EVALUATION OF RATIONALITY OF DRUG USE BASED ON NATIONAL RATIONAL DRUG USE INDICATORS AT PAAL LIMA PUBLIC HEALTH CENTER PERIOD JANUARY – MARCH 2023

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ABSTRACT

Background: World Health Organization (WHO) estimates that more than half of all drugs in the world are prescribed, dispensed and sold in an inappropriate manner and half of patients use drugs inappropriately, thus enabling irrational drug use. If the drug is used irrationally, it can have a negative impact. The purpose of this study was to evaluate the rationality of drug use at the Paal Lima Public Health Center for the period January - March 2023 based on the National Rational Drug Use (POR) indicator.

Method: This study used an observational method with retrospective data collection, namely prescription data for non-pneumonic acute respiratory infections (ARI), non-specific diarrhea, and myalgia during the period January - March 2023. The data were analyzed descriptively by calculating the use of antibiotics, injections, and the average drug items which were then displayed in percentage form. There were 509 prescriptions for non-pneumonic acute respiratory infections (ARI) cases, 74 prescriptions for non-specific diarrhea cases, and 120 prescriptions for myalgia cases.

Result: The results of the study showed that for the period January - March 2023 it was found that the use of antibiotics in cases of non-pneumonic acute respiratory infections (ARI) was 19.65%, the use of antibiotics in cases of non-specific diarrhea was 35.14%, the use of injections in cases of myalgia was 0%, and the average number of drug items per prescriptions of 3.68 items.

Conclusion: Overall, the rationality of drug use at the Paal Lima Public Health Center has not met the requirements, so it needs to be improved.

Keywords: acute respiratory infections (ARI); diarrhea; myalgia

INTRODUCTION

According to (Kementerian Kesehatan Republik Indonesia, 2011) World Health Organization (WHO) estimates that more than half of all medicines in the world are prescribed, administered and sold inappropriately and half of patients use medicines inappropriately. Rational use of drugs plays an important role in carrying out treatment to achieve a better quality of life and patient welfare (Febrinasari et al., 2021). In the 2020 – 2024 Activity Action Plan (Directorate General of Pharmaceuticals and Medical Devices, 2020) it is stated that Rational Drug Use (POR) has been implemented in community health centers with

increasing numbers. In 2017, 30.3% of districts/cities implemented rational drug use (POR) at community health centers, and in 2019 this increased to 47.08%. However, there are still many community health centers that have not implemented rational drug use (POR) because there are still many community health centers that do not have pharmacy staff.

Previous research conducted by (Prasetyowati, 2020) showed that at the Ngemplak I Public Health Center, rational drug use (POR) indicators were not achieved in cases of non-specific diarrhea. The non-achievement of the National rational drug use (POR) indicator at the Ngemplak II Public Health Center occurred in cases of non-pneumonic acute respiratory infections (ARI)

and non-specific diarrhea. Apart from that, in research conducted by (Astuti, 2020)the results of research were obtained to evaluate rational drug use for 6 months. The results showed that for the Tempel I Public Health Center, the rational drug use (POR) indicator was not achieved in cases of non-pneumonic acute respiratory infections (ARI) for 1 month, as well as in cases of non-pneumonia diarrhea. Especifically for 4 months. For the Tempel II Public Health Center, the rational drug use (POR) indicator was not achieved in cases of non-pneumonic acute respiratory infections (ARI) and non-specific diarrhea for 2 months.

This is evidence that although there has been an increase in rational drug use in community health centers, in reality, irrational drug use can still occur in daily practice and is generally not recognized by clinicians. Therefore, steps are needed to assess whether drug use can be said to be rational.

To evaluate the rationality of drug use in community health centers, the Directorate General of Pharmaceuticals and Medical Devices, Ministry of Health of the Republic of Indonesia has established performance indicators for rational drug use (POR) which are guided by WHO prescribing indicators. The National rational drug use (POR) consists of 4 parameters, namely: the percentage of antibiotic use in non-pneumonia acute respiratory infections (ARI) patients and non-specific diarrhea patients, the percentage of injection use in myalgia patients and the average number of drug items per prescription sheet. These three diagnoses were chosen with the consideration that they are among the 10 most common diseases in Indonesia and so far all three have been considered to have the potential to be treated irrationally (Kementerian Kesehatan Republik Indonesia, 2011).

METHODS

1. Types of research

This research is a quantitative study that uses a descriptive research design conducted retrospectively.

2. Time and Place of Research

This research was conducted during February – May 2023. Data collection was carried out in the pharmacy room of the Paal Lima Public Health Center, Kota Baru Sub-district, Jambi City.

3. Population and Sample

The population used in this study were all prescriptions written by doctors for non-pneumonic acute respiratory infections (ARI), non-specific diarrhea and myalgia at the Paal Lima Public Health Center during the period January – March 2023, totaling 738 prescriptions. in accordance with the predetermined inclusion and exclusion criteria. The samples obtained were 703 prescriptions. In this study, the sample taken was the entire population that met the inclusion criteria and exclusion criteria.

4. Data Collection

The primary data used in this research are the results of observations obtained by researchers based on a form for collection in the form of a drug use form which is modified according to the needs for research data based on the form in the National rational drug use (POR) module. Secondary data used in this research is library data and prescription sheets written by doctors obtained from the Paal Lima Public Health Center during the period January – March 2023.

5. Processing and analysis of data

Data collection, data editing, data entry, data analysis

a. The use of antibiotics in non-pneumonic acute respiratory infections (ARI) is a maximum of 20%

Percentage of antibiotic use in non-pneumonic acute respiratory infections (ARI) =

$$\frac{Number\ of\ antibiotic\ use\ in\ non-pneumonic\ ARI}{Number\ of\ non-pneumonic\ ARI\ cases}\ x\ 100\%$$

b. The maximum use of antibiotics for non-specific diarrhea is 8%

Percentage of antibiotic use in non-specific diarrhea =

$$\frac{Number\ of\ antibiotic\ use\ in\ non-specific\ diarrhea}{Number\ of\ non-specific\ diarrhea\ cases}\ x\ 100\%$$

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c. Use of injections for myalgia is a maximum of 1%

Percentage of injection use in myalgia=
$$\frac{Number\ of\ injection\ used\ in\ myalgia}{Number\ of\ myalgia\ cases} \times 100\%$$

d. The average drug items prescribed (for the 3 diseases mentioned above) is a maximum of 2.6 – 4 items

Average of drug items =
$$\frac{Number\ of\ drug\ items}{Number\ of\ prescription\ sheets}$$

RESULTS AND DISCUSSIONS

1. **Total Antibiotic Use in Non-Pneumonia acute respiratory infections (ARI) Cases for Three Months (Janury – March 2023)**

   Table 1. Total Antibiotic Use in Non-Pneumonia acute respiratory infections (ARI) Cases for Three Months (January – March 2023)

Non-Pneumonia acute respiratory infections (ARI)		
Number of Prescription	Number of Antibiotic Use	Percentage of Antibiotic Use
509	100	19.65%

   The data in table 1 shows data on non-pneumonic acute respiratory infections (ARI) cases at the Paal Lima Public Health Center during January – March 2023. From this data, it was found that the percentage of antibiotic use in non-pneumonic acute respiratory infections (ARI) cases was 19.65%. The tolerance limit for antibiotic use in cases of non-pneumonic acute respiratory infections (ARI) is a maximum of 20% (Direktorat Pelayanan Kefarmasian, 2020). In this way, from the data above it can be seen that the percentage of antibiotic use in non-pneumonic acute respiratory infections (ARI) cases during January - March 2023 at the Paal Lima Public Health Center still meets the specified tolerance limits. According to (Dit. Pengelolaan dan Pelayanan Kefarmasian, 2014) non-pneumonic acute respiratory

infections (ARI) in children who generally receive antibiotics is actually not needed. On the other hand, children who clearly suffer from pneumonia do not receive adequate therapy.

2. **Total Antibiotic Use in Non-Specific Diarrhea Cases for Three Months (January – March 2023)**

   Table 2. Total Antibiotic Use in Non-Specific Diarrhea Cases for Three Months (January – March 2023)

Non-Specific Diarrhea		
Total Prescription	Total Antibiotic Use	Percentage of Antibiotic Use
74	26	35.14%

   In table 2, it is known that the percentage of antibiotic use in cases of non-specific diarrhea during January – March 2023 at the Paal Lima Public Health Center was 35.14%. The tolerance limit for the use of antibiotics in cases of non-specific diarrhea is a maximum of 8% (Direktorat Pelayanan Kefarmasian, 2020). In this way, from the data above it can be seen that the use of antibiotics in cases of non-specific diarrhea during January - March 2023 at the Paal Lima Public Health Center has not met the established tolerance limits. In the 2007 Basic Treatment Handbook at Community Health Centers (Kementerian Kesehatan RI, 2007), it is stated that the basis for treating acute diarrhea is rehydration and improving fluid and electrolyte balance. Therefore, the first step is to determine the degree of dehydration. Based on research conducted by oleh (Lolita *et al.*, 2022), administering antibiotic therapy for non-specific diarrhea needs to consider other supporting data to meet national criteria.

3. **Total Injection Use in Myalgia Cases for Three Months (January – March 2023)**

   Table 3. Total Injection Use in Myalgia Cases for Three Months (January – March 2023)

Myalgia		
Total Prescription	Total Injection Usage	Percentage of Injection Use
120	0	0%

Table 3 shows that the percentage of injection use during January – March 2023 at the Paal Lima Public Health Center was 0%. This means that out of 120 prescriptions, no injections were prescribed in cases of myalgia in Paal Lima Public Health Center. The tolerance limit for using injections in myalgia cases is a maximum of 1% (Direktorat Pelayanan Kefarmasian, 2020). In this way, it can be seen that the percentage of injection usage during January – March 2023 at the Paal Lima Public Health Center obtained at 0% has met the specified tolerance limits. This is in line with research conducted by (Lolita *et al.*, 2022) that there were no injection preparations prescribed for myalgia at the Jetis 1 Bantul Public Health Center during November 2021. Providing therapy in the form of injections can result in high drug procurement costs for the preparations. injection. The increasing cost of procuring injections is due to the very long process required for drugs in injection preparations (Lolita *et al.*, 2022).

4. **Average Total Drug Items per Prescription for Three Months (January – March 2023)**

Table 4. Average Total Drug Items per Prescription for Three Months (January – March 2023)

Cases	Number of Prescriptions	Number of Medicinal Items	Average Medication Items per Prescription Sheet
Non-Pneumonia acute respiratory infections (ARI)	509	1792	3.52
Non-Specific Diarrhea	74	336	4.54
Myalgia	120	358	2.98
Average			**3.68**

From the data in table 4, it is known that the average drug items per prescription sheet for the three cases during January - March 2023 at the Paal Lima Public Health Center is 3.68 items. The average drug items per prescription sheet for cases of non-pneumonia acute respiratory infections (ARI), non-specific

diarrhea and myalgia is 2.6 – 4 items (Direktorat Pelayanan Kefarmasian, 2020). In this way, the average value of medicinal items per prescription sheet during January - March 2023 still meets the specified limits. However, doctors still have a role to prescribe as few drugs as possible and explain their use to patients to increase patient understanding (Dit. Pengelolaan dan Pelayanan Kefarmasian, 2014).

From the overall data that has been obtained, the rational use of medicines at the Paal Lima Public Health Center, which consists of the use of antibiotics in cases of non-pneumonic acute respiratory infections (ARI) and non-specific diarrhea, the use of injections in cases of myalgia and the average of drug items per prescription sheet cannot still be said to be appropriate. This was due to time constraints which meant that researchers only looked at data on prescriptions written by doctors for these three cases. More appropriate data will be obtained if you can see other supporting data such as medical record data and other secondary data. So that later data will be obtained whether the patient was given antibiotics because he experienced non-pneumonic acute respiratory infections (ARI) and non-specific diarrhea without experiencing other bacterial infections, and also experienced myalgia with conditions that required injection.

CONCLUSION

From the research that has been carried out, based on the National Rational Drug Use indicators, it can be concluded that: The percentage of antibiotic use in non-pneumonic acute respiratory infections (ARI) cases for the period January – March 2023 is 19.65%. The percentage of antibiotic use in cases of non-specific diarrhea for the period January –

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March 2023 is 35.14%. The percentage of injection use in myalgia cases for the period January – March 2023 is 0%. The average number of drug items per prescription for the three indicators in the January – March 2023 period is 3.68 items.

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CONFLICT OF INTEREST

From this research, author declare there is no conflict of interest in the manuscript. Due to time constraints, researchers were only able to look at prescriptions. However, further research needs to be carried out to find out whether drug use is rational which can be determined based on other supporting data such as medical record data and other data.

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