Controversies in the antibiotic treatment of young infants with first febrile UTI

Sanjay Mahant, MD, MSc, FRCPC
Staff Physician, Hospital for Sick Children
Senior Associate Scientist, SickKids Research Institute
Professor, Dept of Paediatrics and IHPME, UofT
Co-founder and Past-Chair, PIRN

Over past 2 decades ‘less is more’ in UTI management

Less antibiotics

Less imaging

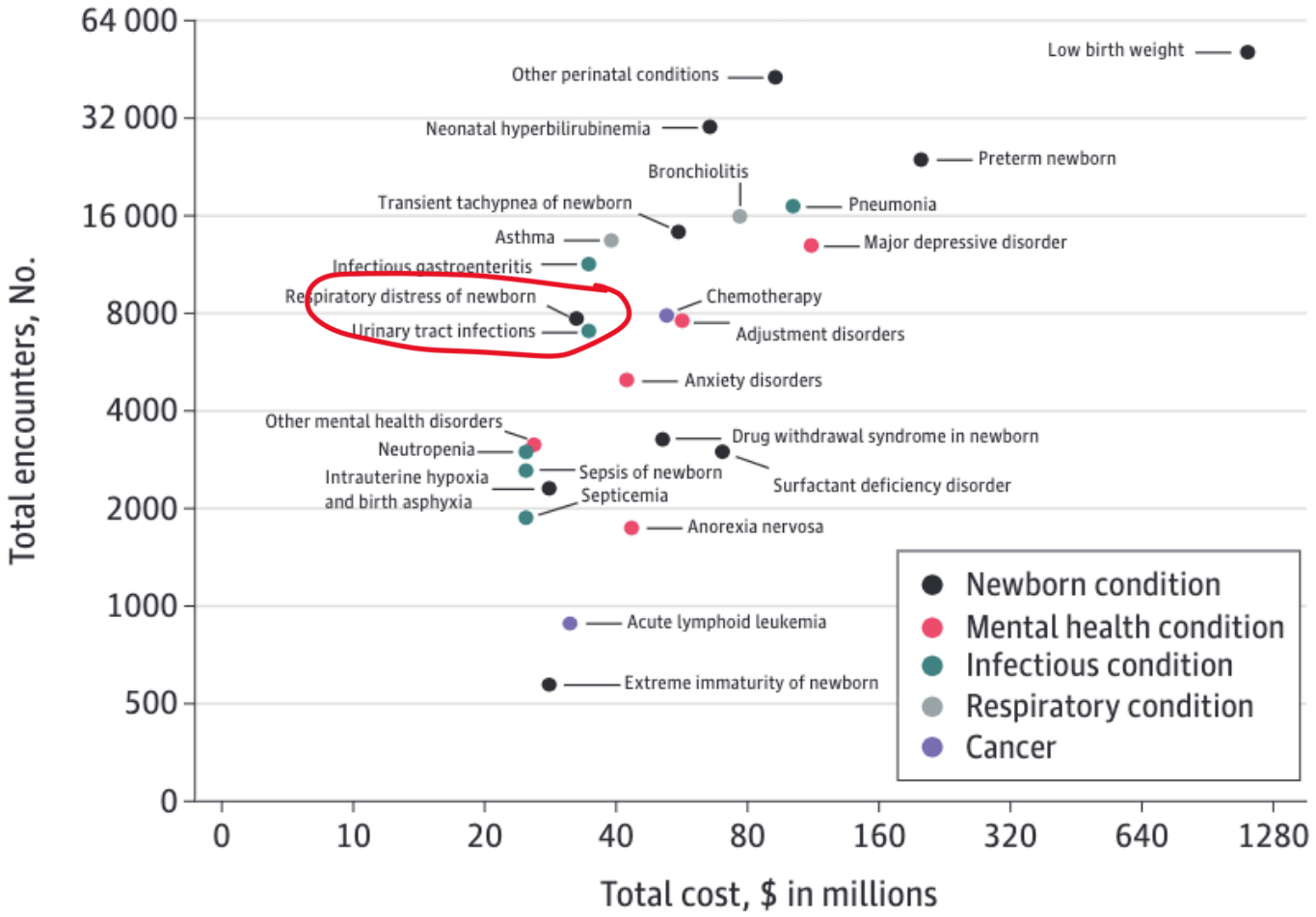
Objectives

To discuss controversies in the antibiotic treatment of young infants with first febrile UTI:

1. Initial route antibiotic treatment – oral vs. IV?
2. Early transition to oral antibiotics – short vs. long IV duration?
3. Total duration of antibiotic treatment – 5 vs. 10 days?

UTI Common & Expensive

Figure 1. Volume and Cost of Encounters for the 25 Highest-Cost Medical Conditions Among Children With Inpatient Encounters in Ontario, Canada, From 2014 to 2019



- 18th most common and expensive inpatient condition in Ontario
- 8th most common inpatient condition in US

Gill et al. JAMA Network Open 2022

First Febrile UTI in infants <2 years: CPS and AAP UTI guidelines

CPS Guidelines, 2014

- Clean Catch ≥ 100,000 CFU/ml (≥ 10^8 CFU/L)
- Catheter ≥ 50,000 CFU/ml (≥ $5x10^7$ CFU/L)
- SPA – any growth

AAP Guidelines, 2011

- Clean Catch – not specified
- Catheter ≥ 50,000 CFU/ml
- SPA ≥ 50,000 CFU/ml

+ Pyuria

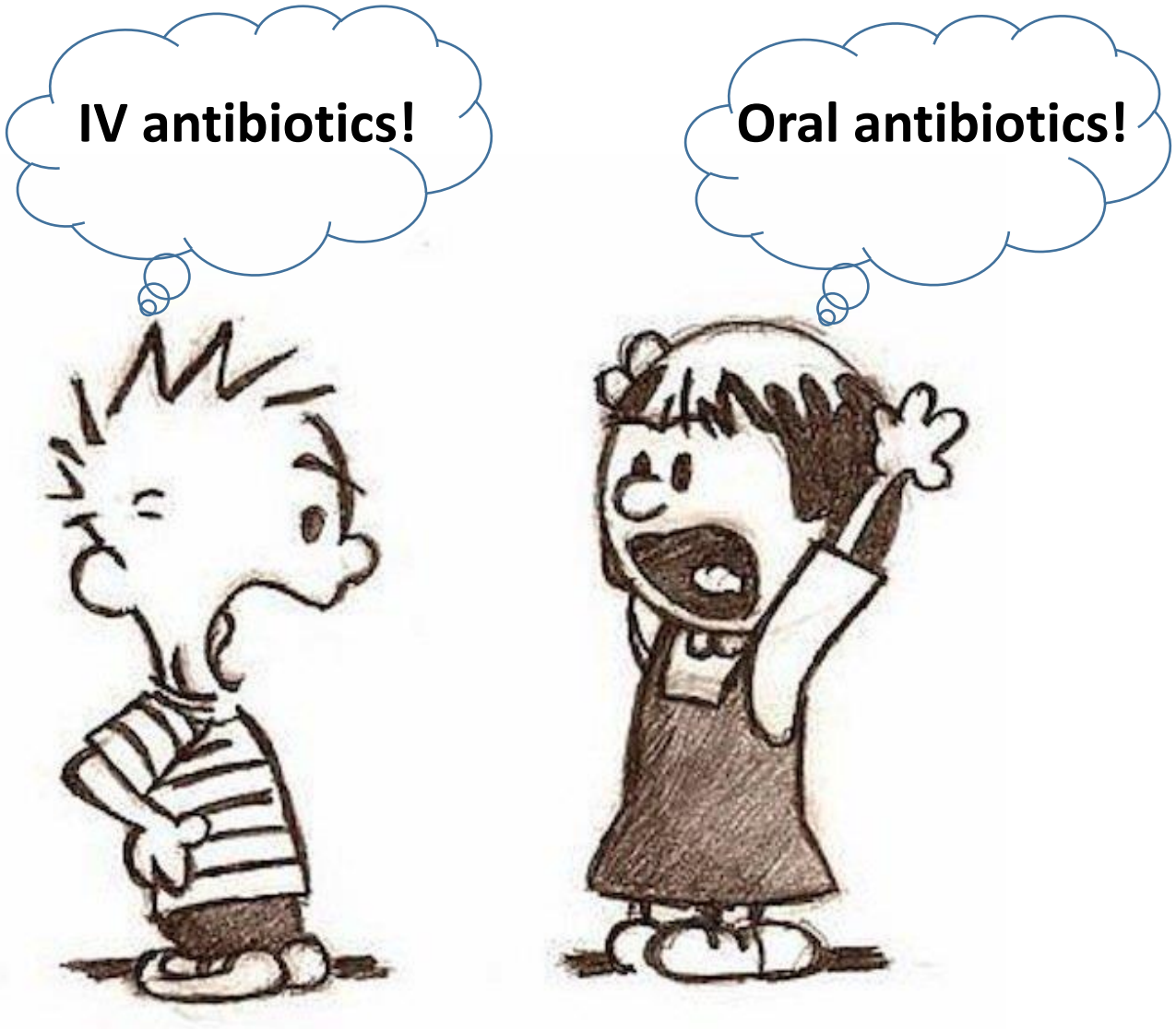
No bag specimens for culture

New role of voiding stimulation methods

Robinson JL et al. Paediat Child Health 2014

Are oral antibiotics effective and safe for treatment of young infants with first febrile UTI?

Jackie is a 5 week old term infant with first febrile UTI. She is feeding well and looks well otherwise. The urinalysis is positive for leukocytes and nitrites. Should you treat her with oral antibiotics? Should she be admitted with short (2 days) or longer course IV antibiotics (5 days)? Total duration of antibiotics?



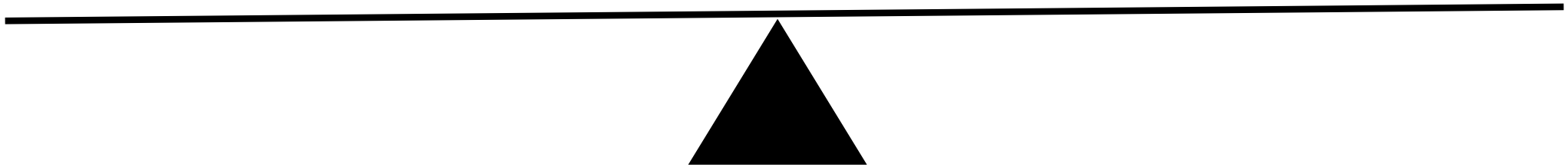
First Febrile UTI: Less vs. More Antibiotics

LESS: SHORTER/NO IV ABx TREATMENT

↓ Need for repeated PIVs or PICC
↓ LOS
↓ Abx adverse events, microbiome
↓ Harms of hospitalization
↓ Health system impact, cost
?bioavailability in young infants

MORE: LONGER IV Abx TREATMENT

↓ reduce risk of treatment failure



CPS and AAP UTI guidelines

2-24 months

CPS Guidelines, 2014

Most experts recommend initial treatment with oral antibiotics for febrile UTIs in nontoxic children with no known structural urological abnormality, assuming that they are likely to receive and tolerate every dose.

There is no evidence that children with UTIs and documented bacteremia who have a rapid clinical response to antibiotics require intravenous antibiotics or a longer course of antibiotics. However, all such children need to be assessed by a physician the day that the blood culture is known to be positive.

AAP Guidelines, 2011

When initiating treatment, the clinician should base the choice of route of administration on practical considerations. Initiating treatment oral or parenterally is equaliy efficacious.

PAEDIATRIC INPATIENT RESEARCH NETWORK | RÉSEAU DE RECHERCHE EN PÉDIATRIE HOSPITALIÈRE

Robinson JL et al. Paediat Child Health 2014

Evaluation and Management of Well-Appearing Febrile Infants 8 to 60 Days Old

Robert H. Pantell, MD, FAAP,[a] Kenneth B. Roberts, MD, FAAP,[b] William G. Adams, MD, FAAP,[c] Benard P. Dreyer, MD, FAAP,[d]
Nathan Kuppermann, MD, MPH, FAAP, FACEP,[e] Sean T. O'Leary, MD, MPH, FAAP,[f] Kymika Okechukwu, MPA,[g]
Charles R. Woods Jr, MD, MS, FAAP[h] SUBCOMMITTEE ON FEBRILE INFANTS

PEDIATRICS Volume 148, number 2, August 2021:e2021052228

Initial Antibiotic Route

8-28 days: well appearing, positive urinalysis – initial treatment with IV antibiotics

29-60 days: well appearing, positive urinalysis – initial oral or IV antibiotics depending on inflammatory marker results

Antibiotic Route transition in hospitalized infants

29-60 days: UTI (positive urine culture): discharge hospitalized patients on oral antibiotics if blood culture negative, CSF (if obtained) is negative, infant is well and improving, no other reasons for hospitalization

Position Statement

Management of well-appearing febrile young infants aged ≤90 days

Brett Burstein MDCM, PhD, MPH, Marie-Pier Lirette MBChB, Carolyn Beck MD, Laurel Chauvin-Kimoff MD, Kevin Chan MD, MPH

Canadian Paediatric Society, Acute Care Committee, Ottawa, Ontario, Canada

Canadian Paediatric Society

1. Initial antibiotic treatment route in infants with first febrile UTI?

Antibiotics for acute pyelonephritis in children (Review)

Strohmeier Y, Hodson EM, Willis NS, Webster AC, Craig JC

THE COCHRANE COLLABORATION®

- 4 RCTs: Oral (10-14 d) vs. Short IV (3-4 d) followed by Oral Antibiotics
- > 1 month age
- NO DIFFERENCE in:
  - Duration of fever (2 studies, 808 children: MD 2.05 hrs, 95% CI -0.84-4.94)
  - Persistent UTI at 72 hours (2 studies, 542 children: RR 1.01, 95% CI 0.07-17.41)
  - Persistent kidney damage at 6-12 months (4 studies, 943 children: RR 0.82, 95% CI 0.59-1.12)

10 April 2014.

2. Early transition to oral antibiotic treatment in infants with first febrile UTI?

Antibiotics for acute pyelonephritis in children (Review)

Strohmeier Y, Hodson EM, Willis NS, Webster AC, Craig JC

THE COCHRANE COLLABORATION®

- 6 RCTs: Short IV (3-4d) followed by Oral Antibiotics vs. Long IV (7-14 days)
- > 1 month age
- No DIFFERENCE in:
  - Persistent bacteriuria at end of treatment (4 studies, 305 children: RR 1.10, 95% CI 0.07-17.41)
  - Persistent kidney damage at 6-12 months (4 studies, 726 children: RR 1.01, 95% CI 0.80-1.29)

10 April 2014.

Length of Intravenous Antibiotic Therapy and Treatment Failure in Infants With Urinary Tract Infections

AUTHORS: Patrick W. Brady, MD,[a,b,c] Patrick H. Conway, MD, MSc,[a,b,c] and Anthony Goudie, PhD[b,c]

- Retrospective cohort study, 24 US children's hospitals
- Of 12,333 infants, < 6 mo age: 240 (1.9%) experienced treatment failure
  - ≤3 days initial IV Antibiotics – 1.6%
  - ≥ 4 days initial IV Antibiotics – 2.2 %
- **After propensity score adjustment, no significant association between long vs. short course IV antibiotics and treatment failure (OR 1.02, 95% CI 0.77-1.35)**

PEDIATRICS Volume 126, Number 2, August 2010

TABLE 1 Patient Characteristics for Short and Long Intravenous Antibiotic Therapy Groups

Characteristics	Proportion, % (*n*)		*P*
	Short Therapy ($N = 5414$)	Long Therapy ($N = 6919$)	
Gender			
Male	45.8 (2479)	56.5 (3906)	<.0001
Female	54.2 (2935)	43.5 (3013)	
Age			
<1 mo (neonates)	19.2 (1042)	33.8 (2341)	<.0001
≥1 and <2 mo	27.4 (1484)	27.5 (1902)	
≥2 and <3 mo	22.0 (1190)	17.2 (1188)	
≥3 and <4 mo	14.0 (757)	9.5 (657)	
≥4 and <5 mo	10.3 (557)	7.2 (499)	
≥5 and <6 mo	7.1 (384)	4.8 (332)	
Race			
White	65.3 (3534)	63.8 (4413)	.003
Black	15.9 (862)	18.3 (1263)	
Other	18.8 (1018)	18.0 (1243)	
Ethnicity			
Hispanic	23.1 (1248)	30.7 (2126)	<.0001
Not Hispanic or unknown	76.9 (4166)	69.3 (4793)	
Bacteremia			
Known	0.5 (26)	0.8 (55)	.03
Unknown or not present	99.5 (5388)	99.2 (6864)	
Genitourinary abnormalities			
Known	10.2 (551)	19.9 (1379)	<.0001
Unknown or not present	89.8 (4863)	80.1 (5540)	
Primary payer			
Medicaid	49.9 (2699)	50.1 (3467)	<.0001
Private insurance	27.8 (1504)	20.2 (1395)	
Self-pay	3.9 (212)	3.7 (253)	
Other	18.5 (999)	26.1 (1804)	

REVIEW ARTICLE

Treatment of UTIs in Infants <2 Months: A Living Systematic Review

Nassr Nama, MD, MSc, FRCPC, FAAP,[a,b] Robine Donken, PhD,[c] Colleen Pawliuk, MLIS,[d] Leire Leache, PharmD, PhD,[5] Manish Sadarangani, BM, BCh, DPhil,[a,b,c] Matthew Carwana, MD, FRCPC[a,b,d] THE INSIGHTSCOPE TEAM

- Main comparison: ≤ 3 days vs. > 3 days IV
- Studies which included infants < 2 months
- All observational studies (retrospective)
- UTI recurrence: 1.7% (1.3,2.2) ≤ 3 days vs. 2.4% (1.8,3.2) > 3 days IV

HOSPITAL PEDIATRICS Volume 11, Issue 9, September 2021

TABLE 2 Summary of Findings Table

Outcomes, Follow-up	No. Participants (No. Observational Studies)	Certainty of the Evidence, GRADE	Relative Effect, OR (95% CI)	Anticipated Absolute Effects: Risk With Long Parenteral Antibiotics (>3 d)	Anticipated Absolute Effects: Risk Difference With Short Parenteral Antibiotics (≤3 d)[a]
UTI recurrence follow-up, range: 14–90 d	5451 (10)	⊕⊕ LOW	1.02 (0.64 to 1.61)	24 per 1000	0 fewer per 1000 (8 fewer to 14 more)
Subgroup Analyses					
UTI recurrence (0–1 mo) follow-up, range 14–90 d	2275 (7)[b]	⊕⊕ LOW	1.17 (0.66 to 2.08)	19 per 1000	3 more per 1000 (6 fewer to 20 more)
UTI recurrence (1–2 mo) follow-up, 30 d	2715 (5)[c]	⊕⊕ LOW	0.90 (0.44 to 1.88)	26 per 1000	3 fewer per 1000 (14 fewer to 22 more)
UTI recurrence (bacteremic) follow-up, range: 14–30 d	358 (4)[d]	⊕ VERY LOW[e]	0.91 (0.22 to 3.80)	49 per 1000	4 fewer per 1000 (38 fewer to 115 more)
UTI recurrence (nonbacteremic) follow-up, range: 14–90 d	4731 (7)[d]	⊕⊕ LOW	1.07 (0.66 to 1.73)	18 per 1000	1 more per 1000 (6 fewer to 12 more)

Bacteremia?

Parenteral Antibiotic Therapy Duration in Young Infants With Bacteremic Urinary Tract Infections

Cohort study, 11 US centres, ED presentation
115 infants ≤ 60 days with bacteremic UTI, 32 (28%) ill appearing, excluded those with meningitis
Short course defined as ≦ 7 days IV and long course > 7 days IV

- 58 (50%) received short-course IV antibiotics (range 2-24 days)
- 60 (52%) ≤ 28 days age: 42% short-course IV, 58% long-course

Propensity score weighting

PEDIATRICS Volume 144, number 3, September 2019:e20183844

No significant difference in UTI recurrence or hospital reutilization

TABLE 2 Outcomes of Infants With Bacteremic UTI

Outcome	Short-Course IV/IM Antibiotics (n = 58)	Long-Course IV/IM Antibiotics (n = 57)	Adjusted Relative Risk (95% CI)[a]	Percent Adjusted Risk Difference (95% CI)[a]	Adjusted Mean Difference (95% CI)[a]
Recurrent UTI, n (%)	2 (3)	4 (7)	1.9 (0.3 to 11.6)	3 (−5.8 to 12.7)	—
Recurrent UTI with same organism, n (%)	2 (3)	2 (4)	1.1 (0.1 to 8.4)	0.2 (−7.8 to 8.3)	—
All-cause reutilization, n (%)	6 (10)	9 (16)	1.2 (0.4 to 3.9)	3 (−14.5 to 20.6)	—
LOS, d, adjusted mean (95% CI)	4.5 (4.4 to 4.6)	10.8 (10.7 to 10.9)	—	—	6 (4.0 to 8.8)

[a] IPW was conducted by using propensity scores to achieve covariate balance in patient clinical and demographic characteristics. Marginal structural models were applied to the weighted population to obtain adjusted estimates.

No adverse events: ICU readmission, mech ventilation, neurologic sequelae

Bacteraemic urinary tract infection: management and outcomes in young infants

Multi-centre retrospective cohort study across 11 US children's hospitals in infants ≦ 90 days with bacteremic UTI (no meningitis)

- 251 infants with bacteremic UTI
- Median age 35 d (17-58 d), 19 (7.6%) ill appearance
- Mean duration of IV antibiotic therapy was 7.8 days (+/- 4 days)
- No infants had a relapsed bacteremia
- 6 (2.4%) infants had relapsed UTI
  - Duration of IV antibiotics did not differ between infants with and without a relapse (8.2 vs. 7.8 days)

Schroeder AR, *et al*. *Arch Dis Child* 2016;**101**:125–130.

Summary: Initial oral antibiotic route and early transition to oral?

1. In **neonates (≤ 28 days):** well appearing with **non-bacteremic UTI** and no concern for meningitis, short-course (≤ 3-4 days) IV antibiotics with early conversion to oral antibiotics may be considered with follow-up
2. In **young infants (29-60 days):** well appearing, normal IM, initial oral antibiotic treatment may be considered with follow-up; if hospitalized for initial IV antibiotics, non-bacteremic, short-course (≤ 3-4 days) IV antibiotics with early conversion to oral antibiotics with follow-up
3. In **young infants (<90 days),** with **bacteremic UTI** and well appearing, shorter course IV antibiotics (≤7 days) with early conversion to oral antibiotics may be considered

3. Antibiotic treatment duration of infants with first febrile UTI?

Antibiotic Treatment Duration: CPS and AAP UTI guidelines

CPS Guidelines, 2014

- 7 to 14 days

AAP Guidelines, 2011

- 7 to 10 days

Robinson JL et al. Paediat Child Health 2014

Short-Course Therapy for Urinary Tract Infections in Children
The SCOUT Randomized Clinical Trial

Theoklis Zaoutis, MD; Nader Shaikh, MD; Brian T. Fisher, DO; Susan E. Coffin, MD; Sonika Bhatnagar, MD; Kevin J. Downes, MD; Jeffrey S. Gerber, MD; Timothy R. Shope, MD; Judith M. Martin, MD; Gysella B. Muniz, MD; Michael Green, MD; Jennifer P. Nagg, RN; Sage R. Myers, MD; Rakesh D. Mistry, MD; Shawn O'Connor, BS; Walter Faig, PhD; Stephen Black, MS; Elizabeth Rowley, PhD; Kellie Liston, BA; Alejandro Hoberman, MD

JAMA Pediatrics August 2023 Volume 177, Number 8

MULTICENTRE, NONINFERIORITY RCT

PARTICPANTS

- 2 mo to 10 years
- UTI
- Outpatient clinics/ED at 2 US children's hospitals
- Clinical improvement after 5 days abx

N=664

5 days of placebo
N=336

5 additional days of antibiotics
N=328

Outcome assessment at 2 visits day 11-14 and 24-30

OUTCOMES

Primary Outcome
Treatment Failure (symptomatic UTI at or before 1st f/u visit at day 11to14)

Secondary Outcomes

- UTI after first f/u
- Asymptomatic bacteriuria
- Positive urine culture
- GI colonization with resistant organisms

S… …ract Infections in Children

…n, MD; Sonika Bhatnagar, MD;
…M. Martin, MD; Gysella B. Muniz, MD;
…stry, MD; Shawn O'Connor, BS;
…BA; Alejandro Hoberman, MD

JAMA Pediatrics August 2023 Volume 177, Number 8

UTI, 3 criteria:

1. **Signs/symptoms – fever, pain (suprapublic, abdominal, flank), urinary urgency/frequency/hesitancy/dysuria, poor feeding OR vomiting**
2. **Pyuria**
3. **Positive urine culture >5 x 10^4 CFU/ml (suprapublic or catheter) or >10^5 CFU/ml**

- 2 mo t… …3
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Table 1. Selected Demographic and Clinical Characteristics of Children With Data on Primary Outcome According to Treatment Group[a]

Characteristic	Children, No. (%)		
	Standard-course therapy (n = 328)	Short-course therapy (n = 336)	All children (n = 664)
Age group			
2-23 mo	60 (18)	64 (19)	124 (19)
2-6 y	183 (46)	202 (60)	385 (58)
7-10 y	85 (26)	70 (21)	155 (23)
Sex			
Female	316 (96)	323 (96)	639 (96)
Male	12 (4)	13 (4)	25 (4)
Race[b]			
Black	73 (22)	83 (25)	156 (23)
Multiracial	23 (7)	25 (7)	48 (7)
White	217 (66)	210 (63)	427 (64)
Other[c]	14 (4)	18 (5)	32 (5)
Unknown	1 (0)	0 (0)	1 (0)
Ethnicity[b]			
Hispanic	33 (10)	27 (8)	60 (9)
Non-Hispanic	295 (90)	309 (92)	604 (91)
Febrile at presentation			
Yes	122 (37)	128 (38)	250 (38)[d]
No	206 (63)	208 (62)	414 (62)
Medication			
Amoxicillin-clavulanate	4 (1)	2 (1)	6 (1)
Cefdinir	183 (56)	185 (55)	368 (55)
Cefixime	2 (1)	1 (0)	3 (0)
Cephalexin	103 (31)	112 (33)	215 (32)
Trimethoprim-sulfamethoxazole	36 (11)	36 (11)	72 (11)
Study site			
Children's Hospital of Philadelphia	143 (44)	152 (45)	295 (44)
UPMC Children's Hospital of Pittsburgh	185 (56)	184 (55)	369 (56)
Infecting organism			
Escherichia coli	296 (90)	301 (90)	597 (90)
Proteus mirabilis	20 (6)	22 (7)	42 (6)
Klebsiella pneumoniae	5 (2)	4 (1)	9 (1)
Other	7 (2)	9 (3)	16 (2)

Treatment failure was up to 5.5% greater with short-course

LOW TREATMENT FAILURE IN BOTH GROUPS

NNT to for standard-course therapy was 28, i.e. 28 children would need to be treated with an additional 5 days to prevent 1 treatment failure. For febrile UTI, NNT was 67

Table 2. Primary and Secondary Outcomes

Characteristics	Children, No./total No. (%)			*P* value	Difference of proportions, % (95% CI)	No. needed to treat[a]
	Standard-course therapy	Short-course therapy	All children			
Primary outcome—treatment failure						
UTI between day 6 and day 11-14 visit	2/328 (0.6)	14/336 (4.2)	16/664 (2.4)	<.01	3.6 (≤5.5)[b]	28
Secondary outcomes						
UTI after day 11-14 visit	12/326 (3.7)	13/322 (4.0)	25/648 (3.9)	.97	0.4 (–2.6 to 3.3)	[c]
Asymptomatic bacteriuria at day 11-14 visit	11/328 (3.4)	32/336 (9.5)	40/664 (6.0)	<.01	6.2 (2.5-9.9)	17
UTI symptoms day 6 through day 11-14 visit	30/328 (9.1)	41/336 (12.2)	71/664 (10.7)	.25	3.1 (–1.6 to 7.7)	[c]
Positive urine culture day 6 though day 11-14 visit[d]	15/328 (4.6)	42/336 (12.5)	47/664 (7.1)	<.01	7.9 (3.7-12.1)	13
Stool antimicrobial resistance at day 24-30 visit[e]	23/298 (7.7)	28/310 (9.0)	51/608 (8.4)	.66	1.3 (–3.1 to 5.7)	[c]

Adverse events similar between groups

Table 3. Adverse Events According to Study Group

Characteristic	Children, No. (%)			*P* value
	Standard-course therapy (n = 328)	Short-course therapy (n = 336)	All children (n = 664)	
Participants with adverse events	155 (47.3)	147 (43.8)	302 (45.5)	.10
Most frequently reported adverse events				
Diarrhea	43 (13.1)	34 (10.1)	77 (11.6)	.41
Cough	21 (6.4)	26 (7.7)	47 (7.1)	.28
Pyrexia	17 (5.2)	18 (5.4)	35 (5.3)	.60
Vomiting	11 (3.4)	20 (6.0)	31 (4.7)	1.00
Rhinorrhea	13 (4.0)	16 (4.8)	29 (4.4)	.16
Other	115 (35.1)	111 (33.0)	226 (34.0)	.75
Severity of adverse event				
Mild	107 (32.6)	117 (34.8)	224 (33.7)	.64
Moderate	47 (14.3)	26 (7.7)	73 (11.0)	.61
Severe	1 (0.3)	4 (1.2)	5 (0.8)	.37
Serious	2 (0.6)	4 (1.2)	6 (0.9)[a]	.69

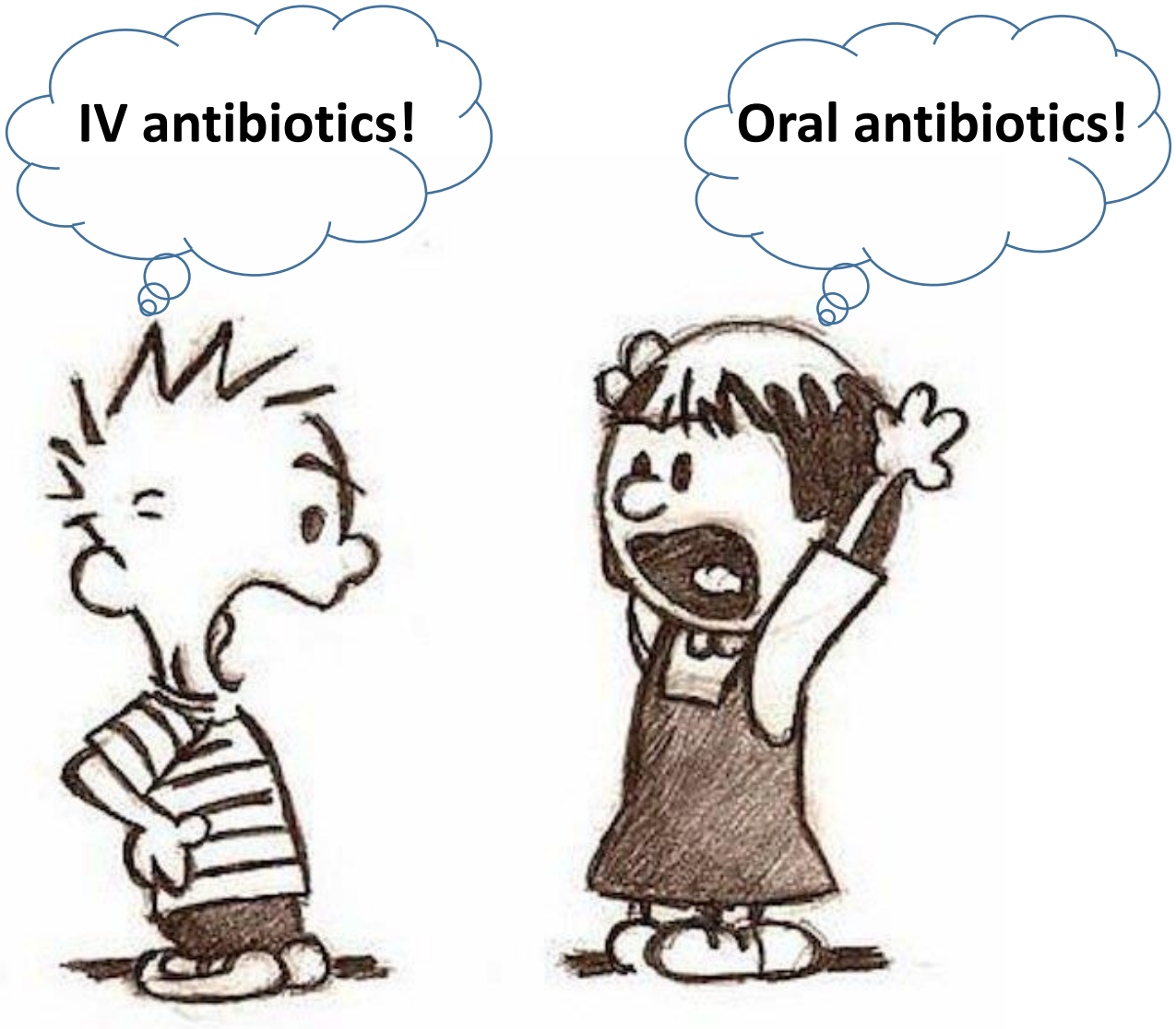
SCOUT Trial Interpretation?

Included children age 2 mo to 10 years with uncomplicated UTI, fUTI and cystitis

- Authors make the argument that given low treatment failure rate, 5 days of antibiotics a reasonable option and shared decision making with parents should be used
- Others
  - For cystitis, given low treatment failure in study 5 days reasonable
  - For fUTI, 10 days still advisable given possibility of long term complications

Are oral antibiotics effective and safe for treatment of young infants with first febrile UTI?

Jackie is a 5 week old term infant with first febrile UTI. She is feeding well and looks well otherwise. The urinalysis is positive for leukocytes and nitrites. Should you treat her with oral antibiotics? Should she be admitted with short (2 days) or longer course IV antibiotics (5 days)? Total duration?



Summary

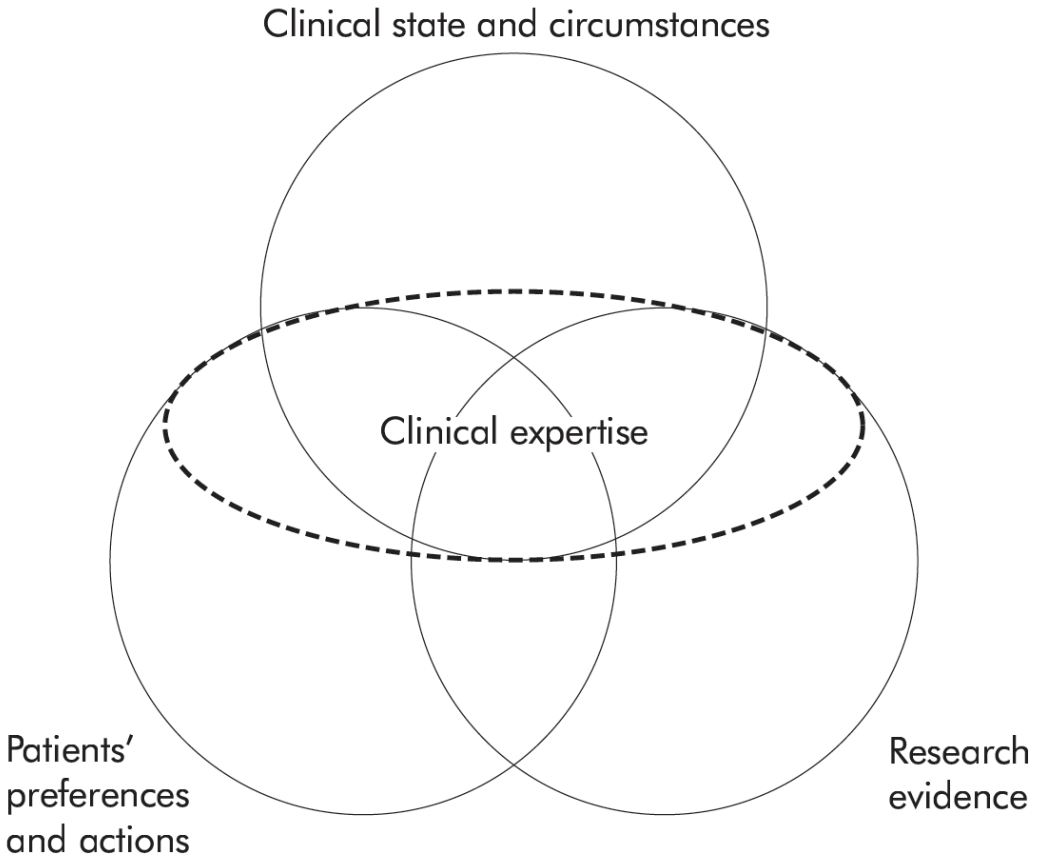
Initial oral antibiotic route and early transition to oral?

1. In **neonates (≤ 28 days):** well appearing with **non-bacteremic UTI** and no concern for meningitis, short-course (≤ 3-4 days) IV antibiotics with early conversion to oral antibiotics may be considered with follow-up
2. In **young infants (29-60 days):** well appearing, normal IM, initial oral antibiotic treatment may be considered with follow-up; if hospitalized for initial IV antibiotics, non-bacteremic, short-course (≤ 3-4 days) IV antibiotics with early conversion to oral antibiotics with follow-up
3. In **young infants (<90 days),** with **bacteremic UTI** and well appearing, shorter course IV antibiotics (≤7 days) with early conversion to oral antibiotics may be considered

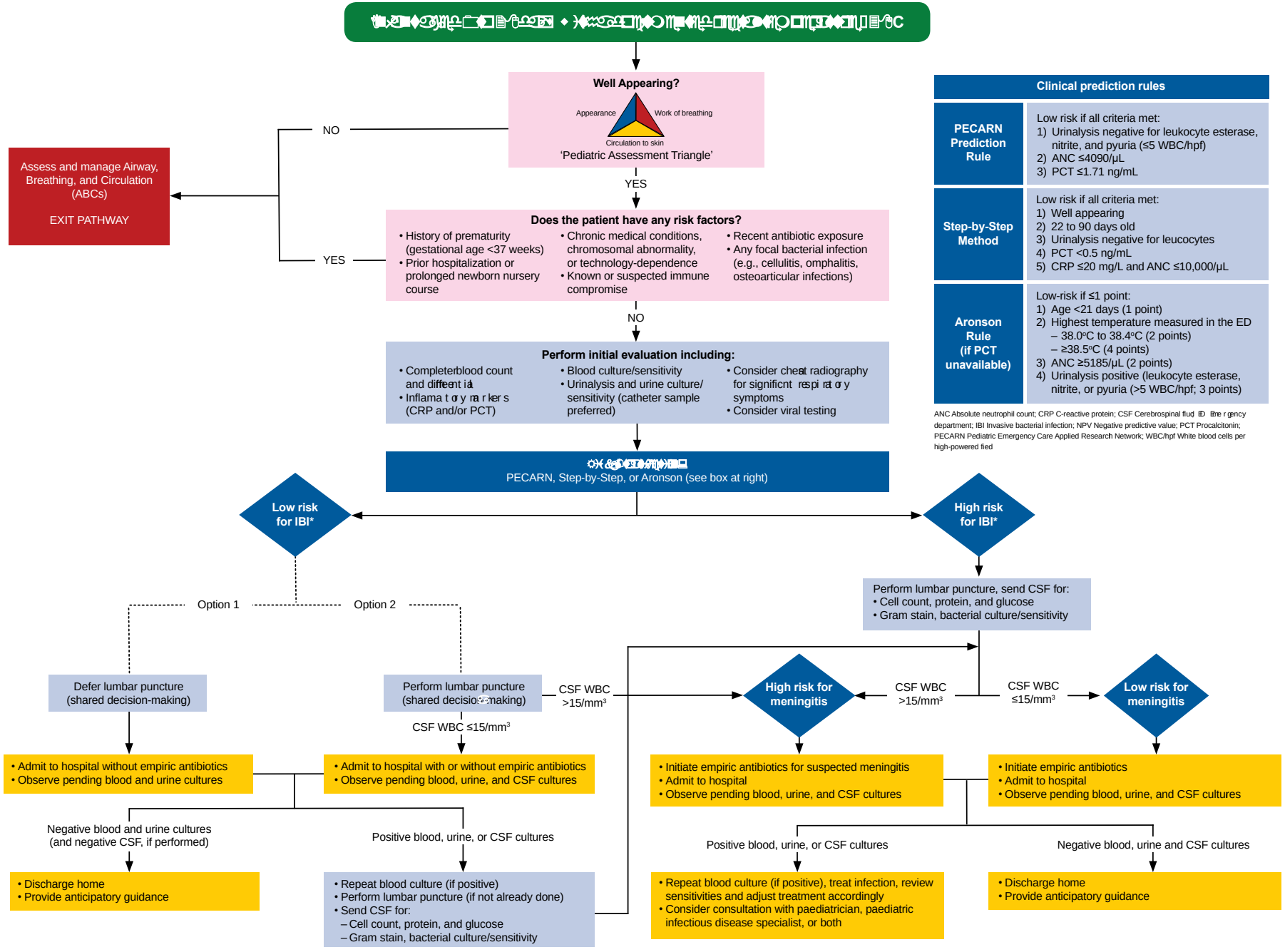
Duration of treatment?

1. Total duration in non-bacteremic UTI:
   a) **(<2 months**): uncertainty, 7-14 days
   b) **(>2 months**) 5 days vs. 10 days – shared decision-making

Evidence Based Clinical Decisions



Haynes. EBM. 2002; 37-38



Clinical prediction rules

PECARN Prediction Rule	Low risk if all criteria met: 1) Urinalysis negative for leukocyte esterase, nitrite, and pyuria (≤5 WBC/hpf) 2) ANC ≤4090/μL 3) PCT ≤1.71 ng/mL
Step-by-Step Method	Low risk if all criteria met: 1) Well appearing 2) 22 to 90 days old 3) Urinalysis negative for leucocytes 4) PCT <0.5 ng/mL 5) CRP ≤20 mg/L and ANC ≤10,000/μL
Aronson Rule (if PCT unavailable)	Low-risk if ≤1 point: 1) Age <21 days (1 point) 2) Highest temperature measured in the ED – 38.0°C to 38.4°C (2 points) – ≥38.5°C (4 points) 3) ANC ≥5185/μL (2 points) 4) Urinalysis positive (leukocyte esterase, nitrite, or pyuria (>5 WBC/hpf; 3 points)

ANC Absolute neutrophil count; CRP C-reactive protein; CSF Cerebrospinal fluid; ED Emergency department; IBI Invasive bacterial infection; NPV Negative predictive value; PCT Procalcitonin; PECARN Pediatric Emergency Care Applied Research Network; WBC/hpf White blood cells per high-powered field

Are oral antibiotics effective and safe for treatment of young infants with first febrile UTI?

In **neonates (≤ 28 days):** well appearing with **non-bacteremic UTI** and no concern for meningitis, short-course (≤ 3-4 days) IV antibiotics with early conversion to oral antibiotics may be considered with follow-up

In **young infants (29-60 days):** well appearing, normal IM, initial oral antibiotic treatment may be considered with follow-up; if hospitalized for initial IV antibiotics, non-bacteremic, short-course (≤ 3-4 days) IV antibiotics with early conversion to oral antibiotics with follow-up

In **young infants (<90 days),** with **bacteremic UTI** and well appearing, shorter course IV antibiotics (≤7 days) with early conversion to oral antibiotics may be considered

Total duration in non-bacteremic UTI: short course 5 days vs. 10 days – shared decision-making in >2 months; uncertainty for <2 months, 7-14 days

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Summary

Are oral antibiotics safe & effective for treatment of young infants?

Role for initial oral antibiotic and early transition to oral antibiotics and based on age, presentation, and follow-up.

Total treatment duration based on age, presentation, 7-14 days in <2 months; 5 vs 7-10 days in >2 months

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How things have changed!

Research **Clinical Practice Guidelines** **QI**

Change in Practice & Patient Outcomes

6 week male presents to the ED with T38.5 C

→

CBC
Urine, bld, CSF
Admission

→

Antibiotics IV 5-7 days for total of 14

LOS 5-8 days

→

- Renal US
- VCUG or prophylactic abx until outpatient VCUG

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- VCUG Grade II VUR
- Antibiotic prophylaxis 6 months
- DMSA
- Urology consultation
- Nephrology consltation

←

- Repeat VCUG 6 months
- VUR resolved

←

- Urology & Nephrology clinic
- Discharged

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Support for the Use of a New Cutoff to Define a Positive Urine Culture in Young Children

Nader Shaikh, MD, MPH,[a] Sojin Lee, PhD,[a] Janina A. Krumbeck, PhD,[b] Marcia Kurs-Lasky, MS[a]

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- Results support the use of urine cultures with threshold of >10,000 CFU/ml for the population (febrile, urinary inflammation, suspected UTI, urinary cath)
- Results may not apply to collection methods with more contamination (e.g. bag urine)
- More studies to elucidate threshold for non-Ecoli UTI

SOUNDING BOARD

THE CASCADE EFFECT IN THE CLINICAL CARE OF PATIENTS

THE NEW ENGLAND JOURNAL OF MEDICINE Feb. 20, 1986

Cascade: a process that, once started, proceeds stepwise to its full, seemingly inevitable, conclusion.