



Factors related to rational antibiotic prescriptions in community health centers in Depok City, Indonesia



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Summary Irrational antibiotic prescription is common in developing countries, including in Indonesia. The aims of this study were to evaluate antibiotic prescription patterns and the factors related to the rationale for antibiotic prescriptions in community health centers in Depok City, Indonesia. The study employed a cross-sectional design in eleven primary health centers in Depok City, Indonesia. The sample consisted of 28 physicians and 788 oral antibiotic prescriptions, 392 of which were evaluated for rationality according to local guidelines issued by the Ministry of Health Republic of Indonesia from October to December 2012. Data were analyzed with chi-square tests and logistic regression analysis. The most widely prescribed antibiotics were amoxicillin (73.5%) and co-trimoxazole (17.4%). The most frequent diseases were acute pharyngitis (40.2%) and non-specific respiratory infection (25.4%). Approximately 220 of the 392 prescriptions did not meet the criteria for rational antibiotic prescriptions with regard to antibiotic selection (22.7%), duration of administration (72.3%), frequency of administration (3.2%), or duration and frequency of administration (1.8%). Physicians who had attended training for rational drug use were 2.01 times more rational than physicians who had never attended

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training. Physicians with a short working period (i.e., <7 years) were 3.95 times more rational in prescribing antibiotics than physicians who had been working for longer periods (i.e., >7 years). Most antibiotics were prescribed irrationally. Training for rational drug use and length of practice were factors related to the rationality of antibiotic prescriptions. Suitable interventions are urgently required to encourage the rational prescription of antibiotics in the PHCs.

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Introduction

Antibiotics are the most frequently used drugs in health service facilities, and they must be used rationally to provide optimal benefits [1]. The irrational use of antibiotics has negative health consequences, including bacterial antibiotic resistance, treatment inefficiency, increased morbidity and mortality, and increased health care costs [2–4]. However, the rational use of antibiotics remains a significant problem in many countries, especially in developing countries [5–10]. Strategies are needed to effectively address this issue and to avoid the negative consequences of antibiotic misuse. Rational use of medicines requires that “patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community” [11].

The rational use of drugs is associated with several factors, including health care workers, patients, patient load and health care facilities [12,13]. Factors associated with increased drug prescription rationality by prescribing health workers include training for rational drugs, years of practice, and educational background [12,14]. The rational prescription of drugs is also associated with the characteristics of health care facilities, including the availability of treatment guidelines and the availability of drugs [12,13].

The prevalence of infectious diseases in Indonesia is high. The results of The National Basic Health Research in 2013 show that between 2007 and 2013 the prevalence of acute respiratory infection increased from 24.0% to 25.0%, pneumonia from 2.1% to 2.7%, and hepatitis from 0.6% to 1.2%. The prevalence of tuberculosis (TB) was unchanged at 0.4%, while diarrhea and malaria decreased from 9.0% to 3.5% and 2.95% to 1.9%, respectively [14]. The most effective approach for improving medicine use in primary care in developing

countries involves a combination of health personnel education and supervision, consumer education, and ensuring that there is an adequate supply of appropriate medicines [15]. To prevent irrational prescribing, in 2007, the Indonesian Ministry of Health developed strategies and interventions including a rational drug use course, an essential medicine list, and Standard Treatment Guidelines. The guidelines contain systematically developed statements that include recommendations and information to assist physicians and other health care practitioners to make decisions about appropriate health care for 114 diseases, including 63 infectious diseases [16]. However, adherence to clinical guidelines can be low among low- and middle-income countries [9].

Depok is a city bordering Jakarta, the capital of the Republic of Indonesia, with an area of 200.3 km², a population of 1,898,567, and an average population density of 9479 people/km² in 2012. It has 11 sub-district primary health centers (PHCs), each of which supervises 1–3 village community health centers (CHC) [17]. Based on disease pattern data, infectious diseases were the most commonly treated outpatient illnesses in these 11 PHCs in 2008. In these health care centers, 46.22% of all prescriptions were for antibiotics, which is high. The rationality of the prescriptions in dose accuracy, choice of drug, and frequency and duration of administration is unknown [18].

However, research evaluating the factors that influence the use of antibiotics by health providers in low-income countries is rare [19]. In the absence of research on prescribing antibiotics in primary health care centers in Depok, it was necessary to conduct a study to evaluate whether antibiotics were prescribed rationally and whether the prescribing patterns varied depending on the characteristics of the prescriber. The present research aimed to analyze the rationality of antibiotic prescriptions and its relationship with prescriber characteristics across all sub-district PHCs in Depok

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