

Abstract

Coronavirus Disease-19 (COVID-19) one-year outbreak major cluster infection report as of January 19, 2021, in the Republic of Korea

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This one-year report (from January 20, 2020 to January 19, 2021) on the Coronavirus Disease-19 (COVID-19) situation in Korea was written by the disease management division of the Korea Disease Control and Prevention Agency (KDCA). This report was based on the number of confirmed cases reported through the integrated system in accordance with Article 11 of the 「Infectious Disease Prevention and Management Act」 and on epidemiological investigations conducted by central and local health authorities.

By January 19, 2021, there were 73,115 confirmed cases of COVID-19: including 1,283 deaths and 33,223 (45.4%) major cluster outbreaks. The primary aim of this report was to conduct an epidemiological study of the major cluster outbreaks of COVID-19 in Korea over a one-year period. Findings indicated that major cluster outbreaks were related to various facilities and activities such as religious gatherings, nursing homes, workplace facilities, family/social gatherings, medical institutions, educational facilities, correctional/military facilities, exercise/leisure activities and other public facilities. This report concluded that continuous monitoring of major cluster outbreaks and enhanced guidelines on social distancing are essential in controlling cluster outbreaks.

Keywords: 2019 Novel Coronavirus (2019-nCoV), Coronavirus Disease-19 (COVID-19), Outbreaks, Epidemiological monitoring, Epidemiological investigation, Case fatality rate

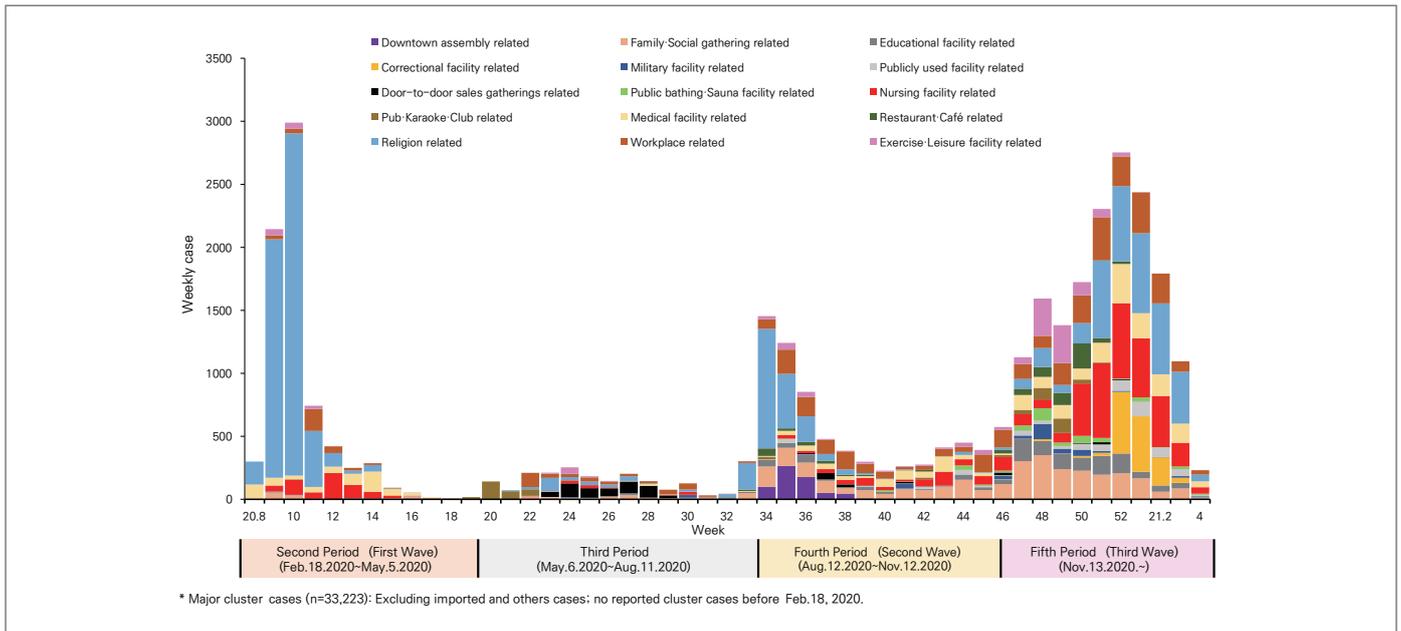


Figure 1. The progression of major cluster outbreaks from January 20, 2020 to January 19, 2021

Table 1. Case status and the distribution by age and gender of the major clusters (one-year period)

January 20, 2020 – January 19, 2021															
Major clusters Total (n, %)	Religious facility related (n, %)	Nursing home facility related (n, %)	Workplace related (n, %)	Family · Social gathering related (n, %)	Medical facility related (n, %)	Exercise · Leisure facility related (n, %)	Educational facility related (n, %)	Correction · Military facility related (n, %)	Restaurant · Cafe related (n, %)	Door-to-door sales gatherings related (n, %)	Publicly used facility related (n, %)	Downtown assembly related (n, %)	Pub · Karaoke · Club related (n, %)	Public bathing · Sauna facility related (n, %)	
Gender															
Male	4,233 (38.5)	1,366 (32.0)	1,898 (49.7)	1,660 (47.8)	1,332 (50.7)	585 (44.3)	685 (51.9)	1,574 (95.2)	366 (51.3)	257 (38.7)	343 (52.2)	293 (45.0)	395 (62.1)	193 (46.7)	
Female	6,772 (61.5)	2,905 (68.0)	1,919 (50.3)	1,810 (52.2)	1,297 (49.3)	737 (55.7)	636 (48.1)	79 (4.8)	348 (48.7)	407 (61.3)	314 (47.8)	358 (55.0)	241 (37.9)	220 (53.3)	
Age group (yrs)															
≤9	337 (3.1)	24 (0.6)	133 (3.5)	187 (5.4)	44 (1.7)	52 (3.9)	127 (9.6)	10 (0.6)	49 (6.9)	14 (2.1)	19 (2.9)	23 (3.5)	19 (3.0)	22 (5.3)	
10-19	841 (7.6)	37 (0.9)	185 (4.8)	255 (7.3)	54 (2.1)	144 (10.9)	381 (28.8)	64 (3.9)	36 (5.0)	15 (2.3)	45 (6.8)	32 (4.9)	61 (9.6)	15 (3.6)	
20-29	2,617 (23.8)	139 (3.3)	467 (12.2)	309 (8.9)	261 (9.9)	171 (12.9)	255 (19.3)	503 (30.4)	48 (6.7)	44 (6.6)	135 (20.5)	44 (6.8)	183 (28.8)	23 (5.6)	
30-39	1,103 (10.0)	137 (3.2)	639 (16.7)	400 (11.5)	251 (9.5)	149 (11.3)	124 (9.4)	274 (16.6)	93 (13.0)	36 (5.4)	118 (18.0)	51 (7.8)	97 (15.3)	42 (10.2)	
40-49	1,529 (13.9)	227 (5.3)	728 (19.1)	459 (13.2)	356 (13.5)	242 (18.3)	157 (11.9)	293 (17.7)	65 (9.1)	52 (7.8)	104 (15.8)	78 (12.0)	101 (15.9)	52 (12.6)	
50-59	2,142 (19.5)	643 (15.1)	870 (22.8)	785 (22.6)	626 (23.8)	255 (19.3)	157 (11.9)	352 (21.3)	116 (16.2)	127 (19.1)	115 (17.5)	125 (19.2)	100 (15.7)	79 (19.1)	
60-69	1,573 (14.3)	762 (17.8)	561 (14.7)	625 (18.0)	633 (24.1)	177 (13.4)	71 (5.4)	133 (8.0)	166 (23.2)	218 (32.8)	66 (10.0)	170 (26.1)	62 (9.7)	116 (28.1)	
70-79	637 (5.8)	682 (16.0)	168 (4.4)	309 (8.9)	272 (10.3)	82 (6.2)	30 (2.3)	22 (1.3)	100 (14.0)	118 (17.8)	37 (5.6)	108 (16.6)	9 (1.4)	53 (12.8)	
≥80	226 (2.1)	1620 (37.9)	66 (1.7)	141 (4.1)	132 (5.0)	50 (3.8)	19 (1.4)	2 (0.1)	41 (5.7)	40 (6.0)	18 (2.7)	20 (3.1)	4 (0.6)	11 (2.7)	
Total	11,005 (100)	4,271 (100)	3,817 (100)	3,470 (100)	2,629 (100)	1,322 (100)	1,321 (100)	1,653 (100)	714 (100)	664 (100)	657 (100)	651 (100)	636 (100)	413 (100)	
Mean (yrs)	46.2	42.5	44.8	47.4	52.6	44.2	31.0	39.2	50.5	57.4	41.8	53.0	37.2	51.5	
Median (min-max)	48 (0-108)	44 (0-98)	47 (0-96)	51 (0-100)	56 (0-97)	46 (0-98)	24 (0-93)	39 (0-87)	55 (0-100)	61 (1-95)	44 (0-94)	58 (0-92)	34.5 (1-93)	56 (0-88)	

Table 2. Case status and the distribution by region of the major clusters (one-year period)

		January 20, 2020 – January 19, 2021													
Region	Major clusters Total (n, %)	Religious facility related (n, %)	Nursing home facility related (n, %)	Workplace related (n, %)	Family - Social gathering related (n, %)	Medical facility related (n, %)	Exercise - Leisure facility related (n, %)	Educational facility related (n, %)	Correction - Military facility related (n, %)	Restaurant - Cafe related (n, %)	Door-to-door sales gatherings related (n, %)	Publicly used facility related (n, %)	Downtown assembly related (n, %)	Pub - Karaoke - Club related (n, %)	Public bathing - Sauna facility related (n, %)
Seoul	8,244 (24.8)	1,663 (15.1)	780 (18.3)	1,308 (34.3)	597 (17.2)	527 (20.0)	596 (45.1)	354 (26.8)	1,217 (73.6)	267 (37.4)	161 (24.2)	179 (27.2)	142 (21.8)	167 (26.3)	286 (69.2)
Busan	1,361 (4.1)	180 (1.6)	406 (9.5)	111 (2.9)	188 (5.4)	53 (2.0)	267 (20.2)	28 (2.1)	0 (0.0)	32 (4.5)	6 (0.9)	5 (0.8)	13 (2.0)	9 (1.4)	63 (15.3)
Daegu	6,031 (18.2)	4,914 (44.7)	339 (7.9)	67 (1.8)	103 (3.0)	396 (15.1)	8 (0.6)	43 (3.3)	3 (0.2)	9 (1.3)	3 (0.5)	21 (3.2)	103 (15.8)	11 (1.7)	11 (2.7)
Incheon	1,685 (5.1)	378 (3.4)	290 (6.8)	376 (9.9)	231 (6.7)	41 (1.6)	11 (0.8)	44 (3.3)	25 (1.5)	30 (4.2)	55 (8.3)	60 (9.1)	19 (2.9)	125 (19.7)	0 (0.0)
Gwangju	1,062 (3.2)	165 (1.5)	228 (5.3)	50 (1.3)	112 (3.2)	101 (3.8)	19 (1.4)	18 (1.4)	30 (1.8)	40 (5.6)	141 (21.2)	14 (2.1)	90 (13.8)	54 (8.5)	0 (0.0)
Daejeon	463 (1.4)	120 (1.1)	20 (0.5)	35 (0.9)	79 (2.3)	25 (1.0)	4 (0.3)	21 (1.6)	0 (0.0)	1 (0.1)	105 (15.8)	0 (0.0)	9 (1.4)	44 (6.9)	0 (0.0)
Ulsan	633 (1.9)	197 (1.8)	243 (5.7)	7 (0.2)	86 (2.5)	1 (0.0)	28 (2.1)	53 (4.0)	0 (0.0)	0 (0.0)	2 (0.3)	0 (0.0)	16 (2.5)	0 (0.0)	0 (0.0)
Sejong	73 (0.2)	2 (0.0)	5 (0.1)	31 (0.8)	7 (0.2)	0 (0.0)	8 (0.6)	0 (0.0)	1 (0.1)	0 (0.0)	4 (0.6)	11 (1.7)	0 (0.0)	1 (0.2)	3 (0.7)
Gyeonggi	6,698 (20.2)	1,527 (13.9)	1,138 (26.6)	1,151 (30.2)	733 (21.1)	684 (26.0)	156 (11.8)	321 (24.3)	226 (13.7)	238 (33.3)	107 (16.1)	164 (25.0)	135 (20.7)	103 (16.2)	15 (3.6)
Gangwon	860 (2.6)	64 (0.6)	73 (1.7)	48 (1.3)	171 (4.9)	88 (3.3)	78 (5.9)	131 (9.9)	90 (5.4)	39 (5.5)	28 (4.2)	18 (2.7)	5 (0.8)	2 (0.3)	25 (6.1)
Chungbuk	773 (2.3)	113 (1.0)	109 (2.6)	33 (0.9)	102 (2.9)	356 (13.5)	2 (0.2)	4 (0.3)	1 (0.1)	0 (0.0)	8 (1.2)	5 (0.8)	28 (4.3)	9 (1.4)	3 (0.7)
Chungnam	940 (2.8)	239 (2.2)	63 (1.5)	142 (3.7)	121 (3.5)	41 (1.6)	103 (7.8)	76 (5.8)	25 (1.5)	0 (0.0)	23 (3.5)	70 (10.7)	31 (4.8)	6 (0.9)	0 (0.0)
Jeonbuk	671 (2.0)	87 (0.8)	231 (5.4)	86 (2.3)	87 (2.5)	68 (2.6)	1 (0.1)	63 (4.8)	0 (0.0)	6 (0.8)	5 (0.8)	0 (0.0)	0 (0.0)	37 (5.8)	0 (0.0)
Jeonnam	452 (1.4)	100 (0.9)	31 (0.7)	119 (3.1)	66 (1.9)	28 (1.1)	3 (0.2)	3 (0.2)	34 (2.1)	27 (3.8)	8 (1.2)	18 (2.7)	4 (0.6)	11 (1.7)	0 (0.0)
Gyeongbuk	1,941 (5.8)	943 (8.6)	246 (5.8)	90 (2.4)	345 (9.9)	136 (5.2)	9 (0.7)	69 (5.2)	0 (0.0)	6 (0.8)	8 (1.2)	57 (8.7)	26 (4.0)	1 (0.2)	5 (1.2)
Gyeongnam	1,050 (3.2)	125 (1.1)	48 (1.1)	157 (4.1)	424 (12.2)	84 (3.2)	27 (2.0)	55 (4.2)	1 (0.1)	19 (2.7)	0 (0.0)	25 (3.8)	30 (4.6)	55 (8.6)	0 (0.0)
Jeju	286 (0.9)	188 (1.7)	21 (0.5)	6 (0.2)	18 (0.5)	0 (0.0)	2 (0.2)	38 (2.9)	0 (0.0)	0 (0.0)	0 (0.0)	10 (1.5)	0 (0.0)	1 (0.2)	2 (0.5)
Total	33,223 (100)	11,005 (100)	4,271 (100)	3,817 (100)	3,470 (100)	2,629 (100)	1,322 (100)	1,321 (100)	1,653 (100)	714 (100)	664 (100)	657 (100)	651 (100)	636 (100)	413 (100)

Table 3. Death status and the distribution by age and gender of the major clusters (one-year period)

January 20, 2020 – January 19, 2021																
Major clusters Total (n)	Religious facility related (n)	Nursing home facility related (n)	Workplace related (n)	Family · Social gathering related (n)	Medical facility related (n)	Exercise · Leisure facility related (n)	Educational facility related (n)	Correction · Military facility related (n)	Restaurant · Cafe related (n)	Door-to-door sales gatherings related (n)	Publicly used facility related (n)	Downtown assembly related (n)	Pub · Karaoke · Club related (n)	Public bathing · Sauna facility related (n)		
Total cases	33,223	11,005	4,271	3,817	3,470	2,629	1,322	1,321	653	714	664	657	651	636	413	
Gender																
Male	364	39	189	9	13	67	12	2	2	12	4	3	9	0	3	
Female	454	38	323	7	18	36	11	3	0	5	6	1	4	0	2	
Age group (yrs) *																
30-39	3	1	1	0	1	0	0	0	0	0	0	0	0	0	0	
40-49	5	0	1	2	0	2	0	0	0	0	0	0	0	0	0	
50-59	27	7	3	1	2	14	0	0	0	0	0	0	0	0	0	
60-69	75	9	26	2	3	23	4	0	1	2	1	1	3	0	0	
70-79	179	23	92	6	6	22	6	2	1	6	5	1	7	0	2	
≥80	529	37	389	5	19	42	13	3	0	9	4	2	3	0	3	
Total	818	77	512	16	31	103	23	5	2	17	10	4	13	0	5	
Case fatality rate (%)	2.5	0.7	12.0	0.4	0.9	3.9	1.7	0.4	0.1	2.4	1.5	0.6	2.0	0.0	1.2	

* No deaths under the age of 30

** Case fatality rate: (Number of Deaths in Cluster / Number of Total Patients in Cluster) x 100