

Supplementary Information

Table S1. Searching term

Database	Search term	Result
Pubmed	(carbapenem resistan* OR meropenem resistan* OR imipenem resistan* OR ertapenem resistan* OR doripenem resistan* OR carbapenem non-susceptible OR carbapenemase producer) AND (Klebsiella pneumoniae OR K. pneumoniae OR multidrug-resistant Klebsiella pneumoniae OR CRE OR Enterobacteriaceae OR gram-negative bacteria) AND (Carriage OR gene OR resistan* gene) AND (Thailand)	144
Embase	(((((('carbapenem'/exp OR carbapenem) AND resistan* OR 'meropenem'/exp OR meropenem) AND resistan* OR 'imipenem'/exp OR imipenem) AND resistan* OR 'ertapenem'/exp OR ertapenem) AND resistan* OR 'doripenem'/exp OR doripenem) AND resistan* OR 'carbapenem non-susceptible' OR (('carbapenem'/exp OR carbapenem) AND 'non susceptible') OR 'carbapenemase producer' OR (('carbapenemase'/exp OR carbapenemase) AND producer)) AND ('klebsiella pneumoniae'/exp OR 'klebsiella pneumoniae' OR (('klebsiella'/exp OR klebsiella) AND pneumoniae) OR 'k. pneumoniae'/exp OR 'k. pneumoniae' OR (('k.'/exp OR k.) AND pneumoniae) OR 'multidrug-resistant klebsiella pneumoniae'/exp OR 'multidrug-resistant klebsiella pneumoniae' OR ('multidrug resistant' AND ('klebsiella'/exp OR klebsiella) AND pneumoniae) OR 'cre'/exp OR cre OR 'enterobacteriaceae'/exp OR enterobacteriaceae OR 'gram-negative bacteria'/exp OR 'gram-negative bacteria' OR ('gram negative' AND ('bacteria'/exp OR bacteria))) AND (carriage OR 'gene'/exp OR gene OR 'resistan* gene' OR (resistan* AND ('gene'/exp OR gene))) AND ('thailand'/exp OR thailand)	274
Scopus	ALL ((carbapenem AND resistan* OR meropenem AND resistan* OR imipenem AND resistan* OR ertapenem AND resistan* OR doripenem AND resistan* OR carbapenem AND non-susceptible OR "carbapenemase AND producer) AND (klebsiella AND pneumoniae OR k. AND pneumoniae OR multidrug-resistant AND klebsiella AND pneumoniae OR cre OR enterobacteriaceae OR gram-negative AND bacteria) AND (carriage OR gene OR resistan* AND gene) AND (thailand))	391

Scidirect	(“carbapenem resistance” OR “carbapenem non-susceptible” OR “carbapenemase producer”) AND (“Klebsiella pneumoniae” OR “multidrug-resistant Klebsiella pneumoniae” OR “CRE”) AND (“resistant gene”) AND (“Thailand”)	59
Thaijo 30	carbapenem Klebsiella pneumoniae https://www.tci-thaijo.org	32

Table S2. Characteristics of the included studies

No.	First author	Sampling period	Location	Setting	Specimen	AST method	Antibiotic tested	Resistance gene		Gene identification method	Quality score
								Carbapenemase	ESBL		
1	Aryal, P. U. ³⁹	July 2012 – June 2015	Songkhla	Songklanagarind Hospital	Various	Disc diffusion	Imipenem Meropenem Meropenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{IMP} and <i>bla</i> _{OXA-48}	NR	Multiplex PCR	7
2	Abe, R. ⁴⁰	2012–2017	Beung Kan, Surin, Sakon Nakhon, Bangkok, Surat Thani	11 representative hospitals	Blood, urine, pus, sputum, wound, tracheal, ascitic fluid, drain	NR	Imipenem Meropenem Meropenem	<i>bla</i> _{NMD-1} and <i>bla</i> _{NMD-1+bla} _{OXA232}	NR	WGS, PCR	8
3	Assawatheptawee, K. ²⁵	November 2018 – August 2020	Phitsanulok	NR	Stool and urine	Disk diffusion	Imipenem Meropenem	<i>bla</i> _{NMD-1}	NR	Multiplex PCR	8
4	Boonyasiri, A. ²⁶	2015–2017	Bangkok	Siriraj hospital	Urine, blood, Abdominal fluid, Sputum	Disk diffusion	Meropenem	<i>bla</i> _{NMD-1} and <i>bla</i> _{NMD-1+bla} _{OXA232}	NR	WGS	7
5	Boueroy, P. ⁴¹	2016–2019	Thailand*	Thai hospitals	NR	MIC	Meropenem Imipenem Ertapenem	<i>bla</i> _{NMD-1} and <i>bla</i> _{OXA181}	<i>bla</i> _{TEM-1B} , <i>bla</i> _{SHV-106} , <i>bla</i> _{SHV-182} , <i>bla</i> _{SHV-11} , <i>bla</i> _{SHV-12} , <i>bla</i> _{CTX-M15}	WGS, Multiplex PCR	6
6	Chaisaeng, S. ²⁷	January 2019– December 2020	Thailand*	Thai hospitals	Various	MIC	Meropenem Imipenem	NR	<i>bla</i> _{TEM} , <i>bla</i> _{SHV} , <i>bla</i> _{CTX-M}	PCR	7
7	Chirabhundhu, N. ⁴²	2017–2021	Bangkok, Nakhon Pathom	King Chulalongkorn Memorial Hospital, Chulalongkorn University, Golden Jubilee Medical Center, Mahidol University	Urine	MIC	Imipenem Meropenem	<i>bla</i> _{NDM} , <i>bla</i> _{OXA-48} -like, <i>bla</i> _{NDM+bla} _{OXA-48} -like	NR	WGS, PCR	7
8	Chukamnerd, A. ²⁸	28 February 2017– 18 April 2017	Songkhla	Songklanagarind Hospital	Rectal swab, throat swab	Disk diffusion	Imipenem Meropenem Doripenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{OXA-48} , <i>bla</i> _{VIM-2} , <i>bla</i> _{NDM-1+bla} _{OXA-48}	<i>bla</i> _{TEM} , <i>bla</i> _{SHV} , <i>bla</i> _{CTX-M}	PCR	6

No.	First author	Sampling period	Location	Setting	Specimen	AST method	Antibiotic tested	Resistance gene		Gene identification method	Quality score
								Carbapenemase	ESBL		
9	Duangkaw, W. ⁴³	May and September 2016	Nan	Pua Crown Prince Hospital and Nan Hospital	Urine, pus, sputum, and rectal swabs	NR	Ertapenem Imipenem Meropenem	<i>bla</i> _{NDM} , <i>bla</i> _{OXA-48-like}	<i>bla</i> _{TEM} , <i>bla</i> _{SHV} , <i>bla</i> _{CTX-M-9} , <i>bla</i> _{VEB} , <i>bla</i> _{CTX-M-1}	PCR	6
10	Kachayangyuen, S. ⁴⁴	January 2018 – November 2021	Saraburi	Phra Phutthabat Hospital	Various	NR	Ertapenem Meropenem	NR	NR	NR	6
11	Kiratisin, P. ²⁹	December 2004 –May 2005	Bangkok	Thammasart hospital and Siriraj hospital	Various	Disc diffusion	Ertapenem Imipenem Meropenem	<i>bla</i> _{OXA-10}	<i>bla</i> _{CTX-M3} , <i>bla</i> _{CTX-M14} , <i>bla</i> _{CTX-M15} , <i>bla</i> _{CTX-M2} , <i>bla</i> _{CTX-M55} , <i>bla</i> _{TEM-1} , <i>bla</i> _{SHV-2a} , <i>bla</i> _{SHV-11} , <i>bla</i> _{SHV-12} , <i>bla</i> _{SHV-27} , <i>bla</i> _{SHV-71} , <i>bla</i> _{SHV-75} , <i>bla</i> _{VEB-1}	PCR	8
12	Yodin, M. ³⁰	Oct 2013 – Sep 2016	Thailand*	National Cancer Institute	Various	Disk diffusion	Ertapenem Imipenem meropenem	NR	NR	NR	8
13	Nasomsong, W. (a) ³¹	June – October 2020	Bangkok	Phramongkutlao Hospital	NR	MIC	Ertapenem Imipenem Meropenem	<i>bla</i> _{OXA-48} + <i>bla</i> _{OXA-48} + <i>bla</i> _{NDM}	NR	Multiplex PCR	7
14	Nasomsong W. (b) ⁴⁵	June 2019 – March 2023	Bangkok, Ratchaburi	Phramongkutlao Hospital, Nopparat Rajathanee Hospital, Ratchaburi Hospital	Blood, urine, sputum, pus, bile	MIC	Imipenem Meropenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{OXA-48-like} , <i>bla</i> _{OXA-48-like} + <i>bla</i> _{NDM}	NR	Multiplex PCR	8
15	Netikul, T. ³²	2009–2011	Bangkok	Faculty of Medicine Siriraj Hospital	Various	MIC	Ertapenem, Imipenem, Meropenem, Doripenem	<i>bla</i> _{IMP}	<i>bla</i> _{TEM} , <i>bla</i> _{SHV} , <i>bla</i> _{CTX-M}	PCR sequencing	5
16	Noitachang, W. ⁴⁶	January 2015 – December 2017	Uttaradit	Uttaradit hospital	Various	MIC, Vitek	Ertapenem Imipenem Meropenem Doripenem	<i>bla</i> _{NDM} , <i>bla</i> _{NDM} + <i>bla</i> _{OXA-48 like}	NR	Multiplex PCR	8

No.	First author	Sampling period	Location	Setting	Specimen	AST method	Antibiotic tested	Resistance gene		Gene identification method	Quality score
								Carbapenemase	ESBL		
						2 compact					
17	Nulsopapon, P. ⁴⁷	September 2019–October 2020	Suphan Buri, Nakhon Pathom, Ratchaburi, Samut Sakhon, Prachuap Khiri Khan, Phetchaburi, Samut Songkhram	Chaophraya Yommaraj Hospital, Nakhon Pathom Hospital, Ratchaburi Hospital, Samut Sakhon Hospital, Banphaeo General Hospital, Prachuapkhirikhan Hospital, King Mongkut Memorial Hospital, Somdej Phra Phutthaleotla Hospital, Hua Hin Hospital, Photharam Hospital, Krathumbaen Hospital, Somdejprasangkharach XVII Hospital	NR	MIC	Imipenem Meropenem Ertapenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{OXA-48} , <i>bla</i> _{NMD-1} + <i>bla</i> _{OXA-48}	NR	Multiplex PCR	7
18	Pachanon, R. ⁴⁸	2020	Bangkok	King Chulalongkorn Memorial Hospital	Urine	MIC, VITEK 2	Imipenem Meropenem Ertapenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{OXA-9} , <i>bla</i> _{OXA-1} , <i>bla</i> _{OXA-232}	NR	WGS	6
19	Paveenkittiporn, W. ⁴⁹	2016–2019	Phuket, Khon Kaen	NR	Sputum, urine, ascitic fluid	E-test	Imipenem Meropenem Ertapenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{IMP} , <i>bla</i> _{OXA-48} , <i>bla</i> _{NMD-1} + <i>bla</i> _{OXA-48}	NR	WGS	8
20	Pornsinchai, P. ³³	April 2011–August 2011	Bangkok	Ramathibodi Hospital	Rectal swabs	MIC	Imipenem Meropenem Ertapenem	NR	<i>bla</i> _{TEM} , <i>bla</i> _{SHV} , <i>bla</i> _{CTX-M}	DNA Seq, PCR	7
21	Pudpong, K. ⁵⁰	June 2018 – February 2020	Songkhla	Songklanagarind Hospital	Sputum, urine, blood, ascites	MIC	Imipenem Meropenem	<i>bla</i> _{NMD-1} , <i>bla</i> _{OXA-48} , <i>bla</i> _{NMD-1} + <i>bla</i> _{OXA-48}	NR	Multiplex PCR	8

No.	First author	Sampling period	Location	Setting	Specimen	AST method	Antibiotic tested	Resistance gene		Gene identification method	Quality score
								Carbapenemase	ESBL		
22	Rimrang, B. ³⁴	October 2010 – August 2011	Khon Kaen	Srinagarind Hospital	Sputum, urine	Disk diffusion	Imipenem Meropenem Ertapenem	<i>bla</i> _{NDM-1} , <i>bla</i> _{IMP-14a}	NR	DNA Seq, Multiplex PCR	5
23	Romyasamit, C. ³⁵	January 2021 and August 2021	Songkhla	Songklanagarind Hospital	blood	Disc diffusion	imipenem, meropenem	NR	<i>bla</i> _{CTX-M} , <i>bla</i> _{SHV} , <i>bla</i> _{TEM} , <i>bla</i> _{TEM} + <i>bla</i> _{SHV}	Multiplex PCR	8
24	Ruekit, S. ⁵¹	2017-2018	Chonburi	Queen Sirikit Naval Hospital	Pus, urine, rectal swabs, sputum, blood	BD Phoenix TM 50	Imipenem Meropenem Ertapenem	<i>bla</i> _{NDM} , <i>bla</i> _{OXA-48} , <i>bla</i> _{IMP}	NR	WGS, PCR, qPCR	8
25	Sakamoto, N. ⁵²	2013–2016	Bangkok	Ramathibodi Hospital	Sputum, urine, blood, ascites			<i>bla</i> _{NDM-1} , <i>bla</i> _{NDM-4} , <i>bla</i> _{NDM-5} , <i>bla</i> _{OXA-48} , <i>bla</i> _{OXA-181} , <i>bla</i> _{IMP-14}	<i>bla</i> _{CTX-M15}	WGS	8
26	Santimaleeworagun, W. ⁵³	October 2017 – December 2018	Bangkok	Phramongkutklao Hospital	Blood	MIC	Ertapenem Imipenem Meropenem	NR	NR	NR	7
27	Singkhram-In, U. ⁵⁴	2017–2018	Bangkok	King Chulalongkorn Memorial Hospital	NR	Disk diffusion	Imipenem Meropenem	<i>bla</i> _{NDM-like} + <i>bla</i> _{OXA-48-like} , <i>bla</i> _{NDM-like} , <i>bla</i> _{OXA-48-like} , <i>bla</i> _{IMP-like}	NR	Multiplex PCR	7
28	Siriphap, A. ³⁶	January 2016– December 2020	Chiangrai	Chiangrai Prachanukroh Hospital	Various	Disk diffusion	Ertapenem Imipenem Meropenem	NR	NR	NR	8
29	Singpoltan, N. ⁵⁵	August – December 2019	Nakhon Ratchasima	Maharat Nakhon Ratchasima Hospital	Various	Disk diffusion	Ertapenem Imipenem Meropenem	<i>bla</i> _{NDM} , <i>bla</i> _{OXA48-like}	NR	Multiplex PCR	7
30	Teeraputon, S. ⁵⁶	Aug 2018 – July 2019	Phitsanulok	Buddhachinaraj Phitsanulok Hospital	Various	NR	Ertapenem Imipenem Meropenem	<i>bla</i> _{NDM} , <i>bla</i> _{IMP} , <i>bla</i> _{OXA-48-like} , <i>bla</i> _{IMP} + <i>bla</i> _{OXA-48-like} , <i>bla</i> _{NDM} + <i>bla</i> _{OXA-48-like}	NR	Multiplex PCR	8
31	Themphachana, M. ³⁷	February and September 2013	Phuket	Vachira Phuket Hospital and from Talang	Urine	Disk diffusion	Imipenem	NR	NR	PCR	7

No.	First author	Sampling period	Location	Setting	Specimen	AST method	Antibiotic tested	Resistance gene		Gene identification method	Quality score
								Carbapenemase	ESBL		
				and Patong Hospitals							
32	Tunyong W. ³⁸	January 2016–December 2017	Chanthaburi	Prapokklao Hospital	Various	Disk diffusion	Ertapenem Meropenem Imipenem	<i>bla</i> _{IMP} , <i>bla</i> _{NDM} , <i>bla</i> _{OXA-48-like}	NR	DNA Seq, PCR	7

Table S3. Risk of bias of the individual studies

No.	Author	1. Was the sample frame appropriate to address the target population?	2. Were the study participants sampled in an appropriate way?	3. Was the sample size adequate?	4. Were the study subjects and the setting described in detail?	5. Was a sample size justification, power description or variance and effect estimates provided?	6. Were valid methods used for the identification of the condition?	7. Was the condition measured in a standard, reliable way for all participants?	8. Was there an appropriate statistical analysis?	9. Was the response rate adequate, and if not, was the low response rate managed appropriately?	Score
1	Aryal, P. U.	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	7
2	Abe, R.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
3	Assawatheptawe, K.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
4	Boonyasiri, A.	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	7
5	Boueroy, P.	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	6
6	Chaisaeng, S.	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes	Yes	7
7	Chirabhundhu, N.	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes	Yes	7
8	Chukamnerd, A.	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	6
9	Duangkaw, W.	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	6
10	Kachayangyu, S.	Yes	Unclear	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	6

11	Kiratisin, P.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
12	Yodin, M.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
13	Nasomsong, W. a	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	7
14	Nasomsong W. b	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
15	Netikul, T.	Yes	Yes	No	Yes	No	No	Yes	No	Yes	5
16	Noitachang, W.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
17	Nulsopapon, P.	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	7
18	Pachanon, R.	Unclear	Yes	No	Yes	No	Yes	Yes	Yes	Yes	6
19	Paveenkittiporn, W.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
20	Pornsinchai, P.	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	7
21	Pudpong, K.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
22	Rimrang, B.	Yes	Yes	No	Yes	No	Yes	Yes	No	No	5
23	Romyasamit, C.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
24	Ruekit, S.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8

25	Sakamoto, N.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
26	Santimaleewo ragun, W.	Yes	Yes	Yes	Yes	No	Yes	Yes	NA	Yes	7
27	Singkhram-In U.	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes	Yes	7
28	Siriphap, A.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
29	Singpoltan, N.	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	7
30	Teeraputon, S.	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	8
31	Themphacha na, M.	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes	Yes	7
32	Tunyong W.	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes	Yes	7

Table S4. Prevalence of ertapenem-resistant *K. pneumoniae* stratified by publication year and geographic region in Thailand. *Indicates studies did not specify the geographic region or collected the sample from across the country.

Subgroup	No. of studies	Proportion [95% CI]	<i>p</i>	Heterogeneity test		
				I ²	H ²	<i>p</i>
Year						
2017	1	0.52 [0.44, 0.61]	< 0.001	-	-	-
2018	1	1.00 [0.95, 1.00]	< 0.001	-	-	-
2019	1	1.00 [0.99, 1.00]	< 0.001	-	-	-
2020	2	1.00 [0.99, 1.00]	< 0.001	0.00	1.00	< 0.001
2021	4	0.98 [0.85, 1.00]	< 0.001	93.74	15.96	< 0.001
2022	2	0.96 [0.12, 1.00]	0.01	99.06	105.95	< 0.001
2023	1	0.29 [0.07, 0.55]	< 0.001	-	-	-
2024	1	0.86 [0.77, 0.93]	< 0.001	-	-	-
Region						
Central	4	0.88 [0.49, 1.00]	< 0.001	96.55	28.99	< 0.001
Eastern	3	0.89 [0.48, 1.00]	< 0.001	97.89	47.37	< 0.001
Northeastern	1	1.00 [0.97, 1.00]	< 0.001	-	-	-
Northern	2	1.00 [0.98, 1.00]	< 0.001	0	1.00	0.71
Southern	1	1.00 [0.99, 1.00]	< 0.001	-	-	-
Western	-	-	-	-	-	-
Thailand*	2	0.96 [0.09, 1.00]	0.02	99.21	126.00	< 0.001

Table S5. Prevalence of imipenem-resistant *K. pneumoniae* stratified by publication year and geographic region in Thailand. *Indicates studies did not specify the geographic region or collected the sample from across the country.

Subgroup	No. of studies	Proportion [95% CI]	<i>p</i>	Heterogeneity test		
				I ²	H ²	<i>p</i>
Year						
2014	1	0.12 [0.04, 0.22]	< 0.001	-	-	-
2017	1	0.65 [0.57, 0.73]	< 0.001	-	-	-
2018	1	0.84 [0.70, 0.94]	< 0.001	-	-	-
2019	1	0.79 [0.72, 0.84]	< 0.001	-	-	-
2020	3	0.84 [0.59, 0.99]	< 0.001	92.96	13.68	< 0.001
2021	3	0.78 [0.67, 0.87]	< 0.001	80.52	5.13	< 0.001
2022	3	0.92 [0.55, 1.00]	< 0.001	97.99	49.82	< 0.001
2023	1	0.97 [0.92, 1.00}	< 0.001	-	-	-
2024	2	1.00 [0.90, 1.00]	< 0.001	95.10	20.40	< 0.001
Region						
Central	5	0.89 [0.76, 1.00]	< 0.001	97.04	33.81	< 0.001
Eastern	2	0.76 [0.39, 1.00]	< 0.001	96.57	29.18	< 0.001
Northeastern	1	0.85 [0.76, 0.93]	< 0.001	-	-	-
Northern	2	0.92 [0.77, 1.00]	< 0.001	79.12	4.79	< 0.001
Southern	3	0.48 [0.03, 0.95]	< 0.001	97.73	44.00	< 0.001
Western	-	-	-	-	-	-
Thailand*	4	0.92 [0.74, 1.00]	< 0.001	96.74	30.65	< 0.001

Table S6. Prevalence of meropenem-resistant *K. pneumoniae* stratified by publication year and geographic region in Thailand. *Indicates studies did not specify the geographic region or collected the sample from across the country.

Subgroup	No. of studies	Proportion [95% CI]	<i>p</i>	Heterogeneity test		
				I ²	H ²	<i>p</i>
Year						
2017	1	0.61 [0.53, 0.70]	< 0.001	-	-	-
2018	1	0.95 [0.84, 1.00]	< 0.001	-	-	-
2019	1	0.96 [0.92, 0.98]	< 0.001	-	-	-
2020	3	0.86 [0.64, 0.99]	< 0.001	91.55	11.84	< 0.001
2021	5	0.89 [0.76, 0.98]	< 0.001	90.73	10.79	< 0.001
2022	3	0.90 [0.58, 1.00]	< 0.001	97.50	39.95	< 0.001
2023	2	0.46 [0.00, 1.00]	< 0.001	98.71	77.70	< 0.001
2024	3	0.99 [0.90, 1.00]	< 0.001	94.30	17.54	< 0.001
Region						
Central	7	0.84 [0.62, 0.98]	< 0.001	96.76	30.88	< 0.001
Eastern	3	0.83 [0.56, 0.99]	< 0.001	95.77	23.66	< 0.001
Northeastern	1	0.90 [0.81, 0.96]	< 0.001	-	-	-
Northern	2	0.95 [0.91, 0.98]	< 0.001	0	1.00	0.69
Southern	2	0.87 [0.36, 1.00]	< 0.001	96.21	26.39	< 0.001
Western	-	-	-	-	-	-
Thailand*	4	0.95 [0.72, 1.00]	< 0.001	97.87	46.95	< 0.001

National Geographical Committee, which was appointed by the National Research Council. It divides the country into 6 regions

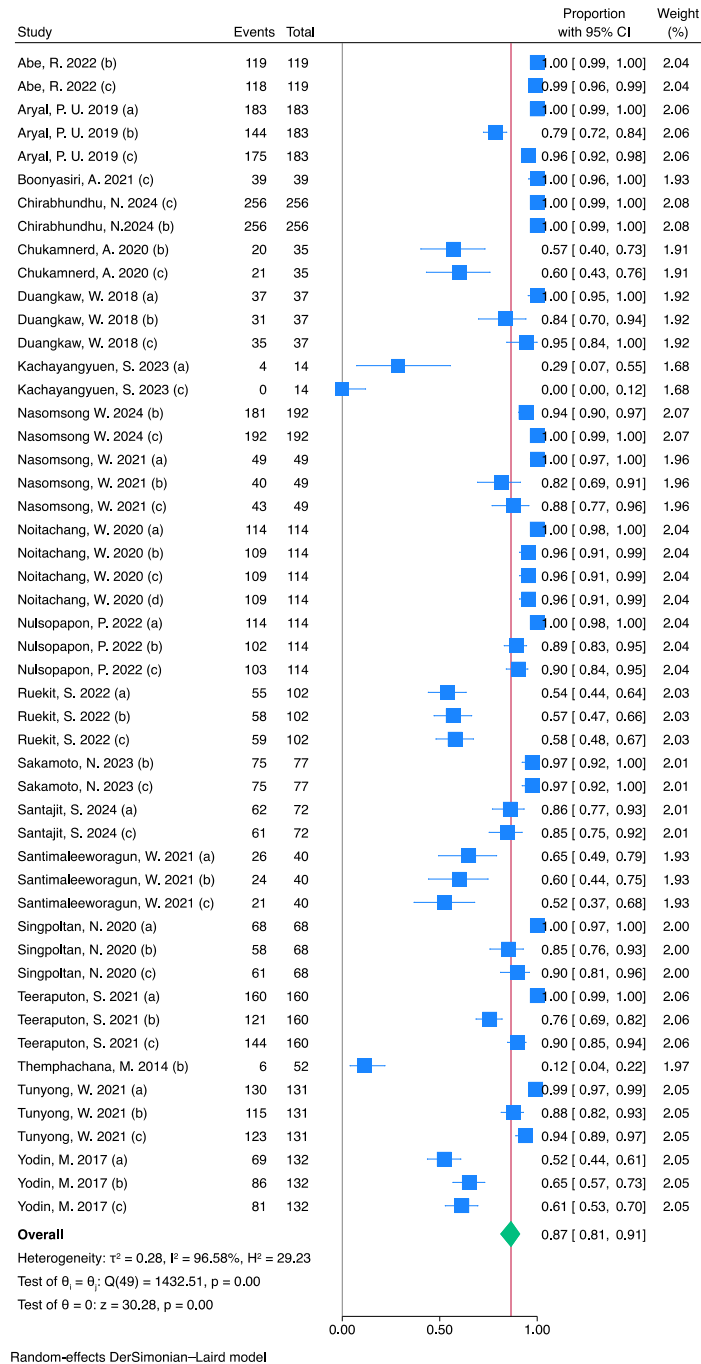


Figure S1. Forest plot for the prevalence of overall carbapenem resistance *K. pneumoniae* in Thailand. Blue squares: effect estimate, green diamond: pooled effect estimate, red vertical line: pooled effect estimate, and gray vertical line: no effect line. CI: confidence interval, (a): Ertapenem, (b): Imipenem, (c): Meropenem Blue squares: effect estimates, green diamond: pooled effect estimate, red vertical line: pooled effect estimate, and gray vertical line: no effect line. CI: confidence interval

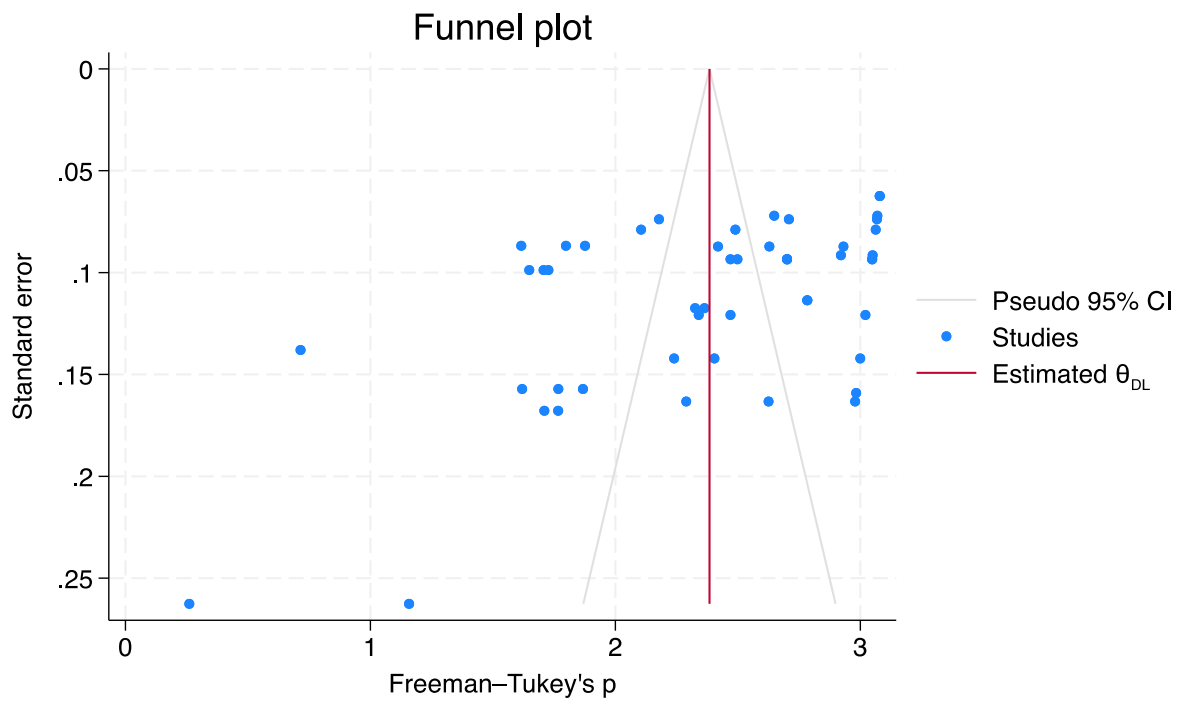


Figure S2. Funnel plot for the prevalence of *K. pneumoniae* in Thailand

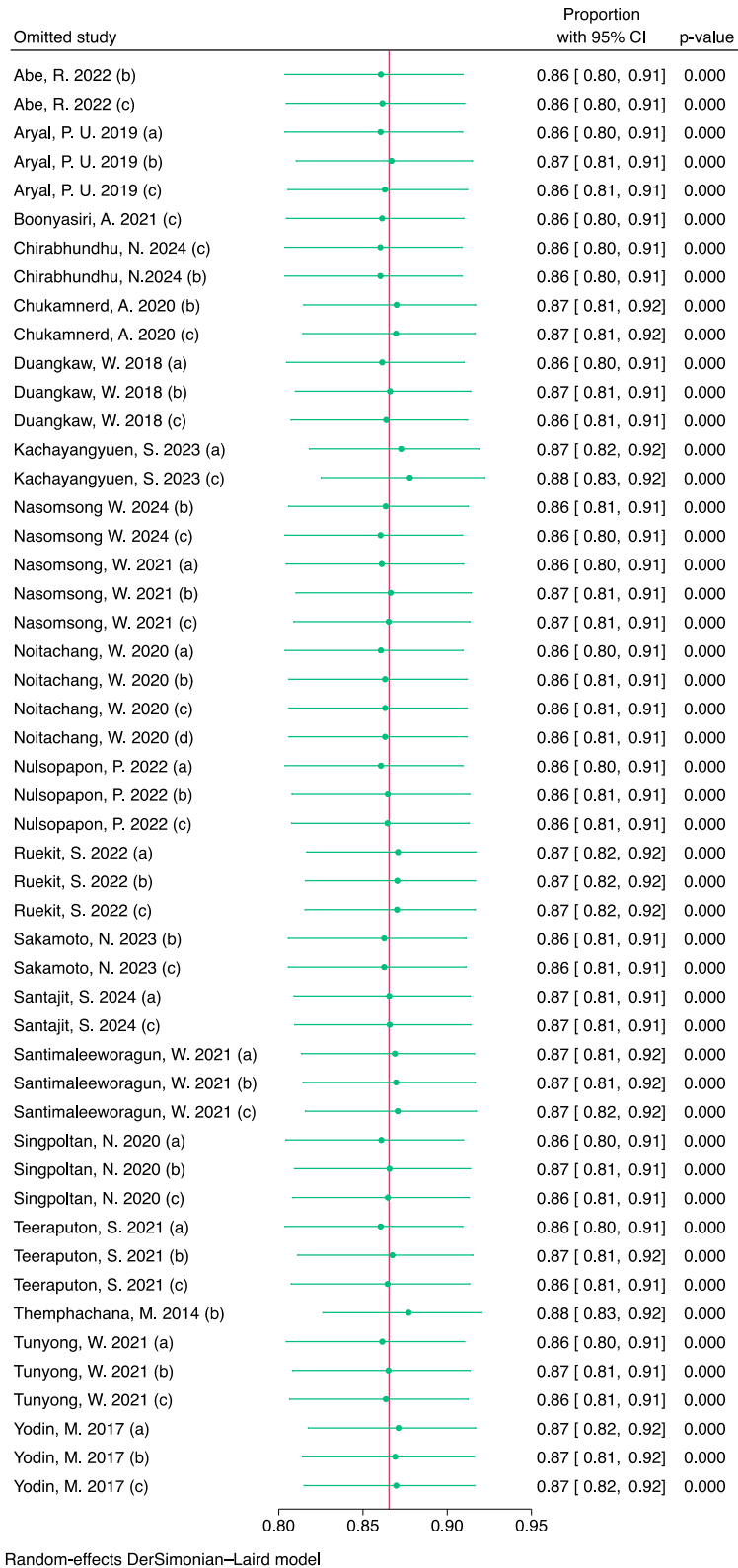


Figure S3. Leave-One-Out Sensitivity Analysis of Carbapenems Resistance Rates Based on the Random-Effects Model. (a): Ertapenem, (b): Imipenem, (c): Meropenem

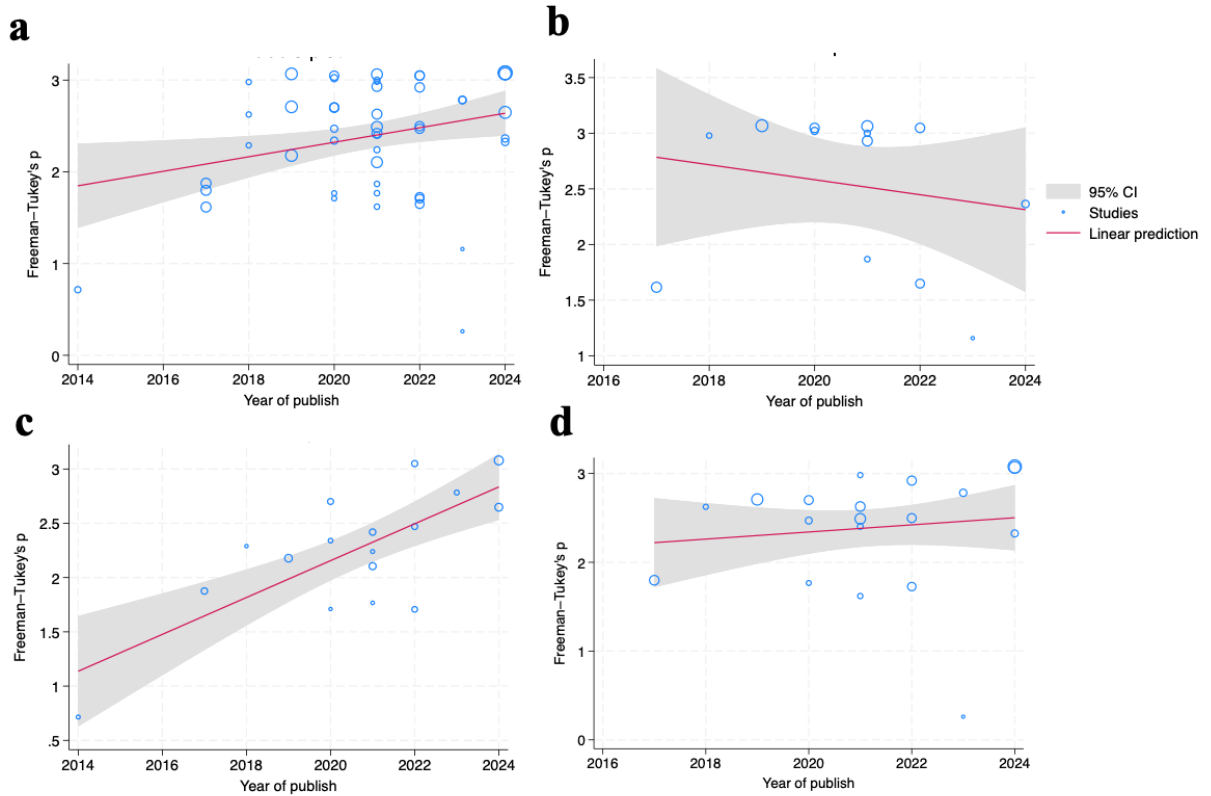


Figure S4. Meta-regression plots depicting the temporal trends in the prevalence of carbapenem resistance among *K. pneumoniae* clinical isolates based on year of publication. (a) Overall carbapenem resistance, (b) Ertapenem resistance, (c) Imipenem resistance, and (d) Meropenem resistance. Each plot illustrates the relationship between publication year and resistance prevalence, as determined by meta-regression analysis.