



Supplementary Material

Supplementary Table S1. Description of included studies.

SN	Description	Frequency (n)	Percentage (%)
Types of studies			
1	Case reports/case series	59	50.0
2	RCT	7	5.9
3	Cohort	5	4.2
4	Observational studies (except cohort studies)	47	39.8
Total		118	100
Study countries or areas			
1	LMICs (China, Iran, Bhutan, Brazil, Colombia, Iraq, Nepal, Philippines, Uganda, Vietnam)	72	61.0
2	HICs (USA, Italy, France, Spain, United Kingdom, Belgium, Hong Kong (China), Japan, Poland, South Korea)	46	39.0
Total		118	100
Region of the studies			
1	East Asia and Pacific	66	55.9
2	Europe and Central Asia	26	22.0
3	Latin America and the Caribbean	2	1.7
4	Middle East and North Africa	4	3.4
5	North America	17	14.4
6	South Asia	2	1.7
7	Sub-Saharan Africa	1	0.8
Total		118	100

Supplementary Table S2. Severity of illness and scenario of antibiotic prescribing.

SN	Scenario of antibiotic prescribing	Severe and critical illness and scenario of antibiotic prescribing		Mild and moderate illness and scenario of antibiotic prescribing	
		Frequencies (n)	Percentage (%)	Frequencies (n)	Percentage (%)
1	Scenario 1 (A)	3	4.8	2	3.0
2	Scenario 4 (B)	2	3.2	2	3.0
3	Scenario 6 (A)	4	6.5	6	9.1
4	Scenario 7 (B)	2	3.2	4	6.1
5	Scenario 8 (B)	2	3.2	5	7.6
6	Scenario 9 (C)	8	12.9	2	3.0
7	Scenario 10 (C)	2	3.2	2	3.0
8	Scenario 12 (C)	4	6.5	5	7.6
9	Scenario 13 (B)	8	12.9	13	19.7
10	Scenario 14 (C)	11	17.7	10	15.2
11	Scenario 15 (C)	2	3.2	2	3.0
12	Scenario 16 (B)	11	17.7	9	13.6
13	Scenario 17 (C)	1	1.6	2	3.0
14	Scenario 18 (A)	1	1.6	1	1.5
15	Scenario 20 (B)	1	1.6	1	1.5
Total		62	100	66	100

[Note: every study may have more than one abs prescribing scenario; A- with clinical justifications; B – without clinical justifications; C – not sure].

Supplementary Table S3. Types of study based on gender and health outcomes (LOS, discharge and mortality) .

SN	Gender breakdown of studies	LOS (mean days)	Discharge (mean %)	Mortality (mean %)
1	Studies with female patients only (18 studies)	11.4	91.7	20.0
2	Studies with male patients only (27 studies)	13.4	75.2	37.5
3	Studies with mix of male and female patients (72 studies)	13.1	61.5	12.6

[Note: 1 study did not provide required information] .

Supplementary Table S4. Antibiotic prescribing, length of stay, discharge rate and mortality rate by study designs.

Study design	Antibiotic prescribing rate (%)	Length of hospital stay (days)	Discharge rate (%)	Mortality rate (%)
Case series and case reports (n= 59 studies)	89.3	12.5	75.6	24.1
Cohort studies (n = 5 studies)	82.1	16.7	66.6	25.0
Observational studies (except cohort studies) (n= 47)	73.2	13.3	60.1	11.0
Randomised control trials (n = 7 studies)	79.9	11.4	70.1	3.0

Supplementary Table S5. Antibiotic prescribing, length of stay, discharge rate and mortality rate by income of the study countries.

Income of the countries.	Antibiotic prescribing rate (%)	Length of hospital stay (days)	Discharge rate (%)	Mortality rate (%)
High income countries (HICs) (n= 44 studies)	81.1	12.0	81.9	18.1
Low-and-middle income countries (LMICs) (n= 68 studies)	83.3	13.6	60.2	18.3

(Note: We excluded two studies from HICs and four studies from LMICs from analysis because they did not report the above information).

Appendix 1 All included studies – references list

Case studies (1-59)

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Observational studies except cohort (1-47)

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Cohort and RCT (1-12)

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