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Formal Education

- **Universitas Indonesia**, Subspesialis / Konsultan Penyakit Tropik dan Infeksi, Lulus 2013
- **Universitas Indonesia**, Spesialis Penyakit Dalam (Internist), Lulus 2009
- **Universitas Trisakti**, Dokter Umum, Lulus 2002
- **SMP-SMA Kolese Kanisius**, Jakarta, Lulus 1994

Organization

- **Tim Covid-19**, RSPI Puri Indah, 2020 – sekarang
- **Bendahara**, Perhimpunan Ilmu Kedokteran Tropis dan Penyakit Infeksi Indonesia (PETRI) Jakarta, sejak 2016
- **Sekretaris Jenderal (Sekjen)**, Pengurus Pusat Perhimpunan Pengendalian Infeksi Indonesia (PERDALIN), 2016 - 2022
- **Tim Ahli** Pokja Pencegahan dan Pengendalian Infeksi (PPI), Kemenkes RI, sejak 2017
- **Kepala Bagian** Ilmu Penyakit Dalam Fakultas Kedokteran Universitas Trisakti, 2013-2020
- **Pendiri dan Perintis** RASPRO Indonesia Study Group, **Yayasan Pelita RASPRO Indonesia** untuk studi resistensi antimikroba dan penggunaan antimikroba bijak Indonesia
- **Ketua PPI** RSPI Bintaro Jaya
- **Internist-Konsultan**, RSPI Puri Indah, RSPI Bintaro Jaya, dan Tzu Chi Hospital – Pantai Indah Kapuk, Jakarta Utara

Trisakti Annual Medical Practitioner Meeting
AMPM 2023



Prudent Use of Antimicrobial: Introducing the RASPRO Concept a Model of Antimicrobial Stewardship

Ronald Irwanto Natadidjaja

RASPRO Indonesia Study Group

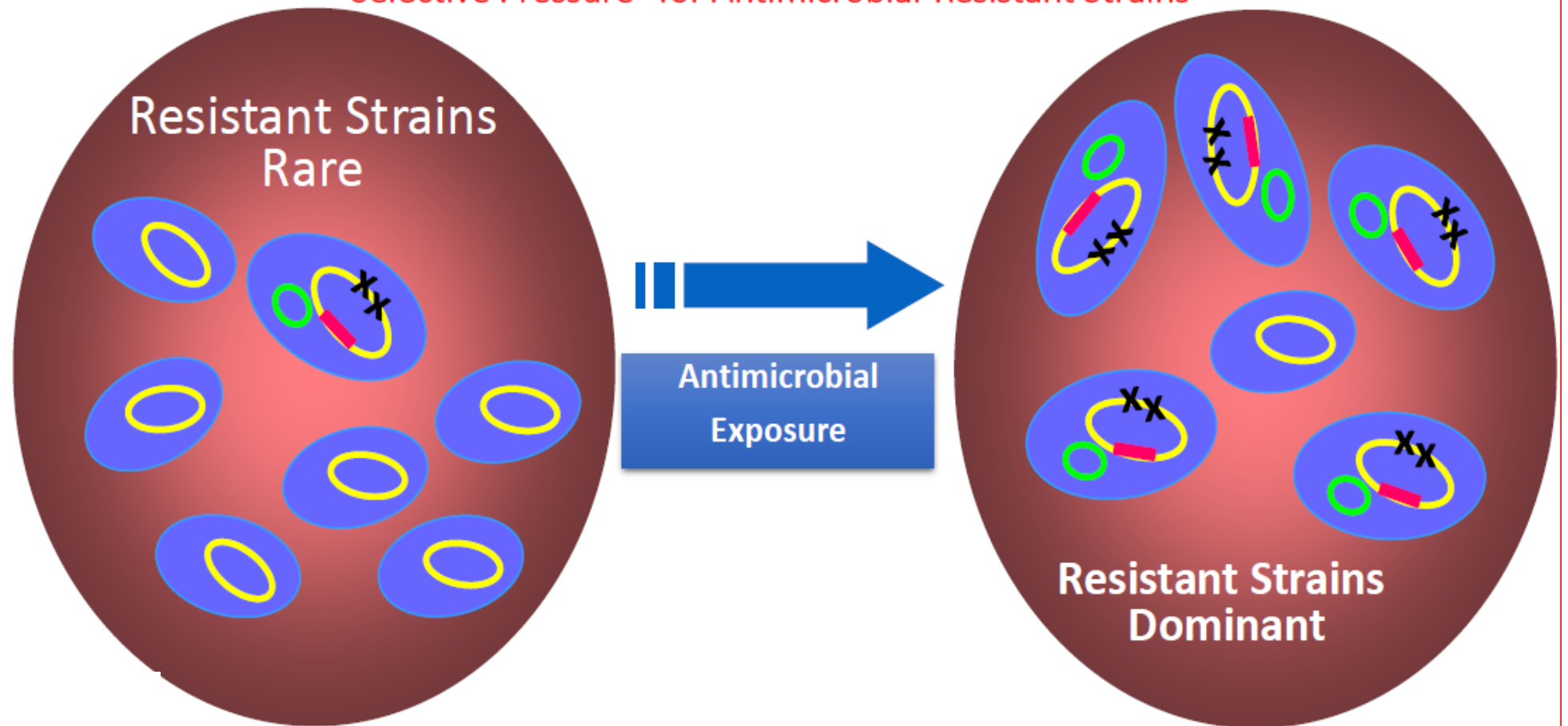
Department of Internal Medicine

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www.new.rasproindonesia.com

Mechanism of Antimicrobial Resistance:
“Selective Pressure” for Antimicrobial-Resistant Strains



WHO- SEARO Webinar Series 6 :

Role of Diagnostics in Antimicrobial Stewardship and Laboratory Surveillance

Risk Stratification based Microorganism Pattern

	Multisensitif		MDR				Prediksi	
	n	%	ESBL		Non ESBL		Sesuai	Tidak Sesuai
			n	%	n	%		
Gram Negatif								
Acinetobacter sp.	0	0,00	0	0,00	4	10,00	4	0
Pseudomonas sp.	0	0,00	0	0,00	7	17,50	7	0
Klebsiella pneumonia	15	26,32	2	22,22	6	15,00	21	2
Escherichia coli	18	31,58	7	77,78	6	15,00	28	3
Citrobacter koseri	0	0,00	0	0,00	1	2,50	1	0
Enterobacter sp.	1	1,75	0	0,00	1	2,50	2	0
Proteus sp.	0	0,00	0	0,00	2	5,00	2	0
Providencia stuartii	0	0,00	0	0,00	1	2,50	1	0
Pantoea agglomerans	1	1,75	0	0,00	0	0,00	1	0
Raoultella ornithinolytica	0	0,00	0	0,00	1	2,50	1	0
Serratia fonticola	1	1,75	0	0,00	0	0,00	1	0
Total	36	63,15	9	100,00	29	72,50	69	5
Gram Positif								
Staphylococcus aureus	4	7,02	0	0,00	1 *	2,50	5	0
Staphylococcus epidermidis	1	1,75	0	0,00	2 **	5,00	3	0
Enterococcus faecalis	4	7,02	0	0,00	2	5,00	5	1
Enterococcus faecium	1	1,75	0	0,00	1	2,50	1	1
Streptococcus sp.	8	14,04	0	0,00	4	10,00	12	0
Staphylococcus sp.	3	5,26	0	0,00	1	2,50	3	1
Total	21	36,84	0	0,00	11	27,50	29	3
TOTAL	57	100,00	9	100,00	40	100,00	98	8

* MRSA ** MRSE

	n	%	n	%	n	%
Multisensitif	54	94,74	3	5,26	57	100,00
MDR	44	89,80	5	10,20	49	100,00

Immunocompromised :

94.74% showed multi-sensitive findings in “NAIVE” medical history, while :

89.80% showed MDR with :

- < 90 days history of antibiotic usage AND / OR
- < 90 days history of hospitalization AND / OR
- < 90 days history of medical devices usage

Journal of Hospital Accreditation, 2021
Vol 03, Edisi 2, hal 114-118



ORIGINAL ARTICLE

Bali Medical Journal (*Bali Med J*) 2021, Volume 10, Number 3: 1031-1036
P-ISSN.2089-1180, E-ISSN: 2302-2914



**The Association between
Medical History-based Risks and Sepsis Events in
Immunocompromised Patients according to
Type III Stratification of the Indonesian Regulation
on the Prospective Antimicrobial System
(Regulasi Antimikroba Sistem Prospektif / RASPRO)**



Ronald Irwanto Natadidjaja^{1*}, Armi Setia Kusuma², Gede Bangun Sudradjad³,
Lies Nugrohowati⁴

Background: The Indonesian Regulation on the Prospective Antimicrobial System (*Regulasi Antimikroba Sistem Prospektif/ RASPRO*) is a novel program. Its role has been reinforced by the Indonesian Ministry of Law and Human Rights Stipulation, which may predict the risk of sepsis events. Our study aimed to evaluate whether the risk factors listed in the *RASPRO* consensus have actual effects on sepsis events.

Method: The study was a retrospective cohort using secondary data with 98 subjects. The subjects were categorized into two groups, i.e., the *RASPRO* group with type III stratification (*RASPRO* Group) and Non-type III stratification *RASPRO* group (Non-*RASPRO* Group). Subjects with infection but with conditions other than the abovementioned criteria were categorized into the Non-*RASPRO* group.

Results: We found that among subjects in the *RASPRO* group, a history of antibiotic use over the past <30 days (OR 3.42; 95%CI 1.32–8.85; p=0.011) and a history of having procedure using medical instruments within the last <30 days (OR 2.62; 95%CI 1.06–6.45; p=0.037) seemed to be greatest risk factors for sepsis events.

Conclusion: The *RASPRO* group has a higher risk for sepsis events than the non-*RASPRO* with a history of antibiotic undergoing a procedure using a medical instrument within the last <30 days possessed the greatest risk factors for sepsis events.



ARUC Score
Shorr et al
Alberti et al
Tumbarelo for ESBL
Duke for ESBL
Gomila et al
Marchaim et al
Carmeli et al
etc

RASPRO Indonesia Patient Risk Stratification

Falcone et al
Shorr et al
Marchaim et al
Carmeli et al
Aliberti et al
Gomila et al
etc



International Journal of
INFECTION CONTROL

ORIGINAL ARTICLE

Antibiotic usage at a private hospital in Central Java: results of implementing the Indonesian Regulation on the Prospective Antimicrobial System (Regulasi Antimikroba Sistem Prospektif Indonesia [RASPRO])

Ronald Irwanto Natadidjaja^{1,2*}, Tarcisius Henry¹, Hadiani Adlani¹, Aziza Ariyani¹ and Rika Bur¹

NO.	SPECIFICATION	FLOW	STOP	TREATMENT	AB
1.	Bacterial infection site(s) & symptoms clearly explained	No	STOP	No AB Treatment	
		Yes	Site(s):		
2.	Sepsis/Febrile Neutropenia/Categorized into HAIs	Yes	STOP	Stratification Type III	
		No			
3.	Organ perforation	Yes	STOP	Stratification Type III	
		No			
4.	Bacterial infection encephalopathy	Yes	STOP	Stratification Type III	
		No			
5.	Immunocompromised and/or uncontrolled DM with history of antibiotic(s) taking in the last 30 days	Yes	STOP	Stratification Type III	
		No			
6.	Immunocompromised and/or uncontrolled DM with history of hospitalization more than 48 hours in the last 30 days	Yes	STOP	Stratification Type III	
		No			
7.	Immunocompromised and/or uncontrolled DM with history of medical devices usage in the last 30 days	Yes	STOP	Stratification Type III	
		No			
8.	Immunocompromised and/or uncontrolled DM with history of antibiotic(s) taking in the last 90 days	Yes	STOP	Stratification Type II	
		No			
9.	Immunocompromised and/or uncontrolled DM with history of hospitalization more than 48 hours in the last 90 days	Yes	STOP	Stratification Type II	
		No			
10.	Immunocompromised and/or uncontrolled DM with history of medical devices usage in the last 90 days	Yes	STOP	Stratification Type II	
		No	Stratification Type I		

AB = Antibiotic
HAIs = Healthcare Associated Infections
DM = Diabetes Mellitus

Fig. 1. RASAL flowchart.

Aztrenonam
Ceftazidime Avibactam
Ceftaroline Fosamil
Ceftolozane Tazobactam

Imipenem cilastatin-
relebactam

Fosfomycin IV
Colistin
Polymixin B
Tygecycline

RESERVED

This group includes antibiotics and antibiotic classes that **should be reserved** for treatment of confirmed or suspected infections due to multi-drug-resistant organisms. Reserve group antibiotics should be treated as “last resort” options.

Quinolones
Azithromycin

2nd , 3rd & 4th Generation
of Cephalosporin

Piperacillin Tazobactam
Carbapenems

Target : $\geq 60\%$ Antibiotics prescription Shift to ACCESS categories

WATCH

This group includes antibiotic classes that have higher resistance potential and includes most of the highest priority agents among the Critically Important Antimicrobials for Human Medicine and/or antibiotics that are at relatively high risk of selection of bacterial resistance. These medicines should be prioritized as key targets of stewardship programs and monitoring. Selected Watch group antibiotics are recommended as essential first or second choice empiric treatment options for a limited number of specific infectious syndromes and are listed as individual medicines on the WHO Model Lists of Essential Medicines.

Ampicillin Sulbactam
Ampicillin
Amoxicillin Clavulanate
Amoxicillin

1st Generation of
Cephalosporin

Amikacin
Gentamycin

ACCESS

This group includes antibiotics that have activity against a wide range of commonly encountered susceptible pathogens while also showing lower resistance potential than antibiotics in the other groups. Selected Access group antibiotics are recommended as essential first or second choice empiric treatment options for infectious syndromes reviewed by the EML Expert Committee and are listed as individual medicines on the Model Lists of Essential Medicines to improve access and promote appropriate use.

AWARE 2021

USAID MEDICINES, TECHNOLOGIES, AND
PHARMACEUTICAL SERVICES (MTaPS) PROGRAM
Improved Access. Improved Services. Better Health Outcomes.

A Technical Guide to Implementing the World Health Organization's AWaRe Antibiotic Classification in MTaPS Program Countries



Goals of AWaRe Categorization: The overall goal is to reduce the use of antibiotics in the Watch and Reserve groups (the antibiotics most crucial for human medicine and at higher risk of resistance) and to increase the use of Access antibiotics where availability is low. The first goal of AWaRe is to have all countries report antibiotic use, through the Antimicrobial Resistance Surveillance System (GLASS), by 2023, and the second is for 60% of global antibiotic consumption to come from medicines in the Access category.⁷ Currently, 65 countries track antibiotic use but only 29 meet the 60% Access national consumption goal.⁸ Evidence shows that meeting the 60% goal will result in not only better use of antibiotics but also reduced costs and increased access. Reaching this threshold by 2023 will contribute to countries' achievement of the health-related Sustainable Development Goals.



Komisi Akreditasi Rumah Sakit

Journal of Hospital Accreditation, 2019
Vol 01, Edisi 2, hal 36-40
Tanggal Publikasi, 31 Juli 2019

Artikel Penelitian

Survei Persepsi Kebutuhan dan Hambatan Rumah Sakit dalam Menjalankan Fungsi Panitia Pengendalian Resistensi Antibiotik

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¹ Fakultas Kedokteran, Universitas Trisakti, Jakarta

² Perhimpunan Kedokteran Tropis dan Penyakit Infeksi Indonesia

³ Pengurus Pusat Perkumpulan Pengendalian Infeksi Indonesia

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Dikirimkan 28 April 2019, Diterima 11 Juli 2019

Hasil: Pada survei ini diperoleh 26.92% dari 156 rumah sakit yang telah menjalankan program PPRA di rumah sakit. 65.38% menyatakan hanya sebagian dokter yang duduk sebagai anggota PPRA mampu melakukan tugasnya. 40.48% dari responden rumah sakit yang telah menjalankan program PPRA mengatakan bahwa tidak adanya sistem implementasi merupakan kesulitan utama dalam menjalankan program PPRA. Sementara 61.90% mengatakan anggota PPRA rumah sakitnya baru setengah mampu melakukan restriksi antibiotik. 93.86% dari 114 responden rumah sakit yang belum menjalankan program PPRA menyatakan saat ini yang paling dibutuhkan adalah konsep yang jelas untuk menjalankan program PPRA.



	Jumlah (n)	Persentase (%)
Persepsi Responden Terhadap Kemampuan Dokter sebagai Anggota PPRA di Rumah Sakit		
Mampu	36	23.0%
Sebagian Mampu	102	65.38%
Tidak Mampu	12	7.69%
Tidak Tahu	6	3.85%
TOTAL	156	100.00%
Persepsi Terhadap Hambatan dalam Pelaksanaan Program di RS yang Sudah Menjalankan PPRA		
Membuat PPAB	8	19.05%
Praktik Implementasi PPAB	17	40.48%
Restriksi Antibiotik	14	33.33%
Evaluasi Antibiotik	3	7.14%
TOTAL	42	100.00%
Persepsi Responden Terhadap Kemampuan Anggota PPRA dalam Melakukan Restriksi AB		
Sepenuhnya Mampu	6	14.29%
Belum Sepenuhnya Mampu	26	61.90%
Belum mampu	9	21.43%
Tidak tahu	1	2.38%
TOTAL	42	100.00%
Persepsi Kebutuhan dalam Pelaksanaan PPRA bagi Rumah Sakit yang Belum Menjalankan PPRA		
Konsep pelaksanaan program yang jelas	107	93.86%
Restriksi Antibiotik	1	0.88%
Evaluasi dan Pelaporan Penggunaan Antibiotik	1	0.88%
Pengambilalihan Tanggung Jawab Pemberian Semua Antibiotik oleh PPRA	5	4.39%
TOTAL	114	100.00%

RONALD IRWANTO^{1,2}, DJOKO WIDODO², AZIZA ARIYANI³, HADIANTI ADLANI²

Journal of Hospital Accreditation, 2019
Vol 01, Edisi 2, hal 36-40
Tanggal Publikasi, 31 Juli 2019



International Journal of INFECTION CONTROL

ORIGINAL ARTICLE

Antibiotic usage at a private hospital in Central Java: results of implementing the Indonesian Regulation on the Prospective Antimicrobial System (Regulasi Antimikroba Sistem Prospektif Indonesia [RASPRO])

Ronald Irwanto Natadidjaja^{1,2*}, Tarcisius Henry¹, Hadiani Adlani¹, Aziza Ariyani¹ and Rika Bur¹

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WHO- SEARO
Webinar Series 6 :

Role of Diagnostics in
Antimicrobial Stewardship
and Laboratory Surveillance

NO.	SPECIFICATION	FLOW	STOP	TREATMENT	AB
1.	Bacterial infection site(s) & symptoms clearly explained	No	STOP	No AB Treatment	
		Yes	Site(s):		
2.	Sepsis/Febrile Neutropenia/Categorized into HAIs	Yes	STOP	Stratification Type III	
		No			
3.	Organ perforation	Yes	STOP	Stratification Type III	
		No			
4.	Bacterial infection encephalopathy	Yes	STOP	Stratification Type III	
		No			
5.	Immunocompromised and/or uncontrolled DM with history of antibiotic(s) taking in the last 30 days	Yes	STOP	Stratification Type III	
		No			
6.	Immunocompromised and/or uncontrolled DM with history of hospitalization more than 48 hours in the last 30 days	Yes	STOP	Stratification Type III	
		No			
7.	Immunocompromised and/or uncontrolled DM with history of medical devices usage in the last 30 days	Yes	STOP	Stratification Type III	
		No			
8.	Immunocompromised and/or uncontrolled DM with history of antibiotic(s) taking in the last 90 days	Yes	STOP	Stratification Type II	
		No			
9.	Immunocompromised and/or uncontrolled DM with history of hospitalization more than 48 hours in the last 90 days	Yes	STOP	Stratification Type II	
		No			
10.	Immunocompromised and/or uncontrolled DM with history of medical devices usage in the last 90 days	Yes	STOP	Stratification Type II	
		No	Stratification Type I		

AB = Antibiotic
HAIs = Healthcare Associated Infections
DM = Diabetes Mellitus

Fig. 1. RASAL flowchart.

RASPRO Indonesia Patient Risk Stratification

Strat. Risk Type III

Falcone et al
Shorr et al
Marchaim et al
Carmeli et al
Aliberti et al
Gomila et al
etc

Group of patient that should give Broad Spectrum
Antibiotic, coverage ESBLs + others
WATCH to **RESERVE**

Strat. Risk Type II

Group of patient that should give anti
ESBLs antibiotic empirically
WATCH

Strat. Risk Type I

Group of patient that should give
Narrow Spectrum antibiotic empirically
ACCESS to **WATCH**



International Journal of INFECTION CONTROL

ORIGINAL ARTICLE

Antibiotic usage at a private hospital in Central Java: results of implementing the Indonesian Regulation on the Prospective Antimicrobial System (Regulasi Antimikroba Sistem Prospektif Indonesia [RASPRO])

Ronald Irwanto Natadidjaja^{1,2*}, Tarcisius Henry¹, Hadianti Adlani¹, Aziza Ariyani¹ and Rika Bur¹

¹RASPRO Indonesia Study Group, Jakarta, Indonesia; ²Infectious Disease Division, Trisakti School of Medicine, Trisakti University, Jakarta, Indonesia



NO.	SPECIFICATION	FLOW	STOP	TREATMENT	FIRST AB	ADVANCE AB
1.	Clinical symptom(s) of infection still present	No	Stop	De-escalation due to the culture result/AB step-down to the lower stratification/switch from IV to oral/AB stop		
		Yes		Site(s):		
2.	Sepsis/Febrie Neutropenia/ Categorized into HAIs	Yes	Stop	Antibiotic escalation to stratification type 3		
		No				
3.	Organ perforation	Yes	Stop	Antibiotic escalation to stratification type 3		
		No				
4.	Bacterial infection encephalopathy	Yes	Stop	Antibiotic escalation to stratification type 3		
		No				
5.	Clinical symptom(s) improved between 3 to 7 days antibiotic treatment	No	Stop	AB escalation to the next stratification/AB added due to the guidelines		
		Yes		De-escalation due to the culture result/AB step-down to the lower stratification/switch from IV to oral/AB stop		

AB = Antibiotic
IV = Intravenous
HAIs = Healthcare Associated Infections

Fig. 2. RASLAN flowchart.

RASPRO	
I. Patient	
Name	
Age	
Gender	
Medical Record Number	
II. Infection Site	
1.	
2.	
3.	
III. Antibiotics	
Type	Start date :
1.	
2.	
3.	
IV. Planning for to Stop Antibiotic	
Type	Stop date :
1.	
2.	
3.	
V. Reason of Prolong Use of Antibiotic	
1.	
2.	
3.	
	Physician / Surgeon,
	Name & Signature

RASPRO	
I. Patient	
Name	
Age	
Gender	
Medical Record Number	
II. Specimen Taken from	
1.	
2.	
3.	
III. Culture Based Antibiotics	
Type	Start date :
1.	
2.	
3.	
	Physician / Surgeon,
	Name & Signature

Fig. 4. RASPRO form.

Decreasing the Broad Spectrum Antibiotics Unit Sold: The Prospective Antimicrobial Stewardship of RASPRO Model in A Private Hospital, Indonesia

Ronald Irwanto Natadidjaja^{**}, Yuhana Fitra^{**}, Yudianto Budi Saroyo^{**}, Augustine Matatula^{**}, Rinna Wamila Sundariningrum

J Antimicrobiol Resist & Inf Control. 2019. 8(suppl 1) : P357

Results.

Three months observation and comparison before-after RASPRO-RASAL flowchart implemented :

0.5g Meropenem unit sold decreased 63.83%, 1g Meropenem decreased 75.42% while Imipenem showed 100% reduction.

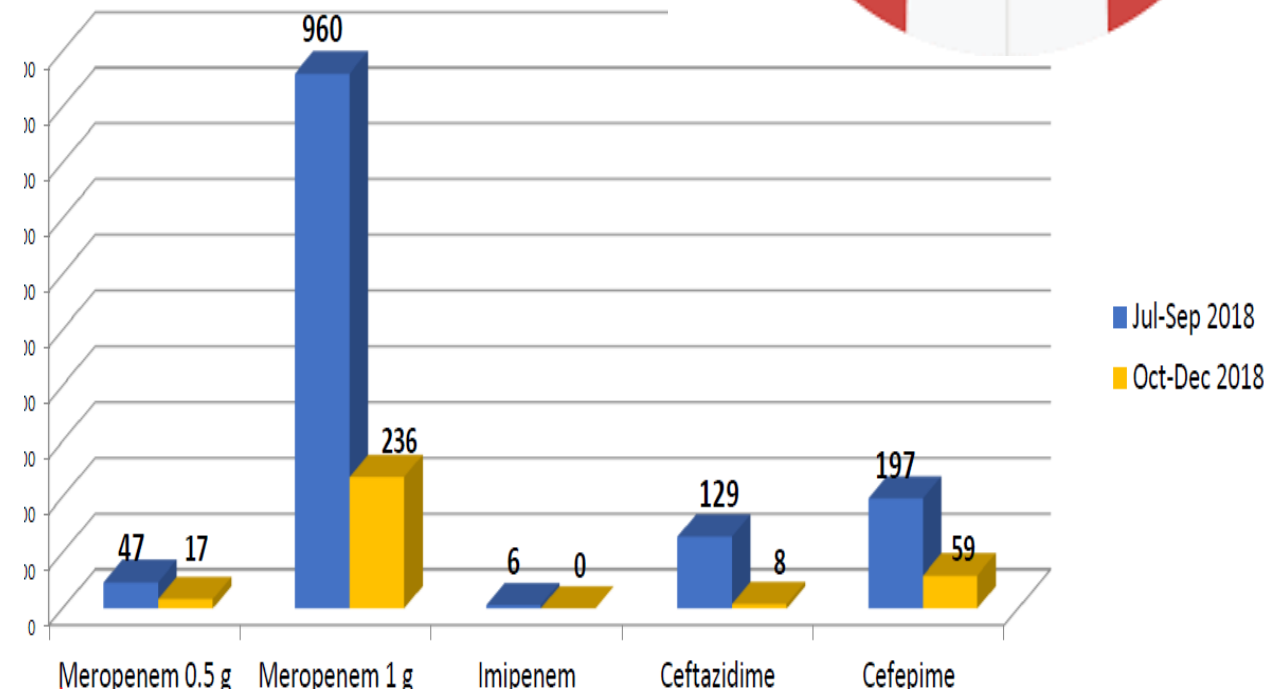
A 93.80% decreasing of Ceftazidime and 70.05% Cefepime unit sold also reported. Overall, we noted 76.10% broad spectrum reduced before-after RASPRO-RASAL implemented.

Conclusion.

Decreasing of broad spectrum antibiotics unit sold was reported in 3 months after RASPRO-RASAL used.

This result might not be a fully improvement of RASPRO-RASAL tools, but in our experience and opinion, this significant result should be considered as part of RASPRO-RASAL implementation.

Antibiotic Quantitative study (AMU) – quality indicator of Antimicrobial Resistance Program (KMK No HK 01.07 / 1128 / 2022)



Comparison of Antibiotic Expenditure 3rd Gen of Cephalosporine and Meropenem Before- After 3 months RASPRO Concept Implemented in a Hospital, Indonesia

Sari Pediatri 2020; 22(2): 109-14

	2018	2019	Penurunan	
	Okt - Des	Jan - Mar	Unit	%
Ceftriaxone	7.887	5.588	2.299	29,15
Cefoperazone	5.699	3.627	2.072	36,36
Cefotaxime	860	649	211	24,53
Cefuroxime	1.068	969	99	9,27
Meropenem	1.196	1.048	148	12,37
Total	16.710	11.881	4.829	28,90

Journal of Hospital Accreditation, 2020
Vol 02. Edisi 4. hal 57 - 62

RONALD IRWANTO NATADIDJAJA^{1,2}, YUHANA FITRA¹, AZIZA ARIYANI¹, RIKA BUR¹, NUGROHO BUDI SANTOSO¹



Qualitative Evaluation of Antibiotic with Gyssens Method by RASPRO Concept for Pneumonia at Pediatric Intensive Care Unit

Rinna W. Sundariningrum,¹ Darmawan Budi Setyanto,² Ronald Irwanto Natadidjaja ³

¹Bagian Ilmu Kesehatan Anak Rumah Sakit Hermina Bekasi, ²Departemen Ilmu Kesehatan Anak Fakultas Kedokteran Universitas Indonesia/RSUPN Dr. Cipto Mangunkusumo, ³Departemen Ilmu Penyakit Dalam Fakultas Kedokteran Trisakti dan Yayasan Pelita RASPRO Indonesia

Background. Pneumonia remains the commonest infective reason for admission to intensive care as well as being the most common secondary infection acquired whilst in the pediatric intensive care unit. Inappropriate use of antibiotics can increase morbidity, mortality, patient cost, and antibiotic resistance.

Objective. To qualitatively evaluate antibiotic use in pneumonia with The Gyssens method by RASPRO concept.

Methods. We performed a descriptive, retrospective study data based on medical records of patients with pneumonia who admitted to the pediatric intensive care unit in Hermina Bekasi Hospital from May to October 2019. Records were evaluation its qualitative antibiotic using the Gyssens method by RASPRO concept.

Result. This study discovered 51 cases (14,46%) of severe pneumonia. We found 119 antibiotics uses including 90 (75,63%) empirical therapies and 29 (24,37%) devinitive therapies. Ampicilin sulbactam was the most common antibiotic used (15,98%), followed by cefotaxime (15,12%), meropenem (13,44%), azithromycin (11,78%) and ceftriaxone (10,92%). Based on Gyssens method by RASPRO concept, appropriate antibiotic use (category 0) accounted for 63,02%, while inappropriate use accounted for 1,68% category IVa (improper; other antibiotics were more effective), 22,69% category IIIa (improper; duration too long), 9,24% category IIIb (improper; duration too short) and 3,36% category IIa (improper; incorrect dose).

Conclusion. Appropriate use of antibiotics showed quite good results, namely 63,03%. The RASPRO concept can be used to reduce subjectivity bias in qualitative antibiotic assessments by the Gyssens method for pneumonia treated in the pediatric intensive care unit.

Antimicrobial Resistance & Infection Control 2023, **12**(Suppl 1):81
<https://doi.org/10.1186/s13756-023-01276-2>

Antimicrobial Resistance
and Infection Control

MEETING ABSTRACTS

Open Access



International Conference on Prevention and Infection Control 2023

A quantitative survey of antibiotic use at a hospital in Jambi Province Indonesia in three-month before and after implementation of antimicrobial resistance control program by Raspro concept

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Antimicrobial Resistance & Infection Control 2023, **12**(Suppl 1):P309

Introduction: Based on Decree of Minister of Health Number 8/2015 in article 11 concerning quality indicators of Antimicrobial Resistance Control Program (ARCP)/Program Pengendalian Resistensi Antimikroba (PPRA) implementation in hospitals, it has been known that reduced quantity of antimicrobial use has become one of those indicators.

Objectives: This survey is a descriptive study using secondary data retrieved between July and September 2019 (3 months before implementation of RASPRO concept) as well as between October and December 2019 (3 months after the implementation), which was aimed to evaluate impacts on implementing *Regulasi Antimikroba Sistem Prospektif (RASPRO)* concept at a hospital in Jambi province, Indonesia.

Methods: The survey was carried out by calculating the expenditure of 3 antibiotic classes, which were the most commonly used and usually given by injection in hospitals and Intensive Care Units (ICU)s, i.e. the beta-lactam, quinolones and carbapenem.

Results: We found reduced use of Ceftriaxone as many as 890 ampules (37.11%), for Cefotaxime the reduction was 580 ampules (67.13%); while the use of Cefoperazone reduced as many as 76 ampules (47.50%) and Ceftazidime reduced as many as 10 ampules (7.14%). The use of Ciprofloxacin reduced as many as 327 ampules (71.40%), but there was a drastic increase in the use of Levofloxacin as many as 59 ampules (> 100%). The use of Carbapenems increased, which included 79 ampules (34.20%) for Meropenem; while the use of Imipenem increased as many as 9 ampules (100%). In three months after the implementation of RASPRO concept, 92.5% prophylaxis antibiotic had been given for appropriate indication and the antibiotic use of Cefazolin 71.3%. Within three months before and after the implementation of RASPRO concept, there was a total reduction of antibiotic use, which reached 1736 ampules (40.57%).

Conclusion: In conclusion, the implementation of RASPRO concept can be executed as an effort to reduce the quantity of antimicrobial use in hospitals. However, larger studies and longer monitoring are required in order to identify the impact of implementation of RASPRO concepts at a hospital.

Disclosure of Interest

None declared.



**BUKU
PANDUAN
e-RASPR**

Antibiotic prudent use system by RASPRO

BY ARTUR

• Clinical

Site of infection :

Bacterial :

“Big Four” : Pneumonia, UTI, SSTI, Intra-Abdominal
Others : Intracranial, Central Line Associated BSIs, etc

Viral :

Upper respiratory tract
Lower respiratory tract – viral pneumonia
GI Tract
Unspecified

• Laboratory

Full Blood Count, CRP, Procalcitonin
Culture Finding

If the infection syndrome caused by viral
Such as : Influenzae, COVID-19, others

→ The Antibiotic would be **RESTRICTED**

1 Choose the antibiotic indication :
Empiric / Definitive
Prophylaxis

2 If we choose empiric / definitive :
Confirmation :
empiric (e-RASAL) or
definitive (e-definitive)

3 If we choose empiric :
Define the bacterial focus of infection

4 Choose the focus of infection
1,2,3 , and more focus of infection can be
covered by the system



**Is Patient Sepsis / Febrile Neutropenia /
Healthcare Associated Infections?
AND / OR**

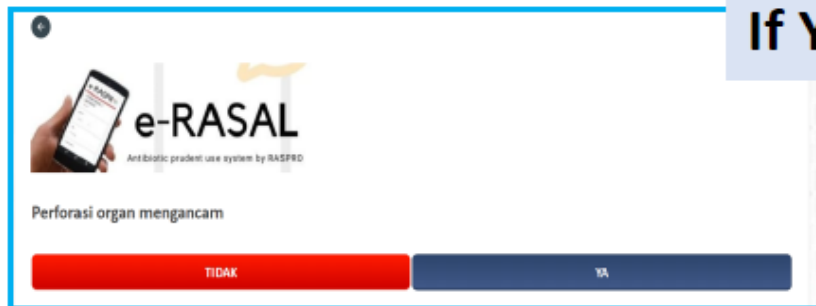
Is there any threatening organ perforation?
AND / OR
Is there any bacterial encephalopathy?

If Yes

Life Threatening

Request by system and local empiric
▶ guidelines for **WATCH** or **RESERVE** Group
Antibiotic

Anti ESBLs / Pseudomonas sp / Anti MRSA
Note : by on site consultation with ASP team



**Is Patient Sepsis / Febrile Neutropenia /
Healthcare Associated Infections?
AND / OR**

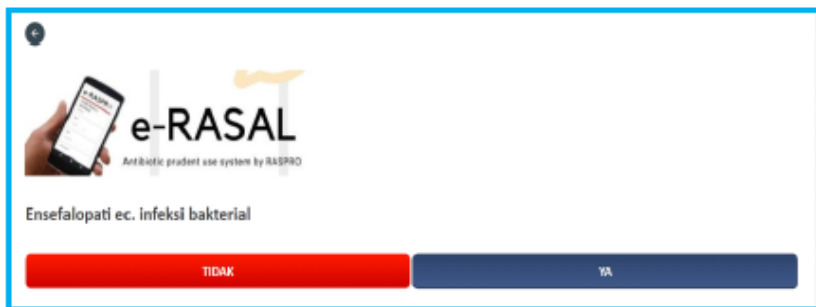
Is there any threatening organ perforation?
AND / OR
Is there any bacterial encephalopathy?

If NO

Define the Patient Risk Stratification

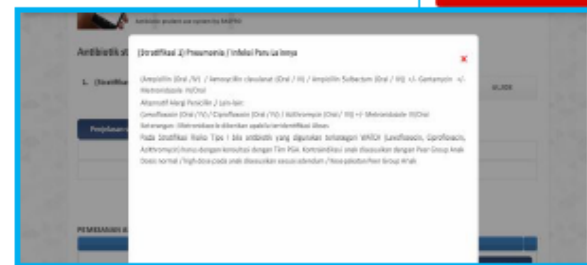
Type 3  Local empiric guidelines :
Type 2  WATCH Group Antibiotic

Type 1  Local empiric guidelines :
ACCESS Group Antibiotic



	TIDAK	YA
--	-------	----

Digital Empiric Antibiotic Guidelines by Patient Risk Stratification (RASPRO Indonesia Model)



TIDAK YA



e-DEFINITIF

Antibiotic prudent use system by RASPRO

Spesimen *

TENTUKAN FOKUS INFEKSI

Antibiotic De-Escalation
Timing
Focus of Infection
Specimen from site of infection

Obat	Detail	
Ampicillin Sulbactam	Frek : 3 Dosis : 1.5 Satuan : gr Track : Drip REGULAR	



Clinicians should “click” here if need to add antibiotic combination or change the empiric antibiotic by Risk Stratification system

PILIH JENIS INFEKSI

Search..

Pneumonia / Infeksi Paru Lainnya

Bakterial Tonsilitis / Abses Peritonsil

Intra Bilier dan Intra Hepatik (termasuk Abses Hati)

Extra Bilier

Typhoid Fever

Disentri Basiler

RASAL
Create Date : 2023-10-13 21:37
Created By : DR. RONALD

Antibiotik stratifikasi tipe I

1. (Stratifikasi 1) Pneumonia / Infeksi Paru Lainnya GUIDE

Antibiotik Yang Ditambahkan :

Obat	Detail
Ampicillin Sulbactam	Frek : 3 Dosis : 1.5 Satuan : gr Track : Drip REGULAR

Obat Dalam Konfirmasi Obat Dibatalkan

Pharmacist screen

Evaluation :

If :

Empiric / Prophylaxis Antibiotic :

Is it Antibiotic ACCESS / WATCH / RESERVE?

Is it proper with local guidelines ?

If :

Definitive :

Check the data Is it Antibiotic ACCESS / WATCH / RESERVE?

Duration of Empiric Antibiotic Usage

De-Escalation to DEFINITIVE Antibiotic

Is the any dose adjusted?

On Site Consultation with ASP team if it's needed



RM : 237
Nama : TN.MIKPO

PERAWATAN SELESAI

DETAIL	13 OKT 23
Ampicillin Sulbactam	Ampicillin Sulbactam 2023-10-13
Frek : 3	☐
Dosis : 1.5	☐
Satuan : gr	☐
Track : Drip	☐
Tipe : REGULAR	
1 Hari	

SUBMIT

Nurse Screen

Watching :

Empiric / Prophylaxis / Definitive

Dose & Duration of Empiric Antibiotic Usage

De-Escalation to DEFINITIVE Antibiotic

Obat	Detail
Ampicillin Sulbactam	Frek : 3 Dosis : 1.5 Satuan : gr Track : Drip REGULAR

e-RASAL

e-RASLAN

e-RASPRAJA

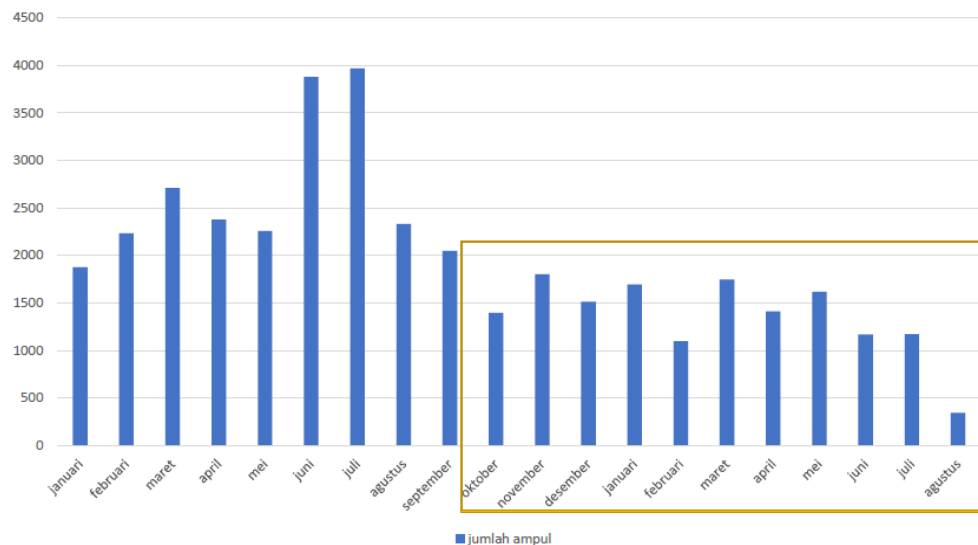
e-RASPATUR

e-RASGRASI

e-PROFILAKSIS

Clinicians should "click" here if the antibiotic use more than time limit. Explain the reason of antibiotic prolong usage. if NOT → Automatic Stop Order (ASO) will be enforced

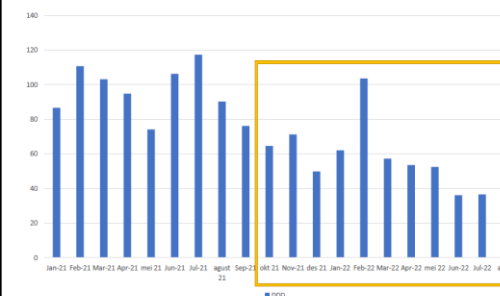
Jumlah Pengeluaran Antibiotik Injeksi Rawat Inap (Ampul)
Periode Januari 2021 – Agustus 2022



Penurunan jumlah
penggunaan AB rawat inap
(ampul) → **43%**

- 23682 amp (9 bulan pre RASPRO) → 13447 amp (9 bulan post RASPRO)
- Jumlah pasien ranap 4215 (9 bulan pre RASPRO) → 4618 (9 bulan post RASPRO)

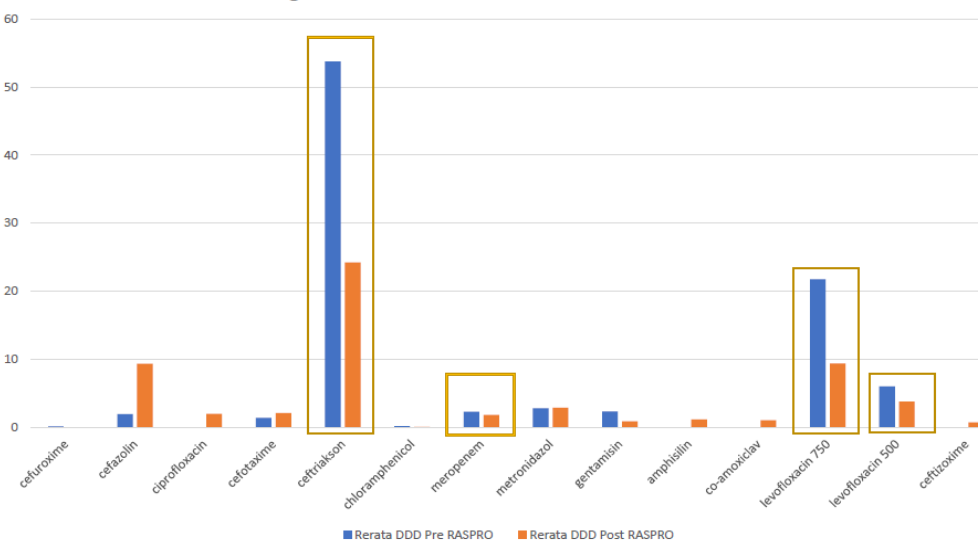
Jumlah Pengeluaran Antibiotik Injeksi Rawat Inap (DDD)
Periode Januari 2021 – Agustus 2022



Penurunan rerata DDD
seluruh antibiotik → **36%**
(9 bulan post RASPRO)

Pasca penerapan
RASPRO

Perbandingan Rerata DDD 9 Bulan Pre dan Post RASPRO



Penurunan AB kategori
“RESERVE”

- Penurunan DDD meropenem → 20%

Penurunan AB kategori
“WATCH”

- Penurunan DDD levofloxacin 750 mg → 57%
- Penurunan DDD levofloxacin 500 mg → 37%
- Penurunan DDD ceftriaxone → 55%

9 Months Before –After Digital ASP Implemented
In a Hospital in Depok : e-RASPRO Model

Documentation

Dr. Iin Indra Pertiwi, SpPD

RASPRO INDOGRAM

World Antimicrobial Awareness Week 2022

PENGUNAAN KUANTITATIF ANTIBIOTIK PROFILAKSIS DESEMBER 2021 (PRA RASPRO)

Permenkes 28/2021
Prophylaxis : **Cephazolin!!**

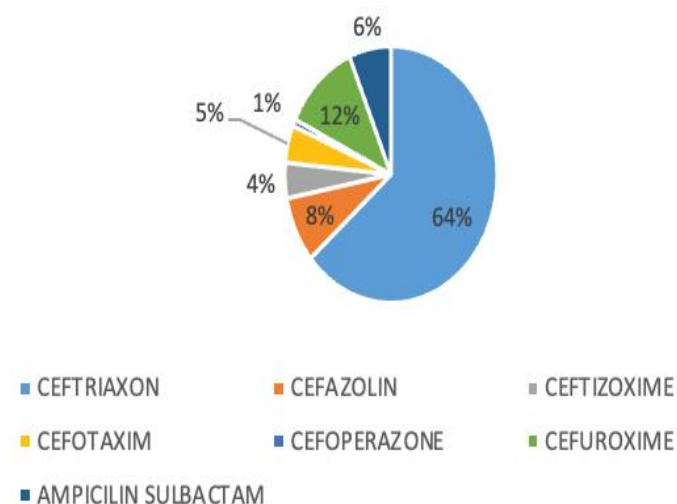
PENGUNAAN AB PROFILAKSIS DESEMBER 2021			
NO	ANTIBIOTIK	TOTAL PENGUNAAN	DDD
1	CEFTRIAXON	298	14,9
2	CEFAZOLIN	39	13
3	CEFTIZOXIME	21	0,53
4	CEFOTAXIM	22	0,55
5	CEFOPERAZONE	4	0,1
6	CEFUROXIME	54	1,8
7	AMPICILIN SULBACTAM	30	7,5

Documentation

Dr. Hadianti Adlani, SpPD, Subsp. PTI

RASPRO INDOGRAM -World Antimicrobial Awareness Week 2022

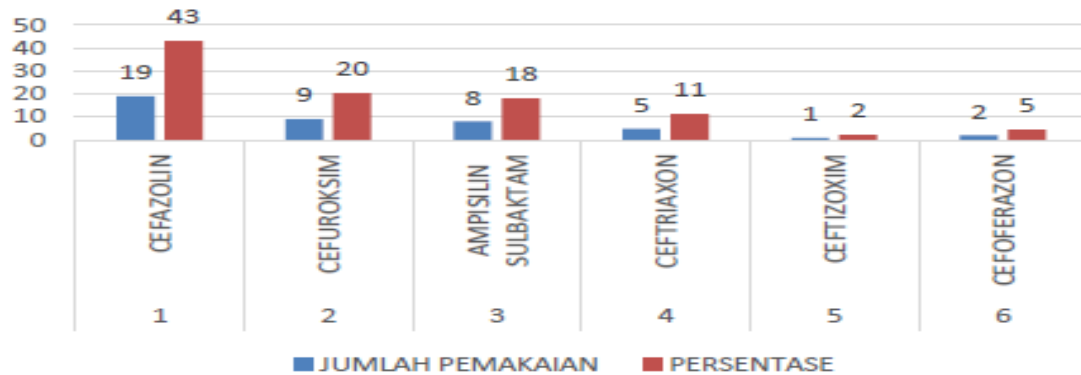
PERSENTASE PENGUNAAN AB PROFILAKSIS DESEMBER
2021



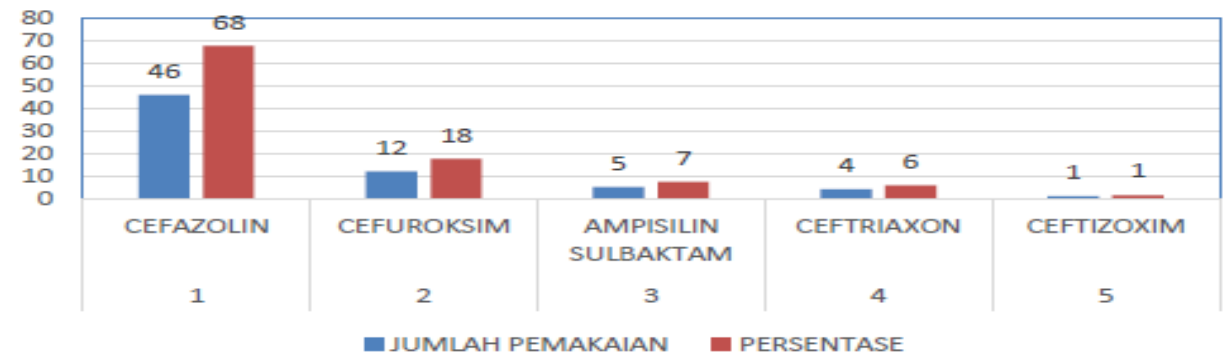
a Hospital in Ciputat : e- RASPRO Model

PENGUNAAN ANTIBIOTIK PROFILAKSIS JANUARI– MARET 2022 (PASKA RASPRO)

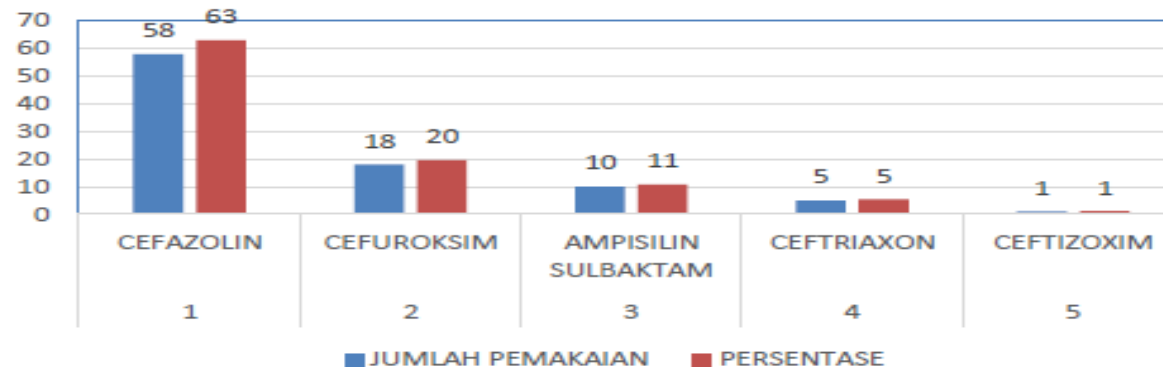
PERSENTASE PENGGUNAAN ANTIBIOTIK
PROFILAKASIS JANUARI 2022



PENGUNAAN ANTIBIOTIK PROFILAKSIS
FEBRUARI 2022



PENGUNAAN ANTIBIOTIK PROFILAKSIS
MARET 2022



a Hospital in Ciputat :
e- RASPRO Model

Documentation
Dr. Hadianti Adlani, SpPD,
Subsp.PTI
RASPRO INDOGRAM
World Antimicrobial Awareness
Week 2022

ORIGINAL ARTICLE

Pengaruh pemberian antibiotik terhadap tanda infeksi daerah operasi superfisial dan lama tinggal pasien *sectio caesaria*

Teulis Sumiartini¹, Dian Ratih Laksmiawati¹, Hesti Utami Ramadaniati¹,
Ronald Irwanto Natadidjaja^{2,3}, Rudi Asmajaya³

ABSTRAK

HASIL

Setelah mengontrol variabel perancu, pemberian antibiotik lanjut pascaoperasi SC tidak signifikan berpengaruh menurunkan kemungkinan munculnya tanda IDO superfisial (OR=0.157; p=0.098; 0.02-1.41 IK 95%), juga tidak memiliki pengaruh terhadap LOS pasien (OR=1.73; p=0.562; 0.27-10.85 IK 95%).

KESIMPULAN

Tidak terdapat pengaruh dari pemberian antibiotik lanjutan terhadap tanda kejadian IDO superfisial dan LOS pada pasien post SC. Pemberian antibiotik lanjutan pascaoperasi SC merupakan pemberian antibiotik yang tidak bijak.

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DOI: 10.18051/JBiomedKes.2021.
v4.5-11

pISSN: 2621-539X / eISSN: 2621-5470

(Influence Administration of Penicillin Prophylactic Antibiotics with Cephalosporins towards The Clinical Signs of Superficial IDO and LOS to SC Patients in Hospital "X")

TEULIS SUMIARTINI*, DIAN RATIH LAKSMITAWATI, HESTI UTAMI RAMADANIATI,
RONALD IRWANTO

Abstract: A hospital "X" in Jakarta has priority obstetrics services with a high birth rate. Sectio caesarea (SC) at the hospital uses prophylactic antibiotics penicillin and cephalosporins to reducing superficial Surgical Site Infection (IDO). Complication of infection can increase prolongs stay patient (length of stay - LOS). The aim of this study is to look the influence administration of penicillin prophylactic antibiotics with cephalosporins towards the clinical signs of superficial IDO and LOS to SC patients in hospital "X". The test sample calculated using a formula of two proportions difference with retrospective data tracing from medical records which are analyzed using the Chi-Square method with the help of Microsoft Excel to determine the influence administration of penicillin prophylactic antibiotics with cephalosporins towards the clinical signs of superficial IDO and LOS. The results showed that the chi-square calculated value in bivariate analysis of prophylactic antibiotics with LOS and clinical signs of IDO are smaller than the Chi-Square table value (Chi-Square table value at degree of freedom (DF) 1 and significance of 0.05 = 3.8415) with a p value greater than 0.05. In conclusion, there is no statistically significant difference in influence between the group receiving penicillin prophylactic antibiotics with the group receiving cephalosporin prophylactic antibiotics towards the clinical signs of superficial IDO and LOS to SC patients in hospital "X".

JURNAL ILMU KEFARMASIAN INDONESIA, Oktober 2021, hlm. 242-247
ISSN 1693-1831, E-ISSN 2614-6495
Vol.19, No.2

In progress publication

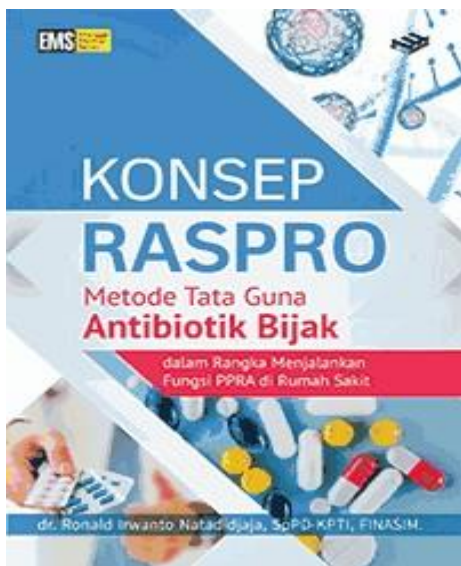
Original Article

A Quantitative Survey on Antibiotic Prescribing Pattern in Three Indonesian Hospitals using Digital Antimicrobial Stewardship Tool (e-RASPRO)

Ronald Irwanto Natadidjaja^{1,2}, Aziza Ariyani¹, Hadiani Adlani^{1,3,4}, Raymond Adianto¹,
Iin Indra Pertiwi⁵, Grace Nerry Legoh⁶, Alvin Rantung⁶, Dianawati⁵, Sri Mulyani⁴,
Ronaningtyas Maharani⁴, Desi Anggiat⁴, Triyoko Septio Marja⁴, Hadi Sumarsono¹

¹RASPRO Indonesia Study Group, ²Faculty of Medicine, Trisakti University, ³Faculty of Medicine, Syarif Hidayatullah Islamic University, ⁴Hermina Hospital Group Indonesia, ⁵Tugu Ibu Hospital, ⁶Advent Bandung Hospital

In progress publication



To 2nd Edition



PANDUAN UMUM

Diagnosis dan Tatalaksana

Kandidiasis Invasif pada Pasien Non Transplantasi

Editor:

Retno Wahyuningsih
Ronald Irwanto Natadidjaja
Robiatul Adawiyah



Penerbit Universitas Trisakti, Jakarta



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