

The Impact of National Formulary on Cough Medicine Prescribing in Three Primary Health Care in Depok

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ABSTRACT

Objective: To evaluate the use of cough medicine in Acute Respiratory Infections (ARI) patients in three primary health care in Depok in 2015 and suitability with the National Formulary. **Method:** The study design was descriptive analytic with retrospectively data collection from patient's prescription, Primary Health Care Management Information System (SIM-PUS), and Medicine Management Information System (SIPO). Samples are taken from ARI's patients prescription from January until December 2015. The analysis was conducted on the prescription that meets the inclusion criteria quantitatively and qualitatively. Quantitative analysis is expressed in DDD and DDD/1000 patients/day. **Results:** The primary health care that has the biggest quantity of Medicines usage for DDD was in Cipayung (59136, 33g). Then, DDD/1000 patients/day for glyceryl guaia-colate, ambroxol, and dextromethorphan respectively was in Cipayung (14.971g), Limo (1.129 g), and Limo (0,0006g). The primary health care that most suitable with the National Formulary was **Conclusion:** In con-

clusion, all the cough medicine use in ARI patients in the three primary health care facilities in Depok in 2015 was unsuitable according to the National Formulary recommendations. Therefore, cough medicine use is needed to be evaluated further.

Key words: ATC/DDD, Cough, Cough medicine, Depok Primary Health Care, National Formulary.

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INTRODUCTION

A large amount of cough medicine is used by the people of Indonesia. Based on 2008 data from Depok's Public Health Service, the prevalence of patients registered in Depok's primary health care facilities who suffer from cough is 4%.¹⁻³ This number does not include coughs caused by acute respiratory infections (ARIs). The prevalence of patients with ARI, based on the Diagnosis Health Professionals and Complaints of Residents, is 25.0%.⁴ To ensure the health of the Indonesian people, the Indonesian government implemented a national health insurance program. On the implementation of the program, health care facilities were asked to refer to the National Formulary when making decisions about prescribing medicines.^{1,3}

The number of cough medicines for primary health care that are listed in the National Formulary is very limited. One medicine that is in the formulary is codeine 10 mg, to be used as an antitussive.⁴⁻⁶ The National Formulary has a limited inclusion of cough medicine because no evidence has been provided for the broad use of cough medicines. Nevertheless, cough medicine is prescribed in the health facilities. To determine the rational use of medicines in Indonesia, an evaluation can be done using the ATC/DDD classification. The ATC/DDD system classifies the use of medicine therapy to provide a tool to improve the quality of medicine use.⁷⁻⁹ Previous studies on the use of cough medicine in Indonesia are limited. One study assessed the use of cough and cold medicines in paediatric patients under the age of 6 years.¹⁰⁻¹³ Therefore, additional research is needed to evaluate the patterns of medicine use in Indonesia using ATC/DDD.

The general objective of this study was to compare the use of cough medicine in ARI patients in three primary health care facilities in Depok in 2015 based on the classification of ATC/DDD. The specific objectives of

this study are comparing the quantity and the quality of the use of cough medicine in ARI patients in three primary health care facilities in Depok in 2015 expressed in DDD units and DDD/1000 patients/day, which evaluate the suitability of the use of cough medicine in ARI patients in three primary health care facilities in Depok in 2015 with the National Formulary.

METHODS

The study design was cross-sectional using retrospective data from the Primary Health Care Management Information System (SIM-PUS) and the Medicine Management Information System (SIPO). Data were taken from ARI patients' prescription information, which contained cough medicine that has DDD units, in Limo Primary Health Care, Cipayung Primary Health Care, and Bojongsari Primary Health Care, from January 1 through December 31, 2015. The prescription for ARI includes the following disease codes: J00 (acute nasopharyngitis), J01 (acute sinusitis), J02 (acute pharyngitis), J06 (acute upper respiratory tract infection), J18 (bronchopneumonia), and J22 (acute lower respiratory tract infection).

Cough medicine is classified by ATC classification and converted into DDD. The quantity of DDD in three primary health care facilities (Limo, Cipayung, and Bojongsari) was compared by DDD and DDD/1000 patients/day. Quality was compared by suitability of cough medicine with the National Formulary. This research was conducted from February to May 2016.

RESULTS AND DISCUSSION

Total prescriptions written were 124,427, with 22,631 prescriptions for patients with ARI. Of those, 11,481 prescriptions were for adults, and

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11,250 prescriptions were for children. The prescriptions that included cough medicine were 16,913. The method of data collection is shown in Figure 1. The results of the study are reported as follows:

- Demographic and social information
- Medicine use information
- Quantity of medicine used
- Suitability of the medicine according to the National Formulary

Demographic and social information

The total number of patients in Cipayung, Limo, and Bojongsari was 13,667, 7501, and 4731, respectively. The prevalence of male patients with ARIs was 43.29% in Cipayung, 45.72% in Limo, and 46.54% in Bojongsari. The prevalence of female patients with ARIs was 56.66% in Cipayung, 54.27% in Limo, and 53.46% in Bojongsari. As the data show, ARIs were more prevalent in females than in males. According to statistical data of Depok City in 2014, there were more males than females in the population. The prevalence of ARI patients in the age group 0-18 years was 55.17% in Cipayung, 34.70% in Limo, and 57.16% in Bojongsari. The results showed a high prevalence of ARIs in the paediatric population. This could be a result of the immature immune system in children, causing them to be more easily infected.

Total prescriptions written for patients in the BPJS program in Cipayung, Limo, and Bojongsari was 19,193, 8697, and 14,130, respectively. Total prescriptions written for non-BPJS patients in Cipayung, Limo, and Bojongsari was 40,370, 23,356, and 18,680, respectively. The percentage of ARI patients' prescriptions covered by BPJS was 44.189% in Cipayung, 20.57% in Limo, and 42.9% in Bojongsari, and prescriptions not covered by BPJS was 55.82% in Cipayung, 79.43% in Limo, and 57.1% in Bojongsari. The percentage of patients with prescriptions for cough medicine covered by BPJS was 47.86% in Cipayung, 25.14% in Limo, and 46.5% in Bojongsari, and the percentage of cough medicines not covered by BPJS was 52.14% in Cipayung, 74.86% in Limo, and 53.5% in Bojongsari. The primary health care facility with the highest number of prescriptions is

Cipayung Primary Health Care, which provides health care 24 hours a day. Cipayung Primary Health Care has a higher number of patients than does Bojongsari and Limo. The analysis showed that there were more ARI patients who did not have BPJS status than ARI patients with BPJS status. There are still many patients who do not follow the BPJS program, because many people do not know about the program and the procedures for joining it.

Medicine use information

In the three primary health care facilities, the highest medicine use by prevalence were glyceryl guaiakolat, OBH, Ambroxol, and Ambroxol syrup. The results are provided in Table 1. The Limo, Cipayung, and Bojongsari primary health care facilities had the same numbers for prevalence. It is important to mention that dextromethorphan, either in the tablet or syrup form, is not always used in primary health care facilities in Indonesia, and is used little compared with other cough medicines. Dextromethorphan is a precursor group that is used for the pharmaceutical industry, non-pharmaceutical industries, and the development of science and technology.¹⁴

Quantity of Medicine Use

Quantity of Medicine Use in DDD and DDD/1000 Patients/Day

The primary health care facility that had the largest quantity of medicines for DDD use was in Cipayung (59,136.33 g), followed by Limo (34,512.55 g) and Bojongsari (14,771.28 g). The largest quantity of medicine use for DDD/1000 patients/day for glyceryl was Cipayung (14,971 g), which means that 1.497% of patients received prescriptions for glyceryl guaiakolat every day. The largest quantity of medicine use for DDD/1000 patients/day for ambroxol was Limo (1129 g), followed by Cipayung (0,6398 g) and Bojongsari (0,4612 g). The biggest quantity of medicines use for DDD/1000 patients/day for dextromethorphan was Limo (0,0006 g). The results are shown in Table 2.

Table 1: Medicine use

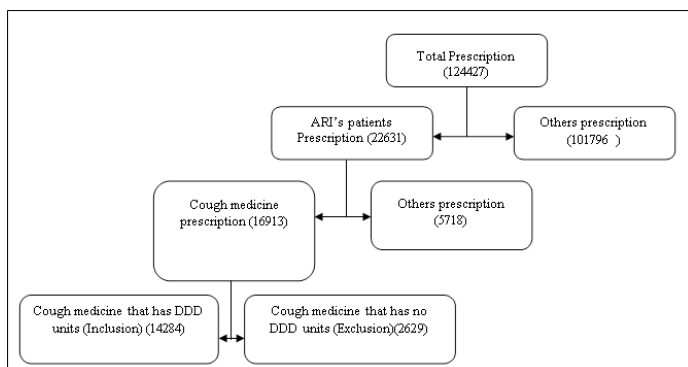
No	Medicine name	Type	Medicine Use in Primary Health Care					
			Limo		Cipayung		Bojongsari	
			BPJS	Non BPJS	BPJS	Non BPJS	BPJS	Non BPJS
1	Ambroxol	Tablet	26400	78610	4341	4730	1124	1294
2	Ambroxol	Syrup	125	374	33	38	8	11
3	Dextromethorphan	Tablet	10	-	-	-	-	-
4	Dextromethorphan	Syrup	-	-	1	-	-	-
5	OBH	Syrup	177	662	775	844	82	89
6	Glyceryl guaiacolate	Tablet	7045	20977	24427	26612	5896	6783

Table 2. The quantity of medicine use in DDD and DDD / 1000 Patient / Day

No	Medicine Name	ATC	DDD (g)			Total DDD (g)	Quantity of Medicine Use in DDD and DDD / 1000 Patient / Day (g)			Total DDD/1000pasien/hari (g)
			Limo	Cipayung	Bojongsari		Limo	Cipayung	Bojongsari	
1	Glyceryl guaiacolate	R05CA03	31135	56710	14087.78	101932.78	10.417	14.971	9.497	34.885
2	Ambroxol	R05CB06	3375.88	2425	683.5	6474.38	1.129	0.6398	0.4612	2.1892
3	Dextromethorphan	R05DA09	1.67	1.33	-	3	0.0006	0.0003	-	0.0009
Total			34512.55	59136.33	14771.28	108410.16				

Table 3: Suitability of the medicine with the National Formulary

No.	Primary health care	Suitability of the medicine with the National Formulary (g)		Percentage (%)	
		Suitable	Unsuitable	Suitable	Unsuitable
1	Limo	-	34512.55	-	100
2	Cipayung	-	9136.33	-	100
3	Bojongsari	-	14771.28	-	100
	Total	-	108410.16	-	100

**Figure 1: Data Collection.**

Suitability of the Medicine with the National Formulary

The amount of medicine found to be unsuitable according to the National Formulary was 34,512.55 g in Limo, 14,771.28 g in Bojongsari, and 9136.33 g in Cipayung. The results are shown in Table 3. The results show that cough medicines are still needed to reduce symptoms despite having no evidential basis. It would be better if the medicine provision in the National Formulary was changed in consideration of the actual situation occurring in the health care facilities. The procurement of medicines in the primary health care facilities is done using e-purchasing and e-catalogues. The use of medicines in the primary health care facilities should be adapted to the standard treatment and in accordance with applicable regulations. If patients need a medicine that is not listed in the National Formulary, then it can be granted if in accordance with the medical indications and the standards of medical services whose cost is included in capitation; the cost should not be passed on to participants.¹⁵

CONCLUSION

In conclusion, all the cough medicine use in ARI patients in the three primary health care facilities in Depok in 2015 was unsuitable according

to the National Formulary recommendations. Therefore, cough medicine use is needed to be evaluated further.

CONFLICT OF INTEREST

There is no conflict of interest.

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