Figure S1: Simulated plasma concentration of meropenem and sulbactam. Grey shading indicates 95% CI; 0.95, 95th percentile; 0.75, 75th percentile; 0.5, 50th percentile; 0.25, 25th percentile; 0.05, 5th percentile; q8h, every 8 hours.
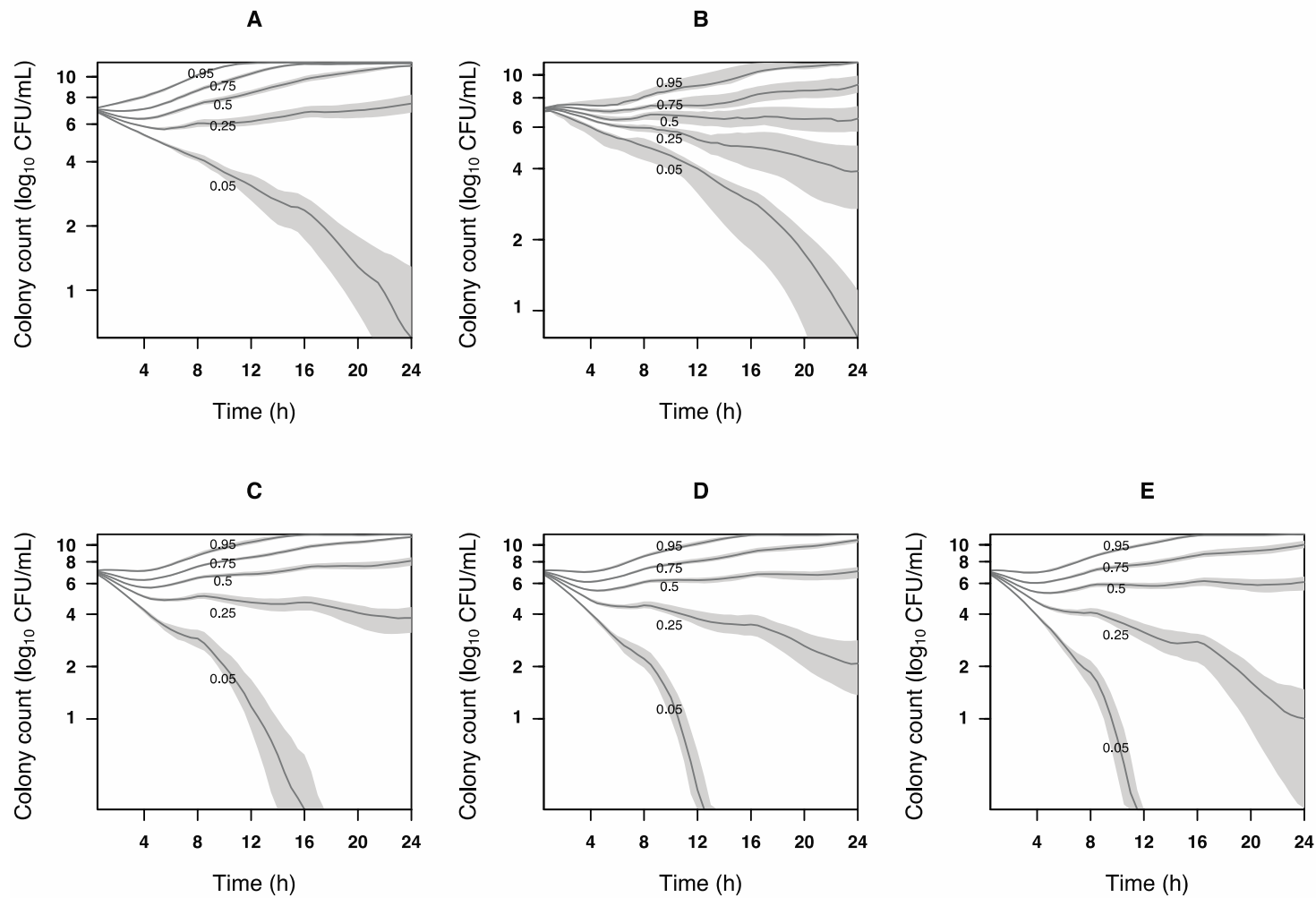
Figure S2: Simulated viable count profiles of carbapenem-resistant *A. baumannii* isolate #79 for monotherapy regimens (A) fosfomycin 8 g q8h; (B) sulbactam 4 g q8h, and combination regimens of sulbactam 2 g q8h with (C) fosfomycin 4 g q8h; (D) fosfomycin 6 g q8h; (E) fosfomycin 8 g q8h. Grey shading indicates 95% CI; 0.95, 95th percentile; 0.75, 75th percentile; 0.5, 50th percentile; 0.25, 25th percentile; 0.05, 5th percentile; q8h, every 8 hours.
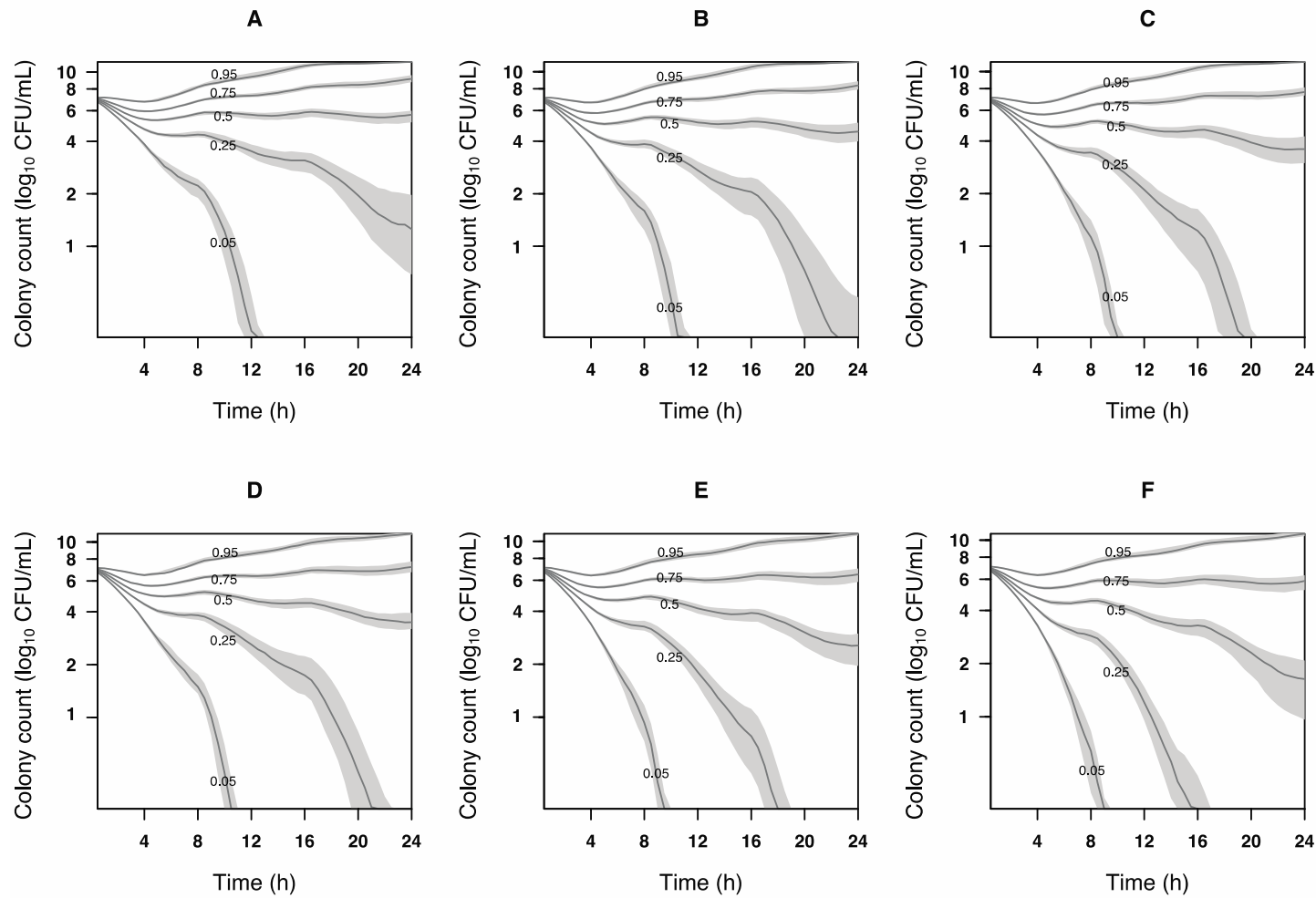
Figure S3: Simulated viable count profiles of carbapenem-resistant *A. baumannii* isolate #79 for combination regimens of sulbactam 3 g q8h with (A) fosfomycin 4 g q8h; (B) fosfomycin 6 g q8h; (C) fosfomycin 8 g q8h, and sulbactam 4 g q8h with (D) fosfomycin 4 g q8h; (E) fosfomycin 6 g q8h; (F) fosfomycin 8 g q8h. Grey shading indicates 95% CI; 0.95, 95th percentile; 0.75, 75th percentile; 0.5, 50th percentile; 0.25, 25th percentile; 0.05, 5th percentile; q8h, every 8 hours.

Table S1: Population mean parameter estimates for fosfomycin-sulbactam combination models against four carbapenem- resistant *A.baumannii* isolates.

Parameter	#79		#80		#99		#110	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Kg_s (log$_{10}$ CFU/mL/h)	1.32	0.05	0.79	0.01	1.37	0.57	1.10	0.89
Kg_r (log$_{10}$ CFU/mL/h)	1.60	0.33	1.58	0.58	1.72	0.23	1.93	0.07
Bmax (log$_{10}$ CFU/mL)	4.76×10^9	6.31×10^9	8.55×10^9	8.14×10^8	3.01×10^{10}	8.41×10^9	6.14×10^9	4.71×10^9
$Emax_F$ (log$_{10}$ CFU/mL/h)	2.33	0.15	1.82	0.77	1.02	0.87	1.19	0.89
$Emax_S$ (log$_{10}$ CFU/mL/h)	2.48	0.35	1.72	0.34	2.60	0.50	1.89	0.86
H_F	0.78	0.24	0.98	0.47	0.39	0.04	0.86	0.22
$EC50_{Fs}$ (mg/L)	6.65	9.26	91.39	55.84	4.27	0.44	82.01	43.61
$EC50_{Fr}$ (mg/L)	99.67	36.51	17.21	26.25	127.73	0.15	63.83	20.68
H_S	1.31	0.49	2.33	1.08	1.47	0.29	2.25	0.86
$EC50_{Ss}$ (mg/L)	35.47	12.77	58.98	45.19	36.63	34.68	70.18	48.03
$EC50_{Sr}$ (mg/L)	74.39	18.72	81.79	21.02	99.21	4.65	95.99	30.28
INT_{FS}	0.89	0.15	-0.40	0.09	-0.53	0.06	-0.13	0.09
HI_{FS}	1.17	0.56	1.98	0.60	0.61	0.91	2.66	0.32
$EC50_{INTfs}$ (mg/L)	16.24	21.51	40.91	27.94	4.24	7.25	49.10	30.75
CFU_r (log$_{10}$ CFU/mL)	2.39×10^4	2.52×10^4	3.45×10^2	4.50×10^2	8.51×10^3	4.63×10^3	2.89×10^4	1.83×10^4

SD, standard deviation; CFU_s and CFU_r represent the bacterial burden for the sensitive and resistant bacterial subpopulations, respectively; Kg_s and Kg_r represent the growth rate constant for the sensitive and resistant bacterial subpopulations, respectively; Bmax is the maximal bacterial burden; $Emax_F$ and $Emax_S$ represent the maximum rate of fosfomycin- and sulbactam-mediated bacterial killing, respectively (log$_{10}$ CFU/mL/h); C_F and C_S represent the concentration of fosfomycin and sulbactam, respectively; H_F and H_S represent the power parameter (Hill coefficient) for fosfomycin and sulbactam effect on both subpopulations, respectively; $EC50_{Fs}$ and $EC50_{Ss}$ represent the fosfomycin and sulbactam concentration for which effect is 50% on the sensitive subpopulation, respectively; $EC50_{Fr}$ and $EC50_{Sr}$ represent the fosfomycin and sulbactam concentration for which effect is 50% on the resistant subpopulation, respectively; INT_{FS} represents the maximum fractional change of the $EC50_{Ss}$ and $EC50_{Sr}$ caused by fosfomycin; HI_{FS} represents the power parameter (Hill coefficient) for fosfomycin potentiation of sulbactam effect; $EC50_{INTfs}$ represents the fosfomycin concentration needed to achieve 50% of INT_{FS}.