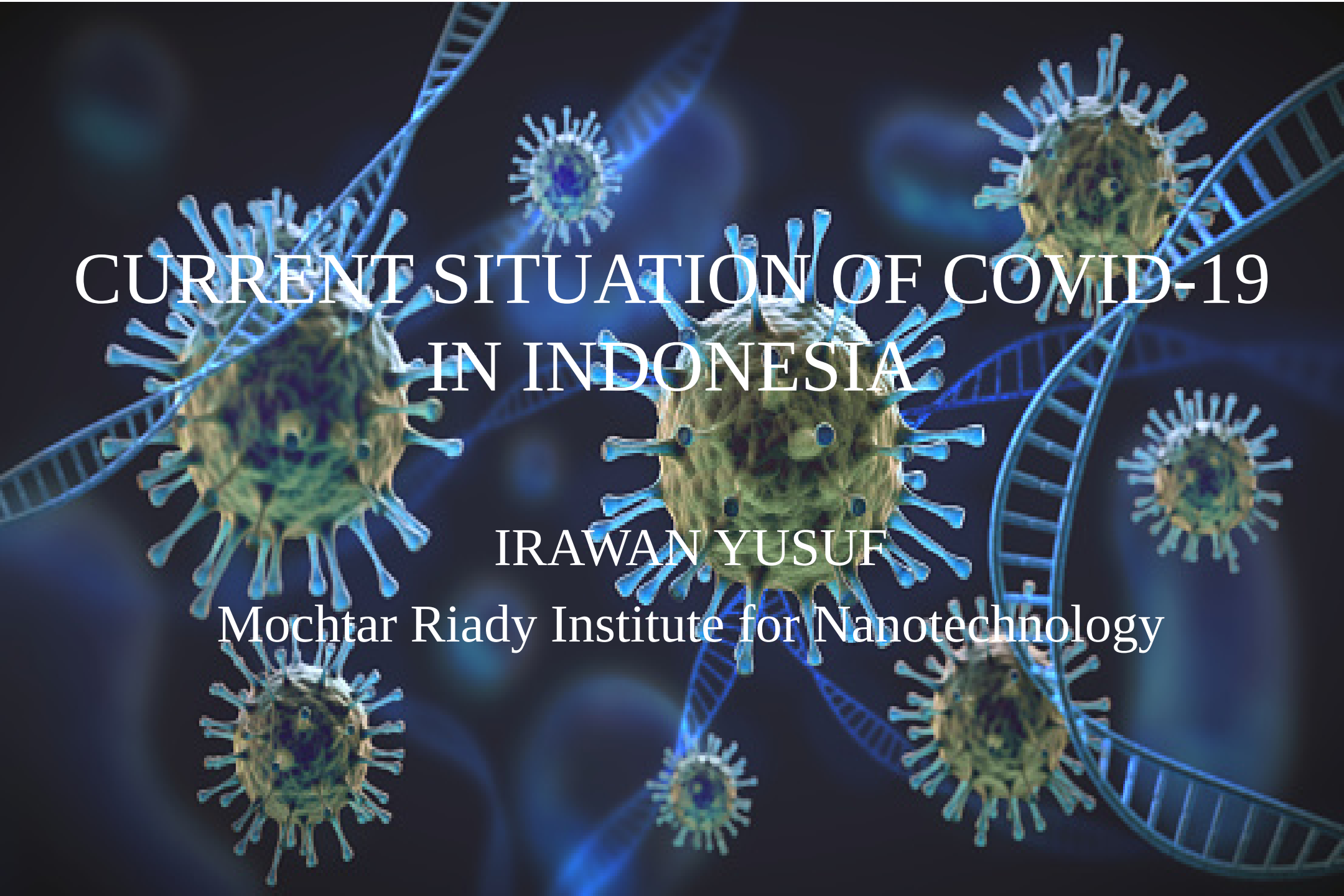


CURRENT SITUATION OF COVID-19 IN INDONESIA

IRAWAN YUSUF

Mochtar Riady Institute for Nanotechnology

INTRODUCTION

- The outburst of Covid 19 cause by SARS-Cov-2 at the beginning of 2020 is a global phenomenon.
- It impact’s peoples lives all over the world regardless their social economic status, background, and occupation.
- Availability and access to vaccines, drugs and medical devices are very important in dealing with the COVID-19 problem.
- International collaboration in clinical studies and trials is important to combat the disease.

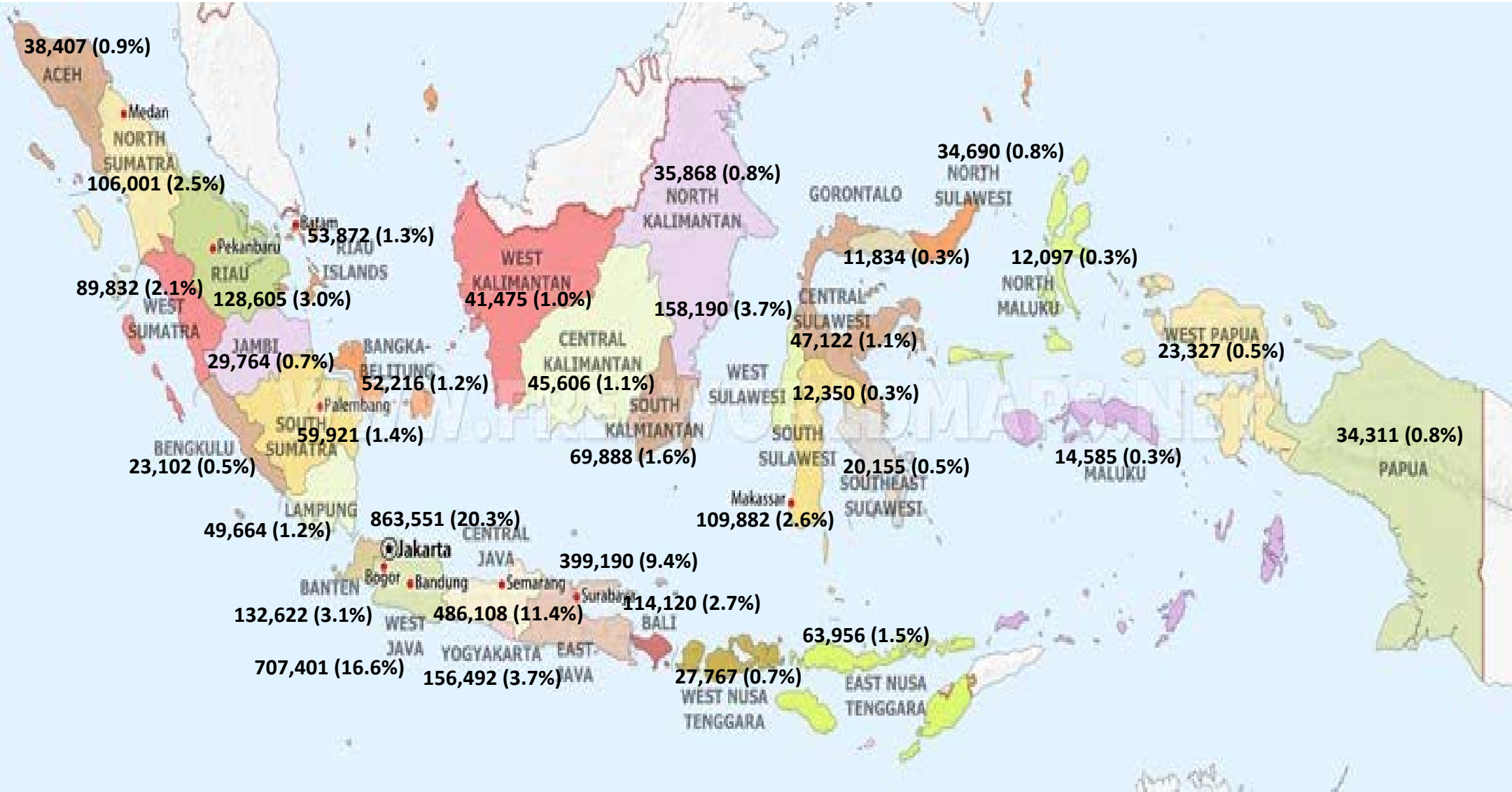
GENERAL INFORMATION

Total Case	Recovered	Death
4.256.867	4.104.964	143.840

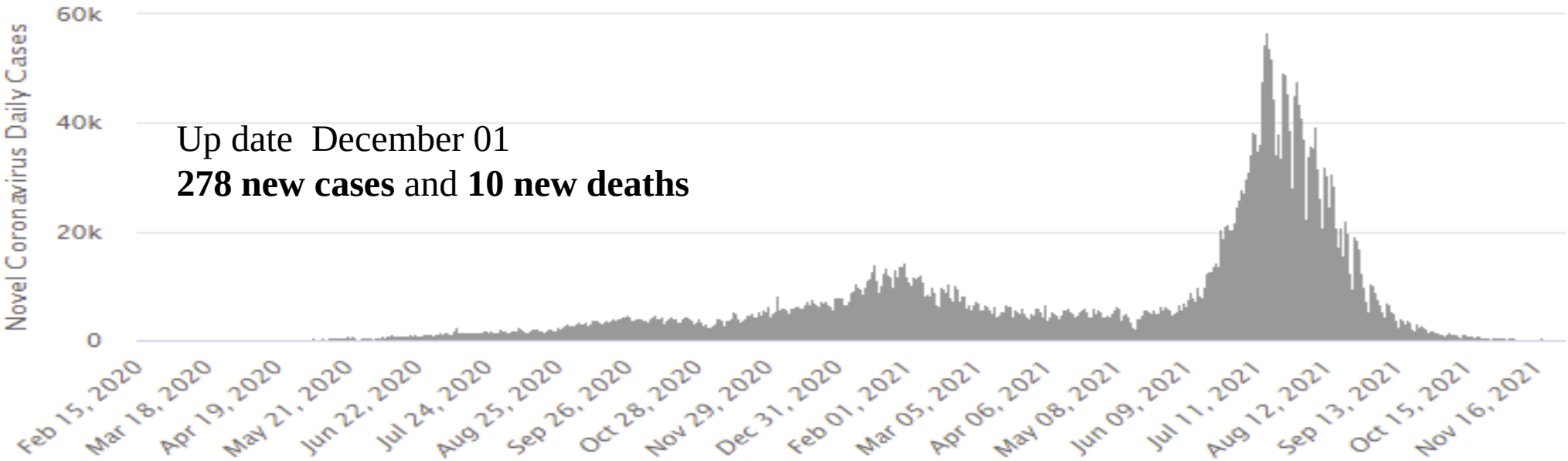
Target	One dose	Fully vaccinated
208.265.720	140.205.046	96.519.346

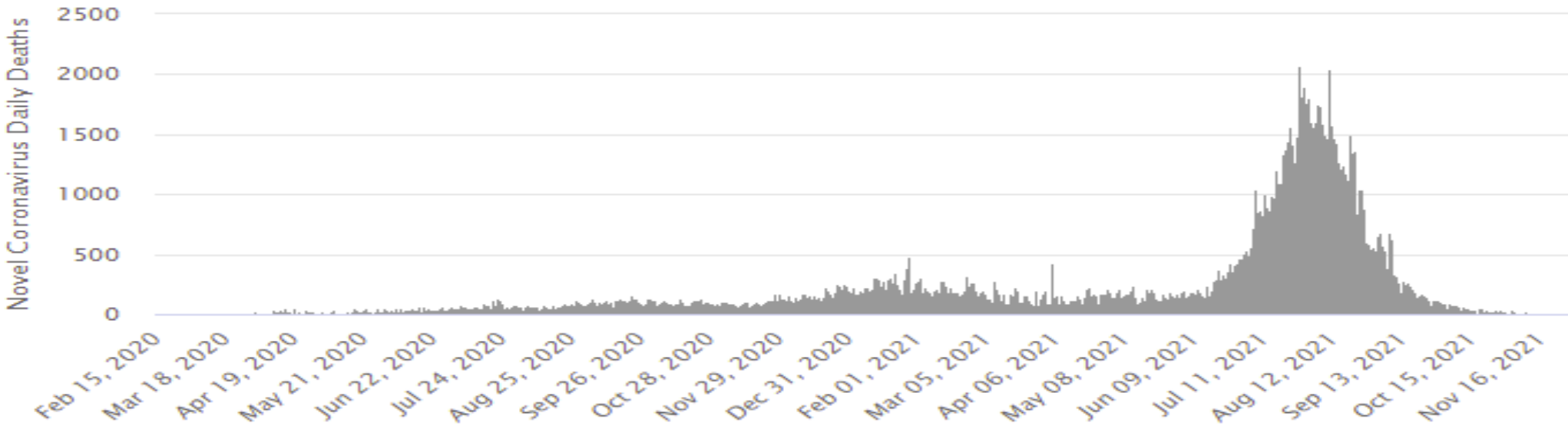
Ministry of Health, November 30

Distibution of Covid-19 in Indonesia



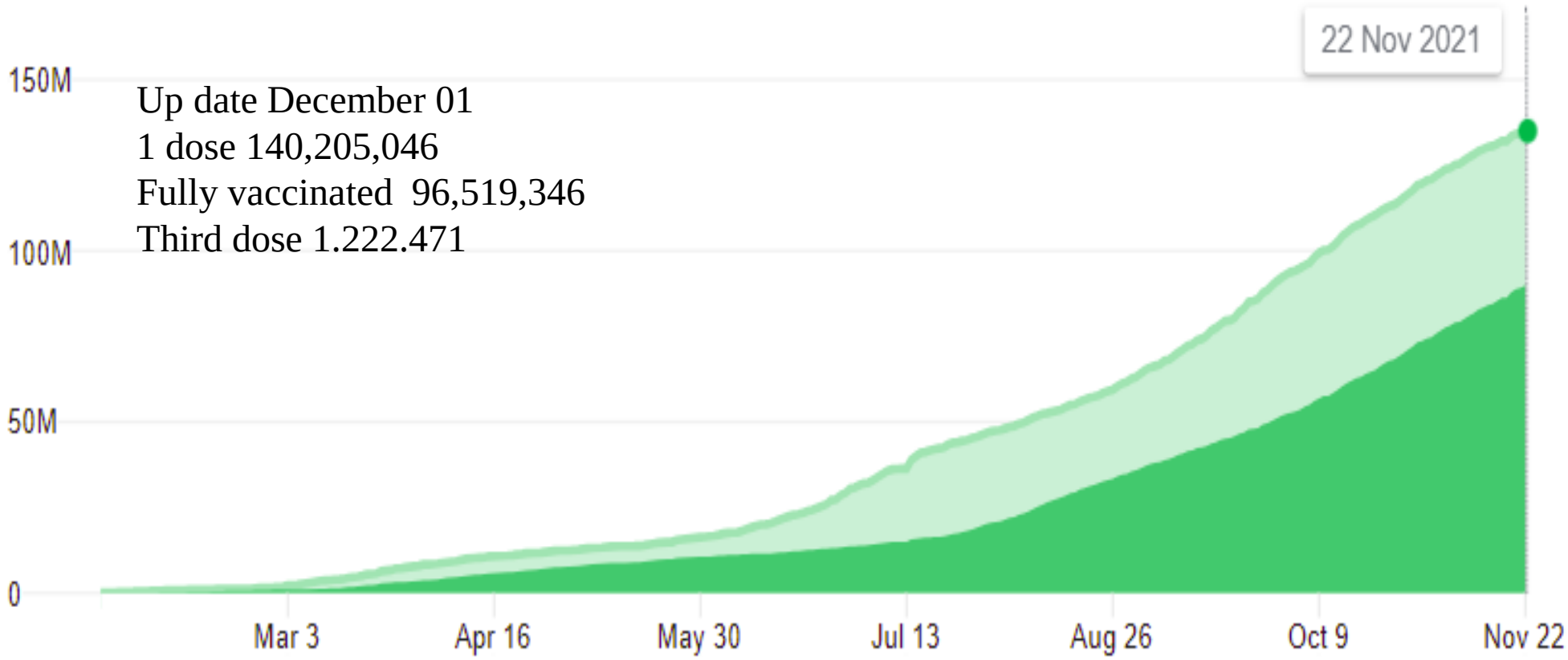
Daily New Cases and Death





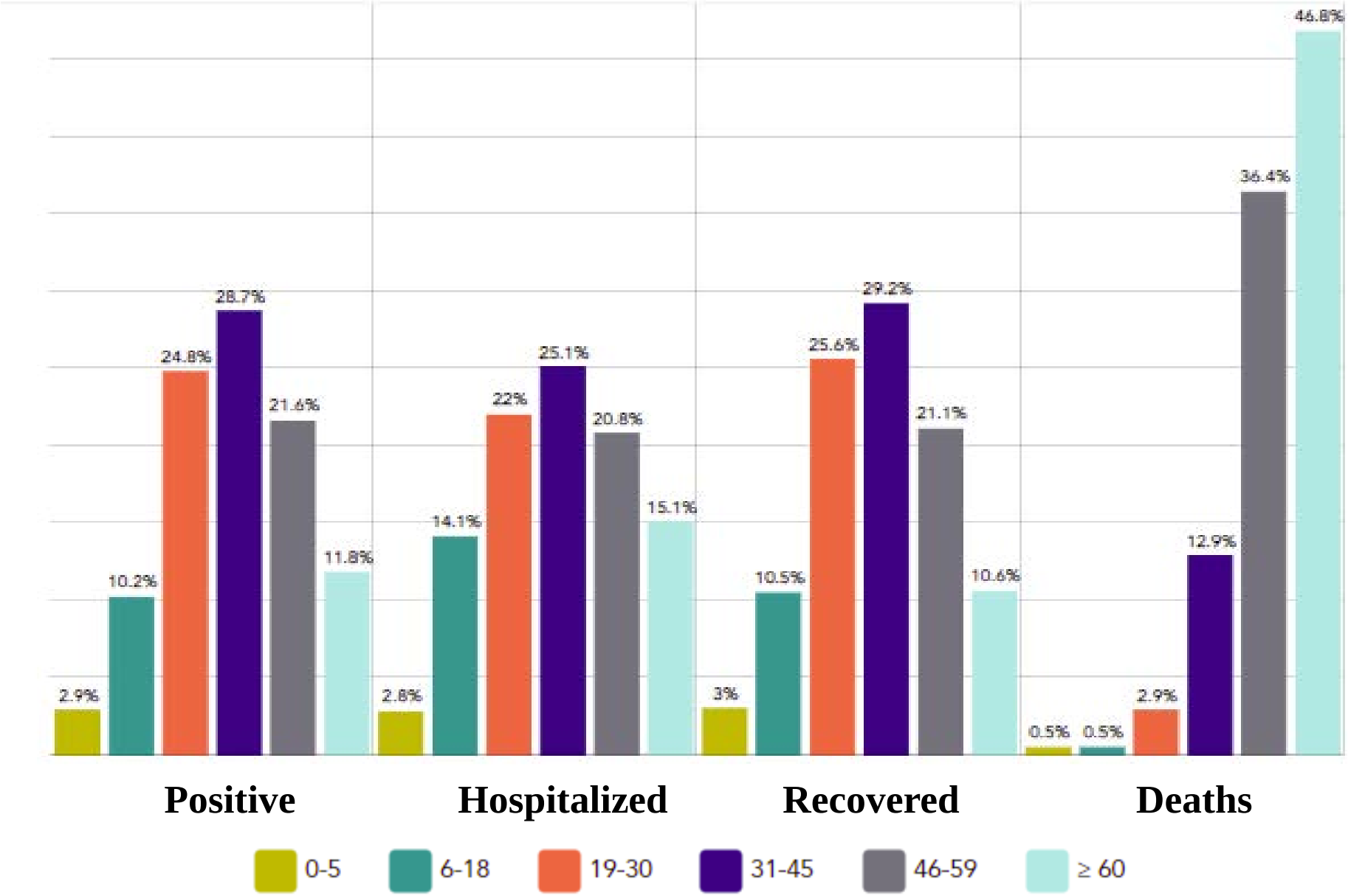
Source: Covid 19 Task Force, 2021

Vaccination Achievement



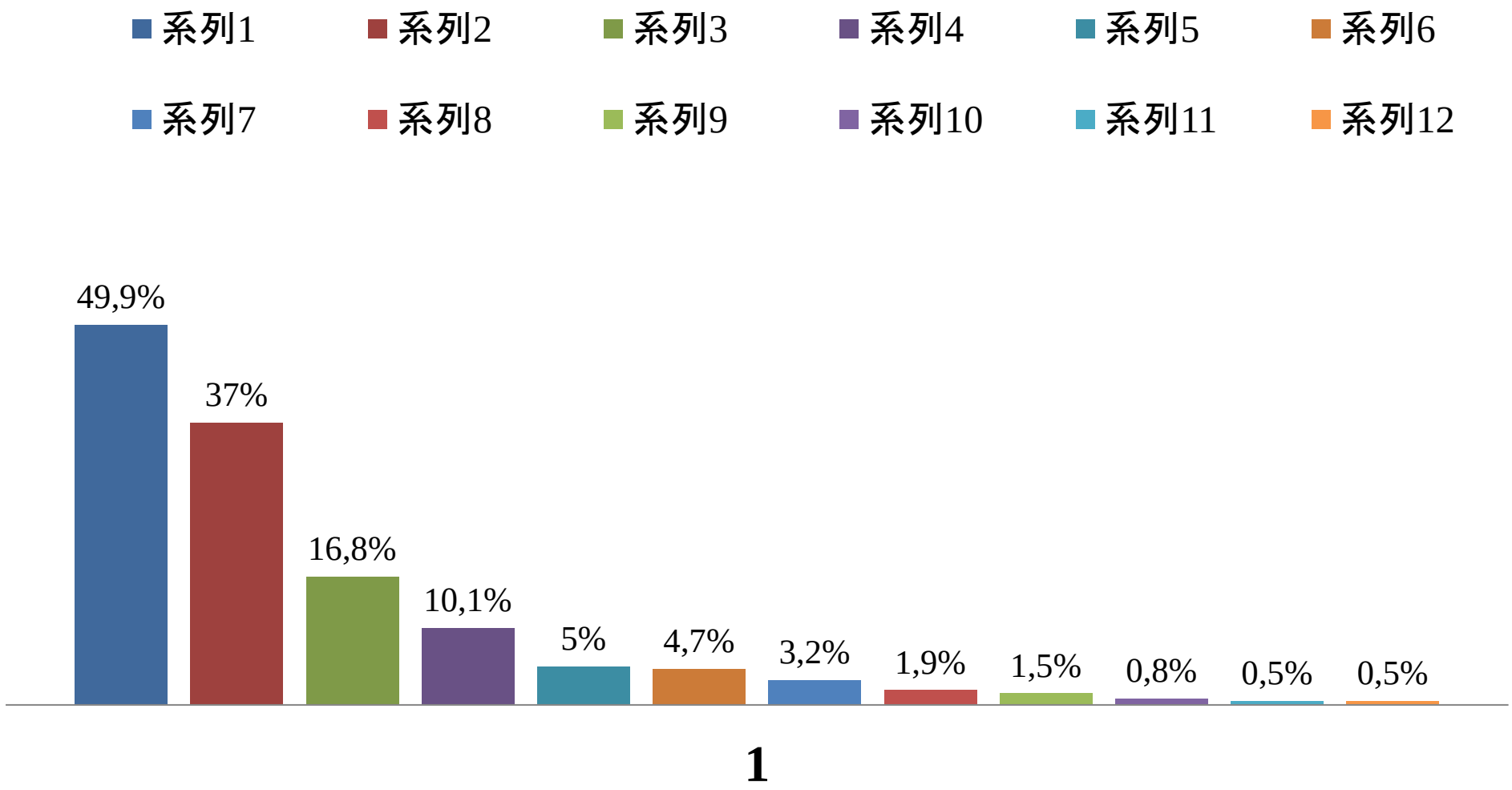
Up date December 01
1 dose 140,205,046
Fully vaccinated 96,519,346
Third dose 1.222.471

WHO Dash Board, November 2021



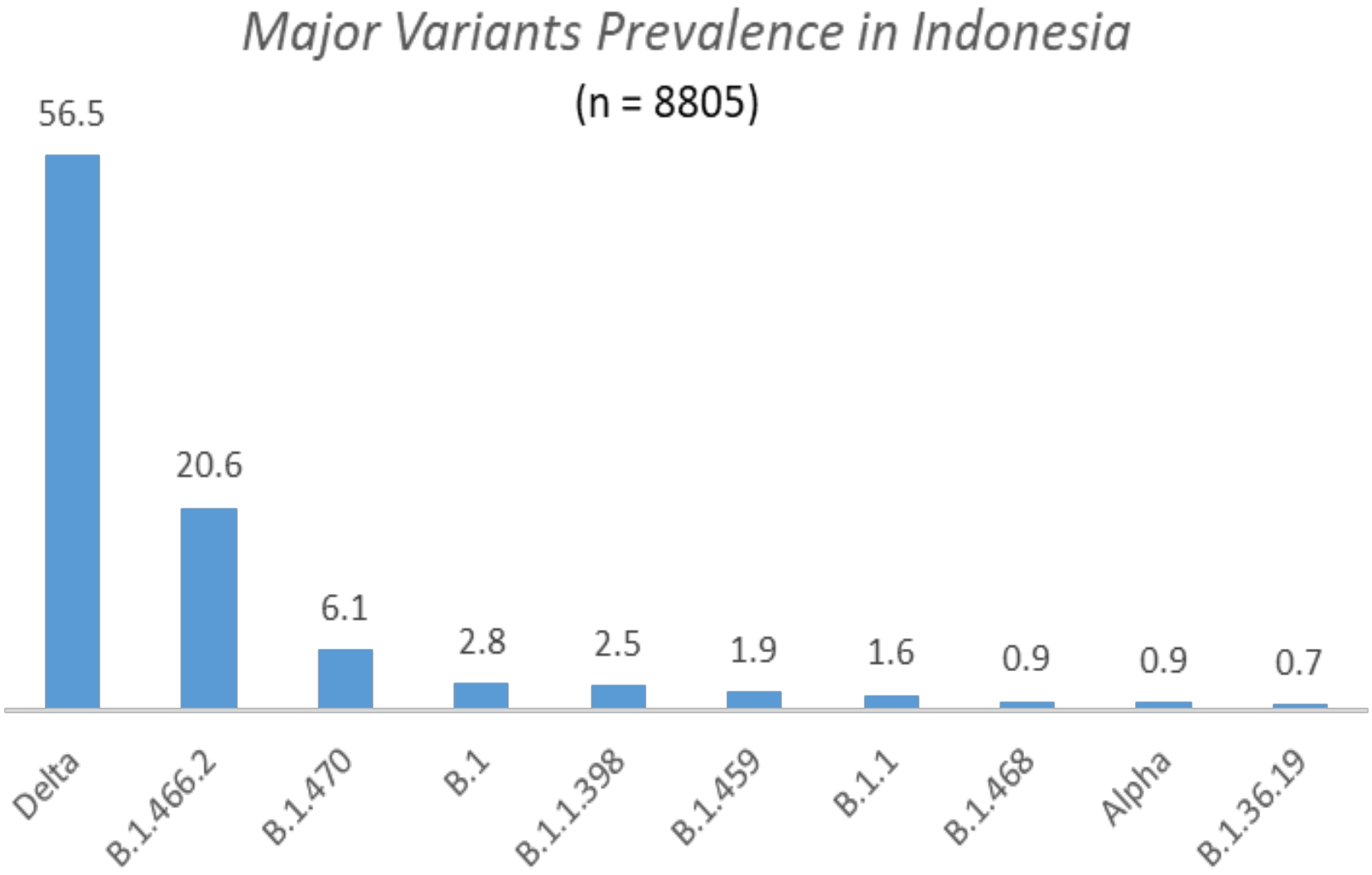
Source: Covid 19 Task Force, 2021

Co-Morbid Diseases



Source: Covid 19 Task Force, 2021

SARS-Cov-2 Variants in Indonesia



Source : GISAID (18 November 2021)

Variants	Most common countries	Earliest date	Description
Delta (B.1.617.2)	United States of America 35.0%, United Kingdom 12.0%, Turkey 9.0%, Denmark 5.0%, France 4.0%	21/8/2020	Predominantly India lineage with several spike mutations
B.1.466.2	Indonesia 85.0%, Malaysia 5.0%, Singapore 4.0%, Japan 1.0%, Australia 1.0%	6/8/2020	Local variant Indonesia
B.1.470	Indonesia 79.0%, Malaysia 6.0%, South_Korea 4.0%, Singapore 4.0%, Japan 3.0%	9/4/2020	Dominant Indonesia/Singapore
B.1	United States of America 43.0%, Turkey 10.0%, United Kingdom 9.0%, France 4.0%, Canada 3.0%	3/1.2020	A large European lineage the origin of which roughly corresponds to the Northern Italian outbreak early in 2020
B.1.1.398	Indonesia 66.0%, United States of America 13.0%, Japan 2.0%, Singapore 2.0%, Philippines 2.0%	19/3/2020	USA/ Indonesian lineage
B.1.459	Indonesia 58.0%, Turkey 13.0%, India 12.0%, Japan 5.0%, Singapore 3.0%	18/3/2020	Dominant Indonesia
B.1.1	United Kingdom 32.0%, United States of America 13.0%, Japan 8.0%, Turkey 5.0%, Germany 4.0%	8/1/2020	European lineage with 3 clear SNPs `28881GA`, `28882GA`, `28883GC`
B.1.468	Indonesia 54.0%, Singapore 16.0%, Saudi_Arabia 9.0%, India 5.0%, Cambodia 2.0%	13/2/2020	Indonesia/Singapore
Alpha (B.1.1.7)	United Kingdom 25.0%, United States of America 19.0%, Germany 10.0%, Denmark 6.0%, Sweden 6.0%	7/2/2020	UK lineage of concern, associated with the N501Y mutation
B.1.36.19	Canada 95.0%, India 3%, New_Zealand 1%	5/6/2020	Canadian lineage

9 pillars of Indonesia's COVID-19 strategic preparedness and response plan

1. Coordination, planning, and monitoring;
2. Risk communication and community engagement;
3. Surveillance, rapid response team, and case investigation;
4. Points of entry, international travel and transport, and large-scale social restrictions;
5. National laboratories;
6. Infection prevention and control;
7. Case management;
8. Operational support and logistics;
9. Maintaining essential health services and systems.

What Indonesia government do to strengthen its COVID-19 response?

- Speed up covid -19 vaccination;
- Access to covid-19 testing and tracing;
- Enforcement of wearing masks;
- Enforcement of social distancing;
- Mobility restriction;
- Availability of drugs to treat/cure covid-19;
- Economic support for family and bussiness

Approved Covid 19 Vaccines in Indonesia

- Anhui Zhifei Longcom ZF2001
- Moderna mRNA-1273
- Pfizer/BioNTech BNTT162b2
- CanSino Ad5-nCov
- Gamaleya Sputnik V
- Janssen Ad26.COV2.8
- Oxford/AstraZeneca AZD1222
- Sinopharm
- Sinovac CoronaVac

DRUGS USED FOR COVID 19 TREATMENT

- There had been no effective specific antiviral proposed for Covid-19 until now. Most of the drugs used for clinical trials for Covid-19 are repurposing drugs.
- Those are drugs that were once released with Emergency Use Authorization (EUA) for Covid-19 therapy, considering there have been no drugs purely dedicated for Covid-19.
- The products used for repurposing drugs including:
  - *chloroquine/hydroxychloroquine*,
  - *lopinavir/ritonavir, ribavirin, oseltamivir, umifenovir, remdesivir, and favipiravir (avigan).*

MEDICAL DEVICES NEEDED FOR MANAGING COVID 19

Medical devices needed for Triage and initial care, Sampling diagnosis, Early supportive therapy and monitoring, Treatment of AHRF, ARDS and septic shock

- Single use devices/disposab les/medical supplies
- Personal protective equipment (PPE)
- Medical equipment

Management of Pasien with Covid 19 (MoH, 2021)

Disease Severity (WHO)	Laboratory and Radiology investigation	Anti-viral drugs	Anti-inflammation drugs	Vitamins	Other treatments
Mild	Hematologic, Swab PCR	Oseltamivir or Favipiravir		Vitamin C Vitamin D Vitamin E	O2; low flow
Moderate	Hematologic, PCR, BGA, blood glucose, SGOT/SGPT, Ureum, Creatinin, DDimer, Ferritin, Troponin, IL-6, NT proBNP (if needed), XRay Thorax (CT scan)	Oseltamivir or Favipiravir	Cortikosteroid, antiinterleukine-6 (if reccomended)	Vitamin C Vitamin D Vitamin E	Plasma convalesens, stem cell, O2; Noninvasive: high flow nasal canule (HFNC)
Severe	Hematologic, PCR, serial BGA, Blood glucose, SGOT/SGPT, Ureum, Creatinin, DDimer, Ferritin, Troponin, IL-6, NT proBNP, CK-CKMB, CT san	Oseltamivir or Favipiravir	Cortikosteroid, antiinterleukine-6	Vitamin C Vitamin D Vitamin E	Plasma convalesens, stem cell, IVIG;O2; Noninvasive: high flow nasal canule (HFNC); ventilator
Critical		Oseltamivir or Favipiravir	Cortikosteroid, antiinterleukine-6	Vitamin C Vitamin D Vitamin E	Stem cell, IVIG;O2; ventilator/ECMO

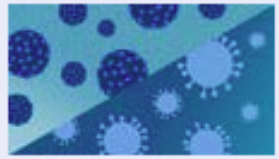
Laboratory Testing Used in Indonesia

	MOLECULAR TEST	ANTIGEN TEST	ANTIBODY TEST
Also known as...	Diagnostic test, viral test, molecular test, nucleic acid amplification test (NAAT), RT-PCR test, LAMP test	Diagnostic test, viral test, rapid test	Serological test, serology, blood test, serology test
How the sample is taken...	Nasal swabs, either shallow or deep (most tests). Saliva (some tests)	Nasal or nasopharyngeal swab (most tests)	Blood from a fingerstick or vein
How long it takes to get results...	Less than an hour (at-home tests and some point-of-care locations), same day (some point-of-care locations) or 1-3 days (tests sent to a lab for processing). Some tests may take longer in some locations, depending on testing capacity.	Some may be very fast (15–30 minutes), depending on the test	Same day (some point-of-care locations) or 1-3 days (tests sent to a laboratory for processing)
Is another test needed...	Not usually. This type of test is typically highly accurate andmusually does not need to be repeated. Some may indicate the need to re-test in certain circumstances.	Maybe. Positive results are usually highly accurate, but false positives can happen, especially in areas where very few people have the virus. Negative results may need to be confirmed with a molecular test.	Sometimes a second antibody test is needed for accurate results.
What it shows...	Diagnoses active COVID-19 infection. (Some tests may also diagnose influenza or other respiratory viruses)	Diagnoses active COVID-19 infection. (Some tests may also diagnose influenza or other respiratory viruses)	Shows if you've been infected by the virus that causes COVID-19 in the past
What it can't do...	It cannot show if you ever had COVID-19 or were infected with the virus that causes COVID-19 in the past	It may not detect an early COVID-19 infection. Your health care provider may order a molecular test if your antigen test shows a negative result, but you have symptoms of COVID-19. It also cannot show if you ever had COVID-19 or were	It cannot diagnose COVID-19 at the time of the test or show that you do not have COVID-19

Diagnostic Tests with Alternative Options

Diagnostic tests are now available with alternative methods and benefits.

- **Rapid, point-of-care** diagnostic tests use a mucus sample from the nose or throat but can be analyzed at the doctor's office or clinic where the sample is collected and results may be available in minutes. These may be molecular or antigen tests.



- **Combination tests** can test for the flu and the coronavirus at the same time. Some can test for many different types of respiratory viruses, including the one that causes COVID-19.

- **Home Collection Test:** sample is collected at home but analyzed in a laboratory
- **Direct to Consumer (DTC) Test:** home collection tests available without a prescription, but the sample is analyzed in a laboratory
- **At-home Testing:** consumer completes sample collection and testing at home
- **Over the Counter (OTC) Test:** consumer completes sample collection and testing at home, without a prescription

- **Saliva tests** allow a patient to spit into a tube rather than get their nose or throat swabbed. Saliva tests may be more comfortable for some people and may be safer for health care workers who can be farther away during the sample collection.

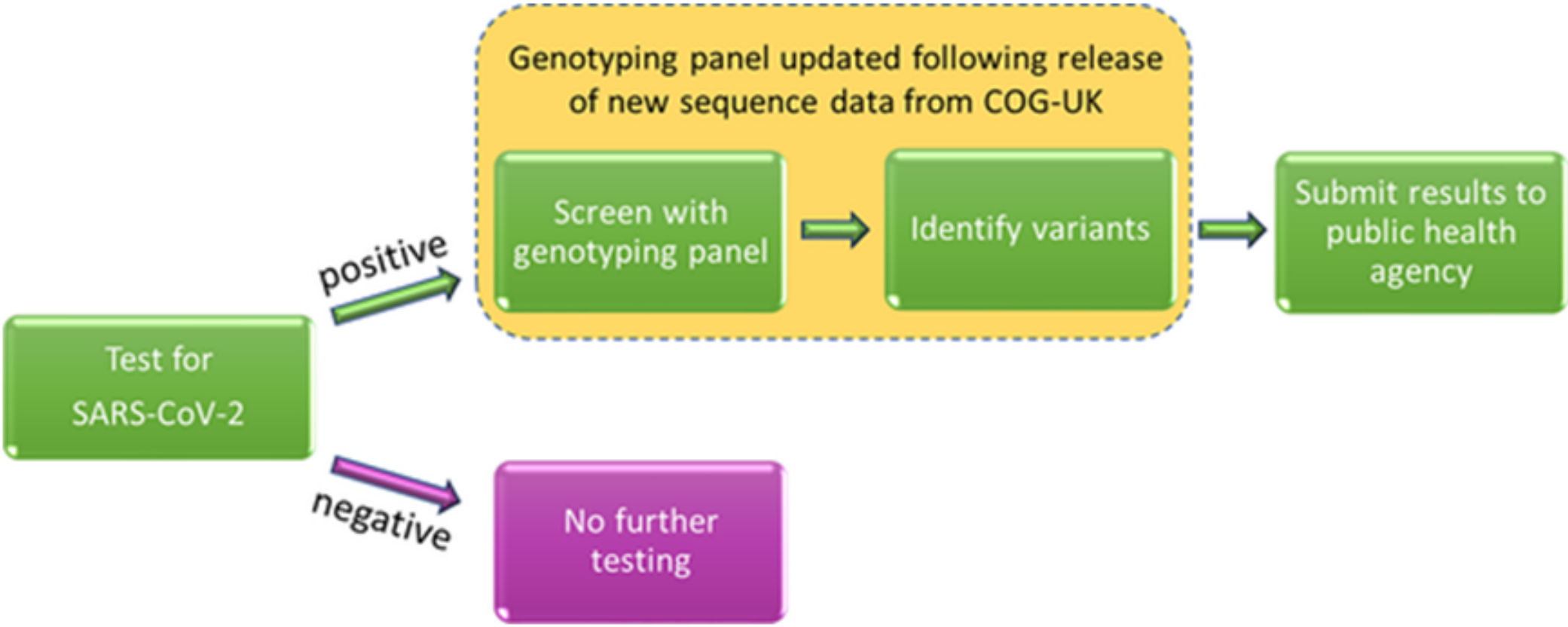
Ordering a Test

Many tests, including some home collection and at-home tests, require a prescription or order from a health care provider.

Prescription Tests – Health care providers can determine whether you need a test, and ensure you get the most appropriate test and that you know what the results mean. For example, certain tests are authorized only for people suspected of having COVID-19 or for people with COVID-19 symptoms that started within a certain number of days. A health care provider can help determine which test is best for your situation. Prescription-only home collection and at-home tests may require you to answer some questions online so that a health care provider can determine whether to prescribe or order a specific test.

Non-Prescription Tests – Some tests are available without a prescription. Home collection and at-home tests available without a prescription may be called "direct-to-consumer" (DTC) or "over-the-counter" (OTC). DTC and OTC tests may be available to purchase at a pharmacy or online, but they may not be available everywhere.

How the SARS-CoV-2 genotyping panel can be used to identify circulating SARS-CoV-2 variants



Harper H, Burridge A, Winfield M, Finn A, Davidson A, et al. (2021) Detecting SARS-CoV-2 variants with SNP genotyping. PLOS ONE 16(2): e0243185. https://doi.org/10.1371/journal.pone.0243185

PRODUCTS OF INDONESIA PHARMACEUTICAL INDUSTRI

Biofarma

Kimia Farma :

- Chloroquin phosphate
- Hydroxychloroquine
- *Avigan*
- *Azitromycin*
- *Hepatoprotektor (Hepagard)*
- *Vitamin C*
- *Fituno*

Indofarma :

- Oseltamivir
- *Vitamin C*
- *Biosthin*

Strategy for Vaccine development

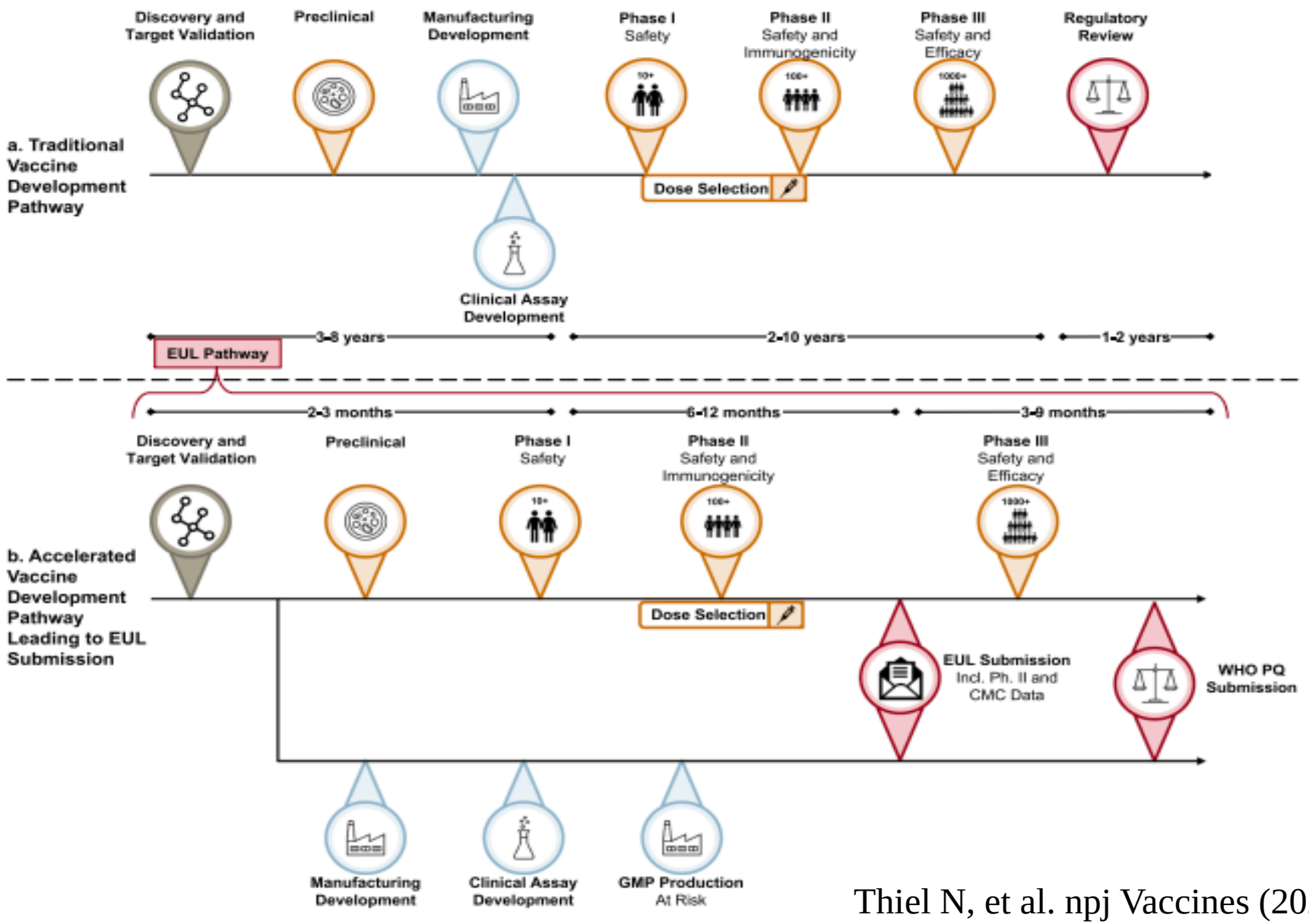
Short term
- **Transfer of technology from potential partner**
- **Capacity building**

Long term
- **Research and development from upstream**

Potential partners
- China
- Japan
- European Union
- CEPI

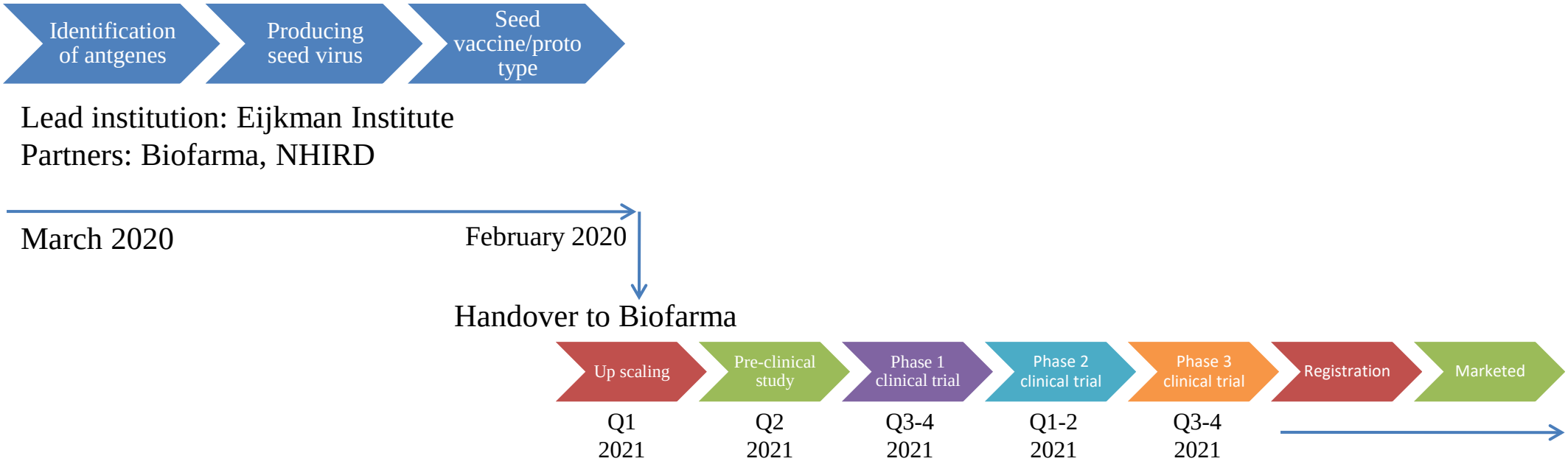
In collaboration with Indonesia consortium of vaccine development
- National Research and Innovation Agency
- Eijkman Institute
- National Health Research and Development Institute
- Biofarma

Potential for acceleration of vaccine development by collaboration



Thiel N, et al. npj Vaccines (2021) 6:63

Current Covid-19 vaccine development in Indonesia



Source: MR Roestan, Biofarma 2020

SUMMARY

- Covid-19 has had a tremendous impact on all aspects of human life.
- Availability and access to vaccines, drugs and medical devices are very important in dealing with the COVID-19 problem.
- global initiative to work together for the future eradication of covid-19.
- Indonesia, in collaboration with other countries and phramaceutical industries has the opportunity to participate in efforts to develop drugs, vaccines and medical devices for managing COVID-19.

THANK YOU