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## Positive impacts of Covid-19 pandemic to strengthen National Health Defense

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**Abstract.** During the past one and a half year, we all have faced the COVID-19 pandemic. In national defense perspective, COVID-19 Pandemic could be viewed as a non-military threat to national defense. The COVID-19 pandemic is a wake-up call that improves our awareness on the necessity to be fully independent and self-sufficient in health sector. So far, we have been complacent with the ease of importing raw materials for medicines and medical devices. Thus, the advent of the COVID-19 pandemic has made us aware to reduce Indonesia's high dependence on import of health and medicine goods. Despite of the losses and prolonged sadness brought by the COVID-19 pandemic, there are also positive impacts for this nation as the result of the COVID-19 pandemic. One of the impacts on the National Health System is the strengthening and involvement of all levels of society and the apparatus in dealing with COVID-19 pandemic, which can be seen in the prevention, detection, and orderly response to COVID-19. Adjustment of public health service capacity is also carried out very swiftly to respond the pandemic situation. Another indicator is seen in the financing of medical and healthcare sector that was able to rapidly finding sources of funding for a very sharp increase in public health needs. Meanwhile, Human Resources capacity development appears to be very prominent as seen from the rapid improvement of training and research in medical and healthcare competences. No less important is the pharmaceuticals and medical devices sectors that are more determined to improve their independence and self-sufficiency in terms of drugs and vaccines raw materials. Independent raw materials provision for drugs and vaccines has an important value in the national economy and strengthening national security in the public health sector.

**Keywords.** COVID-19 Pandemic, National Health System, Defense Health System.

### 1. Introduction

During the past one and a half year, we are all experiencing COVID-19 pandemic. In national defense perspective, the COVID-19 pandemic can be seen as a non-military threat to the national defense since it threatens the public safety and the nation's survival. About 100 years ago after the First World War, many countries also experienced Spanish flu pandemic, which impacts were devastating and multidimensional. Thus, non-military threats like COVID-19

pandemic urge the importance to develop non-military defense with medical and healthcare sectors human resources at the forefront of national defense.

The COVID-19 pandemic is a wake-up call that has accelerated our awareness to be fully independent in medical and healthcare sector. So far, we have been complacent with the ease of importing raw materials for drugs, vaccines, and medical devices. The COVID-19 pandemic has made us realize the importance of being independent and self-sufficient, as well as reducing Indonesia's high dependence on health and medicine goods import.

The COVID-19 pandemic has not only brought losses, but also has prolonged sadness among the public. It also has disrupted the national economy, turned many people unemployed, and increase the poverty in Indonesia. But if we think about what has happened for a moment, it turns out that there are also positive impacts for this nation as the result of the COVID-19 pandemic. The impact on the National Health System, one of which is clearly visible, is the strengthened collaboration and involvement from all levels of society and government apparatus in dealing with COVID-19 pandemic.

COVID-19 pandemic is also a momentum for improving the National Health System. Prior to the pandemic, the performance of the national health system was not optimal, especially related to disease prevention. Moreover, health facilities, pharmaceuticals, and medical devices availability were also inadequate. Then, the capacity of health workers were low, and the financing of medical and healthcare sector was not yet efficient. Therefore, we have to continue carrying out the implementation of the health system transformation, namely improving health security and resilience, ensuring access to the supply side of quality health services throughout Indonesia, increasing community participation, and strengthening promotion and preventive efforts [1].

The synergy of the National Health System and the Defense Health System is an interlocking web to support efforts in empowering the strategic value of national health. This strategy strengthens the national resilience network against the complexities of global health threats toward national security [2].

## **2. Study Methods**

This study employs qualitative approach based on literatures review and analysis from several references. The references used in this study serve as a basis for providing valid information to discuss and draw conclusion on the study. This research used Miles and Huberman's (1994) qualitative data analysis technique, which process consists of data reduction, data display, and conclusion drawing and verification [4]. This study employed triangulation of data sources to ensure the data validity in this study.

The process of data reduction in this study was carried out by making choices about which parts of the data are coded and discarded. In data reduction process, qualitative data can be simplified and transformed in various ways, such as through strict selection, through a summary or brief description, through data classification within a broader pattern, and so on. Data display was carried out by developing a set of structured information that would lead or result in conclusions drawing. This process was also carried out to further improve the understanding of this study and serve as a reference for taking action. By analysing the data that has been

displayed, we will be able to understand what is going on and what to do based on our understanding on the data.

Conclusions drawing was carried out afterward to answer the research question in this study based on the results of data analysis. The conclusions of this study are presented in the form of descriptive research objects based on research studies. The initial conclusions of this study were further examined by enriching the data iteratively until the final conclusion was reached. The final conclusion was drawn when all data in this study showed valid and consistent result. By doing so, the final conclusion can be considered as a credible conclusion.

### 3. Results and Discussion

Based on the data collection process that were carried out in this study, it was found out that there are several key areas for national health system reform, namely disease control, national health security, equal distribution of medical and healthcare sector workers, improvement in hospital services, pharmaceutical goods and medical devices independence and self-sufficiency, digitalization and people's empowerment, as well as medical and healthcare sector financing. The aforementioned key areas are explained in detail as followed [5].



**Figure 1.** Key Areas of Indonesia's National Health System Reform during COVID-19 Pandemic

#### 3.1 Disease Control

There are improvements in disease control field after the COVID-19 pandemic, such as:

- a. The strengthening of integrated surveillance systems of disease spread in the public. The report on lab tests results has also become more interoperable, real-time, and coordinated between regional and central government, and among regions. Thus, public health has become cross-sectoral and a mandatory for all government institutions in Indonesia to pay careful attention;
- b. The improvement in laboratory capacity, both in terms of human resources quantity and quality, as well as the more developed monitoring mechanisms;
- c. The improvement in COVID-19 testing, tracing, treatment (3T) recording system to break the chain of COVID-19 spread as rapidly as possible. The data management of the COVID-

- 19 3T result is also stored in an information system that can be accessed by the public at large;
- d. The continuity of essential health services is also improved through the implementation of health protocols, planned 3T monitoring, and an effective referral system by public and private health facilities;
  - e. The development of an integrated immunization registry is going on the right track;

Aside from that, the capacity of health facilities, including in medical waste management, the provision of funding allocation, and training for medical waste managers still need to be strengthened. COVID-19 vaccination capacity also needs to be further improved by issuing immunization policies that ensure all age groups have full access to various types of vaccines in order to accelerate the achievement of herd immunity in combination with other health intervention measures, as well as the provision of adequate vaccination facilities and infrastructure.

### *3.2 Disease Control*

Prioritizing the public health and safety is one of the government's primary responsibility, especially since that the COVID-19 pandemic has been experienced for more than 18 months in Indonesia. Currently, the COVID-19 cases in Indonesia are still in an increasing trend, which necessitates the improvement of national health security capacity. According to World Health Organization (WHO), health security capacity building is an essential activity to minimize the hazards and impacts of acute public health emergencies, such as the COVID-19 pandemic, which could result in devastating and multidimensional impacts that jeopardize the collective health of populations within and outside a country's geographic area through the international boundaries [5].

Some important measures to strengthen of the national health security that have been carried out in Indonesia is elaborated as followed:

- a. The mandatory effort to integrate central government and regional government surveillance system in a real-time manner. The availability and completeness of surveillance data that serves as a navigational tool for policy making is really required to deal with the COVID-19 pandemic. Major reforms in the integrated recording system have been carried out, such as the improvement of interoperability across units and connectivity to regional system that runs real-time data. Surveillance plays an important role in carrying out systematic data collection, analysis and interpretation to provide policy input in for the planning, implementation, and evaluation of ongoing health programs;
- b. The establishment of good data management in quality analysis to promote and facilitate integrated data collection across disciplines and across sectors in order to control disease within the society. In addition, a data system has been built through prioritizing data accessibility between the government and outside the government in order to control the pandemic;
- c. The strengthening of laboratory capacity which substantially increase the speed of COVID-19 specimen testing in the field. The measures to strengthen laboratory capacity includes skills in sampling, sample storage standards, instrument calibration, avoiding contamination, until the implementation of biosafety and biosecurity. Furthermore, the government also involve private laboratories in addition to the local government laboratories for speeding up the COVID-19 specimen testing process.

### *3.3 Equal Distribution of Medical and Healthcare Sector Workers*

To meet the increasing demand and address the uneven distribution of health workers throughout numerous regions in Indonesia, various policies have been implemented by the central and local governments.

- a. Establishment of a joint COVID-19 response task force, additional support for health workers from government agencies (TNI/POLRI and ministries/agencies/regional governments), as well as recruitment of health worker volunteers from Medical students and Nursing Academy/Schools;
- b. Another policy taken by the government to ensure the availability of human resources in dealing with the COVID-19 pandemic is the recruitment of approximately 17,190 medical and non-medical volunteers, which may come from alumni or final year students who take medical, nursing and pharmacy educations;
- c. Procurement of civil servants to meet the needs of state apparatus through procurement of government employees with working agreements or contract. In accordance with The Regulation of the Government of the Republic of Indonesia Number 49 of 2018 on the Management of Government Employees with Working Agreement (PPPK), that PPPK can be appointed to civil servant positions including: Functional Positions, Middle High Leadership Positions, and Main High Leadership Positions. The fulfilment of these positions are carried out according to the stated mechanism in the regulation, and has been planned in the PPPK requirement plan based on the Job Analysis and Workload Analysis within the period of five years, which is further detailed in the annual plan. The PPPK requirement plan is prepared and submitted by the Personnel Development Officer to the President through the Minister of State Apparatus Utilization and Bureaucratic Reform to determine its formation through the Decree of the Minister of State Apparatus Utilization and Bureaucratic Reform. Procurement of PPPK to fill Functional Positions can be carried out nationally or institutionally;
- d. Other efforts in fulfilling the required demand and ensuring equal distribution of Health Workers include the redistribution of health workers in various districts/cities;
- e. Human resources training and provision of adequate budget allocations without discrimination against the primary level private health facilities (including training on case recording and reporting) are also carried out to further improve the human resources aspect in dealing with the rapid increase of COVID-19 cases.

### *3.4 Improvement in Hospital Services*

The government's efforts to improve hospital services in dealing with the surge of COVID-19 cases include:

- a. Issue rules, guidelines, and therapeutic protocols that are continuously updated according to the development of research and empirical hospital service results. These include:
  - 1) Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/382/2020 dated 19 Jun 2020 on Community Health Protocols in Public Places and Facilities in the Context of Corona Virus Disease 2019 (COVID-19) Prevention and Control;
  - 2) Circular Letter Number HK.02.01/MENKES/202/2020 on Self-Isolation Protocols in Handling Coronavirus Disease (COVID-19);
  - 3) Decree of the Minister of Health of the Republic of Indonesia Number KH.01.07/MENKES/169/2020 on the Designation of Referral Hospitals for the Management of Certain Emerging Infectious Diseases;

- 4) Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/413/2020 dated 28 July 2020 on the Guidelines for Corona Virus Disease 2019 (COVID-19) Prevention and Control;
  - 5) Circular Letter of the Minister of Health of the Republic of Indonesia Number HK.02.01/Menkes/234/2020 on the Guidelines for SARSCoV-2 Real Time-Polymerase Chain Reaction (RT-PCR) Test for Laboratories in Hospitals and Other Laboratories Conducting Corona Virus Disease 2019 Examinations (COVID-19);
  - 6) Circular Letter of the Minister of Health of the Republic of Indonesia Number Hk.02.01/Menkes/199/2020 on the Communication for Handling Corona Virus Disease 2019 (COVID-19) and Protocol for Handling COVID-19;
  - 7) Hospital Guidelines in Serving COVID-19 Patients;
  - 8) COVID-19 Management Protocol;
  - 9) COVID-19 Self-Isolation Guidelines;
  - 10) Guidelines for the Prevention and Control of Coronavirus Disease (COVID-19).
- b. Development of National Referral Hospital, Regional Referral, and establishment of Center of Excellence Hospital [5].
  - c. The addition of inpatient facilities must be in line with the addition of negative/non-negative isolation rooms and independent isolation rooms which play a central role in preventing the further spread of COVID-19 as well as the emergence of new clusters. The government asked the Indonesian Hospital Association (PERSI) to require all new hospitals that are being or will be built to have negative pressure isolation rooms with proportional capacity to the number of treatment rooms (hospitals type), as well as to renovate hospitals that do not have or lack of negative pressure isolation rooms.
  - d. The government provides hotel facilities for residents who need to conduct self-isolation. As of September 21, 2020, COVID-19 data showed that around 80% of the 58,378 active cases were mild cases that only requires self-isolation [6].
  - e. In dealing with the surge of COVID-19 patients during June–July 2021, the government made breakthrough efforts to turn the hajj dormitory into an emergency hospital, procure oxygen concentrators in various regions, negotiate with outer countries through the assistance of the Ministry of Foreign Affairs to be able to import remdesivir, IVIG, actemra, 50 million doses vaccines [7].

### *3.5 Pharmaceutical Goods and Medical Devices Independence and Self-Sufficiency*

The independence and self-sufficiency of pharmaceutical goods and medical devices are crucial to enable Indonesia to reduce its dependence on import and handle the COVID-19 pandemic more effectively. Indonesia's pharmaceutical market in 2019 was recorded to have a large value of 88.6 trillion rupiah. This market size really needs to be developed by the domestic pharmaceutical industry [8].

In 2019, there have been 14 domestic pharmaceutical industries that entered joint venture scheme with pharmaceutical industries from other countries such as the United Arab Emirates, Hong Kong, Korea, India, Germany and other countries. The joint venture pharmaceutical industry produces innovative products and medicine raw materials that are required to support health services. This will contribute to the attainment of national pharmaceutical industry independence [9].

Independence and self-sufficiency in medical devices production is increasingly visible. Currently, Indonesia is capable of producing 358 medical devices, including 79 (seventy nine)

types of medical devices that have replaced imported products such as electrocardiograms, orthopaedic implants, nebulizers, and oxymeters. Indonesia can be considered as having a good capacity since 19 types of medical devices are included in the top 10 most-transacted medical devices. Moreover, almost 90% of the total national medical devices demand can be produced in Indonesia. The capacity of the Indonesian medical devices industry has also been tested during the COVID-19 pandemic because it is able to produce medical devices with medium technology such as ventilators, high flow nasal cannula (HFNC), powered air purifying respirators (PAPR), rapid antibody tests, rapid antigen tests, and RT-PCR [9].

In terms of the number of Domestic Medical Devices Industry, there are two additional industries out of the total 276 industries in 2019. During the last 5 years, domestic medical devices industry has grown by 83 industries or 43.00%. The number of medical devices types that can be produced domestically also increased by 25% in 2019, as many as 28 medical devices (cumulative). The medical devices industries' ability to meet minimum hospital equipment standards in 2019 was 54.38%. For Class B Hospitals, medical devices industries' ability to meet minimum hospital equipment standards stood at 57.90% in 2019. Meanwhile, for Class C Hospitals and Class D Hospitals, the figure was at 64.83% and 71.91% respectively in 2019 [10]. This figure is calculated based on the number of medical device items in the hospital's minimum standard in accordance with Minister of Health Regulation Number 56 of 2014 on Hospital Classification and Licensing.

### *3.6 Digitalization and People's Empowerment*

Disruption or drastic changes due to the COVID-19 pandemic has forced the public, business actors, and the government to carry out various digital innovations. These measures are carried out, among others, through distance learning, online public services, development of online surveys, and telemedicine development. We have also seen the digitization of health information systems in various health care facilities. Moreover, these measures are also manifested in the strengthened role of mass media (digital and conventional) in disseminating accurate information for the society and countering information against the infodemic (hoax) [5].

Public communication training on pandemic risks includes stipulation of regulation and establishment of information centers supported by the government and the private sector. Furthermore, the involvement of community's role by considering local wisdom, from the national level to the neighbourhoods (RT/RW) or village level, also contributes to the improvement of people's empowerment and digitalization in responding and adapting to the current COVID-19 pandemic situation [12].

Strengthening crisis coordination involving various social capitals that starts from the micro level such as at the neighbourhoods (RT/RW) levels to the wider community. It is carried out by focusing on simultaneous responses and measures against the pandemic situation through cross-sectoral synergy (without egocentricity) among the related ministries/agencies/government agencies [5].

### *3.7 Medical and Healthcare Sector Financing*

Large sum of state budget is required to respond the COVID-19 pandemic. Furthermore, it has been almost 18 months since the beginning of COVID-19 pandemic and there is still no sign of a downturn. The COVID-19 pandemic requires extraordinary policies from the Government,

and this certainly affects the 2020 State Budget (APBN) posture. The government has mobilized financial & non-financial resources in order to maintain the continuity of essential health services. The main financial resources are the APBN and the regional budget (APBD). The APBN reallocation funds is provided by identifying state expenditure posts that can be saved for upgrading the COVID-19 Referral Hospital, procuring medical supplies and equipment, providing incentives for health workers who treat COVID-19 patients, to providing costs for patient care and repatriation of corpses. In addition, local philanthropic movements can be encouraged during the pandemic. Continuity of essential services must still be maintained during the implementation of large scale social restriction, especially for pregnant women and infants healthcare services who require routine immunization; patients with chronic diseases such as cancer, heart, and kidney failure; and the need to increase hospital operating income [5].

The government has also responded to the COVID-19 pandemic by taking several extraordinary steps since 2020, mainly by providing economic and financial stimulus. The COVID-19 Pandemic Handling and National Economic Recovery Program is directed at dealing with the public health impacts of the COVID-19 pandemic, as well as the national economy recovery [13].

#### **4. Conclusion**

During the past one and a half year, we are all experiencing the COVID-19 pandemic. This pandemic situation has become a momentum to carry out national health system reforms. The COVID-19 pandemic is a wake-up call that increases our awareness on the necessity to be fully independent and self-sufficient in health sector. The involvement of all levels of society and the apparatus in dealing with COVID-19 pandemic have also improved, as seen in the prevention, detection, and orderly response to COVID-19. Adjustment of public health service capacity has also been carried out very swiftly to respond the pandemic situation.

Another indicator is reflected from the financing aspect of medical and healthcare sector. During the COVID-19 situation, sources of funding was able to be rapidly found and allocated to deal with the rapid surge of public health needs. Furthermore, Human Resources capacity development appears to be improving significantly as shown in the rapid improvement of training and research in medical and healthcare competences. No less important is the pharmaceuticals and medical devices sectors that are more determined to improve their independence and self-sufficiency in terms of drugs and vaccines raw materials. Thus, COVID-19 pandemic can be concluded to bring positive impact in accelerating the development of national health system despite the threats to public health and national economy that it poses.

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