Asymptomatic and Human-to-Human Transmission of SARS-CoV-2 in a 2-Family Cluster, Xuzhou, China

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We report epidemiologic, laboratory, and clinical findings for 7 patients with 2019 novel coronavirus disease in a 2-family cluster. Our study confirms asymptomatic and human-to-human transmission through close contacts in familial and hospital settings. These findings might also serve as a practical reference for clinical diagnosis and medical treatment.

The ongoing outbreak of 2019 novel coronavirus disease (COVID-19) originating from Wuhan, China, has spread rapidly across the world (1). Both human-to-human and asymptomatic transmission have been reported (2,3). Phylogenetic study reveals that severe acute respiratory syndrome (SARS) coronavirus 2 (SARS-CoV-2), the causative agent of COVID-19, is closely related to 2 SARS-CoV–like bat coronaviruses, bat-SL-CoVZC45 and bat-SL-CoVZXC21 (4). Although case-fatality rate for COVID-19 is not finalized yet (5), it is largely accepted that the infection is less fatal than that for SARS-CoV infection, which had an ≈10% case-fatality rate (6).

Typical symptoms of COVID-19 include fever, cough, and fatigue, whereas sputum, headache, hemoptysis, and diarrhea are less common (7). No vaccine to prevent the infection exists. In this study, we describe a cluster of 7 COVID-19 case-patients among whom interfamilial and intrafamilial transmission

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These authors contribute equally to the study.
occurred. Our findings are consistent with previous confirmation of asymptomatic and human-to-human transmission of SARS-CoV-2 in family and hospital settings and also provide practical reference for clinical diagnosis and treatment of COVID-19.

On January 14, 2020, a 56-year-old man (index patient) departed from Guangzhou, China, transferred at Hankou Station in Wuhan, China, for 6 hours, and arrived at Xuzhou, China, showing no symptoms on the same day in the evening. During January 14–22, he had close contact with his 2 daughters, a 32-year-old pregnant teacher (patient 1) and a 21-year-old undergraduate student (patient 2). On January 15, he began caring for his 42-year-old son-in-law (patient 3, husband of patient 1), who had been hospitalized at the Affiliated Hospital of Xuzhou Medical University in Xuzhou until January 23. Meanwhile, a 62-year-old man (patient 4) stayed in the hospital during January 2–19 because of pancreatic surgery; he shared the same ward with patient 3 and was cared for by his 34-year-old son (patient 5). During January 15–January 18, patients 4 and 5 had close contact with the index patient, who was asymptomatic during that time. On January 19, patient 4 was discharged to home and had close contact with his 56-year-old wife (patient 6). We compiled a comprehensive illustration of the contact history of the clustered cases (Figure).

On January 25, the index patient was confirmed to have COVID-19 and was admitted to the Affiliated Hospital of Xuzhou Medical University with symptoms of fever, cough, and sore throat. His illness rapidly became severe; he had a high respiratory rate (38 breaths/min) and low oximetry saturation (<93%). Subsequently, during January 26–31, another 6 members of the 2 families all tested positive for SARS-CoV-2 by real-time fluorescent reverse transcription PCR of their throat swab samples. The clinical features of these patients varied (Appendix Table 1, https://wwwnc.cdc.gov/EID/article/26/7/20-0718-App1.pdf).

We used imaging features of pneumonia (detected using chest computed tomography) as clinical confirmation for all patients except patient 1. We performed laboratory diagnostic tests, including routine blood tests, comprehensive metabolic panels, coagulation tests, and screening for infection for all patients (Appendix Tables 2–4). We provided all patients with medical therapy (Appendix Table 5, Figure 1) except patient 1, who was pregnant. Because the index patient was in severe condition during his hospitalization, we have included a more detailed description of his medical treatment.

During January 26–February 3, we administered to the index patient the antiviral drugs lopinavir/ritonavir (400 mg/100 mg 2×/d by mouth), umifenovir (200 mg 3×/d by mouth), and interferon α-2b (5 MIU 2×/d by aerosolized inhalation). We administered the antibacterial drug moxifloxacin hydrochloride (400 mg 1×/d by intravenous drip)

**Figure.** Chronology of a 2-family cluster of severe acute respiratory syndrome coronavirus 2 infection, including travel and contact history, in familial and hospital settings, Xuzhou, China, January 13–February 17, 2020. Dates of case confirmation, hospitalization, and discharge are labeled. Real-time fluorescent reverse transcription PCR for severe acute respiratory syndrome coronavirus 2 infection and corresponding results are indicated, together with the dates of chest CT. CT, computed tomography.
during January 28–February 6, 2020, and intravenous immunoglobulin therapy (20 g/d) during January 28–February 1. In addition, we administered glucocorticoid therapy with methylprednisolone (20–60 mg 2×/d by intravenous drip) during January 29–February 1. The patient’s fever abated on January 29. He tested negative for SARS-CoV-2 on February 4 and again on February 6. During the progression of his recovery, we observed gradual reduction of the white patches in the lung caused by SARS-CoV-2 infection (Appendix Figure 2). On January 28 and January 31, we observed multiple ground-glass–like high-density shadows on both lungs with blurred edges and interstitial changes. On February 3, high-density shadows were slightly absorbed in the upper lobe of the bilateral lungs. On February 6, some lesions in the lower lobe of both lungs were slightly absorbed, and we observed the same situation on February 8. The index patient was discharged to home on February 9.

In summary, our epidemiologic study demonstrates asymptomatic and human-to-human transmission of SARS-CoV-2 infection through close contacts in both familial and hospital settings. In addition, the laboratory test results, together with course of medical therapies described, can provide a practical reference for COVID-19 diagnosis and treatment.

About the Author
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COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020
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During January 26–February 10, 2020, an outbreak of 2019 novel coronavirus disease in an air-conditioned restaurant in Guangzhou, China, involved 3 family clusters. The airflow direction was consistent with droplet transmission. To prevent the spread of the virus in restaurants, we recommend increasing the distance between tables and improving ventilation.

From January 26 through February 10, 2020, an outbreak of 2019 novel coronavirus disease (COVID-19) affected 10 persons from 3 families (families A–C)

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Appendix

Asymptomatic and Human-to-Human Transmission of SARS-CoV-2 in a 2-Family Cluster, Xuzhou, China
### Appendix Table 1. Summary of clinical features of all cases in the two-family cluster infected with SARS-CoV-2019 before hospitalization.

| Relationship                  | Index Patient | Patient 1 | Patient 2 | Patient 3 | Patient 4 | Patient 5 | Patient 6 |
|-------------------------------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Age (years)                   | 56            | 32        | 21        | 42        | 62        | 34        | 56        |
| Sex                           | Male          | Female    | Female    | Male      | Male      | Male      | Female    |
| Occupation                    | Farmer        | Teacher   | Undergraduate student | Scientific Researcher | Farmer | Worker | Farmer |
| Date of symptom onset         | 19/1/2020     | 25/1/2020 | 24/1/2020 | 25/1/2020 | 21/1/2020 | 23/1/2020 | 28/1/2020 |
| Date of hospital admission    | 25/1/2020     | 27/1/2020 | 27/1/2020 | 27/1/2020 | 28/1/2020 | 30/1/2020 | 30/1/2020 |
| Date of case confirmation     | 25/1/2020     | 27/1/2020 | 26/1/2020 | 27/1/2020 | 29/1/2020 | 31/1/2020 | 30/1/2020 |
| Interval between symptom onset and case confirmation | 7             | 3         | 3         | 3         | 9         | 9         | 3         |
| History of smoking            | None          | None      | None      | None      | None      | None      | None      |
| History of alcohol drinking   | None          | None      | None      | None      | None      | None      | None      |
| Chronic medical illness       | None          | None      | Pregnancy | None      | None      | Hypertension | None      | Diabetes, Breast Cancer, Cervical cancer |
| Presenting symptoms and signs before admitted to hospital | Fever | Peak body temperature°C | 39.5 | 37.3 | 37.5 | 38 | 39.2 | 37.5 | 37.3 |
| Cough                         | –             | –         | –         | –         | –         | –         | –         |
| Sputum                        | –             | –         | +         | –         | –         | –         | –         |
| Shortness of breath           | –             | –         | –         | –         | –         | –         | –         |
| Breath difficulty             | –             | –         | –         | –         | –         | –         | –         |
| Sore throat                   | +             | –         | –         | –         | –         | –         | –         |
| Headache                      | –             | –         | –         | –         | –         | –         | –         |
| Vomit                         | +             | –         | –         | –         | –         | –         | –         |
| Diarrhea                      | –             | –         | –         | –         | –         | –         | –         |
| Muscular Soreness             | –             | –         | –         | –         | –         | –         | –         |
| Fatigue                       | +             | –         | –         | –         | –         | –         | –         |
| Oximetry saturation (%)       | 92            | 99        | 95        | 95        | 99        | 95        | 100       |
| Respiratory rate (breaths/min)| 23            | 15        | 16        | 22        | 20        | 18        | 32        |
| Blood pressure (mmHg)         | 130/70        | 115/72    | 120/80    | 120/80    | 147/87    | 123/76    | 98/70     |
| Heart rate (bpm)              | 76            | 72        | 72        | 75        | 123       | 85        | 60        |
| Laboratory Diagnosis | Normal Range | 29/1/20 | 31/1/20 | 3/2/20 | 8/2/20 |
|----------------------|--------------|---------|---------|--------|--------|
| **Routine Blood Test** |             |         |         |        |        |
| Leukocytes (10^9/L)   | 4.0–10.0     | 4.9     | 10.3    | 5.6    | 7.1    |
| Neutrophil Ratio (%)  | 50.0–70.0    | 86      | 89.5    | 77.9   | 77.1   |
| Lymphocyte Ratio (%)  | 20.0–40.0    | 10.8    | 6.4     | 13.9   | 13     |
| Monocyte Ratio (%)    | 3.0–8.0      | 3.1     | 4       | 8.2    | 9      |
| Neutrophil Count (10^9/L) | 2.00–7.00    | 4.23    | 9.23    | 4.39   | 5.47   |
| Lymphocyte Count (10^9/L) | 0.80–4.00    | 0.5     | 0.7     | 0.8    | 0.9    |
| Monocyte Count (10^9/L) | 0.12–1.20   | 0.15    | 0.41    | 0.46   | 0.64   |
| Red blood cell Count (10^12/L) | 3.5–5.0   | 4.68    | 4.34    | 4.62   | 4.49   |
| Hemoglobin (g/L)      | 110–150      | 154     | 140     | 148    | 146    |
| Ferritin (mg/L)       | 37.0–43.0    | 44      | 40.9    | 41.7   | 43.4   |
| Platelet Count (10^9/L) | 100–300    | 178     | 262     | 282    | 248    |
| Red blood cell Distribution Width (%) | 11.6–14.0 | 12.1    | 12.4    | 12     | 12.1   |
| Mean Platelet volume (fl) | 9.4–12.5 | 11.1    | 11.8    | 12     | 10.1   |
| Platelet Distribution Width (fl) | 39.0–46.0 | 16.6    | 13.7    | 14.5   | 16.3   |
| Platelet Hematocrit (%) | 0.108–0.282 | 0.2     | 0.31    | 0.34   | 0.25   |
| **Comprehensive Metabolic Panel** | Normal Range | 26/1/20 | 28/1/20 | 31/1/20 | 3/2/20 | 8/2/20 |
| Albumin (g/L)         | 34–48        | 41.4    | 41.8    | 33.5   | 34     | 35.6   |
| Glucose (mmol/L)      | 3.8–6.1      | /       | /       | /      | 6.83   | 6.22   |
| Urea (mmol/L)         | 1.7–8.3      | 6.1     | 6.4     | 7.2    | 7.1    | 4.5    |
| Creatinine (umol/L)   | 44–97        | 122     | 112     | 72     | 79     | 76     |
| Uric Acid (umol/L)    | 208–428      | 373     | 439     | 273    | 264    | 259    |
| Triglyceride (mmol/L) | 0–1.70       | 2.25    | /       | 1.66   | 4.22   | 4.93   |
| Total Cholesterol (mmol/L) | 2.80–5.20 | 4.19    | /       | 4.06   | 4.34   | 4.71   |
| Calcium (mmol/L)      | 2.1–2.7      | 2.28    | 2.24    | 2.19   | 2.12   | 2.17   |
| Phosphorus (mmol/L)   | 0.97–1.61    | 0.98    | 1.49    | 0.84   | 0.75   | /      |
| Potassium (mmol/L)    | 3.5–5.3      | 4.61    | 4.27    | 4.63   | 3.89   | 4.24   |
| Sodium (mmol/L)       | 135–146      | 141     | 135     | 137.2  | 134.2  | 145    |
| Chloride (mmol/L)     | 96–108       | 101.4   | 100.2   | 107.1  | 97.3   | 104.4  |
| eGFR (ml/min/1.73m²)  | 100–120      | /       | 62.53   | 104.12 | 93.55  | /      |
| **Infection Test**    | Normal Range | 23/1/20 | 28/1/20 | 31/1/20 | 3/2/20 | 8/2/20 |
| Erythrocyte Sedimentation Rate (mm/1h) | 0–15/F 0–20 | /       | /       | /      | /      | /      |
| Ferritin (µg/L)       | M 0–32/F 0–219 | /     | 1253    | 929.65 | 881.9  | /      |
| Procalcitonin (ng/ml) | 0–0.1        | /       | 0.08    | 0.04   | 0.04   | 0.06   |
| C-reactive Protein (mg/L) | 0.8–8     | 101.4   | /       | 7.9    | 1.8    | 6.4    |
| **Coagulation**       | Normal Range | 26/1/20 | 28/1/20 | 31/1/20 | 8/2/20 |
| International Normalized Ratio | 0.8–1.2 | 1.08    | 1.15    | 1.04   | 1      |
| Prothrombin Time (s)  | 10–14        | 11.7    | 12.4    | 11.2   | 10.8   |
| Activated Partial Prothrombin Time (s) | 21–40 | 36.6    | 36.1    | 30.8   | 28.9   |
| Thrombin Time (s)     | 14.0–21      | 12.6    | 12.8    | 14.7   | 14.9   |
| D-dimer (µg/ml)       | 0–0.5        | 0.14    | 0.13    | 0.37   | 0.59   |
### Appendix Table 3. Summary of medical laboratory tests for patients 1–3 in the two-family cluster.

| Laboratory Test | Normal Range | Patient 1 | Patient 2 | Patient 3 |
|-----------------|--------------|-----------|-----------|-----------|
| **Routine Blood Test** | | | | |
| Leukocytes (10^9/L) | 4.0–10.0 | 3.7 | 5.9 | 2.4 |
| Neutrophil Ratio (%) | 50.0–70.0 | 72.6 | 66.1 | 68.4 |
| Lyphocyte Ratio (%) | 20.0–40.0 | 16.5 | 24.2 | 26.1 |
| Monocyte Ratio (%) | 3.0–8.0 | 10.6 | 8.2 | 4.8 |
| Neutrophil Count (10^9/L) | 2.00–7.00 | 2.68 | 2.57 | 8.59 |
| Lymphocyte Count (10^9/L) | 0.80–4.00 | 0.6 | 0.9 | 3.3 |
| Monocyte Count (10^9/L) | 0.12–1.20 | 0.39 | 0.32 | 0.8 |
| Red blood cell Count (10^12/L) | 3.5–5.0 | 3.23 | 3.02 | 5.06 |
| Hemoglobin (g/L) | 110–150 | 106 | 98 | 141 |
| Ferritin (μg/L) | 37.0–43.0 | 30.2 | 28 | 42.2 |
| Erythrocyte Sedimentation Rate (mm/1h) | 100–300 | 142 | 174 | 346 |
| Infection Test | | | | |
| Protein (g/dL) | 6.0–8.5 | 6.0 | 8.5 | 6.0 |
| **Comprehensive Metabolic Panel** | | | | |
| Alanine Aminotransferase (U/L) | 0–45 | 14 | 8 | 25 |
| Aspartate Aminotransferase (U/L) | 0–40 | 18 | 13 | 33 |
| Alkaline Phosphatase (U/L) | 42–128 | 71 | 78 | 70 |
| Gamma-glutamyltransferase (U/L) | 11–50 | 9 | 8 | 40 |
| Lactate Dehydrogenase (U/L) | 0–252 | 111 | 113 | 220 |
| Total Bilirubin (umol/L) | 0–20 | 5.9 | 3.3 | 8.8 |
| Albumin (g/L) | 34–48 | 35.7 | 30.9 | 49.1 |
| Glucose (mmol/L) | 3.8–6.1 | / | 4.44 | / |
| Urea (mmol/L) | 1.7–8.3 | 2.8 | 2.9 | 3.6 |
| Creatinine (umol/L) | 44–97 | 42 | 40 | 60 |
| Uric Acid (mmol/L) | 268–420 | 300 | 252 | 400 |
| Triglyceride (mmol/L) | 0–1.70 | 1.82 | 2.87 | 1.17 |
| Total Cholesterol (mmol/L) | 2.80–5.20 | 5.14 | 4.61 | 3.41 |
| Calcium (mmol/L) | 2.1–2.7 | 2.09 | 1.97 | 2.34 |
| Phosphorus (mmol/L) | 0.97–1.61 | 1.32 | 1.12 | 1.46 |
| Potassium (mmol/L) | 3.5–5.5 | 3.58 | 3.41 | 3.75 |
| Sodium (mmol/L) | 135–146 | 136.5 | 138 | 139.7 |
| Chloride (mmol/L) | 96–108 | 103.6 | 105.4 | 103.9 |
| eGFR (mL/min/1.73m²) | 100–120 | / | >120 | / |
| **Infection Test** | | | | |
| Protein (g/dL) | 27/1/20 | 3/2/20 | 27/1/20 | 3/2/20 |
| Lymphocyte Sedimentation Rate (mm/1h) | M 0–15/F 0–20 | 0.99 | 0.94 | 1.08 |
| Ferritin (μg/L) | M 0–322/F 0–219 | 0.99 | 0.94 | 1.08 |
| Procalcitron (ng/ml) | 0–0.1 | 0.04 | 0.06 | 0.05 |
| C-reactive Protein (mg/L) | 0.8–8 | 16.3 | / | / |
| **Coagulation** | | | | |
| Prothrombin Time (s) | 10–14 | 10.7 | 10.1 | 11.7 |
| Activated Partial Prothrombin Time (s) | 21–40 | 26.7 | 28.9 | 27.9 |
| Thrombin Time (s) | 14.0–21 | 13.1 | 15.4 | 13.2 |
| D-dimer (μg/L) | 0–0.5 | 0.21 | 0.28 | 0.07 |

Note: Normal ranges and patient values are provided for each test.
### Appendix Table 4. Summary of medical laboratory tests for patients 4–6 in the two-family cluster

| Laboratory Diagnosis                        | Normal Range | Patient 4  | Patient 5  | Patient 6  |
|---------------------------------------------|--------------|------------|------------|------------|
| Routine Blood Test                          |              |            |            |            |
| Leukocytes (10^9/L)                         | 4.0–10.0     | 8.2        | 4.5        | 2.4        |
| Neutrophil Ratio (%)                        | 50.0–70.0    | 80.5       | 54.1       | 71.4       |
| Lymphtbin Time (s)                          | 20.0–40.0    | 7.9        | 22.1       | 36.1       |
| Monocyte Ratio (%)                          | 3.0–8.0      | 11.3       | 4.7        | 8.6        |
| Neutrophil Count (10^9/L)                   | 2.0–7.00     | 6.57       | 11.96      | 2.43       |
| Lymphocyte Count (10^9/L)                   | 0.80–4.00    | 0.7        | 1.5        | 1.6        |
| Red blood cell Count (10^12/L)              | 0.12–1.20    | 0.92       | 0.67       | 0.38       |
| Ferritin (μg/L)                             |              |            |            |            |
| eGFR (ml/min/1.73m^2)                       |              |            |            |            |
| Chlorine (mmol/l)                           |              |            |            |            |
| Sodium (mmol/l)                             |              |            |            |            |
| Potassium (mmol/L)                          |              |            |            |            |
| Glucose (mg/dL)                             |              |            |            |            |
| Albumin (g/L)                               |              |            |            |            |
| Glutamyltransferase (U/L)                   |              |            |            |            |
| Aspartate Aminotransferase (U/L)            |              |            |            |            |
| Alkaline Phosphatase (U/L)                  | 42–128       | 175        | 56         | 121        |
| Glutamytransferase (U/L)                    | 11–50        | 123        | 56         | 30         |
| Lactate Dehydrogenase (U/L)                 | 0–252        | 129        | 126        | 163        |
| Total Bilirubin (umol/l)                    | 0–20         | 10.3       | 126        | 119        |
| Albumin (g/L)                               | 34–48        | 24.6       | 45         | 22         |
| Total Cholesterol (mmol/l)                  |              |            |            |            |
| Calcium (mmol/l)                            |              |            |            |            |
| Phosphorus (mmol/L)                         | 0.87–1.61    |            | 1.06       | 1.1        |
| Potassium (mmol/L)                          | 3.5–5.3      |            | 2.17       | 3.51       |
| Sodium (mmol/l)                             | 135–146      |            | 36.3       | 146        |
| Chlorine (mmol/l)                           | 96–108       |            | 4.2        | 4.2        |
| eGFR (ml/min/1.73m^2)                       | 100–120      |            | 3.7       | 3.7        |
| Infection Test                              |              |            |            |            |
| Normal Range                                | 31/1/20      |            | 14       | 14         |
| Erythrocyte Sedimentation Rate (mm/1h)      |              |            | 14         | 14         |
| Ferritin (μg/L)                             | M 0–322/F 0–219 | 564    | 248.5     | 339.4      |
| Procalcitonin (ng/ml)                       | 0–0.1        | 0.6        | 0.04       | 0.04       |
| Coagulation                                 |              |            |            |            |
| International Normalized Ratio             | 0.8–1.2      | 1.51       | 1.21       | 1.17       |
| Activated Partial Prothrombin Time (s)      | 10–14        | 16.3       | 13.8       | 12.6       |
| Thrombin Time (s)                           | 14.0–21      | 15.8       | 15.2       | 16.4       |
| D-dimer (μg/ml)                             | 0–0.5        | 0.74       | 1.07       | 0.01       |

**Summary of medical laboratory tests for patients 4–6 in the two-family cluster**
Appendix Table 5. Summary of drug therapy during COVID-19 treatment of the clustered cases. Due to pregnancy, patient 1 did not receive any medication. For an illustration of the drug therapy scheme, please see the visualized timeline below.

| Index Patient | Dosage and Administration | Start Date | End Date |
|---------------|---------------------------|------------|----------|
|               | Lopinavir/Ritonavir       | 400mg/100mg bid po | 26/1/20 | 3/2/20 |
|               | Umifenovir                | 200mg tid po | 29/1/20 | 3/2/20 |
|               | Interferon α-2b           | 5MIU bid aerosolized inhalation | 29/1/20 | 3/2/20 |
|               | Moxifloxacin hydrochloride| 0.4g qd ivgtt | 28/1/20 | 6/2/20 |
|               | Immunoglobulin            | 20 g/d | 28/1/20 | 1/2/20 |
|               | Methylprednisolone         | 40mg bid ivgtt | 28/1/20 | 29/1/20 |
|               | Methylprednisolone         | 60mg qd ivgtt | 30/1/20 | 31/1/20 |
|               | Methylprednisolone         | 40mg qd ivgtt | 31/1/20 | 1/2/20 |
|               | Methylprednisolone         | 20mg qd ivgtt | 31/1/20 | 1/2/20 |
| Patient 2     | Dosage and Administration | Start Date | End Date |
|               | Lopinavir/Ritonavir       | 400mg/100mg bid po | 31/1/20 | 6/2/20 |
|               | Umifenovir                | 200mg tid po | 29/1/20 | 6/2/20 |
|               | Moxifloxacin hydrochloride| 0.4g qd po | 27/1/20 | 2/2/20 |
|               | Ketotifen fumarate         | 1mg qd qn | 27/1/20 | 2/2/20 |
| Patient 3     | Dosage and Administration | Start Date | End Date |
|               | Lopinavir/Ritonavir       | 400mg/100mg bid po | 30/1/20 | 5/2/20 |
|               | Umifenovir                | 200mg tid po | 29/1/20 | 6/2/20 |
|               | Interferon α-2b           | 5MIU bid aerosolized inhalation | 31/1/20 | 5/2/20 |
|               | Moxifloxacin hydrochloride| 0.4g qd po | 31/1/20 | 6/2/20 |
|               | Methylprednisolone         | 40mg bid ivgtt | 1/2/20 | 3/2/20 |
|               | Lianhua Qingwen capsule   | 6g tid | 31/1/20 | 12/2/20 |
| Budesonide    | 1mg qd aerosolized inhalation | 31/1/20 | 5/2/20 |
| Patient 4     | Dosage and Administration | Start Date | End Date |
|               | Lopinavir/Ritonavir       | 400mg/100mg bid po | 30/1/20 | 3/2/20 |
|               | Umifenovir                | 200mg tid po | 29/1/20 | 4/2/20 |
|               | Interferon α-2b           | 5MIU bid aerosolized inhalation | 30/1/20 | 6/2/20 |
|               | Biapenem                  | 0.3g q8h ivgtt | 29/1/20 | 6/2/20 |
|               | Linezolid                 | 0.6g q12h ivgtt | 5/2/20 | 13/2/20 |
| Patient 5     | Dosage and Administration | Start Date | End Date |
|               | Lopinavir/Ritonavir       | 400mg/100mg bid po | 30/1/20 | 1/2/20 |
|               | Umifenovir                | 200mg tid po | 30/1/20 | 6/2/20 |
|               | Moxifloxacin hydrochloride| 0.4g qd po | 30/1/20 | 6/2/20 |
| Patient 6     | Dosage and Administration | Start Date | End Date |
|               | Lopinavir/Ritonavir       | 400mg/100mg bid po | 30/1/20 | 2/2/20 |
|               | Umifenovir                | 200mg tid po | 30/1/20 | 6/2/20 |
|               | Interferon α-2b           | 5MIU bid aerosolized inhalation | 31/1/20 | 6/2/20 |
|               | Moxifloxacin hydrochloride| 400mg qd po | 26/1/20 | 7/2/20 |
|               | Methylprednisolone         | 40mg bid ivgtt | 30/1/20 | 30/1/20 |
|               | Chinese medicine decoction | 1Package bid po | 5/2/20 | 10/2/20 |
|               | Lianhua Qingwen capsule   | 6000mg tid po | 8/2/20 | 10/2/20 |
Appendix Figure 1. Illustration of the drug therapy scheme for all the patients with SARS-CoV-2 infection in the 2-family cluster.
Appendix Figure 2. Typical evolution of chest CT findings in the 56-year-old male index patient confirmed positive for SARS-CoV-2 infection. A) Chest radiograph. Bilateral lungs show flocculent high-density shadows while the left lung is more prominent. B–F) Chest CT scanning. B) Multiple ground-glass-like high-density shadows on both lungs with blurred edges and interstitial changes on January 28. C) No significant difference from previous observation on January 31. D) Slightly absorbed shadow in the upper lobe on February 3. E) Some lesions in the lower lobe of both lungs were slightly absorbed on February 6. F) No significant difference from previous observation on February 8. Ground glass white patches are shown in each subgraph due to SARS-CoV-2 infection. With the progression of recovery, gradual reduction of white patches is observed.