

Table S1. Non-pharmacological interventions including social distancing imposed and controlled by Korean government (Central Quarantine and Countermeasure Headquarters) during COVID-19 pandemic.

Periods		Social distancing system			
		Enhanced social distancing			
January 2020 ~ June 2020		<ul style="list-style-type: none"> Stay at home as much as possible. 			
		<ul style="list-style-type: none"> Call to actions for all citizens <ul style="list-style-type: none"> Cancel or postpone all non-essential gathering, dining out, social events, and travel plans. Avoid leaving home except to purchase necessities, to get medical care, or to go to work. Avoid handshakes and other forms of physical contact. Keep a 2-meter distance from each other. Wash your hands, cover up your sneezes/coughs, and generally. Maintain strict personal hygiene. <ul style="list-style-type: none"> Disinfect and ventilate your space every day. If you have fever, cough, sore throat, or other respiratory symptoms, do not go to work. Stay home and get sufficient rest. 			
		<ul style="list-style-type: none"> Call to actions for citizens in the workplace <ul style="list-style-type: none"> Wash your hands thoroughly with soap under running water. <ul style="list-style-type: none"> Use your own personal cups and utensils. Refrain from using changing rooms, indoor break rooms, and other public areas. Avoid handshakes and other forms of physical contact. Keep a 2-meter distance from each other. <ul style="list-style-type: none"> When eating meals together, maintain a distance and avoid sitting face to face. <ul style="list-style-type: none"> Return home directly after leaving work. 			
		<ul style="list-style-type: none"> It is recommended to wear a mask in the following cases. <ul style="list-style-type: none"> Carrying for a COVID-19 patient Having respiratory symptoms such as cough, sneezing, sputum, rhinorrhea, sore throat <ul style="list-style-type: none"> Visiting medical institutions, pharmacies, seniors, disabled people, etc. Working in a profession that requires contact with many people When individuals with poor health or underlying medical conditions contact with other people within 2-meter in a poorly ventilated space When using indoor multi-use facilities or it is not possible to keep a distance of 2-meter outdoors 			
		Social distancing levels			
July 2020 ~ October 2020		1	2	3	4
	Definition	Maintain a state of continuous restraint	Regional epidemic/People restrictions	Provincial epidemic/prohibition gathering	Nationwide pandemic/No going out
	Criteria	$< 1 \text{ cases}^a/100,000$	$1 \leq \text{cases}^a/100,000 < 2$	$2 \leq \text{cases}^a/100,000 < 4$	$\geq 4 \text{ cases}^a/100,000$
	Personal gathering	Compliance with quarantine rules	No gatherings of ≥ 9 individuals	No gatherings of ≥ 5 individuals	No gatherings of ≥ 3 individuals (permission of 2 individuals after 6 PM)
	Events	Prior notification to local governments for events with ≥ 500 people	Prohibition of events with ≥ 100 people	Prohibition of events with ≥ 50 people	Prohibition of any events
November 2020 ~ June 2021	Nightlife entertainment facilities	No limitation	Restriction of operation after midnight	Restriction of operation after 10 PM	Prohibition of gathering
	Restaurants and cafes	No limitation	Permission of only packaging and delivery after midnight	Permission of only packaging and delivery after 10 PM	Permission of only packaging and delivery after 10 PM
		1	1.5	2	2.5
		Life quarantine	Local epidemic stage		National epidemic stage
	Definition and major call to actions	<ul style="list-style-type: none"> $< 100 \text{ cases}^a$ in Seoul Metropolitan area Compliance with quarantine rules for COVID-19 prevention while maintain daily life and socioeconomic activity 	<ul style="list-style-type: none"> $\geq 100 \text{ cases}^a$ in Seoul Metropolitan area Start of local epidemic Through quarantine in dangerous areas 	<ul style="list-style-type: none"> $\geq \text{doubled over } 1.5 \text{ stage or } \geq 300 \text{ cases}^a \text{ nationwide}$ Rapid propagation of local epidemic Restraint of unnecessary going out and gatherings in the risk area 	<ul style="list-style-type: none"> $\geq 400\text{--}500 \text{ cases}^a$ nationwide or rapid increase in patients Spread nationwide epidemic Preferably stay at home and refrain from going out, meetings and using multi-use facilities as much as possible
	Nightlife entertainment facilities	Limited to 1 person per 4 m ²	Adding no movement between seats	Prohibition of gathering	
	Restaurants and cafes	1 meter distance between tables in places over 150 m ²	Expanding the distance in places over 50 m ²	Adding only permission of packaging and delivery after 9 PM	Adding the limitation to 1 person per 8 m ²
	Mandatory to wear a mask (Penalties for violations)	All indoor facilities including public transportation	Adding outdoor sports arena	All indoor + outdoor with high-risk activities	All indoor + outdoor where it is difficult to keep a distance of 2 meters

Meeting and events	Consultation with local governments for gatherings of ≥ 500 + Mandatory observance of basic quarantine rules	No gatherings of ≥ 100 people at special events such as festivals	No gatherings of ≥ 100 people	No gatherings of ≥ 50 people	No gatherings of ≥ 10 people
Working at workplace	Recommendation to activate telecommuting/homeworking			$\geq 2/3$ recommended to work from home	Mandatory telecommuting except for essential personnel
Going to school	1/3 of the density, in principle	Observe 2/3 of the density	1/3 of the density, in principle	Observe 1/3 of the density	Full remote learning

^aAverage PCR-confirmed patients per week.

References:

1. Korea Centers for Disease Control and Prevention. Enhanced social distancing campaign. 2020.4.4. <http://ncov.mohw.go.kr/searchBoardView.do?brdId=3&brdGubun=32&dataGubun=321&ncvContSeq=1497>
2. Central Quarantine and Countermeasure Headquarters. The COVID-19 Guidelines of the Republic of Korea for distancing in daily life. http://ncov.mohw.go.kr/en/guidelineView.do?brdId=18&brdGubun=181&dataGubun=&ncvContSeq=2763&contSeq=2763&board_id=&gubun=#
3. Central Quarantine and Countermeasure Headquarters. Overview of Social Distancing System. http://ncov.mohw.go.kr/en/socdi-BoardView.do?brdId=19&brdGubun=191&dataGubun=191&ncvContSeq=&contSeq=&board_id=&gubun=#

Table S2. Numbers of PCP-confirmed and suspected inpatients, and PCP rates by month and year.

	2015			2016			2017			2018			2019			2020			2021			Total ^a		
	S	C	R	S	C	R	S	C	R	S	C	R	S	C	R	S	C	R	S	C	R	S ^a	C ^a	R ^a
January	199	29	14.6	181	30	16.6	202	27	13.4	323	50	15.5	308	33	10.7	317	47	12.7	337	40	11.9	274.4	36.6	13.6
February	187	18	9.6	177	32	18.1	214	37	17.3	220	34	15.5	277	29	10.5	275	38	13.8	317	40	12.6	238.1	32.6	13.9
March	251	29	11.6	166	22	13.3	226	32	14.2	260	42	16.2	270	36	13.3	365	50	13.7	353	49	13.9	270.1	37.1	13.7
April	227	31	13.7	162	33	20.4	230	33	14.3	264	32	12.1	311	36	11.6	310	37	11.9	344	47	13.7	264.0	35.6	14.0
May	185	33	17.8	175	41	23.4	269	30	11.2	298	49	16.4	303	52	17.2	312	41	13.1	337	55	16.3	268.4	43.0	16.5
June	132	25	18.9	214	40	18.7	216	29	13.4	310	43	13.9	312	68	21.8	311	49	15.8	330	53	16.1	260.7	43.9	16.9
July	166	28	16.9	205	26	12.7	234	23	9.8	277	57	20.6	308	59	19.2	326	45	13.8	—	—	—	252.7	39.7	15.5
August	133	23	17.3	181	26	14.4	255	25	9.8	288	36	12.5	320	54	16.9	256	34	13.3	—	—	—	238.8	33.0	14.0
September	141	29	20.6	157	29	18.5	265	33	12.5	309	49	15.9	290	48	16.6	296	40	13.5	—	—	—	243.0	38.0	16.2
October	168	29	17.3	169	36	21.3	208	20	9.6	278	47	16.9	316	53	16.8	309	26	8.4	—	—	—	241.3	35.2	15.0
November	152	29	19.1	183	38	20.8	207	29	14.0	282	43	15.2	316	53	16.8	339	30	8.8	—	—	—	246.5	37.0	15.8
December	171	35	20.5	265	43	16.2	263	36	13.7	335	28	8.4	281	44	15.7	393	38	9.7	—	—	—	284.7	37.3	14.0
Total ^a	176	28	16.5	186	33	17.9	232	30	12.8	287	43	14.9	301	47	15.6	322	40	12.4	336	47	14.1	256.9	37.4	14.9

S, C, and R indicate the PCP-suspected and confirmed inpatients, and PCP rates, respectively. ^aAverage value.

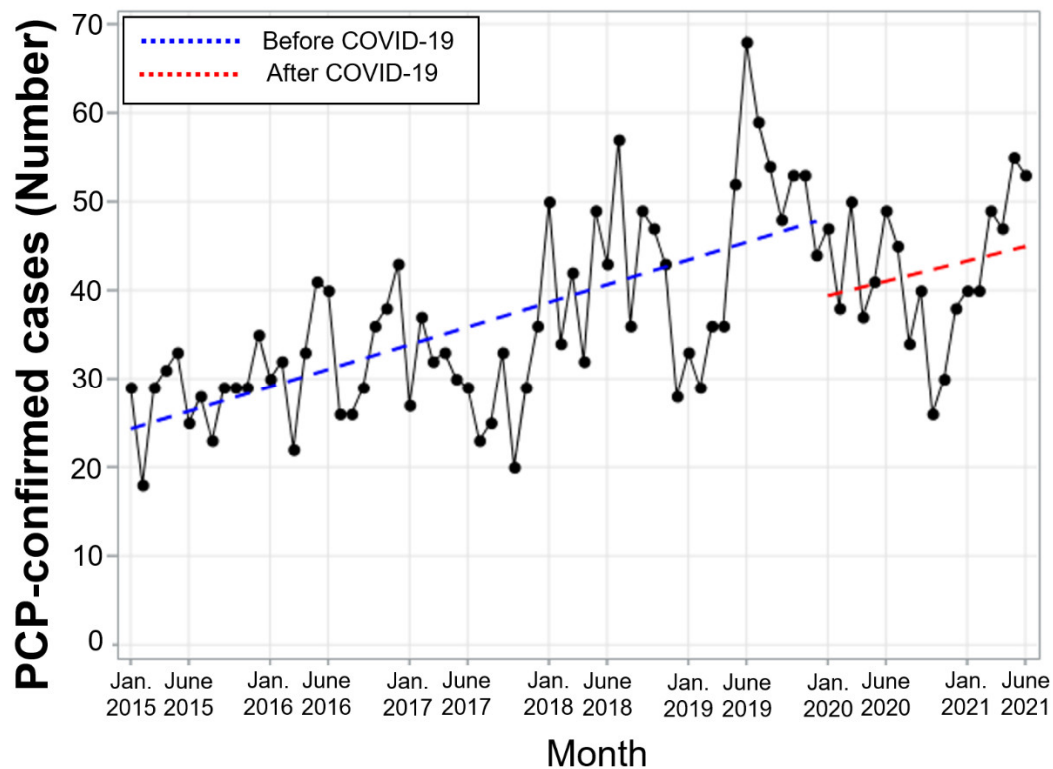


Figure S1. Plots and liner regression lines of the monthly observed PCP cases in all PCP-confirmed inpatients in the pre- and post-COVID-19 periods. The dots and dotted lines indicate the observed PCR cases and linear regression lines, respectively.

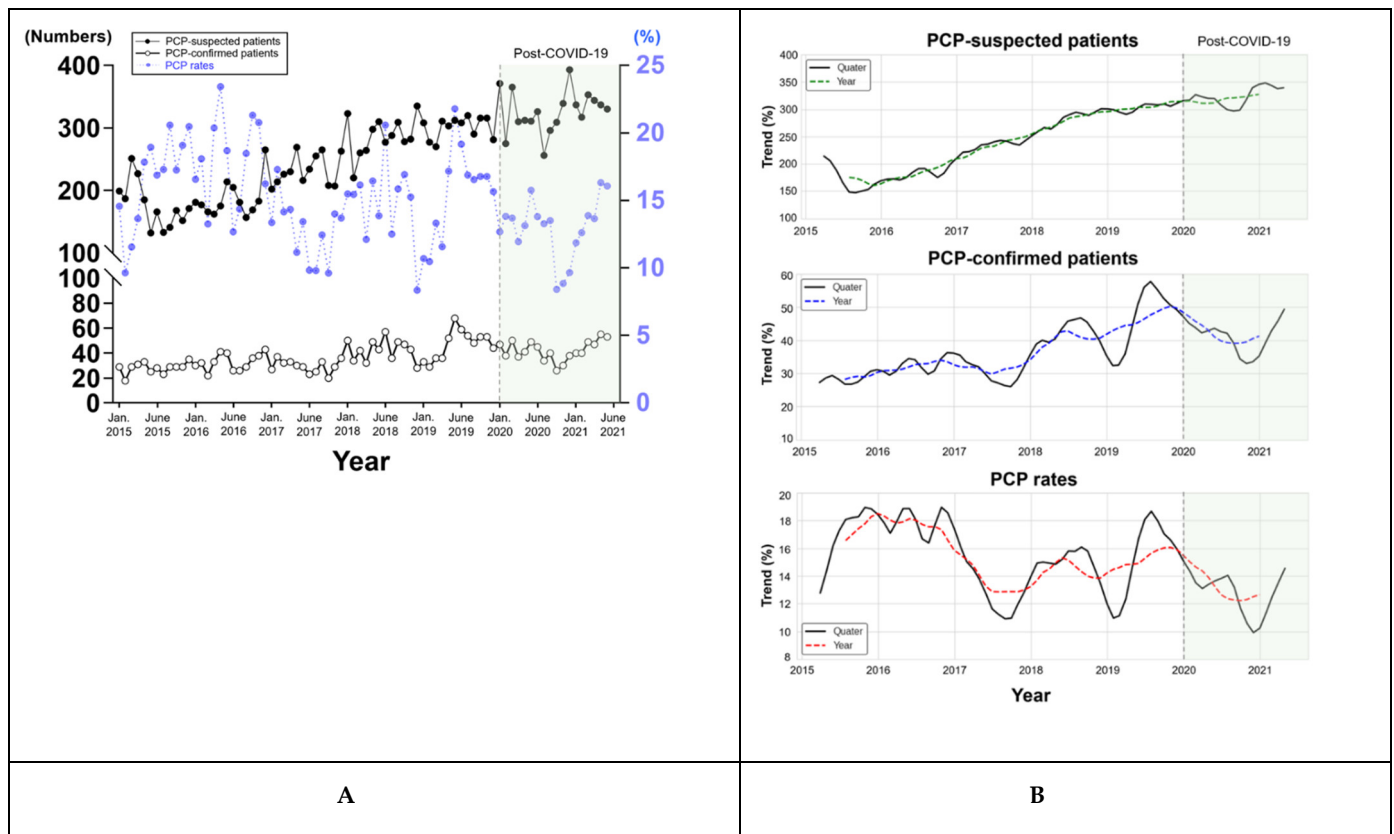


Figure S2. The observed data and trends of number of PCP-suspected and confirmed inpatients, and PCP rates by seasonal decomposition method of the ETS model. The number of PCP-suspected or-confirmed inpatients and PCP rates are plotted

on the left and right Y-axis, respectively, in (A). Abbreviations: PCP, *P. jirovecii* pneumonia. (A) Observed data and (B) Trends.

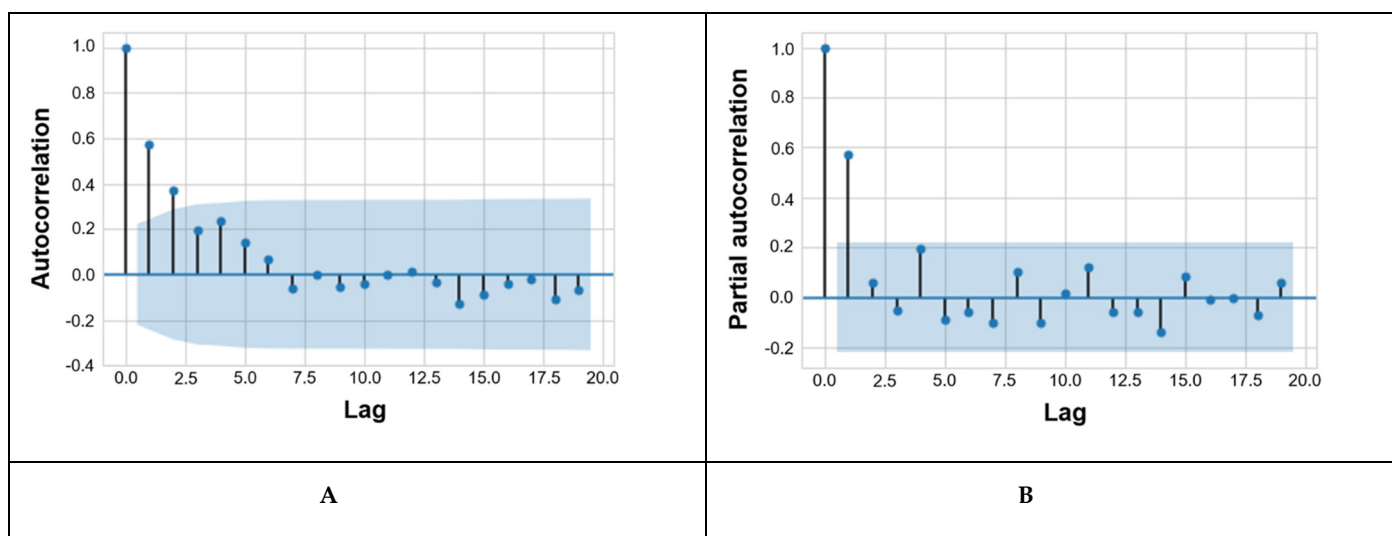


Figure S3. Autocorrelation and partial autocorrelation functions of residuals in the ARIMA model. (A) Autocorrelation and (B) Partial autocorrelation. The plots of autocorrelation and partial autocorrelation were obtained from the statsmodels package in Python. Abbreviations: ARIMA, autoregressive integrated moving average.