

COVID-19 outbreak report from January 20, 2020 to January 19, 2022 in the Republic of Korea

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Abstract

This is a report of coronavirus disease 2019 (COVID-19) cases reported via an integrated system according to Article 11 of the Infectious Disease Prevention and Management Act and epidemiological investigations conducted by central and local health authorities from January 20, 2020 to January 19, 2022. There were a total of 705,900 COVID-19 cases, including 22,305 cases imported from abroad. Among those cases, 498,772 (70.7%) occurred in the metropolitan area, and 199,105 (28.2%) occurred in non-metropolitan areas. There were 6,480 deaths, and the fatality rate was 0.9%. The highest infection rate was noted in 20-29-year-olds (15.2%), and the fatality rate was the highest in individuals aged over 80 years olds. The main infection routes were contact with confirmed cases (302,758, 42.9%); under investigation (211,739, 30.0%); other clusters, including hospitals and nursing homes (167,874, 23.7%) imported cases (22,305, 3.2 %); and linked to imported cases (571, 0.1%). Despite various preventive measures such as social distancing, introduction of vaccines and therapeutic agents to epidemic prevention authorities, new COVID-19 mutant viruses appear continuously and global transmission tendency has been maintained for a long period. As a result, preparation is required by making individual epidemic prevention rules routine and improving continuous medical response system so that the number of confirmed patients does not rapidly increase.

Keywords : Coronavirus disease-19 (COVID-19), Incidence rate, Fatality rate

Introduction

After its first report in Wuhan City, Hubei Province, China at the end of December 2019, coronavirus disease 2019 (COVID-19) spread globally, resulting in more than 323 million cumulative confirmed cases and over 5.5 million deaths by January 16, 2022 [1]. As of January 19, 2022 (00:00 hour), the number of two-year cumulative COVID-19 confirmed cases was 705,900 in the Republic of Korea, which is an average of 965.7 new cases

per day since its first report of a confirmed case (imported from Wuhan, China) on January 20, 2020. This corresponds to an incidence rate of 1,367 confirmed cases per 100,000 people and a fatality rate of 0.92% (n = 6,480) [2].

This is a two-year analysis report on COVID-19 outbreak statistics and characteristics derived from reports by medical institutions and local health care centers via the COVID-19 information management system of the Korea Disease Control and Prevention Agency (KDCA) and the epidemiological

investigations conducted by the central and local health authorities pursuant to Article 11 of the Infectious Disease Prevention and Management Act. The report covers two-year data from January 20, 2020, when the first case of COVID-19 was confirmed, to January 19, 2022, as the number of COVID-19 cases persistently increased. Caution must be heeded while interpreting data therein given that regional statistics may deviate from the current COVID-19 situation reported by individual local governments based on the location of each reporting institution. The number of confirmed cases associated with related facilities and transmissions through recognized epidemiological transmission routes such as family and acquaintances forms a regional cluster outbreak.

Results

1. Classifications of the pandemic period

To analyze the trend of COVID-19, the pandemic period was

divided into four timepoints according to its upsurges. The first period covers 205 days from January 20 to August 11, 2020, i.e., from the day of the first confirmed COVID-19 case to the day that defines the period covering the first wave of the COVID-19 pandemic when the cluster outbreak that had begun in Daegu and Gyeongbuk spread across the country (early February to early May). The second period, which was the second wave of the pandemic, covers 93 days from August 12 to November 12, 2020 with cluster outbreaks incited by religious factions in metropolitan area and large-scale downtown gatherings in Seoul on August 15, 2020. The third period, which was the third wave of the pandemic, covers 236 days from November 13, 2020 to July 6, 2021 and ensued nationwide cluster outbreaks in facilities such as correctional establishments healthcare facilities and nursing homes in Chungbuk, and religious organizations unaccredited schools. The fourth period, which was the fourth wave of the pandemic, covers 197 days from July 7, 2021 to January 19, 2022 and marks the dominance of the Delta variant and the emergence and spread of the Omicron variant (Figure 1).

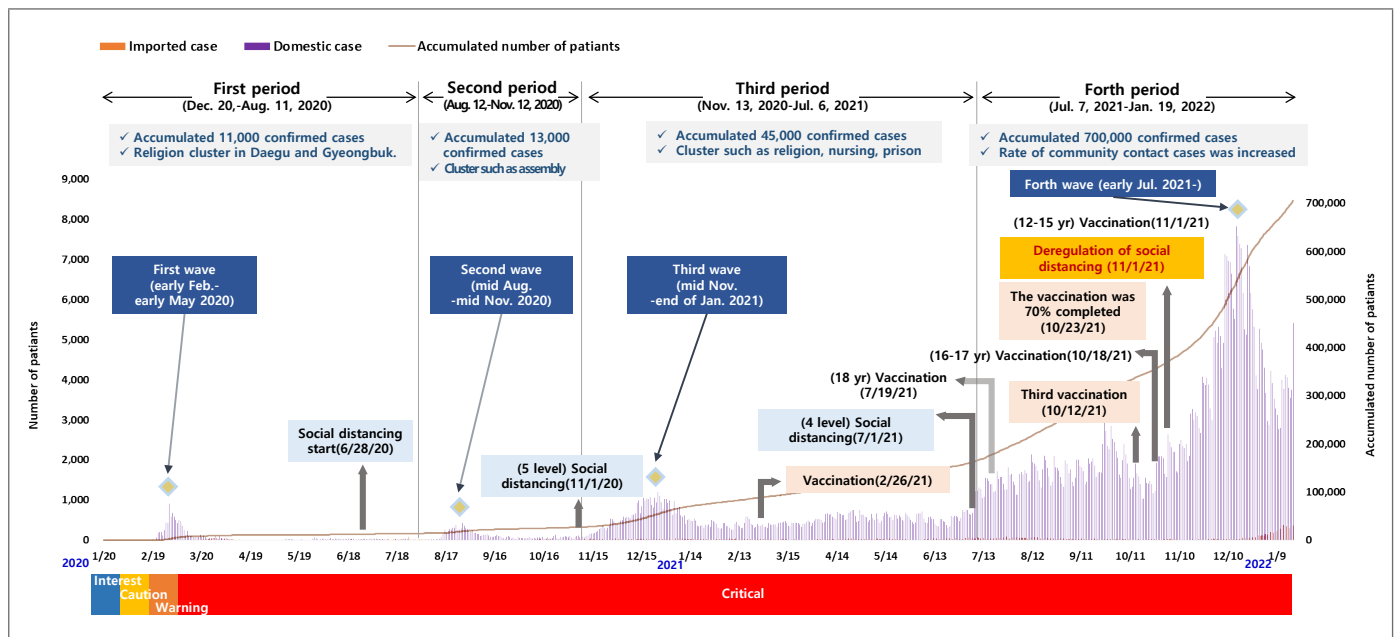


Figure 1. Daily confirmed cases of COVID-19 from January 20, 2020 to January 19, 2022

2. Main characteristics of confirmed cases in the first period

The number of confirmed cases in the first period was 12,086 (82.4%) local and 2,574 (17.6%) imported cases, totaling to 14,660 (an average of 71.5 new cases per day), with a fatality rate of 2.1% (308 deaths). Female ($n = 7,972$, 54.4%) outnumbered male ($n = 6,688$, 45.6%) and according to the age group, the highest number of patients ($n = 3,681$, 25.1%) were in their 20s, followed by those in their 50s ($n = 2,586$, 17.6%) and 40s ($n = 1,978$, 13.5%). Domestically, 3,728 (25.4%) cases occurred in metropolitan area (Seoul-Gyeonggi-Incheon) and 9,657 (65.9%) cases occurred in non-metropolitan areas, 1,275 (8.7%) cases were confirmed at airport quarantine stations. Among confirmed cases in Seoul metropolitan area, Seoul had the highest number of cases with 1,694 (11.6%), followed by Gyeonggi (1,645, 11.2%) and Incheon (389, 2.7%). Among confirmed cases in the non-capital areas, Daegu had the highest number of cases with 6,945 (47.4%), followed by Gyeongbuk (1,411, 9.6%), and Gwangju (210, 1.4%) (Table 1). Regarding the fatality rate according to sex and

age, male (2.44%) had a higher fatality rate than female (1.82%) and patients aged 80 years and older had the highest fatality rate (25.37%).

The main infection routes for the first period were Shincheonji-church related transmission (5,227, 35.7%), followed by regional cluster outbreaks in healthcare facilities and nursing homes (3,938, 26.9%), imported case (2,574, 17.6%), and contact with confirmed cases (1,406, 9.6%). The top three regions affected by Shincheonji-church related outbreaks were Daegu (65.0%), Gyeongbuk (40.0%), and Ulsan (26.7%); those affected by regional cluster outbreaks were Sejong (80.0%), Gwangju (76.2%), and Chungnam (73.8%); and those affected by imported cases were Jeju (57.7%), Jeonnam (57.1%), and Jeonbuk (55.0%). Among regional cluster outbreaks, nursing homes had the highest number of confirmed cases (903, 6.2%), followed by workplaces (688, 4.7%), religious facilities (533, 3.6%), and sales briefing areas (504, 3.4%) (Table 2). Shincheonji-church related and sales briefing areas accounted for high proportions in most of the age groups, and cases related to nursing homes accounted for

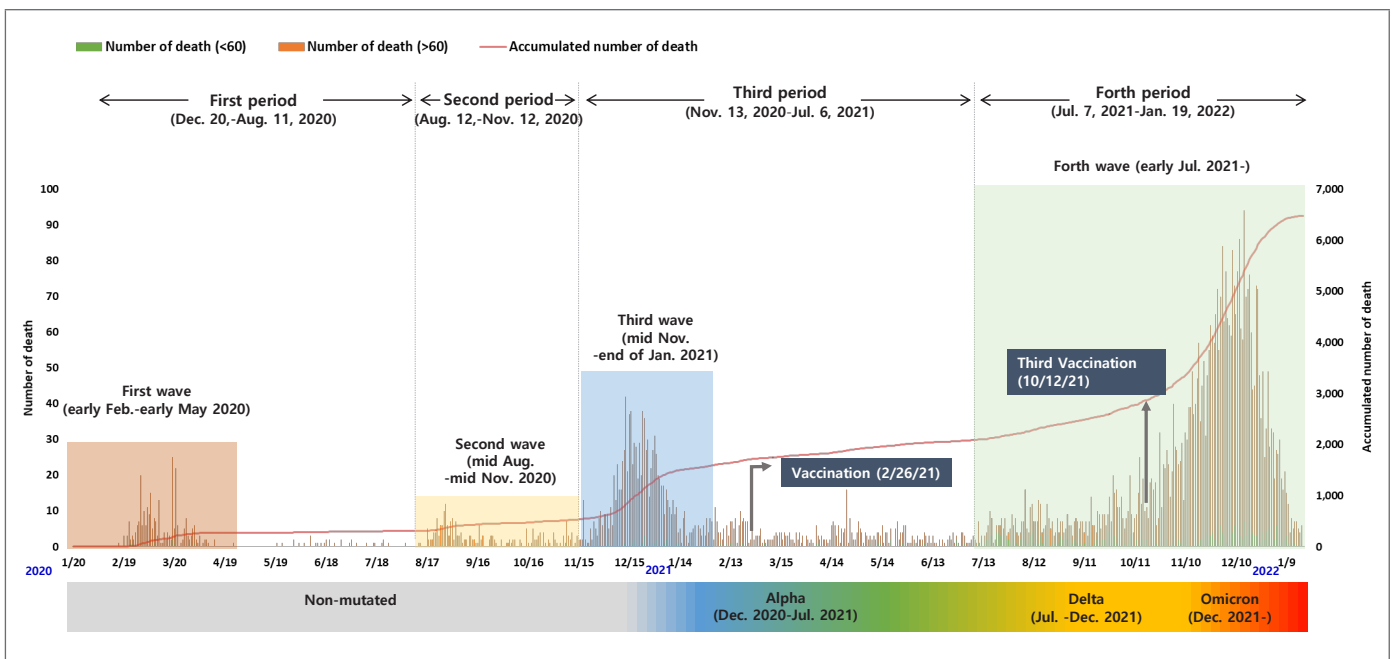


Figure 2. Daily deaths due to COVID-19 from January 20, 2020 to January 19, 2022

a high proportion (17.2%) among patients in their 60s and older.

In the first period, starting with imported cases in January 2020, the number of confirmed cases related to Shincheonji-church related outbreaks, healthcare facilities, and religious facilities increased in Daegu and Gyeongbuk areas, culminating in the first wave of the pandemic from early February to early May (Table 3). By the end of June, a social distancing system was set up (Figure 1), and 92.9% of death cases occurred among patients in their 60s or older (Figure 2).

3. Main characteristics of confirmed cases in the second period

The number of confirmed cases in the second period (August 12 to November 12, 2020) amounted to 11,820 (89.1%) local and 1,460 (11.0%) imported cases, totaling to 13,280 (an average of 142.8 new cases per day), with a fatality rate of 1.66% (221 deaths). Female (6,886, 51.9%) outnumbered male (6,394, 48.1%), and according to the age group, the highest number of patients (2,509, 18.9%) were in their 50s, followed by those in their 60s (2,491, 18.8%) and 40s (1,802, 13.6%). Domestically, 9,665 (72.8%) cases occurred in metropolitan area and 3,007 (22.6%) case occurred in non-metropolitan areas, 608 (5.2%) cases were confirmed at airport quarantine stations. Among confirmed cases in Seoul metropolitan area, Seoul had the highest number of cases with 4,811 (36.2%), followed by Gyeonggi (4,170, 31.4%) and Incheon (684, 5.2%). Among confirmed cases in the non-capital areas, Chungnam had the highest number of cases with 479 (3.6%), followed by Busan (421, 3.2%) and Daejeon (282, 2.1%) (Table 1). Regarding the fatality rate according to sex and age, male (1.83%) had a higher rate than female (1.51%) and patients aged 80 years and older had the highest fatality rate (18.11%).

The main infection routes for the second period were

regional cluster outbreaks, including healthcare facilities and nursing homes (7,424, 55.9%), contact with confirmed cases (2,427, 18.3%), and under epidemiological investigation (1,929, 14.5%). The three regions affected by the regional cluster outbreaks were Daegu (78.1%), Gyeongnam (72.1%), and Jeonnam (67.9%); those affected by contacts with confirmed cases were Chungbuk (25.8%), Seoul (23.8%), and Jeju (22.9%); and under epidemiological investigation were Seoul (19.9%), Incheon (15.1%), and Gangwon (14.0%) and Chungnam (14.0%). Among regional cluster outbreaks, those related to religious facilities accounted for the highest proportion (14.9%, n = 1,973), followed by family and acquaintances (9.7%, n = 1,291), workplaces (9.5%, n = 1,261), and nursing homes (4.3%, n = 565). According to age group, cases related to religious facilities accounted for high proportions across the age groups, among those aged 19 years and younger, and those aged 60 years and older; family and acquaintances accounted for a high proportion; and patients in their 20s to 50s were highly associated with workplace-related cases (Table 2).

In the second period, many small- and mid-scale cluster outbreaks occurred owing to religious facilities in downtown rallies, culminating in the second wave of the pandemic from mid-August to mid-November (Table 3). In early November, a five level social distancing system was introduced (Figure 1), and 96.4% of death cases were in their 60s or older (Figure 2).

4. Main characteristics of confirmed cases in the third period

The number of confirmed cases in the third period (November 13, 2020 to July 6, 2021) amounted to 127,358 (95.3%) local and 6,242 (4.7%) imported cases, totaling to 133,600 (an average of 566.1 new cases per day), with a fatality rate of 1.16% (1,556 deaths). Male (68,448, 51.2%) outnumbered female (65,152,

48.8%), and patients in their 50s were most frequently affected (24,398, 18.3%), followed by those in their 40s (21,323, 16.0%) and 20s (19,847, 14.9%). Domestically, 90,970 (68.1%) cases occurred in metropolitan area and 40,105 (30.0%) cases occurred

Table 1. COVID-19 cases according to sex, age, and region by period

	Total (%)	First period	Second period	Third period	Fourth period
	(January 20, 2020 –January 19, 2022)	(January 20, –August 11, 2020)	(August 12, –November 12, 2020)	(November 13, 2020 –July 6, 2021)	(July 7, 2021 –January 19, 2022)
Total	705,900 (100)	14,660 (100)	13,280 (100)	133,600 (100)	544,360 (100)
Sex					
Male	366,824 (52.0)	6,688 (45.6)	6,394 (48.1)	68,448 (51.2)	285,294 (52.4)
Female	339,076 (48.0)	7,972 (54.4)	6,886 (51.9)	65,152 (48.8)	259,066 (47.6)
Age group(yrs)					
≤9	58,784 (8.3)	261 (1.8)	480 (3.6)	6,655 (5.0)	51,388 (9.4)
10–19	73,171 (10.4)	803 (5.5)	742 (5.6)	10,276 (7.7)	61,350 (11.3)
20–29	107,041 (15.2)	3,681 (25.1)	1,702 (12.8)	19,847 (14.9)	81,811 (15.0)
30–39	103,640 (14.7)	1,862 (12.7)	1,656 (12.5)	19,327 (14.5)	80,795 (14.8)
40–49	104,057 (14.7)	1,978 (13.5)	1,802 (13.6)	21,323 (16.0)	78,954 (14.5)
50–59	100,330 (14.2)	2,586 (17.6)	2,509 (18.9)	24,398 (18.3)	70,837 (13.0)
60–69	96,168 (13.6)	1,925 (13.1)	2,491 (18.8)	18,928 (14.2)	72,824 (13.4)
70–79	40,648 (5.8)	961 (6.6)	1,285 (9.7)	8,135 (6.1)	30,267 (5.6)
≥80	22,061 (3.1)	603 (4.1)	613 (4.6)	4,711 (3.5)	16,134 (3.0)
Region					
Seoul	244,563 (34.6)	1,694 (11.6)	4,811 (36.2)	45,435 (34.0)	192,623 (35.4)
Busan	28,292 (4.0)	187 (1.3)	421 (3.2)	5,781 (4.3)	21,903 (4.0)
Daegu	25,368 (3.6)	6,945 (47.4)	256 (1.9)	3,438 (2.6)	14,729 (2.7)
Incheon	41,049 (5.8)	389 (2.7)	684 (5.2)	5,846 (4.4)	34,130 (6.3)
Gwangju	10,701 (1.5)	210 (1.4)	324 (2.4)	2,429 (1.8)	7,738 (1.4)
Daejeon	13,379 (1.9)	166 (1.1)	282 (2.1)	2,349 (1.8)	10,582 (1.9)
Ulsan	7,503 (1.1)	60 (0.4)	107 (0.8)	2,688 (2.0)	4,648 (0.9)
Sejong	2,414 (0.3)	50 (0.3)	32 (0.2)	501 (0.4)	1,831 (0.3)
Gyeonggi	213,160 (30.2)	1,645 (11.2)	4,170 (31.4)	39,689 (29.7)	167,656 (30.8)
Gangwon	13,986 (2.0)	77 (0.5)	257 (1.9)	3,295 (2.5)	10,357 (1.9)
Chungbuk	12,636 (1.8)	82 (0.6)	124 (0.9)	3,124 (2.3)	9,306 (1.7)
Chungnam	20,325 (2.9)	195 (1.3)	479 (3.6)	3,220 (2.4)	16,431 (3.0)
Jeonbuk	11,388 (1.6)	40 (0.3)	132 (1.0)	2,225 (1.7)	8,991 (1.7)
Jeonnam	8,089 (1.1)	42 (0.3)	165 (1.2)	1,467 (1.1)	6,415 (1.2)
Gyeongbuk	17,132 (2.4)	1,411 (9.6)	185 (1.4)	3,402 (2.5)	12,134 (2.2)
Gyeongnam	22,979 (3.3)	166 (1.1)	208 (1.6)	4,962 (3.7)	17,643 (3.2)
Jeju	4,913 (0.7)	26 (0.2)	35 (0.3)	1,224 (0.9)	3,628 (0.7)
Quarantine	8,023 (1.1)	1,275 (8.7)	608 (4.6)	2,525 (1.9)	3,615 (0.7)

in non-metropolitan areas, respectively, and 2,525 (1.9%) cases accrued at airport quarantine stations. Among confirmed cases in Seoul metropolitan area, Seoul had the highest number of cases with 45,435 (34.0%), followed by Gyeonggi (39,689, 29.7%) and Incheon (5,846, 4.4%). Among confirmed cases in non-Seoul metropolitan areas, Busan had the highest number of cases with 5,781 (4.3%), followed by Gyeongnam (4,962, 3.7%) and Daegu (3,438, 2.6%) (Table 1). Regarding the fatality rate according to sex and age group, female (1.22%) had a higher fatality rate than male (1.11%) and patients aged 80 years and older had the highest

fatality rate (18.15%).

The main infection routes for the third period confirmed that cases were regional cluster outbreaks, including healthcare facilities and nursing homes (51,031, 38.2%), contact with confirmed cases (46,136, 34.5%), and under epidemiological investigation (30,057, 22.5%). The top three regions affected by regional cluster outbreaks were Daegu (65.6%), Jeonnam (62.6%), and Gyeongbuk (58.3%); those affected by contact with confirmed cases were Gyeonggi (40.9%), Seoul (40.5%), and Incheon (39.7%); and under epidemiological investigation were

Table 2. Infection route of COVID-19 cases in 2 years by period

	Total (%)	First period	Second period	Third period	Fourth period
	(January 20, 2020 –January 19, 2022)	(January 20, –August 11, 2020)	(August 12, –November 12, 2020)	(November 13, 2020 –July 6, 2021)	(July 7, 2021 –January 19, 2022)
Total	705,900 (100.0)	14,660 (100.0)	13,280 (100.0)	133,600 (100.0)	544,360 (100.0)
Regional cluster	162,647 (23.0)	3,938 (26.9)	6,771 (51.0)	51,031 (38.2)	100,907 (18.5)
Workplace related	31,781 (4.5)	688 (4.7)	1,261 (9.5)	10,428 (7.8)	19,404 (3.6)
Educational facilities related	29,781 (4.2)	27 (0.2)	273 (2.1)	5,080 (3.8)	24,401 (4.5)
Nursing home facility related	17,290 (2.4)	903 (6.2)	565 (4.3)	4,400 (3.3)	11,422 (2.1)
Medical facility related	10,882 (1.5)	455 (3.1)	536 (4.0)	3,002 (2.2)	6,889 (1.3)
Family/acquaintance gatherings related	14,780 (2.1)	282 (1.9)	1,291 (9.7)	7,766 (5.8)	5,441 (1.0)
Religious facility related	14,798 (2.1)	533 (3.6)	1,973 (14.9)	7,144 (5.3)	5,148 (0.9)
Sports facility related	6,545 (0.9)	195 (1.3)	260 (2.0)	2,117 (1.6)	3,973 (0.7)
Sauna related	5,851 (0.8)	0 (0.0)	74 (0.6)	1,757 (1.3)	4,020 (0.7)
Entertainment facilities	5,703 (0.8)	284 (1.9)	49 (0.4)	2,262 (1.7)	3,108 (0.6)
Restaurants/cafes related	4,442 (0.6)	15 (0.1)	203 (1.5)	1,777 (1.3)	2,447 (0.4)
Military unit related	4,513 (0.6)	22 (0.2)	62 (0.5)	518 (0.4)	3,911 (0.7)
Correction unit related	1,414 (0.2)	3 (0.0)	3 (0.0)	1,276 (1.0)	132 (0.0)
Karaoke related	1,615 (0.2)	8 (0.1)	4 (0.0)	770 (0.6)	833 (0.2)
Sales briefing related	850 (0.1)	504 (3.4)	127 (1.0)	217 (0.2)	2 (0.0)
Urban assembly related	653 (0.1)	0 (0.0)	653 (4.9)	0 (0.0)	0 (0.0)
Public facility related	12,402 (1.8)	19 (0.1)	90 (0.7)	2,517 (1.9)	9,776 (1.8)
Shincheonji church related	5,227 (0.7)	5,227 (35.7)	0 (0.0)	0 (0.0)	0 (0.0)
Contact with confirmed cases	302,758 (42.9)	1,406 (9.6)	2,427 (18.3)	46,136 (34.5)	252,789 (46.4)
Under investigation	211,739 (30.0)	1,315 (9.0)	1,929 (14.5)	30,057 (22.5)	178,438 (32.8)
Imported case	22,305 (3.2)	2,574 (17.6)	1,460 (11.0)	6,242 (4.7)	12,029 (2.2)
Imported cases related	571 (0.1)	200 (1.4)	40 (0.3)	134 (0.1)	197 (0.0)

Seoul (29.0%), Sejong (24.6%), and Gyeonggi (23.7%). Among regional cluster outbreaks, those related to workplaces accounted for the highest proportion (7.8%, n = 10,428), followed by family and acquaintances (5.8%, n = 7,766), educational facilities (3.8%, n = 5,080), and religious facilities (5.3%, n = 7,144). According to the age group, cases related to educational and religious facilities accounted for high proportions among those aged 19 years and younger, workplaces and family/acquaintances accounted for high proportion among those in their 20s/30s and 40s/50s, and nursing homes and family and acquaintances accounted for high proportions among those in their 60s and older (Table 2).

In the third period, many cluster outbreaks arose in correctional facilities, healthcare facilities, and religious facilities centered around the capital area, culminating in the third wave of the pandemic from mid-August to mid-November (Table 3). In late December 2020 the Alpha variant began to spread, and nationwide vaccination rolled out in mid-February 2021 (Figure 1). Patients in their 60s or older accounted for 94.8% of death cases (Figure 2).

5. Main characteristics of confirmed cases in the fourth period

The number of confirmed cases in the fourth period (July 7, 2021 to January 19, 2022) amounted to 532,331(97.8%) local and 12,029 (2.2%) imported cases, totaling to 544,360 (an average of 2,763.2 new cases per day), with a fatality rate of 0.81% (4,395 deaths). Male (285,294, 52.4%) outnumbered female (259,066, 47.6%), and patients in their 20s were most frequently affected (81,811, 15.0%), followed by those in their 30s (80,795, 14.8%) and their 40s (78,954, 14.5%). Domestically, 394,409 (72.4%) cases occurred in metropolitan areas and cases occurred in 146,336 (26.9%) non-metropolitan areas, 3,615 (0.7%) cases were confirmed at airport quarantine stations. Among confirmed

cases in Seoul metropolitan areas, Seoul had the highest number of cases with 192,623 (35.4%), followed by Gyeonggi (167,656, 30.8%) and Incheon (34,130, 6.3%). Among confirmed cases in non-Seoul metropolitan areas, Busan had the highest number of cases with 21,903 (4.0%), followed by Gyeongnam (17,643, 3.2%) and Chungnam (16,431, 3.0%) (Table 1). Regarding the fatality rate according to sex and age group, female (0.81%) and male (0.80%) had similar rates and patients aged 80 years and older had the highest fatality rate (12.91%).

The main infection routes for the fourth period confirmed that cases were contact with confirmed cases (252,789, 46.4%), under epidemiological investigation (178,438, 32.8%), and regional cluster outbreaks, including healthcare facilities and nursing homes (100,907, 18.6%). The top three regions affected by contact with confirmed cases were Sejong (55.5%), Gyeonggi (52.2%), and Gyeongnam (49.4%); those under epidemiological investigation were Seoul (42.2%), Incheon (33.3%), and Gangwon (32.7%); and those affected by regional cluster outbreaks were Jeonbuk (46.3%), Jeonnam (45.4%), and Daegu (45.1%). Among regional cluster outbreaks, those related to educational facilities accounted for the highest proportion (4.5%, n = 24,401), followed by workplaces (3.6%, n = 119,404) and nursing homes (2.1%, n = 11,422). According to the age group, cases related to workplaces and educational facilities accounted for high proportions among most age groups, and nursing homes and healthcare facilities accounted for high proportions among those in their 60s and older (Table 2).

In the fourth period, confirmed cases kept occurring mostly in Seoul metropolitan areas and large cities, and the fourth wave of the pandemic has been in progress since early July 2021 due to a decrease of vaccine effectiveness and dominance of the Delta variant (Table 3). Despite a decrease in the proportion of confirmed COVID-19 patients aged 60 years and older owing to the administration of the third dose vaccination by public

health authorities the disease continues to spread owing to the emergence of the Omicron variant (Figure 1). Although the number of overall deaths increased, cases among those aged 60 years and older were not thoroughly confirmed and hence their reported fatality rate decreased (92.0%) than third period (94.8%) (Figure 2).

Conclusion

This report is a 2-year analysis report on COVID-19 outbreak statistics. A total of 705,900 (daily average: 965.7) cumulative confirmed cases occurred over the past 2 years

(‘20.1.20.~’22.1.19). Among the total cumulative confirmed cases across the four periods, 77.1% (n = 544,360) occurred in the fourth period (July 7, 2021 to January 19, 2022). In the first period, the number of confirmed cases increased rapidly, centered around Daegu and Gyeongsangbuk-do, resulting in a substantially higher prevalence in non-Seoul metropolitan areas than in Seoul metropolitan areas (65.8% vs. 25.4%). From the second period onward, however, Seoul metropolitan areas accounted for among 70% of cases (second period: 72.8%, third period: 68.1%, fourth period: 72.5%). The confirmed cases at airport quarantine stations, which accounted for 8.7% of the overall cases in the first period, kept decreasing from the

Table 3. Characteristics of COVID-19 cases in 2 years by period

Categories	Total	First period	Second period	Third period	Fourth period
	(January 20, 2020 –January 19, 2022)	(January 20, –August 11, 2020)	(August 12, –November 12, 2020)	(November 13, 2020 –July 6, 2021)	(July 7, 2021 –January 19, 2022)
Confirmed cases	705,900	14,660	13,280	133,600	544,360
Local cases	683,595(96.8%)	12,086(82.4%)	11,820(89.0%)	127,358(95.3%)	532,331(97.8%)
Imported cases	22,305(3.2%)	2,574(17.6%)	1,460(11.0%)	6,242(4.7%)	12,029(2.2%)
under 18 years old	124,127(17.6%)	791(5.4%)	1,082(8.1%)	15,411(11.5%)	106,843(19.6%)
over 60 years old	158,877(22.5%)	3,489(23.8%)	4,389(33.3%)	31,774(23.4%)	119,225(21.9%)
Foreigner	66,853(9.5%)	1,084(7.4%)	1,151(8.7%)	10,332(7.7%)	54,296(10.0%)
Average confirmed cases by period (min – max)	965.7 (1 – 7,848)	71.5 (1 – 909)	142.8 (38 – 441)	566.1 (191 – 1,240)	2,763.2 (1,049 – 7,848)
Death cases (Fatality rate, %)	6,480 (0.92%)	308 (2.10%)	221 (1.66%)	1,556 (1.16%)	4,395 (0.81%)
Characteristics of outbreaks	–	<ul style="list-style-type: none"> • After the first confirmed case (imported from abroad) on January 20, 2020, starting with the Daegu and Gyeongbuk epidemic related to Shincheonji –church related, a nationwide cluster of medical institutions, religious facilities, and multi-use facilities occurred 	<ul style="list-style-type: none"> • A large number of small–medium –sized cluster occurred due to religious facilities in the metropolitan area, large–scale urban gatherings, and multi–use facilities 	<ul style="list-style-type: none"> • Large–scale spread of the epidemic nationwide from the center of the metropolitan area • Multiple occurrences in correctional facilities, medical institutions, religious facilities, etc. 	<ul style="list-style-type: none"> • Continued occurrence of confirmed cases in the metropolitan area • Changes in age of confirmed cases according to vaccination status • Delta mutation dominant → Omicron mutation dominant (February, 2022)

second to the fourth period (second period: 4.9%, third period: 1.6%, fourth period: 0.7%). The proportion of confirmed cases among foreigners, which had been maintained at a level of 7–8% from the first to the third period, increased to 10.0% in the fourth period owing to an increase in the confirmed cases among foreign nationalities staying in the ROK. According to age group and sex, patients in their 20s/30s/40s accounted for high proportions, with female outnumbering male in the first and second periods and the other way around in the third and fourth periods.

The number of deaths over the 2 years covered by this report was 6,480, resulting in a fatality rate of 0.92%. The highest number of deaths was recorded in the fourth period, with a surge in the number of confirmed cases; however, the fatality rate was the lowest, with 0.81% in the same period. The fatality rate was the highest with 2.1% in the first period owing to the high proportion of confirmed cases in healthcare facilities and nursing homes. The main routes of infection of confirmed cases, excluding the 211,730 cases (30.0%) under epidemiological investigation, were contact with confirmed cases (302,758, 42.9%), regional cluster outbreaks, including healthcare facilities and nursing homes (28,172, 23.9%), imported case (11,961, 2.1%), and related to imported case (571, 0.1%). From the first to the fourth period, the proportion of regional cluster outbreaks (including healthcare facilities and nursing homes) gradually decreased (62.5% → 55.9% → 38.2% → 18.5%), but the proportion of contact with confirmed cases kept increasing (9.6% → 18.3% → 34.5% → 46.4%). Among confirmed cases owing to regional cluster outbreaks, healthcare facilities and nursing homes accounted for high proportions of contacts in the first period, religious facilities in the second period, workplaces in the third period, and educational facilities in the fourth period. The proportions of contacts among young children and adolescents aged under 18 years increased across the periods, culminating

in 19.6% in the fourth period, and the proportion of contacts made by older adults (≥ 60 years) was the highest in the second period (33.3%), showing a slightly decreasing trend in the third and fourth periods. These findings will provide as basic data for setting up prevention and management plans in the future.

① What was previously known?

After the first reported case of COVID-19 in Wuhan, Hubei Province, China on December 31, 2019, the World Health Organization declared COVID-19 as a pandemic, the highest alert level, on March 11, 2020. Thus far, i.e., early 2022, the number of patients is still increasing worldwide. Republic of Korea is currently going through the fourth wave of the pandemic, with confirmed cases of COVID-19 continuing to spread across the country and among almost all age groups.

② What is newly learned?

As of January 19, 2022 (00:00 hour), the 2-year cumulative confirmed COVID-19 cases in the Republic of Korea was 705,900, including those acquired from abroad (22,305). Among the cases, the number of new confirmed cases in the fourth period (July 7, 2021 to January 19, 2022) alone accounts for 77.1% ($n = 544,306$) of the overall cumulative confirmed cases during the entire period covered by this report. This report elaborates on the main characteristics of the pandemic over the past 2 years (January 2020 to January 2022), such as the routes of infection and the fatality rate of the confirmed cases.

③ What are the implications?

The Central Disease Control Headquarters has analyzed the COVID-19 outbreaks, and characterized the outbreaks by epidemic period over the past two years. It is expected that the contents of this report will serve as a basis for setting up future prevention and management plans according to the main outbreak characteristics of the confirmed cases.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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