Supplementary Tables

Table S1. Odds ratio for treatment failure of index exacerbation among COPD outpatients stratified by COPD severity (GOLD I and GOLD II-IV).

Treatment groups (No.)	Treatment failure No. (%)	Crude OR (95% CI)	Adjusted OR (95% CI)[a]	PS adjusted OR (95% CI)[b]
Gold I: Mild				
Reference (307)	35 (11.4)	1	1	1
All antibiotics (266)	30 (11.3)	0.99 (0.59-1.66)	0.60 (0.33-1.08)	0.59 (0.33-1.06)*
Doxycycline (108)	10 (9.3)	0.79 (0.38-1.66)	0.44 (0.18-1.05)*	0.40 (0.17-0.97)*
Macrolides (63)	<10	0.97 (0.41-2.30)	0.51 (0.19-1.39)	0.53 (0.21-1.36)
Amoxicillin (43)	10 (23.3)	2.36 (1.07-5.19)	1.72 (0.72-4.11)	1.60 (0.70-3.67)
Co-amoxiclav (44)	<10	0.37 (0.09-1.60)	0.28 (0.06-1.25)	0.28 (0.06-1.24)
Gold II-IV: Moderate and above				
Reference (210)	24 (11.4)	1	1	1
All antibiotics (184)	19 (10.3)	0.89 (0.47-1.69)	0.79 (0.38-1.65)	0.69 (0.33-1.42)*
Doxycycline (78)	<10	0.76 (0.32-1.85)	0.74 (0.27-1.99)*	0.60 (0.23-1.55)*
Macrolides (31)	<10	0.53 (0.12-2.38)	0.39 (0.08-1.95)	0.45 (0.10-2.14)
Amoxicillin (41)	<10	1.33 (0.51-3.49)	1.07 (0.34-3.42)	1.09 (0.37-3.19)
Co-amoxiclav (32)	<10	1.11 (0.36-3.43)	0.72 (0.16-3.25)	0.70 (0.18-2.69)

Abbreviation: OR: odds ratio; CI: confidence interval; PS: propensity; No.: number;
[a]Result based on logistic regression with covariate adjustment of age, gender, GOLD stage, smoking status, LAMA prescription, number of antibiotics prescription in previous year, number of AECOPD in previous year , heart failure and Ulcerative colitis; [b]Result based on logistic regression with propensity adjustment that PS as a single covariate in the binary logistic regression model; *P<0.05; Due to privacy protection of patients according to contract, the number below 10 was not permitted to present.

Table S2. Odds ratio for treatment failure of index exacerbation among COPD outpatients aged 40 years old and over (N=1003).

Treatment groups (No.)	Treatment failure No. (%)	Crude OR (95% CI)	Adjusted OR (95% CI)[a]	PS adjusted OR (95% CI)[b]
Reference (527)	57 (10.8)	1	1	1
Doxycycline (198)	18 (9.1)	0.83 (0.47-1.44)	0.49 (0.25-0.96)[*]	0.46 (0.24-0.90)[*]
Macrolides (94)	11 (11.7)	1.09 (0.55-2.17)	0.57 (0.25-1.30)	0.57 (0.26-1.27)
Amoxicillin (90)	17 (18.9)	1.92 (1.06-3.48)	1.59 (0.80-3.15)	1.42 (0.72-2.79)
Co-amoxiclav (80)	< 10	0.67 (0.28-1.61)	0.52 (0.19-1.40)	0.48 (0.18-1.28)

Abbreviation: OR: odds ratio; CI: confidence interval; PS: propensity; No.: number;
[a]Result based on logistic regression with covariate adjustment of age, gender, GOLD stage, smoking status, LAMA prescription, number of antibiotics prescription in previous year, number of AECOPD in previous year, heart failure and Ulcerative colitis; [b]Result based on logistic regression with propensity adjustment that PS as a single covariate in the binary logistic regression model; [*]$P<0.05$; Due to privacy protection of patients according to contract, the number below 10 was not permitted to present.

Table S3. Odds ratio for treatment failure of index exacerbation among COPD outpatients who are former or current smokers.

Treatment groups (No.)	Treatment failure No. (%)	Crude OR (95% CI)	Adjusted OR (95% CI)[a]	PS adjusted OR (95% CI)[b]
Reference (394)	47 (11.9)	1	1	1
Doxycycline (152)	10 (6.6)	0.52 (0.26-1.06)	0.30 (0.13-0.69)[*]	0.29 (0.13-0.64)[*]
Macrolides (71)	<10	0.81 (0.35-1.87)	0.27 (0.09-0.82)[*]	0.30 (0.11-0.85)[*]
Amoxicillin (66)	11 (16.7)	1.48 (0.72-3.02)	1.35 (0.63-2.92)	1.26 (0.59-2.69)
Co-amoxiclav (57)	< 10	0.71 (0.27-1.87)	0.55 (0.20-1.51)	0.47 (0.17-1.27)

Abbreviation: OR: odds ratio; CI: confidence interval; PS: propensity; No.: number;
[a]Result based on logistic regression with covariate adjustment of age, gender, GOLD stage, smoking status, LAMA prescription, number of antibiotics prescription in previous year, number of AECOPD in previous year, heart failure and Ulcerative colitis; [b]Result based on logistic regression with propensity adjustment that PS as a single covariate in the binary logistic regression model; [*]$P<0.05$; Due to privacy protection of patients according to contract, the number below 10 was not permitted to present.