COVID-19 Clinical and Surveillance Data — December 9, 2022 to April 13, 2023, China

Chinese Center for Disease Control and Prevention

1. COVID-19 Infection Surveillance Data

1.1 COVID-19 Nucleic Acid Test Data

Since December 9, 2022, the number of positive nucleic acid tests and the positive rate reported from provincial-level administrative divisions (PLADs) had gradually increased, peaking on December 22, 2022 with 6.94 million positive tests and a 29.2% positive testing rate on December 25, 2022. After this peak, the number of positive nucleic acid tests fluctuated decreased, reaching a low of 2,036 on April 13, 2023, with a rate of 1.3% (Figure 1-1).

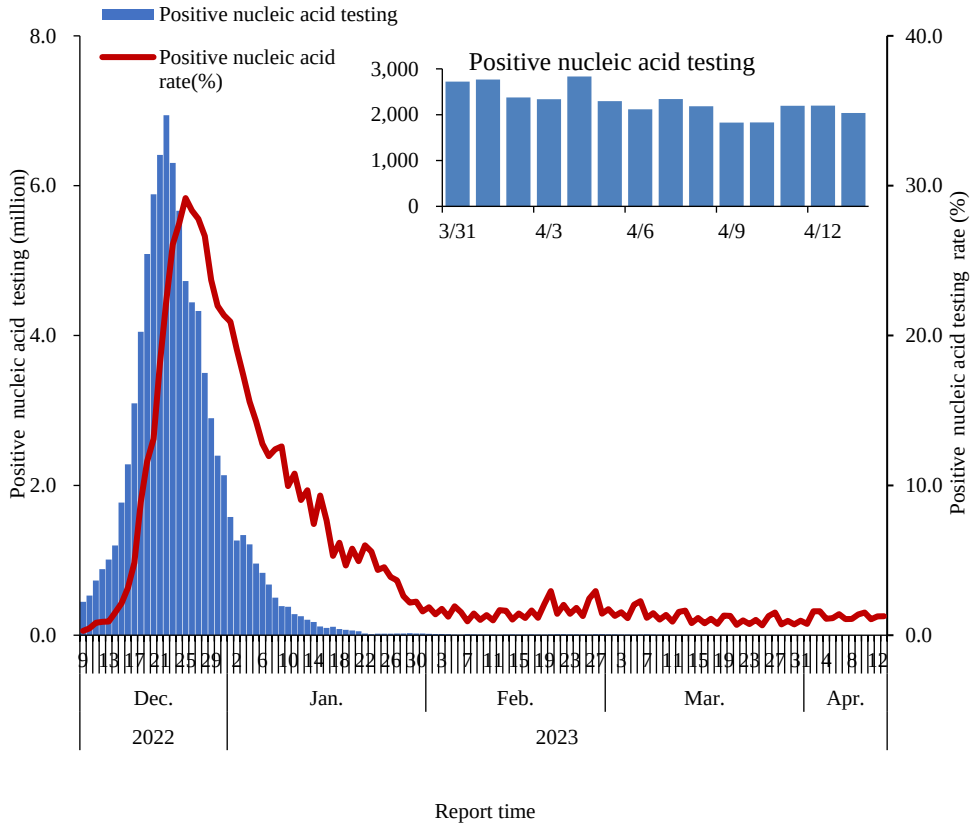

Figure 1-1 Daily number of positive nucleic acid testing and rate.
(Data reported by PLADs in Chinese mainland)

1.2 COVID-19 Antigen Test Data

The number of antigen tests reported by PLADs was generally low and gradually decreased. For example, the number of antigen tests reported reached a high of 1.89 million on December 19, 2022 and dropped to a low of 20,000 on April 13, 2023. The number of positive antigen tests and the positive rate increased rapidly after December 9, peaking on December 22, 2022 (337,000, 21.3%) before fluctuating to 66 and 0.3%, respectively, by April 13, 2023 (Figure 1-2).

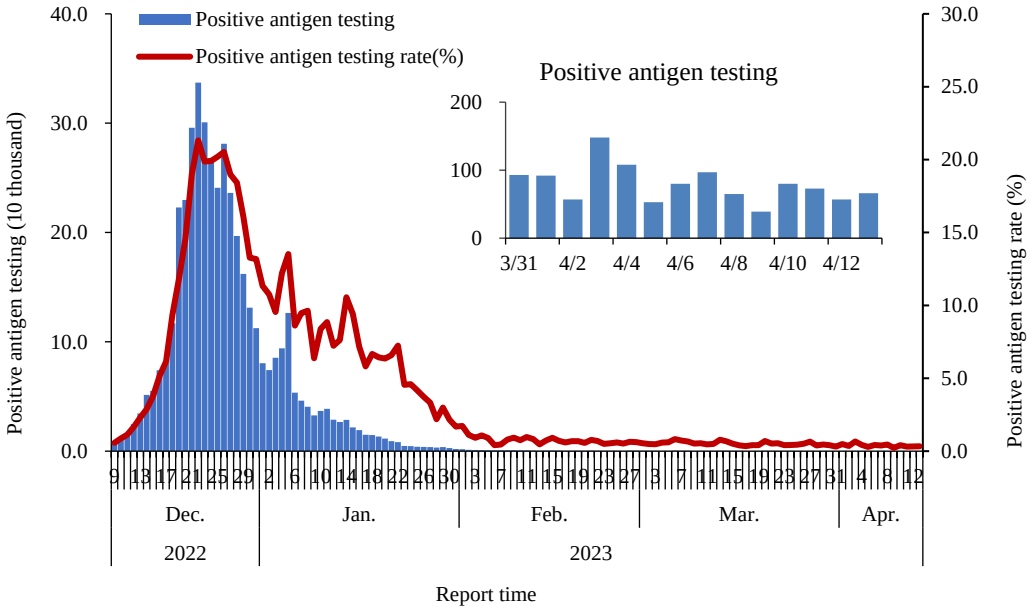

Figure 1-2 COVID-19 antigen test and positive rate.
(Data reported by PLADs in Chinese mainland)

2. Fever Clinic Diagnosis and Treatment Data

2.1 Fever Clinic Visit Data

The number of fever clinic visits in Chinese mainland peaked at 2.867 million on December 23, 2022. Visits continuously decreased until January 23, 2023 and fluctuated at a low level. The number of visits fluctuated upwards for six weeks (February 24 to April 6, 2023, including plateauing for about the last four weeks) and began to decline in the last week to reach 301,000 on April 13, 2023, representing a decrease of 89.5% from the peak (Figure 2-1).

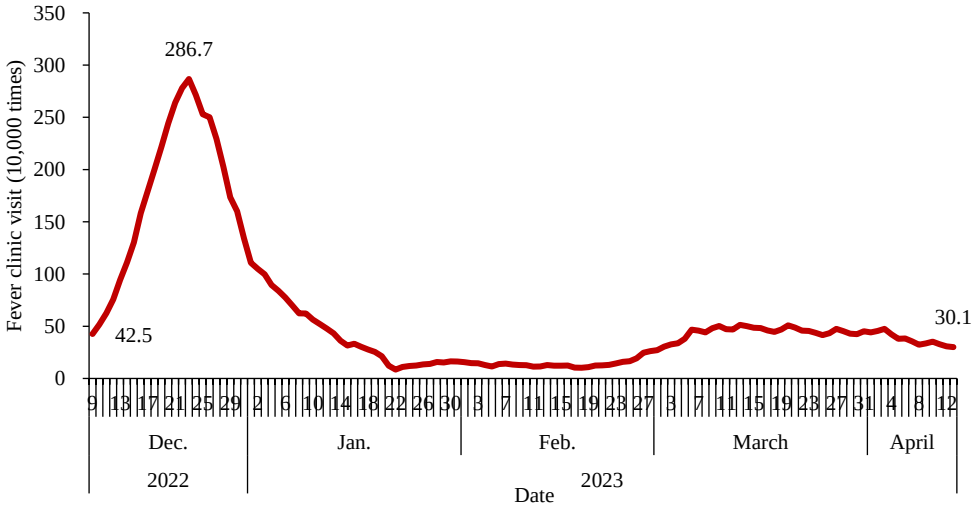

Figure 2-1 Trends of fever clinic visit data.

(Data reported by PLADs in Chinese mainland)

2.2 Rural Area.

The number of fever clinic visits at township health centers in rural area peaked at 922,000 on December 23, 2022. Visits then continuously decreased until January 22, 2022 and fluctuated at a low level. Then the number of visits fluctuated upwards for six weeks (February 24 to April 6, 2023) and began to decline for the last week to reach 940,000 on April 13, 2023, representing a decrease of 89.8% from the peak (Figure 2-2).

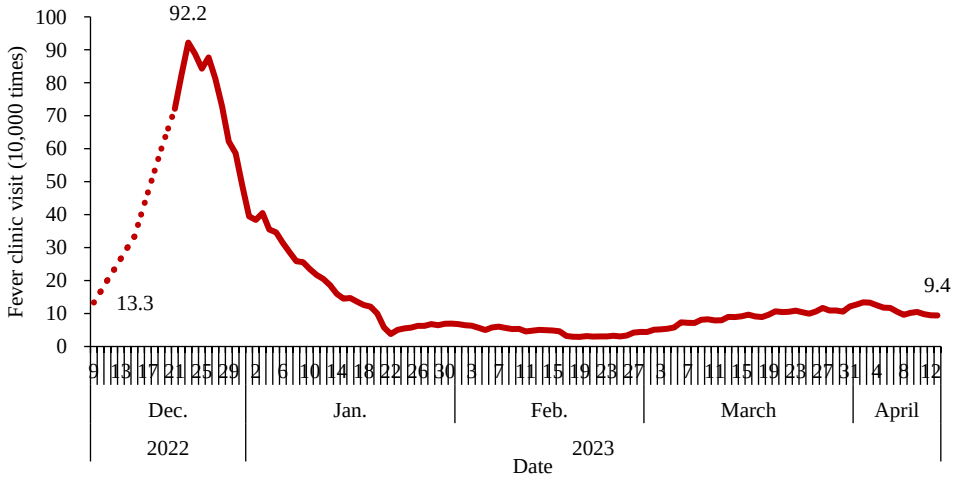

Figure 2-2 Trends of rural fever clinic visit data.

(Data reported by PLADs in Chinese mainland)

2.3 Urban Area

The number of fever clinic visits to the second level and above hospitals and urban community health service centers in urban areas peaked at 1.954 million on December 22, 2022. Visits continuously decreased until January 22, 2022 and fluctuated at a low level. Then the number of visits fluctuated upwards for six weeks (February 24 to April 6, 2023, including plateauing for about the last four weeks) and began to decline in the last week and reached to 206,000 on April 13, 2023, representing a decrease of 89.5% from the peak (Figure 2-3).

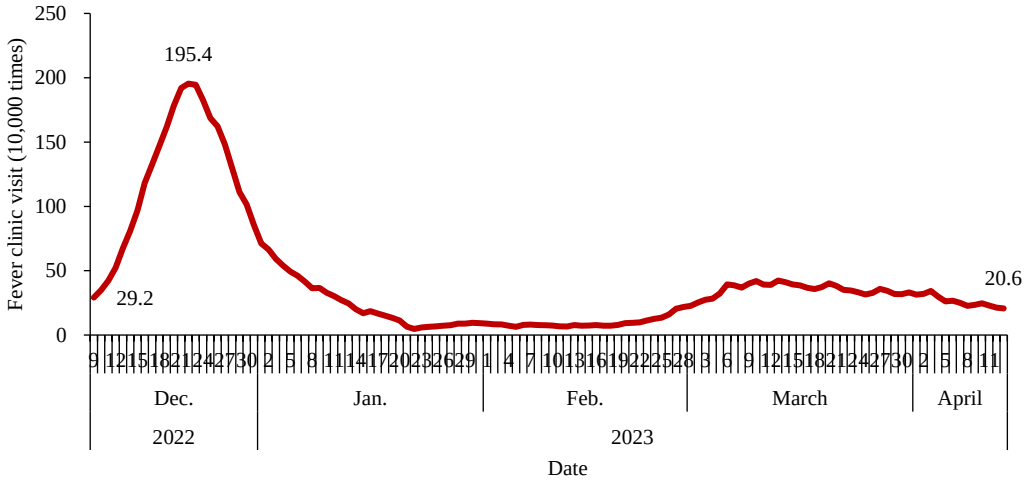

Figure 2-3 Trends of urban fever clinic visit data.

(Data reported by PLADs in Chinese mainland)

2.4 Surveillance Data of Influenza Sentinel Hospitals and Laboratories

Since December 9, 2022, surveillance of SARS-CoV-2 has been conducted by influenza surveillance sentinel hospitals (824 sentinel hospitals reported data, including 546 national-level sentinel hospitals and 278 non-national-level sentinel hospitals) and national influenza surveillance network laboratories (402 laboratories reported data). From September to early December 2022, the weekly number of influenza-like illness (ILI, fever with temperature ≥38℃, accompanied by cough or sore throat) in sentinel hospitals remained around 100,000, and ILI% was between 2.7% and 3.6%. The ILI% began to increase rapidly from Week 50 (8.5%) and reached its peak in Week 51 (12.1%). It then started to decline dramatically from Week 52. ILI% began to show an increasing trend in Week 7 (1.8%) of 2023 (February 13–19). In Week 10 of 2023 (March 6–12), ILI% reached a periodic peak of 9.1% and started to decline. ILI% declined to 7.3% in Week 14 of 2023 (April 3–9) (Figure 2-4).

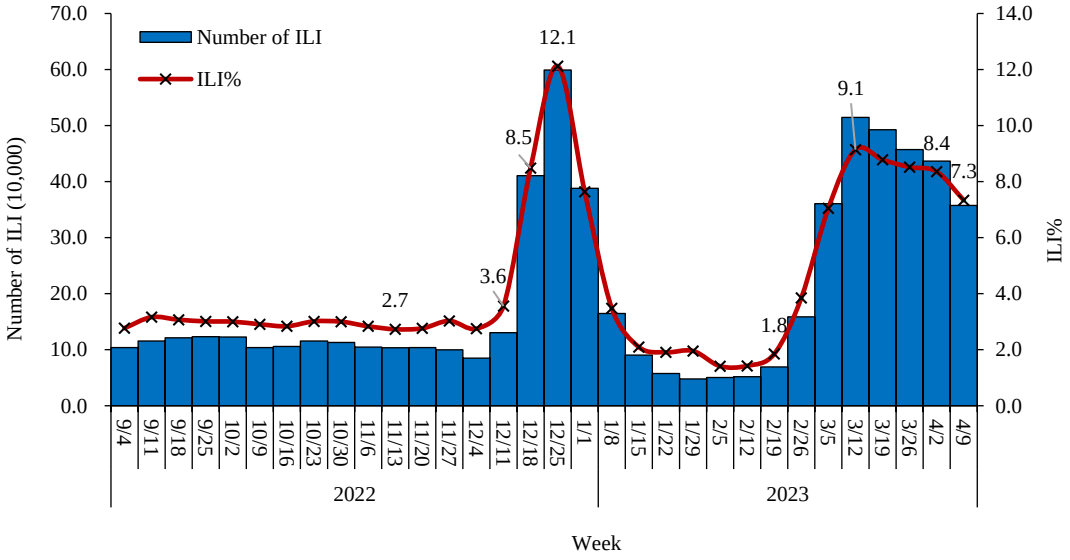

Figure 2-4 ILI and ILI% reported by sentinel hospitals in Chinese mainland.
(Reported data were from 824 sentinel hospitals)

Influenza surveillance network laboratories tested both SARS-CoV-2 and influenza viruses in ILI samples simultaneously. In Week 49 (December 9–15, 2022), the positive rate of SARS-CoV-2 began to increase and reached its peak between Weeks 51 and 52, then continued to reduce. In Week 7 (February 13–19, 2023), the positive rate of SARS-CoV-2 slightly reduced to 3.4% and afterwards rebounded slightly in week 8 (5.1%), the positive rate of SARS-CoV-2 continued to decline for nearly three weeks, reaching 1.9% in Week 11 of 2023 (March 13–19). The positive rate of SARS-CoV-2 rebounded slightly from Week 12 (2.3%, March 20–26, 2023) and reached 2.6% in Week 13 (March 27–April 2, 2023), remained stable at 2.6% in Week 14 (April 3–9, 2023). During the same period, the positive rate of influenza virus gradually decreased to a very low level in late December 2022, remaining less than 1% until early February. The positive rate of influenza virus began to increase from Week 6 (February 6–12, 2023) and reached 53.2% in Week 10 (March 20–26, 2023) and the increasing trend slowed down. The positive rate reached periodic peak of 55.5% in Week 12 (March 20–26,2023) and then started to decline and reached 44.4% in Week 14 (April 3–9) (Figure 2-5).

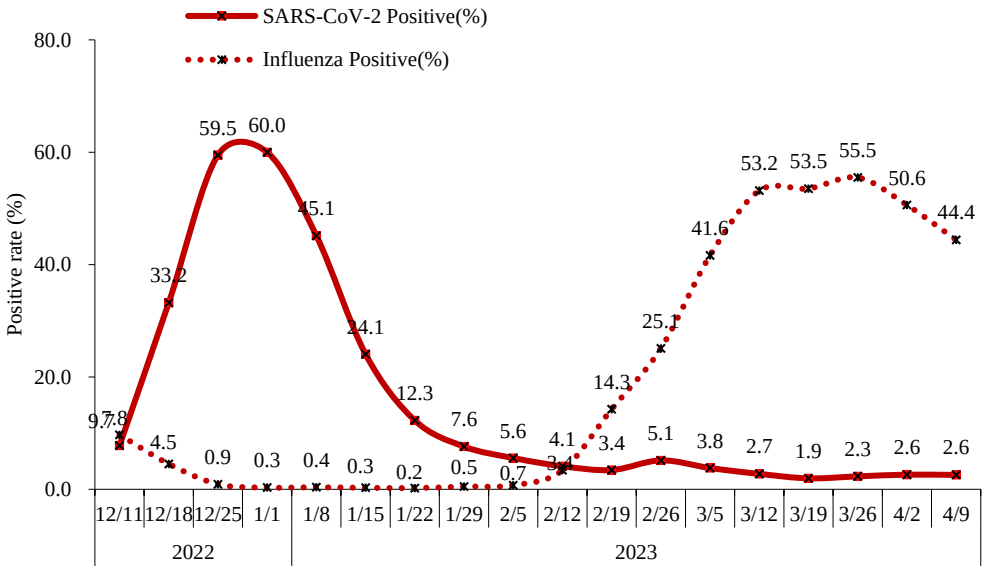

Figure 2-5 The positive rate of SARS-CoV-2 and influenza virus in ILI samples from sentinel hospitals in Chinese mainland.
(Reported data were from 402 laboratories)

3. Hospitalization Data

3.1 No. of COVID-19

The number of COVID-19 in hospitals nationwide peaked at 1.625 million on January 5, 2023. Infections continually decreased to 3,697 on April 13, 2023, representing a decrease of 99.8% from the peak (Figure 3-1).

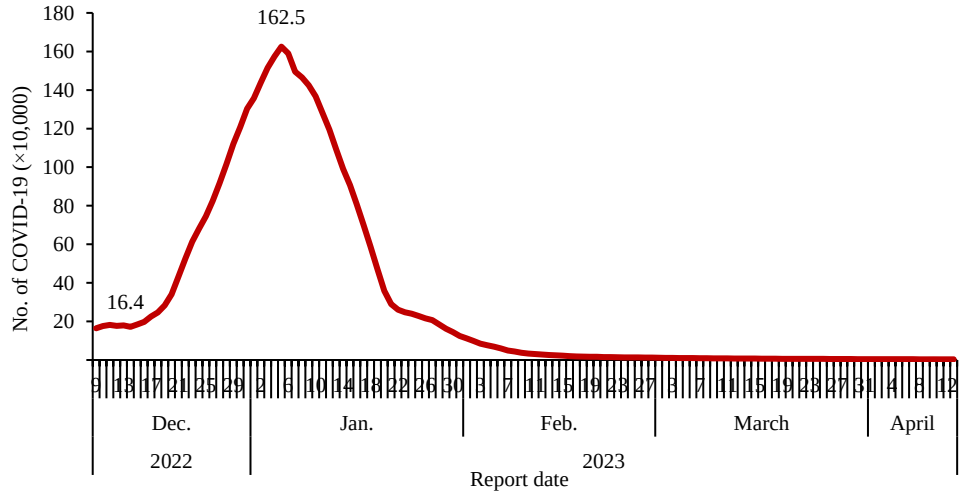

Figure 3-1 The number of COVID-19 in hospitals.
(Data reported by PLADs in Chinese mainland)

3.2 No. of Severe Cases in Hospitals

The number of severe cases in hospitals increased by nearly 10,000 per day between December 27, 2022 and January 3, 2023. Cases peaked at 128,000 on January 5, 2023, and then continually decreased to 5 (1 severe cases of SARS-CoV-2, and 4 cases with comorbidities and SARS-CoV-2) on April 13, 2023 (Figure 3-2).

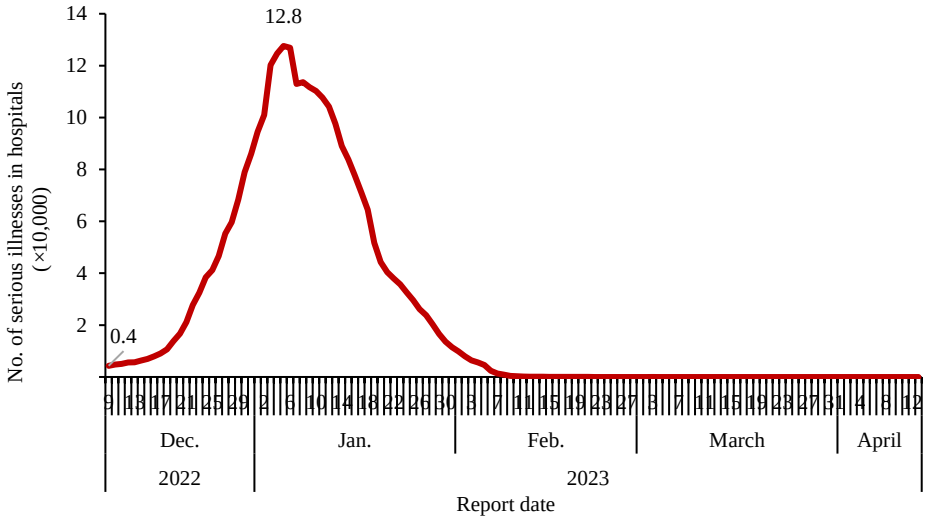

Figure 3-2 No. of severe cases in hospitals.
(Data reported by PLADs in Chinese mainland)

3.3 No. of Deaths with SARS-CoV-2 in Hospitals

The number of death cases in hospitals increased and peaked at 4,273 on January 4, 2023, and then continually decreased to 0 on April 13, 2023. From April 7 to April 13, 0 deaths were associated with SARS-CoV-2 as reported by medical institutions from provincial level administrative divisions (PLADs), including 0 deaths of respiratory failure caused by SARS-CoV-2, and 0 deaths of underlying comorbidities with SARS-CoV-2 infection.

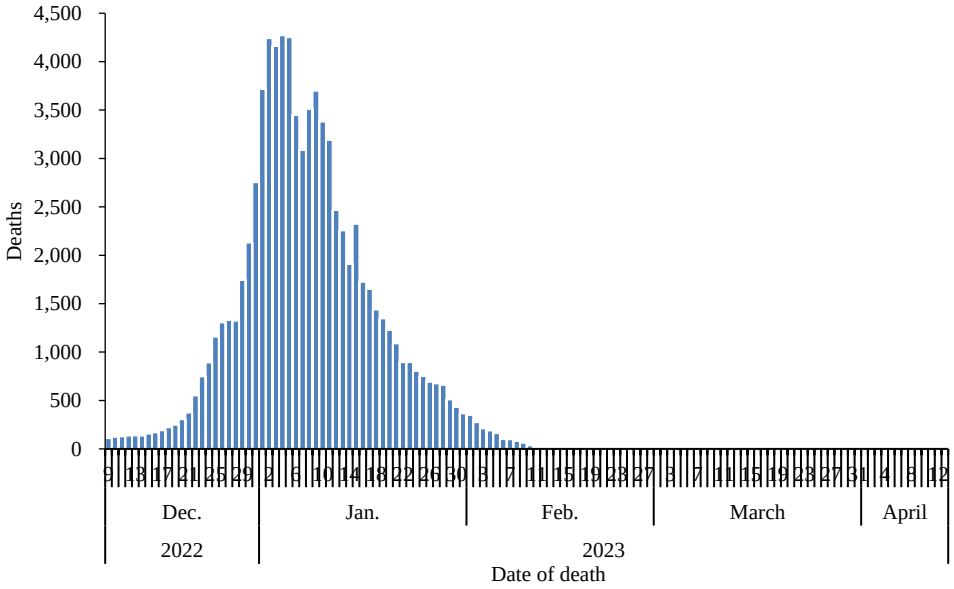

Figure 3-3 No. of deaths with SARS-CoV-2 in hospitals.
(Data reported by PLADs in Chinese mainland)

4. SARS-CoV-2 Variants Surveillance of Domestic Cases in Chinese mainland

4.1. The Dynamic Trend of SARS-CoV-2 Variants from Domestic Cases in Chinese mainland

From September 26, 2022 to April 13, 2023, 40,122 valid SARS-CoV-2 genome sequences from domestic cases were reported nationwide. Of these, 148 Omicron lineages were identified with the predominant lineages being BA.5.2 and its descendant lineages (67.0%) and BF.7 and its descendant lineages (29.5%). BA.5.2 and its descendant lineages included DY.2 (16.6%), DY.4 (11.8%), BA.5.2.48 (11.4%), BA.5.2.49 (8.7%), DY.1 (8.4%), DY.3 (5.3%), etc. BF.7 and its descendant lineages included BF.7.14 (20.8%), BF.7.14.1 (3.0%), BF.7.14.5 (2.4%), BF.7.14.4 (2.0%), BF.7.14.3 (0.3%), BF.7 (0.3%), etc. One hundred and eight lineages were minority with the proportion below 0.1%, accounting for 1.0% (Figure 4-1).

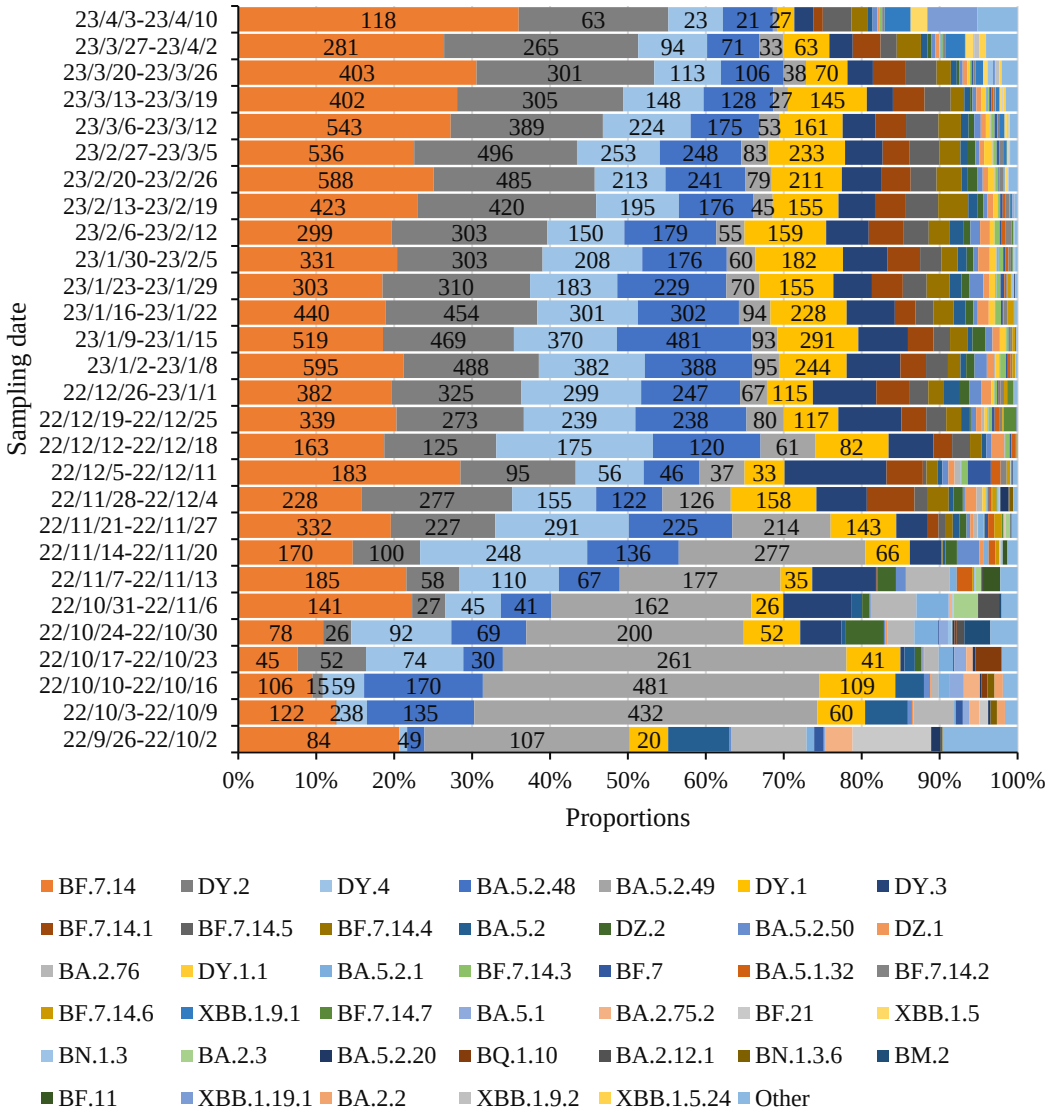

Figure 4-1 Dynamic trend of SARS-CoV-2 lineages from domestic cases in Chinese mainland by Week.

Note: 1) Sampling date interval: September 26, 2022 to April 10, 2023; 2) The numbers marked in the figure were the number of valid genome sequences of BF.7.14, DY.2, DY.4, BA.5.2.48, BA.5.2.49, and DY.1 lineages respectively; 3) "Other" referred to the lineages with the proportions of Omicron variants less than 0.1% nationwide.

4.2. Genomic Surveillance of SARS-CoV-2 Variants among Domestic Cases

From December 1, 2022 to April 13, 2023, 31,434 valid SARS-CoV-2 genome sequences from domestic cases were reported nationwide, all of which were Omicron variants with a total of 106 lineages. The predominant lineages are BA.5.2 and its descendant lineages (65.4%) and BF.7 and its descendant lineages (32.8%). BA.5.2 and its descendant lineages included DY.2 (19.2%), DY.4 (11.9%), BA.5.2.48 (11.6%), DY.1 (8.8%), DY.3 (5.8%), BA.5.2.49 (3.6%), etc. BF.7 and its descendant lineages included BF.7.14 (22.2%), BF.7.14.1 (3.7%), BF.7.14.5 (2.9%), BF.7.14.4 (2.4%), BF.7.14.3 (0.4%), BF.7.14.2 (0.3%), etc. (Table 4-1). A total of 328 domestic cases of variants of concern were found, including four cases of BQ.1, three cases of BQ.1.1, three cases of BQ.1.1.13, one case of BQ.1.1.17, one case of BQ.1.1.38, one case of BQ.1.1.53, two cases of BQ.1.1.66, one case of BQ.1.1.69, eight cases of BQ.1.2, two cases of BQ.1.8, two cases of FB.1, one case of DT.2, one case of EA.1, one case of CH.1.1, one case of CH.1.1.1, one case of CH.1.1.11, one case of XBB, four cases of XBB.1, two cases of XBB.1.11.1, one case of XBB.1.12, fifteen cases of XBB.1.16, two cases of XBB.1.16.1, eight cases of XBB.1.17.1, twenty-four cases of XBB.1.19.1, one case of XBB.1.22, eighteen cases of XBB.1.22.1, one case of XBB.1.23, four cases of XBB.1.24, one case of XBB.1.4, fifty cases of XBB.1.5, six cases of XBB.1.5.12, six cases of XBB.1.5.23, twenty-one cases of XBB.1.5.24, one case of XBB.1.5.36, one case of XBB.1.5.5, two cases of XBB.1.5.7, two cases of XBB.1.9, eighty-four cases of XBB.1.9.1, twenty-one cases of XBB.1.9.2, one case of XBB.1.9.5, four cases of XBB.2.3, one case of XBB.2.3.2, one case of XBB.2.4, two cases of XBB.3, one case of EG.1, two cases of EL.1, and seven cases of EM.1.

Table 4-1 National Proportions of SARS-CoV-2 Variants

(December 1, 2022 to April 13, 2023)

Omicron Lineages	Proportions (%)
BF.7.14	22.2
DY.2	19.2
DY.4	11.8
BA.5.2.48	11.6
DY.1	8.8
DY.3	5.8
BF.7.14.1	3.7
BA.5.2.49	3.6
BF.7.14.5	2.9
BF.7.14.4	2.4
BA.5.2	1.0
DZ.1	0.9
BA.5.2.50	0.9
DZ.2	0.9
DY.1.1	0.6

Omicron Lineages	Proportions (%)
BF.7.14.3	0.4
BF.7.14.2	0.3
BF.7	0.3
XBB.1.9.1	0.3
BA.5.1.32	0.2
BF.7.14.6	0.2
BF.7.14.7	0.2
XBB.1.5	0.2
BA.5.2.1	0.1
BA.2.76	0.1
BN.1.3	0.1
XBB.1.19.1	0.1
BA.5.2.20	0.1
XBB.1.9.2	0.1
XBB.1.5.24	0.1
BN.1.3.9	0.1
XBB.1.22.1	0.1
BA.5.2.6	0.1
Other	0.6
Total	100.0

4.3. Genomic Surveillance of SARS-CoV-2 Variants among Domestic Cases in Each PLAD

Overall, BF.7 and its descendant lineages were predominant in Beijing and Inner Mongolia. BA.5.2 and its descendant lineages were predominant in other PLADs (Figure 4-2).

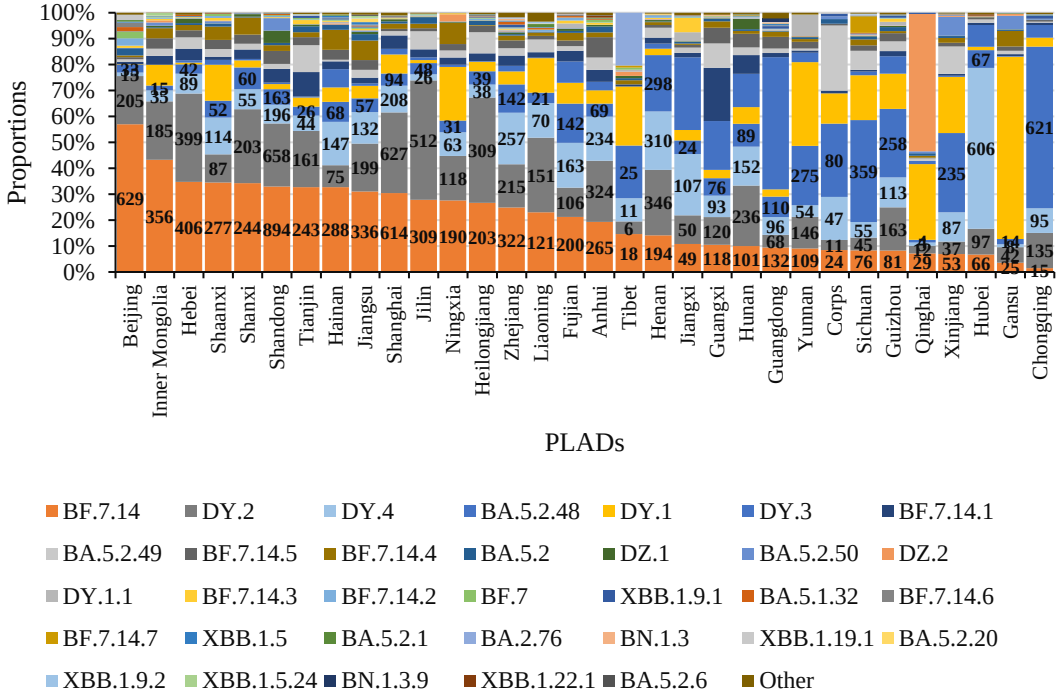

Figure 4-2 SARS-CoV-2 variants surveillance by PLADs.

Notes: 1) Sampling date interval: December 1, 2022 to April 10, 2023; 2) The numbers marked in the figure represented the number of valid genome sequences of BF.7.14, DY.2, DY.4 and BA.5.2.48 lineages respectively; 3) “Other” referred to the lineages with the proportions of Omicron variants less than 0.1% nationwide.

According to the latest version of the Pangolin nomenclature system (version v4.2, pangolin-data version v1.19, 2023-4-6) of SARS-CoV-2 lineages, the previous lineages were further subdivided. Among them, partial BA.5.2.48 was subdivided into DY.1 (BA.5.2.48.1), DY.2 (BA.5.2.48.2), DY.3 (BA.5.2.48.3), and DY.4 (BA.5.2.48.4), etc. Partial BF.7.14 was subdivided into BF.7.14.1, BF.7.14.2, BF.7.14.3, and BF.7.14.4, etc.

5. COVID-19 Vaccination Progress

As of April 13, 2023, 3.49 billion doses of COVID-19 vaccine have been administered in China’s mainland (Figure 5-1). Since the start of the vaccination campaign, 1.31 billion people received at least one dose, 1.28 billion people completed a primary series, and 827.76 million people received their first booster dose (booster doses are recommended only for adults 18 years and older). Therefore, based on the population size in the seventh census of mainland China, 93.0% of the entire, all-ages population initiated vaccination, and 90.6% completed their primary series (Figure 5-2). Among the 60-years and older population, 680.71 million doses of COVID-19 vaccine have been administered, 241.70 million people received at least one dose, 230.36 million completed primary series, and 193.16 million received their first booster dose.

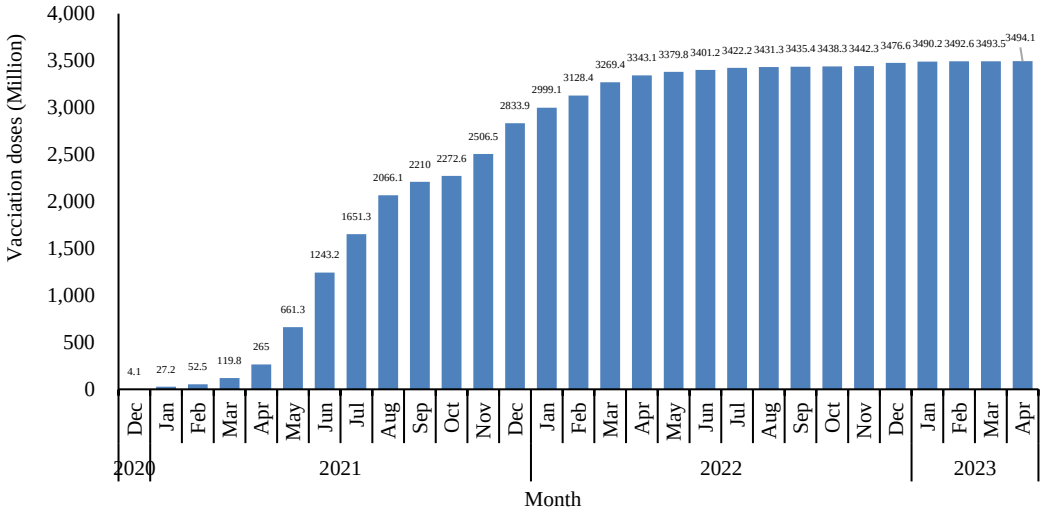

Figure 5-1 Cumulative COVID-19 vaccine doses administered in China by month.
(Data reported by provinces in Chinese mainland)

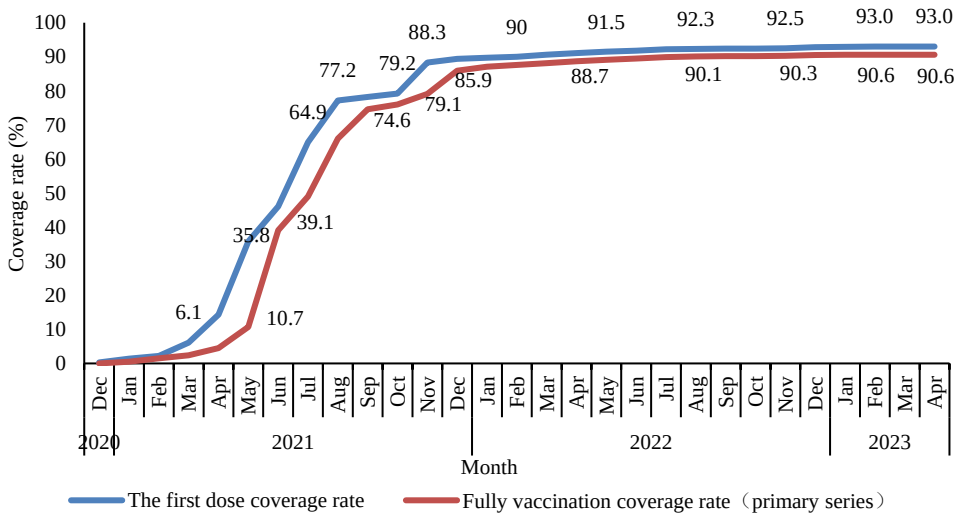

Figure 5-2 First-dose and primary series COVID-19 vaccine coverage of the entire population of Chinese mainland by Month.

(Data reported by PLADs in Chinese mainland)

Based on an investigation on vaccination among elder population in early December 2022, vaccination rate of people over 60 years old reached 96.1%. In these elderly populations, 96.7% completed their full primary series and 92.6% of minimum-interval-eligible elderly individuals received their first booster dose (Figure 5-3).

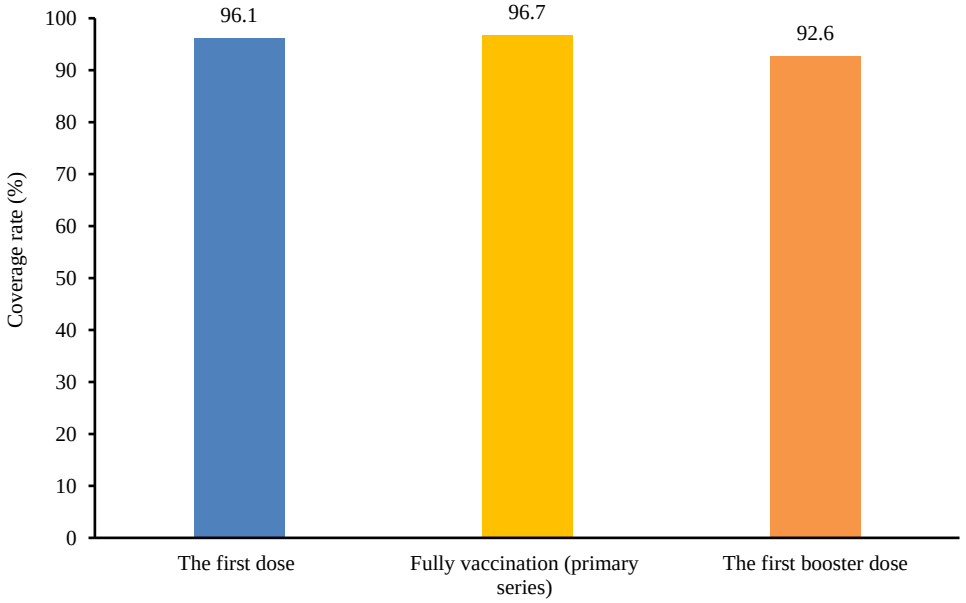

Figure 5-3 COVID-19 vaccine coverage of individuals 60 years and older: first-dose coverage, primary series coverage among interval-eligible individuals, and booster dose coverage among booster-dose-eligible individuals (based on reported population by each province).

Notes: For calculating first dose coverage, the numerator was the number of people who had received at least one dose of a COVID-19 vaccine approved at the time, and the denominator was

the size of the registered population of elderly people (aged 60 or older) in a recent investigation targeting the elderly population.

For calculating full, primary series coverage, the numerator was the number of elderly people who received two doses of inactivated vaccine, one dose of adenovirus vectored vaccine, or three doses of recombinant protein vaccine. The denominator was the number of people who had received one dose of inactivated vaccine, one dose of adenovirus vectored vaccine, or two doses of recombinant protein vaccine with the recommended interval of 28 days (4 weeks).

For calculating first booster dose coverage, the numerator was the number of elderly people who received their first booster dose, and the denominator was the number of people who received full primary series with either two doses of inactivated vaccine or one dose of adenovirus vectored vaccine, with a three-month interval between primary series completion and booster dose administration. Individuals who received three doses of recombinant protein vaccine were not included in the denominator due to the short time between approval of that vaccine and the booster vaccination effort.

Acknowledgement:

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