

## COMMUNITY SERVICES

# Medical doctor association Surabaya chapter's COVID-19 vaccination acts: community service for the protection of surabaya medical doctors' health

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### ABSTRACT

**Background:** The COVID-19 pandemic has affected many people, including healthcare workers who are at risk of infection. It has been reported that deaths mainly occurred among doctors (51.4%, n = 525). **Aims:** This community service project was done to report the coverage of the COVID-19 vaccination conducted by the Medical Doctor Association Surabaya Chapter (Ikatan Dokter Indonesia (IDI) Surabaya Chapter). This was done in cooperation with the Surabaya Health Office with the vaccination targets being medical staff and their families. **Community service:** This project aims to protect their health while treating COVID-19 patients, the Medical Doctor Association Surabaya Chapter in collaboration with the Surabaya Health Office held COVID-19 vaccinations on August 6<sup>th</sup>, 7<sup>th</sup>, 25<sup>th</sup>, and 30<sup>th</sup>, 2023. These vaccinations were targeted to be given to healthcare workers, and 26, 12, 19, and 36 vials were administered on every date. The Moderna vaccine (mRNA-based COVID-19 vaccine) was administered to 727 participants on August 6<sup>th</sup>, 336 participants on August 7<sup>th</sup>, 265 participants on August 25<sup>th</sup>, and 489 participants on August 30<sup>th</sup>, 2023. The most frequent participants were general practitioners (72.5%) and specialists (22%). The COVID-19 vaccinations were held by the Medical Doctor Association Surabaya Chapter and also involved medical students from several universities in Surabaya, including Universitas Airlangga, Wijaya Kusuma, Nahdlatul Ulama, Muhammadiyah, Hang Tuah, and Ciputra. The COVID-19 vaccination covered 69.90% of the intended targets. **Conclusion:** The Medical Doctor Association Surabaya Chapter in collaboration with the Surabaya Health Office successfully held a COVID-19 vaccination campaign that reached 69.90% of their targets.



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## Highlights

1. The COVID-19 pandemic has caused the deaths of healthcare workers worldwide. In Indonesia, 1,551 deaths among health workers were reported due to COVID-19 infection up to July 25<sup>th</sup>, 2021.
2. Indonesia had held COVID-19 vaccination campaigns to protect citizens from COVID-19, with the first batch targeting healthcare workers.
3. In collaboration with the Surabaya Public Office, the Medical Doctor Association Surabaya Chapter held a COVID-19 vaccination campaign for healthcare workers, medical students, and their families.

## BACKGROUND

The COVID-19 pandemic has affected many people worldwide, causing a disturbance in health and even deaths (Haleem et al., 2020). This disease has affected not only the general public but also healthcare workers who have dedicated their time, health, and knowledge to treating COVID-19 patients, leading to shortages of medical personnel. Beyond its physical effects, COVID-19 has also caused burnout, exhaustion, and trauma among medical professionals (ASPE, 2022). The psychological burden medical workers bear has been reported in several countries such as Spain (García-Fernández et al., 2022), China (Que et al., 2020), and Europe (Erquicia et al., 2020).

A systematic review conducted in 2021 summarized a total of 152,888 COVID-19 infections, with 1,413 reported deaths. Nurses were the most frequently infected victims (38.6%; n = 10,706), but deaths mainly occurred among doctors (51.4%; n = 525) (Bandyopadhyay et al., 2020). In Indonesia, a total of 1,551 healthcare workers died due to COVID-19 up to July 25<sup>th</sup>, 2021, and almost one-third of them were doctors (Yuniasih et al., 2022). To protect their health while treating COVID-19 patients, the Medical Doctor Association Surabaya Chapter (IDI Cabang Surabaya) has made an open donation for personal protective equipment, medical masks, and hand sanitizer. They allocated them to the first line of COVID-19 intervention workers, such as medical and paramedical staff. Moreover, for the internal protection of their health, the Medical Doctor Association Surabaya Chapter, in cooperation with the Surabaya Health Office, had conducted COVID-19 vaccination campaigns as suggested by the Indonesian Ministry of Health.

## OBJECTIVES

This community service project was done to report the coverage of the COVID-19 vaccinations for medical staff and their families conducted by the Medical Doctor Association Surabaya Chapter in cooperation with the Surabaya Health Office.

## IMPLEMENTATION OF COMMUNITY DEDICATION – VACCINATION ACTS

The Surabaya Health Office Surabaya had some difficulties in gathering the medical staff in Surabaya during the first and second vaccination doses. They contacted all medical associations (Indonesia Pediatric Association, Association of Internal Medicine Specialists, Indonesian Society of Obstetrics and Gynecology, Association of Indonesian Surgeons, and many more). The Medical Doctor Association had many members and access to all general practitioners and specialists in Surabaya. By contacting the Medical Doctor Association Surabaya Chapter, the Surabaya Health Office was then able to conduct successful COVID-19 vaccination events (third and fourth doses for the medical staff, and even for medical students in Surabaya). The Medical Doctor Association Surabaya Chapter contacted all its members while the Surabaya Health Office supplied the vaccines and paramedical staff for administration. A total of four events were conducted on August 6<sup>th</sup>, 7<sup>th</sup>, 25<sup>th</sup>, and 30<sup>th</sup>, 2023. All these events are summarized in **Table 1**. On day 1 (August 6<sup>th</sup>, 2023), the vaccine reached 72.6% of targets. This number dropped to 33.6% on day 2 (August 7<sup>th</sup>, 2023) but rose to 119.91% on day 3 (August 25<sup>th</sup>, 2023). On day 4, 100% coverage was attained (August 30<sup>th</sup>, 2023). Overall, the COVID-19 vaccination covered 69.90% of targets.

**Table 1.** Vaccination activity during 2021-2022 held by the Medical Doctor Association Surabaya Chapter cooperating with the Surabaya Health Office.

Vaccination period	06-08-2022	07-08-2022	25-08-2021	30-08-2021
Targets	1,000 healthcare workers registered in PCare	1,000 healthcare workers registered in PCare	221 medical staff and lecturers registered in PCare	377 medical students and lecturers registered in PCare
Half dose vaccination	726	336	265	489
Full dose vaccination	1	0	0	0
Vaccinated targets	727	336	265	489
Vaccine name	Moderna	Moderna	Moderna	Moderna
Community healthcare centers	Mojo	Mojo		
Vaccine stock	90 vials	64 vials	27 vials	51 vials
Vaccine usage	26 vials	12 vials	19 vials	35 vials
Remaining vaccine	64 vials	52 vials	8 vials	16 vials

## Participants' profiles

### *Medical staff (GPs, specialists) in August 2022*

When given the identity forms, only a small number of the participants returned them ( $n = 80$ ). **Table 2** summarizes the participants' profiles in August 2022. The participants were adults aged  $43.66 \pm 16.6$  years old, with the youngest being 26 years old and the oldest being 82 years old. The most frequent participants were general practitioners (72.5%), while specialists only made up 22% of participants. Most of the participants lived in Surabaya (71.25%), and most of them received Moderna, an mRNA-based COVID-19 vaccination.

**Table 2.** Characteristics of doctors who participated in the COVID-19 vaccination ( $n = 80$ ).

Participants	n	%
Age, years (mean $\pm$ SD)	43.66 $\pm$ 16.60	
- > 50 years old	54	67.5
- < 50 years old	26	32.5
Gender		
- Male	39	48.75
- Female	41	51.25
Profession		
- General practitioner	58	72.5
- Specialist	22	27.5
Domicile		
- Surabaya	57	71.25
- Outside Surabaya	23	28.75
Vaccine type		
- Moderna	66	82.5
- AstraZeneca	10	12.5
- Pfizer	4	5

### *Medical students*

The COVID-19 vaccination held by the Medical Doctor Association Surabaya Chapter also involved medical students from several universities in Surabaya, including Universitas Airlangga, Wijaya Kusuma, Nahdlatul Ulama, Muhammadiyah, Hang Tuah, and Ciputra as summarized in **Table 3**. Most of the participants were from Universitas Hang Tuah (41.36%). All the participants were young female adults aged between 20 until 33 years old (71.15%). The participants had received previous vaccination doses in the form of Moderna mRNA-1273.

**Table 3.** Characteristics of medical students who participated in the COVID-19 vaccination (n = 312)

Participants	n	%
University		
- Universitas Airlangga	46	14.74
- Universitas Wijaya Kusuma	71	22.76
- Universitas Nahdlatul Ulama	31	9.94
- Universitas Muhammadiyah	5	1.60
- Universitas Hang Tuah	129	41.35
- Universitas Ciputra	16	5.13
Age	23.32 ± 1.70	
Gender		
- Male	90	28.85
- Female	222	71.15
Previous vaccination		
- Moderna	253	81.09
- Sinovac + Pfizer	1	0.32
- Sinovac + Moderna	14	4.49
- Sinovac	10	3.2
- Pfizer	18	5.77
- Johnson & Johnson	1	0.32
- Astra Zeneca	14	4.49
- Astra Zeneca + Moderna	1	0.32

## DISCUSSION

The investigation of COVID-19 incidence among the healthcare workers in Jakarta in 2020 showed that doctors (48.4%) and nurses (44.2%) were the most frequently infected by COVID-19 due to their contact with suspected/confirmed COVID-19 patients. It was also noted there was a higher prevalence of pneumonia among the 40-49 and > 50-year-old groups (Soebandrio et al., 2021). Vaccinations were needed to reduce the infection rate as seen in a study conducted in East Java. The vaccinations observed in that study reduced the COVID-19 incidence among healthcare workers at an effectiveness rate of 73.3% and hospitalization was also reduced by 9.2% (Soegiarto et al., 2023). A study conducted in Siloam Hospital found 13 (1.25%) COVID-19 cases post-vaccination, confirmed using polymerase chain reverse transcriptase (PCR), which showed that healthcare workers were still at risk for COVID-19 infection (Cucunawangsih et al., 2021).

However, the coverage of COVID-19 vaccination among healthcare workers in low-income countries only reached 33%, and 83% for lower-middle income countries. Furthermore, 76% of countries did not achieve 70% of COVID-19 vaccination coverage for their healthcare workers during the first half of 2021 with the availability of vaccines being a critical factor impacting the coverage (Nabaggala et al., 2022). In Indonesia, there were several problems related to healthcare worker coverage of COVID-19 vaccination, including vaccine supply problems in January 2021, inadequate cold chain systems for vaccine distribution, and local anti-vaccine movements (Nugraha et al., 2021).

COVID-19 vaccination coverage in Indonesia reached 62% to build herd immunity toward COVID-19 (Dewi, 2022). High coverage of COVID-19 vaccination had a negative correlation with the COVID-19 infection rate ( $r = -0.116$ ). With 60% coverage, the COVID-19 spread was controlled, and there was a decrease in COVID-19 severity and transmission (Huang et al., 2022). Vaccinating 10% of the medical staff per week reduced the COVID-19 cases to 0.13 per 1,000 residents, and reduced the mortality rate to 0.02 per 1,000 residents. The mortality rate among medical staff was reduced to 0.03% during the omicron variant wave (Sinha and Konetzka, 2022).

A survey on COVID-19 vaccination acceptance across several countries found that 79.1% of these countries' populations were willing to be vaccinated (Lazarus et al., 2023). However, this survey did not include Indonesia. Although Indonesian acceptance of COVID-19 vaccination was high, surveys showed that society's acceptance of COVID-19 vaccination varied from 45.7% to 74%. This was due to a lack of understanding towards the COVID-19 vaccination (Dewi, 2022). Refusal was related to vaccine safety (30%), effectiveness (22%), distrust of vaccines (13%), fear of side effects (12%), and religious reasons (8%) (Lidia and Widayati, 2021). A systematic review in Nigeria stated low

acceptance of COVID-19 vaccination (20.0% to 58.2%). Those who did not accept COVID-19 vaccines refused due to propaganda, fear of adverse effects, and conspiracy theories (Olu-Abiodun et al., 2022).

Among physicians, COVID-19 vaccination coverage reached 85.3% among members of the Athene Medical Association (Marinos et al., 2021). A systematic review noted the coverage reached 77.3% of healthcare workers with the highest coverage in North America at 85.6% (Galanis et al., 2022). In Indonesia, healthcare workers and medical personnel have good knowledge of COVID-19 vaccines (Wulan et al., 2022).

The available COVID-19 vaccines in Indonesia include Sinovac, Pfizer, AstraZeneca, Moderna, Sinopharm, and Novavax, and these have been administered in different doses (Sudari et al., 2022). All of those available vaccines had different efficacy for COVID-19. Coronavac (Sinovac) had a seroconversion of 92.4% to 97.4% with no severe side effects; ChAdOx1 nCoV-19's (AstraZeneca) efficacy was 66.7% to 76.0%; mRNA-1273's (Moderna) efficacy was 94.1%; BNT162b2's (Pfizer) efficacy was  $\geq 92\%$ ; and BBIBPCorV's (Sinopharm) efficacy had not been found (Lidia and Widayati, 2021). The first vaccine policy established by the Indonesian government was about the use of the inactivated virus vaccine (Sinovac) (Suryaningsih et al., 2020).

### **Strengths and Limitations**

This community service project did not record adverse effects on the participants post-COVID-19.

### **Permission**

This community service was approved by the Indonesian Medical Doctor Association Surabaya Chapter Number 376/IDI Sby/2023.

### **CONCLUSION**

The Medical Doctor Association Surabaya Chapter (IDI Surabaya) in collaboration with the Surabaya Health Office successfully held a COVID-19 vaccine campaign covering 69.90% of their targets.

### **Acknowledgment**

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### **Conflict of Interest**

The author declares no conflict of interest.

### **Funds**

None.

### **Legal Permission**

This community service was approved by the Head of the Indonesian Medical Doctor Association's Surabaya branch with the approval number 376/IDI-Sby/Sek/VII/2022.

### **Author Contribution**

All the authors contributed to all processes in this study, including preparation, data gathering and analysis, drafting, and approval for the manuscript publication.

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