Strategy of the Hanlon improvement approach to evaluation of the rational use of antibiotics in ARI patients in community health center, Tanjung Jabung Barat district

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Abstract

Background: Acute respiratory infections is an important public health problem, especially in developing countries. One of the mainstay drugs to overcome this problem is antimicrobials, including antibacterials/antibiotics, antifungals, antivirals, *antiprotozoa*. Various studies have found that around 40-62% of antibiotics are used inappropriately, including for diseases that do not actually require antibiotics. The aim of this study was to evaluate rational drug use.

Method: This research is a non-experimental analytical research with *observational* design *cross sectional* by reviewing the medical records and prescriptions of ISPA patients at the District Health Center. West Tanjung Jabung using the POR method, *Drug Related Problems* (DRPs) PCNE version 9.1, *Gyssen*, as well as improvement strategies using the Hanlon method. The research was conducted at Sukarejo Community Health Center and Merlung Community Health Center in April-June 2023 by taking medical record data with a total of 502 medical records which were used to evaluate antibiotics using the POR, *PCNE* V9.1, *I agree*, as well as Improvement strategies *Hanlon.*

Results: The results of the study obtained the use of antibiotics at the Sukarejo Health Center of 26% with an average prescription of 3.9 prescriptions, while at the Merlung Health Center of 37% with an average prescription of 3.5, with the right indication 100%, the right type of drug 100%, the right dose 100%, the right way of administration 100%, the right duration of use 0%. From the results of the evaluation of antibiotics at the Sukarejo Health Center and Merlung Health Center, a hanlon improvement strategy was obtained by providing solutions to make SOPs (Standard Operating Procedures) and SPM (Standard Medical Guidelines) so that rational use of antibiotics could occur.

Conclusion: The improvement strategy using the Hanlon method is to create Standard Operating Procedures (SOP) and Quality Assurance Standards (SPM) regarding the use of antibiotics and drugs used at Sukarejo Community Health Center and Merlung Community Health Center. And improving Evaluation and Monitoring in Rational Drug Administration.

Keywords: *POR; PCNE V9.1; Gyssens; Hanlon*

INTRODUCTION

The provision of antibiotics in developing countries is very high because infectious diseases still rank as the main health problem. Giving antibiotics that are not according to the rules, namely not according to indications, not the right duration, not the right dose, choosing antibiotics that are not appropriate to the infectious disease can result in side effects of the drug, waste of money and trigger microbial resistance to antibiotics. Antibiotic resistance occurs when antibiotics are no longer available. inhibit or kill bacteria that cause infections because the bacteria have immunity to antibiotics(1).

Acute respiratory infections is an important public health problem, especially in developing countries. One of the mainstay drugs to overcome this problem antimicrobials, including

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antibacterials/antibiotics,antifungals, antivirals ,*antiprotozoal*. Various studies have found that around 40-62% of antibiotics are used inappropriately, including for diseases that do not actually require antibiotics(2). The most frequently prescribed antibiotics are:*Amoxicillin, Cefadroxil*, and *Cotrimoxazole*. In research conducted by Lukali and Michel, it was stated that there was a relationship between doctors who prescribed a lot of drugs and a high rate of doctors prescribing antibiotics(3). Based on 2021 SP2TP Puskesmas data, it was found that the 10 biggest diseases in West Tanjung Jabung Regency show that Acute Respiratory Tract Infections are in second place, with the total number of ISPA patients in West Tanjung Jabung Regency in 2021 reaching 10,686 patients diagnosed with ISPA(4).

Based on data from the 2021 Jambi Provincial Health Service POR report, it shows that the irrational use of antibiotics in ISPA patients was 30.31%, Diarrhea 18.52% and Myalgia 3.78(5). Meanwhile, the tolerance limit for antibiotic use in non-pneumonic ARI patients is 20%, non-specific diarrhea is 8%, and for myalgia is 1%. Meanwhile, the average tolerance limit for drug items per prescription is 2.6%.(6)

METHOD

This research is a non-experimental analytical research with *observational* design *cross sectional* by reviewing the medical records and prescriptions of ISPA patients at the District Health Center. West Tanjung Jabung using the POR method,*Drug Related Problems* (DRPs) PCNE version 9.1,*Gyssen*, as well as improvement strategies using the Hanlon method. The research was conducted at Sukarejo Community Health Center and Merlung Community Health Center in April-June 2023 by taking medical record data with a total of 502 medical records which were used to evaluate antibiotics using the POR, *PCNE* V9.1,*I agree*, as well as Improvement strategies *Hanlon.*

RESULTS

The results and discussion are divided into several sections, namely patient demographic characteristics including age and gender, drug prescribing profile, percentage of prescribing rationality based on National evaluate rational drug indicators, percentage of prescribing rationality based on the five National POR

criteria,*drug related problem* with method PCNE V9.1, as well as evaluating the use of antibiotics using the method *consent*as well as improvement strategies *hanlon* with each Sukarejo health center 502 medical records and Merlung health center 229 which have met the inclusion and exclusion criteria.

Table 1. characteristics including age and gender

N o	Characteristic	Sukarejo ARI Patients	Merlung ARI Patients	Statistics
		Number	Percentage	Number
1	Age			
	5-11 Years	108	39.5%	62
	12-25 Years	49	18%	51
	26-45 Years	64	23.5%	75
	46-65 Years	52	19%	41
	Total	273	100%	229
2	Gender			
	Male	142	52%	115
	Female	131	48%	114
	Total	273	100%	229

Table 2. Percentage of antibiotics given to ARI patients at Sukarejo Community Health Center and Merlung Community Health Center

Nama Puskesmas	Presentase pemberian antibiotik pada pasien ISPA Puskesmas	Presentase Penggunaan Antibiotik pasien ISPA pada Kabupaten Tanjung Jabung Barat 2021	Indikator Nasional POR antibiotik pada pasien ISPA	Signifikan P
Puskesmas Sukarejo	$=\frac{71}{278}x100= 26\%$	30%	<20%	<0,05
Puskesmas Merlung	$=\frac{84}{229}x100\%= =37\%$	30%	<20%	<0,05

In supportive therapy for ISPA patients at the Sukarejo Community Health Center, it was found that Paracetamol was the most commonly used drug among other therapies. This is because according to Cranswick (2000) stated that Paracetamol for 189 patients (68%) was the first line choice for treating fever and pain as an antipyretic and analgesic. Paracetamol is used for mild to moderate pain. Paracetamol is also used because pain and fever are symptoms that are almost always present in all upper respiratory infections.(7), In supportive therapy for ISPA patients at the Merlung Community

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Health Center, analgesics and antipyretics were used up to 151 drugs with a frequency of 134 drugs for paracetamol (58%), diclofenac sodium for 10 drugs (4.3%), mefenamic acid for 4 drugs (1.74) and ibuprofen for 3 drugs (1.3%).

There were 108 antihistamines used, with CTM being 64 drugs (28%), cetirizine being 43 drugs (19%) and loratadine being 1 drug (0.43%). Corticosteroids were 14 drugs (6.11%) consisting of Dexamethasone 9 drugs (4%), Prednisolone 2 (0.87%) and methylprednisolone 3 (1.3%). Next, there are 215 respiratory tract medications (93.8%), consisting of 111 drugs (48.4%) of ambroxol, 115 drugs (Bromhexin, paracetamol, diphenhydramine HCl), and 115 drugs (50.2%) of OBH. 16 drugs (6.9%) and bromhexine 3 (1.3%).

Table 3. indicators ofptions at Sukarejo Community Health Center and Merlung Community Health Center ARI patient prescri

Indicator	Sukarejo	Merlung
Total number of non-pneumonia ARI patients (January-December 2022)	273	229
Number of non-pneumonia ARI patients not given antibiotics	202	145
Number of non-pneumonia ARI patients given antibiotics	71	84

1. Evaluation of Drug Prescribing Based on National POR Criteria

Table 4. indicators of ARI patient prescriptions at Sukarejo Community Health Center and Merlung Community Health Center

Name of Health Center	Percentage of Antibiotic Prescription	Percentage of Antibiotic Use	National Indicator (POR)	Significant (P)
Puskesmas Sukarejo	$=\frac{71}{273}$x100=26%	30%	<20%	<0,05
Puskesmas Merlung	$=\frac{84}{229}$x100% =37%	30%	<20%	<0,05

Table 5. Exact indications for patients at Sukarejo Health Center and Merlung Health Center

Nama puskesmas	diagnosa	Tata laksana	Jumlah kasus	acuan	keterangan	Persentase tepat indikasi
Sukarejo	ISPA	Dengan antibiotik	71	Dengan antibiotik	Tepat indikasi	100%
	ISPA	Tanpa antiotik	202	Tanpa anbiotik	Tepat indikasi	100%
	Total		273			100%
Merlung	ISPA	Dengan antibiotik	84	Dengan antibiotik	Tepat indikasi	100%
	ISPA	Tanpa antibiotik	145	Tanpa Antibiotik	Tepat Indikasi	100%
	Total		229			100%

Apart from being related to the rationality of drug prescribing based on the National POR indicators, this research also evaluates the rationality of drug prescribing based on the National POR criteria. However, this study only evaluated based on 5 of the 14 National POR criteria, namely correct indication, correct type of drug, correct dose, correct method of administration, and correct duration of use. This is because the research data used only consists of patient drug prescriptions and medical records, does not look at clinical conditions, other supporting examinations, and *outcome* patient therapy.

Table 6. Administering the right type of medication

Nama puskesmas	Nama antibiotik	Frekuensi	Tepat/Tidak	Literatur
Sukarejo	Amoksisilin	62	Tepat	*Pharmaceutical care*
	Erytrhomycin	6	Tepat	
	Ciprofloxaxin	1	Tepat	IDI
	Cefadroxyl	1	Tepat	
	Cefixime	1	Tepat	
	Total	71		
Merlung	Amoksisilin	60	Tepat	*Pharmaceutical care*
	Erytrhomycin	5	Tepat	
	Ciprofloxacin	10	Tepat	IDI
	Cotrimoxazole	2	Tepat	
	Cefixime	4	Tepat	
	Cefadroxyl	3	Tepat	
	Total	84		

Table 7. Correct Dosage

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Nama puskesmas	Nama antibiotik	Frekuensi	Tepat/Tidak	Liter
Sukarejo	Amoksisilin	62	Tepat	Pharma ca
	Erytrhomycin	6	Tepat	
	Ciprofloxacin	1	Tepat	ID
	Cefadroxil	1	Tepat	Pedo Pengo
	Cefixime	1	Tepat	Da Pusek
	Total	71		
Merlung	Amoksisilin	60	Tepat	Pharma ca
	Erytrhomycin	5	Tepat	
	Ciprofloxacin	10	Tepat	ID
	Cotrimomaxol	2	Tepat	
	Cefixime	4	Tepat	
	Cefadroxil	3	Tepat	
	Total	84		

Table 8. Distribution of DRPs occurrence in each category

Kode DRPs	Masalah dan Penyebab	Jumlah Kejadian	Presantase (%)
	Pemilihan Obat		
C1.4	Dupikasi yang tidak tepat dari kelompok teraupetik atau bahan aktif	1	0,3%
	Pemilihan dosis		
C3.1	Dosis yang terlalu rendah	108	39,5%
C4.1	Durasi pengobatan teralu singkat	84	30,7%

Kode DRPs	Masalah dan Penyebab	Jumlah Kejadian	Presantase (%)
	Pemilihan Obat		
C1.4	kelompok teraupetik atau bahan aktif	8	3,49%
	Pemilihan dosis		
C3.1	Dosis yang terlalu rendah	51	22,2%
C4.1	Durasi pengobatan teralu singkat	71	31%

Table 8. Qualitative Evaluation of Antibiotic Use Based on Methode Gyssen

Kategori *Gyssens*	Frekuensi Puskesmas Sukarejo	Persen (%)	Frekuensi Puskesmas Merlung	Persen (%)
VI	202	74%	145	63%
V	-	-	-	-
IV A	-	-	-	-
IV B	-	-	-	-
IV C	-	-	-	-
IV D	-	-	-	-
III A	-	-	-	-
III B	71	26%	84	37%
II A	-	-	-	-
II B	-	-	-	-
II C	-	-	-	-
I	-	-	-	-
0	-	-	-	-
Total	**100%**	**100%**	**100%**	**100%**

DISCUSSION

Based on POR calculations for ISPA patients at the Sukarejo Community Health Center, antibiotic use is 26%, which is lower than the average antibiotic use for ISPA patients in West Tanjung Jabung Regency in 2021, namely 30%, but has not yet reached the national indicator set at 20%.(5). However, the results are different from the POR calculation for ISPA patients at the Merlung Community Health Center of 37%, which is still higher than the average use of antibiotics for ISPA patients in West Tanjung Jabung Regency in 2021, which is 30%, while the national indicator is set at 20%(5). Based on statistical results, values are obtained *themselves* <0.05, which means there is a difference between national standards and the results obtained at the Sukarejo Health Center and the Merlung Health Center. Irrational use of antibiotics can increase treatment costs, increase the chance of resistance and increase the possibility of side effects(8). When antibiotics decrease their ability to treat infections so they cannot kill bacteria, this indicates antibiotic resistance. This antibiotic resistance can cause increased costs and length of treatment, increased risk of side effects from multiple drug use and high doses, as well as increased morbidity and mortality(9).

Table 9. Problems and Fixes with the Hanlon Method

Indikator	Masalah	Perbaikan
POR	• Pemberian antibiotik yang melebihi indicator permenkes • Rerata obat	• Solusi Membuat Standar Operasional Prosedur untuk pemberian antibiotik pada pasien ISPA sesuai dengan kondisi pasien dan meminimalisirkan pemberian obat sesuai kebutuhan pasien • Membuat Standar Pedoman Medis (SPM) terkait terapi penyakit yang disusun bersama pihak terkait • Dinas kesehatan melakukan sosialisasi Penggunaan Obat yang Rasional (POR) dengan melibatkan pihak dokter praktek dan apoteker agar tidak terjadi lagi kesalahan informasi. • Dinas kesehatan melakukan monitoring dan evaluasi secara rutin ke puskesmas.
PCNE (V9.1)	• Pemilihan Obat • Pemilihan Dosis ..	• Solusi perbaikan pihak terkait antara dokter dan apoteker melakukan evaluasi internal per triwulan terkait pemilihan obat dan penetapan dosis.
Evaluasi Gyssens	• Durasi pemberian obat terlalu singkat	• Solusi perbaikan melakukan minilokakarya untuk evaluasi penggunaan antibiotik.

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Average number of types of medicine given at Sukarejo Community Health Center and Merlung Community Health Center. The problem of polypharmacy occurs possibly because doctors focus on providing therapy for the symptoms that arise rather than diagnosing the disease. Pressure from patients wanting a quick disappearance of disease symptoms also encourages doctors to prescribe many drugs such as analgesics and antibiotics(10). The Indonesian Ministry of Health determines that the level of polypharmacy in community health centers is categorized as rational if the average number of drugs per patient is 2.6 per prescription.

The Indonesian Ministry of Health sets 2.6/prescription as an indicator of the average type of drug given to each patient. The results of this study exceed the predetermined indicator, but compared to WHO standards which suggest the average number of drugs prescribed for each patient is 1.6 -18, the results of the research above indicate the existence of polypharmacy. Polypharmacy is a large amount of medication in a prescription (with or without a prescription) for inappropriate clinical effects(6). Excessive medication use can stimulate the patient's request to be given multiple medications. If a patient is used to getting a large amount of medication, the patient has a tendency to choose a doctor who will prescribe a lot of medication in the belief that the doctor knows more about the therapy for the disease. Patients will have a tendency to believe that there is a cure for all diseases so that they will demand different drugs for the various symptoms they complain of(11).

EVALUATION OF DRUG PRESCRIBING BASED ON NATIONAL POR CRITERIA

Apart from being related to the rationality of drug prescribing based on the National POR indicators, this research also evaluates the rationality of drug prescribing based on the National POR criteria. However, this study only evaluated based on 5 of the 14 National POR criteria, namely correct indication, correct type of drug, correct dose, correct method of administration, and correct duration of use. This is because the research data used only consists of patient drug prescriptions and medical records, does not look at clinical conditions, other supporting examinations, and*outcome* patient therapy.

Drug prescriptions carried out in the January-December 2022 period at the Sukarejo Community Health Center and Merlung Community Health Center were evaluated based on the five National POR criteria by looking at and comparing the standard guidelines used, namely the Community Health Center and National Formulary, Clinical Practice Guidelines written byIDI, Pusekmas basic treatment guidelines,*Pharmaceutical Care,* In the research results presented previously, it can be seen that the discrepancies in drug prescribing that occurred at the Sukarejo Community Health Center and the Merlung Community Health Center had several similarities even though the number of cases that occurred was somewhat different.

1.1 Exact Indication. The use of antibiotics is said to be an appropriate indication if when treating ARI patients with a diagnosis of cough, cold and fever, antibiotics are not given. But if the fever does not go down for 3 days, antibiotics should be given, there is a possibility of a bacterial infection. Each drug has a unique therapeutic spectrum so that it is said to be an appropriate indication of the disease if the choice of drug is in accordance with the patient's indication of the disease(6). Based on the results of research on patients diagnosed with ISPA at Sukarejo and Merlung Community Health Centers in 2022, the results showed that 100% of patients had correct indications.

The correct selection of antibiotics greatly influences the success of therapy in patients with ARI caused by bacterial infections. Apart from that, the correct use of antibiotics will inhibit and kill the bacteria that cause infection and determine the quality of the therapy carried out. Bacterial resistance to an antibiotic is an example of

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inaccuracy in the use of antibiotics, both in terms of selecting and determining the dose used(12). In this study, the exact indication of the patient's disease was seen by adjusting the choice of drug with the diagnosis stated in the patient's medical record and the standard guidelines used by IDI and*Pharmaceutical Care*.

Correct choice of medication. Efforts to make decisions on drug selection are carried out after the diagnosis has been correctly established so that the drug given to the patient has benefits in accordance with the indications of the disease(6). The appropriate type of drug in this study is seen from the suitability of the type of drug prescribed with the indication of the patient's disease and the standard guidelines used. Apart from that, the age of the patient is also taken into account for several types of drugs which have their own rules regarding their use in adult and pediatric patients. Just like the appropriate indication criteria, in this study the prescription of antibiotics met the standards for ARI patients, such as administering the antibiotic amoxicillin to non-pneumonic ARI patients(13). Rational use of medicines according to WHO is if the patient receives medicines that suit his needs for an adequate period at a price that is affordable for him and society. Determining the number of doses greatly influences the effect of drug therapy(6). The results for determining the dose are based on the guidelines used, namely*Pharmaceutical Care* and IDI for Respiratory Tract Infections.

Right Dosage. Dosage is an important factor in determining the success of a treatment. One of the successes of therapy is administering the correct and rational dose. Using the appropriate antibiotic dose can maximize the action of the drug, so that the desired therapy is achieved(14). In this study, the medication given was said to be at the right dose if the dose size was taken once and daily, and the frequency of the medication stated in the prescription was in accordance with the standard guidelines for use of amoxicillin for

children at a dose of 50 mg/kgBW, the dose was divided into 3 times a day for use. 10 days(15). Meanwhile on*pharmaceutical care* for children, the dose is 20-40 mg/kgBW in 3 parts and for adults it is 500 mg 3 times a day.

1.1 Exact Route. The route of administration of the drug given to the patient greatly influences the effect of drug therapy (Ministry of Health of the Republic of Indonesia, 2011a). The exact route of drug administration in this study was seen from the method and form of drug dosage stated in the prescription from the medical record, taking into account the patient's age and the standard guidelines used. The results of the research at the two Community Health Centers showed that all drug prescriptions fulfilled the criteria for the correct route of drug administration. The prescription data used is a prescription intended for outpatients so that the method of administering the drug is appropriate because the drug is given orally.

Apart from that, the dosage form prescribed also takes into account the patient's age and ability to accept medicinal dosage forms, for example if the patient is a child they will be given a syrup or suspension dosage form and if they are an adult they will be given a tablet dosage form. However, for some cases, such as children and teenagers who cannot swallow tablets, syrup or powder dosage forms are given with dose adjustments according to the patient's age.

1.2 Exact Duration of Use. The duration of drug administration must be appropriate for each disease(6). In this study, it is said that the duration of drug use is appropriate if the duration of drug administration as seen from the amount and frequency of the drug is in accordance with the diagnosis of the disease stated in the prescription and standard guidelines used. The prescription of antibiotics is not in accordance with the guidelines for the management of amoxicillin, ciprofloxacin, erythromycin, cefixime, and cotrimoxaxol, for diseases caused by bacterial infections given for 7-10 days(15).

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Almost all antibiotics are prescribed for use for only 3 days, so the duration of antibiotic use is said to be inappropriate. This is likely to occur because, as stated in the Proceedings of the LXXIV Symposium by the Faculty of Medicine, University of Indonesia (2018), many clinicians argue that the ideal course of antibiotic therapy is 5 days so that resistance does not occur. However, this opinion is not always correct because the length of treatment also depends on the type of infection and the type of antibiotic used, although management guidelines generally recommend giving antibiotics for 7-10 days. For example, the optimal duration of antibiotic use for ARI is 10 days, with a range of 10 to 14 days.(16)

1. DISTRIBUTION OF DRPS INCIDENCE IN EACH CATEGORY OF SUKAREJO COMMUNITY HEALTH CENTER AND MERLUNG COMMUNITY HEALTH CENTER

Drug Selection. Improper duplication of drugs from therapeutic groups and active ingredients (C1.4) Duplication of therapy groups is the existence of several medicinal products used for conditions that only require single drug therapy or drugs with the same active ingredient and mechanism(17). Based on research at the Sukarejo Community Health Center, there was duplication of therapy in 1 patient (0.3%). Research at the Sukarejo Community Health Center found that the problem with administering antipyretics was the category of drug duplication in the form of a combination of paracetamol and ibuprofen, even though in the study it was only given to 1 person. According to research by Richardson and Lakhanpaul (2007), the combination of two antipyretics, paracetamol and ibuprofen alternately every 4 hours, has not been scientifically proven to have a stronger antipyretic or analgesic effect than the use of one type of antipyretic.

D. Qualitative Evaluation of Antibiotic Use Based on Methods*I agree*

1. THE PATIENT'S MEDICAL RECORD IS INCOMPLETE AND CANNOT BE EVALUATED (CATEGORY VI).

In this study, medical records used as research material were selected for data completeness through the inclusion and exclusion criteria used at the Sukarejo Community Health Center and Merlung Community Health Center. A total of 202 medical records at the Sukarejo Community Health Center and 145 medical records at the Merlung Community Health Center did not contain the use of antibiotics, so they could not be continued to the next category.

1. THE ADMINISTRATION OF ANTIBIOTICS WAS TOO SHORT (CATEGORY IIIB).

There were 71 research subjects at the Sukarejo Community Health Center which were included in category IIIb and 84 cases at the Merlung Community Health Center. This subject was given antibiotics for too short a time, namely only three days. For ARI, the antibiotic Amoxicillin is given for three days, but based on systemic antibiotics it is best given for 7-10 days (Jennifer Idris, n.d.). For pharyngitis, the antibiotic Amoxicillin is used for a short period of three days. According to the standard Clinical Practice Guidelines (IDI), the length of antibiotic therapy given to patients with pharyngitis is 10 days and in acute otitis media, antibiotics should be given for 10-14 days(15). Oral antibiotics are usually prescribed for 10 days to ensure the destruction of the invading bacteria so that the invading bacteria can die completely(18).

A. Proposed Improvements with the Hanlon Method

Research that has been carried out at the Sukarejo and Merlung Community Health Centers, the results of calculating indicators for Rational Drug Use in this case ISPA Patients, Incidence*Drug Related Problems (PCNE V9.1)* and evaluation of the use of antibiotics in ISPA patients at the West Tanjung Jabung District Health Center, Improvement of drug administration,

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incidence*Drug Related Problems (PCNE V9.1)* and evaluating the use of antibiotics in ARI patients using the Hanlon method begins with identifying problems and creating solutions related to drug management. Then the problems are prioritized based on scores (weights) on criteria A, B, C and D (PEARL)

Rational drug administration must ensure the safety and well-being of patients from resistance and drug administration errors (inappropriate indication, incorrect patient, incorrect dose, and incorrect frequency). Based on observations and interviews conducted by researchers with several sources at the Sukarejo Community Health Center and Merlung Community Health Center research locations in West Tanjung Jabung Regency, several Rational Drug Administration (POR) problems were found to be resolved with the aim of supporting the success of the government program, namely providing antibiotics to ISPA patients. non-pneumonia in accordance with government programs and minimized*Drug Related Problems* in ISPA patients at Sukarejo Community Health Center and Merlung Community Health Center. The framework for efforts to improve rational drug administration based on identifying problems and solutions that can be implemented at community health centers to overcome existing problems, can be seen as follows:

Table 10. Problems and Improvements with the Hanlon Method

Indicator	Problem	Repair
BY	· Providing antibiotics that exceed the health minister's indicators · Medication average	The solution is to create a standard operating procedure for administering antibiotics to ARI patients according to the patient's condition and minimizing the administration of medication according to the patient's needs Create Standard Medical Guidelines (SPM) related to disease therapy which are prepared together with related parties The health service is conducting outreach on Rational Use of Medicines (POR) by involving practicing
		doctors and pharmacists to prevent misinformation from occurring again. The health department carries out routine monitoring and evaluation at community health centers.
PCNE (V9.1)	· Drug Selection · Dose Selection 1.1.	Improvement solutions for related parties between doctors and pharmacists carry out quarterly internal evaluations regarding drug selection and dosage determination.
Evaluatei I agree	· The duration of drug administration is too short	Improvement solutions conduct mini-workshops to evaluate antibiotic use.

CONCLUSIONS

Based on the results of research that has been carried out on rational drug administration,*Drug Related Problem PCNE V.91,* and evaluate antibiotic use by method *consent* at Sukarejo Health Center and Merlung Health Center, it can be concluded as follows:
1. The use of antibiotics used in ISPA patients at the Sukarejo Community Health Center is 26% while at the Merlung Community Health Center it is 37%, this is still below the national standard, namely the use of antibiotics in non-pneumonia ISPA patients, namely <20%.
2. The antibiotics most commonly used by Sukarejo Community Health Center and Merlung Community Health Center are:*amoxiciline.*
3. The average number of prescriptions at the Sukarejo Community Health Center was 3.9 and at the Merlung Community Health Center was 3.5, while the indicator recommended by the Minister of Health was 2.6 per prescription.
4. The use of drugs with doses that are too low and the treatment duration is too short still often occurs in both Community Health Centers, so gradual monitoring and evaluation is needed from the Community Health Center and the West Tanjung Jabung District Health Service.

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