Clinical practice from Wuhan frontline-Fighting COVID-19

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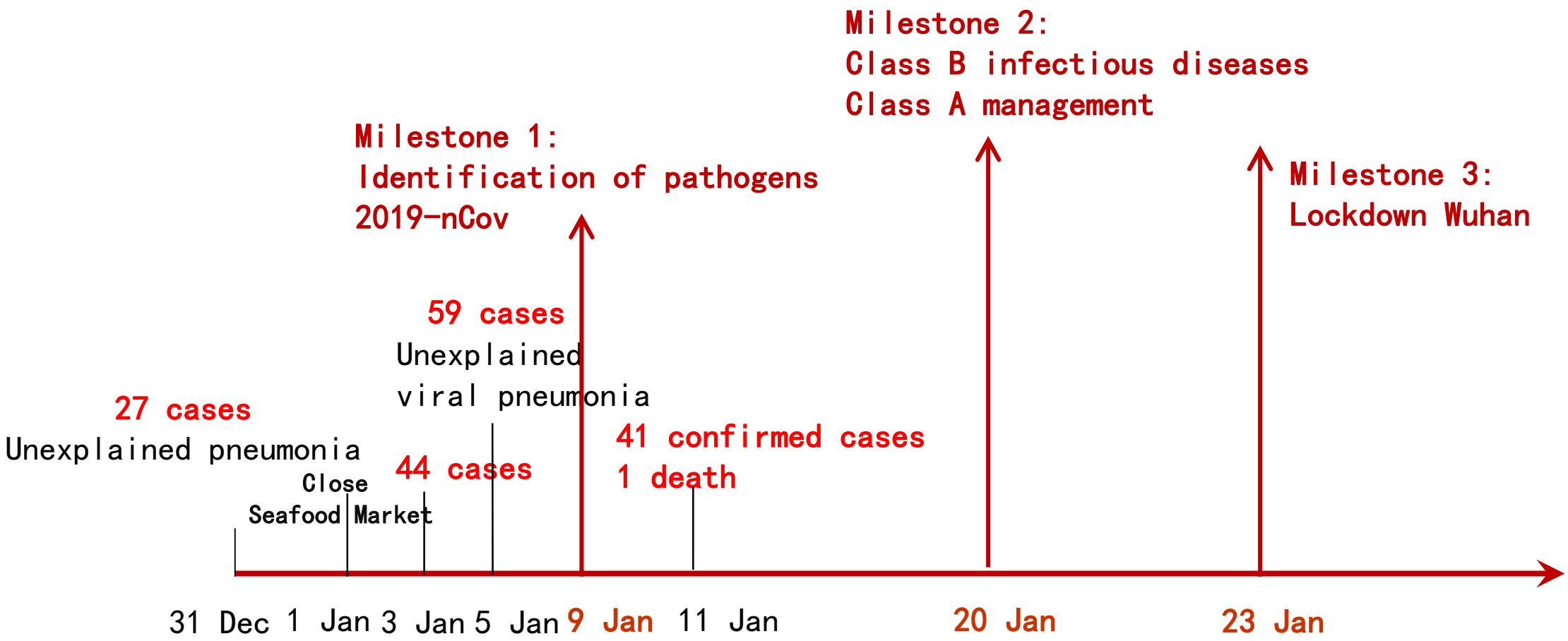
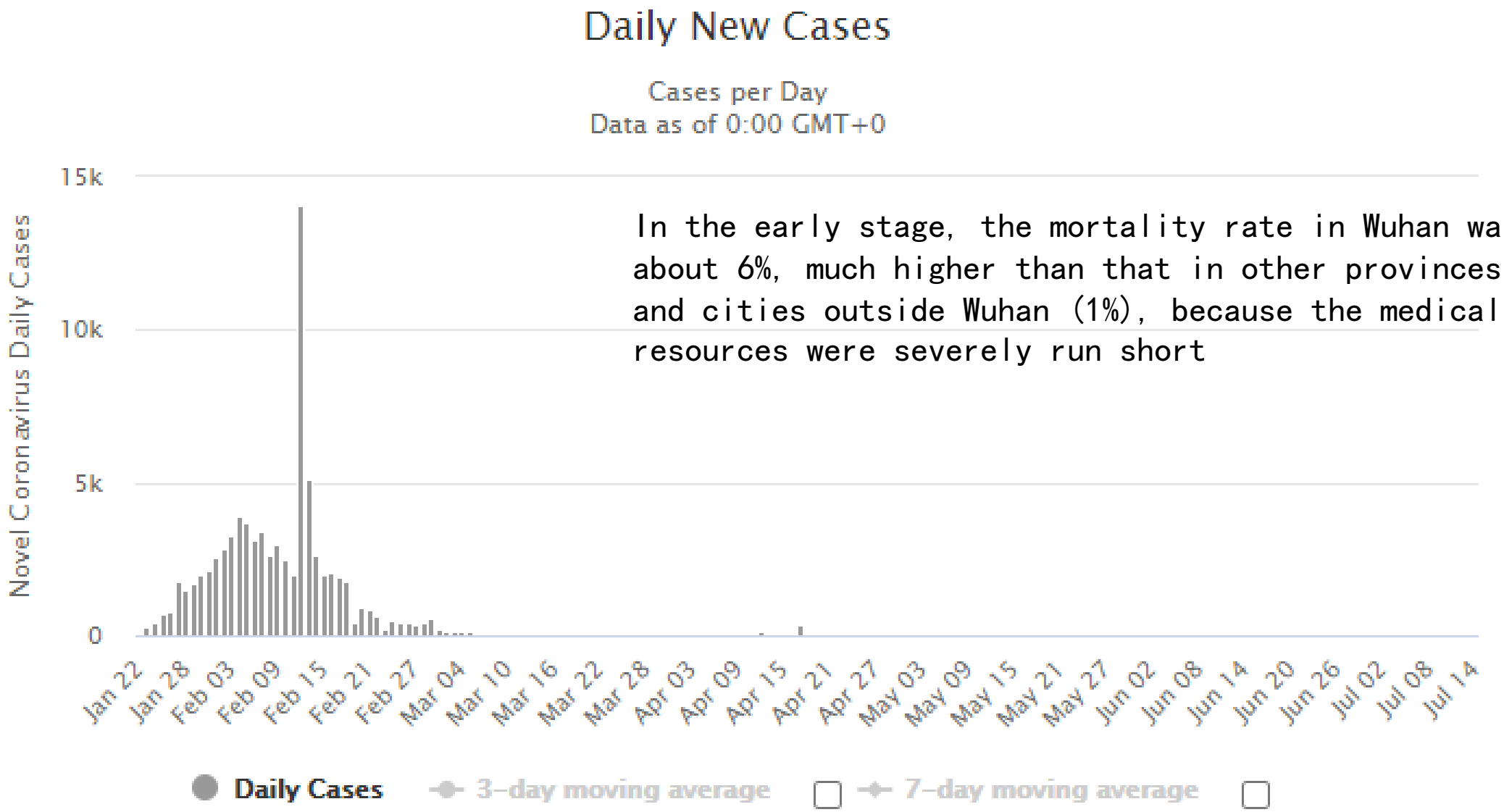
Outlines

- Introduction the key time node
- Case identify and admission process
- Case management, triage and inspection

The timeline with 2019-nCov in Wuhan



Daily New Cases in China



In the early stage, the mortality rate in Wuhan was about 6%, much higher than that in other provinces and cities outside Wuhan (1%), because the medical resources were severely run short

https://www.worldometers.info/coronavirus/country/china/

Prevention and treatment strategy

- Prevention:
  - ✓National mobilization
  - ✓Community prevention and control
  - ✓Cut off the route of transmission:
    - stay at home
    - Face mask
    - Wash hand

Prevention and treatment strategy

- Quarantine of infectious sources:
  - ✓ Early identify the suspected patients
    - Community (Special vehicle, accompanied by special personnel) → Designated fever clinic (screening and triage)
  - ✓ → Designated hospital
  - ✓ → Designated ICU hospital
- There is no delay to admit every patient to the hospital or Fangcang

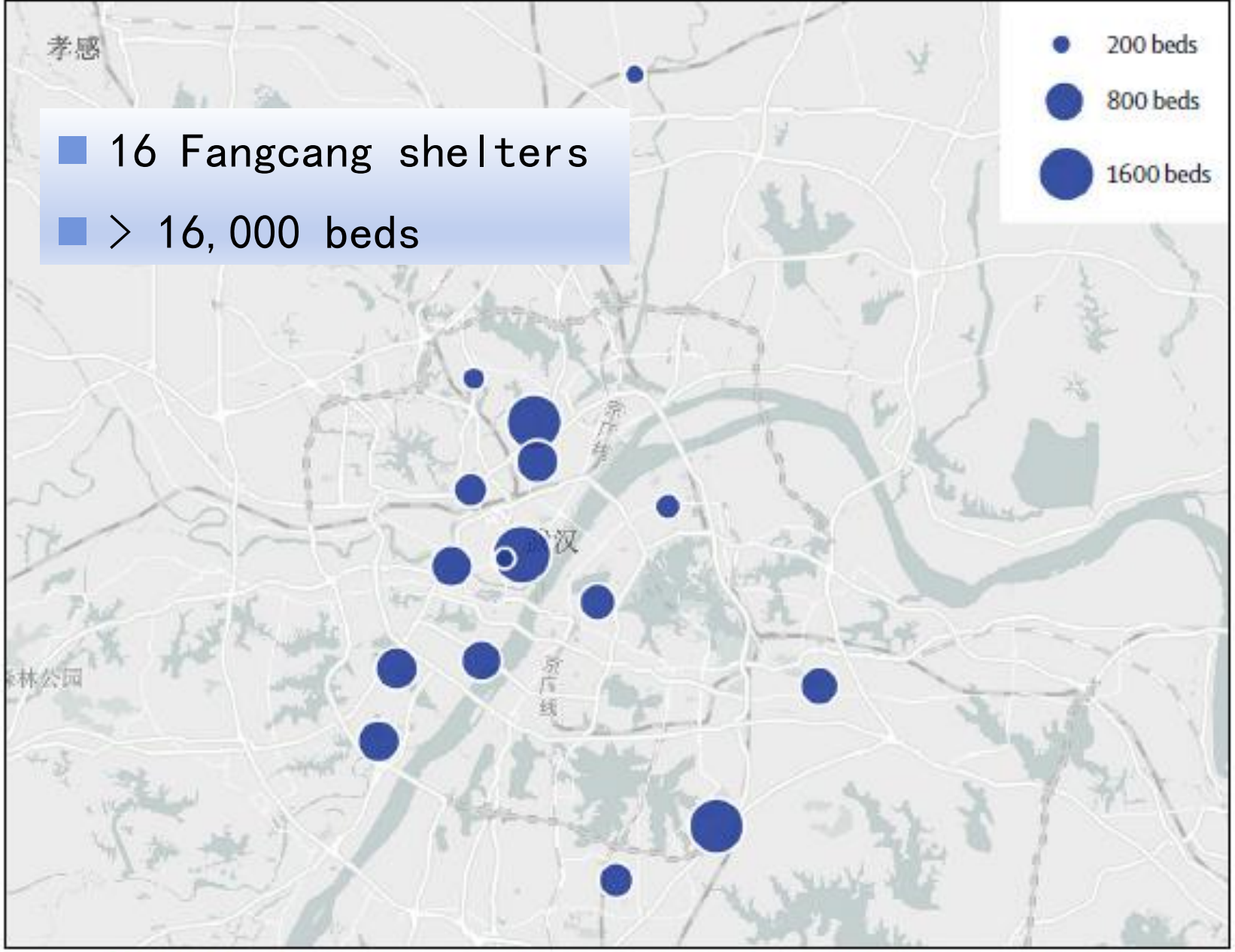


Figure 4: **Fangcang shelter hospital locations and capacities during the coronavirus disease 2019 outbreak in Wuhan, China**

Circle size is proportional to the number of hospital beds in each Fangcang shelter hospital.

Lancet 2020; 395: 1305 - 14

Measures in Numbers

Nationwide:

- ≈1.4 billion people underwent 14 days of at-home isolation

Hubei Province:

- ≈59.2 million people were subjected to cordon sanitaire
- >50,000 hospital beds were opened for COVID-19 patients in Wuhan (including 3 new hospitals + 16 temporary module hospitals)
- Starting on January 24, 346 national medical teams, >40,000 healthcare workers were deployed to Hubei

clinical treatment guidelines and experts' consensus

- China has issued a series of clinical treatment guidelines and experts' consensus statements, including
  - ✓ National COVID-19 diagnosis and treatment plan (1-7 editions);
  - ✓ expert consensus statement on diagnosis and treatment of severe and critical COVID-19 cases (1-2 editions)
  - ✓ diagnosis, treatment and prevention of in children and the elderly (1-2 editions)

Case management principles

- Screening and triage
- Full process management to prevent the development of *mild* and *Ordinary* types to *severe* and *critical illness*

Mild and **Ordinary** types

- Mild type (approximately 5%) : has mild clinical symptoms and no pneumonia manifestations on imaging
- Ordinary type (approximately 75%) : has symptoms such as fever and respiratory tract, shows pneumonia on imaging

Severe (second week after onset of ill) 15%

- Tachypnea (respiratory rate >30 breaths per minute) or respiratory distress
- Hypoxia (oxygen saturation ≤93 percent on room air or PaO_2/FiO_2 <300 mmHg) (1mmHg=0.133kPa)
- More than 50 percent involvement of the lung parenchyma on chest imaging

Critical illness （5%）

1. Respiratory failure occurs and mechanical ventilation is required
2. Shock
3. ICU treatment is required for other organ failure

Focus on two types of patients

- High risk for severity
- Clinical warning indicators for severity

Assess risk for severity

High risk

- Age ≥65 years
- Residence in a nursing home or long-term care facility
- underlying diseases:
  - ✓ Cardiovascular disease (including hypertension)
  - ✓ Chronic lung disease
  - ✓ Cerebrovascular disease
  - ✓ Severe obesity (body mass index [BMI] ≥30 kg/m^2)
  - ✓ Diabetes
  - ✓ Chronic kidney disease (undergoing dialysis)
  - ✓ Chronic liver disease
- Immunocompromising condition
- Tobacco use disorder

Clinical warning indicators for severity

- Peripheral blood lymphocytes decrease progressively;
- Peripheral blood inflammatory factors such as IL-6, C-reactive protein progressively increase;
- D-dimer progressively increase;
- Lactic acid progressively increase;
- Pulmonary lesions progress rapidly in the short term.

Determine the treatment site according to the severity

- Mild and Ordinary types : isolation in home or Fancang
- Severe type and High risk for severe: designated hospital
- Critical should be admitted to ICU as early as possible
- suspected cases should be treated in isolation in a single room
- confirmed cases can be admitted to the same ward by multiple people

Oxygenation assessment

- **Home oximetry**
  - ✓ mild to moderate dyspnea and an oxygen saturation of ⩾93 percent on room air (at rest or with ambulation) on oximetry at home or Fangcang;
  - ✓ Oxygen saturation is 90 to 93 percent with administration of supplemental oxygen by nasal cannula at 2-3 liters/minute;
  - ✓ If the value drops to below 93 percent, they will be transfered to Hospitals.

Severe patients inspection

- 12 groups (4 experts in each group, respiratory, infection, ICU, etc.)
- From 1st Feb to 10th March, carried out 10 rounds of severe patients inspection
- Guide the treatment and transportation, ensure homogeneity of treatment

Challenge and preparation

- Input risk
- Not easy to identify: asymptomatic, mild, atypical patients
- Treatment plan in autumn and winter in Wuhan:
  - ✓10,000 beds,
  - ✓1,000 ICU beds
  - ✓All hospitals carry out screening COVID-19 for outpatients, emergency patients and inpatients
  - ✓All hospitals set up buffer ward to isolate suspected cases

Summary

- Early identify, early isolation, avoiding “run-to-run” of medical resources

- Triage to prevent / reduce the occurrence of severe diseases

Thank you for your attentions!