CORONAVIRUS SARS-CoV-2 INFECTION:

Expert Consensus on Guidance and Prevention Strategies for Hospital Pharmacists and the Pharmacy Workforce

(2nd Edition)

Chinese Pharmaceutical Association

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Contents

Coronavirus SARS-CoV-2 Infection: Expert Consensus on Guidance and Prevention Strategies for Hospital Pharmacists and the Pharmacy Workforce (2nd Edition)

This guidance and management strategies aim to provide pharmacists and the pharmacy workforce with relevant information and specific work guidance on prevention and control of Coronavirus SARS-CoV-2 infection.

1 Background

1.1 Epidemiology

The current outbreak of novel coronavirus was first reported from Wuhan, China on December 31, 2019. This virus was named as 2019-nCoV by World Health Organization(WHO) on January 12, 2020. Following the advice of the Emergency Committee, the WHO declared the outbreak of 2019-nCoV a Public Health Emergency of International Concern. On February 7, National Health Commission of the People's Republic of China temporarily named the pneumonia caused by 2019-nCoV as Novel Coronavirus Pneumonia, in short NCP. On February 11, The WHO renamed the "novel coronavirus pneumonia" disease as "COVID-19",the International Committee on Taxonomy of Viruses named the virus causing the current outbreak of coronavirus disease as "Severe Acute Respiratory Syndrome Coronavirus 2" (SARS-CoV-2).As of February 10, 2020, 2019-nCoV has caused 44,763 infections and 1,116 deaths in China.

The source of infection is mainly NCP patients. Infected patients who are asymptomatic may also be contagious. The NCP transmission routes that can be determined at present are direct transmission, aerosol transmission and contact transmission[1-3]. In general, human can easily be infected by SARS-CoV-2.

1.2 Etiology

SARS-CoV-2 is a novel beta coronavirus, which belongs to the sarbecovirus subgenus of Coronaviridae family. It has a capsule, and the particles are round or oval, often polymorphous, with a diameter of 60-140nm. Its genetic characteristics are distinct from SARSr-CoV and MERSr-CoV[1, 4]. Recent study has shown that SARS-CoV-2 is 96% identical to bat coronavirus TG13 at the whole-genome level[5].

2 Clinical manifestations and diagnosis

2.1 Clinical manifestations[1]

(1) Fever and / or respiratory symptoms;

(2) It has the imaging characteristics of pneumonia: multiple small patchy shadows and interstitial changes appear early, which are obvious in the outer lung zone. Then it can develop into multiple ground glass shadows and infiltration shadows in the lungs. In severe cases, pulmonary consolidation can appear but pleural effusion are rare;

(3) At early stage of disease onset, the total number of white blood cells is normal or decreased, or the lymphocyte count is reduced.

(4) Other symptoms include hemoptysis, muscle pain, headache, confusion, chest pain, and diarrhea[6, 7].

2.2 Clinical diagnosis[1]

The diagnosis criteria of patients in Hubei province is slightly different from those in other areas.

2.2.1 Suspected cases

Epidemiological history:

(1) Travel history or residence histories of Wuhan and its surrounding areas, or other communities with case reports within 14 days before the onset of disease;

(2) Contact history with patients infected by the SARS-CoV-2 (nucleic acid test showed positive results) within 14 days before the onset of disease;

(3) Patients with fever or respiratory symptoms from Wuhan and its surrounding areas, or from communities with case reports, within 14 days before the onset of disease;

(4) Cluster onset.

In areas outside of Hubei province, patients with epidemiological history who meets one of items 1-3 of the clinical manifestations; patients without clear epidemiological history who meet all three items of the clinical manifestations.

In Hubei province, patients with or without epidemiological history, and meet the first and third items of the clinical manifestations.

2.2.2 Clinically diagnosed cases (For Hubei Province Only)

Suspected cases with imaging characteristics of pneumonia.

2.2.3 Confirmed cases

Clinically diagnosed cases or suspected cases can be confirmed with one of the following etiology evidence:

(1) Real-time fluorescent RT-PCR of respiratory specimens or blood specimens detected positive SARS-CoV-2 nucleic acid;

(2) Respiratory or blood specimens are genetically sequenced and highly homologous to the known SARS-CoV-2.

2.3 Clinical classification[1]

2.3.1 Mild

Clinical symptoms are mild, with no pneumonia manifestation on imaging.

2.3.2 Regular

Fever and other respiratory symptoms.

2.3.3 Severe

Meet any of the following:

(1) Respiratory distress, RR≥30 times per min;

(2) At resting state, the oxygen saturation is ≤93%;

(3) Arterial blood oxygen partial pressure (PaO_2)/oxygen concentration (FiO_2) ≤300mmHg (1mmHg = 0.133kPa);

2.3.4 Critical

Meet one of the following items:

(1) Having respiratory failure and requires mechanical ventilation;

(2) Shock;

(3) Combining with other organ failures requiring ICU monitoring and treatment.

3 Treatment

3.1 Characteristics and precautions of treatment options

At present, there is no targeted antiviral treatment for the SARS-CoV-2 infection. The following drugs may be used in clinical practice and clinical trials. Due to ongoing studies, pharmacists should track the latest research evidences and updates. Pay attention to the risk of off-label usage under special circumstances.

3.1.1 Interferon[1]

May try inhaling aerosolized interferon, 5 million IU for adults, adding 2mL of sterilized water for injection, twice a day. Common adverse reactions include fever, fatigue, headache, joint pain, loss of appetite, etc. Patient with a history of interferon allergy should use with caution. The administration of first dose should be closely monitored. Be careful to avoid contact with eyes during atomization. Store at 2-8℃ and protect from light during storage and transportation.

3.1.2 Lopinavir/ritonavir[1]

Lopinavir/ritonavir capsules: 200 mg/50 mg per capsule, take 2 capsules twice daily, by mouth. Swallow the whole capsule. Do not chew, break or crush the capsule. May be taken with or without food.

No need for dose adjustment in patients with mild to moderate liver dysfunction, renal insufficiency, and patients receiving alternative renal therapy. It is not recommended for patients with severe liver dysfunction. Common adverse reactions include diarrhea, nausea and vomiting, hypertriglyceridemia, upper respiratory tract infection, liver function impairment, etc. Be careful with potential drug-drug interactions.

3.1.3 Ribavirin [1]

According to the *Clinical management of human infection with novel*

coronavirus(SARS-CoV-2)(5th edition, revised version) [1] from the National Health Commission National Health Commission of the People's Republic of China, ribavirin could be added to antiviral therapy. The recommended regimen is 500mg each time, i.v. 2-3 times a day. Patients with severe anemia and abnormal liver function should use with caution. Not recommended for telderly patients. Ribavirin is teratogenic and can pass through the placenta and into the breast milk. Ribavirin can still be detected in the body even 4 weeks after discontinuation. High dose ribavirin has been used clinically during the period of SARS and MERS. However, the dose-related anemia was observed, which may occur in 3 to 5 days after initiation. Patients with underlying heart diseases may suffer from the deterioration of cardiac function caused by anemia. In addition, electrolyte disturbance and central nervous system toxicity have also been reported. Hence the clinical use of high dose ribavirin in SARS-CoV-2 should be cautious[8, 9].

3.1.4 Antimicrobial agents

Avoid inappropriate use of antibiotics[1].

According to the WHO guideline[10], it is recommended to give empiric antimicrobials to treat all likely pathogens. For patients with sepsis, antimicrobials should be given within one hour of initial patients assessment. Pay attention to stability of drug and the infusion rate during drug administration, and monitor possible allergic reactions such as rashes. Oral antimicrobial preparations should be taken at 2-hour intervals with microecologic preparations and adsorbents.

3.1.5 Corticosteroids

Do not routinely use systemic corticosteroids[1,10]. In situations of dyspnea and progress of chest imaging, corticosteroids could be used for a short period of time (3-5 days). The recommended daily dose is no more than equivalent dosing of 1-2 mg/kg/day methylprednisolone[1, 6]. Blood glucose and electrolyte level should be monitored, and central excitation symptoms such as insomnia may occur, which can be treated symptomatically.

3.1.6 Symptomatic supportive treatment

Nonsteroidal anti-inflammatory drugs, antitussives, antiemetics, laxative agents,

spasmolysis agents, intestinal microecological preparations may be used to treat patients' relevant symptoms.

3.1.7 Huoxiang Zhengqi Capsule (pills, tincture, oral solution) [1,11]

Resolving dampness, relieving exterior symptoms, and regulating air flow (Qi).

Soft Capsule: 2-4 pills orally bid; Dropping Pill: 2.6g orally bid; Solution, Oral Liquid: 5-10 mL orally bid. Shake well before use.

Adverse reactions in the literature include drug rash, purpura, shock and other allergic reactions and intestinal obstruction, upper gastrointestinal bleeding, allergic asthma, anaphylactic shock, and etc. Wind-heat type common cold are used with caution. Use with caution in pregnant women. People with severe chronic diseases such as hypertension, heart disease, liver disease, diabetes, and kidney disease should be used with caution. Huoxiang zhengqi Solution is contraindicated for patients allergic to alcohol since its ingredients contain alcohol. Do not drive machines, cars, ships, or engage in high-altitude operations, mechanical operations, or precision instrument operations after taking the drug. Avoid concurrent use with tinidazole and metronidazole[12].

3.1.8 Jinhua Qinggan Granules[1]

Dispelling wind to ventilate the lungs, clearing heat and detoxifying.

1 packet orally tid. One course of treatment is three days.

Common adverse reactions include nausea, vomiting, diarrhea, stomach upset, heartburn, anorexia and other gastrointestinal adverse reactions. Dysfunctions of liver, palpitations, or rash can also occur occasionally after use. Contraindicated for patients who are allergic to this product. Athletes and patients with deficiency-cold of spleen and stomach should use with caution. Patients with a history of liver disease or abnormal liver function before taking the medicine should use with caution. Women who are pregnant or lactating, children and the elderly should use with caution or consult physicians before starting the medication. Additionally, the product contains ephedra, which can lead to the increase of blood pressure. Use with caution in patients with hypertension and monitor blood pressure while taking the medication[13]. Do not use nourishing Traditional Chinese medicine concurrently.

3.1.9 Lianhua Qingwen Capsule (granules) [1,11]

Heat-clearing and detoxifying, removing lung hotness.

Capsule: 4 pills orally tid; Granule: 1 packet orally tid.

Literature reported[14, 15] that the drug can commonly cause adverse reactions in the gastrointestinal system. It can also cause dermatological reactions such as rash and itching . Not indicated for patient with wind-cold type common cold. The product contains ephedra, which can lead to the increase of blood pressure. Use with caution in patients with hypertension and heart disease. Patients with severe chronic diseases such as liver disease, diabetes, and kidney disease, and children, pregnant women, lactating women, those who are old and weak, and patients with spleen deficiency and loose stools should use this medication under the guidance of physicians. Avoid long-term use of this product. Patients who are allergic to this product are contraindicated. Patients with allergies and athletes should use it with caution. Store in a cool and dry place (no more than 20℃).

3.1.10 Shufeng Jiedu Capsule (granules)[1]

Dispelling wind, heat-clearing, detoxifying and relieving sore throat.

4 pills orally tid.

Nausea occurs occasionally. Use in sensitive patients and those who are allergic to this product are contraindicated. Consult a doctor before taking the medicine if you have conjunctival fever, herpetic angina, or if you are pregnant or lactating.

3.1.11 Fangfengtongsheng Pills (granules)[1,11]

Relieving external symptoms, clearing interior disease, heat-clearing and detoxifying.

Granules: 1 packet orally bid.

Concentrated pills: 8 pills orally bid.

Water pills: 6g at once, p.o. bid.

Adverse reactions include nausea, vomiting, abdominal pain or gastrointestinal discomfort, rash, itching, etc. Diarrhea can also occur occasionally. Patients with spleen deficiency and loose stools are contraindicated. The product contains ephedra, which can lead to the increase of blood pressure. Use with caution in patients with hypertension and heart disease. Use with caution in patients with severe chronic

diseases such as liver disease, diabetes, and kidney disease. Pregnant women, athletes, children, lactating women, the elderly, the frail and patients with allergies should use with caution. Patients who are allergic to this product are contraindicated.

3.1.12 Xiyanping Injection[1]

Heat-clearing and detoxifying, relieving cough and dysentery.

i.m. (Adult: 50-100mg wo or three times a day. Reduce dose in children or follow doctor's advice)

i.v. infusion (Adult: 250-500mg a day, dilute with 5% glucose injection or 0.9% sodium chloride injection; Or follow doctor's advice)

This product occasionally causes skin rash, pruritus, fever, chills, pain, fidgety, rare cases of shortness of breath, cyanosis, palpitation, convulsion, etc. Those who are allergic to this product and pregnant women are contraindicated. Use with caution in special patient populations such as patients with allergy history, elderly, infants. First time use patients need closer monitoring. The drip rate should be controlled strictly. Infusion rate of 30-60 drops / minute for adults and 30-40 drops/ minute for children are recommended. Store in a cool place (no more than 20℃).

3.1.13 Xuebijing Injection[1]

Dissolving blood stasis and detoxifying.

i.v.infusion (100mL daily, given bid)

Adverse reactions include itching occasionally. People who are allergic to this product and elderly should use with caution[16]. Pregnant women are contraindicated. Store in a cool place (no more than 20℃).

3.1.14 Shenfu Injection[1, 11]

Reviving yang for resuscitation, Qi-boosting and exterior-securing.

This drug can be used intramuscularly, intravenously or through i.v. push. See package insert for dosing instructions. Common adverse reactions include itching, wind wheals, rashes and other skin and accessory damages[17]. Occasionally tachycardia, allergic reactions, dizziness, headache, hiccups, tremors, dyspnea, visual abnormalities, abnormal liver function, urinary retention, etc. Allergies should be used with caution, pregnant women are contraindicated. It is not suitable to be used

concurrently with Chinese traditional medicine Pinelliaternata, melons, caladium, white peony, baiji, wulingzhi, hellebore, etc. It is forbidden to use in combination with other injections. Intensive monitoring should be carried out within 30 minutes of the initial infusion, and the drug should be discontinued in time if adverse reactions are found.

3.1.15 Shengmai Injection[1,11]

Recovering pulses for resuscitation, Qi-boosting and Yin nurturing.

This drug can be used intramuscularly, intravenously. See package insert for dosing instructions. Common ADRs are fever with systemic damage, skin and accessory damage, respiratory system damage, cardiovascular system damage, and gastrointestinal system damage, etc. Use in patients who are allergic to this product or pregnant, newborns, infants and young children are contraindicated. The elderly and frail, patients with severe heart and lung disease, abnormal liver or kidney function, and patients using Traditional Chinese medicine injection for the first time need closer monitoring. The infusion rate should be slow. In case of any abnormality, action needs to be taken immediately. Before and after the infusion of this product, the appropriate amount of diluent should be used to flush the infusion tubings. Avoid mixing the product with other injections. Stored in a cool place, no more than 20℃.

3.2 Pharmaceutical care

Pharmacists in all hospitals should take an active part in patients' drug treatment. According to the local situation, pharmacists should ensure safety, effective and rational drug use, and pay attention to potential drug-drug interactions, adverse reactions, and duplicate medications when doing prescription review, dispensing, adverse reactions monitoring and medication reconciliation.

3.2.1 Drug-drug interactions

Drug-drug interactions may occur in drug absorption, distribution, metabolism and excretion process that could cast negative effects on the treatment.

Avoid the concomitant use of lopinavir/ritonavir and other CYP3A4-metabolized drugs. Avoid concomitant use of oral antibiotics and microecologic agents.

Table 3.1 List of potential drug-drug interactions

Anti SARS-CoV-2 treatment	Potential interacting drugs	Clinical implications
Lopinavir/ritonavir	Sedative/Hypnotics: triazolam, midazolam	Contraindicated due to potential for prolonged or increased sedation or respiratory depression.
	Ergot derivatives: dihydroergotamine, ergotamine, methylergonovine	Contraindicated due to potential for acute ergot toxicity characterized by peripheral vasospasm and ischemia of the extremities and other tissues.
	HMG-CoA reductase inhibitors: lovastatin, simvastatin, atorvastatin	Contraindicated: lovastatin, simvastatin; Use with caution: atorvastatin, use the lowest necessary dose and monitor carefully. Can use pravastatin and fluvastatin if needed.
	Dihydropyridine calcium channel blockers	Clinical monitoring of patients is recommended and a dose reduction of the dihydropyridine calcium channel blocker may be considered.
	Immunosuppressants	Therapeutic concentration monitoring is recommended for immunosuppressant agents when co-administered.
	Anticonvulsants: lamotrigine, valproate	A dose increase of lamotrigine or valproate may be needed when co-administered with lopinavir/ritonavir and therapeutic concentration monitoring for lamotrigine may be indicated; particularly during dosage adjustments.
	Antiarrhythmics: amiodarone	Caution is warranted and therapeutic concentration monitoring (if available) is recommended for antiarrhythmics when co-administered.
	Anticoagulants: rivaroxaban, warfarin	Avoid concomitant use of rivaroxaban. Concentrations of warfarin may be affected. Initial frequent monitoring of the INR during co-administration is recommended.
	Antifungals: itraconazole, voriconazole	High doses of itraconazole (>200 mg/d) are not recommended. The co-administration of voriconazole should be avoided unless an assessment

		of the benefit/risk to the patient justifies the use of voriconazole.
	Anticancer agents: dasatinib, nilotinib, venetoclax, ibrutinib, etc	A decrease in the dosage or an adjustment of the dosing interval of nilotinib and dasatinib may be necessary. Avoid concomitant use of venetoclax or ibrutinib.
	Herbal products: St. John's wort	Contraindicated due to potential for loss of virologic response and possible resistance to lopinavir/ritonavir.
Lopinavir/ritonavir (oral solution)	Antibiotics: metronidazole etc.	Not recommended in combination. Due to the alcohol contained in the preparation, a disulfiram-like reaction can occur.
Oral antibiotics	Microecologic agents	Should be taken with intervals.

3.2.2 Adverse drug reactions

Pharmacists should pay attention to the adverse reactions, especially those are still being assessed and under clinical trials. Analyze the causal relationship between adverse drug reactions and symptoms of disease. Pay attention to the potential adverse reactions of new drugs in clinical trials. Pharmacists should conduct active monitoring and surveillance according to local infrastructures, to ensure the safety of clinical medication.

3.2.3 Duplicate therapy

Pharmacist should also pay attention to the risk of duplicate use of medications, especially those at home. For example, different antipyretic formulations may contain the same ingredients, which can easily cause liver and kidney injuries if taken together. It is important to clarify all medications use for each patient, especially the compounded preparations, through medication history screening, remote patients education and consultation, and medication reconciliation.

3.2.4 Pregnant women

Pregnant women are susceptible to the SARS-CoV-2 at all gestational stages[18, 19]. During pregnancy, women's inflammatory stress response to viral respiratory infection is significantly increased, which can lead to a rapid progression of disease. The infection can easily develop into severe disease, especially in the middle and late

stage of pregnancy. Pregnant women with suspected SARS-CoV-2 infection should be isolated with intensive monitoring in the hospital setting, and be co-managed with infectious diseases, obstetrics, ICU and other relative departments[18, 19]. When treating pregnant women with suspected or confirmed SARS-CoV-2 infection, their physiological adaptations of pregnancy should be taken into account[10]. It is recommended to use medications with FDA pregnancy safety class of B or C, and avoid using medications in class D.

Before using investigational therapeutic agents outside of a research study, consult obstetric specialists and the ethics committee to perform an individual risk-benefit analysis based on the potential benefit for the mother and the safety of the fetus[10].

The decision of emergency delivery and pregnancy termination should be made based on multiple factors including gestational age, maternal condition, and fetal stability. Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are necessary before making such decision[10].

3.2.5 Newborns

For SARS-CoV-2, the precise mode of vertical transmission is not yet known. All neonates born to mothers with SARS-CoV-2 should be admitted to the designated negative pressure isolation room for observation. Considered the potential risk of infection, all neonates shall be isolated for 10-14 days post-delivery. To prevent the spread of the novel coronavirus, breastfeeding is not recommended until the mother is cured[20].

3.2.6 Children and adolescents

The effectiveness and safety of antiviral medicines in children is unknown. For children with critical illness, refer to the treatment regimen for adults. Interferon atomization can be used in mild cases. Avoid inappropriate use of antimicrobials. The routine use of corticosteroids should be avoided unless for special reasons[21].

3.2.7 Elderly

The immune function of the elderly people is weakened, and their conditions are generally complicated with baseline chronic diseases. When being infected by the SARS-CoV-2, the elderly patients can get critically ill easily, and most of the dead

cases are elderly patients with chronic disease. It is recommended for the elderly patients to take their medications on time, regularly and properly, based on their individual chronic disease. Secondary prevention and treatment of related diseases shall also be performed. Adjust the dosage of medications according to the liver and renal function of patients, and pay attention to the potential drug-drug interactions.

3.2.8 Nutrition support therapy

Nutritional risk screening shall be performed for inpatients using the NRS2002 scoring system upon admission. For patients with NRS2002 score of no less than 3 points, nutrition support therapy needs to be given as soon as possible[22].

For severe patients who cannot eat by mouth, a nasogastric tube or a nasal jejunum tube shall be placed, and nutrition solution shall be pumped in by gravity drip or enteral nutrition infusion pumps[23]. For patients with severe gastrointestinal dysfunction, parenteral nutrition is needed to meet the basic nutritional needs[24].

According to the recommendations for adults from ASPEN, stable patients shall be provided with protein 0.8-1.5g/kg/d, and a total energy of 20-30 kcal/kg/d[25, 26]. As for critically ill or sepsis patients, a nutrition plan with protein 1.2-2.5g/kg/d and a total energy of 20-30 kcal/kg/d is needed. In the early stages, the permissive low-calorie scheme is recommended to reach 15-20kcal/kg/d. When the disease is alleviated, energy and nutrients shall be gradually added to reach the full amount.

During the remission of the disease, semi-liquid food could be provided as it is easy to chew and digest. Take multiple meals in small amount, 5-6 times a day, supplementing with sufficient high-quality protein. Transition to the regular diet shall be gradually made with improvement of the disease.

3.2.9 Traditional Chinese Medicine injections

Traditional Chinese Medicine injections are prohibited to be used in combination with other injections. Before and after the infusion of the medicine, appropriate diluent shall be used to wash the infusion tubings. Infuse the medicine slowly and monitor carefully. Close monitoring is needed in the first 30 minutes at the beginning of the infusion. Stop medication in time in case of adverse reactions.

3.2.10 Food interactions of Chinese patent medicines

Avoid tobacco use, alcohol, spicy and greasy food, and seafood when taking Chinese patent drugs. Medicines with antipyretic and detoxicate effects shall not be used with nourishing traditional Chinese medicines concurrently.

3.3 Traditional Chinese Medicine treatment[1]

The disease belongs to the category of traditional Chinese medicine pestilence. Based on the progress of illness, local climate characteristics and different patients' physical conditions, the following treatment options can be selected for syndrome differentiation and treatment.

3.3.1 Medical observation period

Clinical manifestation 1: Fatigue with gastrointestinal upset

Recommended Chinese patent medicine: Huoxiangzhengqi Capsule(pills, liquid, oral Liquid)

Clinical manifestation 2: Fatigue with fever

Recommended Chinese patent medicines: Jinhuaqinggan Capsule (granules), Lianhuaqingwen Capsule (granules), Shufengjiedu Capsule (granules), Fangfengtongsheng Pills (granules)

3.3.2 Clinical treatment stage

(1) First stage: Cold and dampness stasis in the lung

Clinical manifestation: Averse to cold, with or without fever, dry cough, dry throat，lassitude, chest tightness, stasis in stomach, or nausea, vomiting, loose stools. Pale or pale red tongue, white greasy tongue fur, with soft pulses.

Recommended prescription of traditional Chinese medicine: Atractylodis Rhizoma 15g, Citri Reticulatae Pericarpium 10g, Magnoliae Officinalis Cortex 10g, Pogostemonis Herba 10g, Tsaoko Fructus 6g, Ephedrae Herba 6g, Notopterygil Rhizoma et Radix 10g, Zingiberis Rhizoma Recens 10g, Arecaesemen 10g

(2) Middle stage: Epidemic toxin blocks the lung from functioning

Clinical manifestation: Lingering fever or fevers and chills alternating, cough with little sputum or with yellow sputum, abdominal distension, constipation, chest tightness, shortness of breath, cough and wheezing, gasp with movements. Red

tongue, yellow greasy or dry tongue fur, with rapid and slippery pulses.

Recommended prescription of traditional Chinese medicine: Armeniacae Semen Amarum 10g, Gypsum Fibrosum 30g (decocted earlier), Trichosanthis Fructus 30g, Rhei Radix et Rhizoma 6g (decocted later), Ephedrae Herba 6g, Ephedrae Herba (honey-fried) 6g, Descurainiae Semen Lepidii Semen 10g (wrap-boiling), Persiae Semen 10g, Tsaoko Fructus 6g, Arecaesemen 10g, Atractylodis Rhizoma 10g

Recommended Chinese Patent medicine: Xiyanping Injection, Xuebijing Injection.

(3) Critical stage: Depletion of yang and qi

Clinical manifestation: Dyspnea, gasp with any movement or need assisted ventilation, coma, agitation, sweating with cold limbs, dark purple tongue, thick greasy or dry tongue fur, with floating pulses.

Recommended prescription of traditional Chinese medicine: Ginseng Radix et Rhizoma (decocted separately) 15g, Aconitilateralis Radix Praeparata (decocted earlier) 10g, Corni Fructus 15g, take with Suhexiang Pills or Angong Niuhuang Pills.

Recommended Chinese Patent medicine: Xuebijing Injection, Shenfu Injection, Shengmai Injection.

(4) Recovery stage: Deficiency of qi in the lungs and the spleen

Clinical manifestation: Shortness of breath, lassitude, nausea, vomit, stasis in stomach, no strength to stool, or loose stool, pale fat tongue, white greasy tongue fur.

Recommended prescription of traditional Chinese medicine: Pinelliae Rhizoma Praeparatum 9g, Citri Reticulatae Pericarpium 10g, Codonopsis Radix 15g, Astragali Radix Praeparata Cummelle 30g, Poria 15g, Pogostemonis Herba 10g, Amomi Fructus 6g (decocted later)

4 Preventive measures

4.1 Develop emergency plans and workflow

To ensure the effective implementation of the epidemic prevention and control at the pharmacy department, as well as ensuring effective pharmaceutical care, an emergent pharmaceutical work leading group shall be established under the unified leadership of hospitals, and corresponding emergency plans and working procedures should be

established. The contents may include but not limited to: human resource management, drug supply guarantee, drug dispensing management, clinical pharmaceutical care management, medication consultation management, drug quality control management, pharmaceutical education and scientific research management, epidemic prevention and control, management of donated drugs, and related information reporting [27].

4.2 Carry out full staff training

Provide training for all staff on the knowledge of the SARS-CoV-2 infection prevention and control. Determine the training contents for different personnel according to their responsibilities. In particular, provide key training for the high-risk divisions of pharmacy departments (such as outpatient pharmacies for the fever clinic, emergency department or in the isolated area) and pharmacy personnel who participate in high-risk operations (such as contact with confirmed or suspected patients, aerosol or body fluid exposure that may result from patients specimen processing). Multiple ways can be used to improve the efficiency and effect of training, such as combining on-site training with online continuing education training. Supervise and urge staff to complete the training in time to ensure they are proficient in the prevention and control knowledge, methods and skills of the SARS-CoV-2 infections, and to achieve effective prevention with early detection, early reporting, early isolation, early diagnosis, early treatment and early disease control[28].

4.3 Focus on the health status of pharmacists [28-30]

The pharmacy department should allocate human resources and arrange shifts reasonably to avoid overwork of pharmacists. Pharmacists are recommended to keep a healthy diet.

According to the pharmacist's shift responsibilities and risk assessment results, perform active health status monitoring, including checking body temperature and respiratory symptoms. Take multiple measures to ensure pharmacists stay healthy while providing pharmacy services to patients.

Pay attention to the mental health of pharmacists and their emotional management. According guidance, evaluate the mental status of pharmacists if necessary, and conduct mental counseling for pharmacists in need.

4.4 Protect pharmacy personnel

The pharmacy department shall standardize the disinfection, isolation and protection work procedures, and stock sufficient protective materials with qualified certificates, including disinfection products and medical surgical masks, medical protective masks, isolation gowns, eye masks and other protective supplies, to ensure adequate protection for the pharmacy staff. On top of strict implementation of standard prevention, emphasize the prevention of contact transmission, droplet transmission and air transmission. Selecting and wearing the masks correctly and hand hygiene are key measures for the prevention and control of infections [28]. During the epidemic of the novel coronavirus infection, pharmacy staff shall perform safety protection according to the guideline [31] issued by the National Health and Medical Commission and other guidelines [32] according to the post, operations and exposure risk.

4.5 Strengthen pharmacists' infection monitoring [28, 33]

Pharmacists should strengthen their awareness of self-warning and prediction in the early stage of infection prevention and control. When a pharmacist is suspected of the SARS-CoV-2 infection, it must be reported within 2 hours following relevant requirements, and the corresponding disposal and referral shall be made.

Additional monitoring shall be performed for pharmacists working in high-risk departments (pharmacies in the fever clinic, emergency department and the isolated areas) and pharmacists participating in high-risk operations (such as contact with confirmed or suspected patients, contact with aerosol or body fluid exposure that may be generated by patients specimen processing).

4.6 Ensure adequate cleaning and disinfection management [1, 33-37]

As the SARS-CoV-2 can be transmitted through respiratory droplets and contact, the

corresponding areas of the pharmacy department in hospitals shall be disinfected. Previous studies on SARS-CoV and MERS-CoV have shown that the virus was sensitive to ultraviolet and heat, 56℃ for 30 minutes, ether, 75% ethanol, chlorine containing disinfectant, peracetic acid, chloroform, and other fat solvent can effectively inactivate the SARS-CoV-2. Chlorhexidine cannot inactivate the SARS-CoV-2.

The pharmacy department shall clean and disinfect the working environment, relevant objects and equipment in accordance with the relevant cleaning and disinfection guidelines and regulations.

4.7 Strengthen patient management [28]

Patient visits shall be managed properly to minimize the crowding of patients, and to reduce the risk of infection in hospitals. For patients receiving on-site pharmaceutical service, ask if they have SARS-CoV-2 infection-related symptoms and epidemiological contact history. If patients with suspected or confirmed infection with the SARS-CoV-2 are found, the pharmacist shall report to the relevant department of the medical institution immediately and shall cooperate with the isolation and other measure to prevent disease transmission.

4.8 Strengthen patient education [27]

Pharmacists shall actively participate in the education of patients and their accompanying persons through outpatient pharmacies and consultation, to help them understand the preventive and pharmaceutical knowledge of the SARS-CoV-2 infections. Pharmacists can also strengthen the knowledge popularization of medications for preventing and treating the SARS-CoV-2 infections if possible. Provide pharmaceutical services for self medical observers by the internet and telephones.

4.9 Strengthen infection exposure management [37]

Strictly implement the rules and regulations on the infection prevention and control in

hospitals. Reduce the exposure to potential infection vectors (such as paper prescriptions, medication transportations) when providing pharmacy services, and minimize the risk of infection exposure. If SARS-CoV-2 infection exposure occurred, it should be immediately reported to the relevant departments of the medical institution. Emergency plans should be initiated in accordance with relevant standards and procedures, and cooperation should be made with futher investigation and management.

4.10 Strengthen medical waste management [38]

Incorporate the medical waste generated by the confirmed or suspected patients of the SARS-CoV-2 infection into the management of infectious medical waste. Medical waste generated for providing pharmacy services shall be collected in accordance with relevant regulations of the health administrative department or hospitals, and then coordinated with relevant departments for standardized disposal. Measures include specially-assigned persons, collect and make records in a timely manner, make classified storage, transport by special vehicles, and dispose them at designated locations.

5 Guidance for providing hospital pharmacy services

5.1 Risk and management of infection exposure[39]

The personal protection of pharmacists and pharmacy workforce should strictly follow the requirements of infection prevention and control in their hospital. Based on the principle of standard precautions[39] and according to clinical high-, medium-, and low-level exposure risk, most of the pharmaceutical posts are considered as low-risk exposure, and some are at moderate to high risk exposure.

5.1.1 High-risk:

Pharmacy services in the fever clinic or isolation wards. Exposure to aerosols and body fluids (including blood) of the suspected or confirmed patients with the SARS-CoV-2 infection, such as therapeutic drug monitoring and genetic testing of the

patients suspected or confirmed of the SARS-CoV-2 infection. If the pharmacy laboratory does not meet the requirements of the Biosafety Level 2 or above, it is not recommended to conduct therapeutic drug monitoring and genetic testing of the patients suspected or confirmed with the infection.

5.1.2 Moderate-risk:

Direct contact with patients, such as physical examination when providing pharmaceutical care, patient's body fluid (including blood) contact and transfer, and therapeutic drug monitoring or genetic testing of the patients who were not confirmed or suspected of the SARS-CoV-2 infection.

5.1.3 Low-risk:

Indirect contact with patients, such as dispensing, medication consultations, pharmacy clinics, pharmaceutical care, drug delivery in wards, pharmacy intravenous admixture, management of drug.

5.2 Personal protective equipment

Personal protective equipment (PPE) include medical protective masks, latex examination gloves, goggles, safety glasses, face shields, fluid resistant aprons, gown, coverall, fluid-resistant and impermeable gowns and coveralls [31, 39]. PPE should meet national standards[31]. PPE should be replaced immediately when they are contaminated by patients' blood, body fluids, secretions, etc., and should meet the requirements of Infection Prevention and Control Department in hospitals[28, 40].

5.3 PPE for pharmacy staff in various posts[1, 39, 40]

5.3.1 High risk:

Gowns, coveralls, fluid-resistant and impermeable gowns and coveralls, medical protective masks, disposable work caps, goggles / face shields, respirators, double gloves, boots/ shoe covers, and hand hygiene.

5.3.2 Moderate risk:

Coveralls and gowns, medical protective masks, disposable work caps, goggles / face shields, gloves, and hand hygiene.

5.3.3 Low risk:

Coveralls or gowns, medical surgical masks, disposable work caps, and hand hygiene. Pharmacists should follow the PPE donning/doffing protocol strictly. Avoid leaving the contaminated area on PPE to prevent cross-infection in different work zones.

5.4 Management of work facilities and the environment[1, 40]

5.4.1 Management of work facilities

Drug delivery equipment and containers: The drug delivery equipment and containers in the isolation and non-isolation area must not be mixed. The transportation equipment and containers should be disinfected according to the requirements of the environment.

Prescriptions: Use of electronic prescriptions and delivery of prescriptions via Internet, fax, etc. in outpatient pharmacy of the fever clinic and inpatient pharmacy of isolation area should be given priority, in an effort to reduce paper prescriptions. Paper prescriptions should be collected regularly, fumigated with formaldehyde, sterilized with and ethylene oxide and stored properly in a sealed container. The hospital or pharmacy should set up a special area for prescription storage.

5.4.2 Management of the environment

Environment: The pharmacy department shall perform disinfection of the working environment. The pharmacy should keep the dispensing window clean and free of cluster. During the epidemic, wipe and disinfect the dispensing window twice a day, or four times a day for the dispensing windows of the pharmacy in fever clinic and infectious disease pharmacy. 75% alcohol, a chlorine-containing disinfectant with chlorine concentration of 250-500 mg/L or an effective disinfecting wipes can be used for the wiping.

5.5 Management for patients using pharmacy services[28]

5.5.1 Clinic visits and filling prescriptions

The pharmacy department shall try to reduce clinic visits of patients by multiple means, such as allowing prescriptions with longer duration according to local medical

insurance regulations, providing online consulting services, or providing delivery of medicines to home, to reduce unnecessary clinic visits and the risk of cross-infection.

5.5.2 Patients consultation

Pharmacists who provide pharmacy services directly to patients shall ask patients about fever, respiratory symptoms, and the epidemiological history. If the SARS-CoV-2 infection is suspected, patients should be referred to a fever clinic immediately.

5.5.3 Pharmacy service

If normal pharmacy service cannot be performed during the epidemic, it can be conducted via the internet, phone or video. Pharmacists shall provide guidance on the safety use of medications for the infection caused by the SARS-CoV-2, and monitor and report the adverse reactions, provide scientific guidance and promote rational drug use.

5.5.4 Patient education

Pharmacists shall actively educate patients and accompanying persons to help them understand the knowledge of protection from SARS-CoV-2, and guide them to use medications properly, as well as avoiding unnecessary use of preventive medication. During the epidemic, non-face-to-face methods for patients education and medication consultation can be actively performed, such as via App, Wechat and phone.

5.5.5 Home pharmacy services

Pharmacists can provide medication consultation and remote home pharmacy services for people at home isolation and self-medical observation via online consultation methods.

5.5.6 Humanistic care

Pharmacy services should convey humanistic care by various means, such as providing encouraging words through conversations or on the materials of medication education. Pharmacists can encourage patients to keep active attitudes towards the disease.

6 Guarantee of key drugs, facilities and equipment

6.1 Reference list of key therapeutic drugs and supply guarantee

Aiming at the prevention and disease control of 2019 n-CoV infections, the pharmacy department of hospitals should guarantee the supply of therapeutic drugs related to clinical diagnosis and treatment.

The key therapeutic drugs are used for disease prevention, diagnosis and treatment in hospitals, as well as for supplying the medical support teams. The pharmacy department should be authorized by the Pharmacy Administrative and Therapeutic Committee of each medical institution to formulate a list of key therapeutic drugs. Establish the list from the perspective of pharmacy based on the demand of clinical diagnosis and treatment progress, and epidemic prevention and control, see Table 6.1 for reference.

Designate pharmacy staff to take charge of the procurement, storage and distribution of key therapeutic drugs. Adjust the inventory as needed to guarantee the supply for clinical practice, according to the diagnosis and treatment protocol, clinical treatment demands, and stock level.

Table 6.1 Reference list of key medicines for the treatment of SARS-CoV-2 infections

Classification	Drug name	Dosage form and specifications[41]	References
Antiviral treatment	Recombinant Human Interferon	Recombinant Human Interferon α-2a Injection: 3 million IU, 5 million IU Recombinant Human Interferon α-2b Injection, Recombinant Human Interferon α-2b Injection (P.putida): 3 million IU, 5 million IU	[1, 22]
	Lopinavir/ritonavir	Capsule: Lopinavir 200mg, Ritonavir 50mg	[1, 22]
	Ribavirin	Injection: 1mL: 0.1g	[1]
Antimicrobial agents	According to the existing drug list of the medical institution		[1, 22]

Antipyretic analgesia agents	Ibuprofen	Tablet, Granules: 0.1g,0.2g Capsule: 0.2g Sustained release (Tablet, Capsule):0.3g Suspension: 60mL:1.2g, 100mL:2g	[22]
	According to the existing drug list of the medical institution		
Corticosteroids	Methylprednisolone	Tablet: 4mg (Sodium succinate) Sterile powder for injection: 40mg, 500mg	[1, 22]
Intestinal microecological preparations	According to the existing drug list of the medical institution		[1]
Other gastrointestinal treatment	According to the existing drug list of the medical institution		[42]
Antitussive treatment	According to the existing drug list of the medical institution		
Sputum Removal Treatment	According to the existing drug list of the medical institution		
Anti-asthmatic treatment	According to the existing drug list of the medical institution		
Chinese patent medicine	Huoxiangzhengqi	Soft capsule: 0.45g Dripping pill: 2.6g/bag Concentrated pill: 8 pills drops are equivalent to 3g herbal slices Tincture : 10mL Oral Solution: 10mL	[1, 11]
	Jinhua Qinggan	Granules: 5g (Equivalent to 17.3g herbal slices)	[1]
	LianhuaQingwen	Capsule: 0.35g Granule: 6g/bag	[1, 11]
	ShufengJiedu	Capsule: 0.52g	[1]
	Fangfengtongsheng	Concentrated pill: 8 pills/bag, equivalent to 6g herbal slices Watered pill：6g/bag Granules: 3g/bag	[1, 11]

	Xiyanping	Injection：2mL:50mg, 5mL:125mg	[1]
	Xuebijing	Injection:10mL	[1]
	Shenfu	Injection:10mL	[1, 11]
	Shengmai	Injection:10mL, 20mL	[1, 11]

Note: This drug list is for reference only, medical institution can make adjustments according to their specific conditions.

6.2 Reference list of disinfectants and consumable and supply guatantee

Aiming at the prevention and disease control of the SARS-CoV-2 infections, the pharmacy department of each medical institution shall collaborate with the infection management department to determine the list of disinfection drugs, as shown in Table 6.2, guarantee adequate stock and complete the disinfection and protection work of each department in time.

The pharmacy department shall emphasize hand hygiene and disinfect potential contaminated objects periodically, including object surfaces, the air and prescriptions. Report the disinfectant agents and related consumables supplies needed to the medical institution. All such supplies should meet the management requirements of the national health department.

Table 6.2 Reference list of disinfectant agents and consumables for commonly contaminated objects of SARS-CoV-2 infections[33, 36, 40]

Object of disinfection	Type of disinfectant agents	Disinfection consumable
Environmental object surface	Chlorine-containing disinfectant (1000mg/L), chlorine dioxide (500mg/L), 75% alcohol etc.	Disposable absorbent material
Hands	Alcohol-containing quick-drying hand disinfectant, chlorine-containing disinfectant, hydrogen peroxide	
Skin	0.5% iodine-based disinfectant, hydrogen peroxide	
Mucosa	0.05% iodine-based disinfectant	
Indoor air	Peracetic acid, chlorine dioxide, hydrogen peroxide etc.	
Pollutant	Chlorine-containing disinfectant (5000-20000mg/L), disinfectant	

	powder or bleach powder containing water absorption	
Textiles such as clothes, bedding	Chlorine-containing disinfectant(500mg/L), ethylene oxide	
Prescriptions	Ethylene oxide	

Note: This disinfectants and consumable list is for reference only, medical institution can make adjustments according to their specific conditions.

6.3 The list and management of key facilities and equipment

For the prevention and control of SARS-CoV-2, the pharmacy department of each medical institution should develop a catalogue of equipment, facilities and personal protective equipment related to the epidemic prevention and control, as shown in Table 6.3. Equipment shall be provided with national qualification certificates, and qualified personnel shall be designated to operate and maintain the equipment in accordance with the standard operation process. Personal protective equipment shall be provided with national qualification certificates.

Table 6.3 Reference list of key facilities, equipment and personal protective equipment for the SARS-CoV-2 infections [31, 36, 40]

Classification		Name
Facilities	Essential	Isolated dispensing window
	Optional	Biological safety cabinet
Equipment	Essential	UV Lamp
		Air sterilizer
		Body temperature measuring equipment
		High-pressure steam sterilizer
		Transfer box
	Optional	Intelligent distribution equipment
Personal protective equipment	Essential	Medical protective mask
		Disposable work cap
		Disposable gloves
		Coverall
	Optional	Medical surgical mask
		Medical protective mask (N95 mask or equivalent mask)
		Face shield
		Power-supply air-supply respirator with optional dust filter box or filter tank

		Goggles
		Long sleeve thick rubber gloves
		Work shoes
		Rubber boots
		Waterproof boot cover
		Disposable shoe cover
		Medical gown
		Waterproof apron
		Waterproof isolation gown

7 Management and use of drugs under epidemic situation

7.1 Management and use of donated drugs [40, 43]

Donated drugs are referred to drugs voluntarily provided to hospitals by domestic and foreign suppliers, manufacturers and other organizations for the prevention, treatment and health care of pneumonia caused by the SARS-CoV-2. All donated drugs shall be those needed by hospitals for diagnosis and treatment, epidemic prevention and control, and shall be qualified marketed medicines that comply with the provisions of National Medical Products Administration (NMPA), the health administration and relevant government departments. Donated medicines should also pass the review of the designated management department of the medical institution, and complete the qualify examination and approval records filling. The validity period of donated medicines shall be within a reasonable executive period.

When accepting donations, hospitals shall abide by national laws and regulations. When using donated medicines, the pharmacy department shall follow the procedures and requirements prescribed by the medical institution strictly, and shall not accept or use the donated medicines privately or engage in profit-making activities. A designated person, a designated storage and a special account should be setup to manage the donated drugs and subject to the supervision and audit of designated management department of the medical institution.

7.2 Management and use of drugs for clinical trials [44, 45]

In the relevant clinical trials for the prevention and control of the SARS-CoV-2 infections, the researchers are responsible for the drugs for clinical trials on the basis

of principles of medical ethics. The pharmaceutical department shall cooperate with the researchers to manage the drugs being used.

The dosage and instructions of related drug use shall follow the clinical trial protocol. Drug-related information needs to be documented including the quantity, shipment, delivery, acceptance, distribution, recovery and destruction of the remaining drugs when being used. The supply, usage, storage, and disposal of remaining drugs for clinical trials shall comply with relevant national regulations.

8 Reliable sources of information and other resources

Only the latest version of files are listed here.

Num.	Publication Source	Information	Publication time	Link/Reference
1	World Health Organization (WHO)	2019-nCoV technical guidance. Refer to country readiness, patient management, risk community engagement, surveillance and case definitions, infection prevention and control in health care facilities, disease commodity package, laboratory guidance, early investigations, reduction of transmission from animals to humans.		
1.1		Global Surveillance for human infection with novel coronavirus (2019-nCoV) (Interim guidance V3)	2020-01-31	https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance
1.2		Surveillance case definitions for human infection with novel coronavirus (2019-nCoV) (Interim guidance V2)	2020-01-15	
1.3		Infection prevention and control during health care when novel coronavirus (2019-nCoV) infection is suspected (Interim guidance)	2020-01-25	
1.4		Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected (Interim guidance)	2020-01-28	
1.5		Home care for patients with suspected novel coronavirus (2019-nCoV) infection presenting with mild symptoms and management of contacts (Interim guidance)	2020-1-20	

2	The United States Centers for Disease Control and Prevention (CDC)	Information about 2019-nCoV for Health Professionals, including interim guidance for healthcare professionals, infection control, clinical care, preparedness checklists, implementing home care.		
2.1		What you need to know about 2019-nCoV	2020-01	https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html
2.2		What to do if you are sick with 2019-nCoV	2020-01	
2.3		What the public should do to prevent 2019-nCoV	2020-01	
2.4		Flowchart to identify and assess 2019-nCoV	2020-01	
2.5		Interim clinical guidance for management of patients with confirmed 2019 novel coronavirus (2019-nCoV) infection	2020-01-30	
2.6		Interim guidance for healthcare professionals on the evaluation and testing of patients under investigation (PUIs) for 2019-nCoV	2020-02-02	
2.7		Interim infection prevention and control recommendations for patients with known or patients under investigation for 2019 novel coronavirus (2019-nCoV) in a healthcare sett	2020-01-28	
3.1	Joint Prevention and Control Mechanism for 2019-nCoV, the State Council of the People's Republic of China	Technical guidance for choosing and using masks to prevent infection with novel coronavirus(2019-nCoV)	2020-02-04	
3.2		Prevention and control of human infection with novel coronavirus (2019-nCoV) (Guidance V4)	2020-02-07	
3.3		Case surveillance for human infection with novel coronavirus (2019-nCoV) (Guidance V4)	2020-02-07	

3.4	National Health Commission of the People's Republic of China	Epidemiological investigation for human infection with novel coronavirus (2019-nCoV) (Guidance V4)	2020-02-07	http://www.nhc.gov.cn/xcs/zhengcwj/list_gzbd.shtml
3.5		Management for close contacts of human infection with novel coronavirus (2019-nCoV) (Guidance V4)	2020-02-07	
3.6		Technical guidelines for laboratory testing of human infection with novel coronavirus (2019-nCoV) (Guidance V4)	2020-02-07	
3.7		Guidance for personal protection of specific populations (V2)	2020-02-07	
3.8		Technical guidance for disinfection of specific places (V2)	2020-02-07	
3.9		Clinical management of human infection with novel coronavirus(2019-nCoV) (Interim guidance v5, revised version)	2020-02-08	
3.10		Guidance for protection of people with different risks of infection with novel coronavirus(2019-nCoV)	2020-01-31	
3.11		Guidelines for the use of masks to prevent infection with novel coronavirus(2019-nCoV)	2020-01-31	
3.12		Notice on management of medical waste in medical institutions during the outbreak of human infection with novel coronavirus(2019-nCoV)	2020-01-28	
3.13		Guidance for the use of common medical	2020-01-27	

		protective equipment in the prevention and control of human infection with novel coronavirus(2019-nCoV) (Interim version)		
3.14		Principles for psychological crisis intervention during the outbreak of human infection with novel coronavirus(2019-nCoV)	2020-01-27	
3.15		Work program for prevention and control of novel coronavirus (2019-nCoV) infection in communities (Interim version)	2020-01-25	
3.16		Technical guidelines for prevention and control of novel coronavirus (2019-nCoV) infection in medical Institutions (Guidance V1)	2020-01-22	
4.1	Beijing Municipal Health Commission Beijing Medical Security Bureau	Notice on issues related to outpatients prescriptions during the epidemic of novel coronavirus infected pneumonia	2020-01-26	
4.2	Beijing Municipal Health Commission	Guidelines for the protection of medical personnel in face of novel coronavirus induced pneumonia in Beijing	2020-02-03	
4.3	Beijing Medical Affairs Management Center	Notice on optimizing the management and service of medical insurance during the breakout of novel coronavirus infected pneumonia	2020-01-27	
4.4	Beijing Pharmacy Center for Quality Control and Improvement	Recommendations for management of Novel coronavirus-infected pneumonia in pharmaceutical department of medical institutions. (2nd Edition)	2020-02-06	
4.5	Beijing Hospital Infection	Beijing's recommendations for cleaning and	2020-01-26	

	Management Quality Control and Improvement Center	disinfection of respiratory-borne diseases (novel coronavirus-infected pneumonia) (Interim Version)		
4.6	Beijing Administration of Traditional Chinese Medicine	Prevention and treatment program with TCM for novel coronavirus-infected pneumonia in Beijing	2020-01-29	
4.7	Sichuan Pharmacy Administration & Quality Control Center	Recommendations for management of novel coronavirus-infected pneumonia by Sichuan Pharmacy Administration & Quality Control Center	2020-01-22	
4.8	Zhejiang Hospital Pharmacy Administration & Quality Control Center	Diagnosis and clinical management of novel coronavirus-infected pneumonia: Recommendations for pharmacists	2020-01-29	
5.1	Chinese Society for Parenteral and Enteral Nutrition	Expert opinion on diet and nutrition for the prevention and treatment of novel coronavirus infections	2020-01-27	
5.2	Science Popularization Department of Chinese Medical Association	Recommendations on the diagnosis, prophylaxis and treatment of the 2019-nCoV infection or pneumonia in children	2020-01-29	
5.3	Health Management Branch of Chinese Medical Association	Twelve recommendations for the prevention and control of novel coronavirus infected pneumonia	2020-01-31	
5.4	China International Exchange and Promotive Association for Medical and Healthcare (CPAM)	A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (Standard Version)	2020-02-02	Medical Journal of Chinese People's Liberation Army, 45(1):1-20.

5.5	Pediatric Branch of Hubei Medical Association; Pediatric Branch of Wuhan Medical Association; Pediatric Medical Quality Control Center of Hubei	Recommendations for diagnosis and treatment of novel coronavirus infection in children in Hubei (Interim Version 1)	2020-02	Chinese Journal Of Contemporary Pediatrics, 22(2):96-99.
5.6	Editorial Board of Chinese Journal of Contemporary Pediatrics	Perinatal and neonatal management plan for prevention and control of 2019 novel coronavirus infection (1st Edition)	2020-02	Chinese Journal Of Contemporary Pediatrics, 22(2):87-90.
5.7	Pediatric Committee of the Chinese People's Liberation Army; Editorial Committee of Chinese Journal of Contemporary Pediatrics	Emergency response plan for the neonatal intensive care unit during epidemic of 2019 novel coronavirus	2020-02	Chinese Journal Of Contemporary Pediatrics, 22(2):91-95.
6.1	Tongji Hospital Affiliated to Tongji Medical College, Huazhong University of Science & Technology	Rapid guideline for the diagnosis and treatment of novel coronavirus-infected pneumonia (3rd Edition)	2020-01-30	Herald of Medicine
6.2	Emergency Department, Union Hospital Affiliated to Tongji Medical College, Huazhong University of Science & Technology	Strategies and instruction for Management of 2019 novel coronavirus infection of Union Hospital Affiliated to Tongji Medical College of HUST	2020-01-21	
6.3	Working Group of 2019 Novel Coronavirus, Peking Union Medical College Hospital	Diagnosis and Clinical Management of 2019 Novel Coronavirus (2019-nCoV) Infection: An Operational Recommendation of Peking Union Medical College Hospital (V2.0)	2020-01-30	Medical Journal of Peking Union Medical College Hospital

6.4	West China Hospital, Sichuan University	Prevention and control of 2019-novel coronavirus infection in hospital: Urgent recommendation of West China Hospital	2020-03	Chinese journal of evidence-based medicine,20(3):1-9
6.5	Peking University Third Hospital	Diagnosis, treatment and prevention plan for novel coronavirus infected pneumonia of Peking University Third Hospital (5th Edition)	2020-02-07	
6.6	Department of Pharmacy, Zhongnan Hospital of Wuhan University	Prevention and control of novel coronavirus infection for pharmacists and logistician	NA	http://www.zgys.org/ch/reader/view_news.aspx?id=20200128200338001&category_id=zxxx
6.7	The Second Xiangya Hospital of Central South University	Prevention and control of novel coronavirus infection: Recommendations for pharmacists in the hospital.	NA	
6.8	Sichuan Academy of Medical Sciences & Sichuan People's Hospital & Affiliated Hospital of University of Electronic Science and Technology of China	Rational Use and Pharmaceutical Care of Antiviral Drugs for Novel Coronavirus Pneumonia	2020-02-03	Herald of Medicine
6.9	The First Affiliated Hospital of Zhengzhou University	Recommendations for management of novel coronavirus (2019-nCoV) infected maternal women in Henan Province, China	2020-03	Journal of Zhengzhou University (Medical-Sciences),55(2):1-3

Disclaimer

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