

Supplemental information

Exploring indoor and outdoor dust as a potential tool for detection and monitoring of COVID-19 transmission

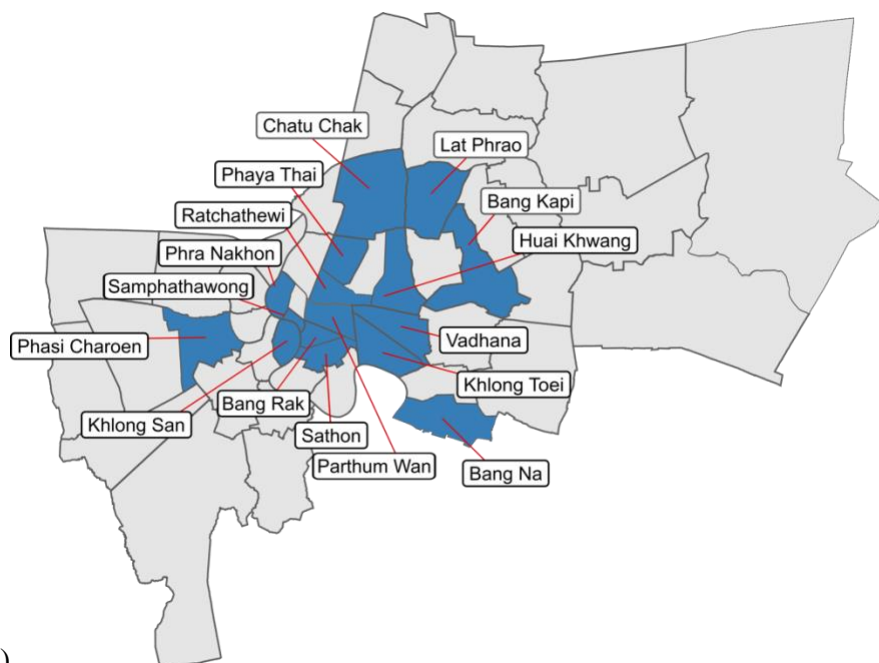
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Supporting information

Table S1. Population data of Bangkok Metropolis. Statistical population data based on data from the Department of Provincial Affairs and National Statistical Office, Thailand.

Province	Administrative Area	Population
		(2017 National Stat Office)
Bangkok	Bang Kapi	148465
	Bang Na	95912
	Bang Rak	45875
	Chatuchak	160906
	Huai Khwang	78175
	Khlong San	76446
	Khlong Toei	109041
	Lat Phrao	122182
	Pathum Wan	53263
	Phasi Charoen	129827
	Phaya Thai	72952
	Phra Khanong	93482
	Phra Nakhon	57876
	Ratchathewi	73035
	Samphanthawong	27452
	Sathon	84916
	Yan Nawa	81521

a)



b)

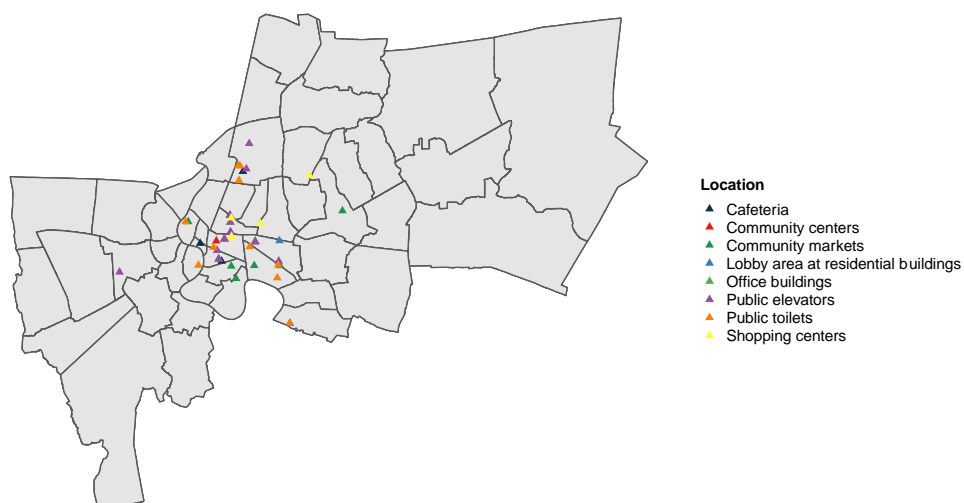


Figure S1. Map of locations where dust was collected. a) Details of the administrative area were samples collected b) Details of the sampling locations

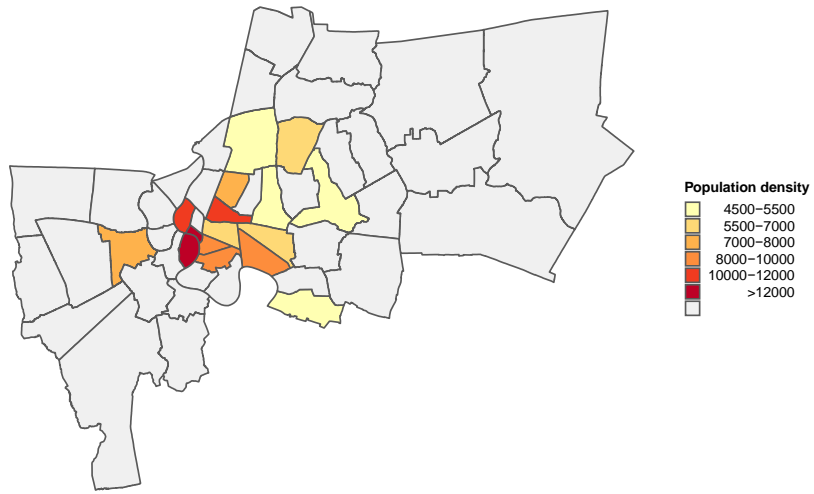


Figure S2. Map showing the population density (person per square kilometer).

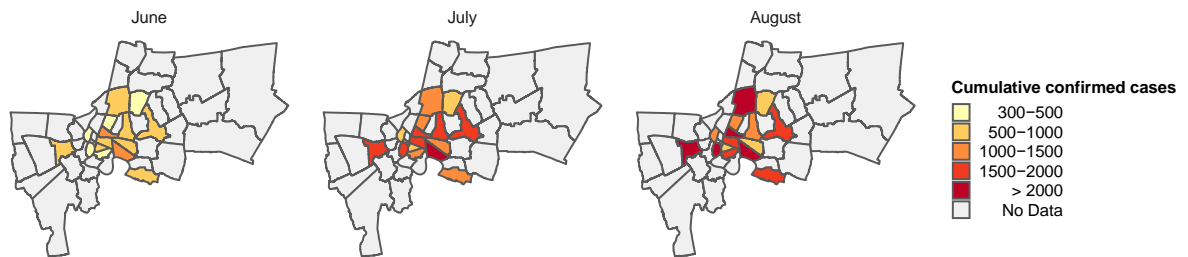


Figure S3. Map showing cumulative confirmed cases in June, July, and August.

Viral concentrations from dust in different districts and locations

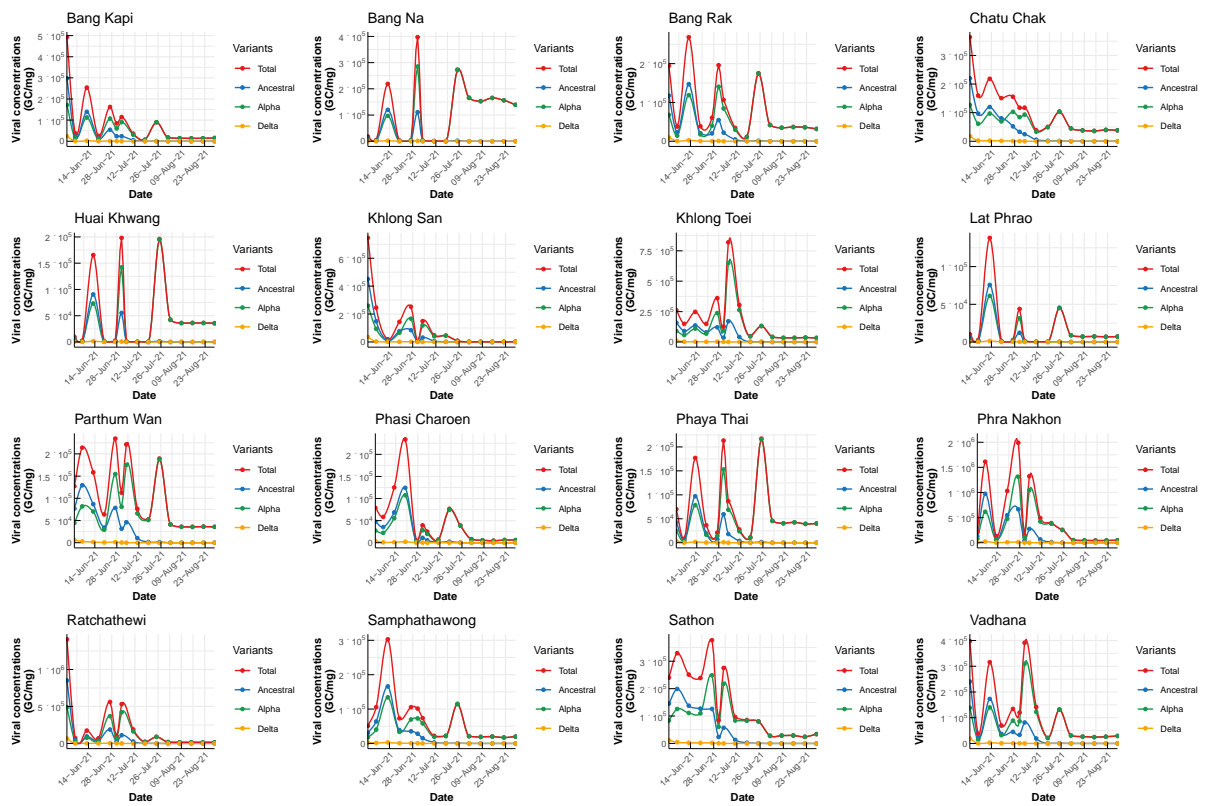


Figure S4. Average viral concentrations in 16 districts of Bangkok.

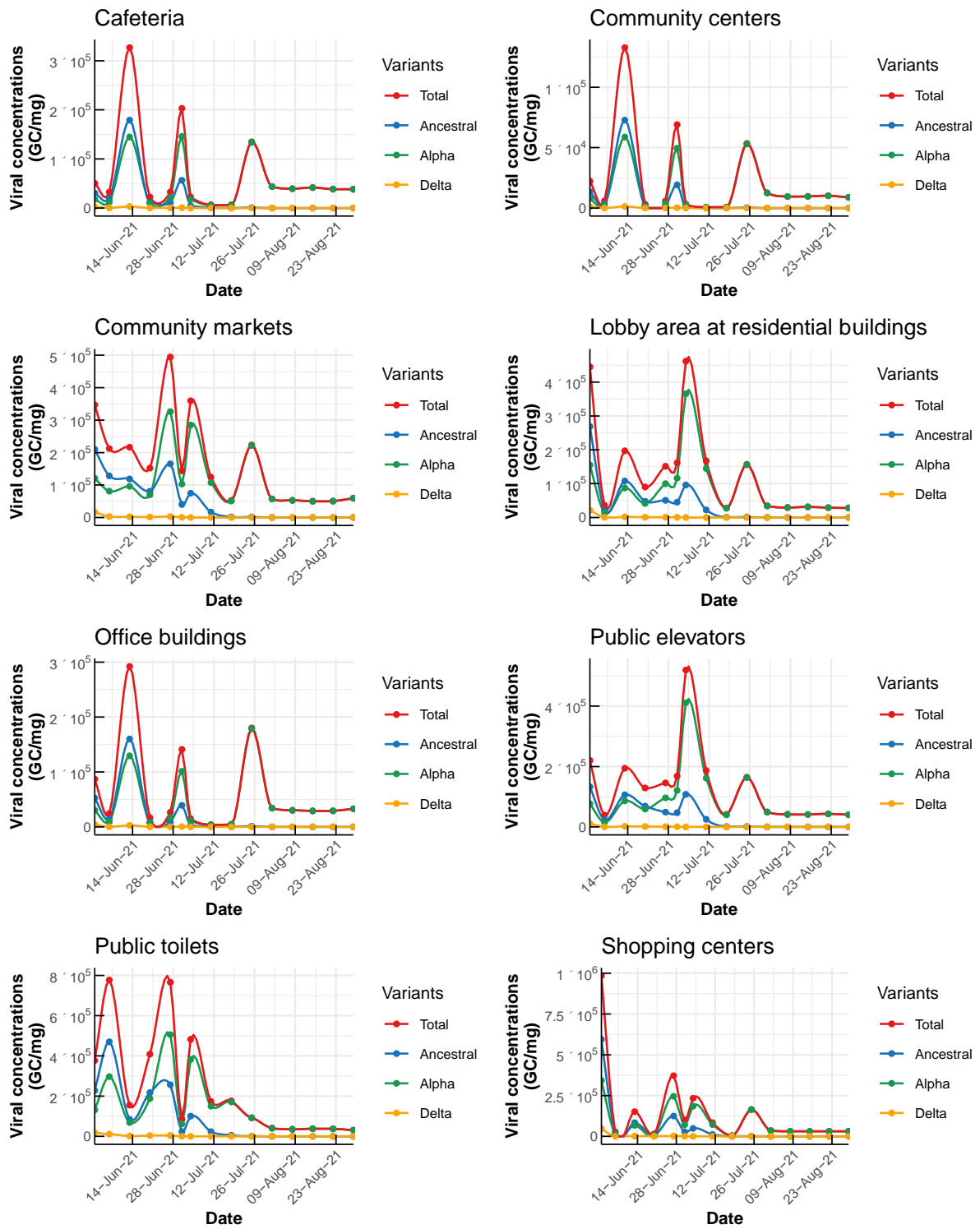


Figure S5. Average viral concentrations classified according to location type.

Relative risk of infection

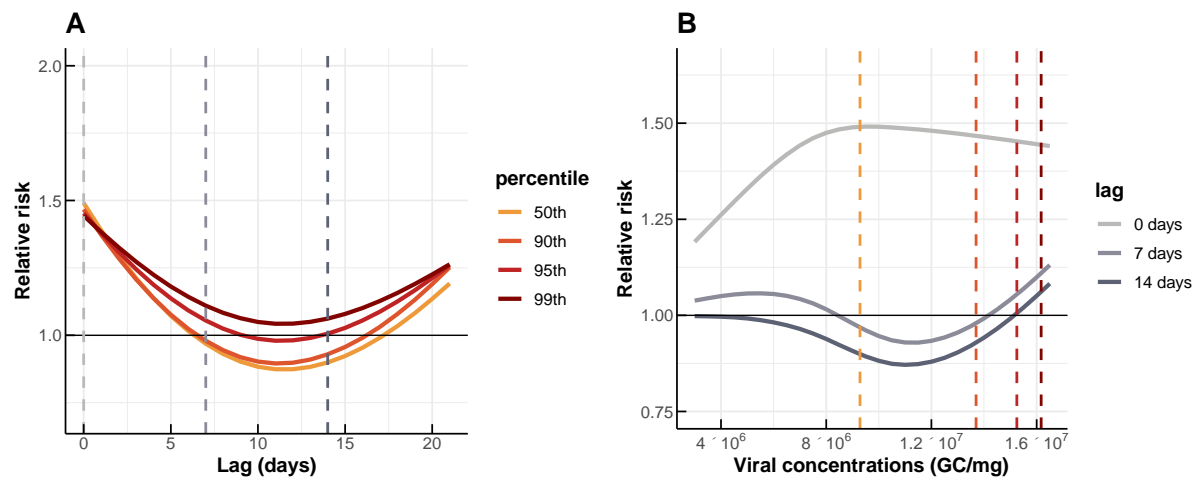


Figure S6. SARS-CoV-2 viral concentrations from dust and transmission (R_t) associations: A. at the 50th, 90th, 95th, and 99th percentile of total viral concentrations, and B) at the lags of 0, 7, and 14 days, respectively.

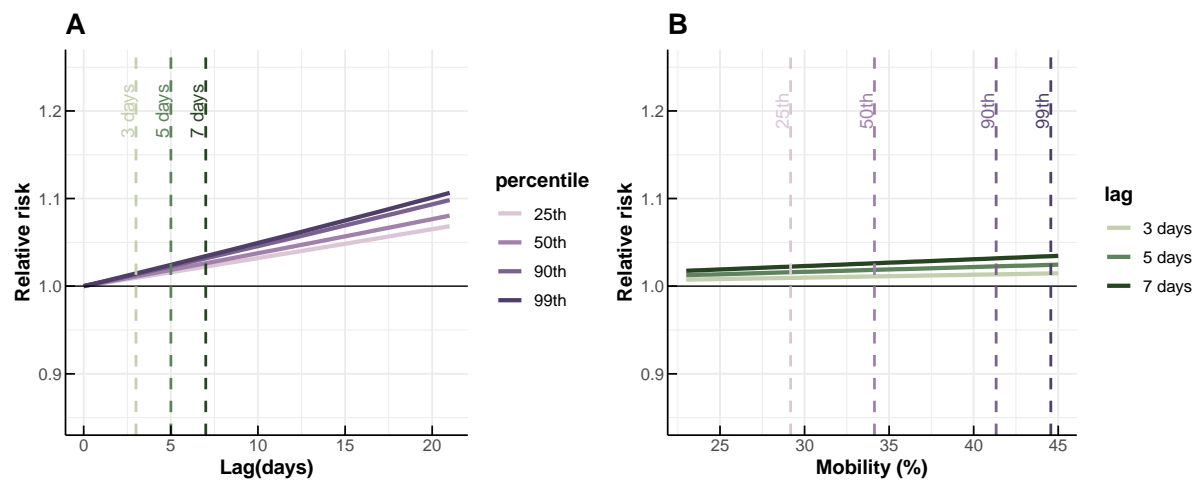


Figure S7. Mobility changes (%) and transmission (R_t) associations: A. at the 25th, 50th, 90th, and 99th percentile of mobility changes (%), and B. at the lags of 0, 7, and 14 days, respectively.

District-specific effects of total viral concentrations from dust on effective reproduction number, R_t

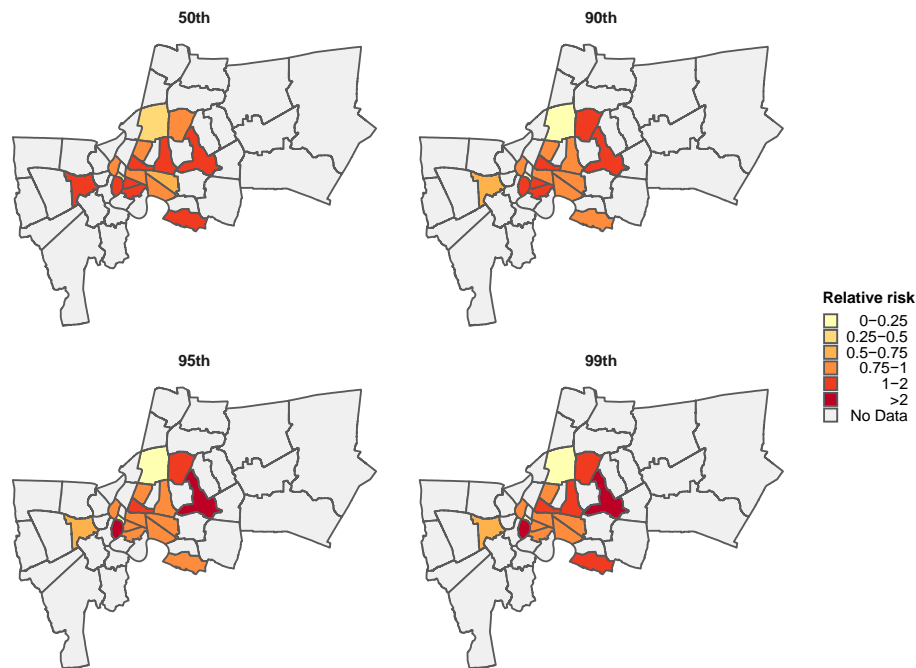


Figure S8. District-specific association of viral concentrations and effective reproduction number (R_t) at a lag of 0 day. The relative risk (RR) of confirmed cases associated with total viral concentrations at the 50th, 90th, 95th, and 99th percentiles of district-specific viral concentrations are shown relative to 0 gene copy (no cases found in Bangkok).

Table S2. Relative risk for district-specific at lag 0 day

Districts	RR at 50 th	RR at 90 th	RR at 95 th	RR at 99
Bang Kapi	1.131 (0.762,1.677)	1.782 (0.379,8.367)	2.387 (0.265,21.534)	26.362 (0.016,43185.246)
Bang Na	1.078 (1.030,1.127)	0.960 (0.860,1.071)	0.975 (0.878,1.084)	1.107 (0.982,1.247)
Bang Rak	1.241 (0.917,1.680)	1.067 (0.783,1.455)	0.887 (0.471,1.669)	0.811 (0.364,1.805)
Chatu Chak	0.371 (0.111,1.24)	0.060 (0.011,0.336)	0.011 (0.001,0.084)	0.000 (0.000,0.002)
Huai Khwang	1.035 (0.968,1.105)	0.839 (0.530,1.329)	0.937 (0.59,1.486)	1.133 (0.683,1.878)
Khlong San	1.291 (1.038,1.604)	1.334 (1.057,1.685)	2.459 (0.363,16.671)	6.607 (0.063,689.735)
Khlong Toei	0.937 (0.752,1.167)	0.855 (0.726,1.008)	0.799 (0.676,0.945)	0.781 (0.659,0.925)
Lat Phrao	0.964 (0.923,1.006)	1.049 (0.907,1.214)	1.097 (0.798,1.509)	1.114 (0.756,1.644)
Parthum Wan	0.887 (0.395,1.995)	0.880 (0.397,1.952)	0.872 (0.386,1.97)	0.866 (0.377,1.988)
Phasi Charoen	1.003 (0.908,1.109)	0.747 (0.632,0.882)	0.679 (0.545,0.846)	0.653 (0.510,0.837)
Phaya Thai	0.929 (0.831,1.038)	0.992 (0.901,1.091)	0.976 (0.875,1.089)	0.94 (0.796,1.111)

Phra Nakhon	0.891 (0.638,1.243)	0.829 (0.629,1.092)	0.898 (0.691,1.166)	0.926 (0.712,1.205)
Ratchathewi	1.059 (0.919,1.221)	1.287 (0.985,1.681)	1.384 (0.877,2.184)	1.781 (0.252,12.594)
Samphanthawong	0.416 (0.174,0.994)	0.047 (0.006,0.336)	0.002 (0,0.194)	0.001 (0.000,0.153)
Sathon	1.338 (0.682,2.624)	1.081 (0.659,1.774)	0.986 (0.606,1.603)	0.905 (0.544,1.507)
Vadhana	0.712 (0.445,1.137)	0.802 (0.541,1.191)	0.765 (0.452,1.297)	0.758 (0.434,1.323)