



## **COVID 19: REALS AND CHALLENGES AGAINST DOCTORS**

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### **ABSTRACT**

Corona Virus Disease (Covid-19) is a contagious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which was discovered in December 2019 in China. This disease can cause clinical manifestations in the airway, lung and systemic. The World Health Organization (WHO) representative of China reported a pneumonia case with unknown etiology in Wuhan City, Hubei Province, China on December 31, 2019. The cause was identified as a new type of coronavirus on January 7, 2020 with an estimated source of the virus from traditional markets (seafood market). ) Wuhan city

Keywords: COVID 19, Reality, Challenge

### **INTRODUCTION**

Corona Virus Disease (Covid-19) is an infectious disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which was discovered in December 2019 in China. This disease can cause clinical manifestations in the respiratory, lung and systemic tracts. The Chinese Health Organization (WHO) representative reported a case of pneumonia with unknown etiology in Wuhan City, Hubei Province of China on December 31, 2019 <sup>1,2</sup>. The cause was identified as a new type of coronavirus on January 7, 2020 with an estimated source of the virus from the traditional market (*seafood market*) of Wuhan City<sup>3</sup>. Covid-19 was initially limited to China, estimates of transmission through animals. It quickly spreads across countries and human-to-human transmission occurs. WHO declared this outbreak a **public health emergency of international concern** (PHEIC) on 30 January 2020<sup>4</sup>, stating the risk of global spread as **Very high** on 28 February 2020<sup>5</sup> and setting it as a **pandemic** on 11 March 2020<sup>6,7</sup>. Indonesia proclaimed its first case on March 2, 2020 and now it has spread to all provinces<sup>8</sup>. South Sumatra (Sumsel) received the first case of Covid-19 on March 24, 2020. Covid-19 has a

multidimensional impact on the life of the nation in the fields of health, economy, politics, social, culture or education. A significant increase in cases certainly has an impact on health actors, including doctors; Higher risk of exposure to the virus with all its implications, increased workload or reduced income.

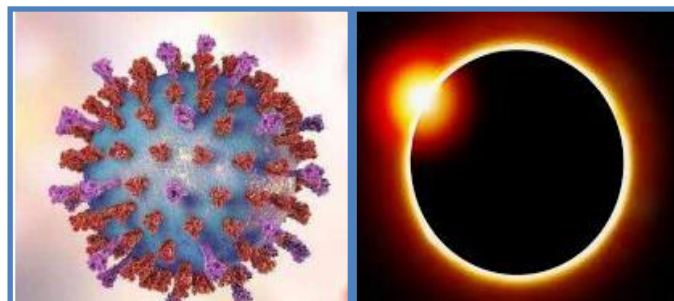
## **CORONA VIRUS**

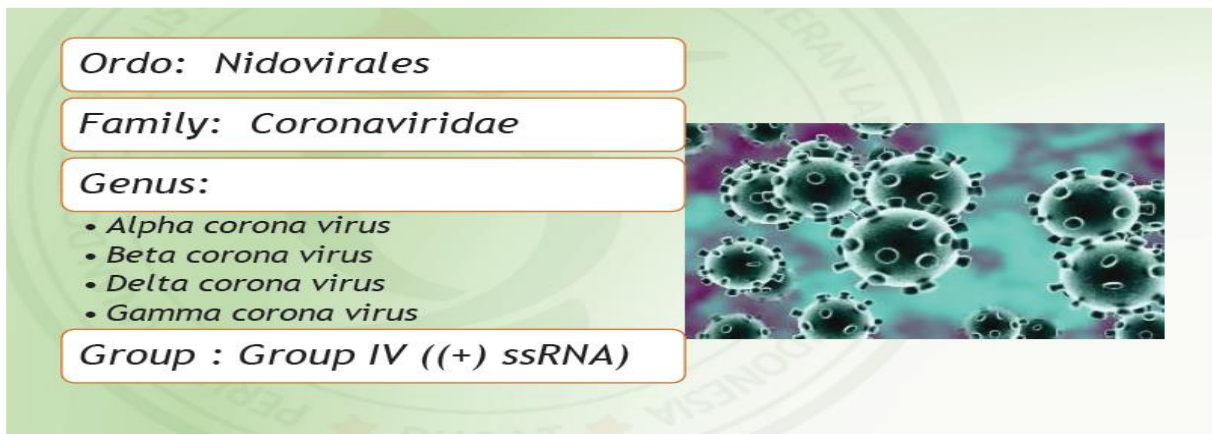
Corona virus is a respiratory virus, which is a virus that takes the airway as its entry point. The virus can proliferate in the airway or lung epithelium and cause problems there. The virus can pass through the pulmonary bloodstream and cause pathological changes in tissues / organs outside the lungs<sup>9</sup>.

This virus is included in the order *Nidovirales*, family *Coronaviridae*, subgenus *beta corona virus* with the species name SARS-CoV2 (previously known as 2019-nCoV)<sup>10</sup>. Named corona, because it looks like a ring (corona) in a solar eclipse.

Several species of corona viruses that can attack humans, include:

- HCoV-229E (subgenus alpha corona virus)
- HCoV-OC43 (subgenus beta corona virus)
- HCoV-NL63 (subgenus alpha corona virus)
- HCoV-HKU 1 (subgenus beta corona virus)
- *Middle East Respiratory Syndrome* (MERS; subgenus beta corona virus)
- *Severe Acute Respiratory Syndrome* (SARS; subgenus beta corona virus)





**Figure 1. Taxonomy of the SARS-CoV2 virus**

Corona virus is a single strain of ribonucleic acid (RNA) virus with a diameter of 60-140 nm, is round, encapsulated and is not segmented. This virus has four main protein structures<sup>11</sup>

- S (Spike)
- E (Envelope)
- N (Nucleocapsid)
- M (Membrane)

### **THE PROBLEMS of COVID-19**

1. Its rapid development
2. How to prevent it
3. What is the treatment

### **Fast development**

Until October 4, 2020 (at 18.40 WIB), confirmed cases of Covid-19 in the world had reached 35,182,648 cases and 1.038.810 deaths involving more than 215 countries, the details can be seen in **Table 1**.

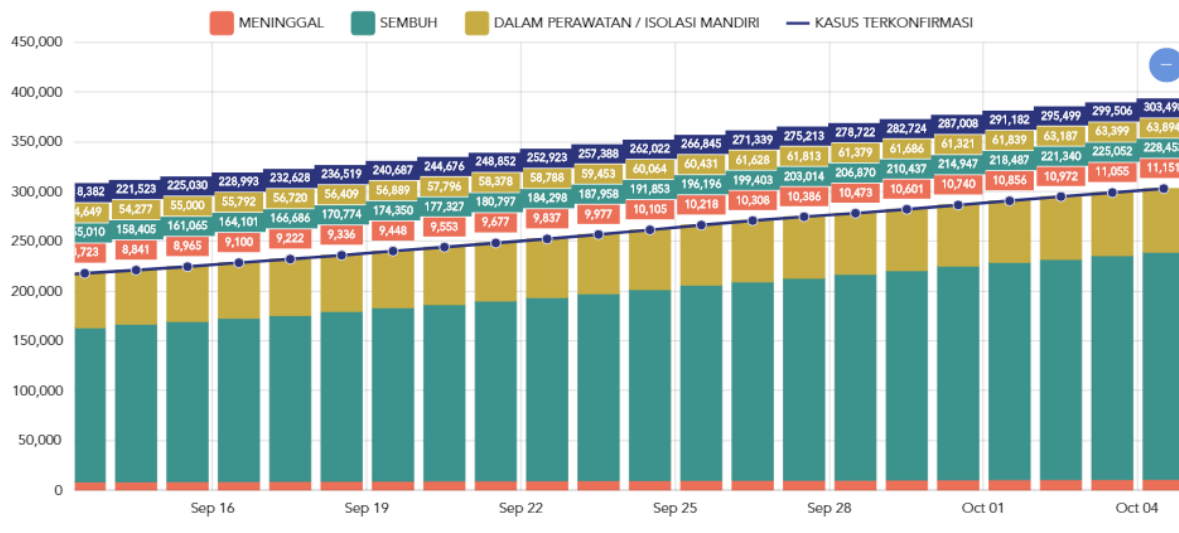


**Table 1. Number of Covid-19 cases**

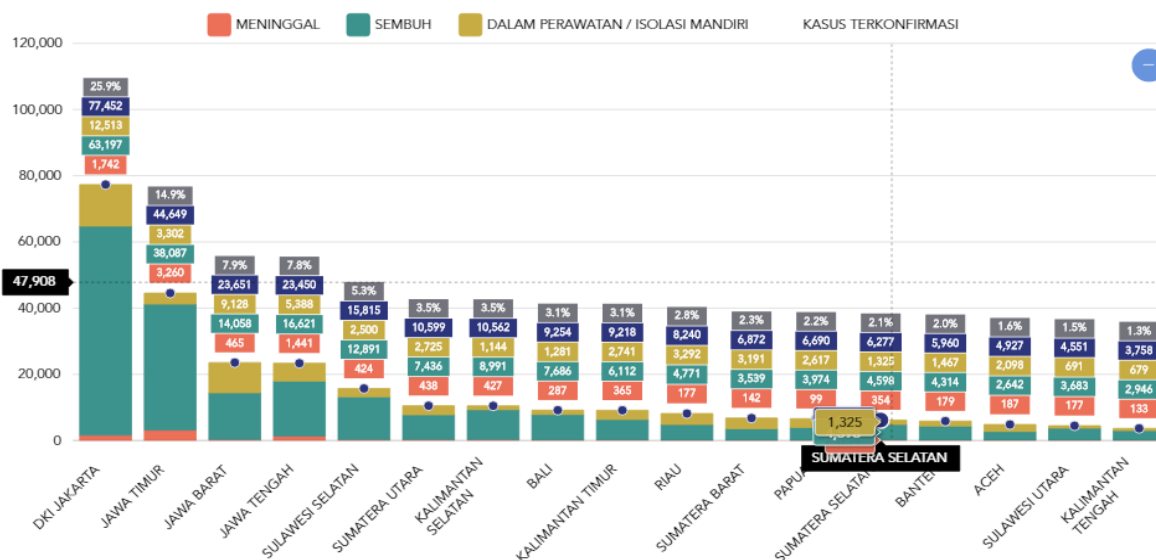
No		WORLD*	INDONESIA**	SOUTH SUMATERA'
1.	Number of cases confirmation	35.182.648	303.498	6.323
2.	Number of deaths	1.038.810	11.151 ( 3.7%)	356 (5.7%)
3.	Healed	26.167.267	228.453 (75.3%)	4.691 (74,2%)
4.	Active case	<b>7.976.571</b> 7.910.284 (99%) easy 66.287 (1%) critical	<b>63.894 (21.1%)</b>	<b>1.276 (20.2%)</b>
5.	Case closed	<b>27.206.077</b> 26.167.267 (96%) well /Discharge 1.038.810 ( <b>4%</b> ) Died	11.151 Died	356 Died

\* source: <https://www.worldometers.info/coronavirus/><sup>12</sup>; \*\*source: <https://covid19.go.id/peta-sebaran><sup>13</sup>  
<http://corona.sumselprov.go.id/index.php?module=home&id=1><sup>14</sup>

The trend of the development of new confirmed cases in Indonesia (including South Sumatra) is still increasing, although on the other hand the cure rate is also increasing (Figures 2, 3 and 4)



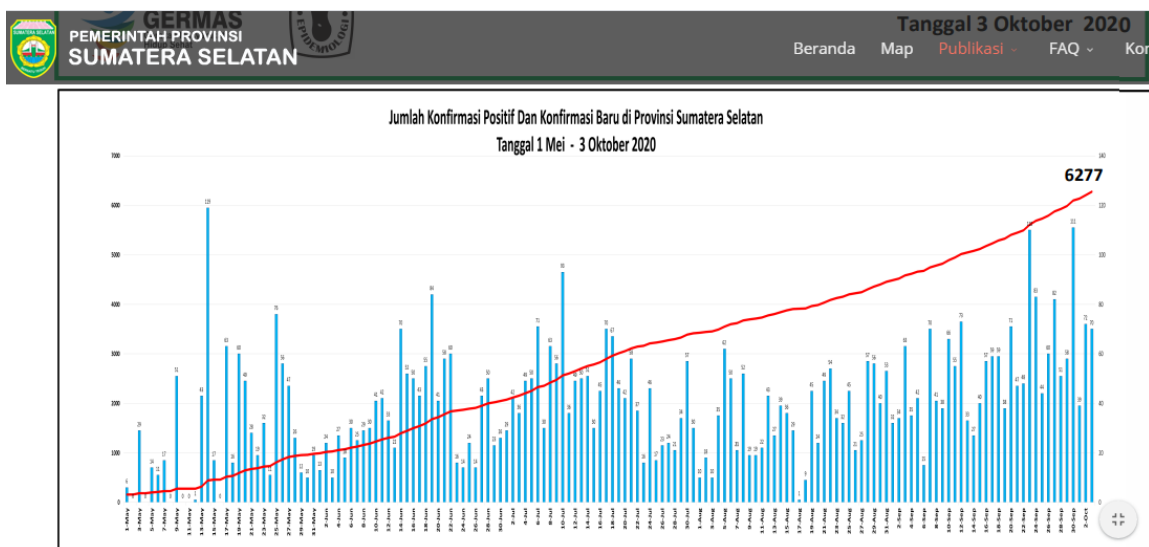
**Figure 2. National trend of confirmatory cases. Healing and dying 13**  
(Source : <https://covid19.go.id/peta-sebaran>), until October 4, 2020.



**Figure 3. Covid-19 cases per province in Indonesia**  
 (Source : <https://covid19.go.id/peta-sebaran>), until October 4, 2020

### Prevention

Sick is a battle between viruses and humans, if the virus is stronger than the body's immune system, then someone will be infected and sick, on the other hand, if the body is stronger than the virus, that person will be healthy. Weak body conditions (*immunocompromise*) such as old age, pregnancy, use of immunosuppressive drugs or the presence of comorbidities are risk factors for contracting Covid-19. By understanding these principles, we must take precautions for the entry of viruses into the body and strengthen the body's immune system.



**Figure 4.** Number of cumulative and new confirmed cases of South Sumatra 14  
(Source: <http://corona.sumselprov.go.id/index.php?module=dataterkinidetail&id=219>), 3 October 2020

Understanding this concept requires us to prevent SARS-CoV-2 from entering the body or reduce one's body's exposure to SARS-CoV-2. Actions that we can take include:

- Finding suspects with Covid-19 who could be a source of transmission (**Tracing**).
- Confirming whether the Covid-19 suspect was indeed a confirmed case which was the source of transmission (**Testing**).
- Carry out quarantine or isolation of the source of transmission (close contact, suspect, probable or confirmation).
- Providing treatment in cases that are a source of infection (**Treatment**).
- Limiting viruses that enter the body, by:
  - Avoid places with lots of crowds, social distance
  - Maintain distance, physical distance
  - Use of masks
  - Wash your hands repeatedly
- Strengthen body resistance such as vaccines.



### Tracing and testing

The first and main step in controlling the transmission of Covid-19 is finding all cases in the community, isolating and treating them until they heal. A low incident report of a Covid-19 confirmation case in an area can have two meanings:

1. Describe the real conditions of the Covid-19 incident in the area, if the *tracing* and real time *testing* of SARS-CoV-2 Reverse Transcription Polymerase Chain Reaction (RT-PCR) were carried out in sufficient quantities.
2. Describe false numbers (iceberg phenomena) when *tracing* is not performed and minimal *testing*.

WHO, which is adapted from the Ministry of Health of the Republic of Indonesia and the task force for handling Covid-19, has set its surveillance standards as follows<sup>7</sup>:

- The number of diagnostic samples has increased over the past 2 weeks.
- The number of positive samples (**positivity rate**) is low, positive samples <5% of all samples examined).

*Loaded: labor capable of checking 1/1000 population per week*

Comparison of the description of the number of samples examined in several countries, Indonesia and South Sumatra can be seen in **table 2**, **table 3** and **figure 5**.

**Table 2. Number of samples examined by several countries in the World<sup>12</sup>**

No	Country	Total Test	Number of tests / million population	Total Population
1.	China	160.000.000	111.163	1.439.323.776
2.	USA	110.528.582	333.413	331.505.144
3.	India	78.992.534	57.096	1.383.493.334
4.	Russia	47.683.832	326.712	145.950.806
5.	England	25.048.460	368.477	67.978.425
6.	Brazil	17.900.000	84.057	212.949.768
7.	German	16.999.253	202.725	83.853.604
8.	Spanish	12.723.989	272.116	46.759.508
9.	Italy	11.691.391	193.443	60.438.534
10.	France	11.174.392	171.095	65.311.128
<b>24.</b>	<b>Indonesia</b>	<b>3.488.141</b>	<b>12.718</b>	<b>274.266.435</b>

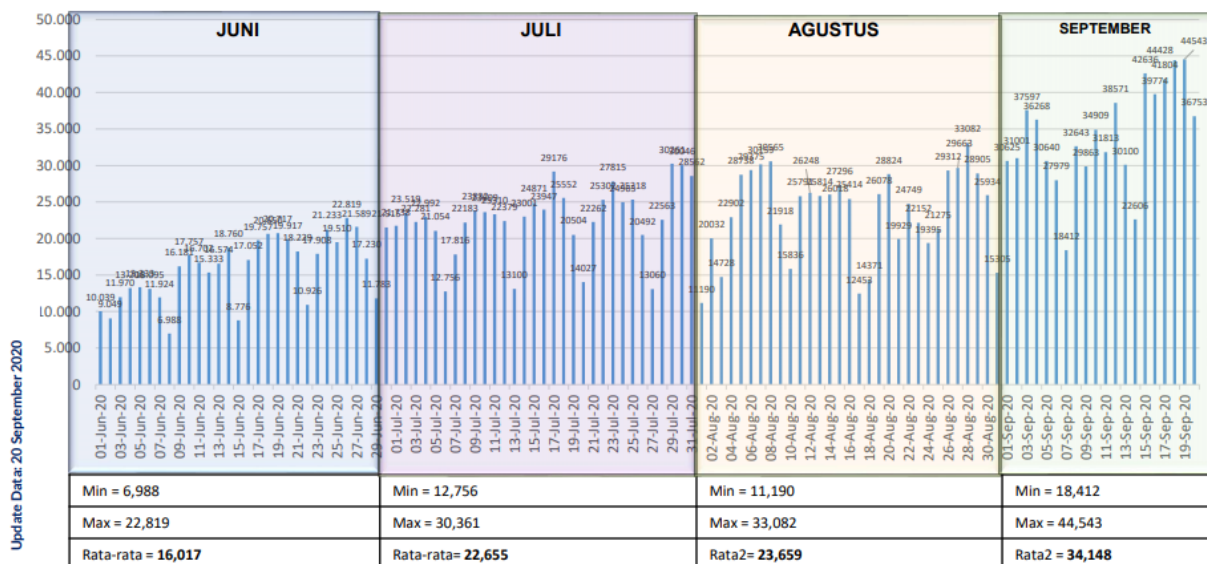
Source : <https://www.worldometers.info/coronavirus/>; 04 October 2020, time 18.40 WIB



**Table 3. Number of samples examined in Indonesia and South Sumatra14**

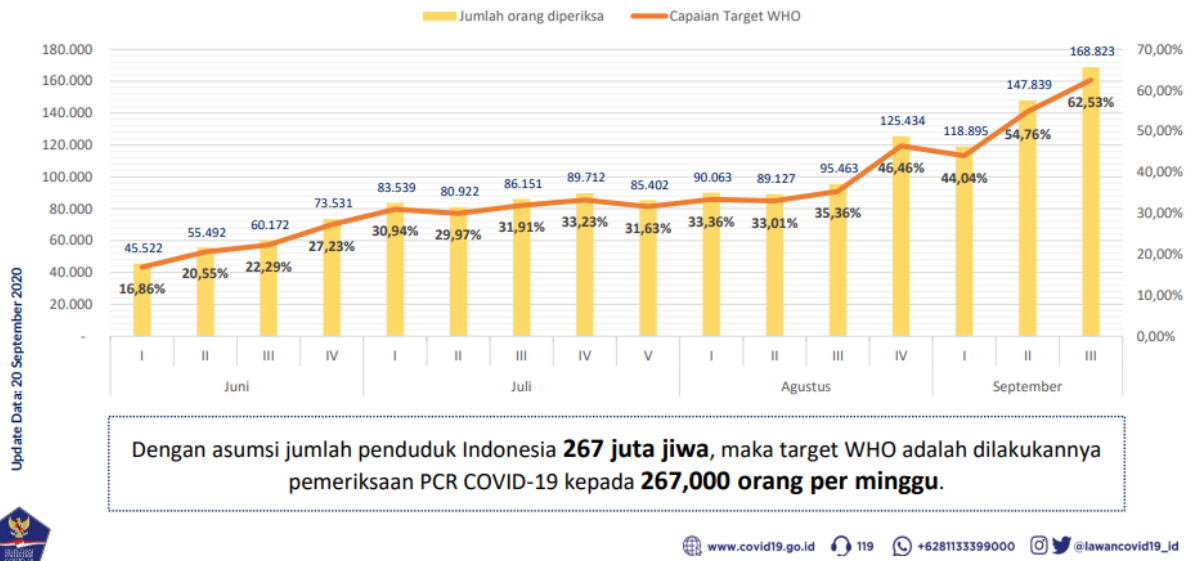
No	Country	Total test	Total of tests / million population	Total population (Person)
1.	Indonesia	3.488.141 Specimens 2.096.584 Person	12.718 Spesimen 7.644 Person	274.266.435
2.	South Sumatera	29.044 Person *	3.389 Person*	8.567.923”
3.	Palembang		9.040 Person*	1.681.374”
4.	Lubuk Linggau		8.570 Person*	235.189”
5.	Pali		5.510 Person*	192.199”
6.	Muara Enim		4.730 Person*	645.600”
7.	Prabumulih		3.130 Person*	188.929”
8.	Lahat		2.610 Person*	413.206”
9.	Muba		2.440 Person*	655.401”
10.	Ogan Ilir		2.390 Person*	435.092”
11.	Muratar		1.530 Person*	194.405”
12.	Banyuasin		1.320 Person*	864.510”
13.	OKU		1.100 Person*	372.123”
14.	Empat Lawang		820 Person*	253.272”
15.	Pagar Alam		800 Person*	140.402”
16.	OKU Timur		780 Person*	683.332”
17.	MURA		650 Person*	408.282”
18.	OKI		430 Person*	839.625”
19.	OKU Selatan		290 Person*	364.982”

\* Sumber <http://corona.sumselprov.go.id/index.php?module=home&id=1> tanggal 4 Oktober 2020  
 ”The data used for surveillance at the South Sumatra Provincial Health Office; Indonesia 4 October 2020



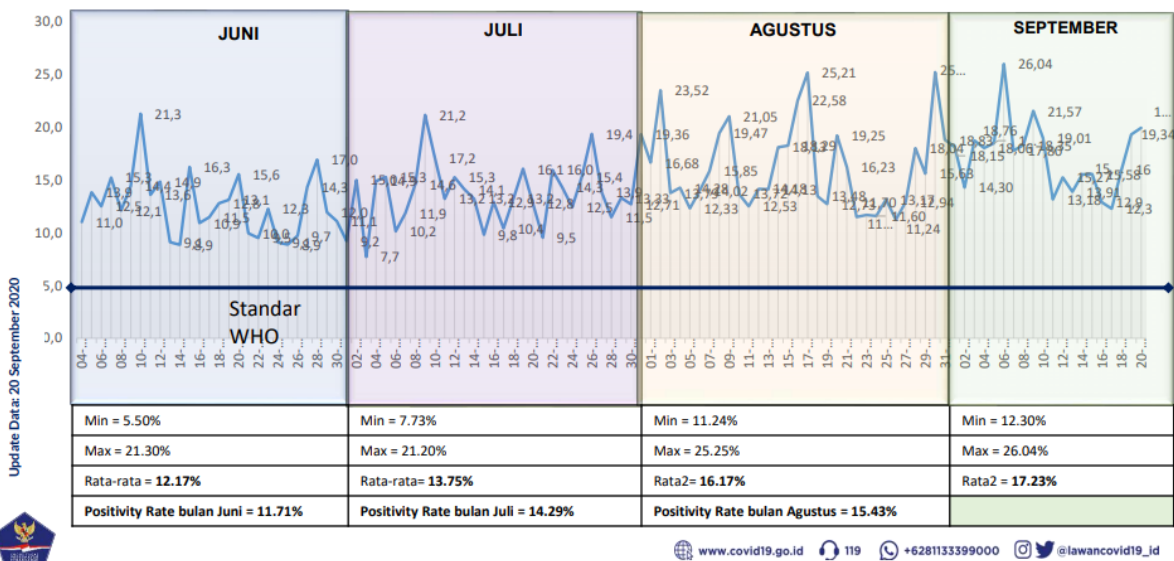
**Figure 5. Number of specimen inspection per day in Indonesia13**Sumber:  
[https://covid19.go.id/p/berita/analisis-data-covid-19-indonesia-update-27-september-2020,](https://covid19.go.id/p/berita/analisis-data-covid-19-indonesia-update-27-september-2020)





**Figure 6. Number of people screened weekly in Indonesia vs WHO target 13**

Source : <https://covid19.go.id/p/berita/analisis-data-covid-19-indonesia-update-27-september-2020>



**Figure 7. Positivity rate of sample inspection in Indonesia 13**

Source : <https://covid19.go.id/p/berita/analisis-data-covid-19-indonesia-update-27-september-2020>

Testing conditions in South Sumatra can be seen in **table 3**. The cumulative data on the number of testing on October 4, 2020 were 29.044 people, more than a third in Palembang. This data is the number of people examined, not the number of samples / specimens, one person can be sampled several times, Referring to the



Covid-19 prevention and control manual revision 4, one person can be examined twice for diagnostics and 2 specimens in a row negative on evaluation 8. If one person is assumed to be examined 5 times, it means that 145.220 samples have been examined for 26 weeks (March 2020 - September 2020) or 5.585 samples per week. If the population of South Sumatra is 8.567.923 people, the weekly target for specimen examination in South Sumatra is **8.567 samples**.

The RT-PCR inspection capacity in South Sumatra is actually capable of carrying out this number of tests. The laboratory / hospital in South Sumatra has an RT-PCR testing capacity of more than 8.800 specimens/week, not including laboratories / hospitals that are able to check SARS-CoV-2 with a Molecular Rapid Test tool (see table 4). The problem is whether the usage capacity is maximal.

**Table 4. Sumsel PCR inspection capacity**

No	Name of Labor	Mechine	Capacity
1.	BBLK Palembang	PCR	500 specimens
2.	RSMH Palembang	PCR	96 specimens
3.	RS Pusri	PCR	96 specimens
4.	RS Bayangkara	PCR	96 specimens
5.	RS Linggau	PCR	92 specimens
6.	RS PUSRI	PCR	380 specimens
7.	RS Bayangkara	PCR	96 specimens
	<b>TOTAL</b>		<b>1.266 specimens/day</b> <b>8.862 specimens/week</b>

Personal communication data with the South Sumatra health office

The target positivity rate is below 5%. Indonesia at the end of August the figure was still 16.7%, while South Sumatra on October 4 2020 was 25.2%<sup>14</sup>.

### **Isolation**

Isolation is carried out until someone suffering from Covid-19 is not expected to spread to other people.

1. Self-isolation is performed for 10 days in asymptomatic confirmation cases, starting from the date of diagnosis specimen collection.



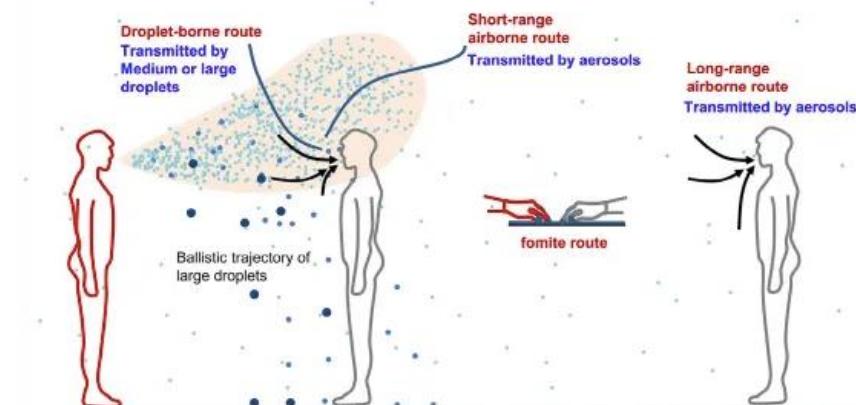
2. Self-isolation or hospital isolation for at least 10 days in symptomatic confirmatory / probable cases, with three days of symptom-free fever and respiratory distress (calculated from the onset of symptoms).

The terminology of quarantine and isolation has different meanings, the terminology of quarantine is used for people who are in close contact but do not have symptoms, the terminology of isolation is for people who have symptoms and cases of positive confirmation.

### ***Physical and Social distance***

The source of transmission of Covid-19 is sick people, both **symptomatic** and asymptomatic. Avoiding places that are at high risk of getting sick (**social distance**) such as hospitals and places with lots of people is the right action to cut the chain of transmission.

SARS-CoV-2 transmission can be through air or contact. Airborne transmission can be in the form of **droplets**, if the particles released by a sick person are  $\geq 5\mu\text{m}$  in diameter. In this condition, to not be infected, one must maintain a **physical distance** of at least one meter, and **wear a surgical mask** or cloth. Airborne transmission can also be in the form of **aerosols**, if the particles released by the sick are  $<5\mu\text{m}$  in diameter. In the case of aerosols not to be infected, we must maintain a distance of at least **two meters** and wear an **N95 mask**. Aerosol-generating procedures include: endotracheal intubation, bronchoscopy, open surgery, manual ventilation, tracheotomy. Another transmission route for SARS-CoV-2 is through contact, either direct contact with the patient or indirect contact, due to hands touching objects / surfaces contaminated by droplets and hands rubbing the nose or mouth, therefore the habit of washing hands with soap and running water is very useful for preventing transmission. (**Figure 8**).



**Figure 8. The SARS-CoV-215 transmission route**

Aerosols (size  $< 5 \mu\text{m}$ ), can transmit at close range (1 meters), long distance (2 meters) and indirect contact. Droplets (size  $\geq 5 \mu\text{m}$ ) are responsible for both short-range and indirect pathways.

### **Vaccination**

SARS-CoV-2 vaccination is the act of administering an antigen derived from the SARS-CoV-2 virus. The antigen has been modified so that it does not cause disease, but has the function of producing sensitive lymphocytes, antibodies and memory cells which are useful for providing immunity.

As of 2 October 2020, there were 193 vaccine candidates, 42 in the clinical evaluation stage and 151 in the pre-clinical evaluation stage<sup>16</sup>. Broadly speaking, the Covid-19 vaccine is divided into:

1. Live attenuated vaccines  
Example: Codon deoptimized live attenuated vaccine, Serum Institute of India manufacturer
2. Killed vaccines (Killed Vaccine; Inactivated vaccine)  
Example: Corona Vac
3. Vaccines with subunit protein-based antigen  
Example: Novavax's NVX CoV 2373, Anhui's recombinant RBD protein
4. Vaccines with vector (non-replicating) viral antigen  
Example: ChAdOx1-nCoV19 by Astra Zeneca
5. Vaccines with viral vector (replicating)



Example: Measles vector base manufacturer Ins Pasteur

6. Vaccines with DNA antigens

Example: Cadila DNA plasmid vaccine manufacturer

7. Vaccine with RNA antigen

Example: mRNA 1273 from Moderna, BNT162b1 by manufacturer

This type of vaccine has its advantages and disadvantages. **Table 5** shows vaccine candidates whose clinical trials have entered phase III.

**Table 5. Some vaccine candidates 16-18**

Manufacturer	Type of Vaccines	Name	Dose	Phase	Giving	AB Titer
Sinovac Biotech	Inactivated	Corona Vac	3µg dan 6 µg day 0, 14	III	IM	1;60
Moderna	RNA	mRNA 1273	25,100 dan 250 µg Days 0,28	III	IM	1: 300
Astra Zeneca	Non replicating viral vector	ChAdOx1-nCOV19	5x 10 <sup>10</sup> VP Days 0	III	IM	1: 250
Novavax	Protein subunit	NVX CoV 2373	5 µg , 25 µg Days 0, 21	III	IM	1: 3000
Pfizer	RNA	BNT162b1	10 µg, 30 µg, 100 µg Days 0,21	III	IM	1: 250
Sinopharm Wuhan Institute	Inactivated	Inactivated	Days 0, 21	III	IM	1: 100
Sinopharm Beijing Institute	Inactivated	MN996528 Inactivated	5 µg Days 0, 21	III	IM	
Gamaleya Research Institute	Non-Replicating Viral Vector	Adeno-based (rAd26-S+rAd5-S)	Days 0,21	III	IM	
Janssen Pharmaceutica	Non-Replicating Viral Vector	Ad26COVS1	Days 0, 56	III	IM	
CanSino Biological Inc	Non-Replicating Viral Vector	Adenovirus Type 5 Vector	Days 0	III	IM	

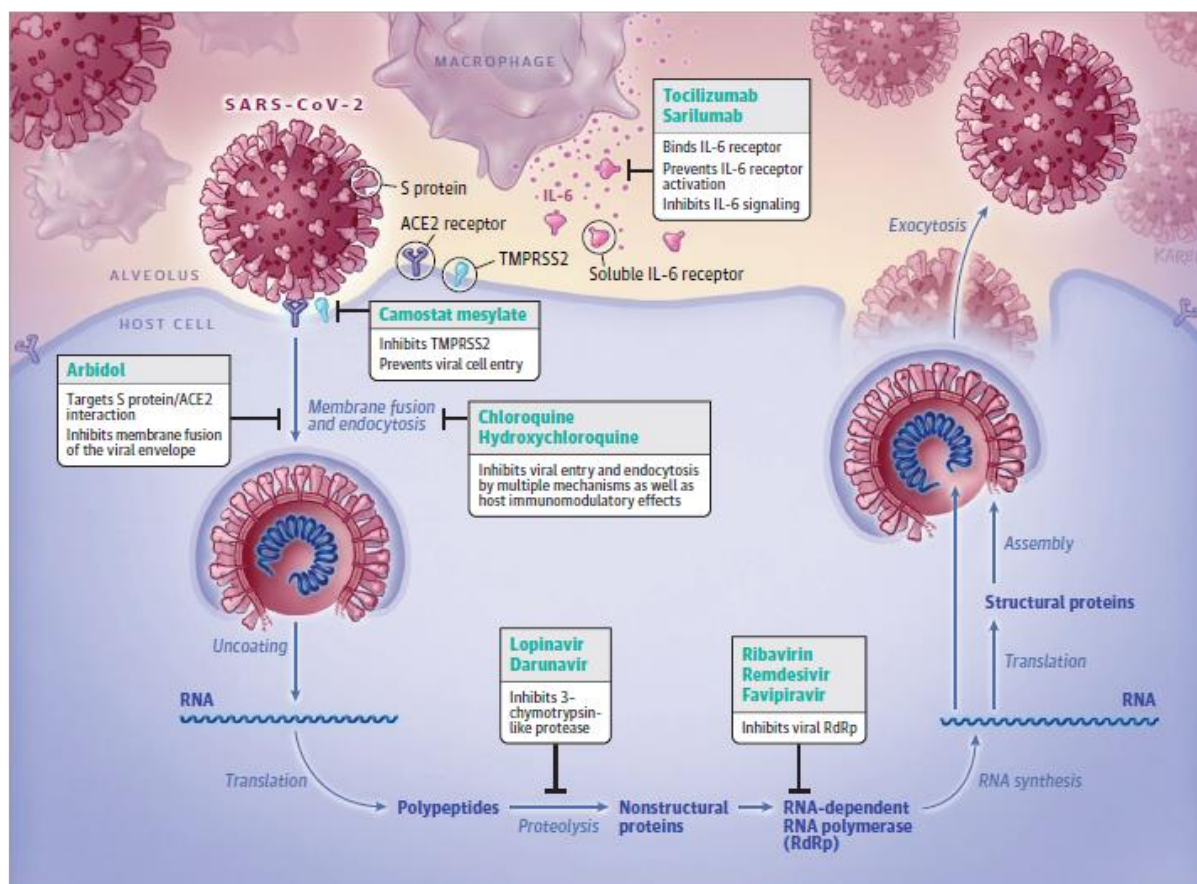
Some future questions are: Vaccine effectiveness. considering that the SARS-CoV-2 virus is a viral RNA that can quickly undergo changes; How long does the immunity get; When to re-vaccinate; Will the effectiveness of the vaccine be the same in children, young people, the elderly or with comorbids; Is there a risk for

the patient to become infected; What is the cost, is it possible to carry out for everyone.

### Treatment

Currently there is no very satisfactory Covid-19 treatment. Potential treatments are based on the pathogenesis of Covid-19 (**Figure 9**), in general we can divide them into:

1. Drugs to inhibit the development of the virus
2. Medication to treat inflammation
3. Medication to overcome the complications that occur
4. Supportive drugs
5. Drugs for comorbid / coinsidens



**Figure 9. Potential drugs in SARS-CoV-219**

ACE2, angiotensin-converting enzyme 2; S protein, spike protein; and TMPRSS2, type 2 transmembrane serine protease.



**Table 6. Drugs in Covid-19<sup>23</sup>**

	<b>Medicine name</b>	<b>Group</b>	<b>Target</b>	
<b>Anti virus agents / Viral Growth inhibitors</b>	Azithromycin	Antimicrobial	23S rRNA	1x500 mg (PO or IV), H1-H5
	Chloroquin Hydroxychloroquine	Anti parasitic	ACE2 pH Endosom	2x500 mg (PO), 5-7 days 1x400 mg (PO) H1; 2x200 mg (PO) H2-H5
	Oseltamivir	Antiviral	Neuramidase Removing virus	2x75 mg (PO), H1-H5 (H7)
	Favipiravir	Antiviral	RNA polimerase (RdRP) Virus	2 x 1.600 mg (PO), H1 2 x 600 mg (PO), H2-H5
	Lopinavir / Ritonavir	Antiviral	Protease Virus	2 x 400/100 (PO), H1-H10
	Remdisivir	Antiviral	RNA polimerase	200 mg (IV drip/3 hours) H1 100 mg (IV drip/3hours) H2- H9 (H13)
	Mesylate camostat	Serine protease inhibitor spesipik	Transmembran protease TMPRSS2	3 x 200 mg (PO)
	Ivermectin	Anti parasitic		0,2mg/KgBB, single dose
<b>Immune-based therapeutic agents</b>	<b>Corticosteroids</b> Dexamethasone	Anti inflammatory	Gluco-corticoid receptors, inflammatory suppression	1 x 6mg/KgBB, 10 days
	<b>IL6 inhibitors</b> Tocilizumab Sarilumab Siltuximab	Monoclonal antibodies	IL6 receptors	400 mg IV, H1 (H2)
	<b>IL 1 inhibitor</b> Anakinra	Monoclonal antibodies	IL1 receptors	2 x 100 mg, H1- H3 1 x 100 mg, H4- H7
	Interferons $\alpha$ and $\beta$	Interferon		2 x 5 million units (nebulized)
	Immunoglobulin IV	Antibody / Immuno Products globulin	Immunomodulation	0,3-0,4 g/KgBB (IV), H1-H5
	Convalescent plasma	Blood products darah	Immunomodulation	200 ml, 1 atau 2 times of giving Titer AB 1/160 sp 1/1.280
<b>Supportive and symptomatic</b>	Vitamin C	Vitamin		3-4 x 500 mg (PO) 200-400 mg/8 jam (IV, drip



				dalam 100 cc NaCl0,9% during 1 hours)
	Vitamin D	Vitamin		
	Zink	Suplementasi		2x 40 mg
	N-acetylcystein	Mucolitik Antioxidants		3 x 400 mg(PO; IV)
	Bronchoscopy	Rinse the bronchi	Mucous plug	
<b>Prevention and complications</b>	Levofloxacin Other antibiotics	Antibiotics	Bacterial infection	1x 750 mg(PO, IV), H1-H5 (H7)
	Heparin/LMWH	Antcoagulant Prophylaxis / therapy		<b>Prophylaxis</b> LMWH 1 x 0.4 cc (SC) UFH 2 x 5000 (SC) <b>Therapy</b> LMWH 1mg / KgBB (SC), 2x / day Heparin 80 U / KgBB (IV), continued drip 18 U / KgBB / hour
	Vasopressor			
<b>Comorbid</b>	Management according to comorbid			

## DOCTOR'S DILEMMA

The Covid-19 pandemic puts the medical profession at great risk. Doctors must continue to provide health services to patients according to the doctor's oath and the dignity of their profession. On the other hand, there is a risk of transmission to death. Doctor mortality in Indonesia related to Covid-19 is quite high compared to other countries, data as of 29 September 2020, 127 of our doctor colleagues died (1.2%; 127 / 10,601)<sup>24</sup>. Based on the risk of contracting Covid-19, doctors can be divided into 4 groups:

### 1. Low risk

Doctors who do not provide services or direct contact with Covid-19 patients (for example: structural doctors)

### 2. Medium risk

Doctors who provide services for non-Covid patients or are not yet clear about Covid-19.

### 3. High Risk

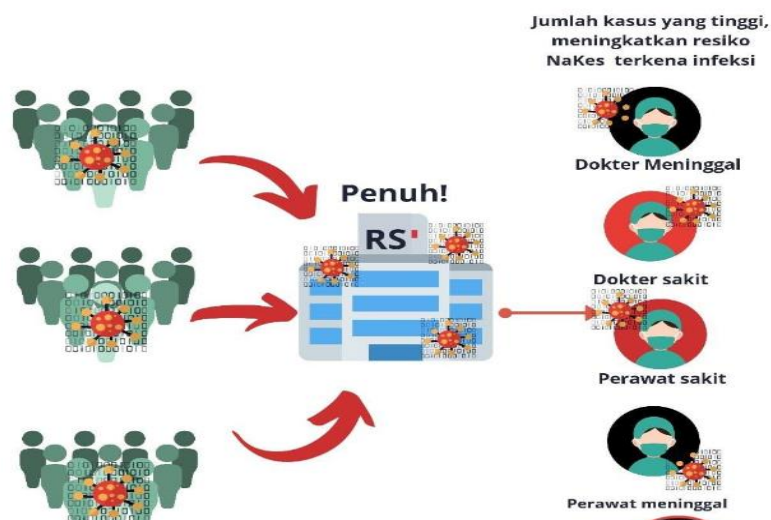


Doctors who provide services for Covid-19 patients, but do not perform aerosol-producing actions.

4. The risk is very high

Doctors who provide services for Covid-19 patients, perform actions that produce aerosols and doctors who take respiratory and autopsy specimens.

Covid-19 has not shown any signs of sloping but is getting faster. The increase in the number of patients will lead to an increase in Covid-19 patients being treated and an increase in the need for hospital beds. The number of doctors in Indonesia is still small (general practitioners 0.4 per thousand population, specialist doctors 0.13 per thousand population)<sup>24</sup>. The increase in Covid-19 cases has certainly increased the workload of doctors, especially the doctor in charge of service (DPJP) for Covid-19 patients. Who is given the authority as the main DPJP can be seen in the book revision 5 and the decision of the Indonesian medical council<sup>25</sup>.



**Figure 10. The impact of increasing patients on health personnel  
Illustrations from FB, Indonesian doctors are monotheistic**

**Table 7. Number of certain specialist doctors and Covid-19 cases**

Type of Specialist	Indonesia	South Sumatera
Internist	4.613 people	148 people
Lung Consultant	48 people	8 people
Tropical Infection Consultant	74 people	3 people
Pulmonary Specialist	1.206 people'	13 people
Anesthesia Specialist		43 people
Pediatrician		118 people
Lung Consultant		3 people



Tropical Infection Consultant		3 people
Intensive consultant		4 people

'CNN Indonesia 9 September 2020

For South Sumatra, theoretically the Covid-19 case that requires treatment can still be resolved by the capacity of the existing hospital beds, even though implementation in the field is still questionable.

**Table 8. Types of rooms and hospital bed capacities in South Sumatra**

No		Room type	Bed
1	Isolation	Negative pressure isolation without ventilator	147 TT
		Isolation without negative pressure without ventilator	952 TT
			<b>1.099 TT</b>
2	ICU with ventilator	Negative pressure ICU with ventilator	13 TT
		ICU without negative pressure with a ventilator	21 TT
			<b>34 TT</b>
3	ICU without a ventilator	Negative pressure ICU without ventilator	5 TT
		ICU without negative pressure without ventilator	23 TT
		Negative pressure isolation without ventilator	<b>38 TT</b>

Source: Online Hospital Data, 25 September 2020

### **TIPS THAT DOCTOR MUST DO**

To reduce the risk of transmission, there are several tips that doctors can do depending on the position where:

1. A doctor as a family member / part of the community.
2. Private practice doctor,
3. Doctors practice in health care facilities.

### **As a member of the family and society**

Efforts that can be done:

- Do not touch family at home before bathing and changing clean clothes.
- Separate the process of washing office clothes with everyday clothes.



- Carrying out health protocols like other people (wearing masks, maintaining distance, washing hands).
- Enough rest.
- Enough relaxation.
- Adequate nutrition and exercise.
- Immediately quarantine if there is close contact and isolation if it meets the Covid-19 criteria.

### **Private practice**

Efforts that can be done:

- Wearing standard PPE.
- Use and remove PPE properly.
- Limitation on the number of patients.
- Restricted practice hours.
- Doing telemedicine.
- Limitation of consultation minutes with patients.
- Follow the principles of infection control at the practice site
  - Ventilation that meets standards
  - The patient doctor's seat distance (one meter)
  - Doctor-patient divider
  - Wash hands frequently
  - Performing disinfection on surfaces that the patient often comes in contact with
- Conducting Covid-19 education.
- Perform periodic RT-PCR checks.
- Immediately quarantine if there is close contact and isolation if it meets the Covid-19 criteria.

### **Practice in health care facilities**

Efforts that can be done:

- Wearing standard PPE.
- Use and remove PPE properly.
- Limiting the distance from the patient (one meter).



- Limitation of consultation minutes with patients.
- Adequate nutrition and exercise.
- Relaxation and adequate rest (to reduce psychological stress.)
- Eliminate the habit of eating together.
- Put on work clothes.
- Immediately quarantine if there is close contact and isolation if it meets the Covid-19 criteria.
- Encourage management to comply with infection control practices in the room
  - Zoning of the room
  - Room ventilation according to zoning
  - HEPA filter
  - Negative pressure room
  - The existence of dirty lines and clean lines
- Encourage the government (health service) / management
  - Sufficient RT-PCR capacity and speed up the results.
  - Limiting / eliminating visits to patients (except those waiting)
  - Limiting working hours (don't overtime)
  - Conducting covid-19 screening at the entrance to the patient / triage
  - Limitation of physical encounters (setting distances if necessary)
  - Development of telemedicine
  - Sufficient isolation bed, medical examiner and ventilator for Covid-19 patients
  - Organizing PPI training
  - Perform disinfection and decontamination
  - Establish clear Covid-19 clinical guidelines, algorithms and services flow
  - Availability of Covid-19 drugs
  - Perform periodic RT-PCR checks

**Table 9. Personal protective equipment** <sup>24,26</sup>

<b>Level</b>	<b>APD type</b>	<b>Place of service</b>
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APD Level 1	Head cover (headcap) Surgical masks Scrubs / work clothes Rubber gloves Foot protection (work shoes) Eye or face protection	Triage service Outpatient non-Covid-19 Inpatient General practice place Activities that do not contain aerosols
APD Level2	Head cover (headcap) Eye or face protection Surgical masks Scrubs / work clothes Gown Rubber gloves Foot protection (work shoes)	Examination of patients with symptoms of ARI Covid-19 treatment room Refinement of non-aerosol-free specimens Imaging examination
APD Level 3	Head cover (headcap) Eye protection (goggles) Face shield (faceshield) N95 mask, higher Scrubs / work clothes Gown or coverall Latex gloves Apron Rubber boots / boots with shoes protection	Operating procedures / actions for Covid-19 patients Examination of teeth, mouth, eyes, ENT Activities that give rise to aerosol The procedure room / autopsy follow-up for Covid-19 patients Respiratory specimen collection

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