



Profile of Prescribing Practice at A Referral Hospital in Indonesia Using Who Drug Use Indicators

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Abstract

To promote rational drug use in developing countries, assessment of drug use patterns using the WHO drug use indicators is becoming standard in documenting rational prescribing. The aim of this study was to assess the drug prescription patterns at the Outpatient Pharmacy Department of Sleman District Hospital, using the WHO drug use core indicators. A descriptive cross-sectional survey was conducted. The sample was selected using systematic random sampling of 700 patient encounters were reviewed retrospectively for a one year period from January 2017 to December 2017. Data were collected using an investigator-administered data collection form. The main outcome measured is patterns of drug use measured using WHO core drug use indicators. The data obtained showed that, out of total drugs prescribed (2215), the average number of drugs prescribed per encounter or mean was 3.16 (SD 0.89) with a range between 1 and 4. The percentage of encounters in which an antibiotic prescribed was 15.75%. The Percentage of drugs prescribed by generic name and from a national drug list was 95.66% and 97.78, respectively. The most commonly prescribed forms of antibiotics were amoxicillin 10.74%. The number of drug prescribed shows deviation from the standard recommended by WHO. Drug use evaluation should be done for unnecessary medication. Developing guidelines in place for the optimal and responsible use of antibiotics which could be monitored and feedback provided on a regular basis to prescribers.

Keywords: WHO core drug use indicators; descriptive; prescribing pattern; rational prescribing, pharmacy department; developing countries

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1. Introduction

Rational use of drugs defined as “patients receive medicines appropriate to their clinical needs, in doses that meet their individual requirements at the lowest cost [1, 2]. According to the latest studies, more than 50 % of all medicines are prescribed, dispensed or

sold inappropriately [3, 4]. As a result, patients are unable to follow their treatment plan appropriately.

In the 1993, World Health Organization (WHO) developed standard of drug use indicators to assess the scope for practice in rational drug use in outpatient settings. The core WHO drug use indicators are classified into prescribing, patient-care and facility-specific indicators [2]. These indicators can be applied in various settings of health services study to detect problems in drug prescribing such as unnecessary drug, prescriber more likely to prescribe branded products, over use of antibiotics or injections and prescribing out of essential drugs list. Studies of prescribing practices are potential to detect drug use problems and to formulate later efforts to strengthening rational prescribing behavior. Such studies accompanied with providing feedbacks to prescribers at continuous intervals has been demonstrated to be an effective strategy to optimize the rational use of drugs and also to reduce the costs related problems [5]. Various problems of prescribing including polypharmacy have been revealed in a review study carried out in hospitals of several low income countries [6]. Over use of antibiotics and injections were revealed in a previous study conducted among outpatients in the teaching hospital of Nepal [7]. However, the information on the prescribing practices among medical outpatients in this hospital is lacking.

Since no such study has been carried out selectively in Indonesian outpatient departments (OPDs), therefore the purpose of

this study was to investigate the drug use patterns at general practices in the referral hospital in the Sleman district of Yogyakarta Province, Indonesia. The findings are expected to be used as a baseline study for the healthcare performance as a basis for further follow-up of quality of drug use.

2. Materials and Methods

2.1. Study Setting

The study was conducted at Sleman District Hospital, one of four secondary referral hospitals, in Yogyakarta Province. The Sleman District Hospital, located in the west part of the province, is a 218-bed hospital with all national standard facilities.

2.2. Study Design

The descriptive cross-sectional study was conducted to describe the performance of prescribing practices at the selected polyclinics in OPD at Sleman District Hospital.

The WHO guideline "How to investigate drug use in health facilities," set criteria of the number of encounter should be included. At least 600 encounters to describe the current prescribing practices, with a greater number would be better. We collected 700 prescriptions retrospectively from about 50,000 prescriptions population written for a one year period January 2017 to December 2017. This indicator study is also limited to a sample of polyclinics encounters, representing complexity of health problems in outpatient environment. The sample was selected using a systematic random sampling method, and the sampling unit was patient encounters taking

place at the outpatient health facility for the treatment of acute and chronic illness.

The prescribing indicators measured included were (1) the average number of drugs prescribed per encounter aimed to estimate the degree of poly pharmacy. It was calculated by the total number of different drug products prescribed divided by the number of prescription; (2) proportion of drugs prescribed by generic name is supposed to measure the proportion of generic name compared to all drugs in encounters. It was estimated by the number of drugs prescribed divided by generic name by total number of drugs prescribed; (3) percentage of encounters prescribed with antibiotics. It was to measure the rational use of antibiotics and predict the commonly overused of antiinfective drug therapy. It was calculated by the number of encounters in which an antibiotic was prescribed by the total number of encounters; (4) proportion of drugs prescribed from national essential drug list (NEDL) was calculated to measure the degree to which practices conform to a national drug policy as indicated.

All data were analyzed briefly and then using Microsoft Excel 2013. Descriptive

analysis using frequencies, averages/means, standard deviations and percentages were obtained.

3. Results and Discussion

A total of 2215 drug products were prescribed. Thus, the average number of drugs per prescription or mean was 2.76 (SD 0.89) with a range between 1 and 4. The total number of drugs prescribed by generic name was 2119 (95.66%). An antibiotic was prescribed in 349 patient encounters (15.75%), Almost all drugs prescribed ($n = 2167$, 97.78%) were on the national essential drug list (Table 1).

Of a total of 2215 drugs prescribed, 650 (29.35%) were antibiotics. The most commonly prescribed antibiotics were amoxicillin 238 (10.74%), chloramphenicol 125 (5.64%), ciprofloxacin 98 (4.42%), cotrimoxazole 71 (3.21%), erythromycin 61 (2.75), doxycycline 57 (2.57%) (Table 2).

The average number of drugs per prescription, 2.76, at Sleman District Hospital is slightly higher from acceptable range compared with the standard (1.6-1.8). A possible reason for a high average number of drugs might be due to lack of rational

Table 1. WHO prescribing indicators in outpatient department of Sleman District Hospital.

Prescribing indicators assessed	Total drugs/ encounters	Percentage
Average number of drugs per encounter (mean, SD)	2215	2.76 (0.89)
Percentage of encounter with antibiotics	650	29.35
Percentage of drugs prescribed by generic	2119	95.66
Percentage of drugs from essential drug list	2167	97.78

Table 2. Percentage of encounters with an antibiotic prescribed.

Commonly prescribed antibiotics	Frequency	Percentage (%)
Amoxicillin	238	10.74
Chloramphenicol	125	5.64
Ciprofloxacin	98	4.42
Cotrimoxazole	71	3.21
Erythromycin	61	2.75
Doxycycline	57	2.57
Total	650	29.35

therapeutics training of prescribers, or no prescribing monitoring by authorities. Unethical promotional drug use from pharmaceutical companies to prescribers to prescribe more might be possible [8]. In a similar study performed in Nepal at a teaching hospital, the average number of drugs per encounter was 2.81, which was also beyond of acceptable range [7]. In a study on prescribing patterns in two tertiary hospitals in Pakistan, the average number of drugs per patient was 2.81[9]. A study in community pharmacies in northern district of the State of Tamil Nadu, South India on drug use indicators also found the average number of drugs prescribed per encounter to be 3.7, which is higher to our finding [10]. In the study of drug use patterns in developing countries, the average number of drugs per encounter was high in Nigeria (3.8), low in Nigeria (1.4), and in South Ethiopia (1.8) [10-12]. High number of drug prescribed leads to polypharmacy that can adversely influence treatment outcomes in a way that patients are at a higher risk of adverse events [13]. Similarly, unnecessarily prescribed medicines can put extra financial pressure on patients as well as healthcare budgets [14].

The percentage of drugs prescribed by generic name at Sleman district Hospital, 95.66%, is almost similar with the aim is for 100% [2]. In a similar study carried out at Southern India, the percentage of drugs prescribed by generic name was 3.5%, which is very low compared to the standard and to our finding [10]. A study on drug use indicators in Nigeria also showed the percentage of drugs prescribed by generic name to be 75%, which is lower than our finding of 96% [11]. In systematic review on the studies of developing countries, the percentage of generic drugs prescribed was low in private hospitals but was encouraging in public hospitals and primary health centres [3, 14, 15].

The percentage of encounters in which antibiotics were prescribed at Sleman District Hospital was 29.35%, which is quite higher compared to the standard (20.0%-26.8%). This finding suggests that antibiotic prescribing is derived to be ideal. The slightly high percentage of antibiotics prescribed in our study setting may be due to antibiotics also have been prescribed appropriately as our setting is a secondary referral hospital where the prescribing pattern is complex. However,

drug use evaluation should be done to evaluate whether the antibiotics prescribed appropriately since some people believed antibiotics as “a powerful medicine” which are able to prevent and cure any diseases or symptoms [16]. The most commonly prescribed antibiotics was amoxicilin (10.47%). Our findings on the antibiotic prescription is remarkably less than that reported in Nigeria (75%) [17] and Pakistan (51.5%) [9]. According to Jain’s study of systematic review, 15-25% of antibiotics encountered is expectable in the countries where an infectious disease is more prevalent [4]. However, this result does not indicate that the prescription pattern was better than in other countries since we did not study the clinical condition or diagnosis of the patients.

In our study, we found that injectable medicines were not prescribed. It is likely that injectable medicines were not prescribed because in Indonesia they are more commonly reserved for emergency cases, and in the context of this study, such patients would be managed in emergency departments, and these patients were not included in our study.

The percentage of drugs prescribed from the essential drug list for Sleman District Hospital in the study period, was 97.78%, which is almost identical with the standard (100%). This might be the consequence of more effective and better enforced drug policies in the universal health coverage era, but also can be a lack of very expensive originator branded drugs.

There are limitations which need to be considered. First, our findings should not be

extrapolated to the Indonesia population. The study used the WHO prescribing indicators are designed for use in health centres. The prescribing indicators are less useful in specialty outpatient clinics in referral hospitals where the drug use pattern is more complex. The findings do however add information on medicines use and pharmaceutical health systems in developing countries. It is expected that the practices would be similar to other tertiary care hospitals in Indonesia.

4. Conclusion

Polypharmacy and over-prescribing of antibiotics were the major issues that need attention of the healthcare authorities. WHO recommended core interventions could be implemented on pilot scale to devise policies to achieve long-term benefits. Our findings will benefit policy makers who have an interest in process improvement and service delivery performance. The finding that mean number of drugs 2.76 warrants consideration by policy-makers, who may need to put incentives or legislation in place to ensure better prescribing behaviour. It could be improved on particularly around the potential over-use of antibiotics. Developing guidelines in place for the optimal and responsible use of antibiotics which could be monitored and feedback provided on a regular basis to prescribers. An awareness campaign and incentives could also be put in place to increase the prescribing of drugs by generic name.

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