian CL. Technetium–99m dimercaptosuccinic acid scintigraphy studies of renal cortical scarring and renal length. <i>J Nucl Med</i> 1998; 39(7):1280–1285.	Observational–D x	9 pigs (18 kidneys)	
Rosenberg AR, Rossleigh MA, Brydon MP, Bass SJ, Leighton DM, Farnsworth RH. Evaluation of acute urinary tract infection in children by dimercaptosuccinic acid scintigraphy: a prospective study. <i>J Urol</i> 1992; 148 (5 Pt 2):1746–1749.	Review/Other–D x	65 children evaluated; 34 had abnormal DMSA scans	
Flynn JT. Don't stop performing voiding cystourethrography in young children after the initial febrile urinary tract infection—at least not yet. <i>J Pediatr</i> 2009; 155 (5):761.	Review/Other–D x	699 children (aged 2 months to 2 years)	
Ward VL, Strauss KJ, Barnewolt CE, et al. Pediatric radiation exposure and effective dose reduction during voiding cystourethrography. <i>Radiology</i> 2008; 249(3):1002–1009.	Observational–D x	145 children	
Lee HY, Soh BH, Hong CH, Kim MJ, Han SW. The efficacy of ultrasound and dimercaptosuccinic acid scan in predicting vesicoureteral reflux in children below the age of 2 years with their first febrile urinary tract infection. <i>Pediatr Nephrol</i> 2009; 24(10):2009–2013.	Observational–D x	220 children with first febrile UTI	
Quirino IG, Silva JM, Diniz JS, et al. Combined use of late phase dimercaptosuccinic acid renal scintigraphy and ultrasound as first line screening after urinary tract infection in children. <i>J Urol</i> 2011; 185(1):258–263.	Observational–D x	553 children	
Jahnukainen T, Honkinen O, Ruuskanen O, Mertsola J.	Observational–D	155 patients	

Ultrasonography after the first febrile urinary tract infection in children. Eur J Pediatr 2006; 165(8):556-559.	x	nts 2 reviewers	
La Scola C, De Mutiis C, Hewitt IK, et al. Different guidelines for imaging after first UTI in febrile infants: yield, cost, and radiation. Pediatrics 2013; 131:e665.	Review/Other-D x	304 patients	