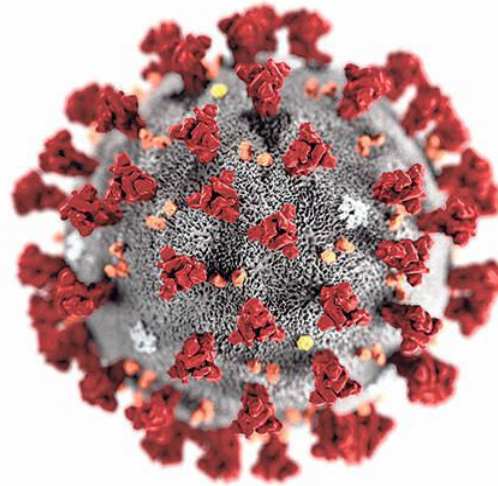


Tatalaksana Kasus Coronavirus disease (Covid)-19



Yovita Hartantri

Tim Infeksi Khusus RSUP dr Hasan Sadikin

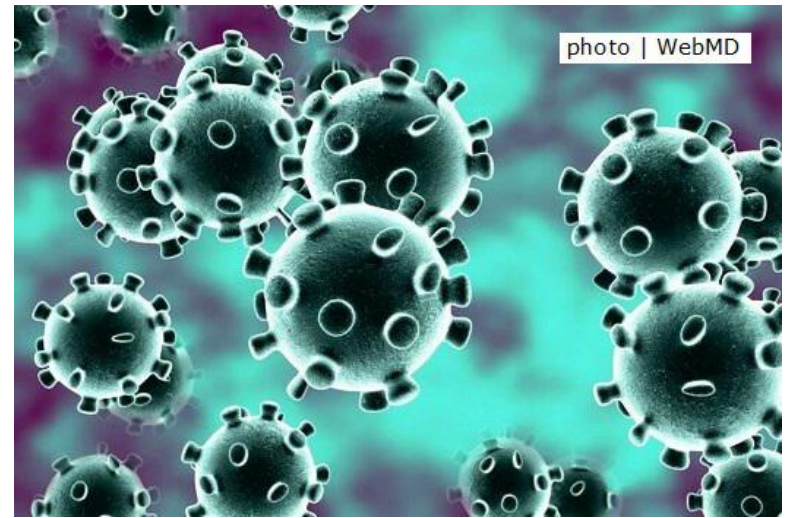
Bandung, 13 Pebruari 2020

Masker N-95 ludes gegara virus corona



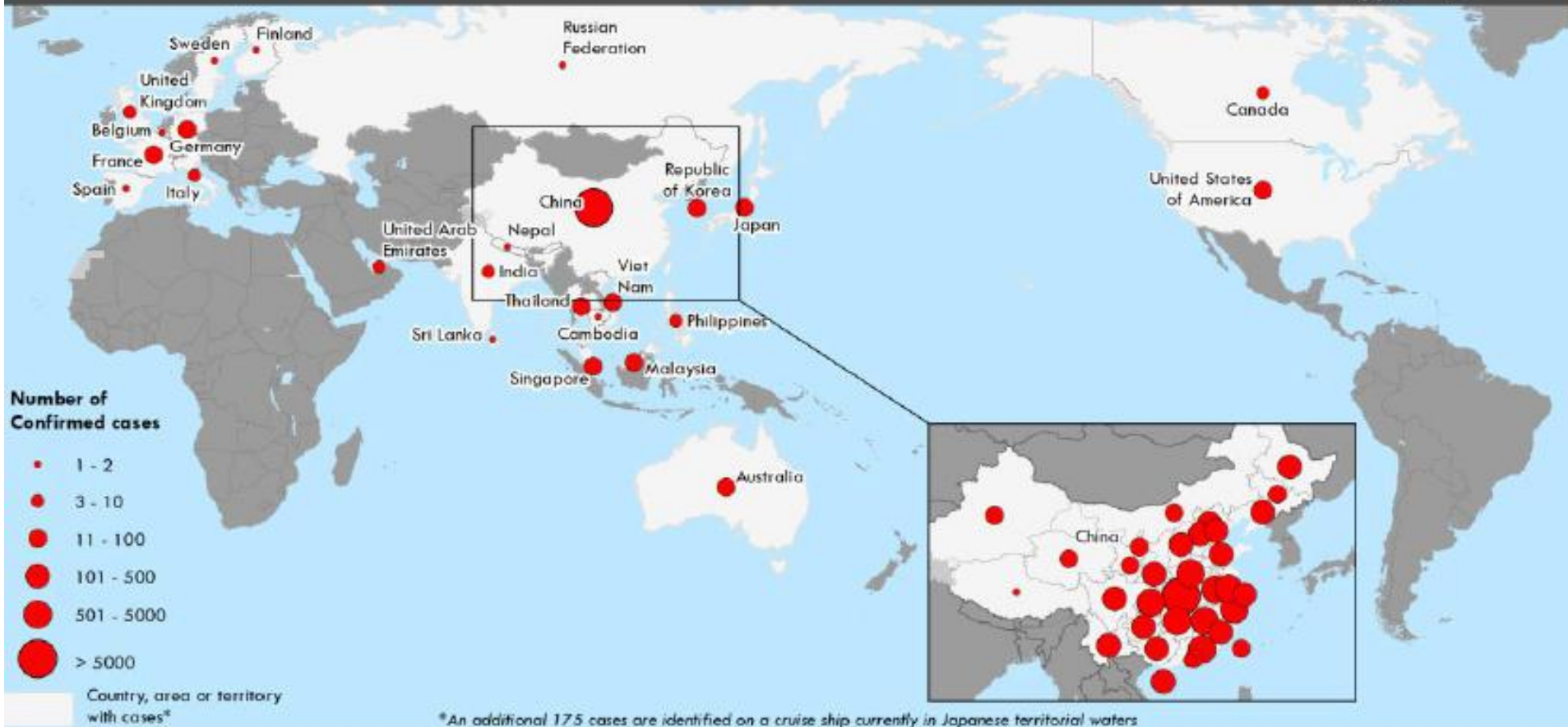
Outline

- Epidemiology
- Etiology
- Pathogenesis
- Clinical manifestation
- Diagnostic
- Treatment



Epidemiology confirmed cases of 2019 nCoV, 12 February 2020 - WHO

Distribution of COVID-19 cases as of 12 February 2020



Data Source: World Health Organization, National Health Commission of the People's Republic of China
Map Production: WHO Health Emergencies Programme

0 2,500 5,000 km
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The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Novel Coronavirus(2019-nCoV)

Situation in Numbers

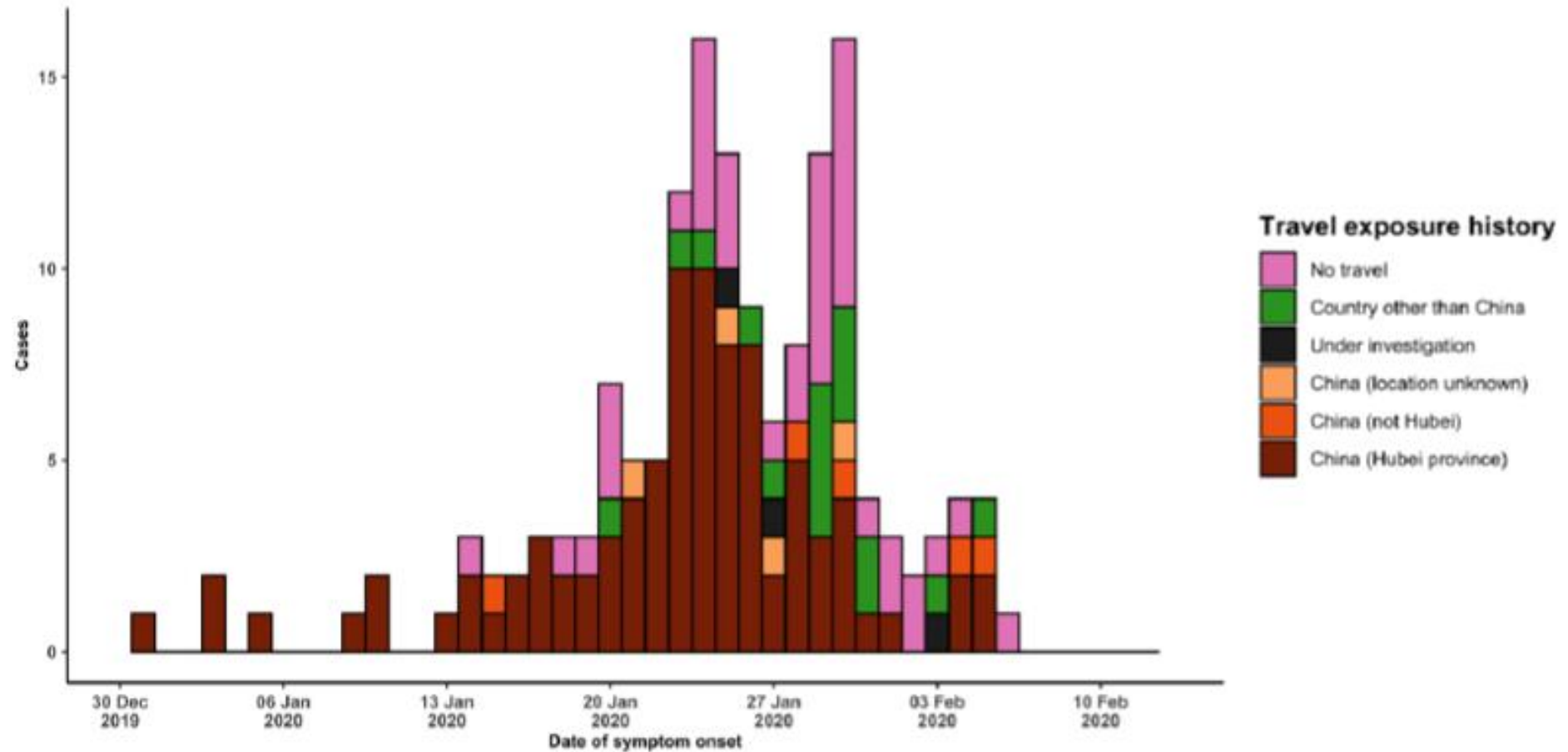
- Total and new cases in last 24 hours
 - Globally : 45.171 confirmed (2068 new)
 - China : 44.730 confirmed (2022 new)
 - 8204 severe (871 new) \approx 18.3%
 - 1114 death (108 new) \approx 2,4%
 - Outside of china : 441 confirmed (46 new)
 - 24 countries
 - 1 death

Novel Coronavirus(2019-nCoV)

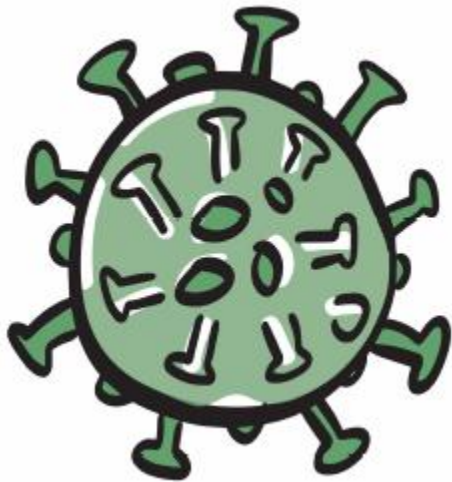
Situation in Numbers

- Total and new cases in last 24 hours
 - Globally : **17.391 confirmed** (2838 new)
 - China : **17.238 confirmed** (2831 new)
 - 2296 severe (186 new) \approx **13%**
 - 361 death (17 new) \approx **2,1%**
 - Outside of china : 153 confirmed (7 new)
 - 23 countries**
 - 1 death

Epidemic curve of COVID cases (n=155) identified outside of China, by date of onset of symptoms & travel history



What is a Corona Virus (CoV)

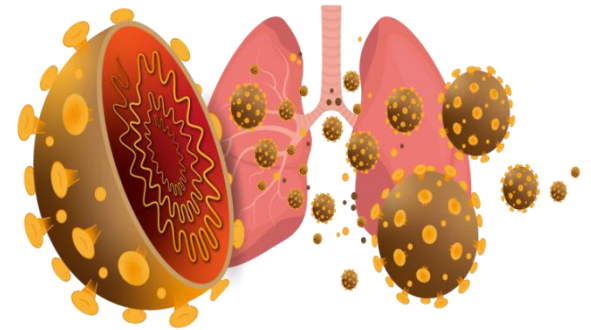


- A large family of viruses
- Zoonotic (civet, camel, bats)
- Causes illness, ranging from common cold to more severe diseases, such as :
 - MERS-CoV
 - SARS-CoV
- **A novel CoV (COVID-19)** is a new strain that has not been previously identified in humans

The family of CoronaVirus

- Common human corona viruses

1. 229E (alpha coronavirus)
2. NL63 (alpha coronavirus)
3. OC43 (beta coronavirus)
4. HKU1 (beta coronavirus)



Novel Coronavirus (2019-nCoV) affects the respiratory system.

- Other human corona viruses

5. MERS-CoV (beta coronavirus)
6. SARS-CoV (beta coronavirus)
7. **COVID-19/Coronavirus disease (beta coronavirus)**

COVID -2019

- RNA virus
- Family coronaviridae
- Distributed in humans and other mammals
- Most human infections are mild
- Epidemics of the two betacoronavirus
 - Severe acute respiratory syndrome (10%)
 - Middle east respiratory syndrome (37%)
- High concentration of cytokines in plasma

Patogenesis of COVID

- Might mainly act on **lymphocytes (T cell)** as does SARS-CoV
- Virus particles spread through the respiratory mucosa & infect other cells
- Induce a **cytokine storm** in the body
- ↙ total lymphocyte indicate that CoV consumes many immune cells & inhibits the **cellular immune function**

Patogenesis

- Damage to T lymphocytes might be an important factor leading to exacerbation of patients.
- The **low absolute value of lymphocytes** could be used as a reference index in the diagnosis of nCoV infection

Wan Y et al. J virol 2020

Receptor recognition by nCoV

nature

<https://doi.org/10.1038/s41586-020-2012-7>

Accelerated Article Preview

A pneumonia outbreak associated with a new coronavirus of probable bat origin

Received: 20 January 2020

Accepted: 29 January 2020

Accelerated Article Preview
Published online 3 February 2020

Peng Zhou, Xing-Lou Yang, Xian-Guang Wang, Ben Hu, Lei Zhang, Wei Zhang, Hao-Rui Si, Yan Zhu, Bei Li, Chao-Lin Huang, Hui-Dong Chen, Jing Chen, Yun Luo, Hua Guo, Ren-Di Jiang, Mei-Qin Liu, Ying Chen, Xu-Rui Shen, Xi Wang, Xiao-Shuang Zheng, Kai Zhao, Quan-Jiao Chen, Fei Deng, Lin-Lin Liu, Bing Yan, Fa-Xian Zhan, Yan-Yi Wang, Geng-Fu Xiao & Zheng-Li Shi

- Symptoms Covid-19 in humans similar \approx SARS-CoV
→ Covid -19 uses the same cell entry receptor, **ACE 2 (Angiotensin Converting Enzyme II)** as SARS-CoV

Clinical manifestation of COVID-19

- Common sign of **infection** include **respiratory symptoms** :
 - Fever
 - Cough
 - Shortness of breath & breathing difficulties
- **Severe cases** :
 - Pneumonia
 - Severe acute respiratory syndrome (SARS)
 - Kidney failure



Clinical manifestation

Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China

Chaolin Huang, Yeming Wang*, Xingwang Li*, Lili Ren*, Jianping Zhao*, Yi Hu*, Li Zhang, Guohui Fan, Jiuyang Xu, Xiaoying Gu, Zhenshun Cheng, Ting Yu, Jiaan Xia, Yuan Wei, Wenjuan Wu, Xuefei Xie, Wen Yin, Hui Li, Min Liu, Yan Xiao, Hong Gao, Li Guo, Jungang Xie, Guangfa Wang, Rongmeng Jiang, Zhancheng Gao, Qi Jin, Jianwei Wang†, Bin Cao†*

Summary

Background A recent cluster of pneumonia cases in Wuhan, China, was caused by a novel betacoronavirus, the 2019 novel coronavirus (2019-nCoV). We report the epidemiological, clinical, laboratory, and radiological characteristics and treatment and clinical outcomes of these patients.

Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study

Nanshan Chen, Min Zhou*, Xuan Dong*, Jieming Qu*, Fengyun Gong, Yang Han, Yang Qiu, Jingli Wang, Ying Liu, Yuan Wei, Jia'an Xia, Ting Yu, Xinxin Zhang, Li Zhang*

Summary

Background In December, 2019, a pneumonia associated with the 2019 novel coronavirus (2019-nCoV) emerged in Wuhan, China. We aimed to further clarify the epidemiological and clinical characteristics of 2019-nCoV pneumonia.

Demographics & Characteristics of 99 patients admitted to Wuhan Jinyintan Hospital with 2019 nCoV

	Patients (n=99)
Age, years	
Mean (SD)	55.5 (13.1)
Range	21–82
≤39	10 (10%)
40–49	22 (22%)
50–59	30 (30%)
60–69	22 (22%)
≥70	15 (15%)
Sex	
Female	32 (32%)
Male	67 (68%)
Occupation	
Agricultural worker	2 (2%)
Self-employed	63 (64%)
Employee	15 (15%)
Retired	19 (19%)
Exposure to Huanan seafood market*	
Long-term exposure history	47 (47%)
Short-term exposure history	2 (2%)
Chronic medical illness	50 (51%)

Chen Nanshan,
et al. the Lancet
2020

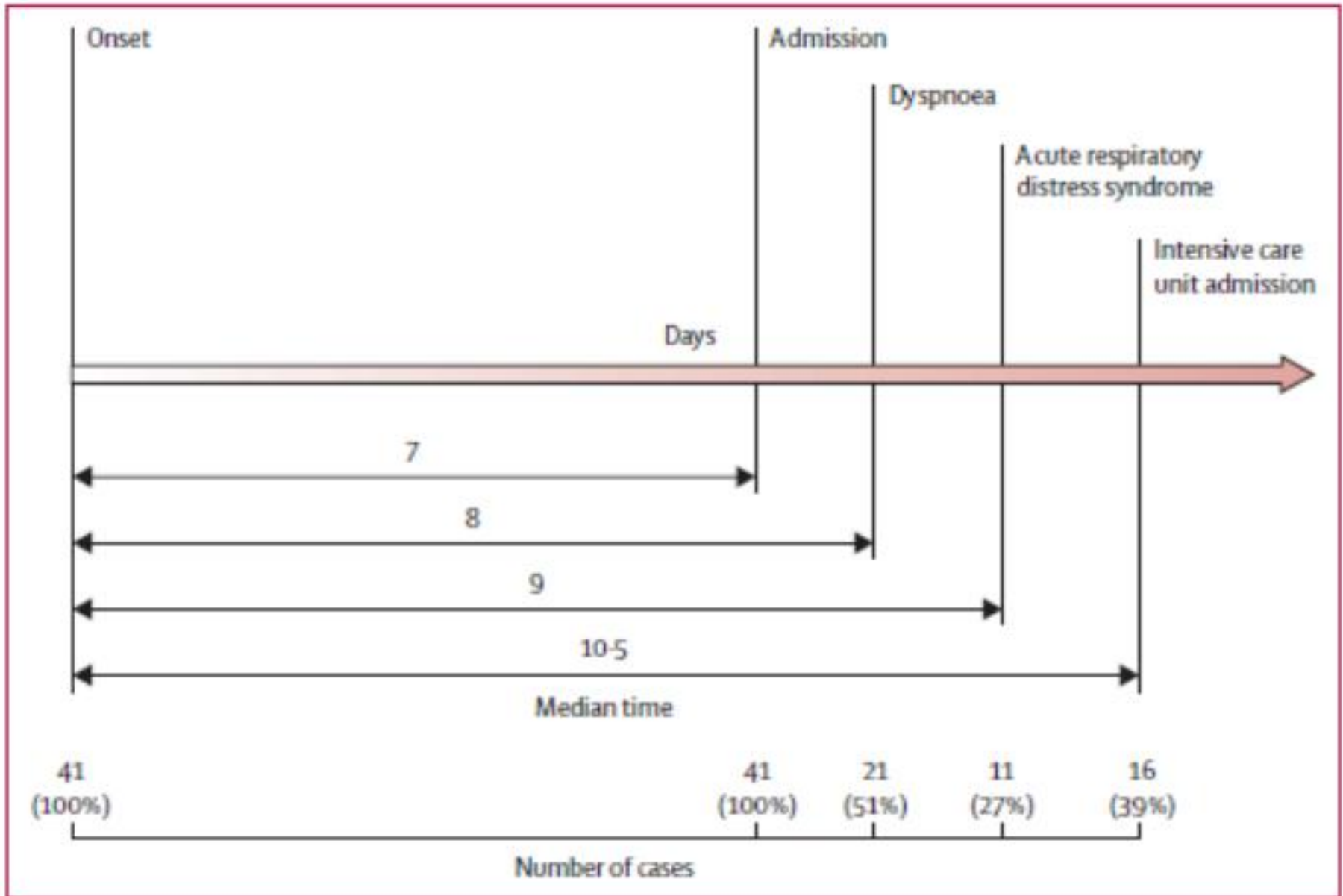
Clinical characteristics (Chen Nanshan et al, the Lancet 2020)

	Patients (n=99)
Signs and symptoms at admission	
Fever	82 (83%)
Cough	81 (82%)
Shortness of breath	31 (31%)
Muscle ache	11 (11%)
Confusion	9 (9%)
Headache	8 (8%)
Sore throat	5 (5%)
Rhinorrhoea	4 (4%)
Chest pain	2 (2%)
Diarrhoea	2 (2%)
Nausea and vomiting	1 (1%)
More than one sign or symptom	89 (90%)
Fever, cough, and shortness of breath	15 (15%)

Symptoms

- Common symptoms (n=41) :
 - Fever (98%)
 - Cough (76%)
 - Myalgia or fatigue (44%)
 - Sputum production (28%)
 - Headache (8%)
 - Hemoptysis (5%)
 - Diarrhea (3%)
 - Dyspnoea (55%)
 - Illness onset to dyspnoea 8 days (5-13)

Timelines of 2019 nCoV cases after onset of illness



Diagnostic

- Samples from 7 patient with severe pneumonia
 - First : used pan CoV PCR pfimer → 5 PCR (+)
 - Then a sample WIV04 from BALF was analysed by metagenomics analysis using next-generation sequencing (NES) to identify potential etiological agents

Zhou P et al, Nature 2020

Diagnostic

- Real time PCR & Next-generation sequencing
 - Throat swab specimens from upper respiratory tract (nasal and oropharynx)
 - Sputum or endotracheal aspirates from lower respiratory tract
- Chest X-ray or chest CT

Diagnostic imaging examination

- 75% showed bilateral pneumonia
- 14% multiple mottling and ground glass opacity
- 1% pneumothorax

Chen N et al, the Lancet

2020

Complication

- 17% developed acute respiratory distress syndrome
- 11% worsened in a short period of time and died of multiple organ failure

Chen N et al, the Lancet 2020

Treatment of patients (Chen Nanshan et al, the Lancet 2020)

Treatment

Oxygen therapy	75 (76%)
Mechanical ventilation	
Non-invasive (ie, face mask)	13 (13%)
Invasive	4 (4%)
CRRT	9 (9%)
ECMO	3 (3%)
Antibiotic treatment	70 (71%)
Antifungal treatment	15 (15%)
Antiviral treatment	75 (76%)
Glucocorticoids	19 (19%)
Intravenous immunoglobulin therapy	27 (27%)

2019-nCoV=2019 novel coronavirus. ARDS=acute respiratory distress syndrome. ECMO=extracorporeal membrane oxygenation. CRRT=continuous renal replacement therapy.

Treatment ?

Cell Research

www.nature.com/cr
www.cell-research.com



LETTER TO THE EDITOR **OPEN**

Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro

Cell Research (2020) 0:1–3; <https://doi.org/10.1038/s41422-020-0282-0>

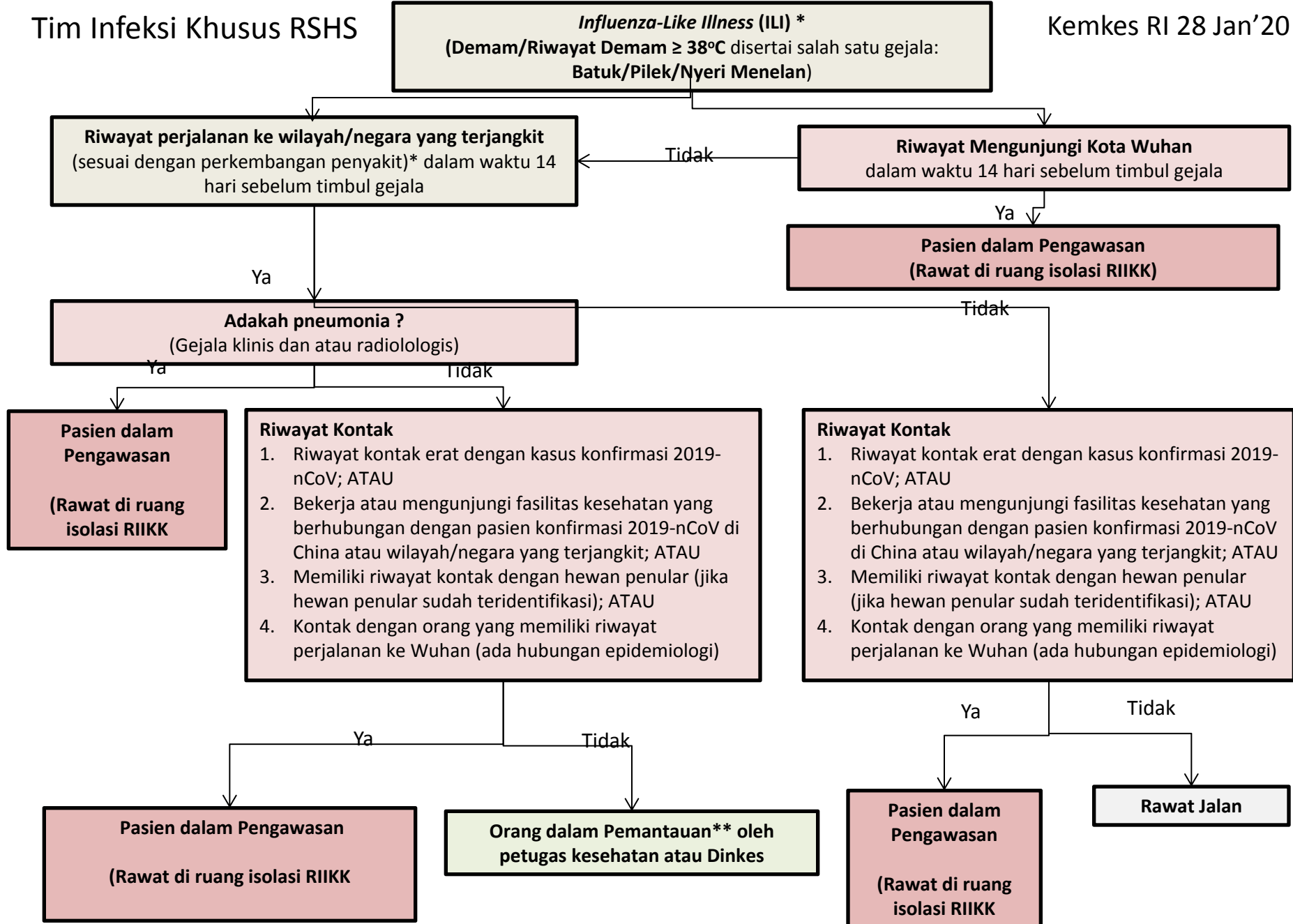
remains controversial.³ In this study, we evaluated the antiviral efficiency of five FAD-approved drugs including ribavirin, penciclovir, nitazoxanide, nafamostat, chloroquine and two well-known broad-spectrum antiviral drugs remdesivir (GS-5734) and favipiravir (T-705) against a clinical isolate of 2019-nCoV in vitro.

Remdesivir + Chloroquin

for the treatment of Ebola virus infection.⁶ Remdesivir is an adenosine analogue, which incorporates into nascent viral RNA chains and results in pre-mature termination.⁷ Our time-of-addition assay showed remdesivir functioned at a stage post virus entry (Fig. 1c, d), which is in agreement with its putative antiviral mechanism as a nucleotide analogue. Warren et al. showed

spectrum antiviral drug.^{8,9} Chloroquine is known to block virus infection by increasing endosomal pH required for virus/cell fusion, as well as interfering with the glycosylation of cellular receptors of SARS-CoV.¹⁰ Our time-of-addition assay demon-

(Fig. 1c, d). Besides its antiviral activity, chloroquine has an immune-modulating activity, which may synergistically enhance its antiviral effect in vivo. Chloroquine is widely distributed in the whole body, including lung, after oral administration.



Keterangan :

* Hati-hati pada pasien immunocompromised

** Formulir Orang dalam Pemantauan, diserahkan pada pasien untuk diisi sd 14 hari

Orang-orang yang harus diinvestigasi dan diperiksa adanya infeksi nCoV

- Definisi kasus :
 - **Severe acute respirator infection (SARI)**
 - Riwayat **demam dan batuk**
 - Tanpa ada sebab lain, DENGAN
 - Riwayat perjalanan ke Wuhan, Hubei Province China dalam 14 hari sebelum onset gejala timbul ATAU
 - Penyakit terjadi pada petugas kesehatan yang bekerja dimana ada pasien dengan SARI, tidak tergantung dimana tinggalnya/riwayat travelling ATAU
 - Orang yang mengalami kondisi khusus yang tidak dapat diprediksi/mendadak mengalami perburukan meskipun dapat pengobatan yang sesuai, tidak tergantung dimana tinggalnya/riwayat travelling

Definisi kasus

- Orang dengan **acute respiratory illness** dengan berbagai tingkat severity yang dalam 14 hari sebelum onset penyakit terdapat paparan :
 - **Close physical contact**, dengan terkonfirmasi nCoV infection
 - **Fasilitas kesehatan** di negara yang rumah sakitnya melaporkan infeksi nCoV
 - **Direct contact with animal** (jika terbukti sumber dari hewan) di negara dimana nCoV diketahui ada pada populasi hewan atau diketahui adanya infeksi pada manusia yang timbul dari transmisi zoonotik

Closed contact

- **Terpapar dengan layanan kesehatan**, yang sedang merawat pasien nCoV, bekerja bersama dengan petugas medis yang terinfeksi nCoV, visite pasien atau tinggal dekat dengan pasien nCoV
- Tinggal bersama dengan pasien nCoV
- Travelling bersama dengan pasien nCoV
- Kerja bersama dengan pasien nCoV

Terimakasih

