

COVID-19 Response and Experience in Seoul



Seoul Metropolitan Government
Citizens' Health Bureau



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01



**Expanding the
Organization of
the Seoul Citizens' Health
Bureau to Effectively
Respond to COVID-19**

Expanding the Organization of the Seoul Citizens' Health Bureau to Effectively Respond to COVID-19



□ **Advancing Background**

(<https://m.newspim.com/news/view/20221227000666>)

- The cumulative number of COVID-19 cases in Seoul is close to 5.6 million.

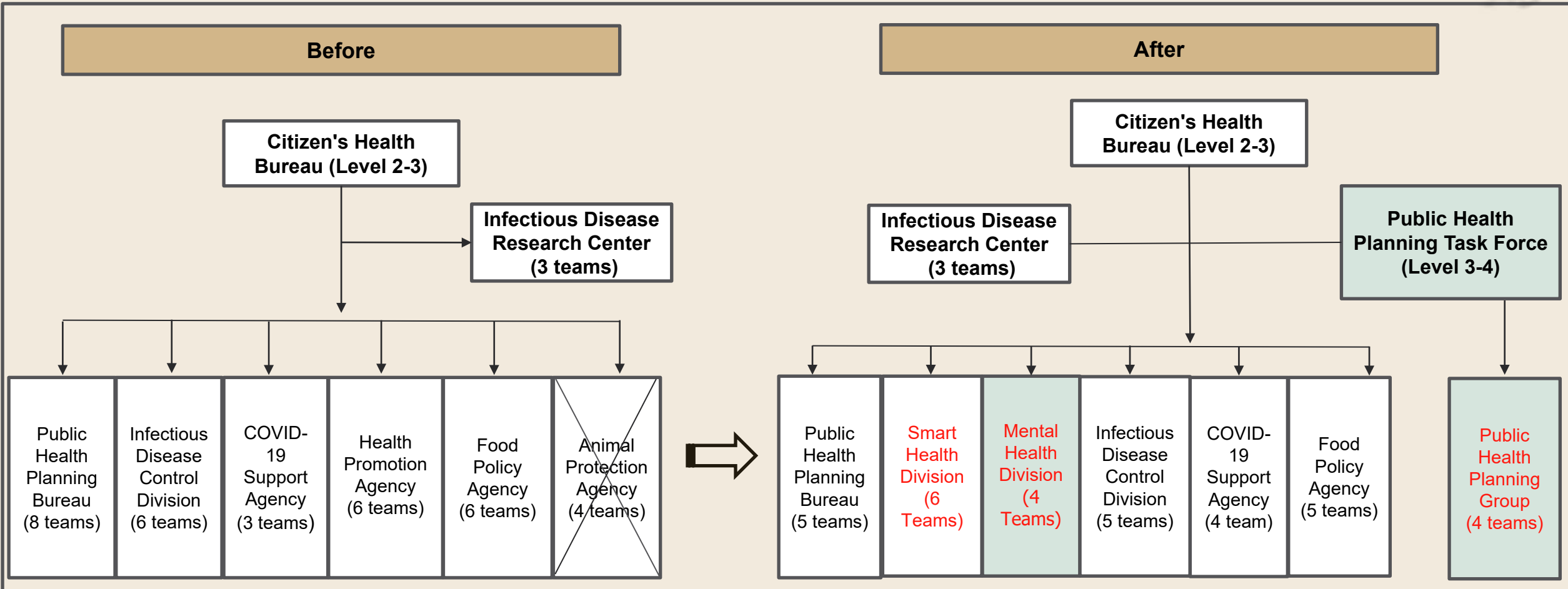
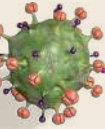
Reinfection rates continue to increase and about 15% are now the largest epidemic in history.

The cumulative death toll stands at 6,023 as of Dec. 28, 2022

- ➔ In order to effectively cope with similar situations after COVID-19, the Seoul Metropolitan government had to strengthen organizational restructuring in all medical fields

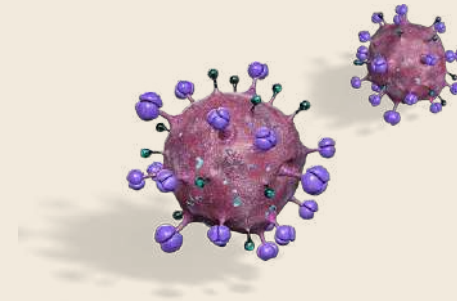
Expansion of Organization of the Seoul Citizen's Health Bureau

- **Citizens' Health Bureau: a key role in responding to COVID-19 in Seoul**
- **Reorganization of Citizen's Health Bureau by year**
 - (2021) 1 bureau, 6 divisions, 1 center, 34 teams
 - (2022) 1 bureau, 1 task force, 6 divisions, 1 center, 1 class, 36 teams

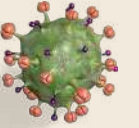


02

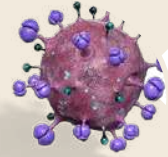
Evaluation of COVID-19 Situation in Seoul and Implementation of System Operation



Current Situation of COVID-19 in Seoul

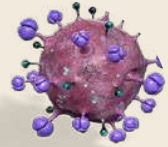


□ Outline



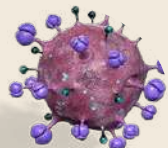
Background:

With the recent shortening of the occurrence cycle of infectious diseases, it is necessary to conduct infectious disease information analysis and risk assessment to deal with infectious diseases



Objective:

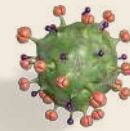
To prevent the early spread of infectious diseases and provide infectious disease information to the public by analyzing infectious disease information



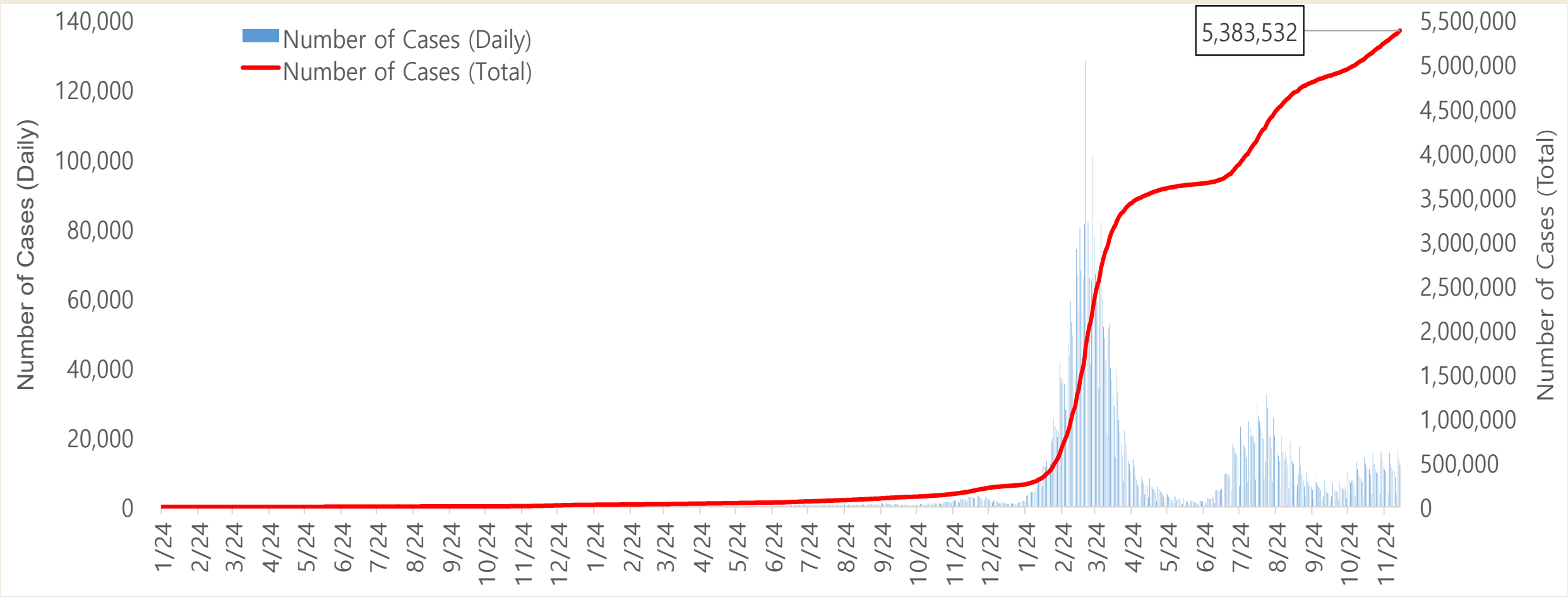
Expected results:

Through the analysis of infectious disease information and the construction of response system, we can establish countermeasures to prevent the spread of infectious diseases

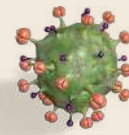
Current Situation of COVID-19 in Seoul



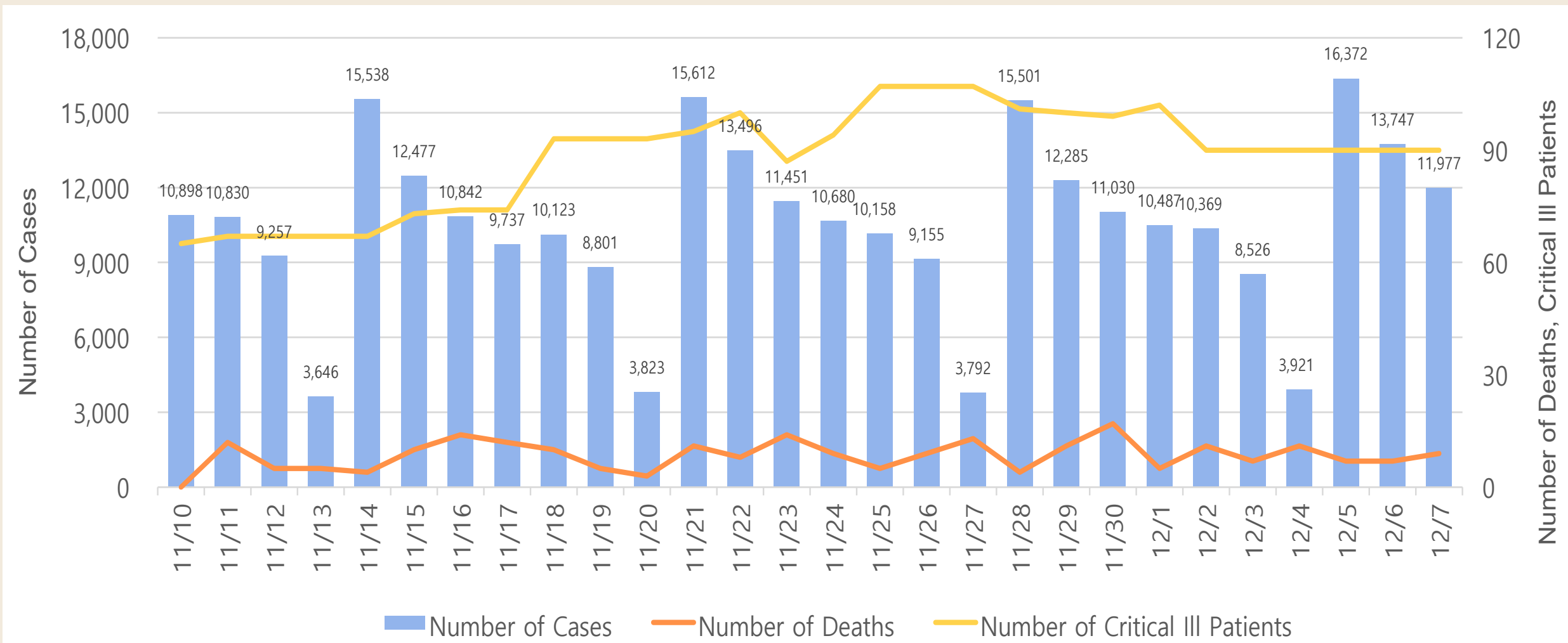
Cumulative status of COVID-19 confirmed cases (Dec. 12, 2022, 24:00)



Current Situation of COVID-19 in Seoul



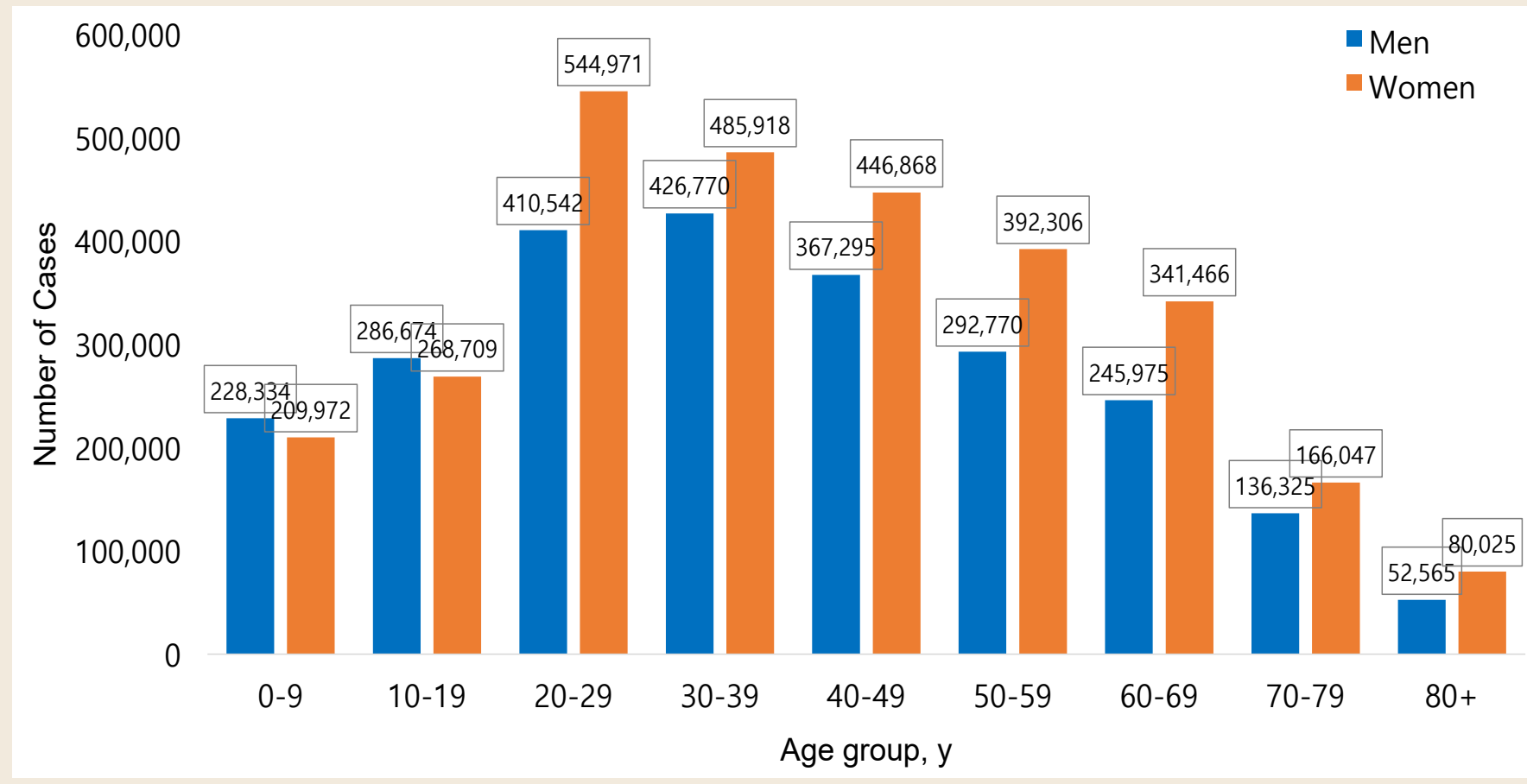
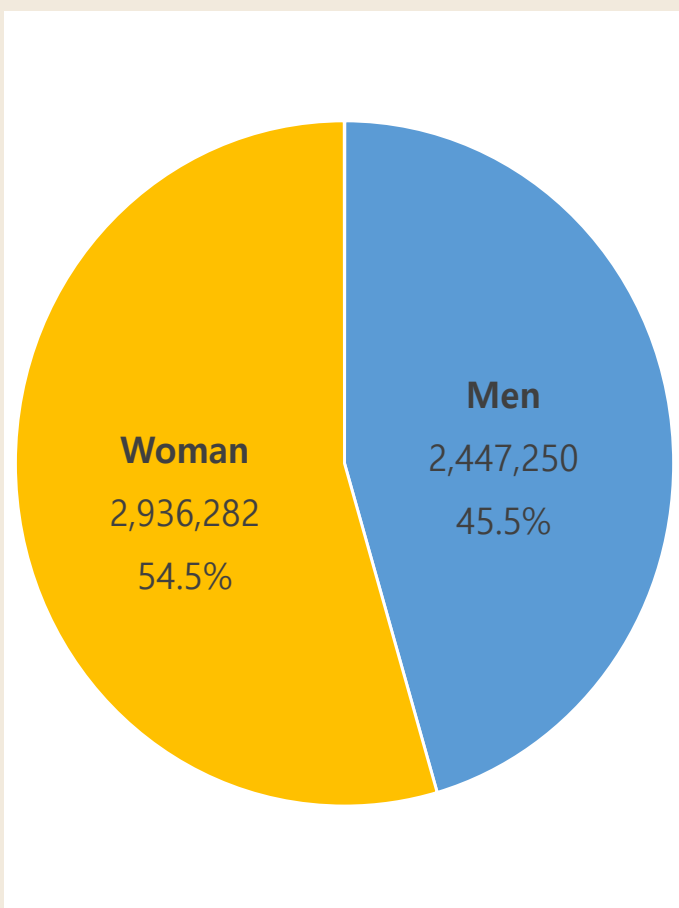
The main index trend of COVID-19 during the period when BA.5 was dominant (11.10 ~ 12.7. 2022)



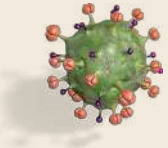
Current Situation of COVID-19 in Seoul



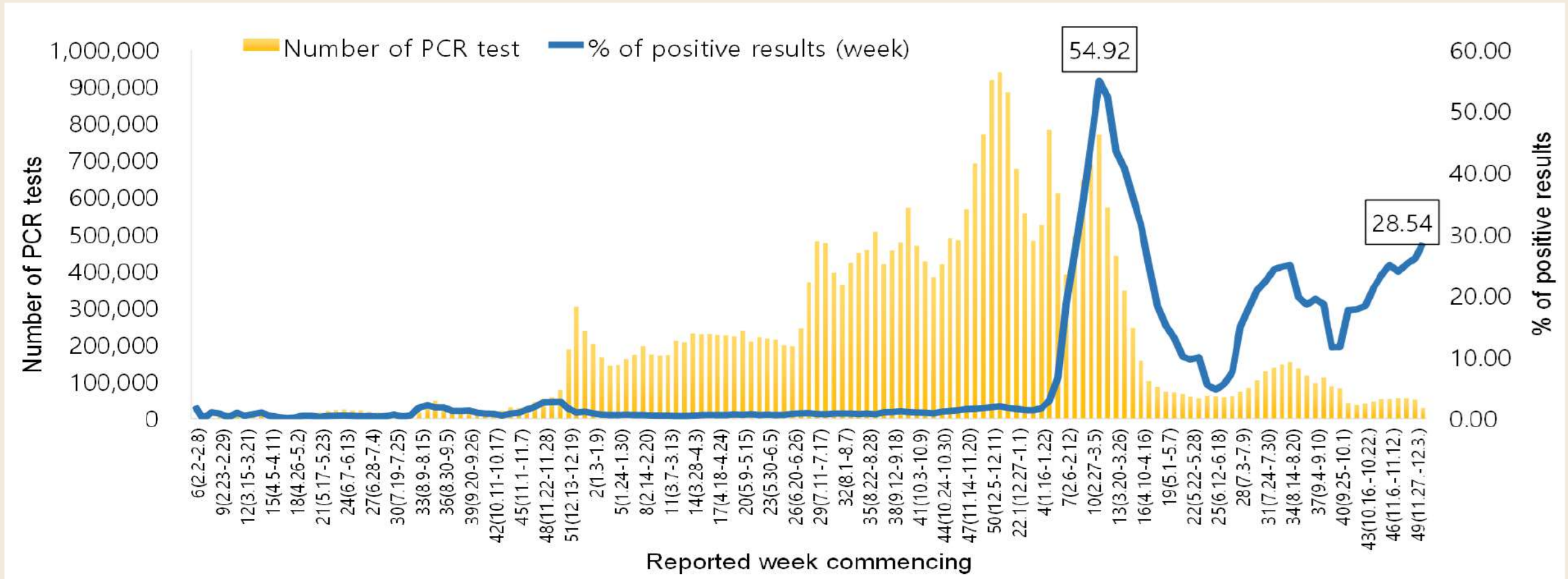
The gender and age of COVID-19 cases based on cumulative data



Current Situation of COVID-19 in Seoul



Number of PCR tests conducted weekly and the percentage of confirmed cases by test for the past year

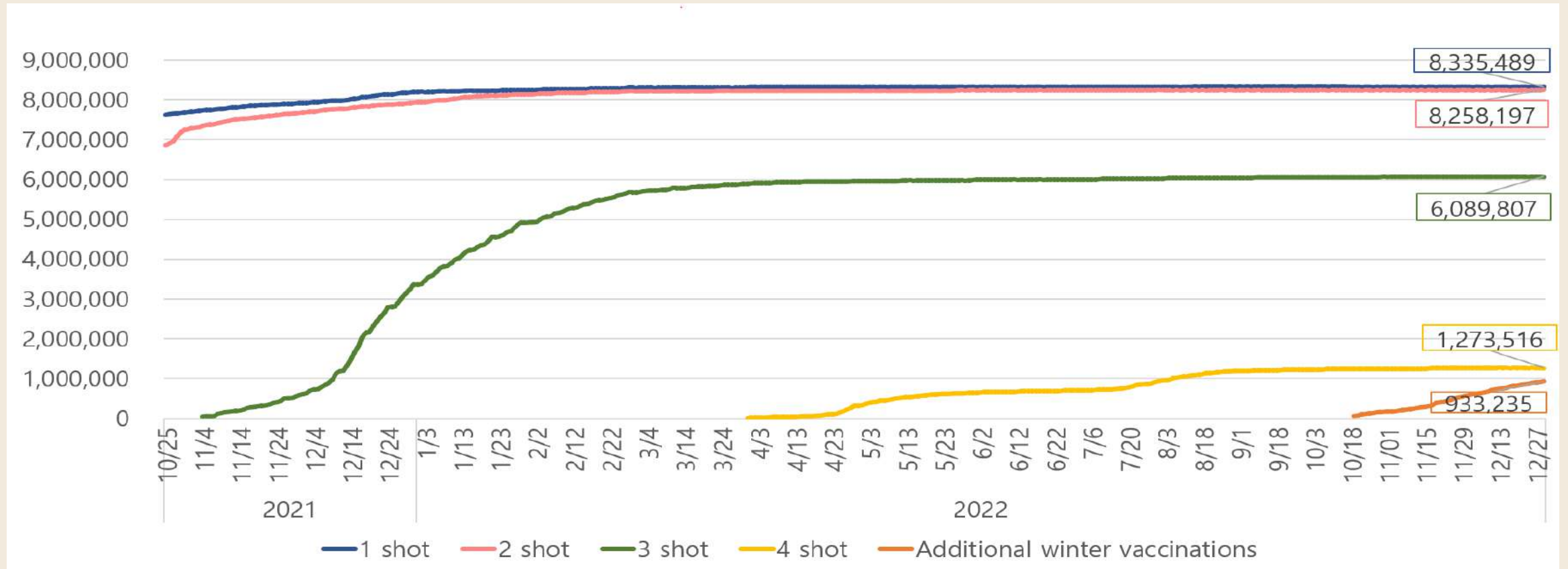


Current Situation of COVID-19 in Seoul

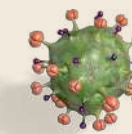


COVID-19 Vaccination status (1st, 2nd, 3rd, 4th shot and additional winter shot)

Over the past year or more, the vaccination rate of Seoul citizens has been decreasing.

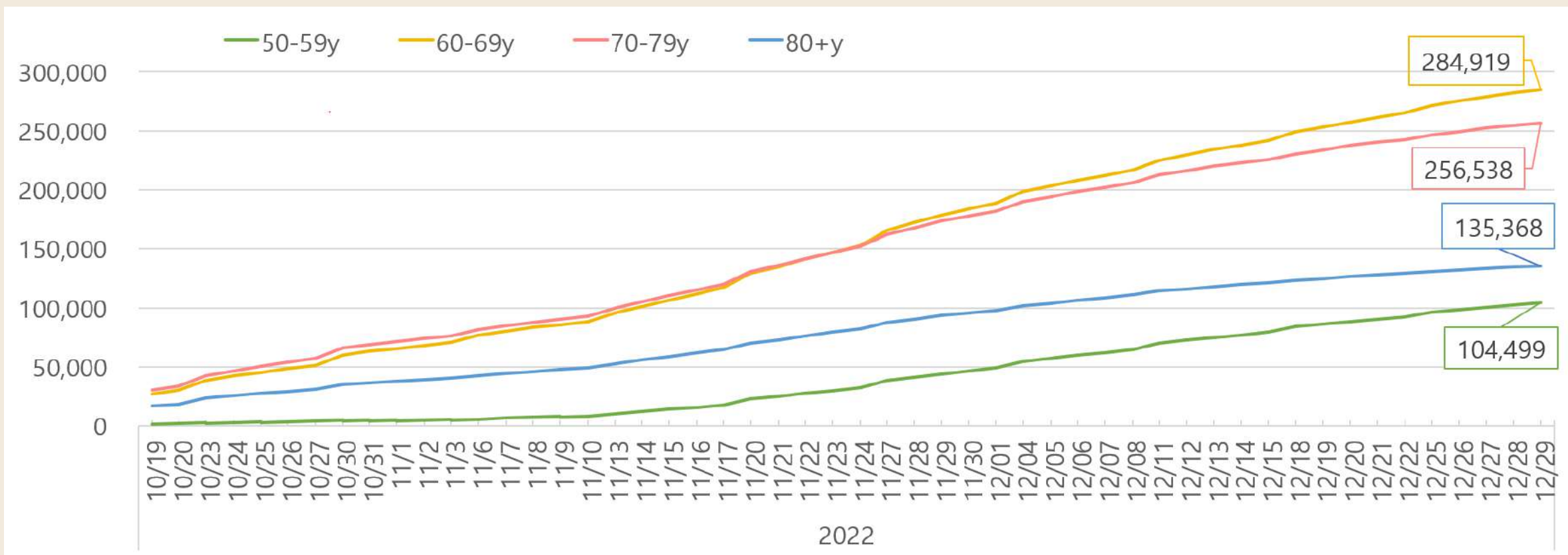


Current Situation of COVID-19 in Seoul



Additional winter vaccination for people over 50 years old

Since the end of last year, the COVID-19 bivalent vaccine has been given mainly to the elderly, and residents of nursing hospitals and various facilities, and the vaccination rate has been gradually increasing.

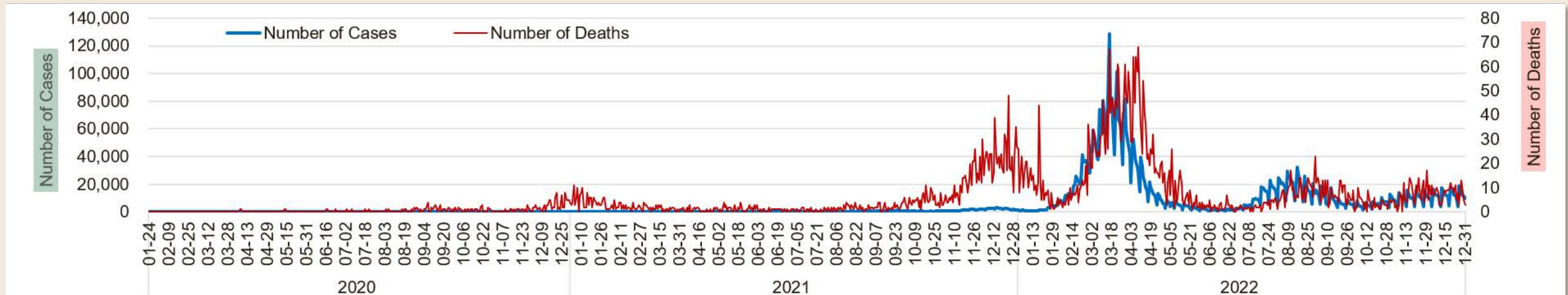


Current Situation of COVID-19 in Seoul



Confirmed cases and deaths related to COVID-19 for the last 3 years (Dec. 31, 2022, 24:00)

| Category | 2020 | 2021 | 2022 |
|---|--|---|---|
| Characteristics | The number of confirmed cases increased during fall and winter seasons | | Due to the spread of the omicron variant, the number of confirmed cases has increased in the spring |
| Maximum number of Confirmed cases per day | 552 (Dec. 24, 2021) | 3,165 (Dec. 14, 2021) | 128,342 (March 16, 2022) |
| Maximum number of Death cases per day | 8 (Dec. 21-28, 2020 3 rd wave) | 48 (Dec, 24, 2021 4 th wave) | 68 (April 4, 2022, 6 th wave) |

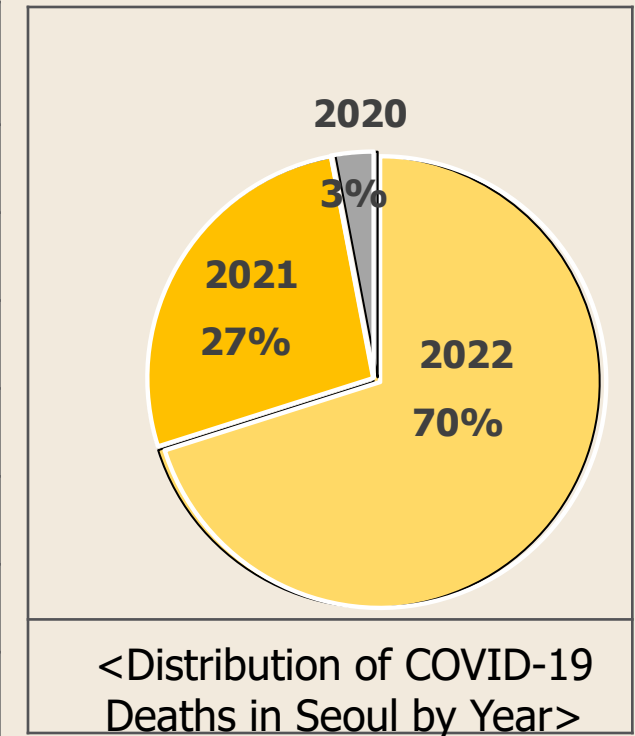


Current Situation of COVID-19 in Seoul

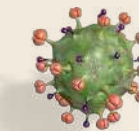


General characteristics of COVID-19 related death cases for the last 3 years (Dec. 31, 2022, 24:00)

| | | Cumulative Deaths | | 2020 | | 2021 | | 2022 | |
|--------|--------|-------------------|---------|------|---------|-------|---------|-------|---------|
| Total | | 6,065 | (100.0) | 182 | (100.0) | 1,631 | (100.0) | 4,252 | (100.0) |
| Gender | Male | 3,294 | (54.3) | 105 | (57.7) | 923 | (56.6) | 2,266 | (53.3) |
| | Female | 2,771 | (45.7) | 77 | (42.3) | 708 | (43.4) | 1,986 | (46.7) |
| Age | ≥59 | 484 | (8.0) | 69 | (37.9) | 119 | (7.3) | 356 | (8.4) |
| | 60-69 | 865 | (14.3) | 20 | (11.0) | 287 | (17.6) | 558 | (13.1) |
| | 70-79 | 1,626 | (26.8) | 8 | (4.4) | 515 | (31.6) | 1,043 | (24.5) |
| | 80≤ | 3,090 | (50.9) | 85 | (46.7) | 710 | (43.5) | 2,295 | (54.0) |



Current Situation of COVID-19 in Seoul



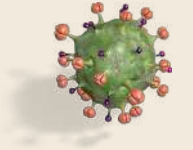
Analysis of COVID-19 related deaths based on cumulative data

(Dec. 31, 2022, 24:00)

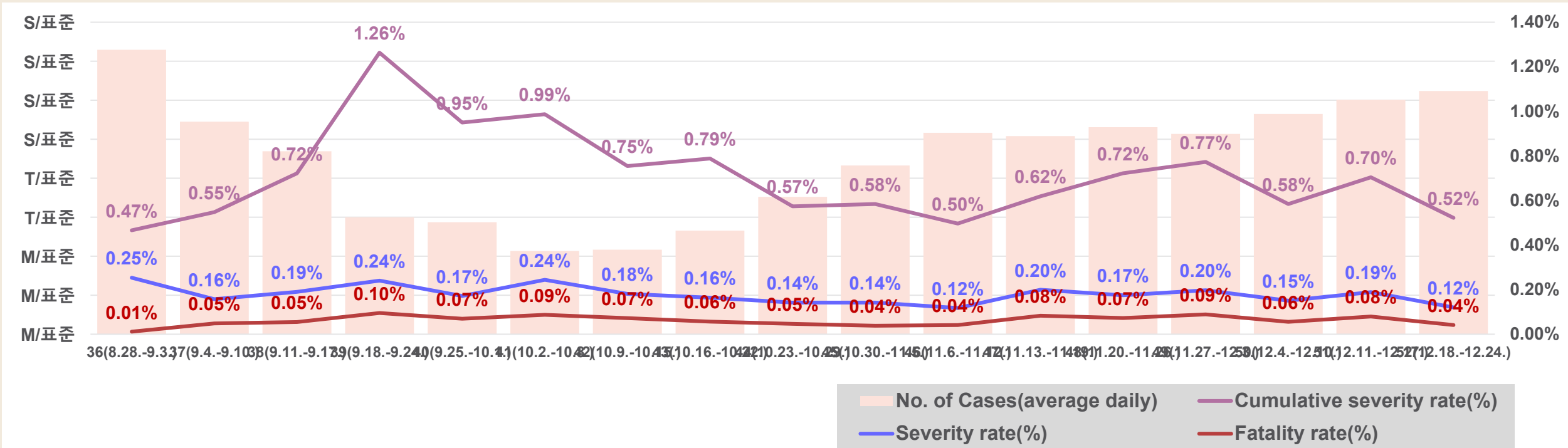
| | | Total Deaths | | Deaths | | | | p-value (M vs F) |
|------------------------------------|-----------------------|--------------|---------|-----------|---------|-----------|---------|---------------------|
| | | | | Male | | Female | | |
| Total | | 6,065 | (100.0) | 3,294 | (100.0) | 2,771 | (100.0) | |
| Age (average ± standard deviation) | | 77.8±12.7 | | 75.3±12.3 | | 80.7±12.6 | | <.0001 |
| Age | 0–19 | 10 | (0.2) | 6 | (0.2) | 4 | (0.1) | <.0001 |
| | 20–59 | 474 | (7.8) | 308 | (9.4) | 166 | (6.0) | |
| | 60 and older | 5,581 | (92.0) | 2,980 | (90.5) | 2,601 | (93.9) | |
| Underlying Disease | Absent | 1,321 | (21.8) | 708 | (21.5) | 613 | (22.1) | 0.5741 |
| | Present | 4,744 | (78.2) | 2,586 | (78.5) | 2,158 | (77.9) | |
| Time of Confirmation of COVID-19 | Before Delta | 513 | (8.5) | 295 | (9.0) | 218 | (7.9) | 0.0347 |
| | Delta | 1,639 | (27.0) | 921 | (28.0) | 718 | (25.9) | |
| | BA.1 | 1,591 | (26.2) | 826 | (25.1) | 765 | (27.6) | |
| | BA.2 | 1,308 | (21.6) | 688 | (20.9) | 620 | (22.4) | |
| | BA.5 | 1,014 | (16.7) | 564 | (17.1) | 450 | (16.2) | |
| No. of vaccinations | Unvaccinated | 2,985 | (49.2) | 1,521 | (46.2) | 1,464 | (52.8) | <.0001 |
| | First | 220 | (3.6) | 127 | (3.9) | 93 | (3.4) | |
| | Second | 1,115 | (18.4) | 665 | (20.2) | 450 | (16.2) | |
| | Third | 1,387 | (22.9) | 785 | (23.8) | 602 | (21.7) | |
| | Fourth | 331 | (5.5) | 182 | (5.5) | 149 | (5.4) | |
| | Confirmation required | 27 | (0.5) | 14 | (0.4) | 13 | (0.5) | |

(Items investigated with regards to underlying disease) Six items were investigated with regards to underlying conditions: ① Hypertension (41.9%, 2,541 persons); ② Diabetes (28.0%, 1,696 persons); ③ Dementia (16.1%, 978 persons); ④ Cancer (14.5%, 880 persons); ⑤ Kidney disease (10.6%, 634 persons); and ⑥ Other diseases (53%, 3,209 persons).

Current Situation of COVID-19 in Seoul



COVID-19 related cases of critical illness and death for the last 4 months (September 1, 2022 – December 26, 2022)

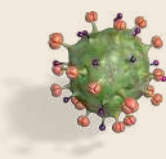


† (Severity rate) = (new cases of critical illness + death) / (confirmed cases)

‡ (Fatality rate) = (deaths) / (confirmed cases)

※ The number of confirmed cases is based on date of COVID-19 confirmation

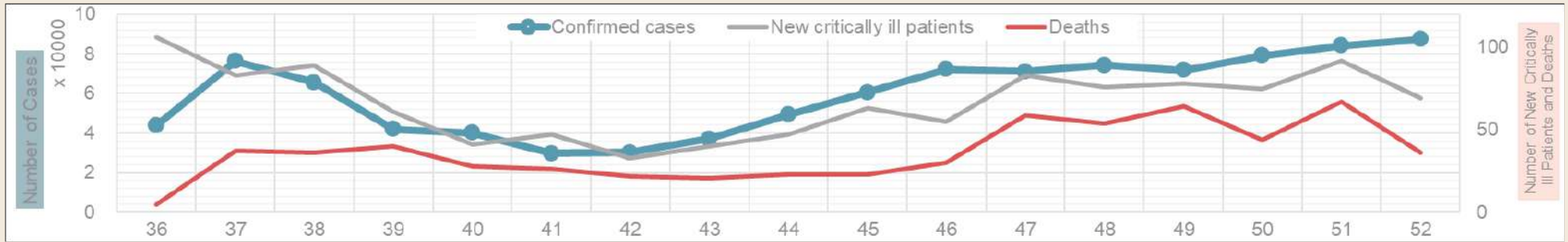
Current Situation of COVID-19 in Seoul



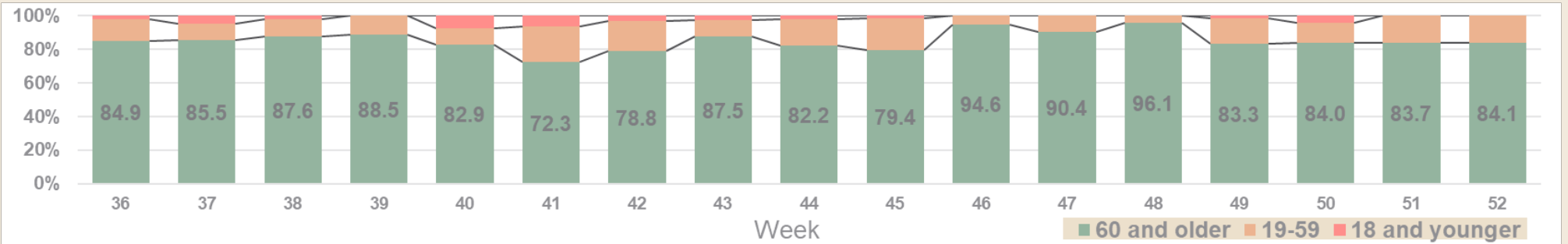
2. Analysis of the Current COVID-19 Situation (Dec. 27, 2022, 24:00)

Key indicators related to critical illness and death for the past 4 months (September 1, 2022 – December 26)

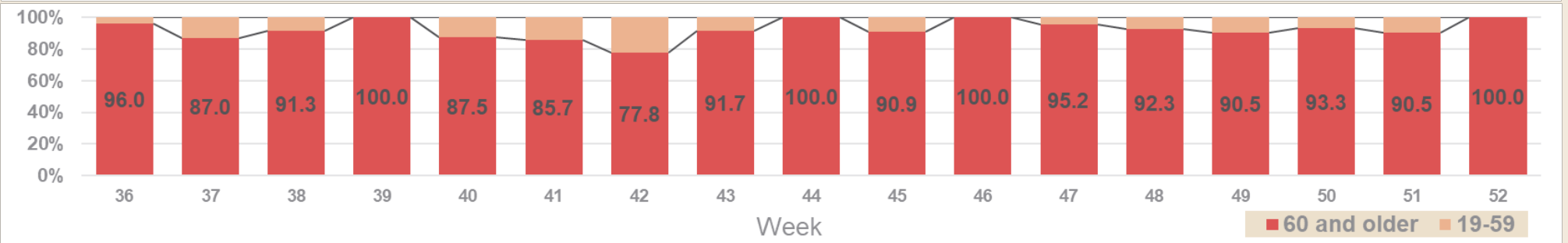
Trends in the number of new confirmed cases, critical illness cases and death related to COVID-19 infection in Seoul



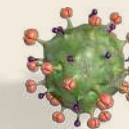
Critical illness cases related to COVID-19 in Seoul by age group



Deaths related to COVID-19 in Seoul by age group



Current Situation of COVID-19 in Seoul



COVID-19 related cases of critical illness and death for the last 4 months

(September 1, 2022 – December 26, 2022)

| Category | | Number | Gender | | p-value |
|--------------------------|--------|--------------|-------------|-------------|---------|
| | | | Male | Female | |
| Total | | 1,136(100.0) | 646 (100.0) | 490 (100.0) | |
| Gender | Male | 646(56.9) | | | |
| | Female | 490(43.1) | | | |
| Average age [†] | | 73.7±16.7 | 70.6±17.3 | 77.7±14.9 | <.0001* |
| Age | 0-9 | 14(1.2) | 11 (1.7) | 3 (0.6) | <.0001 |
| | 10-19 | 9(0.8) | 7 (1.1) | 2 (0.4) | |
| | 20-29 | 10(0.9) | 7 (1.1) | 3 (0.6) | |
| | 30-39 | 12(1.1) | 10 (1.6) | 2 (0.4) | |
| | 40-49 | 41(3.6) | 27 (4.2) | 14 (2.9) | |
| | 50-59 | 78(6.9) | 56 (8.7) | 22 (4.5) | |
| | 60-69 | 184(16.2) | 116 (18.0) | 68 (13.9) | |
| | 70-79 | 284(25.0) | 192 (29.7) | 92 (18.8) | |
| | 80 ≤ | 504(44.4) | 220 (34.1) | 284 (58.0) | |

Current Situation of COVID-19 in Seoul



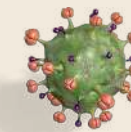
COVID-19 related cases of critical illness and death for the last 4 months

(September 1, 2022 – December 26, 2022)

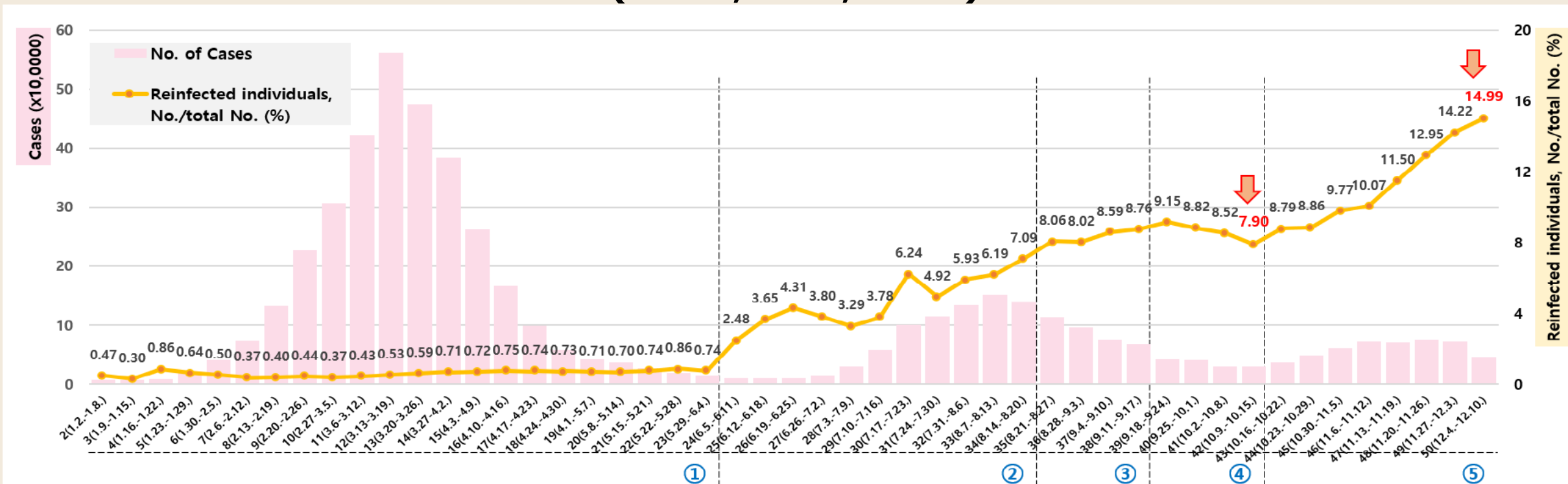
| Category | | Number | Gender | | p-value |
|--|-------------------------|--------------|------------|------------|---------|
| | | | Male | Female | |
| Total | | 1,136(100.0) | 646(100.0) | 490(100.0) | |
| Number of vaccinations* | unvaccinated | 110(9.7) | 57(8.8) | 53(10.8) | 0.1625 |
| | 1 | 23(2.0) | 13(2.0) | 10(2.0) | |
| | 2 | 95(8.4) | 66(10.2) | 29(5.9) | |
| | 3 | 297(26.1) | 168(26.0) | 129(26.3) | |
| | 4 | 289(25.4) | 158(24.5) | 131(26.7) | |
| | currently vaccinating** | 322(28.4) | 184(28.5) | 138(28.2) | |
| Deaths | | 270(23.8) | 147(22.8) | 123(25.1) | 0.3954 |
| Number of days from confirmation until moderate severity symptoms‡ | | -1.4±2.2 | -1.4±2.1 | -1.5±2.4 | 0.4232* |
| Number of days from moderate severity symptoms until critical illness‡ | | 7.5±5.3 | 7.7±5.6 | 7.3±4.7 | 0.2900* |
| Number of days from confirmation until critical illness‡ | | 6.1±5.3 | 6.2±5.4 | 6.1±5.2 | 0.6547* |
| Number of days from critically illness until death‡ | | 4.8±5.3 | 5.4±6.0 | 4.1±4.4 | 0.0293* |

*(Number of vaccinations) The proportion of unvaccinated people among all critically ill patients - 9.7% (110 people), the amount of women accounted for 10.8% and men for 8.8%, but the difference between genders was not statistically significant. However, currently 28.3% of the data is 'under investigation', and a new analysis is necessary to be conducted in the future. **Currently, 28.3% of the data is 'under investigation', and a new analysis is necessary to be conducted in the future, also an additional analysis of the relation between high women mortality among and non-vaccination rate among critically ill patients is needed. ***(Under investigation) Currently under investigation, not available for analysis. Subject to change in the future. Out of 791 confirmed cases, in 771 cases the day of symptoms onset was confirmed and analyzed ||Analysis based on 270 death cases.

Current Situation of COVID-19 in Seoul



Presumed reinfection cases in the last year (Dec. 7, 2022, 24:00)



- ① Remained at less than 1% throughout the first half of 2022
- ② (Increase) It started to increase after the second week of June (2.48%)
- ③ (Stagnation) Since the fourth week of August, it remained above 8% for approx. four weeks
- ④ (Decrease) It gradually decreased after the third week of September (9.15%)
- ⑤ (Resurge) Beginning in the second week of October (7.90%), an upward trend emerged

Current Situation of COVID-19 in Seoul



General characteristics of presumed COVID-19 second infection cases for the last 3 months (Dec. 7, 2022, 24:00)

| | | October | | | November | | | December | | |
|------------------------------------|-------------------------|-----------------------|---------------------------------|-------|-----------------------|---------------------------------|-------|-----------------------|---------------------------------|-------|
| | | Total confirmed cases | Presumed second infection cases | | Total confirmed cases | Presumed second infection cases | | Total confirmed cases | Presumed second infection cases | |
| | | n | n | %* | n | n | %* | n | n | %* |
| Total | | 166,402 | 14,342 | 8.6% | 303,516 | 35,237 | 11.6% | 75,188 | 11,272 | 15.0% |
| Gender | Male | 71,004 | 5,774 | 8.1% | 128,835 | 13,559 | 10.5% | 32,186 | 4,503 | 14.0% |
| | Female | 95,398 | 8,568 | 9.0% | 174,681 | 21,678 | 12.4% | 43,002 | 6,769 | 15.7% |
| Age | 0-9 | 8,938 | 1,929 | 21.6% | 15,414 | 3,607 | 23.4% | 3,869 | 987 | 25.5% |
| | 10-19 | 17,101 | 2,769 | 16.2% | 28,587 | 5,591 | 19.6% | 7,680 | 1,875 | 24.4% |
| | 20-29 | 25,577 | 2,152 | 8.4% | 49,480 | 6,139 | 12.4% | 12,721 | 2,093 | 16.5% |
| | 30-39 | 27,793 | 2,269 | 8.2% | 52,274 | 5,947 | 11.4% | 13,585 | 2,064 | 15.2% |
| | 40-49 | 24,856 | 1,753 | 7.1% | 45,486 | 4,578 | 10.1% | 11,404 | 1,539 | 13.5% |
| | 50-59 | 22,274 | 1,122 | 5.0% | 41,183 | 3,187 | 7.7% | 10,073 | 966 | 9.6% |
| | 60-69 | 20,838 | 1,333 | 6.4% | 37,419 | 3,479 | 9.3% | 8,580 | 981 | 11.4% |
| | 70-79 | 12,872 | 626 | 4.9% | 22,228 | 1,675 | 7.5% | 4,801 | 486 | 10.1% |
| | 80 and older | 6,153 | 389 | 6.3% | 11,445 | 1,034 | 9.0% | 2,475 | 281 | 11.4% |
| Facilities vulnerable to infection | Convalescent hospital | 442 | 123 | 27.8% | 1,091 | 445 | 40.8% | 230 | 112 | 48.7% |
| | Convalescent facilities | 406 | 91 | 22.4% | 942 | 316 | 33.5% | 205 | 70 | 34.1% |

(%) The total number of confirmed cases, that is the row percentage, was calculated ※ Analysis was performed based on the data currently accessible; however, all analysis results are subject to change based on future epidemiological investigation findings. (The number of vaccinations will be continually updated and analyzed subsequently.)

Current Situation of COVID-19 in Seoul

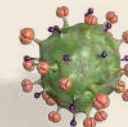


General characteristics of presumed COVID-19 second infection cases for last 3 months (Dec. 7, 2022, 24:00)

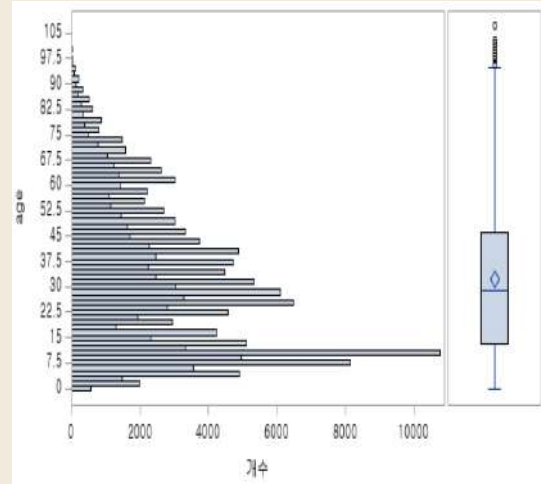
| | | October | | | November | | | December | | |
|--|--------------|-----------------------|---------------------------------|--------|-----------------------|---------------------------------|--------|-----------------------|---------------------------------|--------|
| | | Total confirmed cases | Presumed second infection cases | | Total confirmed cases | Presumed second infection cases | | Total confirmed cases | Presumed second infection cases | |
| | | n | n | %* | n | n | %* | n | n | %* |
| Total | | 166,402 | 14,342 | 8.60% | 303,516 | 35,237 | 11.60% | 75,188 | 11,272 | 15.00% |
| Deaths | | 103 | 8 | 7.8% | 207 | 22 | 10.6% | 9 | 3 | 33.3% |
| No. of vaccinations | Unvaccinated | 11,203 | 2,558 | 22.8% | 7,824 | 1,864 | 23.8% | 0 | | |
| | First | 1,296 | 188 | 14.5% | 2,498 | 454 | 18.2% | 0 | | |
| | Second | 33,507 | 2,962 | 8.8% | 57,289 | 7,168 | 12.5% | 0 | | |
| | Third | 82,868 | 5,384 | 6.5% | 141,568 | 13,675 | 9.7% | 0 | | |
| | Fourth | 20,451 | 983 | 4.8% | 35,379 | 2,669 | 7.5% | 0 | | |
| | Fifth | 215 | 14 | 6.5% | 156 | 4 | 2.6% | 0 | | |
| | In review | 16,862 | 2,253 | 13.4% | 58,802 | 9,403 | 16.0% | 75,188 | | |
| Total | | | 14,342 | 100.0% | | 35,237 | 100.0% | | 11,272 | 100.0% |
| Time of initial infection | Before Delta | | 360 | 2.5% | | 726 | 2.1% | | 189 | 1.7% |
| | Delta | | 1,520 | 10.6% | | 3,004 | 8.5% | | 814 | 7.2% |
| | BA.1 | | 8,389 | 58.5% | | 19,946 | 56.6% | | 6,149 | 54.6% |
| | BA.2 | | 3,798 | 26.5% | | 10,516 | 29.8% | | 3,696 | 32.8% |
| | BA.5 | | 275 | 1.9% | | 1,045 | 3.0% | | 424 | 3.8% |
| Time of reinfection (average ± standard deviation) | | | 242.2±85.2 | | | 263.6±80.3 | | | 275.0±78.3 | |

(%) The total number of confirmed cases, that is the row percentage, was determined ※ Analysis was performed based on the data currently accessible; however, all analysis results are subject to change based on future epidemiological investigation findings. (The number of vaccinations will be continually updated and analyzed subsequently.)

Current Situation of COVID-19 in Seoul

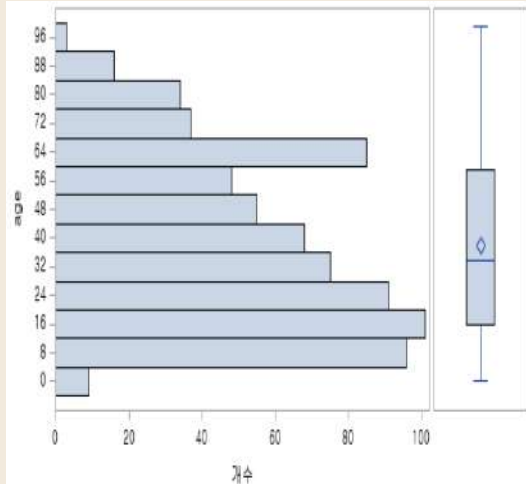


In-depth analysis of presumed COVID-19 reinfection cases based on cumulative 160,415 cases (Dec. 7, 2022, 24:00)



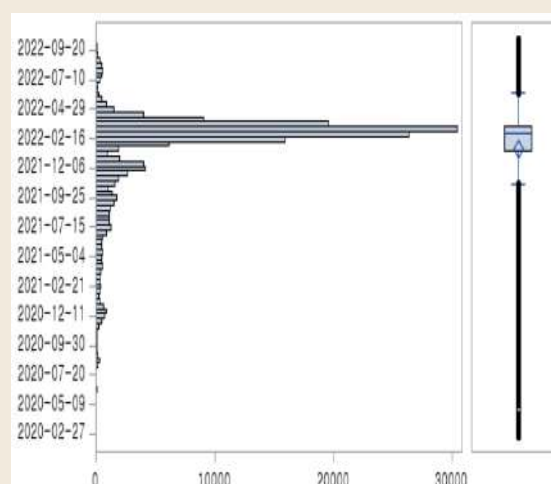
(The second infection)

☞ The second infection was very high, mainly in the age group of children and adolescents between the ages of 5 and 15.



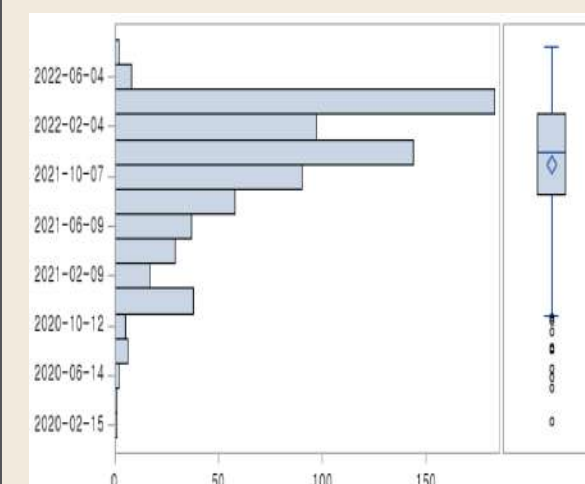
(The third infection)

☞ The third infection occurred a lot in the younger age, but it was relatively evenly distributed across all ages compared to the second infection.



(The second infection)

☞ The first infection of the second infection occurred most frequently from February to April 2022, when the Omicron BA.1 and BA.2 variants were prevalent.



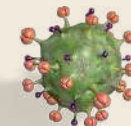
(The third infection)

☞ The first infection of the third infection occurred most frequently from October 2021 to May 2022, when the Delta variant, Omicron BA.1 and BA.2 variants were prevalent.

<Age Distribution of Presumed Reinfection Cases, Histogram>

<Distribution of Time of Initial Infection, Histogram>

Current Situation of COVID-19 in Seoul

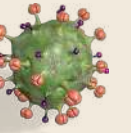


Status of Outbreaks in Nursing Hospitals and Facilities (Dec. 19, 2022, 24:00)

| | | Cumulative confirmed cases over the past three months | | Nursing hospital | | Nursing facilities | |
|------------------------------|---------------------|---|---------|------------------|---------|--------------------|---------|
| Total | | 687,719 | (100.0) | 2,336 | (100.0) | 1,759 | (100.0) |
| Gender | Male | 292,893 | (42.6) | 950 | (40.7) | 264 | (15.0) |
| | Female | 394,826 | (57.4) | 1,386 | (59.3) | 1,495 | (85.0) |
| Age (Mean±SD*, Years) | | 41.9±20.7 | | 71.3±14.8 | | 78.1±14.6 | |
| Age | 0–9 | 35,356 | (5.1) | 0 | (0.0) | 0 | (0.0) |
| | 10–19 | 66,996 | (9.7) | 2 | (0.1) | 0 | (0.0) |
| | 20–29 | 111,374 | (16.2) | 37 | (1.6) | 15 | (0.9) |
| | 30–39 | 119,982 | (17.5) | 39 | (1.7) | 17 | (1.0) |
| | 40–49 | 103,470 | (15.1) | 85 | (3.6) | 38 | (2.2) |
| | 50–59 | 93,030 | (13.5) | 283 | (12.1) | 171 | (9.7) |
| | 60–69 | 83,786 | (12.2) | 572 | (24.5) | 216 | (12.3) |
| | 70–79 | 49,235 | (7.2) | 503 | (21.5) | 224 | (12.7) |
| | 80 and older | 24,490 | (3.6) | 815 | (34.9) | 1,078 | (61.3) |
| Asymptomatic cases | | 176,568 | (25.7) | 864 | (37.0) | 711 | (40.4) |
| Deaths | | 409 | (0.1) | 46 | (2.0) | 17 | (1.0) |

Current Situation of COVID-19 in Seoul

Characteristics of Confirmed Patients in Nursing Hospitals and Nursing Facilities (Oct. 1 – Dec. 19, 2022)



| | | October | | November | | December (Dec. 1 - Dec. 19) | |
|--------------------|------------------------|---------|---------|----------|---------|--------------------------------|---------|
| Total | | 924 | (100.0) | 2,096 | (100.0) | 1,075 | (100.0) |
| Institution | Nursing hospital | 483 | (52.3) | 1,141 | (54.4) | 712 | (66.2) |
| | Nursing facilities | 441 | (47.7) | 955 | (45.6) | 363 | (33.8) |
| Gender | Male | 225 | (24.4) | 592 | (28.2) | 397 | (36.9) |
| | Female | 699 | (75.7) | 1,504 | (71.8) | 678 | (63.1) |
| Age | <60 | 156 | (16.9) | 347 | (16.6) | 184 | (17.1) |
| | 60–69 | 159 | (17.2) | 411 | (19.6) | 218 | (20.3) |
| | 70–79 | 161 | (17.4) | 332 | (15.8) | 234 | (21.8) |
| | 80-89 | 310 | (33.6) | 707 | (33.7) | 291 | (27.1) |
| | 90≤ | 138 | (14.9) | 299 | (14.3) | 148 | (13.8) |
| Classification | Patients and residents | 652 | (70.6) | 1,585 | (75.6) | 794 | (73.9) |
| | Staff | 238 | (25.8) | 511 | (24.4) | 280 | (26.1) |
| | Other | 34 | (3.7) | 0 | (0.0) | 1 | (0.1) |
| Asymptomatic cases | | 339 | (36.7) | 814 | (38.8) | 422 | (39.3) |
| Deaths | | 15 | (1.6) | 41 | (2.0) | 7 | (0.7) |

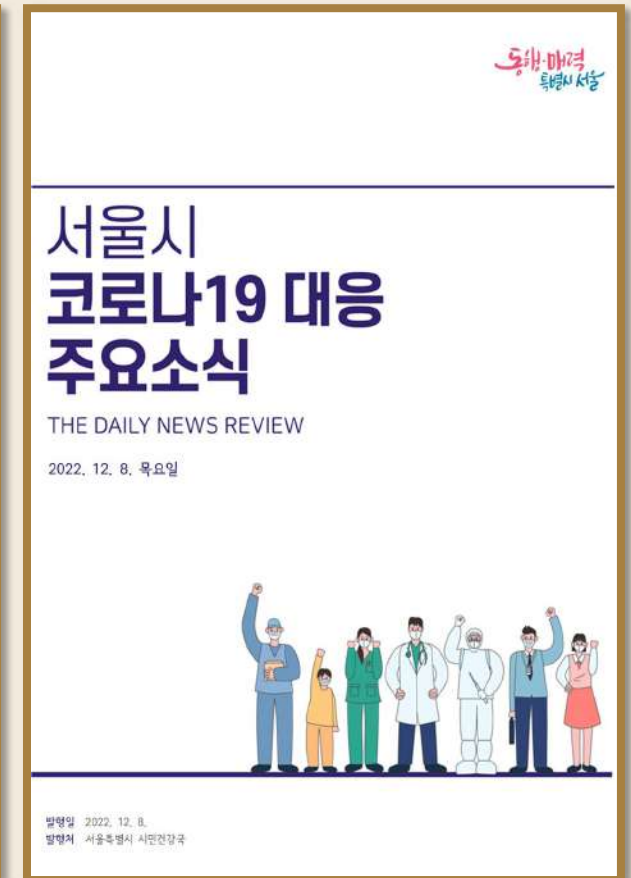
Provision of Information about Current Situation of COVID-19 in Seoul



- **Type:** The Weekly News Report / The Daily News Report
- **Recipients:** Various bureaus in Seoul, public health centers, municipal hospitals, school authorities, infection experts, etc. in Seoul, etc.

• **Contents:**

- Recent COVID-19 outbreaks in Seoul
- In-depth analysis of COVID-19 hot issues
- Reports on COVID-19 trends at home and abroad
- Legal infectious diseases other than COVID-19
- Introduction of infectious diseases selected this week
- Current infection diseases related news at home and abroad
- Promotional materials.



Introduction of RPA-based Work Automation System

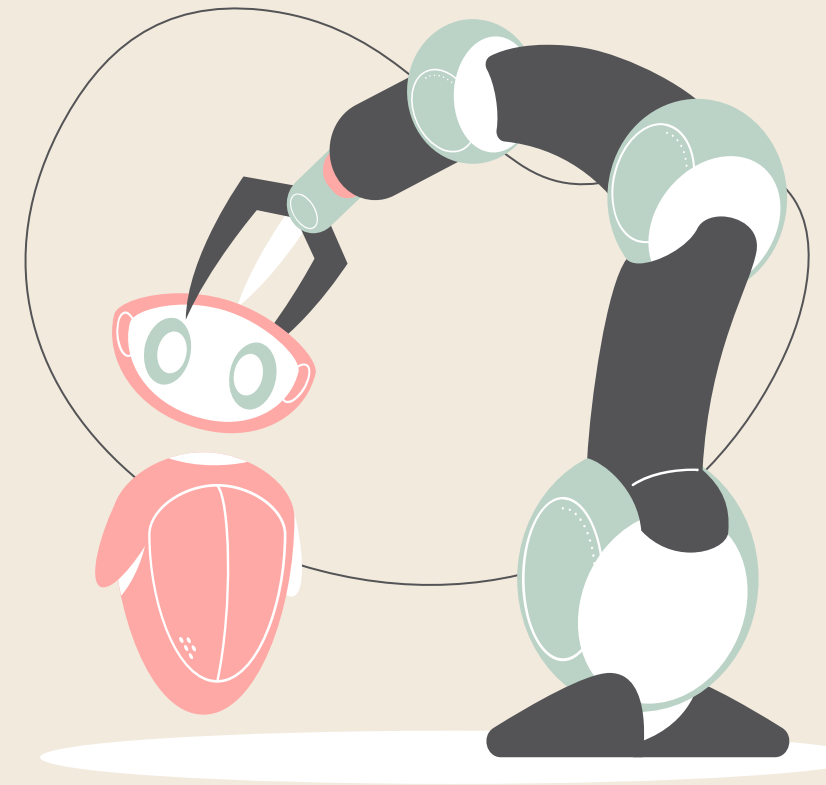
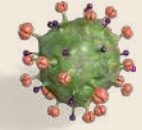
□ Outline

RPA (Robotic Process Automation)

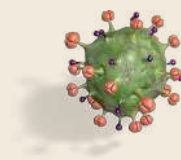
Technology that handles formal and repetitive tasks using robots, software, etc.

- Purpose: With the number of COVID-19 confirmed cases approaching 6 million, the relevant data is vast, and it takes a lot of time and effort for humans to refine the data.
- **Working principle: The robot automatically operates according to the RPA task schedule or algorithm**
- Progress: A total of seven automated work systems have been developed, and as the work progresses, checks for malfunctions are underway.
- Expected effectiveness: **429 hours are saved per month by RPA**

▶ **(Daily workload comparison) Staff 800/8hr vs RPA 1,200/24hr**
⇒ More than 3x faster data cleaning compared to humans



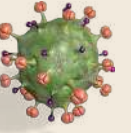
Introduction of RPA-based Work Automation System



Demonstration video

The screenshot displays a Windows 10 desktop environment. On the left, a File Explorer window is open, showing a folder structure: RPA > P07_백신접종력 > 1. 작업목록. The file list contains one file named '백신_목록.xlsx' with a size of 992 bytes, last modified on 2023-01-20 at 2:26 PM. The desktop background is blue, and various application icons are visible on the left side. In the foreground, the Brity RPA software interface is open. The window title is 'Brity RPA - Attended Bot | v2.5.000.01125'. The main area shows a '워크플랜' (Workflow) management screen. It includes a header with '워크플랜' and a description: '사용자 PC의 프로세스 파일로 실행 조건을 생성 및 관리 할 수 있습니다.' Below this, there are several workflow cards, each with a title and a list of steps (e.g., 프로세스, 프러거, 스케줄). The cards are: P07_백신접종력1, P07_백신접종력(수동), P04_위중증, P02_증상발생일, P07_백신접종력, P99_원본파일나누기, and P00_원본파일다운. Each card has a status '종료' (Completed) and '종료이 비활성화 상태입니다.' (Status is deactivated). The interface also features navigation buttons like '가져오기', '내보내기', and '추가'.

Construction of a System for Integrated Management of Infectious Disease-related Data



□ Project Introduction

- ✓ System domain: <https://sims.sidrec.go.kr>
- ✓ Purpose: Comprehensive collection and management of information on COVID-19 confirmed patients in Seoul, which had been managed in segments, so that infectious disease-related personnel can easily access the information and respond quickly.

👉 The personal information of the confirmed patient, symptoms, death, vaccination history, adverse events of vaccine, and bed allocation information can be viewed in a row in Excel.

- ✓ Future plans: Additional major infectious diseases such as waterborne diseases and tuberculosis will be included in the system.

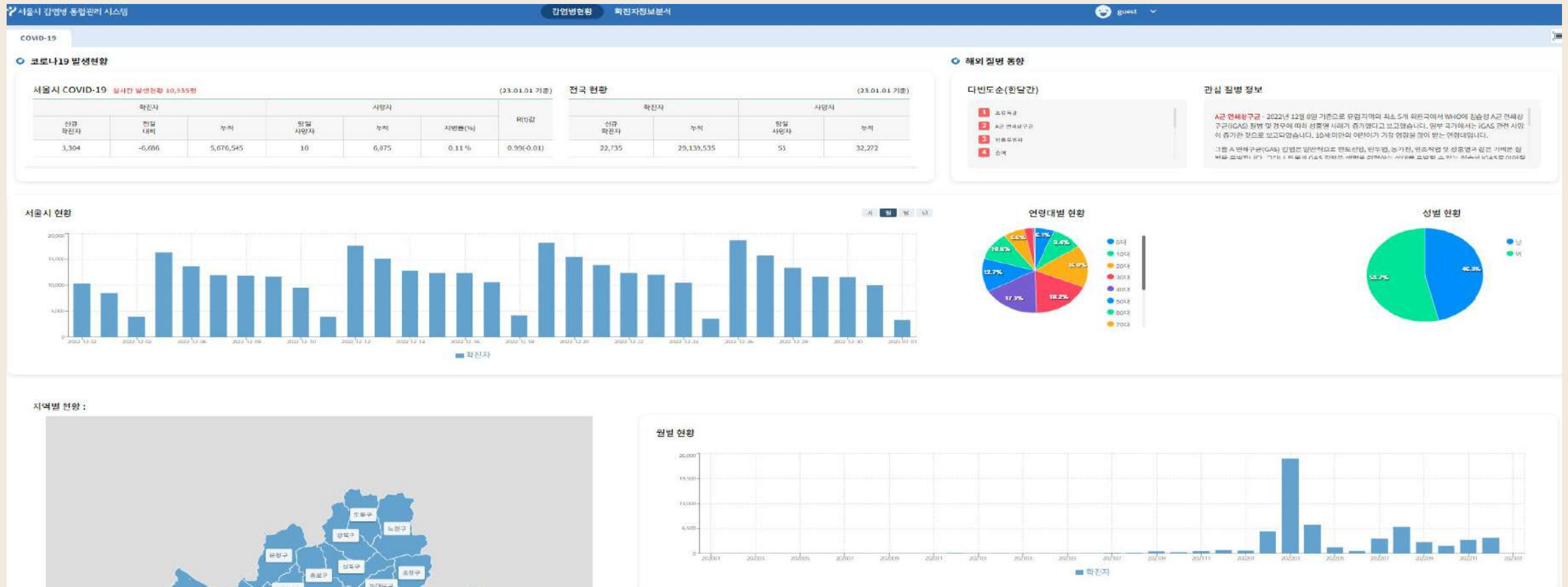


Construction of a System for Integrated Management of Infectious Disease-related Data

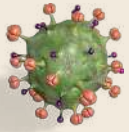


□ System Main Page (Detail)

[Bulletin board] The status of COVID-19 confirmed patients in Seoul in real time, COVID-19 situation in 25 districts, and information on epidemic overseas infectious diseases is quickly provided.



Construction of a System for Integrated Management of Infectious Disease-related Data



□ System Main Page (Detail)

[Data Supply And Demand] The KDCA's hub system is connected to the Seoul's integrated management system in a DB to DB method to deliver COVID-19 confirmed patients in real time.

서울시 감염병 통합관리 시스템

감염병현황 데이터관리 확진자정보분석 콘텐츠관리 시스템관리

kim

데이터관리

역설분석

감염병정보(Hub)

해외감염병정보

허브

기간: 2022-10-11 ~ 2022-10-11

지역별: 서울

카테고리: 상세

검색 초기화

| 번호 | 일련번호 | 이름 | 주민번호 | 나이 | 성별 | 거주지-주소 | 연락처 | 검사일 | 등록일 |
|------|----------|-------------|---------|----|----|---|--------------|------------|------------|
| 6342 | 81175223 | 이 호 | 71 5101 | 49 | 남자 | 01410 서울특별시 도봉구 마들로 (강아마로) 110동 1301호 (강동, 쌍문아파트) | 010-9 39-5 4 | 2022-10-11 | 2022-10-11 |
| 6341 | 81175214 | 유 소 | 41 0202 | 77 | 여자 | 03629 서울특별시 구로구 16-2 (홍제동) 201호 | 010-2 94-6 9 | 2022-10-11 | 2022-10-11 |
| 6340 | 81175208 | 김 경 | 51 0719 | 64 | 남자 | 02513 서울 동대문구 중인방동로 동 휘경네스트빌현대아파트) 102동 1803호 | 010-3 19-1 3 | 2022-10-11 | 2022-10-11 |
| 6339 | 81175103 | 권 준 | 51 4200 | 71 | 여자 | 02543 서울특별시 동 시립대오28가길 16-5 (관동동) | 010-8 14-7 1 | 2022-10-11 | 2022-10-11 |
| 6338 | 81175094 | JIN XI YSHU | 51 9628 | 65 | 여자 | 07419 서울특별시 동 불로53길 25-12 (대림동) 지층 | 010-6 30-5 3 | 2022-10-11 | 2022-10-11 |
| 6337 | 81175094 | JIN XI YSHU | 51 9628 | 65 | 여자 | 07419 서울특별시 동 불로53길 25-12 (대림동) 지층 | 010-6 30-5 3 | 2022-10-11 | 2022-10-11 |
| 6336 | 81175088 | 정 혁 | 91 7148 | 25 | 남자 | 03726 서울특별시 노포10가길 15-23 (연희동) 2 | 010-6 38-3 1 | 2022-10-11 | 2022-10-11 |
| 6335 | 81175073 | 정 은 | 61 0820 | 56 | 여자 | 01398 서울특별시 도봉구 노로28 (쌍문 북관산 아이파크) 522-1604 | 010-2 46-0 9 | 2022-10-11 | 2022-10-11 |
| 6334 | 81175067 | 이 호 | 41 0204 | 78 | 여자 | 05572 서울특별시 송파구 불로1 (잠실동, 아시안수송아파트) 10-301 | 010-8 20-0 7 | 2022-10-10 | 2022-10-11 |
| 6333 | 81175052 | 김 서 | 51 0202 | 70 | 여자 | 01402 서울특별시 도봉구 12 101동 403호 (창동 현대아파트) | 010-8 74-4 8 | 2022-10-11 | 2022-10-11 |
| 6332 | 81175049 | 이 주 | 71 9191 | 47 | 남자 | 06267 서울특별시 대포44길 12 (도곡동) 102호 | 010-8 18-5 5 | 2022-10-11 | 2022-10-11 |
| 6331 | 81175049 | 이 주 | 71 9191 | 47 | 남자 | 06267 서울특별시 대포44길 12 (도곡동) 102호 | 010-8 18-5 5 | 2022-10-11 | 2022-10-11 |
| 6330 | 81175034 | 이 진 | 71 6145 | 48 | 남자 | 03709 서울특별시 서대문구 노로2 (남가파동, DMC마크류자이) 125-804 | 010-2 16-2 4 | 2022-10-11 | 2022-10-11 |
| 6329 | 81175001 | 최 아 | 81 7706 | 36 | 여자 | 07052 서울특별시 은평구 노로21 (상도동 그린하이츠빌라) 102호 | 010-4 66-9 2 | 2022-10-11 | 2022-10-11 |
| 6328 | 81174959 | 장 화 | 51 0820 | 63 | 여자 | 03399 서울특별시 은평구 노로1-4 (역촌동, 역촌현대세대주역) 202호 | 010-3 19-5 4 | 2022-10-11 | 2022-10-11 |

Construction of a System for Integrated Management of Infectious Disease-related Data



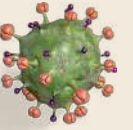
System Main Page (Detail)

[Collection of in-depth epidemiological investigations document data] Construction of in-depth epidemiological investigations document(pdf file) database and pdf file download of confirmed cases

Based on this, it can be used to respond to new infectious diseases in the future through spatial research related to the spread of infection in the local community by tracking the movement of confirmed patients.

| 항목 | 내용 |
|---------------|-----------------------------|
| 심층역학조사서 번호 | 12 |
| 작성일자 | |
| 작성의사 | |
| 작성처, 병명 | |
| 작성일 | 2021. 9. 30 |
| 최종수정일 | |
| 카테고리 | |
| 상태(표지여부) | 미설정 |
| 수집등록번호 | 831106-1633732 |
| 국가 | |
| 장래등록번호(전부 포함) | 010-8336-3026 |
| 거주지 | 서울시 영등포구 당산동 13D-G, 1층(동작동) |
| 작성센터 | |
| 승급 | |
| 승급코드 | |
| 지급자 | |
| 비고 | |
| 입력자_이름 | |
| 승계인_명부 | |
| 수정감염번호 | |
| 작성 | |
| 최종수정 | |
| 현행의사 | |
| 기타질환 | |
| 환자번호 | |
| 입원여부 | |

Construction of a System for Integrated Management of Infectious Disease-related Data



□ System Main Page (Detail)

[Integration of confirmed patient data] hub system + confirmed case ledger + vaccination status + vaccine-related adverse reaction + death situation + bed assignment + in-depth epidemiological investigation note

사물사건정보 통합관리 시스템

감염병현황 데이터관리 확진자정보분석 진단서관리 시소경관리

확진자정보분석

확진자대량 상술액외관리 GOB관리 통계 및 현황 통계 및 현황2

확진자 상세보기

이전

| 번호 | 입원번호 | 이름 | 주민번호 | 나이 | 성별 | 거주지주소 | 연락처 | 입사일 | 종료일 |
|----|---------|-----|---------------|----|----|------------------------------------|---------------|------------|------------|
| 1 | 1851835 | 이성민 | 8111051631712 | 40 | 남자 | 02596 서울특별시 용인군 용인읍 110-6 (회유동) 1동 | 010-9616-3625 | 2021-09-29 | 2021-09-30 |

확진자 대량

| 번호 | 입원번호 (결핵통계작성용) | 입원일 | 입원호서시 (통계작성용) | 입원번호 | 확진기관 | 최초발생 입원번호 | 이름 | 주민등록번호 | 국적 | 생년월일(입국일자) | 성별 | 거주지 | 직업 | 확진원 (학교명) | 이동지목 | 이동지 | 확진자 접촉자 | 검사사유 | 관리병원 | |
|--------|----------------|------------|---------------|--------|------|-----------|-----|---------------|----|------------|----|-----|----|-----------|------|-----|---------|------|------|--------|
| 100099 | 2021-09-30 | 2021-09-30 | 2021-09-30 | 113185 | 성동병원 | 충북부 | 이성민 | 8111051631712 | 한국 | 충북부 | 남 | 충북부 | 학생 | 충북부 | | | | 주사증 | 본인확인 | 서울아산병원 |

이웃단위

| 번호 | 대상사유 | 대상사유종 | 대상사유종 | 주소지관할 시도명 | 주소지관할 보건소명 | 감염기관관할 시도명 | 감염기관관할 보건소명 | 감염기관명 | 관련동료기관관할 시도명 | 관련동료기관 보건소명 | 검사종류기관명 | 관련기관관할 시도명 | 관련기관관할 보건소명 | 관할기관명 | 이름 | 성 |
|----|------|-------|-------|-----------|------------|------------|-------------|-------|--------------|-------------|---------|------------|-------------|-------|----|---|
|----|------|-------|-------|-----------|------------|------------|-------------|-------|--------------|-------------|---------|------------|-------------|-------|----|---|

상술액외

| 결핵통계작성용 번호 | 이름 | 주민등록번호 | 국적 | 생년월일(입국일자) | 성별 | 거주지 | 직업 | 확진원 (학교명) | 이동지목 | 이동지 | 확진자 접촉자 | 검사사유 | 관리병원 |
|------------|----|--------|----|------------|----|-----|----|-----------|------|-----|---------|------|------|
| 71 | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | |