



Review Article

Challenges on tuberculosis care in health care facilities during COVID-19 pandemic: Indonesian perspective

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Abstract

Indonesia is among the top three countries globally with the highest tuberculosis burden. During the past decades, Indonesian health authorities have struggled to improve tuberculosis care quality in health care facilities by optimizing the regulation and strengthening the private sector contributions. The coronavirus disease 2019 (COVID-19) pandemic has hardly affected the Indonesian health care system, including the National Tuberculosis Control Program. While the end of the COVID-19 pandemic in Indonesia is uncertain, the measure to control tuberculosis must not be weakened. Early identification and measurement of the problem size are essential to decide the most appropriate approach to maintain the sustainability of National Tuberculosis Control Program, particularly in health care facilities during the COVID-19 pandemic. This article points out the possible threats to the sustainability of TB care in Indonesia during the COVID-19 pandemic, including some approaches to overcome those problems.

Keywords: COVID-19, tuberculosis, tuberculosis care, pandemic, health care disruption

Introduction

Indonesia ranks the top three in the world as a country with the highest tuberculosis (TB) burden. In 2019, active TB cases reached more than 1.01 million, 307,000 of which were left untreated or dead [1]. The continuity of TB care is the key in achieving TB elimination, in which Indonesia has shown remarkable progress in terms of integrating public and private healthcare facilities into the National TB Control Program [2]. The Indonesian Health Ministry has integrated the directly observed treatment short-course (DOTS) program into the hospital by considering DOTS as an indicator of the quality of implementing hospital service standards. In 2016, the government issued a regulation of mandatory TB reporting to all health care facilities [2, 3].

Since the first case reported by the Chinese health authority in December 2019, coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has spreaded to almost all countries worldwide. Later, the World Health Organization (WHO) declared its status as a pandemic in March 2020 [4]. The pandemic profoundly influenced various aspects, and the health care sector was one of the aspects that



received the most significant impact. The health sector is currently focusing on curbing the rate of transmission of SARS-CoV-2 and improving COVID-19 treatment facilities by employing several strategies, including limitation of hospital services and conversion of hospitals to COVID-19 care centers [5, 6]. The aforementioned strategies might, on the other hand, hamper health services for TB.

Even though the Indonesian government has declared adopting a new normal with the trend of decreasing number of COVID-19 patients, the possibility of facing the new COVID-19 wave is still imminent due to the new COVID-19 variants [7]. This situation might lead to uncertainty in the management of TB. If not adequately mitigated, there is a risk of increased incidence rate, decreased case detection, and increased mortality rate of TB in the country. These problems will ultimately hamper the progress for TB elimination. While curbing SARS-CoV-2 transmission, careful steps and the design of a new strategy for controlling TB are urgently needed during the pandemic to maintain the sustainability of the TB control program. This article outlines the potential threats to the sustainability of the TB control program during the COVID-19 pandemic and alternative strategies that could be applied to the situation.

COVID-19 situation in Indonesia

As of 25 July 2022, the total of confirmed COVID-19 cases in Indonesia was more than six million, with 150.000 deaths [8]. The government initially implemented several strategies to control the disease transmission, including large-scale social restrictions in several cities, particularly in Java and Bali which were regarded as the most populous islands in Indonesia. However, because it was deemed ineffective, the government switched to implementing a strategy of imposing restrictions on community activities. This restriction was only carried out in small areas at the sub-district level, the enforcement of which was determined by the local government. However, these two strategies have not been able to reduce the rate of new COVID-19 cases. Since January 2021, the Indonesian government has started a vaccination program that prioritizes groups of medical personnel. In the second phase, the government planned to administer vaccines to groups of public service workers and the general population. Recently, The Indonesian Ministry of Health (MoH) data showed that the national COVID-19 vaccination program had covered more than 90% of the target population [9].

Disruption of TB services in health care centers during the COVID-19 pandemic

Hospitals and community health centers (known as *Puskesmas* in Indonesia) are the vital components of TB care in Indonesia. Hospitals mainly provide services for drug-resistant TB patients (DR TB) and drug-sensitive TB patients with complications, while *Puskesmas* provides services for drug-sensitive TB without complications. Both also play a vital role in active and passive case finding. Since there has been an increase in COVID-19 patients, various hospitals have changed their function to become COVID-19 referral hospitals. TB patients have limited access to medical services at hospitals or other health centers. In addition, due to many COVID-19 cases, some *Puskesmas* also temporarily stop their services [5]. Disruption of TB-related healthcare services due to the COVID-19 pandemic might bring serious consequences. Considering that the health sector has been overwhelming for a year and probably for some upcoming years before it returns close to normal, proper mitigation of the health service in this situation should be formulated and immediately disseminated and implemented, particularly to the health care facilities throughout the country.

COVID-19 preventive measures in TB care

Attending health care facilities such as hospitals, clinics or *Puskesmas* during a pandemic can be risky for TB patients due to the COVID-19 pandemic [10]. The Indonesian health authority has issued a protocol to ensure the safety of TB care while maintaining its quality during the pandemic. The health care facility has been ordered to implement a new protocol in TB service. The principle is to minimize the interaction between health care workers (HCWs) and the

patients by integrating telemedicine as part of TB care. The face-to-face clinical consultation between the patient and the doctor is only held if necessary. Another strategy is decentralizing drugs except for particular medications such as injection, which must be administered by HCWs, and modification of drug prescriptions for TB patients.

During the COVID-19 pandemic, the protocol requires the TB drugs to be prescribed at intervals of every 14 to 28 days and 28 to 56 days for drug-sensitive TB patients in intensive and continuous phases, respectively. Meanwhile, for drug-resistant TB patients, the drugs are prescribed every seven days and 14 to 28 days for intensive and continuous phases, respectively. The injections can be given in the closest health care facility for resistant TB patients. The protocol also regulates the adequate protective personal equipment (PPE) for the HCWs [11].

Declining of reported TB cases during COVID-19 in public and private health care facilities

The case finding is a vital component in National TB Control Program. During COVID-19, many HCWs are being redirected to treat the COVID-19 cases. As a result, active and passive case finding encounter a serious obstacle. For example, a significant decline in TB case findings as an impact of the pandemic has been reported in Sierra Leone [13]. In addition, a decline in TB control program evaluation during the COVID-19 pandemic also has been reported in San Francisco, California, USA [14]. In Nigeria, the average number of patients being managed for active TB from February to May 2020 also decreased by over 60% [15].

The same phenomenon also occurs in Indonesia. Although there is no official report, the media statement released by the Director of Infectious Disease Control and Prevention of Indonesian MoH showed that the monthly number of TB patients that attended health care facilities fell from 50,000 to around 3,000 patients in June 2020 and this occurred because the patients and hospitals worried about routine check-ups [12].

Both passive and active case finding hardly depends on public hospitals or *Puskesmas*. Due to the COVID-19 pandemic some hospitals and other public health centers temporarily stop the service for TB patients and focus more on COVID-19. As a result, the activities related to case findings also affected. The Indonesian MoH's showed declining the number of health care facilities reporting TB case since the beginning of the COVID-19 pandemic (**Figure 1**) [16]. Between March and June 2020, there was a 40% and 50% decrease in the number of hospitals and *Puskesmas*, reporting TB cases in Indonesia. **Figure 1** depicts the percentage of health care facilities reporting the TB case before and during the COVID-19 pandemic [16].

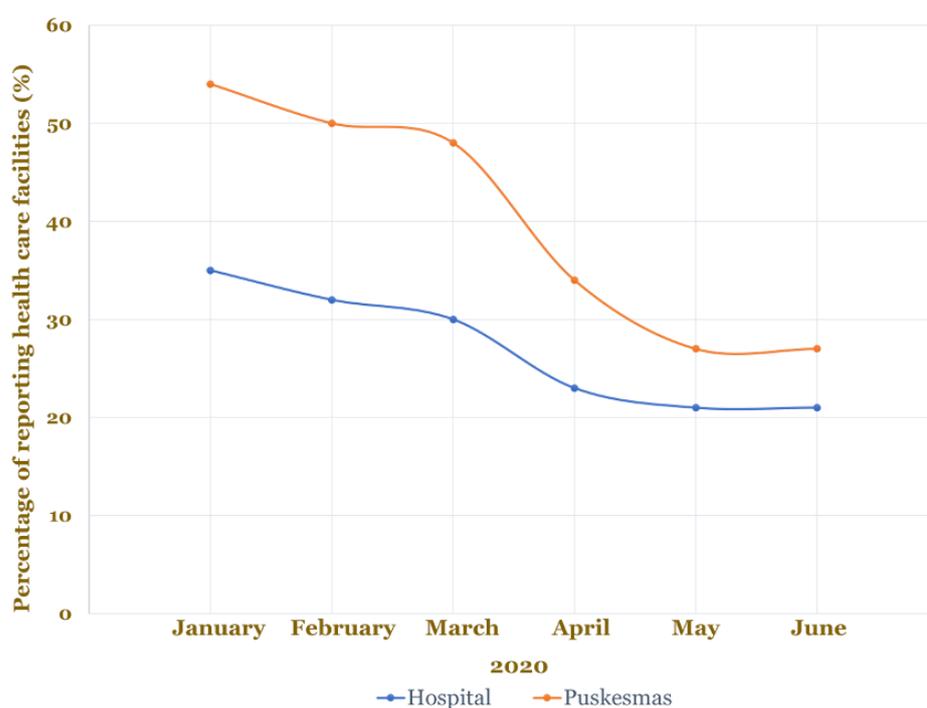


Figure 1. The percentage of healthcare facilities reporting TB cases in Indonesia between January and June 2020.

The problem in integrating information technology in TB care services during COVID-19 pandemic

Treatment monitoring as a component of DOTS is heavily affected during the pandemic due to restrictions on access to hospitals or other health facilities. Some countries may have developed telemedicine or digital medicine as an integrated part of health services. Telemedicine tools such as video observed therapy (VOT) can be used to increase TB patient adherence [17]. However, the approach must be supported by the accessibility of technological resources available to health facilities and patients. A study by Indonesian MoH revealed that 48% of TB staff in hospitals and 70% of *Puskesmas* utilize cellular phones or smartphones to observe the patient's treatment progress [18]. However, this study also highlighted that many patients do not have a telecommunication device. In some areas, the patients do not yet have sufficient resources to run telemedicine systems, either due to a lack of health care facility's information technology (IT) resources or IT resources owned by the patients [18]. Therefore, optimizing the community roles could be an alternative. For example, Aisyiah, a sizeable Muslim organization in Indonesia with a branch almost in all provinces of Indonesia, has contributed to TB control with its TB Care program [19]. During the pandemic, optimizing their roles and other community organization might be an appropriate strategy to overcome the situation. The health care facilities might contact the patients who have problems with telecommunication through the organization cadre in the community. Another approach is optimizing the roles of *bidan desa*, a trained midwife placed in villages for treatment observation that coordinates with the health care facilities. This approach could ensure the continuity of the TB treatment [20].

The urgency of financial support for TB patients during a pandemic

The COVID-19 pandemic has a severe impact on the Indonesian economy. During large-scale social restrictions at several points in Indonesia, economic difficulties were mainly faced by those with low incomes. Although the national healthcare coverage policy is currently in place, TB patients from low economic classes still experience difficulties accessing health services due to limited costs of travel and food costs during treatment [21]. It noteworthy that most TB patients also have suffered from income loss. This problem undoubtedly become more severe during the pandemic when the economic downturn significantly decreased the individual income. Financial problem is one reason for the treatment delay in TB cases [22]. Financial assistance to TB patients and other social protection instruments are substantial to maintain treatment adherence of TB patients during a pandemic.

Conclusions

TB is one of Indonesia's significant public health burdens in which the COVID-19 pandemic aggravated the effects. Hospital conversion and health facility closure due to COVID-19 have disrupted TB care in Indonesia. Although medical personnel resources are absorbed into COVID-19 prevention and treatment, treatment monitoring and case finding by picking the appropriate strategy based on local resources and local wisdom should be optimized. Utilizing IT and the community groups might be the option to maintain the treatment monitoring of TB patients. Immediate holistic evaluation of TB care during the COVID-19 pandemic is required to scale the size of the problem. An appropriate strategy should be implemented to minimize the impact and maintain the sustainability and the quality of the National TB Control Program amid the COVID-19 pandemic.

Ethics approval

Not Applicable

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Conflict of interest

All the authors declare that there are no conflicts of interest.

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Underlying data

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