# Clinical Practice Guideline by Infectious Diseases Society of America (IDSA): 2025 Guideline on Management and Treatment of Complicated Urinary Tract Infections

## Supplementary material for Timing of Intravenous to Oral Antibiotics Transition for Complicated UTI

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## Literature Search Strategies (last updated on September 15<sup>th</sup>, 2024)

## Medline (PubMed)

- 1. urinary tract infection[MeSH Terms]
- 2. "urinary tract infection" OR "urinary tract infections"
- 3. cystitis[MeSH Terms]
- 4. cystitis
- 5. pyelonephritis[MeSH Terms]
- 6. pyelonephritis
- 7. 1 OR 2 OR 3 OR 4 OR 5 OR 6
- 8. administration, oral[MeSH Terms]
- 9. oral\*
- 10. per os
- 11. switch
- 12. 8 OR 9 OR 10 OR 11
- 13. injections[MeSH Terms]
- 14. infusions, parenteral[MeSH Terms]
- 15. intra-venous OR intravenous OR intramuscular
- 16. 13 OR 14 OR 15
- 17. 12 AND 16
- 18. anti-bacterial agents[MeSH Terms]
- 19. antibiotic\*
- 20. antimicrobial\*
- 21. antibacterial\*
- 22. 18 OR 19 OR 20 OR 21
- 23. 17 AND 22
- 24. 16 AND 22
- 25. 23 OR 24
- 26. 7 AND 25
- 27. "randomized controlled trial" OR "clinical trial" OR "randomized controlled trial"[Publication Type] OR "clinical trial" [Publication Type] OR "clinical trial, phase ii"[Publication Type] OR "clinical trial, phase ii"[Publication Type] OR "clinical trial, phase iii"[Publication Type] OR "clinical trial, phase iii"][Publication Type] OR "clinical trial][Publication Type] OR "clinical
- 28. 26 AND 27
- 29. "2000"[Date Publication] : "3000"[Date Publication]
- 30. 28 AND 29
- 31. "english"[Language]
- 32. 30 AND 31

## Embase

- 1. 'cystitis'/de OR cystitis
- 2. 'urinary tract infection'/de OR 'urinary tract infection' OR 'urinary tract infections'
- 3. 'pyelonephritis'/de OR pyelonephritis
- 4. 1 OR 2 OR 3
- 5. 'oral drug administration'/de

- 6. oral\*
- 7. 'per os'
- 8. switch
- 9. 5 OR 6 OR 7 OR 8
- 10. 'injection'/de
- 11. 'parenteral drug administration'/de
- 12. 'intra venous' OR intravenous OR intramuscular
- 13. 10 OR 11 OR 12
- 14. 9 AND 13
- 15. 'antiinfective agent'/de
- 16. antibiotic\*
- 17. antimicrobial\*
- 18. antibacterial\*
- 19. 15 OR 16 OR 17 OR 18
- 20. 14 AND 19
- 21. 13 AND 19
- 22. 20 OR 21
- 23. 4 AND 22
- 24. 'clinical trial'/de OR 'controlled clinical trial'/de OR 'phase 2 clinical trial'/de OR 'randomized controlled trial' OR 'clinical trial'
- 25. 23 AND 24
- 26. 2000:py OR 2001:py OR 2002:py OR 2003:py OR 2004:py OR 2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py
- 27. 25 AND 26
- 28. english:la
- 29. 27 AND 28

## Cochrane

- 1. MeSH descriptor: [Cystitis] explode all trees
- 2. MeSH descriptor: [Urinary Tract Infections] explode all trees
- 3. MeSH descriptor: [Pyelonephritis] explode all trees
- 4. cystitis
- 5. pyelonephritis
- 6. "urinary tract infection" OR "urinary tract infections"
- 7. #1 OR #2 OR #3 OR #4 OR #5 OR #6
- 8. MeSH descriptor: [Administration, Oral] explode all trees
- 9. oral\*
- 10. "per os"
- 11. switch
- 12. #8 OR #9 OR #10 OR #11
- 13. MeSH descriptor: [Injections] explode all trees
- 14. MeSH descriptor: [Infusions, Parenteral] explode all trees

- 15. intra-venous OR intravenous OR intramuscular
- 16. #13 OR #14 OR #15
- 17. #12 AND #16
- 18. MeSH descriptor: [Anti-Bacterial Agents] explode all trees
- 19. antibiotic\* OR antimicrobial\* OR antibacterial\*
- 20. #18 OR #19
- 21. #17 AND #20
- 22. #16 AND #20
- 23. #21 OR #22
- 24. #7 AND #23

## Eligibility criteria for selection of studies

Inclusion criteria:

- Patient population: Adults patients being treated parenterally for cUTI (with or without bacteriemia)
- Intervention:
  - -Transition from parenteral to oral antibiotics
  - -Timing of transition = when patients are clinically stable, are able to take an oral medication and for whom an oral option is available
  - -No restriction based on the choice of antibiotics
- Comparator:
  - -Completing treatment with parenteral antibiotics
  - -No restriction based on the choice of antibiotics

-Outcomes

- -Minimally including clinical cure (at EOT)
- Study design: Randomized controlled trials (RCTs)
- Year: published from 2000 up to present
- Language: English only

#### Exclusion criteria:

-Patient population:

- -Children
- -Renal transplant patients
- -Neutropenic patients
- -Pregnant women and lactating women
- -Uncomplicated UTI

-Intervention / Comparator = supporting indirect evidence only

- -Single dose of IV/IM followed by oral antibiotics vs oral antibiotics (complete course)
- -Single dose of IV/IM followed by oral antibiotics vs switch therapy
- -Oral vs parenteral antibiotics (complete course)
- -Oral antibiotics (complete course) vs switch therapy

-Outcomes

-Not including clinical cure or success (at EOT or TOC)

Supplementary Figure 1: Prisma Flow Diagram of study identification and selection (last updated on September 15<sup>th</sup>, 2024)



## Supplementary Table 1: GRADE Evidence Profile

**Question**: In patients being treated parenterally for complicated UTI, are clinically stable, can take an oral medication and for whom an oral option is available, should parenteral therapy be transitioned to oral rather than continued for the complete duration of therapy?

**P**: In patients being treated parenterally for complicated UTI, are clinically stable, can take an oral medication and for whom an oral option is available

I: parenteral therapy transitioned to oral therapy

**C**: parenteral therapy continued for the complete duration of therapy

Setting: Inpatient and Outpatient

Certainty assessment						Nº of ∣	patients	Effect		Containty	lucus enten es	
Nº of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Completion with IV*	Relative (95% Cl)	Absolute (95% Cl)	Certainty	Importance

Clinical cure (at End Of Therapy (EOT) or Test-Of-Cure (TOC))

41-4	randomised trials	seriousª	not serious	not serious <sup>b</sup>	serious <sup>c,d</sup>	none	85/94 (90.4%)	83/92 (90.2%)	<b>RR 1.02</b> (0.96 to 1.08)	<b>18 more per 1,000</b> (from 36 fewer to 72 more)	⊕⊕⊖⊖ Low	CRITICAL
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#### Recurrence of UTI (at 4 to 6 weeks)

31,2,4	randomised trials	seriousª	not serious	not serious <sup>b</sup>	serious <sup>d,e</sup>	none	0/70 (0.0%)	2/67 (3.0%)	<b>RR 0.33</b> (0.04 to 3.05)	20 fewer per 1,000 (from 29 fewer to 61 more)	⊕⊕⊖⊖ Low	IMPORTANT
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#### Length of hospital stay (days)

#### Serious Antibiotic Adverse Events

4 <sup>1-,4</sup>	randomised trials	serious <sup>f</sup>	not serious	not serious <sup>c</sup>	seriouse	none	1/94 (1.1%)	2/92 (2.2%)	<b>RR: 0.65</b> (0.11 to 3.88)	8 fewer per 1,000 (from 19 fewer to 63 more)	⊕⊕⊖⊖ Low	IMPORTANT
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#### IV Catheter Related Adverse Events

11	randomised trials	serious <sup>a</sup>	not serious	not serious <sup>b</sup>	very serious <sup>e,h</sup>	none	0/41 (0.0%)	2/41 (4.9%)	<b>RR 0.20</b> (0.01 to 4.04)	<b>49 fewer per 1,000</b> (from 115 fewer to 17 more)	⊕⊖⊖⊖ Very low	IMPORTANT
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#### Non-Serious Antibiotic Adverse Events

31.2.4 randomised trials seriou	s <sup>a</sup> not serious not serious	very serious <sup>e,h</sup>	none	3/71 2/68 (4.2%) (2.9%)	<b>RR 1.35</b> (0.27 to 6.67)	<b>10 more per 1,000</b> (from 21 fewer to 167 more)	⊕⊖⊖⊖ Very low	IMPORTANT
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Notes:

\*The choice of antimicrobial therapy varied between studies: IV ceftriaxone followed by oral cefditoren pivoxil versus IV ceftriaxone (Monmaturapoj 2012), IV carbapenems followed by oral sitafloxacin versus IV ertapenem (Malaisri 2017), IV levofloxacin with/without IV amikacin X 3-7 days followed by oral levofloxacin versus IV piperacillin-tazobactam +/- IV amikacin X 3-7 days (Concia 2006), and IV 3<sup>rd</sup> generation cephalosporin followed by either prulifloxacin versus IV ertapenem. \*\*Rehospitalisation / Readmission – this outcome (judged important for decision-making) was not reported in the 4 studies included in this table.

UTI: urinary tract infection; IV: parenteral; PO: oral; CI: confidence interval; RR: risk ratio.

			Certainty as	sessment			№ of patients		Effect			
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Completion with IV*	Relative (95% Cl)	Absolute (95% Cl)	Certainty	Importance
GRADE	RADE Working Group grades of evidence High certainty: We are very confident that the true effect lies close to that of the estimate of the effect Moderate certainty: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different Low certainty: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect Very low certainty: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect											
GRADE	RADE domains Risk of bias: Study limitations Inconsistency: Unexplained heterogeneity across study findings Indirectness: Applicability or generalizability to the research question Imprecision: The confidence in the estimate of an effect to support a particular decision Publication bias: Selective publication of studies											

#### Explanations

a. Monmaturapoj 2012 was judged to be at high risk of bias due to potential financial bias favoring oral switch (research grant funded by industry, which was related to the oral antibiotic). The three other trials judged at high risk of bias mainly due to the unblinded design that could have biased the occurrence, the measurement, or the interpretation of outcomes.

b. Concia 2006 included adult patients with uUTI or cUTI associated with confirmed or suspected sepsis. So-Ngern 2023, Malaisri 2017 and Monmaturapoj 2012 included hospitalized and non-hospitalized adult patients with presumptive diagnosis of acute pyelonephritis, but both So-Ngrern 2023, Malaisri 2017 restricted their inclusion to ESBL-producing organisms.

c. Not fulfilling the optimal information size (IOS).

d. Based on an inferiority margin of 10%, not further rated down for imprecision.

e. Not fulfilling the optimal information size (IOS), but low baseline risk.

f. Concia 2006 is an open label study, thus at high risk of bias due to unblinded design.

g. Rated down for indirectness since length of hospitalization was likely influenced by the route of administration of antimicrobials (all patients received parenteral antibiotics throughout the study for the assigned duration in the hospital, without transferring to OPAT) (Concia 2006)

h. Wide 95% CI which are crossing the null value, thus cannot exclude the potential for no benefit or harm.

#### References

1.Monmaturapoj, T., Montakantikul, P., Mootsikapun, P., Tragulpiankit, P. A prospective, randomized, double dummy, placebo-controlled trial of oral cefditoren pivoxil 400mg once daily as switch therapy after intravenous ceftriaxone in the treatment of acute pyelonephritis. Int J Infect Dis; 2012.

2.Malaisri, C., Phuphuakrat, A., Wibulpolprasert, A., Santanirand, P., Kiertiburanakul, S. A randomized controlled trial of sitafloxacin vs. ertapenem as a switch therapy after treatment for acute pyelonephritis caused by extended-spectrum β-lactamase-producing Escherichia coli: A pilot study. Journal of Infection and Chemotherapy; 2017. 3.Concia, E., Marchetti, F., Early discharge of hospitalised patients with community-acquired urosepsis when treated with levofloxacin in sequential therapy. Arch Ital Urol Androl; 2006.

4. So-Ngern A., Jirajariyavej S., Thuncharoon H., Khunthupat N., Chantarojanasiri T, Montakantikul P. A randomized, controlled trial of prulifloxacin as conversion therapy after intravenous carbapenem in the treatment of acute pyelonephritis caused by third generation cephalosporin resistant pathogens: A pilot study. Clin Transl Sci; 2023.

# Supplementary Table 2: Characteristics of the included studies (n=4, 2000-2024)

Ctudy.	Denulation	Study dealers	Mainura	Timing of	Intervention	Compositor
Study (Lead author, Year of publication, Name of trial, Countries)	Population (Type UTI, Year of enrollment, n randomised, F (%), Age in Intervention vs Comparator groups)	Study design (Non-inferiority margin if applicable, primary outcome with its timing)	Main uro- pathogens (% of resistance)	Timing of randomisation / Criteria for transition to PO	Intervention (IV and PO antibiotics, total duration)	<b>Comparator</b> (IV antibiotics, total duration)
Concia 2006 Italy (multicentric)	cUTI or uUTI associated with confirmed/ suspected sepsis (not admitted to ICU) Year of enrollment: NR N= 47	Descriptive trial CC 1 to 5 days after EOT	<i>E. coli</i> (87.5%) R: NR	Randomisation: at day 1 Criteria for transition to PO: after at least 3 days of IV if resolution of at least one of the clinical symptoms, afebrile on two consecutive measures, clinically	IV levofloxacin with/without IV amikacin X 3-7 days followed by oral levofloxacin (switch occurred at a median of 5 days in 82.6% of this arm) Total duration:	IV piperacillin- tazobactam +/- IV amikacin X 3-7 days
Malaisri 2017	F: NR Age (mean): 49.0 vs 59.0y Non-bacteremic	Descriptive	<b>5</b> cc// (100%)	stable with normal CNS and no GI disorders	maximum of 14 days (median 11 days received)	maximum of 14 days (median of 17 days received)
Malaisri 2017	Non-bacteremic presumptive AP caused by ESBL- <i>E. coli</i> 2012-2015 N= 36	Descriptive trial CC at day EOT	<i>E. coli</i> (100%) R: ESBL- <i>E.coli</i> (100%), but 0% to ertapenem and 5.6% (2/36) to sitafloxacin	Randomisation: at day 3 Criteria for transition to PO: NR	IV carbapenems (meropenem, imipenem, doripenem or ertapenem) followed by oral sitafloxacin	IV ertapenem
	F: 66.7% Age (median): 72.3 vs 65.0y				Total duration: 10 days	Total duration: 10 days
Monmaturapoj 2012	Presumptive AP 2010-2011	Non-inferiority trial	<i>E. coli</i> (83.5%) R: 31.6% to	Randomisation: at day 3 if criteria for transition to PO meet	IV ceftriaxone x 3 days, followed by oral cefditoren	IV ceftriaxone
Thailand	N= 82 F: 96.3% Age (mean): 41.7 vs 48.6y	Margin 25% for CC at EOT	fluoroquinolones but 0% to studied drugs	Criteria for transition to PO: (1) clinical improvement for at least 24 h from the initial presentation; (2) functioning GI tract; (3) afebrile; (4) trend towards normalized white blood cells and neutrophil count values	pivoxil Total duration: 10 days	Total duration: 10 days
So-Ngern 2023 Thailand (multicenter)	Non-bacteremic and bacteremic presumptive AP caused by ESBL producing organisms 2015-2020 N=21	Superiority trial	<i>E. coli</i> (85.7%) R: ESBL (100%), but no resistance to both studied drugs	Randomisation: at day 4 if criteria for transition to PO meet Criteria for transition to PO: (1) afebrile; (2) hemodynamically stable; (3) improvement in signs,	IV empiric antibiotics (most received a 3 <sup>rd</sup> gen cephalosporin but 2 received ertapenem and 1 piperacillin- tazobactam),	IV empiric antibiotics (all received a 3 <sup>rd</sup> gen cephalosporin), followed by IV ertapenem

		symptoms, and	followed by oral	
F: 90.5%		leukocytosis; (4)	prulifloxacin	
Age (median):		resolution of nausea	-	Total duration: 14
73.0 vs 70.5y		and vomiting; and (5)	Total duration: 14	days
		ability to adequately	davs	
		absorb oral		
		medications or food;		
		(6) for patients with		
		bacteremic AP, no		
		growth on the blood		
		culture collected on		
		day 4.		
UTI=Urinary Tract Infection; cUTI=Co	mplicated UTI; uUTI=Uncomplicated I	JTI; AP=acute pyeloneph	nritis; ESBL=Extended	I-Spectrum Beta-
Lactamase; N=number; F=female, y=	years; ICU=intensive care unit; NR =	not reported.		
CC=clinical cure or response; MC=m	crobiologic cure, eradication, or respo	nse; EOT = End of thera	py; TOC = Test-Of-Cu	ire.
	e; S=susceptible; IV=parenteral; PO=c			
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# Supplementary Figure 2: Summary of the Risk of Bias of included studies (Cochrane Risk of Bias tool) (n=4)

100%



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# Supplementary Table 3: Assessment of the Risk of Bias of included studies (Cochrane Risk of bias Tool) (n=4)

Study (Lead author, Year of publication, Name of trial, Countries)	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias (e.g. sources of funding)
Concia 2006 Italy (multicentric)	Unclear RoB -Randomized (no explanation) -No comparison of patients' characteristics at baseline and small sample size	Unclear RoB -Not reported	High RoB -Open-label (especially applicable to subjective outcomes)	High RoB -Open-label (especially applicable to subjective outcomes)	Low RoB -All outcomes measured in the ITT population	Low RoB	Low RoB -Industry-funded: grant unrelated to the studied molecules (involvement of industry not reported)
Malaisri 2017	Unclear RoB	Low RoB	High RoB	High RoB	Low to Unclear RoB	Low RoB	Low RoB
Thailand	-Randomized via a computer-generated random number allocation schedule with block size of four -Comparable patients' characteristics at baseline, except for higher frequency of prior urinary catheter in the IV group (comparison most likely underpowered)	-Sealed envelope method	-Open-label (especially applicable to subjective outcomes)	-Open-label (especially applicable to subjective outcomes)	-All outcomes analysed in the ITT population -No significant lost to follow up at 10 days (e.g. clinical failure) -Significant lost to follow up after 30 days (lost to follow up in 4/19 (21%) in the group transitioning to oral vs 3/17 (18%) in the IV group) (e.g. recurrence of infection)		-Industry-funded: grant related to one of the studied molecules, but the company had no part in the design or performance of the study, in the data analysis, in the writing or editing of the manuscript, or in the decision to submit the manuscript for publication
Monmaturapoj 2012	Unclear RoB	Unclear RoB	Low RoB	Low RoB	Low RoB	Unclear RoB	High RoB
Thailand	-Randomized via a computer-generated random number allocation schedule with block size of four -Possible failed randomization: IV group tended to be older, to be hospitalized more often and to have bacteremia more frequently than the group transitioned to oral therapy	-Not reported	-Double dummy	-Double dummy	-All outcomes were measured in the ITT population	-Clinical response measured at 3 time points (24h after switch, at follow-up visit and at 2 weeks after the end of treatment) but only reported at the follow up visit	-Industry-funded: grant related to one of the studied molecules
So-Ngern 2023	Unclear RoB	Unclear RoB	High RoB	High RoB	Low RoB	Low RoB	Low RoB
Thailand	-Randomized via a computer-generated	-Not reported	-Open-label (especially	-Open-label (especially			-Industry-funded: grant related to

multicenter)	random number	applicable to	applicable to	-All outcomes	one of the studied
	allocation schedule	subjective	subjective	analysed in the ITT	molecules, but the
	with block size of	outcomes)	outcomes)	population	company had no
	four		,	-No significant lost	part in the design
	-Possible failed			to follow up for	of the study, in
	randomization: the			clinical outcomes	the data collection
	group transitioning			(clinical success or	and analysis,
	to oral therapy			recurrence of	decision to
	tended to have			infection)	publish, or
	more comorbidities				preparation of the
	such as diabetes				manuscript.
	mellitus more				
	frequently than the				
	IV group				

## Supplementary Figures 3: Forest plots for each patient-important outcome

### 3a) Clinical cure (at End Of Therapy (EOT) or Test-Of-Cure (TOC))

/				,		· · · · · · · · · · · · · · · · · · ·			
	IV-to-	PO	IV			Risk Ratio		Risk Ratio	Risk of Bias
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	Year	M-H, Random, 95% Cl	ABCDEFG
So-Ngern 2023	10	11	10	10	5.6%	0.92 [0.71, 1.18]	2023		??●●••
Malaisri 2017	19	19	16	17	14.4%	1.06 [0.91, 1.24]	2017	+	? 🖶 🛑 🛑 ? 🖶 🖶
Monmaturapoj 2012	41	41	40	41	77.8%	1.02 [0.96, 1.10]	2012		??++?
Concia 2006	15	23	17	24	2.3%	0.92 [0.62, 1.36]	2006		?? 🕈 🖶 🖶 🖶
Total (95% CI)		94		92	100.0%	1.02 [0.96, 1.08]		•	
Total events	85		83						
Heterogeneity: Tau <sup>2</sup> = (	0.00; Chi <sup>z</sup>	'= 1.82	, df = 3 (F	<sup>o</sup> = 0.61	); I <sup>z</sup> = 0%				Ϋ́
	Z = 0.70 (F	a = 0.40	22					Favours IV-to-PO Favours IV	U

Risk of bias legend

(A) Random sequence generation (selection bias)

(B) Allocation concealment (selection bias)

(C) Blinding of participants and personnel (performance bias)

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

(G) Other bias

#### 3b) Recurrence of UTI (at 4 to 6 weeks)

	IV-to-	PO	IV			Risk Ratio		Risk Ratio	Risk of Bias
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	Year	M-H, Fixed, 95% CI	ABCDEFG
So-Ngern 2023	0	10	1	10	50.0%	0.33 [0.02, 7.32]	2023		?? 🗣 🗣 🗣 🗣
Malaisri 2017	0	19	0	16		Not estimable	2017		? • • • ? • •
Monmaturapoj 2012	0	41	1	41	50.0%	0.33 [0.01, 7.95]	2012		?? 🗣 🗣 ? 🛑
Total (95% CI)		70		67	100.0%	0.33 [0.04, 3.05]			
Total events	0		2						
Heterogeneity: Chi <sup>2</sup> = (	0.00, df =	1 (P = 1	.00); <b> </b> ² =	0%					100
Test for overall effect: 2	Z = 0.97 (I	P = 0.30	3)					0.01 0.1 1 10 Favours IV-to-PO Favours IV	100

Risk of bias legend

(A) Random sequence generation (selection bias)

(B) Allocation concealment (selection bias)

(C) Blinding of participants and personnel (performance bias)

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

(G) Other bias

## 3c) Length of stay (days)

	IV-	to-P(	C		IV			Mean Difference	Mean Difference	Risk of Bias
Study or Subgroup	Mean	<b>SD</b>	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI	IV, Fixed, 95% CI	ABCDEFG
Concia 2006	10.9	7.7	23	17.2	11.2	24	100.0%	-6.30 [-11.78, -0.82]		?? • • • • •
Total (95% CI)			23			24	100.0%	-6.30 [-11.78, -0.82]	•	
Heterogeneity: Not a	pplicable	9								ų
Test for overall effect	: Z = 2.28	6 (P =	0.02)						-100 -50 0 50 100 Favours IV-to-PO Favours IV	I
Risk of bias legend										
(A) Random sequen	ce gener	ation	(selec	tion bia	s)					
(B) Allocation concea	alment (s	elect	ion bia	s)						
(C) Blinding of partici	pants an	nd per	rsonne	l (perfor	mance	e bias)				
(D) Blinding of outcou		cem	ant (det	action b	(aci					

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

(G) Other bias

### 3d) Serious antibiotic adverse events

	IV-to-	PO	IV			Risk Ratio		Risk Ratio	Risk of Bias
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	Year	M-H, Fixed, 95% CI	ABCDEFG
So-Ngern 2023	1	11	0	10	17.6%	2.75 [0.12, 60.70]	2023		- ??
Malaisri 2017	0	19	0	17		Not estimable	2017		? • • • ? • •
Monmaturapoj 2012	0	41	0	41		Not estimable	2012		?? 🗣 🗣 ? 🛑
Concia 2006	0	23	2	24	82.4%	0.21 [0.01, 4.12]	2006		??●●••
Total (95% CI)		94		92	100.0%	0.65 [0.11, 3.88]			
Total events	1		2						
Heterogeneity: Chi <sup>2</sup> = 1	.39, df = 1	1 (P = 0	0.24); I <sup>2</sup> =	28%					
Test for overall effect: 2								0.01 0.1 1 10 Favours IV-to-PO Favours IV	100

#### Risk of bias legend

(A) Random sequence generation (selection bias)

(B) Allocation concealment (selection bias)

(C) Blinding of participants and personnel (performance bias)

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

(G) Other bias

#### 3e) IV catheter related adverse events



(B) Allocation concealment (selection bias)

(C) Blinding of participants and personnel (performance bias)

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

(G) Other bias

#### 3f) Non-serious antibiotic adverse events

	IV-to-	PO	IV			Risk Ratio		Risk Ratio	Risk of Bias
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	Year	M-H, Fixed, 95% CI	ABCDEFG
So-Ngern 2023	0	11	0	10		Not estimable	2023		?? 🗣 🗣 🗣 🗣
Malaisri 2017	1	19	0	17	20.8%	2.70 [0.12, 62.17]	2017	•	— ? • • • ? • •
Monmaturapoj 2012	2	41	2	41	79.2%	1.00 [0.15, 6.76]	2012		?? 🕈 🖶 🕈 ? 🖨
Total (95% CI)		71		68	100.0%	1.35 [0.27, 6.67]			
Total events	3		2						
Heterogeneity: Chi <sup>2</sup> = I	0.28, df = 1	1 (P = 0	0.60); I <sup>z</sup> =	0%					400
Test for overall effect: 2	Z = 0.37 (F	P = 0.71	1)					0.01 0.1 1 10 Favours IV-to-PO Favours IV	100

Risk of bias legend

(A) Random sequence generation (selection bias)

(B) Allocation concealment (selection bias)

(C) Blinding of participants and personnel (performance bias)

(D) Blinding of outcome assessment (detection bias)

(E) Incomplete outcome data (attrition bias)

(F) Selective reporting (reporting bias)

(G) Other bias

# Supplementary Table 4: GRADE Evidence to Decision framework

Summary of Ju	Idgments						
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know
DESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	Don't know
UNDESIRABLE EFFECTS	Large	Moderate	Small	Trivial		Varies	Don't know
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	Don't know
CERTAINTY OF EVIDENCE	Very low	Low	Moderate	High			No included studies
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability			
RESOURCES REQUIRED	Large costs	Moderate costs	Negligible costs and savings	Moderate savings	Large savings	Varies	Don't know
CERTAINTY OF EVIDENCE OF REQUIRED RESOURCES	Very low	Low	Moderate	High			No included studies
COST EFFECTIVENESS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	No included studies
ACCEPTABILITY / STEWARDSHIP	No	Probably no	Probably yes	Yes		Varies	Don't know
FEASIBILITY	No	Probably no	Probably yes	Yes		Varies	Don't know
EQUITY	Reduced	Probably reduced	Probably no impact	Probably increased	Increased	Varies	Don't know
Гуре of Recon	nmendation						
5		al recommendation the intervention	Conditional recom for either the inter the compar	vention or reco	Conditional mmendation for e intervention	Strong recommendation for the intervention	
0		0	0		0		0