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# Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ANC</td>
<td>antenatal care</td>
</tr>
<tr>
<td>ARDS</td>
<td>acute respiratory distress syndrome</td>
</tr>
<tr>
<td>ARV</td>
<td>antiretroviral (drug)</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacillus Calmette–Guérin</td>
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<tr>
<td>BLC</td>
<td>Bersama Lawan COVID-19 (united to fight COVID-19)</td>
</tr>
<tr>
<td>BNPB</td>
<td>Badan Nasional Penanggulangan Bencana (National Board for Disaster Management)</td>
</tr>
<tr>
<td>BPOM</td>
<td>Badan Pengawas Obat dan Makanan (Food and Drug Control Agency)</td>
</tr>
<tr>
<td>BUMN</td>
<td>Badan Usaha Milik Negara (State-owned enterprise)</td>
</tr>
<tr>
<td>CBHC</td>
<td>community-based health care</td>
</tr>
<tr>
<td>COVAX</td>
<td>COVID-19 vaccines global access</td>
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<tr>
<td>COVID-19</td>
<td>coronavirus disease 2019</td>
</tr>
<tr>
<td>CPAP</td>
<td>continuous positive airway pressure</td>
</tr>
<tr>
<td>DHF</td>
<td>dengue haemorrhagic fever</td>
</tr>
<tr>
<td>DI</td>
<td>Daerah Istimewa (Special Region)</td>
</tr>
<tr>
<td>DKI</td>
<td>Daerah Khusus Ibukota (Special Capital Region)</td>
</tr>
<tr>
<td>DM</td>
<td>diabetes mellitus</td>
</tr>
<tr>
<td>DPT-HB-HiB</td>
<td>diphtheria, pertussis, tetanus, hepatitis B and Haemophilus Influenzae type B vaccine</td>
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<tr>
<td>GDP</td>
<td>gross domestic product</td>
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<tr>
<td>HFNC</td>
<td>high-flow nasal cannula</td>
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<tr>
<td>ICT</td>
<td>information and communication technology</td>
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<tr>
<td>ICU</td>
<td>intensive care unit</td>
</tr>
<tr>
<td>IDR</td>
<td>Indonesian Rupiah</td>
</tr>
<tr>
<td>IEC</td>
<td>information, education and communication</td>
</tr>
<tr>
<td>JKN</td>
<td>Jaminan Kesehatan Nasional (National Health Insurance)</td>
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<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>MSME</td>
<td>micro, small and medium enterprises</td>
</tr>
<tr>
<td>MUI</td>
<td>Majelis Ulama Indonesia (Islamic Clerical Council)</td>
</tr>
<tr>
<td>NAR</td>
<td>new all record</td>
</tr>
<tr>
<td>NICU</td>
<td>neonatal intensive care unit</td>
</tr>
<tr>
<td>OOP</td>
<td>out of pocket</td>
</tr>
<tr>
<td>PBD</td>
<td>purpose-built dormitory</td>
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<tr>
<td>PCR</td>
<td>polymerase chain reaction</td>
</tr>
<tr>
<td>PEEP</td>
<td>positive end-expiratory pressure</td>
</tr>
<tr>
<td>PEN</td>
<td>Pemulihan Ekonomi Nasional (National Economic Recovery)</td>
</tr>
<tr>
<td>PHC</td>
<td>primary health centre</td>
</tr>
<tr>
<td>PHEOC</td>
<td>public health emergency operating centre</td>
</tr>
<tr>
<td>PICU</td>
<td>paediatric intensive care unit</td>
</tr>
<tr>
<td>PPE</td>
<td>personal protective equipment</td>
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<tr>
<td>PLHIV</td>
<td>people living with HIV/AIDS</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
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<td>-------------</td>
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<tr>
<td>PPKM</td>
<td>Enforcement of limitations on community activities</td>
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<tr>
<td>PSBB</td>
<td>Large-scale social restrictions</td>
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<tr>
<td>RDT-Ag</td>
<td>Rapid diagnostic test-antigen</td>
</tr>
<tr>
<td>RT</td>
<td>Rukun Tangga (neighbourhood unit)</td>
</tr>
<tr>
<td>RT-PCR</td>
<td>Reverse transcriptase-polymerase chain reaction</td>
</tr>
<tr>
<td>SIF</td>
<td>Swab isolation facility</td>
</tr>
<tr>
<td>SpO₂</td>
<td>Blood oxygen saturation</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>URTI</td>
<td>Upper respiratory tract infection</td>
</tr>
<tr>
<td>VTM</td>
<td>Virus transport medium</td>
</tr>
<tr>
<td>WFH</td>
<td>Work from home</td>
</tr>
<tr>
<td>WFO</td>
<td>Work from office</td>
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Overview

The Health System Response Monitor (HSRM) is designed to collect and organize up-to-date information on how countries are responding to the coronavirus disease-19 (COVID-19) outbreak. This will be updated periodically (as and when there is a change in COVID-19-related measures) by the respective country contributors. The HSRM focuses primarily on the responses of health systems but also captures wider public health initiatives. The HSRM presents information under six headings:

1. **Preventing local transmission.** This section includes information on key public health measures that aim to prevent the further spread of the disease. It details how countries are advising the general public and people who (might) have the disease to prevent further spread, as well as the measures in place to test and identify cases, trace contacts and monitor the scale of the outbreak.

2. **Ensuring sufficient physical infrastructure and workforce capacity.** This section considers the physical infrastructure available in a country and where there are shortages. It describes any measures being implemented or planned to address them. It also considers the health workforce, including what countries are doing to maintain or enhance capacity, the responsibilities and skill-mix of the workforce, and any initiatives to train or otherwise support health workers.

3. **Providing health services effectively.** This section describes approaches to service delivery planning and patient pathways for suspected COVID-19 cases. It also considers efforts by countries to maintain other essential services during periods of excessive demand for health services.

4. **Paying for services.** Health financing describes how much is spent on health and the distribution of health spending across different service areas. The section also describes who is covered for COVID-19 testing and treatment, whether there are any notable gaps (in population coverage and service coverage), and how much people pay (if at all) for those services out of pocket.

5. **Governance.** This discusses governance of the health system regarding COVID-19-related pandemic response plans and the steering of the health system to ensure its continued functioning. It includes emergency response mechanisms, how information is being communicated, and the regulation of health service provision to patients affected by the virus.

6. **Measures in other sectors.** This section contains information on measures undertaken in non-health sectors (such as border and travel restrictions, economic and fiscal measures) to tackle the pandemic.
Introduction

The first COVID-19 cases in Indonesia were confirmed on 1 March 2020 and officially announced on 2 March 2020 (1). As of 31 August 2021, the Government of Indonesia has reported 4,089,801 confirmed cases of COVID-19 with 133,023 deaths from 510 districts across all 34 provinces (2). Indonesia was struck by a second wave in middle of 2021 with the average number of new cases per day from 22 to 28 July 2021 standing at 43 414; a slight decrease compared to the average of 44 826 cases per day in the previous week (3). The incidence of COVID-19 cases in Indonesia during the week of 19 to 25 July 2021, stood at 1140 per 1 000 000 population. The incidence has been rapidly growing in the country since mid-May 2021 and is almost four-fold higher than the previously recorded highest incidence in February (315 per 1 000 000 population) (3). The highest level of community transmission from 19 to 25 July 2021 was observed in seven provinces, as opposed to six in the previous week; very high incidence rates per 1 000 000 population were reported in DKI Jakarta (6886), DI Yogyakarta (3629), East Kalimantan (2489), North Kalimantan (2133), Riau Islands (2081), West Papua (1981) and Bangka Belitung Islands (1780).

Nationwide, the proportion of tests that were positive increased sharply in December 2020, and peaked at 30.5% in mid-February 2021 (3). It slowly declined subsequently but remained between 9% and 20% between mid-March and the end of June 2021. Since early July 2021, however, the test positivity rate has increased rapidly and steadily. As of 25 July 2021, the proportion positive was 29.0%. The number of confirmed COVID-19 deaths at the national level during the week of 19 to 25 July 2021 increased from 20.9 deaths per 1 000 000 in the previous week to 28.3 per 1 000 000 population. There was a steep increase in deaths throughout June 2021, which has continued into July 2021 (Fig. 1) (3).

Fig. 1 COVID-19 confirmed cases and deaths per 1 million population in Indonesia, January 2020-August 2021
Source: https://worldhealthorg.shinyapps.io/covid/
1. Preventing transmission

1.1. Health communication

The first two COVID-19 cases in Indonesia were announced directly by the President of the Republic of Indonesia on 2 March 2020 (4). The Presidential Office and the Ministry of Health (MoH) were initially the only sources of information. When the number of cases increased, governors and mayors also issued statements, which sometimes contradicted the Presidential office and MoH (5). Several mainstream media have criticized data transparency in the early response. Subsequently, the public started to demand data transparency from the Government (6), resulting in the President establishing a Task Force for the Acceleration of COVID-19 handling on 13 March 2020. The Task Force was created by Presidential Decree (KEPPRES) No. 7 of 2020 in order to make COVID-19 responses and related information more coordinated. The spokesperson for the Task Force gave daily updates on the COVID-19 situation through press conferences broadcasted via conventional and online media (5). The Task Force also provides live data on COVID-19 in Indonesia via the official government website (https://www.covid19.go.id/) (6). Based on level of COVID-19 transmission and spread, areas within the country were categorized into four colour zones by the Task Force (green, yellow, orange, and red). The Task Force used the zones to communicate warnings and cues for local governments to boost testing, tracing and treatment; and for the community to intensify hand washing, wearing of masks and physical distancing.

The mass media had already started educating the public even before the first COVID-19 cases were declared in Indonesia (7). Mainstream media filled the gaps of public education by disseminating information about COVID-19 using hashtags (e.g. #AmanDiRumah; #MediaLawanCovid19) shared through multiple platforms, including online and social media. The primary sources of information for the public during the pandemic are social media, online media, and mass media. The most popular sources for preventive measures are social media (83.6%), television (78.5%), and WhatsApp (76.0%) (7). Accordingly, the Indonesian government implemented government-centred public communication without prohibiting the media, including social media, from spreading general information about COVID-19 (8). The Task Force also utilizes ChatBot on WhatsApp application, with 2.6 million messages sent from the ChatBot account during the first hour of its initial launch (7). However, Indonesia is facing problems with the spread of misleading and harmful messages that hamper COVID-19 prevention efforts. The Ministry of Communications and Informatics monitors the spread of COVID-19 related mis/dis-information daily, with records of 1,550 hoaxes related to Covid-19 and 177 hoaxes related to Covid-19 vaccines from January 2020 to April 2021 (9). In response, the government has partnered with digital technology-based industries and social media influencers to disseminate information (10).

A survey undertaken during the recent surge (July 2021) revealed behaviours which indicate the need for further information, education and communication efforts (11). This survey reported low compliance for preventive behaviours such as avoiding gatherings (22%); handwashing (25%); and maintaining at least 2 meter physical distance (33%). Low compliance was reportedly higher outside Java-Bali islands. The survey also revealed that a considerable proportion of the unvaccinated population (20%) is worried about vaccine side effect or do not believe that vaccines are effective. The majority of the population (60%) is also bored/very bored during implementation of the PPKM -
Pemberlakuan Pembatasan Kegiatan Masyarakat (Enforcement of limitations on community activities).

1.2. Physical distancing

To prevent the spread of COVID-19, the government implemented two sets of restrictions:

- Large scale social restrictions (PSBB) and
- Enforcement of limitations on community activities (PPKM).

PSBB came into effect after the government issued regulation No. 21/2020 on 31 March 2020. It allows local governments to initiate partial lockdown by restricting the movement of people and goods in and out of their respective localities, provided they had received permission from MoH (12). Local governments could implement a PSBB policy if their areas meet the criteria, e.g., increasing COVID cases/deaths with rapid spread to several regions. These rules can be initially implemented for the full 14 days incubation period of COVID-19, but if transmission remains high after 14 days, they can be extended for a further 14 days (7). On 3 April 2020, MoH issued regulation No. 9/2020, further elaborating PSBB restrictions as the following: (i) closure of schools and workplaces; (ii) restriction of religious activities; (iii) restriction of activities in public spaces and facilities; (iv) restriction of social-cultural activities; (v) restriction of transportation; and (vi) restriction of other activities related to defence and security (7).

On 4 June 2020, the Governor of DKI Jakarta signed regulation no 51 Year 2020 on transitional large scale social restriction (PSBB Transition) which emphasized on the establishment of a COVID-19 task force at work place and 50% capacity limit in religious facilities, work places, social and cultural facilities and transportation (13).

On 7 January 2021, the Minister of Home Affairs signed Ministerial Instruction No. 1/2021, instructing all governors in the Java and Bali region to apply the enforcement of limitations on community activities (PPKM), which supersedes PSBB (Table 1) (14).

Under PPKM, affected cities and districts are required to limit office capacity to 25 % of staff at any time, resume online teaching, and limit capacity at religious facilities to 50 %. Furthermore, shopping malls were required to close by 7 pm, while restaurants’ dining in capacity was limited to 25%. PPKM restrictions should be implemented if the following parameters are met in a particular area: (i) death rate above the national average of 3%; (ii) patient recovery rate below the national average of 82%; (iii) active cases above the national average of 14%; and (iv) hospital occupancy rate average of more than 70%.

On 5 February 2021, the Minister of Home Affairs signed Ministerial Instructions No. 3/2021, instructing governors in the Java and Bali regions to apply PPKM Mikro, to regulate restrictions down to Rukun Tangga (RT) – neighbourhood units consisting of a maximum of 30 households in rural areas; or a maximum of 50 households in urban areas. According to the Ministerial Instruction, PPKM Mikro is applied to RT, categorized as a red zone (i.e. 10 households with confirmed cases within seven days). RTs in this category should implement: (i) active case-finding by contact-tracing and detection of suspected cases; (ii) self/centralized isolation with close supervision; (iii) closure of public facilities, except essential services; (iv) prohibiting gatherings of more than three people in public; (v) restricting mobility after 8 pm; and (vi) prohibiting community activities that promote in-person gatherings.
<table>
<thead>
<tr>
<th>PPKM level</th>
<th>Criteria needed for a region to be at this level</th>
<th>Applicable restrictions</th>
</tr>
</thead>
</table>
| **Level 1** | • Confirmed COVID-19 cases <20 per 100,000 population per week  
• Hospitalized COVID-19 cases <5 per 100,000 population per week  
• COVID-19 death rate <1 per 100,000 population per week | 1. Working arrangements  
a. Essential sectors (such as finance, information and communications technology (ICT), export-oriented industries, non-quarantine hotels): 50% work from office (WFO) in 2 shifts with strict health protocols  
b. Critical / essential sectors (such as energy, health, security, logistics and transportation, essential utilities): 100% WFO  
c. Non-essential sectors: 75% WFO (upon vaccination)  
2. Educational institutions to implement online learning  
3. Shopping malls closed, except for pharmacies/drug stores  
4. Grocery stores and traditional markets selling daily needs operate at 50% capacity, close by 8 pm.  
5. Traditional markets selling other than daily needs operate at 50% capacity and close at 3 pm  
6. Street vendors and barbershops close by 8 pm  
7. Indoor restaurants, cafés, and food stalls do not accept on-site dining. They could only provide take aways/deliveries  
8. Outdoor food stalls/hawkers accept dine-in max 30 minutes and close at 8 pm  
9. No mass services at places of worship |
| **Level 2** | • Confirmed COVID-19 cases 20–49 per 100,000 population per week  
• Hospitalized COVID-19 cases 5–9 per 100,000 population per week  
• COVID-19 death rate 1–1.9 per 100,000 population per week | 1. Working arrangements  
a. Essential sectors (such as finance, ICT, export-oriented industries, non-quarantine hotels): 100% WFO in 2 shifts with strict health protocols  
b. Critical sectors (such as energy, health, security, logistics and transportation, essential utilities): 100% WFO  
c. Non-essential sectors: 75% WFO if vaccinated  
2. Educational institutions to implement blended learning (50% online; 50% offline)  
3. Shopping malls open at 25% capacity and close by 5 pm  
4. Grocery stores and traditional markets selling daily needs operate at 75% capacity, close by 9 pm.  
5. Traditional markets selling other than daily needs operate at 75% capacity and close at 9 pm  
6. Street vendors and barbershops close by 8 pm  
7. Indoor restaurants, cafés, and food stalls accept on-site dining at 75% capacity  
8. Outdoor food stalls/hawkers accept dine-in at 75% capacity, max 30 minutes and close at 9 pm  
9. Places of worship opens at 50% capacity with strict health protocols |
### Level 3
- **Confirmed COVID-19 cases** 50–100 per 100,000 population per week
- **Hospitalized COVID-19 cases** 10–30 per 100,000 population per week
- **COVID-19 death rate** 2–5 per 100,000 population per week

1. **Working arrangements**
   a. Essential sectors (such as finance, ICT, export-oriented industries, non-quarantine hotels): 100% WFO in 2 shifts with strict health protocols
   b. Critical sectors (such as energy, health, security, logistics and transportation, essential utilities): 100% WFO
   c. Non-essential sectors: 75% WFO with COVID protocol

2. Educational institutions to implement online learning
3. Shopping malls open at 25% capacity and close by 5 pm
4. Grocery stores and traditional markets selling daily needs operate at 50% capacity, close by 8 pm.
5. Traditional markets selling other than daily needs operate at 50% capacity and close at 3 pm
6. Street vendors and barbershops close by 8 pm
7. Indoor restaurants, cafés, and food stalls do not accept on-site dining. They could only provide take aways/deliveries
8. Outdoor food stalls/hawkers accept dine-in at 25% capacity, max 30 minutes and close at 8 pm
9. Places of worship opens at 25% capacity with strict health protocols

### Level 4
- **Confirmed COVID-19 cases** >150 per 100,000 population per week
- **Hospitalized COVID-19 cases** >30 per 100,000 population per week
- **COVID-19 death rate** >5 per 100,000 population per week

1. **Working arrangements**
   a. Essential sectors (such as finance, ICT, export-oriented industries, non-quarantine hotels): 50% Work from home (WFH) and 50% WFO
   b. Critical sectors (such as energy, health, security, logistics and transportation, essential utilities): 100% WFO
   c. Non-essential sectors: 100% WFH

2. Educational institutions to implement online learning
3. Shopping malls closed, except for pharmacies/drug stores
4. Grocery stores and traditional markets selling daily needs operate at 50% capacity, close by 8 pm.
5. Traditional markets selling other than daily needs operate at 50% capacity and close at 3 pm
6. Street vendors and barbershops close by 8 pm
7. Indoor restaurants, cafés, and food stalls do not accept on-site dining. They could only provide take aways/deliveries
8. Outdoor food stalls/hawkers accept dine-in max 3 people each max 30 minutes and close at 8 pm
9. No mass services at places of worship

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**Source:** Instruction of Minister of Home Affairs No 22, 23 and 26 during June-July 2021.

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1 There are multiple versions of PSBB and PPKM instructions depending on time and location, making tabulation very complicated and lengthy. We opt to present the Emergency PPKM version which was implemented during the June-July 2021 surge based on three Instructions of Minister of Home Affairs.
On 1 July 2021, President Joko Widodo announced tighter restrictions of community activities, known as PPKM Darurat, from 3 July until 20 July 2021, in Java and Bali (15). This policy was issued in response to a surge during the second wave, the existence of the COVID-19 delta variant and political considerations (16).

Subsequently, on 25 July 2021, President Joko Widodo extended the emergency PPKM rules to the whole country (17). This policy was taken to ensure that the COVID-19 outbreak remained contained, as infection and death rates remained far above that seen when cases first began declining in early 2021. In the extended emergency PPKM period, several small businesses such as traditional food carts, barbershops and laundromats could operate until 9 pm. The Minister of Home Affairs accordingly issued Minister of Home Affairs Instruction No. 22/2021 on the implementation of COVID-19 Level 4 Restriction on Public Activities in Java and Bali, and the Minister of Home Affairs Instruction No. 23/2021 on the extension of the restriction on public activities in the Micro-Scale or PPKM-Mikro (16). Instruction No. 22/2021 stipulates that all regional leaders in Java and Bali, including in areas designated as severe level for COVID-19 outbreaks, shall implement a Level 4 public restriction policy. This includes barring all non-essential and critical workers from working from the office, ceasing shopping centres' operations, and enforcing online schooling to prevent the spread of COVID-19. Meanwhile, Instruction No. 23/2021 extends the existing PPKM-Mikro policy in areas outside of Java and Bali, except several areas that must implement Level 4 restriction due to the severity of the outbreak in those areas (16).

President Joko Widodo subsequently announced a one-week extension of the government's Restriction on Public Activities (PPKM) Level 4 to 2 August from 26 July 2021 (16). A slight relaxation of the policy was introduced during this period, including the allowance of traditional markets selling everyday needs under strict health protocols and for traditional food carts and outdoor food vendors to serve dine-ins for 20 minutes at the maximum. Accordingly, the Minister of Home Affairs issued three instructions detailing the government's latest PPKM policy extension and provisions. Minister of Home Affairs instruction No. 24/2021 details the implementation of PPKM Level 3 and Level 4 in Java and Bali (16). Minister of Home Affairs Instruction No. 25/2021 outlines the implementation of PPKM Level 4 policy in Sumatra, Kalimantan, Sulawesi, Nusa Tenggara, Maluku and Papua (14). Finally, Minister of Home Affairs Instruction No. 26/2021 sets forth the implementation of PPKM Level 3 to 1 and optimization of the COVID-19 handling command post at the micro level (16).

1.3. Isolation and quarantine

According to the Decision of the Minister of Health (No 01.07/MENKES/4641/2021) (18), quarantine measures are for close contacts/suspects which do not require hospitalization, while isolation measures are for suspects requiring hospitalization/confirmed cases.

Suspects can be: (i) individuals with one of the clinical criteria (e.g. acute fever and cough; severe acute respiratory infection with fever/history of fever and cough within 10 days requiring hospitalization; anosmia; ageusia; or (ii) individuals with history of contact with probable/confirmed cases/cluster and meeting one of the clinical criteria; or (iii) individuals with positive Rapid Diagnostic Test Antigen (RDT-Ag) result without symptoms and not close contact.
Probable cases are suspects who died with clinical features highly suggestive of COVID-19 and fulfil one of the following criteria: (i) not tested for Nucleic Acid Amplification Test (NAAT) or RDT-Ag; or (ii) NAAT/RDT-Ag results do not meet criteria for confirmed cases nor COVID-19 discarded.

Confirmed cases can be (i) individuals with NAAT positive result; or (ii) individuals meeting suspect/close contact criteria with RDT-Ag positive result in line with RDT-Ag criteria for access zone B or C; or (iii) individuals with RDT-Ag positive result in line with RDT-Ag criteria for access zone C.

Effective implementation of isolation and quarantine measures requires an adequate capacity to support the cases detected. Self-isolation plays an essential role in preventing further transmission or emergence of new clusters. Unfortunately, social circumstances can hinder effective self-isolation. Those living in densely populated slum areas may not have sufficient space to self-isolate.

The Central government transformed apartment towers of the athlete’s village in Jakarta into a COVID-19 emergency hospital with 10,161 beds, established Indrapura field hospital in Surabaya with 242 beds, and established a COVID hospital with 360 beds on Galang Island. Local governments also transformed local facilities such as guest houses and training venues into self-isolation facilities for citizens who could not self-isolate at home.

1.4. Monitoring and surveillance

MoH in 2017 established public health emergency operating centres (PHEOCs) specifically to manage outbreak and pandemic response (19). The PHEOC collects information, determines priority decisions, coordinates efforts, and manages communications with WHO and other stakeholders. Primary health centres (PHCs), hospitals and port health authorities take swabs from suspects, as defined by the Decision of the Minister of Health (No. 01.07/Menkes/413/2020) (20). Swab specimens are sent to designated laboratories. Polymerase chain reaction (PCR) test results are reported to MoH through the New All Record (NAR) TC-19 system; verified by the PHEOC team; once confirmed, the provincial health office announces the cases. The PHEOC team reports the aggregate number of new COVID-19 cases daily to WHO using the #INOCOVID code for each confirmed case registered at the PHEOC. On 8 February 2021, MoH issued Ministerial Decree No. HK.01.07/MENKES/446/2021 (21) on the ‘Use of Antigen Rapid Diagnostic Test in Testing of Coronavirus Disease 2019 (COVID-19)’. The decree provided guidance on how antigen-detecting rapid diagnostic tests can be used for SARS-CoV-2 diagnosis as well as the criteria for products that can be used in Indonesia, including those that are listed in WHO Emergency Use Listing. This decree was subsequently updated on 23 June 2021 through Ministerial Decree No. HK.01.07/MENKES/4794/2021 (22).

Local authorities play an essential role in surveillance by (i) ensuring the availability of an adequate number of qualified surveillance staff by conducting periodic training; (ii) ensuring adequate availability of logistics and equipment (e.g. protective gear) to minimize delays in implementing surveillance due to logistic constraints; (iii) establishing a clear and well-organized reporting command chain; (iv) monitoring and evaluation of epidemiological investigation data documentation, contact-tracing and cluster analysis; (v) managing staff performance through supervision as well as provision of regulatory and financial support; and (vi) understanding COVID-19 spread at the lowest level of administration (RT) to develop appropriate interventions (19).

Notably, there has also been considerable progress in integrating surveillance data beyond the health sector (19). The Ministry of Telecommunication and Informatics, in collaboration with
Telkom, a state-owned telecommunication enterprise, developed the PeduliLindungi application. Participants using the app share their location data while travelling, thus enabling contact tracing. PeduliLindungi will then identify people who have been in close contact with suspects or confirmed cases. PeduliLindungi has been downloaded by more than 4.6 million people. The Task Force has also established the United to Fight COVID-19 (BLC) system to gather intersectoral data to support evidence-based decision-making. This system utilizes big data, machine learning and artificial intelligence technology to support data management and automatic data analysis to monitor COVID-19 development in Indonesia. The first generation of BLC has successfully integrated PHEOC surveillance data, hospital-based COVID-19 data, and the logistics need forecast from hospitals and laboratories. In September 2020, BLC was upgraded to BLC-Next Generation to enable intersectoral data (health, transportation, communication, social–cultural) to monitor community behaviour change. The BLC system utilizes a native cloud platform and edge cloud technology that allows access across 514 districts/municipalities with robust data security. Unfortunately, implementation of the BLC system is constrained by slow data entry due to lack of adequate human resources.

1.5. Testing

WHO recommends testing at least one person per 1000 population per week (23). As of 8 August 2021, the majority of provinces had reached the testing target recommended by WHO. Provinces which have not been able to meet this target are: Lampung, Central Java, West Nusa Tenggara, West Sulawesi, Maluku (24).

MoH published the first official testing protocol for COVID-19 two weeks after the government reported the first COVID-19 cases (25). According to this protocol, all specimens have to be examined at the Central Laboratory of the National Institute of Health Research and Development (NIHRD), MoH. All health-care facilities in Indonesia were required to send specimens to Jakarta, taking up to 10 days for the results to be finalized. This requirement soon created a bottleneck for the testing process due to a mismatch between available resources and the increasing demand for testing. Subsequently, MoH expanded designated test centres to 10 MoH laboratories across the country. The President finally instructed expansion of testing capacity four weeks after the initial confirmed case was reported, prompting MoH to decentralize the testing process to 48 state-owned laboratories. The government subsequently aimed to conduct 10,000 tests per day, without a definitive timeline for reaching the target.

The process for expanding the laboratory testing network took considerable time due to constraints, such as a lack of imported reagents, laboratory equipment and trained human resources (19). By 20 October 2020, the COVID-19 Task Force had distributed 29 PCR machines, 3 034 648 PCR reagents, 2 473 430 virus transport mediums (VTMs) and 9650 PCR kits for GeneXpert (molecular testing machines previously installed for TB testing). MoH designated 466 laboratories across Indonesia to conduct COVID-19 tests (PCR, rapid molecular tests, viral load) on 1 November 2020. Additionally, veterinary laboratories, food and drug laboratories, and mobile laboratories have been mobilized to conduct COVID-19 testing. Over 1000 laboratory technicians were trained online.

By 11 May 2021, 742 laboratories have been appointed as COVID-19 diagnostic laboratory per ministerial decree No. HKKEPUTUSAN.01.07/MENKES/4642/2021. NIHRD-MoH undertakes an external quality assessment of the COVID-19 laboratory network, which consist of 2 main activities, validity test and proficiency test (26, 27). For the validity/confirmation test, the laboratory is
required to send 20 positive samples and 10 negative samples to NIHRD for cross confirmation. Three phases of proficiency tests have been conducted to date. In phase one, 176 laboratories participated and in phase two, another 135 laboratories took part. The third phase closed at end of August 2021 during which 650 laboratories participated. More recently, as one of the efforts to increase the number of test to 400 000 tests/per day as instructed by the President, Indonesia lowered the price for RT-PCR testing from IDR 900 000 to IDR 450 000-550 000 (28).

On 1 August 2021, MoH announced presence of SARS-CoV-2 delta variant in six provinces, i.e. DKI Jakarta, West Java, East Kalimantan, Central Java, East Nusa Tenggara, and Bali (48).

1.6. Vaccination

Indonesia launched the COVID-19 vaccination programme symbolically, with the President receiving the first injection on 13 January 2021. This launch followed approval by the Indonesia Food and Drug Control Agency (BPOM) of the CoronaVac Vaccine designed by Sinovac Biotech, China, after passing clinical trials in Indonesia. The efficacy of CoronaVac was 65.3%, above the WHO threshold of 50%, and the Indonesian Islamic Clerical Council (MUI) declared that the CoronaVac vaccine is halal (allowed under Islamic law). BioFarma, an Indonesian pharmaceutical State-owned company, manages the use of CoronaVac for the country's free vaccination programme (29).

The vaccination programme has four phases, with health-care workers receiving the first batch of vaccines (29). The second round of mass vaccinations against coronavirus started in mid-February 2021. The second round of vaccination targeted 38.5 million people, including 16.9 million workers in public sectors and 21.6 million elderly citizens. Workers in the hospitality, transportation and tourism industries and media members are included in this programme. This second round of vaccination focused on provinces in Java and Bali, home to around 70% of the total number of COVID cases countrywide (29).

On 8 March 2021, Indonesia received the first batch of 1 113 600 doses of COVID-19 vaccines from the COVAX Facility, the international partnership established to ensure equitable distribution of COVID-19 vaccines worldwide (30). This first batch of COVID-19 vaccines from the COVAX Facility in Indonesia was the AstraZeneca vaccine produced in South Korea. As part of the Advance Market Commitment (AMC) to finance low and middle-income countries, the COVAX Facility provided 11 704 800 vaccine doses to Indonesia at no cost (30). Subsequently, Indonesia received additional vaccines from the COVAX facility on 26 April 2021 (3.8 million doses); 13 July 2021 (3.4 million doses); 15 July 2021 (1.5 million doses); 1 August 2021 (3.5 million doses) (31) and 13 August 2021 (5 million doses).

The Indonesian government has increased the national Covid-19 vaccination target from the initial 181.5 million by March 2022 to 208 265 720 by the end of 2021 (32). The increased target now covers a wider demographic group, including the 12–17-year-old age group and pregnant women. The Indonesian government also set a goal of administering 1 million doses of COVID-19 vaccine per day from 26 June 2021, aiming to double the number by August 2021. The ambitious targets are part of the government’s attempt to achieve herd immunity to break the chain of COVID-19 transmission. It is also in line with the additional COVID vaccines that have arrived in Indonesia.

As of 31 August 2021, 100 133 194 vaccine doses have been administered in the national COVID-19 vaccination campaign; 63 457 676people have received the first dose, 36 035 429 people have received the second dose and 640 089 people (health workers) have received their third dose (33).
The number of older people who have received the first dose of the COVID-19 vaccine was 5,288,325 (24.5% of the targeted 21,553,118 people); but only 3,758,348 (17.4% of the targeted older people group) have received the second dose. The number of essential public service workers who have received the second dose stood at 19,216,923 (110.9% of the target population of 17,327,167). Among them, 2,341,179 teachers have received the first dose and 1,954,980 have received the second dose (33). The number of people from vulnerable populations and those aged 18 years and older who have received the first dose was 19,459,990 (13.8% of the targeted 141,211,181) and 9,261,732 (6.6% of the targeted population) have received the second dose. The number of health workers who have received the third dose was 640,089 (43.6% of the target population of 1,468,764 (33).
2. Ensuring sufficient physical infrastructure and workforce capacity

2.1. Physical infrastructure

At the beginning of the COVID-19 pandemic, MoH issued a circular for health facilities and health workers to limit service hours and for the public to visit health facilities only for emergency issues. This appeal, which the Indonesian Hospital Association supports, aims to prevent transmission in health facilities and communities. The restriction is mainly for elective and non-emergency cases. This strategy was carried out because not all health facilities have sufficient resources to implement the COVID-19 safety protocol standard. The limited supply of personal protective equipment (PPE) for health workers and the need to expand public spaces in hospitals, e.g. such as the lobbies and waiting rooms, to maintain a safe distance among visitors and staff of health-care facilities, are some of the primary considerations. The policy led to a decrease in patient visits in almost all health facilities, impacting a decline in operating income. Due to the risk of COVID-19 transmission, the targeted population in immunization programmes also postponed their visit to health facilities, resulting in decreased coverage of immunization. Several health facilities with adequate financial and infrastructure capacity soon reopened and strengthened telemedicine services to reduce face-to-face contact between patients and doctors.

**Puskesmas (primary health centres)**

Indonesia has 10,134 puskesmas (34). Of these, 36% of them have inpatient facilities with a capacity of 36,400 public service beds and 11,900 are for maternity services (35). Based on the Regulation of the Minister of Health of the Republic of Indonesia No. 43 Year 2019, Puskesmas is a health service facility that organizes public health programmes and first-level individual health services by prioritizing health promotion and prevention efforts in their catchment areas. This regulation mandates that every sub-district must have a minimum of one puskesmas to ensure community access to essential health services (36).

When disaster strikes, puskesmas is at the forefront of communicating with the community and submitting information to the district or city health office, which is subsequently forwarded to the Provincial Health Office and the Health Crisis Center2 at the Ministry of Health (37). On 18 March 2020, the Director-General of Health Services of the MoH issued a circular, which directed the health offices to increase awareness of the pandemic by strengthening the functions of the puskesmas in their respective regions. This strengthening includes health promotion and prevention activities, supervision of public places, conducting epidemiological investigations, educating the public regarding self-isolation, implementing safety protocol standards within the puskesmas environment, and increasing the ability of puskesmas’ health workers to recognize suspected COVID-19.

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2 Health Crisis Center is under the MoH Secretary General, whereas PHEOC is under MoH Directorate General for Disease Prevention and Control
During the COVID-19 pandemic, a puskesmas' role, among others, is as follows (38):

- **health promotion**: to provide counselling and improve community literacy (at health centres, places of worship, public places, as well as on printed and electronic mass media);
- **prevention**: to protect health workers' safety by providing sufficient PPE and adequate handwashing facilities. To offer community environmental sanitation advice, home visits, collect and monitor community data; initial patient screening at the entry point of puskesmas (body temperature, triage, referral to hospital for symptomatic patients); travellers’ health examination, as well as the elderly >60 years. At the beginning of the pandemic, maternal and child health services were closed. Only emergency visits were allowed;
- **curative**: medical examination at the puskesmas, referral to hospital.

To undertake these roles optimally, puskesmas must always coordinate across sectors through the health office and empower the community.

However, the response of each region varied, depending on the capacity and availability of resources. The DKI Jakarta Province, which has the highest number of confirmed cases, has ordered all puskesmas to open a 24-hour hotline, a network of the Jakarta hotline for the COVID-19 response. Those puskesmas hotlines are in charge of responding to complaints and providing information on the risk of COVID-19 transmission as well as its prevention and control; record and report every complaint that comes in through the hotline; as well as coordinating with the COVID-19 Command Station of the DKI Jakarta Provincial Health Office. In many other provinces, the function of the puskesmas is optimized for screening and tracking through rapid diagnostic tests (39).

Apart from puskesmas, other primary health service facilities are clinics. In 2018, the total number of first-level healthcare facilities was 27 694 (40), of which approximately 66% were private clinics. According to the Minister of Health Regulation Number 9/2014, a clinic is a health service facility that organizes individual health services and provides medical and/or specialty services. Private clinics are involved in providing initial screening for every patient who seeks health care at their facilities. In 2020, every patient with symptoms should be immediately referred to a COVID-19 referral hospital. However, later on with the increases of cases due to higher local transmission, as well as available facilities to treat and trace, the patients from private clinic or PHC with severe syndrome are usually referred to COVID-19 referral hospitals, while patients with mild or medium syndrome are referred to shelters of field hospitals. Therefore, private clinics may receive support from the local budget for procurement of PPE and medical supplies, and patient transfer to a COVID-19 referral hospital. However, the implementation of this policy varies from region to region. Not every local government provides such support for private clinics and hospitals (41).

**Medical Laboratory**

In 2019, there were 1293 medical laboratories, most of which were privately owned (35). However, most of these laboratories were not running as COVID-19 referral laboratories at the time, with the result that the SARS-CoV-2 RT-PCR testing capacity was only 50% of the target of 10 000 examinations per day (42). As the number of cases continued to rise, resulting in increasing delays in collection, analysis and reporting of samples, MoH opened opportunities for all laboratories that meet the requirements, those belonging to local governments, public hospitals and the private sector, to expand the national capacity of COVID-19 testing. This is regulated through the Decree of the Minister of Health, signed on 19 March 2020 (43). A more detailed description of the laboratory requirements for obtaining PCR examination permits is outlined in a circular letter in April 2020 (44).
With the addition of this laboratory network, in mid-June 2020, the capacity for testing samples with PCR reached 10,000 examinations per day. However, the number of laboratory examinations was still below the target set by the President, which was increased from 10,000 to 20,000 examinations per day. The government tried to further increase laboratory capacity by expanding operating hours of the laboratories and training more staff (45).

By the end of 2020, Indonesia had 570 laboratories offering COVID-19 tests, of which 77% were equipped with PCR, 14% with GeneXpert, and 9% had both PCR and GeneXpert. The total examination capacity of these laboratories was 260,152 examinations per week or 95.6% of the target suggested by WHO. At the beginning of 2021, the number of laboratories increased to 721. The total examination capacity exceeds the WHO recommendation. However, examination capacity varies by province, and some test equipment is used for other diseases including TB (46). In addition, it appears that the capacity for tracing also affects the number of specimens examined. In mid-February 2021, the capacity reached 28,167 specimens per day, slightly lower than the government's target of 30,000 specimens per day (47). On 11 May 2021, the Minister of Health issued a decree that stipulated use of both PCR and antigen examination for patients with COVID-19.

The laboratories are at three levels, i.e. one National Referral Laboratory, 34 provincial laboratories, laboratory facilities at the Environmental Health Engineering Center, Health Laboratory Office, Drug and Food Control Office, and local provincial hospitals at the second level plus 742 examining laboratories in the lowest tier. The National Referral Laboratory is also tasked with confirming the results of examinations of the examining laboratories, setting standards and conducting quality assurance of the examining laboratories. Provincial laboratories, apart from examining specimens, are also tasked with supporting examining laboratories. Examining laboratories are required to test the specimens according to standards, send specimens to the National Referral Laboratory for validation tests, inform the hospitals’ test results, and provide feedback to the Health Service, hospitals or other laboratories. All laboratory examination data are integrated into the NAR, a Big Data system developed by MoH.

The expansion of laboratories that can test for SARS-CoV-2 will allow Indonesia to conduct testing more quickly and reach WHO's standards. As of 27 July 2021, the total number of specimens examined since the pandemic stood at 24,975,057, of which 19,705,766 were PCR and rapid molecular tests and 5,269,291 were antigen tests. The number of these tests increased by 160,589 from the previous day. Meanwhile, the number of people examined on 27 July was 180,200 while the daily average number of people examined during the week of 21 July was 141,557. This means that Indonesia was able to test almost 1 million people per week (Fig. 2).

As per ministerial decree No. HK.0.07/MENKES/4842/2021 (49) regarding SARS-CoV-2 genome surveillance laboratory network, 21 institutions are involved in the network. Among them, 9 laboratories have the Next Generation Sequencing facility (Illumina, Oxford Nanopore) with the capacity to perform 1750 - 2700 sequences per month. As of 29 August 2021, Indonesia had shared 5755 (0.142% cases) SARS-CoV-2 sequences according to GISAID.
Community-based health care (CBHC) (Posyandu)

Posyandus are health posts in the community that are staffed almost exclusively by women chosen by and from the community. They were created initially to cater to the medical, nutritional and obstetric needs of mothers, infants and children. By 2019, there were 296,777 Posyandus across the country, although only 63.6% were providing the full range of services (examinations for postpartum and pregnant women, babies, toddlers, family planning, immunization, nutrition and prevention of diarrhoea).

In addition to Posyandus, CBHC is available in other forms in Indonesia. These include the village health post, Islamic boarding school health post, elderly post and integrated noncommunicable disease guidance post. Public health centres provide assistance and supervision to all CBHC programmes.

At the beginning of the pandemic, all CBHC activities were suspended to prevent further community transmission. Like other countries, discontinuation of this essential service resulted in the accumulation of service needs in a considerable number of people (50). However, for Indonesia, CBHC plays an essential role in providing several basic essential health services. Since they are widely distributed, they can reach people living in remote areas. After several months, CBHCs were reopened to continue the basic immunization programme for targeted communities and became front guards in implementing basic essential health services.

Hospitals

Based on data from the MoH website accessed on 14 August 2021, Indonesia has 3095 hospitals with 317,342 beds, giving a ratio of approximately 1 bed per 1000 population. Of these 20,642 are intensive care beds (51). However, hospitals and bed capacities are not evenly distributed throughout Indonesia. Seventy-nine per cent of hospital beds and 78% of intensive care beds are in
the western part of Indonesia, while the eastern part has only 3% of hospital beds and 2% of intensive care beds. On 10 March 2020, Minister of Health Decree No. 169/2020 identified 132 hospitals as COVID-19 referral hospitals. In addition, each provincial/district/city government assigned some other hospitals in their respective regions to become COVID-19 referral hospitals. For example, DI Yogyakarta Province has more than 70 public and private hospitals, of which three were appointed by MoH and another 24 were appointed by the governor to be COVID-19 referral hospitals in the region. In January 2021, MoH issued a circular requesting the directors of hospitals owned by MoH to convert 20–40% of beds from the general ward into COVID-19 wards to increase the capacity of care, of which 10–25% should be allocated for critical care (52). Currently, the number of ICU beds has increased significantly to over 20,000 beds. The existing capacity is still lower than the government’s target according to the circular. However, when compared to the total ICU capacity, the number of beds allocated for the treatment of COVID-19 patients had increased by 38% on 9 July and by 40% on 23 July 2021.

In addition to COVID-19 referral hospitals, which were established by MoH and the local governments, the Central Government at the beginning of the pandemic opened a COVID-19 emergency hospital in Jakarta, which occupies a building complex that used to be athletes’ residences with 10,161 beds, Indrapura Field Hospital Surabaya with 242 beds, and a special hospital on Galang Island, Batam with 360 beds (Fig. 3).

**Fig. 3. Number of beds and patients in COVID-19 emergency and field hospitals (as of 21 September 2020)**

*Source: The National Board for Disaster Management (BNPB) (unpublished)*

Towers 4 and 5 of the athletes’ residences in Kemayoran were modified into self-isolation facilities. The two towers have more than 3000 beds. Both buildings accommodate asymptomatic patients or those with mild symptoms. Towers 6 and 7 were also modified into a COVID-19 emergency hospital, equipped with 2878 beds for patients with mild-to-moderate symptoms. The emergency hospital does not have critical care facilities. Patients who experience worsening of their condition must be immediately referred to the nearest COVID-19 referral hospital. Towers 8 and 9 were modified into self-quarantine facilities with a total capacity of 4167 beds (Fig. 4 and 5). Indrapura is a COVID-19 field hospital in Surabaya that used to be a port health office. Galang Island Hospital is used as an
infection hospital in Batam, Riau Island Province. Both Indrapura Hospital and Galang Island Hospital returned to their respective functions once the number of COVID-19 cases started to decline.

**Fig. 4. Cumulative number of patients in Kemayoran athlete residences COVID-19 emergency hospital (as of 30 March 2021)**
*Source: Daily report of Kemayoran athlete residences COVID-19 emergency hospital (unpublished)*

**Fig. 5 Cumulative number of discharged patients in Kemayoran athlete residences COVID-19 emergency hospital (as of 30 March 2021)**
*Source: Daily report of Kemayoran athlete residences COVID-19 emergency hospital (unpublished)*

The increasing number of daily cases in Indonesia towards the end of 2020 led to a situation where COVID-19 referral hospitals, especially in DKI Jakarta and its surroundings, reached the maximum utilization level. To overcome this crisis, the government established a policy whereby from 19 December 2020, patients without symptoms could no longer be admitted to the athlete residences COVID-19 emergency hospital as the available capacity was prioritized for patients with mild and moderate symptoms. Meanwhile, other cities with many cases also built COVID-19 emergency hospitals in sports arenas and hotels (530).

Although the capacity of isolation rooms and ICUs in hospitals has been increased, they are still unable to accommodate all patients who need them. Figures 6 and 7 show that nationally, the bed capacity for patients with COVID-19 has not been fully occupied. However, data at the district/city level and the hospital level show that many exceeded their nominal bed capacity during the June-July 2021 surge period, especially hospitals in Bali and Sumatra. This situation caused a queuing up of patients in hospital emergency rooms. Many hospitals increased their isolation room capacity by setting up an emergency tent in the hospital yard. To reduce the burden on hospitals, MoH made a new policy that patients with mild symptoms or those who are asymptomatic do not need to be treated at the hospital but in a field hospital, shelters or self-quarantine at home.
Fig. 6 Number of beds for COVID-19 patients and utilization
Source: Directorate of Health Services, Ministry of Health (accessed: 29 August 2021)

Figure 7: Bed occupancy rate for COVID-19 cases by province. Snapshot of 22 August 2021
Source: Ministry of Health daily record of bed occupancy (54)
Shelters

According to the Prevention and control of corona virus disease 2019 (COVID-19) guideline revision 5 published by MoH in July 2020, people whose PCR examination results are positive for COVID-19 but are asymptomatic or have mild symptoms do not need to be hospitalized, but are required to self-isolate for 10 days from the collection of confirmatory diagnostic specimens. Travellers and hospitalized patients whose conditions has improved must also self-isolate (55). Anticipating the overloading of hospitals due to the rising number of COVID-19 cases, the Central Government asked local governments to establish emergency hospitals (56). However, establishing a COVID-19 emergency hospital requires considerable resources and cannot be done in a short time by most local governments.

Local governments, non-profit organizations and the private sector provide shelters for those whose homes are not suitable for self-isolation. Moreover, at the village level, village heads have converted village-owned buildings into isolation facilities for their residents. The COVID-19 Task Force issued a protocol for preparing shelters as community-based self-isolation facilities. The facilities are established to prevent hospitals from being overloaded (57).

The Bantul District Health Office, DI Yogyakarta Province, encouraged village heads to convert existing public facilities into shelters using village funds. Throughout Bantul Regency, there are shelters with 720 beds managed by village volunteers and 200 beds operated by the district government. The size of this movement has attracted the attention of other parties (BUMN/state-owned corporation, other community groups) to provide donations that are used to increase the capacity and operation of shelters (58).

During the surge period in June-July 2021, MoH determined that patients with mild symptoms were being treated at field hospitals and shelters. District/city governments establish field hospitals and developed additional shelters to increase the capacity to treat patients with mild and moderate symptoms. Hotels offer self-isolation packages for people who want to undergo the isolation phase more comfortably. Village governments use village funds to operate shelters in their respective villages.

2.2. Workforce

Based on data from the Indonesian Health Profile 2019 (35), there are more than 51,000 general practitioners, nearly 30,000 specialist doctors, 62,000 pharmacy staff, and hundreds of thousands of nurses and midwives spread across all health facilities. Data from the Indonesia Lung Physician Association in 2020 mentioned that 1106 lung specialists were registered. While with the increasing number of COVID-19 cases, coupled with the burden of other respiratory diseases, from TB to cancer, the ideal number for pulmonary specialist should be 2500 (59). Of all active pulmonologists, internists, anaesthesiologists and radiologists, 22–26% work in DKI Jakarta, a province with 3% of the total population (46). Data accessed on the Development and Empowerment of Health Human Resources Board website in mid-2020 and mid-2021 shows an increase in the number of health workers in each type of profession. Thoracic surgeons increased by 60%, anaesthesiologists increased by 24%, pulmonologist increased by 23%, internists by 22%, and paediatricians and radiologist increased by 20% respectively (see Fig. 8 for actual numbers).
Fig. 8 Comparing the number of health workers in COVID-19 referral hospitals in 2020 and 2021

Source: The development and empowerment of health human resources board (60)

Not all of these specialist doctors work at COVID-19 referral hospitals. Out of 108,368 in the health workforce, 34,632 work in COVID-19 referral hospitals (58). Apart from specialist doctors, Indonesia has more than 51,000 general practitioners who work in health facilities, and about 15,000 of them work at COVID-19 referral hospitals. Professor Doctor Sulianti Saroso Hospital in Jakarta is the only hospital whose entire capacity is dedicated to treating COVID-19 patients during the pandemic. In January 2021, the hospital expanded its capacity to 106 beds. Among 42 specialist doctors in the hospital, there are six pulmonologists, four internists, three anaesthesiologists, three clinical pathologists, and one clinical microbiologist. The hospital also has 225 nurses, 107 health supporting staff and 251 other staff (Table 2).

Table 2. Number and place of work of health workers before and during the COVID-19 pandemic

<table>
<thead>
<tr>
<th>Health worker</th>
<th>Place of work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hospital and primary health care*</td>
</tr>
<tr>
<td>General practitioner</td>
<td>51,398</td>
</tr>
<tr>
<td>Pulmonologist</td>
<td></td>
</tr>
<tr>
<td>Internist</td>
<td></td>
</tr>
<tr>
<td>Radiology specialist</td>
<td></td>
</tr>
<tr>
<td>Anaesthetist</td>
<td></td>
</tr>
<tr>
<td>Paediatrician</td>
<td></td>
</tr>
<tr>
<td>Thoracic surgeon</td>
<td></td>
</tr>
<tr>
<td>General surgeon</td>
<td></td>
</tr>
<tr>
<td>Other specialist</td>
<td></td>
</tr>
<tr>
<td>Pharmacist</td>
<td>62,153</td>
</tr>
<tr>
<td>Nurse</td>
<td>345,508</td>
</tr>
<tr>
<td>Midwife</td>
<td>210,268</td>
</tr>
<tr>
<td>Medical Laboratory Analyst</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Source: *Indonesia health profile 2019; **The development and empowerment of health human resources board (60)
**Health workforce volunteers**

In addition to health workers stationed at the COVID-19 referral hospital, the government also recruited volunteers to be assigned to the COVID-19 emergency hospital and the COVID-19 referral hospital. The first recruitment of 62 volunteers was conducted on 2 March 2020. Data from the Development and Empowerment of Health Human Resources Board stated that as of 21 May 2020, there were 2785 volunteers recruited in 24 batches to help treat COVID-19 patients. About 40% of the volunteers are placed at the athlete residences COVID-19 emergency hospital in Jakarta (Table 3).

**Table 3. Location of COVID-19 health workforce volunteers by the most common places of duty**

<table>
<thead>
<tr>
<th>Health workforce volunteer</th>
<th>Athletes' Residences Covid-19</th>
<th>Galang Island Hospital</th>
<th>Sullianti Saroso Hospital</th>
<th>Fatmawati Hospital</th>
<th>Ario Wirawan Hospital</th>
<th>Dr. Suyoto Hospital</th>
<th>Grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General practitioner</td>
<td>181</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>185</td>
</tr>
<tr>
<td>Specialist doctor</td>
<td>23</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Clinical psychologist</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Nurse</td>
<td>627</td>
<td>13</td>
<td>4</td>
<td>102</td>
<td>746</td>
<td></td>
<td>746</td>
</tr>
<tr>
<td>Midwife</td>
<td>3</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>18</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>Public health</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>17</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Radiographer</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Laboratory technician</td>
<td>38</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>44</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>Epidemiologist</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>136</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>145</td>
<td></td>
<td>145</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1074</strong></td>
<td><strong>25</strong></td>
<td><strong>8</strong></td>
<td><strong>7</strong></td>
<td><strong>119</strong></td>
<td><strong>6</strong></td>
<td><strong>1239</strong></td>
</tr>
</tbody>
</table>

*Source: The Development and Empowerment of Health Human Resources Board (61)*
3. Providing health services effectively

3.1. Planning services

On 11 January 2021, MoH issued a circular requesting directors of MoH-owned hospitals to convert non-COVID-19 wards into COVID-19 wards to increase COVID-19 service capacity. Other hospitals (provincial/district government-owned hospitals, military hospitals, private hospitals) also increased their capacity. As of 17 March 2021, there were 46,317 isolation beds available with an occupancy rate of 67.28% and 4,665 critical beds with an occupancy rate of 65.98% (62).

In addition to increasing the capacity of the treatment rooms for COVID-19 patients, MoH is pursuing several other strategies. These are given below:

1. Strengthening the integrated referral system in COVID-19 services. This strategy is in line with the issuance of a government regulation governing the implementation of field hospitals, which updates referral system settings. This strategy involved applying information technology in an integrated reference system (63).
2. Strengthening the quality of hospital services through monitoring and evaluating the quality of hospital services in the pandemic era. To accommodate this, MoH has also developed an instrument for conducting monitoring and evaluation.
3. Relaxing health worker registration and licensing policies during the COVID-19 pandemic by cutting bureaucracy and opening up opportunities for final level students, in particular, those in medical and nursing study programmes, to become health volunteers.
4. Encouraging the implementation of convalescent plasma therapy. Although evidence of the effectiveness of convalescent plasma therapy is being gathered from several ongoing studies, this therapy has been reported to assist in the faster recovery of patients with severe symptoms and those who are critically ill.

3.2. Case management

MoH published the Guidelines for the prevention and control of coronavirus disease (COVID-19) for the first time in early March 2020. The last version was published on 13 July 2020, after several revisions. There was a change in patient-related terminology in the last version compared to the previous ones. The term "suspect" is used in the latest version and includes "patient under supervision" and "person under monitoring", which were used in previous versions. The term "probable" (patient who experiences severe upper respiratory tract infection/acute respiratory distress syndrome [URTI/ARDS] or dies before the result of a laboratory test with RT-PCR is issued), which was not included in previous versions, has been introduced in the July 2020 version. The term "people without symptoms" is no longer used in the latest version. It refers to a person who has been in close contact over the previous 14 days with a suspected, probable or confirmed but asymptomatic case.

Case-finding activities are carried out at the entrance to each region or in an administrative area to identify the presence or absence of suspected, probable, confirmed cases, and those who have been in close contact, and elicit an adequate response. Case-finding activities in provincial and district areas can be carried out at health facilities and in the community. This activity is carried out to find persons with an indication that they may have COVID-19 (epidemiological investigation), so that
such cases may be notified, referred and responded to (identification and monitoring of contacts, referrals, risk communication and breaking the chain of transmission).

For those who have positive RT-PCR test results and are declared as confirmed cases, therapy is given according to the protocol. Contact-tracing should be undertaken as soon as a suspected/probable case is found. Close contacts will be quarantined for 14 days. If the patients develop no symptoms after 14 days of quarantine, then monitoring can be stopped. However, if symptoms appear during monitoring of close contacts, they must be immediately isolated and tested with RT-PCR. COVID-19 cases are divided into five categories, namely, asymptomatic, mild, moderate, severe and critical. The clinical manifestations and clinical presentation of each category are described in Table 4.

**Table 4 Classification of severity of COVID-19 among cases**

<table>
<thead>
<tr>
<th>Symptom criteria</th>
<th>Clinical manifestation</th>
<th>Clinical presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asymptomatic</strong></td>
<td>No clinical manifestation</td>
<td>The patient shows no symptoms</td>
</tr>
<tr>
<td><strong>Mild</strong></td>
<td>Mild with no complication</td>
<td>Patients with non-specific symptoms such as fever, cough, sore throat, stuffy nose, malaise, headache, muscle aches. It is necessary to be vigilant in the elderly and immune-compromised because of atypical signs and symptoms</td>
</tr>
<tr>
<td><strong>Moderate</strong></td>
<td>Mild pneumonia</td>
<td><strong>Adolescent or adult patients</strong> with clinical signs of pneumonia (fever, cough, dyspnoea, rapid breathing) and no signs of severe pneumonia</td>
</tr>
<tr>
<td><strong>Severe</strong></td>
<td>Severe pneumonia / severe upper respiratory tract infection (URTI)</td>
<td><strong>Adolescent or adult patient</strong> with fever or under surveillance for respiratory tract infection plus respiratory rate &gt; 30 bpm, severe respiratory distress, or oxygen saturation (SpO2) &lt; 90% in room air</td>
</tr>
</tbody>
</table>
| **Severe**      | Paediatric patients with cough or difficulty breathing, plus at least one of the following:  
  - central cyanosis or SpO2 < 90%;  
  - severe respiratory distress (such as wheezing, indrawing of chest wall);  
  - signs of severe pneumonia: inability to breastfeed or drink, lethargy or decreased consciousness, or seizures.  
  - other signs of pneumonia include chest wall retraction, tachypnoea:  
    - age < 2 months, ≥60x per minute;  
    - age 2–11 months, ≥50x per minute;  
    - age 1–5 years, ≥40x per minute;  
    - age> 5 years, ≥30x per minute.  
  This diagnosis is clinical; chest imaging can help to make the diagnosis and can exclude complications. |
<table>
<thead>
<tr>
<th>Symptom criteria</th>
<th>Clinical manifestation</th>
<th>Clinical presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td>Onset: new or worsening within one week.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chest imaging (thoracic CT scan, or lung ultrasound): bilateral opacity, unexplained pleural effusion, lung collapse, lobar or nodular collapse.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Causes of oedema: respiratory failure not due to heart failure or fluid overload. An objective examination (such as echocardiography) is necessary to rule out that the cause of oedema is not hydrostatic if no other risk factors are identified.</td>
<td></td>
</tr>
<tr>
<td>Adult ARDS criteria</td>
<td>Mild ARDS: 200 mmHg &lt; PaO₂ / FiO₂ ≤ 300 mmHg (with positive end-expiratory pressure (PEEP) or continuous positive airway pressure (CPAP) ≥ 5 cmH₂O, or unventilated)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate ARDS: 100 mmHg &lt; PaO₂ / FiO₂ ≤ 200 mmHg with PEEP ≥ 5 cmH₂O, or unventilated)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe ARDS: PaO₂ / FiO₂ ≤ 100 mmHg with PEEP ≥ 5 cmH₂O, or unventilated)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When PaO₂ is not available, SpO₂ / FiO₂ ≤ 315 indicates ARDS (including in non-ventilated patients)</td>
<td></td>
</tr>
<tr>
<td>ARDS criteria in children</td>
<td>Exclusion of patients with perinatal pulmonary disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time: within 7 days of disease onset</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Causality: unexplained respiratory failure secondary to heart failure or fluid overload</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Radiological findings: new infiltrates are consistent with acute lung disease</td>
<td></td>
</tr>
</tbody>
</table>

### 3.3. Maintaining essential health services

Essential health services are services and functions necessary even during the pandemic to help the community maintain health and welfare. WHO advises that every country should identify essential health services. According to the Minister of Health Decree concerning *Guidelines for the prevention and control of Covid-19*, which was issued in July 2020, essential health services are basic routine health services. Their needs will continue to exist in the community, and thus the continuation during the Pandemic needs to be prioritized. Through this Decree, the government defined priority essential health services that must continue to be delivered, namely:

1. family health services throughout the life-cycle, and the sustainability of family planning services;
2. health service for TB and HIV;
3. management of other infectious diseases;
4. management of non-communicable and chronic diseases;
5. immunization;
6. continuation of critical care;
7. emergency services and care for acute illnesses;
8. availability of essential drugs.

Antenatal care (ANC) services (without complications) for people covered by Social Health Insurance can be delivered only by public or private PHCs. In contrast, those who use private insurance or out-of-pocket payment may directly visit referral public or private hospitals according to their respective insurance benefits. It is advisable to minimize visits to health-care facilities in low-risk pregnancies. Patients register through the online system, which includes screening for symptoms or history of exposure to COVID-19. Those with a history of exposure or symptoms who have no risk of complications are advised to postpone their visit for the next 14 days. Health workers will monitor the patients daily. If there is a risk of complications, the patient is asked to immediately visit the hospital and undergo COVID-19 screening at the hospital entrance. Patients with negative screening results may directly be transferred to a standard ANC service unit. Patients with mild symptoms should be counselled and monitored by health workers in the emergency room before receiving ANC services. In contrast, patients with moderate/severe symptoms should be triaged in more detail for further treatment according to COVID-19 patient service standards.

It is estimated that there were 842,000 TB cases in Indonesia in 2018, including 32% unreported cases, and 10,174 with combined TB and HIV. In 2020, the government set a treatment coverage target of 80%. However, only 32% was achieved. The treatment success rate target was 90%, but only 83% was achieved. The total number of TB cases detected and treated throughout 2020 was 271,750 cases, compared to 568,987 cases in 2019 (64,65). This suggests that the pandemic affected TB services, decreasing patient visits to TB service facilities and case-finding activities.

At the beginning of the pandemic, the government issued a TB service protocol adapted to the pandemic situation. This was followed by a survey in May 2020 to monitor the implementation of the protocol. The survey showed that TB services were disrupted as TB programme managers in more than 34% of district and 78.9% of municipalities reported that they did not have sufficient masks and medicines to cover their needs in 2020. The number for having adequate stock of medicine for sensitive- and resistant-TB cases stood at 34.4% and 47.2% at district and municipalities respectively, while only 40.8% reported having contingency plans for their logistic needs during a pandemic (66). Monitoring was also disrupted because patients did not collect sputum, were afraid to visit health-care facilities, and referral laboratories were overloaded with COVID-19 samples. Case-finding in the community and information, education and communication (IEC) was conducted online (66). MoH's Decree mandates that TB services must be continued. New laboratories were assigned to examine patients' sputum. TB services are delivered in outpatient departments and at community-based services, except for critical cases that need to be hospitalized. Monitoring is carried out by utilizing remote communication technology, and health facilities must prepare a TB hotline.

Services for patients with HIV must also continue through the home visit programme so that people living with HIV/AIDS (PLHIV) do not have to leave their homes. In 2019, there were 50,282 HIV cases (an increase from the previous year, which totalled 46,650 cases) and 7036 AIDS cases (decreased from the previous year, which totalled 10,190 cases) (67). Even before the pandemic, the HIV prevention programme had faced various challenges, ranging from weak implementation of decentralization policies and fragmented programme governance to ineffective communication and coordination among stakeholders (68). The pandemic has had a profound impact on HIV/AIDS prevention efforts. To reduce the frequency of direct contact with health workers, patients now
receive drugs for a treatment period of 1–3 months at a time. This is not possible in many areas due
to the insufficient availability of antiretroviral (ARV) drugs for such a long period (69). A survey
conducted by the Positive Indonesia Network in March 2020 found that 47.6% of 1000 PLHIV had
ARV drug stocks for less than one month (70). This is because 90% of the supply of raw materials
and final products for ARV in Indonesia comes from India via air freight, which at the time was
experiencing a lockdown.

To overcome these limitations, in April 2020, the government issued a circular letter stating that
HIV/AIDS treatment is prioritized for PLHIV who have a cough, flu and cold symptoms. If the stock is
sufficient, a multi-month ARV prescription is prioritized for PLHIV who live in the epicentre of
COVID-19. To overcome this crisis, the government carried out logistical and budget relocation and
redistribution, looked for alternative distribution of drugs that had been purchased by involving
cross-sector and cross-programme institutions, accelerated the domestic procurement process and
its distribution, improved the supply planning system, and considered replacing drug use according
to the clinical conditions of patients (71).

Hundreds of districts in Indonesia are endemic for dengue and malaria infections. Apart from that,
diarrhoea, especially in children, is still a problem in regions with limited clean water sources and
limited sanitation facilities for displaced people who are victims of disasters (floods, earthquakes,
landslides). According to MoH, 108 303 cases of dengue haemorrhagic fever (DHF) were reported,
with 747 deaths in the first six months of 2020. Until the 24th week of 2021, the number of dengue
infection cases has reached 17,750 cases with 156 deaths (72). Although the number of cases was
lower than the previous year, this caused concern because the number of cases in June were still
high, even though the peak usually occurs in March–April. One of the reasons for the high number
of cases was the reduction in monthly cleaning efforts due to social restrictions during the
pandemic. Many hotel reservoirs were not monitored and became breeding grounds for mosquitoes
as no employees were working (73). The mosquito monitoring system was not appropriately
implemented as staff and resources were diverted towards the COVID-19 response. Jumantiks
(volunteers for monitoring mosquito larvae), who usually work door-to-door, were also much less
active (74).

On 6 April 2021, the Director General of Diseases Prevention and Control, MoH, disseminated a
 circular on the sustainability of dengue control programme to all provinces and districts, focusing on
the differential diagnosis between COVID-19 and dengue infection, implementation of
epidemiological investigation for dengue, fogging and community participation in vector control
measures. WHO shared guidance on the continuity of neglected tropical disease (NTD) programme
during COVID-19 pandemic and encouraged strengthening of vector control measures to prevent
dengue outbreak.

In 2019, there were 250 644 cases of malaria, decreasing slightly to 226 364 cases in 2020. (75,76).
Papua, West Papua and MTT are malaria endemic provinces with the highest number of cases (76).
In these areas, malaria also contributes to the high maternal mortality ratio and infant mortality rate
(77). The government has a target that by 2024, there will be 405 districts free of malaria and, by
2030, Indonesia will be completely free of malaria (78,79). Challenges in eliminating malaria before
the pandemic ranged from geographical issues, where many endemic areas were far away and
challenging to reach by vehicles, to the sociocultural problems of the local communities that
required culturally sensitive approaches for their engagement in the programme. During the COVID-
19 pandemic, case-finding activities and patient examination, including home visit programmes, were reduced. Health workers now passively wait for patients with symptoms of malaria to come to health facilities.

All programmes that aim to decrease morbidity and mortality caused by infectious diseases must be continuously implemented during the pandemic to ensure the health status of the community. MoH issued a protocol for each type of disease, where each protocol also adopts a health protocol to prevent transmission of COVID-19. In the dengue infection prevention and control programme, the movement of "one house one jumantik" is continuously executed. The enforcement of early diagnosis using the dengue antigen rapid diagnostic test (RDT), which can be conducted at the PHC, and epidemiological investigations for positive cases is expected to adopt COVID-19 transmission prevention protocols. In malaria-endemic areas, where many malaria cases are asymptomatic, screening for suspected COVID-19 patients must be completed with malaria blood tests using RDTs in people who have malaria symptoms or have indications of close contact with a malaria case. Managers of infectious disease control programmes at the provincial and district levels must also prepare contingency plans to ensure the programme's sustainability despite a pandemic, e.g. remapping the laboratory network to identify those tasked with examining COVID-19 specimens. With this information, local governments should assign another laboratory to investigate samples from TB patients (65).

Research conducted in 2007, 2013 and 2018 showed an increasing trend in the prevalence of diabetes mellitus (DM), hypertension, stroke and joint disease. In 2019, heart disease became the first cause of death, followed by stroke (80). In 2020, heart disease was the first cause of death, followed by cancer and DM with complications (81). Various programmes are in place to reduce morbidity from noncommunicable diseases, including policy implementation of smoke-free areas in high schools and offices, and early detection of uterine cancer. Before the pandemic, patients with chronic diseases such as heart disease, stroke and DM, who needed routine control and medication, would visit health facilities and get medicines on a monthly basis. During the COVID-19 pandemic, visits to health facilities have been reduced, so that drug doses are given on a bi-monthly basis (82). Emergency services still operate by separating the COVID-19 patient flow (with or without symptoms) from non-COVID-19 patient flow. The frequency of haemodialysis services is set to a maximum of twice a week (before COVID-19, this was set at 2 sessions of five hours each).

Indonesia is still facing the dangers of tetanus, measles, diphtheria, polio, and various other vaccine preventable diseases. Every infant (aged 0-11 months) must receive complete basic immunization consisting of one dose of Hepatitis B at birth, one dose of BCG, three doses of DPT-HB-HiB, four doses of polio drops, one dose of polio injection and one dose of measles-rubella (MR), followed by one dose of DPT-HB-HiB and one dose of MR before they reach two years of age. School-based immunization programme provides one dose of MR and three doses of diphtheria and tetanus toxoid containing vaccine. Every woman of childbearing age or pregnant woman must receive five tetanus toxoid and diphtheria vaccines at specific intervals. According to the 2019 Indonesian Health Profile, mandatory immunization coverage for infants and toddlers is in accordance with the target, but it is still less than 10% for women of childbearing age. In May 2020, the Directorate of Health Surveillance and Quarantine of the Indonesian MoH issued Technical guidelines for immunization services during the COVID-19 pandemic. This technical guideline provides two routes for immunization. If the programme is still running (at CBHCs, PHCs or mobile PHCs), then there is no
problem but if the programme is postponed, health cadres should develop a list of children who have not updated their immunization status to be prioritized at the first available opportunity as the situation allows. In this technical guideline, the immunization protocol must adopt the protocol for prevention of COVID-19 transmission as well (83). This means that the facility must allow staff and patients to maintain a safe physical distance, have good air circulation and lighting. The facility should also have separate entry and exit routes, have handwashing facilities and amenities/hand sanitizers, and screen every incoming patient for symptoms and contact history.

A study in Makassar in 2020 found that only 45.05% of babies aged <12 months received an updated immunization status, and only 14% of mothers received health counselling. The social restriction policy that temporarily halted CBHC activities, negative stigma against health workers (potential for transmitting COVID-19), and mothers’ fear of bringing their children to health facilities caused the immunization rate to drop. On the other hand, health cadres also face obstacles in the form of lack of permanent buildings, operational budgets and main instruments for the immunization programme, and limited communication materials for counselling (84). This study recommends involving the head of subdistricts as mother and child health programme managers in their respective working areas to restore immunization services. In general, the delivery of essential services in many areas has been constrained by a maldistribution of health facilities and resources even before the pandemic started. Data from MoH in 2018 shows that of the 2762 hospitals, 78% are in the western region of Indonesia (i.e. Sumatra, Java, Borneo, Bali and West Nusa Tenggara). Ninety per cent of Class A hospitals and 80% of Class B hospitals (tertiary referral level) are also in the western region of Indonesia. Overall, five provinces in Indonesia have not met the ratio of 1:1000 for the number of hospital beds compared to the population. Two hundred twenty-six districts cannot meet this ratio, and there are ten districts that do not have any hospitals. It is challenging to provide optimal maternal and child health services in 47 districts as there are no obstetrics and gynaecology specialists and 41 districts do not have paediatricians. Blood bank facilities do not exist in 101 districts (85).

The pandemic, however, has accelerated the development and use of digital-based services to improve public accessibility, especially for essential services. ANC consultation services and early screening for pregnant women are delivered by optimizing information technology (86). Monitoring medication intake by patients with TB and HIV/AIDS is performed remotely by utilizing telecommunication networks. MoH has also opened a digital health service portal that provides access to the public to consult or get health information from health workers through websites and applications on their smartphones.

Several hospitals that have the infrastructure and systems in place have begun telemedicine services. However, the legal basis for implementing telemedicine is still lacking, limiting the financing of telemedicine services from the government budget.

3.4. Logistics

Data from the www.covid19.go.id website shows that on 14 May 2021, Indonesia fell to the lowest point (2385 cases) since November 2020, after previously reaching the highest peak (13 809 cases) at the end of January 2021. This caused Indonesia to be confident in sending aid of 2000 oxygen cylinders to India, which was experiencing a surge and oxygen crisis since the end of April.
However, since mid-May – during the Eid al-Fitr holiday – cases in Indonesia began to rise above 5000 per day. By 21 June, the daily number of patients exceeded the January 2021 peak. The following week, the number of daily cases was more than 20 000 and continued to increase until it reached the highest peak of 56 000 cases per day on 15 July 2021. As of 9 August 2021, daily cases have come down to 20 709 cases.

The surge that occurred in late June/early July 2021 put tremendous pressure on national health systems. Based on data released by the Directorate of Health Services, MoH, since the beginning of the surge in early June to mid-July, hospital utilization, especially in Java, was more than 80%. Data on from 18 June 18 to 23 July 2021 show that COVID-19 isolation rooms and ICU utilization in several districts in Sumatra, Java, Bali and Kalimantan was around 80–90% (87).

In normal situations, Indonesia needs 400 tons of liquid oxygen per day. The surge of COVID-19 patients in the middle of this year increased the need to 4000 tons per day. In the second week of July, there were more than 74 000 patients who needed oxygen. Of these, 5–10% were patients with severe symptoms who, based on clinical guidelines, required access to high concentrations of oxygen (88). One of the protocols for handling patients with severe symptoms is high flow nasal cannula (HFNC) with a 30–60 L/min flow. The use of oxygen with the HFNC protocol in one patient for 24 hours is equivalent to oxygen in the operating room for 40 hours or about three working days in normal situations (89).

The production and distribution capacity of medical oxygen was challenged during the surge, causing hospitals to experience an oxygen crisis. Indonesia’s oxygen production capacity is 886 000 tons/year, with a production utilization of 638 900 tons/year. Of this amount, 75% is used for industry and only 25% for medical needs. During the oxygen demand peak period, the Ministry of Industry approved conversion of 90% of industrial oxygen into medical oxygen so that 575 000 tons of oxygen would be obtained to meet national needs (90,91).

In addition, the government carried out several other strategies to ensure sufficient oxygen for health services during the surge. In a press release on 5 July 2021, the Coordinating Ministry for Maritime Affairs and Investment stated that the government would transfer all industrial oxygen production capacity to meet medical needs (92). MoH, in a press release after a meeting with the President on 16 July 2021, stated that it would take several strategies to ensure adequate availability of oxygen, namely: (i) cooperating with the Ministry of Industry to use excess oxygen capacity of 425–450 tons daily from various domestic factories and industries; and (ii) procuring 20 000–30 000 oxygen concentrators to be used in hospitals and communities (93).

Indonesia received assistance from various countries. India sent 300 oxygen concentrators and 100 metric tons of medical liquid oxygen. Switzerland sent 600 oxygen concentrators and 12 000 medical protective suits and more than 45 000 medical masks (94). Previously, Indonesia received 11 000 oxygen concentrators from a joint Singapore–Indonesian company through the Temasek Foundation (95) and WHO also donated 700 oxygen concentrators.

In addition to oxygen, Indonesia also experienced a shortage of medicines because most raw materials and finished drugs were still imported from abroad (Fig. 9). Some of the countries had imposed export restrictions to meet their own domestic needs. India is one of the largest exporters of drugs and medicinal raw materials to Indonesia. When India experienced a surge, the export of all
relevant medicines – except for remdesivir – was stopped, affecting Indonesia’s domestic supply significantly. The government did import remdesivir from India, Pakistan and China.

Fig. 9 Estimation of need and total stock of COVID-19 medicine, July 2021 (in million doses)

Source: MoH, July 13, 2021 (96)

On 26 July 2021, the Minister of Health announced that the need for medicines to cope with COVID-19 had increased by 12 times (97). The Minister of Health urged healthy people not to stock up on COVID-19 drugs and not to hoard medicines so that the national stock could be used to treat the sick.
4. Paying for services

4.1. Health financing

As described in the Governance chapter later, the National Committee for COVID-19 Handling and National Economic Recovery (called the KPC PEN or Komite Penanganan COVID-19 dan Pemulihan Ekonomi Nasional) leads the COVID-19 management in Indonesia, overseeing both economic recovery and public health responses. In effect, financing for COVID-19 was primarily channelled through the PEN programme. The programme, first announced in February 2020, received IDR 8.5 trillion, and the financing package increased to IDR 405 trillion by March 2020 and to IDR 695 as of June 2020, or around 4.2% of the Indonesian GDP (98). Table 5 provides an overview of fund allocation for the health sector and the economic recovery programmes (98,99).

Table 5 COVID-19 supplementary budget in Indonesia

<table>
<thead>
<tr>
<th>Programme</th>
<th>Allocated in 2020 (in billion IDR)</th>
<th>Allocated in 2021 (in billion IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>97.9</td>
<td>214.95</td>
</tr>
<tr>
<td>Social protection</td>
<td>233.69</td>
<td>187.84</td>
</tr>
<tr>
<td>Micro-, small- and medium-sized enterprises (MSMEs)</td>
<td>115.82</td>
<td>161.20</td>
</tr>
<tr>
<td>Corporate and tax incentives</td>
<td>181.8</td>
<td>62.83</td>
</tr>
<tr>
<td>Sectoral and regional governments</td>
<td>65.97</td>
<td></td>
</tr>
<tr>
<td>Priority programmes (including economic incentives, food security, industry, regional loan, ICT and tourism)</td>
<td></td>
<td>117.94</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>695.18</strong></td>
<td><strong>744.75</strong></td>
</tr>
</tbody>
</table>

Source: Sparrow et al. (98); MoF (100)

While a significant increase was made to the budget allocation for the health sector in 2021, the budget realization for COVID-19 management was only at 83.4% in 2020 (101). The primary spending on health in 2021 was to finance COVID-19 vaccination at around IDR 57.48 trillion (approximately around US$ 3.8 billion) (102). The additional funding has also been used for other incentives for health workers, death benefits, procurement of medical devices and infrastructure, including PPE, and financing of hospital claims for reimbursement of COVID-19 case management costs. During the pandemic, additional incentives for health workers were announced in July 2020, ranging from a monthly incentive of IDR 5 million for paramedics to IDR 15 million for medical specialists (103). However, there have been some delays in payment of health workers’ incentives and hospital reimbursement for COVID-19-related medical costs. By May 2021, approximately IDR 1.5 trillion of health workers’ incentives were still in the verification process (104) but 99% have been verified by August 2021.

Budget allocation for the COVID-19 response came from three primary sources. First was the reallocation of national and subnational budgets. The second was from using the Central Government budget reserve, and third, through national and subnational government expenditure savings and increased efficiency. In addition, Indonesia also received international loans and grants to finance its COVID-19 response. The Governments of Japan, the United States, Viet Nam, Australia, New Zealand, Republic of Korea, China, Singapore and the United Arab Emirates provided government-to-government grants. International organizations such as the World Health
Organization (WHO), Asian Development Bank (ADB), International Atomic Energy Agency (IAEA), the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) and United Nations Children’s Fund (UNICEF) also provided funding and programmatic aid to Indonesia. The World Bank approved a US$ 700 million loan in the social assistance programme (105) and financial sector reform. For vaccine financing, the ADB approved a loan of US$ 450 million (106).

Due to the significant amount of financing required to vaccinate its 181.5 million at-risk population and as part of the efforts to accelerate and expand COVID-19 vaccination, the Indonesian Government has introduced COVID-19 vaccination in the form of cooperation (Gotong Royong vaccine programme). The initiative opens opportunities for the private sector to fund vaccination for their employees, where each dose of vaccination is priced at around IDR 500 000 (US$ 35). As of May 2021, Indonesia received 982 400 doses of COVID-19 vaccines from Sinopharm, one of the few vaccine brands that Indonesia has engaged for its Gotong Royong vaccination programme. The other brands are Cansino, Moderna, Sputnik and Novavax. Later in July 2021, the government decided to also use the COVAX-supplied AstraZeneca vaccine, as part of the Gotong Royong programme (107,108). Around 17 000 private companies and 8.6 million workers and their family members are included as the targets of the Gotong Royong programme (109). The President decided to cancel self-paid COVID-19 vaccination as part of Gotong Royong program in July 2021. However, limited supplies of vaccine and trained health workers as well as challenges in the distribution of the vaccines, and community’s acceptance and trust in the effectiveness and safety of vaccines have hindered the scale up of the vaccination programme in Indonesia (110, 111).

4.2. Entitlement and coverage

Indonesia has expanded its national health insurance programme since 2014 under the JKN programme (Jaminan Kesehatan Nasional). The expansion included the amalgamation of existing public health insurance (e.g. health insurance for civil servants, military personnel and pro-poor health insurance programme), expanding the coverage to the uninsured poor and near-poor population by providing subsidies for premium payment as well as mandatory enrolment for the non-poor population (112). The JKN has been managed by a parastatal institution called the BPJS-Kesehatan, which manages the revenue collection and claim reimbursements. Under the JKN, there are different enrolment types based on the level of hospital class and premium payment. However, all beneficiaries are entitled to all essential health-care services. These include primary and secondary levels of care. As of March 2021, the coverage of JKN has reached approximately 82.8% of its intended population (112).

Regardless of their nationalities and insurance coverage, all Indonesian residents can receive COVID-19-related medical procedures for free. This was stipulated in the Minister of Health regulation published in July 2020 (113), which outlined types of services covered and the reimbursement procedures. The JKN payment rates were applied to cover reimbursement of the costs by hospitals (both public and private) that the government designates to manage COVID-19 patients. The coverage includes testing for suspected patients (e.g. close contacts and symptomatic cases), patient isolation in government appointed facilities, and outpatient and inpatient medical procedures. However, the government does not cover transportation costs for patient referrals.
COVID-19 testing, including rapid antigen testing and PCR testing, is also covered by the government. However, this applies only to patients suspected to have COVID-19. Tests conducted on request, such as for travel, a requirement from the workplace and others, are paid through out-of-pocket (OOP) payment. Patients who required hospitalization unrelated to COVID-19 would also need to pay OOP for their mandatory PCR testing. Before the issuance of MOH regulations on the maximum price for COVID-10 testing, the fee applied by private health institutions varied. For instance, the cost of rapid antigen tests varied between IDR 375 000 and IDR 700 000 (approximately US$ 25–47). Following the MoH regulation issued in December 2020, the cap was set at IDR 250 000 (US$ 16) for Java Island and IDR 275 000 (US$ 18) for areas outside Java. Similarly, for the PCR test, before the MoH regulation, the costs ranged from IDR 1 million to IDR 4 million (US$ 67–267) until MoH capped the price at IDR 900 000 (US$ 60) in October 2020 (114). More recently, in August 2021, the government reduced the price cap on PCR testing further to IDR 495 000 and at IDR 525 000 for Java-Bali and regions outside of Java-Bali, respectively (115).
5. Governance

While Indonesia has a pandemic response plan under the National Strategy for Disaster Response and established a National Committee for Avian Influenza Control and Pandemic Preparedness, these were not immediately activated during the early period of the COVID-19 pandemic. There were only two sectoral regulations issued by the Central Government in February 2020. The first was the MoH regulation (116) on the potential outbreak of COVID-19 in 2019 and early February 2020, followed by a national declaration from BNPB (Badan Nasional Penanggulangan Bencana or National Bureau for Disaster Response) (117), which outlined the specific emergency situation of COVID-19 in late February 2020. On 13 March 2020, 11 days after the first case in Indonesia was reported, the President issued a decree to establish a National Task Force for Rapid Response to COVID-19 (118), in which the head of the BNPB was appointed to lead the Task Force. The delay also confirms the gap between WHO’s first announcement of the outbreak (early January 2020) (119) and the first confirmed case of COVID-19 in Indonesia (2 March 2020), and the establishment of a national-level response team. In addition, BNPB's natural mandate does not include managing an epidemic but rather natural and human-induced disasters. However, under the Presidential Decree, BNPB was tasked with collaborating with MoH to disseminate information on COVID-19 using media platforms, establish a rapid response team, provide logistics, establish and conduct surveillance during the COVID-19 pandemic and collaborate with multiple institutions, including the National Armed Forces and Police as well as MoH. According to the Decree, the Task Force reports directly to the President.

In July 2020, the lead of the national response to COVID-19 shifted from BNPB-led Task Force and its collaborating institutions to its replacement, the National Committee for the COVID-19 Handling and National Economic Recovery (called the KPC PEN or Komite Penangan COVID-19 dan Pemulihan Ekonomi Nasional). This new National Committee was established through a Presidential Regulation issued on 20 July 2020 (120) and led by the Minister of State-owned Enterprises. The National Committee oversees both the National Task Force for Rapid Response to COVID-19 and the Task Force for Economic Transformation for the COVID-19 Pandemic. The decision to absorb both task forces into the National Committee further indicates that the government is not only focusing on a health systems response but also prioritizing economic recovery from the COVID-19 pandemic.

The National Task Force initially coordinated data reporting for a rapid response to COVID-19. However, in the first few months of the pandemic in Indonesia, data reporting was fragmented between the Task Force, MoH and local governments. Various hoaxes have also been reported, and misinformation was rampant (121). The Task Force also had limited authority to synchronize and access data from all relevant institutions and mobilize resources from other government institutions. After establishing KPC PEN, case reporting became better managed with daily updates from their website (https://www.covid19.go.id/) in collaboration with MoH. After the vaccine rollout in January 2021, KPC PEN also became responsible for implementation of COVID-19 vaccination and monitoring.

A number of emergency regulations were issued in the first few months following WHO’s announcement of the COVID-19 outbreak. These include:
- the Ministry of Finance's decision to allow for more flexible use of funding to finance COVID-19 management and prevention programmes at the provincial and district levels (103);
- the formation of the COVID-19 Task Force as mentioned above;
- the issuance of social restrictions protocols or the PSBB (which the President issued on 31 March 2020 (122)).

The PSBB was conducted as part of the government's declaration of a state of emergency due to the COVID-19 pandemic. In effect, social restrictions include the closure of workplaces and schools, restrictions on public gatherings, including religious activities, public facilities, social and cultural activities, and mobility restrictions except for public services, security and the military. The state of emergency and the social restrictions were different from other countries' "lockdown" measures in the absence of restrictive measures by law enforcement or strict penalties for not complying with the rule.

Various other regulations were issued, including at the subnational level. For example, Jakarta province, which became the pandemic's epicentre, decided on province wide school closure before the national government issued the PSBB regulation. Further, the governor of Jakarta also decided to halt all public transportation, which invited negative reactions from the Central Government due to inconsistencies with central-level rules (123). Other provinces or districts have also sought the Central Government's approval for local lockdowns. However, while some were approved, several others, including in Papua, Central Java and East Kalimantan, were rejected by MoH (124). This illustrates issues in intergovernmental coordination as well as the challenges of decentralization when it comes to coordinating activities in a pandemic.

However, it should be noted that before the National Task Force was created on 13 March 2020, initial instructions issued by the President aimed to balance the impact of COVID-19 on the economy, some of which had negative consequences on the health of the public. For example, in early February 2020, the government allocated funding and issued declarations to increase domestic conferences or meetings in order to increase public and private spending and promote tourism. Other steps taken at the time included allocating IDR 72 billion (around US$ 5.1 million) to fund social media influencers to boost tourism and around US$ 16 million to incentivize airlines and travel agencies and other tourism promotion activities in February 2020 (125). The Central Government also issued several regulations to boost the economy and provide financial protection in social aid disbursement (126).

Other policies were also intended to increase the capacity to detect and trace COVID-19 cases and manage the pandemic. The national government initially decided that all testing was to be centralized in one MoH-managed laboratory in Jakarta. However, it was soon apparent that more facilities were needed, and a further 10 partner laboratories were engaged in several provinces following the announcement of the first COVID-19 confirmed case in early March 2020. The coordination of laboratory testing was challenging, with delays recorded in the case confirmation period, limited capacity of the laboratory in conducting testing, limited supplies of reagent, and mixed reports on the case numbers. More laboratories were further engaged at the end of March 2020 and, finally, the private sector was involved in the provision of rapid tests and PCR tests. Private hospitals were also engaged with several hospitals assigned as dedicated COVID-19
hospitals, which was initially done in the Jakarta area. Other provinces and districts soon followed a similar approach in terms of private sector involvement.

The government also issued several regulations to accelerate the provision of health equipment and resources. This included regulation for direct purchase of PPE and other health equipment amid the pandemic (127) and, more recently, the emergency use of vaccines. The emergency use of the vaccine was first issued for the Sinovac vaccine on 11 January 2021, by the National Agency of Drug and Food Control (BPOM or Badan Pengawas Obat dan Makanan) (128). The emergency use authorization was on time as the President had scheduled that the first phase of vaccination (for front-line health workers) would start in mid-January 2021. The first batch of Sinovac vaccines was delivered to Indonesia in December 2020. By August 2021, BPOM has issued emergency use authorization for seven vaccines: Sinovac (CoronaVac), BioFarma COVID-19 Vaccine, AstraZeneca COVID-19 Vaccine, Sinopharm, Moderna, Comirnaty (Pfizer) and Sputnik-V (129).
6. Measures in other sectors

6.1. Borders

On 1 January 2021, the Indonesian Government officially closed its borders to foreigners, first for 14 days to prevent the new variant of the COVID-19 virus detected in the United Kingdom from entering the country (16). Previously, foreigners arriving from Europe and Australia between 28 and 31 December had to follow stricter procedures as stated by the addendum to Circular No. 3/2020 on the Protocol for the travel of individuals during the Christmas and New Year 2021 Holiday Season. The COVID-19 Task Force subsequently issued Circular No. 2/2021 on Health Protocol for International Travel during the COVID-19 Pandemic, extending border closure for foreign residents to 25 January 2021 (16). The Circular further stipulated stricter procedures for those travelling into Indonesia, such as the need for negative RT-PCR test results before and after arrival and five-day quarantine upon entry. The COVID-19 Task Force then issued Circular No. 8/2021 on health procedures for international travel during the COVID-19 pandemic, extending the previous prohibition on foreign visitors.

The COVID-19 Task Force Head has also issued Decree No. 9/2021 on quarantine and isolation areas and RT-PCR obligation for Indonesians undertaking international travel (16). The Decree designates the COVID-19 emergency hospital in Jakarta, also known as Wisma Atlet, as a compulsory quarantine area for migrant workers, migrant students and government employees returning from overseas. The Directorate General of Immigration, on 26 March 2021, issued Circular No. IMI-0661.GR.01.01 of 2021, which relaxes some of the restrictions applied by the temporary ban on foreigners’ admission during the COVID-19 pandemic (16). Foreigners may apply for certain visas that allow entrance into Indonesia. The applicant must meet certain conditions for a specific visa, such as conducting emergency or urgent work or business negotiations for a work visa; or an investor for a non-work visa. More recently in August 2021, it became a requirement for all foreign nationals to show COVID-19 vaccination certificate in order to enter Indonesia. The requirement for quarantine is still in place as of August 2021, where upon arrival, quarantine is mandatory for 8 days followed by a negative COVID-19 RT-PCT test (130).

6.2. Domestic mobility

The COVID-19 Task Force issued Circular No. 1/2021 on guidelines for domestic travel during the COVID-19 pandemic (16). The circular applies to all types of travel modes. It lays out several procedures, such as using a triple-layered or surgical mask by all travellers and the requirement to have a negative RT-PCR test result for air travel (except for children under 12 years), and random checks using rapid antigen tests. The Ministry of Transportation has also issued circulars (Numbers 17 to 22, 2021) outlining the procedures for adherence to the latest restrictions on public activity policy (16). These circulars lay out the requirements that travellers and transportation providers must meet. These include a negative RT-PCR/antigen rapid test/GeNose test result that should be taken up to 24 hours prior to the time of departure for all travellers departing from or entering the island of Java. The COVID-19 Task Force then issued Circular No. 12/2021 on domestic travel during the COVID-19 pandemic, which essentially expanded the locally developed GeNose C19 test to be applied to domestic travel via air, train and sea (16). Domestic trips from one area to another within the island of Java are exempted from this requirement but are still subject to random COVID-19
testing. Only children below the age of 5 years are exempt from any test requirements for domestic travel. The new travel regulation took effect from 1 April 2021.

The Indonesian Government has also banned domestic travel during the Islamic Eid-al-Fitr holiday season (16). The Indonesian COVID-19 Task Force has issued Circular No. 13/2021 on the ban against travelling to hometowns to prevent the spread of COVID-19 during the Islamic holy month of Ramadhan. The circular prohibited travel to one’s hometown – a tradition widely practised at the end of Ramadhan. The Circular was issued to prevent any further outbreak of COVID-19 and also lays out the exceptions to the ban as well as the implementation methods. This initial circular was effective from 6 to 17 May. The Indonesian COVID-19 Task Force subsequently issued an amendment to COVID-19 Task Force Circular No. 13/2021 on the prohibition against travel to hometowns to prevent the spread of COVID-19 during Ramadhan (16). The amendment implemented an immediate ban on travel during the holiday season starting on 22 April until 24 May 2021, as opposed to the previous period for the implementation of restriction from 6 to 17 May 2021. In addition, individuals travelling via air, sea and rail had to have a negative RT-PCR or antigen test result on a sample taken within 24 hours prior to departure.

6.3. Economy

In response to the pandemic, the government established the National Economic Recovery (PEN) programme (98). The programme was launched in February 2020 with a value of IDR 8.5 trillion. As infection rates accelerated and the economic crisis worsened, the value of the package increased to IDR 405 trillion in March and IDR 695 trillion in June. This amounts to 4.2% of the gross domestic product (GDP). The PEN programme aims to support the private sector through IDR 124 trillion in business incentives (mainly tax deductions) and IDR 54 trillion for corporate financing. The support for micro, small and medium-sized enterprises (MSMEs) amounts to IDR 121 trillion, mainly for working capital guarantees and interest rate subsidies. Sectoral and regional governments are supported with a budget of IDR 106 trillion, of which IDR 18 trillion is allocated for job creation and public works schemes. The government has also budgeted a PEN package for 2021 of about IDR 356 trillion (98). Unlike the 2020 PEN programme, the 2021 package has its most substantial component allocated to sectoral programmes and regional governments. IDR 137 trillion has been given to economic recovery through tourism, ICT development and industrial zones. Support for the private sector includes IDR 20 trillion for business incentives, IDR 15 trillion for corporate financing, and IDR 49 trillion for small- and medium-sized enterprises.

6.4. State aid

Within the extra budget for the COVID-19 response, the government also allocated approximately a quarter (US$ 7.44 billion) to Social Safety Net (SSN) programmes (131). Some of the SSN programmes introduced include expanding the number of recipients of the Prosperous Family Programme (Program Keluarga Harapan–PKH), which was previously allocated only to 9.2 million low-income families. PKH now applies to 10 million recipients, with the base benefit also increased by 25%. Starting from April 2020, the nominal benefits received by the recipients, based on the target group, are pregnant women, from US$ 162.84 to US$ 203.55 per year; early childhood, US$ 203.55 per year; and persons with disabilities, US$ 162.84 per year. A second SSN initiative is electronic food vouchers (131). The number of beneficiaries has been raised to 20 million households, and the base benefit has increased by 31.5% from US$ 10.15 to US$ 13.35 per month.
These vouchers were given for nine months. Third, up to 100% of electricity tariff subsidies for low-income households were distributed to 24 million homes for three months (131). For the 7 million consumers who come from the lower-middle-income group, their electricity tariffs were discounted by 50% for three months. The last initiative is a stimulus fund for low-income people who receive subsidized housing loans and a six-month income tax exemption for an employee in the manufacturing sector with annual earnings up to US$ 12 500 (131).

In addition, the government also announced a policy that combined income security initiatives with training to provide beneficiaries with the required skills to enter the labour market, make their living and then contribute to economic development (131). This includes introducing the unemployment benefits programme (Program Kartu Prakerja) for those looking for new jobs or losing their jobs. For this programme, US$ 1.35 billion has been allocated. The number of recipients covered by the scheme has been expanded to 5.6 million laid-off workers who mainly come from the informal sector and micro- and small-businesses affected by COVID-19. The amount of individual benefits provided starts at US$ 67.60 per month. This scheme is supplemented by work training programmes run by the Ministry of Labour in collaboration with private vocational training, where it is adjusted to the diverse backgrounds of the recipients to support persons, especially the former youth workforce, struggling with unemployment (131).

6.5. Education

There is still limited structured assessment to measure the impact of the pandemic on education sector and the school age population group. One of the initial actions taken to slow the spread of the virus in Indonesia was to close schools in Jakarta as early as mid-March (95). While potentially effective in limiting the spread of the virus, school closures interrupted education, with potentially damaging long-term human capital implications. In late June 2020, the government passed a set of regulations for reopening schools. The directive dictated conditions for reopening, most notably that a district can reopen schools only if the district currently has zero COVID-19 cases. Those schools must close again as soon as a positive case is reported. In practice, this means that only a minority of schools are approved to reopen (98). In April 2021, the government issued a new joint Ministerial Decree on the guidelines for learning during pandemic where school reopening no longer depends on zero cases being reported in the community and local government can make such a decision as long as the staff in the educational facilities have been fully vaccinated. However, parents/caregivers can still opt for remote learning. The challenge is low and unequitable coverage of vaccination among teachers. According to the Child Protection Commission, until May 2021, only 28% of teachers have been vaccinated (132).

With the zero tolerance for the Covid-19 caseload, the staggered reopening of education facilities created uncertainties for schools, students and their parents, creating ongoing disturbances (82). It remains to be seen how schools and students will respond to this in the short-to-medium term. Despite this uncertainty, most schools seem prepared for prolonged closures and remote learning. However, they are still preoccupied with maintaining day-to-day teaching and applying preventive health procedures to allow reopening. There has been little attention on developing and implementing strategies to reduce learning losses to date (98).

The Education Ministry has removed limitations on the utilization of School Operational Assistance (BOS) funds (98). Before schools were closed, up to half of the BOS funds could be used to pay for
contract teachers already registered with the Ministry. When schools started to close, the Ministry removed this restriction, enabling more flexible use of the funds. BOS funds can now be utilized to purchase health supplies, Internet data credit and subscriptions to online learning platforms previously not allowed (98).

The interruptions to higher education do not seem to have been severe so far (98). Most universities have made a rapid transition to online teaching, and Internet access is not a key hindrance for most students. However, for a substantial group of students, especially those from low-income households, lack of access to communication devices, poor connectivity and online learning costs remain prohibitive, and adapting to the new normal is less straightforward. The government should consider further general support to facilitate online learning to avoid a broadening gap in access to higher education (98). The Ministry of Education and Culture has allocated IDR 7.2 trillion for subsidized phone credit and Internet data packages for university students, school students and teachers. However, the success of this programme will depend on improving the stability and coverage of Internet networks in remote areas, particularly in the eastern regions of Indonesia (98).
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