Narasumber:

dr. Ronald Irwanto N., Sp.PD-KPTI, FINASIM
Spesialis Penyakit Dalam (Internist)
Konsultan Penyakit Tropik & Infeksi

Internist – Infectious Disease (ID) Specialist
www.new.rasproindonesia.com

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 - 2023
- **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

New Age of
Antimicrobial Stewardship Spirit

RASPRO concept: a micro design as an effort for developing antimicrobial stewardship system & ecosystem

AWARE Integrated Digital Model

Ronald Irwanto Natadidjaja

Department of Internal Medicine

Faculty of Medicine Universitas TRISAKTI

New Age of
Antimicrobial Stewardship Spirit

AGENDA

New Age of
Antimicrobial Stewardship Spirit

RASPRO indonesia

Futuristic Fashion in Antimicrobial Used - The WHO "Kick of" in 2023

Shifting WATCH to ≥ 60% ACCESS

CHAPTER 1 : Message

RESERVED

Aztrenonam
Ceftazidime Avibactam
Ceftaroline Fosamil
Ceftolozane Tazobactam

Imipenem cilastatin-relebactam

Fosfomycin IV
Colistin
Polymixin B
Tygecycline

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.

WATCH

Quinolones
Azithromycin

2nd , 3rd& 4th Generation of Cephalosporin

Piperacillin Tazobactam
Carbapenems

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.

Target : ≥ 60% Antibiotics prescription Shift to ACCESS categories

ACCESS

Ampicillin Sulbactam
Ampicillin
Amoxicillin Clavulanate
Amoxicillin

1st Generation of Cephalosporin

Amikacin
Gentamycin

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

World Health Organization

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.

It is sometimes difficult to draw a direct relationship between system interventions and their effects. In the hospital sector, many of the studies of the efficacy of AMS have reported on structural and process measures (such as the presence of guidelines and reduction in antimicrobial use)

McGowan JE. Antimicrobial stewardship: the state of the art in 2011 – focus on outcome and methods. Infect Control Hosp Epidemiol 2012;33(4):331–7. 7.

MacDougall C, Polk R. Antimicrobial stewardship programs in health care systems. Clin Microbiol Rev 2005;18(4):638–56.

Faculty of Medicine Universitas Trisakti – RASPRO Indonesia

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

RONALD IRWANTO[1,2], DJOKO WIDODO[2], AZIZA ARIYANI[3], HADIANTI ADLANI[2]

[1] Fakultas Kedokteran, Universitas Trisakti, Jakarta
[2] Perhimpunan Kedokteran Tropis dan Penyakit Infeksi Indonesia
[3] Pengurus Pusat Perkumpulan Pengendalian Infeksi Indonesia

Email korespondensi: ronald.irwanto@yahoo.com
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 WIDODO[2], AZIZA ARIYANI[3], HADIANTI ADLANI[2]

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

LAPORAN PENELITIAN

Pengaruh Pemberian Antibiotik berdasar Panduan terhadap Lama Tinggal pada Pasien Pneumonia Komunitas di Rumah Sakit

Antibiotic Treatment based on Guidelines for Reducing Length of Stay (LOS) in Patients with Community Acquired Pneumonia (CAP)

Fetri Charya Munarsih[1], Ronald Irwanto Natadidjadja[2], Syamsudin[1]

[1]Fakultas Pasca Sarjana Farmasi, Universitas Pancasila
[2]Departemen Ilmu Penyakit Dalam Fakultas Kedokteran, Universitas Trisakti

ABSTRTACT

Introduction. *Community acquired pneumonia (CAP) now is known as the most common infection presented. Empiric antibiotic administered followed by observing parameters. This study aimed to know how far the American Thoracic Society/ Infectious Disease Society of America (ATS/IDSA) antibiotic guidelines 2007 based treatment influenced the length of stay (LOS) of CAP subject in a private hospital ward between January 2014-August 2015*

Methods. *A retrospective cohort was conducted with bivariate analysis and multivariate analysis for reducing the confounding factor. Sample taken with proportional sampling formula at ward in a hospital in Jakarta.*

Results. *The result showed that subjects with unproper empiric antibiotic based on ATS/IDSA 2007 guidelines tent to have hospital prolong stay 10.25 times (p <0.001) than others with proper on ATS/IDSA empiric antibiotic guidelines.*

Conclusion. *By this result, we observed a very significant statistic result difference in LOS between a group with proper empiric antibiotic based on ATS/IDSA 2007 guidelines and other who unproper.*

Tabel 2. Hasil analisis bivariat

Variabel	Lama rawat		Nilai p	OR (IK 95%)
	<5 hari, n (%)	>5 hari, n (%)		
Kesesuaian pemberian antibiotik				
Sesuai	38 (77,6)	11 (22,4)	< 0,001	10,65 (4,18-27,13)
Tidak	12 (24,5)	37 (75,5)		
Geriatric				
Ya	25 (44,6)	31 (55,4)	0,145	0,55 (0,24-1,23)
Tidak	25 (59,5	17 (40,5)		
Diabetes melitus				
Ya	19 (44,2)	24 (55,8)	0,231	0,61 (0,27-1,37)
Tidak	31 (56,4)	24 (43,6)		
Keganasan				
Ya	8 6 (1,5)	5 (38,5)	0,415	1,64 (0,50-5,41)
Tidak	42 (49,4)	43 (50,6)		
Imobilisasi				
Ya	7 (35,0)	13 (65,0)	0,108	0,44 (0,16-1,22)
Tidak	43 (55,1)	35 (44,9)		

Tabel 3. Analisis multivariat

Variabel	Nilai p	OR (IK 95%)	Perubahan OR (%)	Validitas	Presisi
Kesesuaian + *Geriatric* + DM + Imobilisasi	<0,001	11,18 (4,14-30,21)	-	Valid	26,07
Kesesuaian + *Geriatric* + DM	<0,001	11,34 (4,31-29,83)	1,4	Valid	25,52
Kesesuaian + *Geriatric* + Imobilisasi	<0,001	10,96 (4,09-29,31)	-2,0	Valid	25,22
Kesesuaian + DM + Imobilisasi	<0,001	10,66 (4,02-28,28)	- 4,7	Valid	24,26
Kesesuaian + *Geriatric*	<0,001	11,05 (4,25-28,74)	- 1,1	Valid	24,49
Kesesuaian + DM	<0,001	11,07 (4,27-28,70)	- 1,0	Valid	24,43
Kesesuaian + imobilisasi	<0,001	10,25 (3,93-26,71)	- 8,3	Valid	22,78
Kesesuaian	<0,001	10,65 (4,18-27,13)	- 4,7	Valid	22,95

Keterangan: DM = diabetes melitus

Tabel 4. Simpulan analisis bivariat dan multivariat

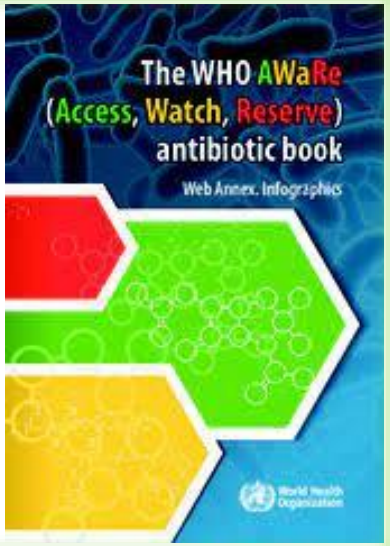
Variabel	Lama Rawat		Bivariat		Multivariat	
	<5 hari, n (%)	>5 hari, n (%)	Nilai p	OR (IK 95%)	Nilai p	OR (IK 95%)
Kesesuaian						
Sesuai	38 (38,8)	11 (11,2)	<0,001	10,65 (4,18–27,13)	<0,001	10,25 (3,93–26,71)
Tidak	12 (12,2)	37 (37,8)				

New Age of
Antimicrobial Stewardship Spirit

RASPRO indonesia

What is RASPRO Indonesia Concept?

Making Empiric Guidelines : RASPRO Indonesia Risk Stratification Type 1, 2, and 3 related AWARE



CHAPTER 2 : Effort

3 I

PMK 8 / 2015
KMK No.HK 01/07 / 1128/ 2022 –PKPO 8.0/ PKPO 8.1

INFRA STRUCTURE

Director's Decree

Antimicrobial Resistance Watch Committee (ARWC) – Antimicrobial Stewardship Team

ARWC :
Clinicians, Nurse, IPC, Pharmacist,
Pharmacy & Therapy committee
Laboratory Doctors,

Diagnostic Laboratory

IMPLEMENTATION

Antimicrobial Guidelines
Internal Customize System

Education
Socialization

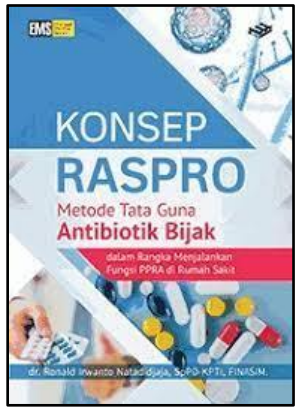
INDICATOR

Quantity of Antimicrobial Use (DDD / Units)
Quality of Antimicrobial Use (Gyssens)
Surveillance
Integrated Case Assessment (FORKIT)

FEED BACK

Internal Customize System : Translating from a MACRO Concept into a MICRO CONCEPT

MACRO Concept



MICRO Design

RASPRO Concept is about how to run the MACRO Concept that have been established by the Ministry of Health

RASPRO Concept is not a national policy but rather an effort for implementing the national policies within hospitals

	Jumlah (n)	Persentase (%)
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Pemahaman Tanggung Jawab Pemberian Semua Antibiotik oleh PPRA	5	4.39%
TOTAL	**114**	**100.00%**

Just a Random Survey!!

Micro-Concept is a needs?

RONALD IRWANTO[1,2], DJOKO WIDODO[2], AZIZA ARIYANI[3], HADIANTI ADLANI[2]

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

KEPUTUSAN MENTERI HUKUM DAN HAK ASASI MANUSIA REPUBLIK INDONESIA
NOMOR AHU-0008745.AH.01.04.Tahun 2020
TENTANG
PENGESAHAN PENDIRIAN BADAN HUKUM
YAYASAN PELITA RASPRO INDONESIA

Menimbang : a. Bahwa berdasarkan Permohonan Notaris RR. YULIANA TUTIEK SETIA MURNI, SH., MH. , sesuai Akta Notaris Nomor 02, tanggal 08 Juni 2020 yang dibuat oleh Notaris RR. YULIANA TUTIEK SETIA MURNI, SH., MH. tentang Pengesahan Badan Hukum Yayasan PELITA RASPRO INDONESIA tanggal 08 Juni 2020 dengan Nomor Pendaftaran 5020060831100248 telah sesuai dengan persyaratan Pengesahan Badan Hukum Yayasan;

b. Bahwa berdasarkan pertimbangan sebagaimana dimaksud dalam huruf a, perlu menetapkan keputusan Menteri Hukum dan Hak Asasi Manusia tentang Pengesahan Badan Hukum Yayasan PELITA RASPRO INDONESIA;

M E M U T U S K A N :

Menetapkan :

KESATU : Memberikan pengesahan badan hukum:
YAYASAN PELITA RASPRO INDONESIA
berkedudukan di JAKARTA BARAT sesuai Akta Notaris Nomor 02, tanggal 08 Juni 2020 yang dibuat oleh Notaris RR. YULIANA TUTIEK SETIA MURNI, SH., MH. berkedudukan di JAKARTA PUSAT.

KEDUA : Keputusan ini berlaku sejak tanggal ditetapkan.

Ditetapkan di Jakarta, Tanggal 08 Juni 2020.

a.n. MENTERI HUKUM DAN HAK ASASI MANUSIA
REPUBLIK INDONESIA
DIREKTUR JENDERAL ADMINISTRASI HUKUM UMUM,

Cahyo Rahadian Muzhar, S.H., LLM.
19690918 199403 1 003

DICETAK PADA TANGGAL 08 Juni 2020
DAFTAR YAYASAN NOMOR AHU-0011446.AH.01.12.Tahun 2020 TANGGAL 08 Juni 2020
"Keputusan Menteri ini dicetak dari SABH"
Notaris di Jakarta

R/. E. TUTIEK SETIA MURNI, SH., MH.

REPUBLIK INDONESIA
KEMENTERIAN HUKUM DAN HAK ASASI MANUSIA

SURAT PENCATATAN CIPTAAN

Dalam rangka pelindungan ciptaan di bidang ilmu pengetahuan, seni dan sastra berdasarkan Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta, dengan ini menerangkan:

Nomor dan tanggal permohonan	: EC00201850226, 19 Oktober 2018
Pencipta	
Nama	: **Ronald Iswanto**
Alamat	: Jl. Kota Baru No. 6, RT015/RW006, Jakarta Pusat, Dki Jakarta, 10150
Kewarganegaraan	: Indonesia
Pemegang Hak Cipta	
Nama	: **Ronald Iswanto**
Alamat	: Jl. Kota Baru No. 6, RT015/RW006, Jakarta Pusat, Dki Jakarta, 10150
Kewarganegaraan	: Indonesia
Jenis Ciptaan	: **Buku Panduan/Petunjuk**
Judul Ciptaan	: **Konsep RASPRO : Metode Tatagana Antibiotik Bijak Dalam Rangka Menjalankan Fungsi PPRA Di Rumah Sakit**
Tanggal dan tempat diumumkan untuk pertama kali di wilayah Indonesia atau di luar wilayah Indonesia	: 28 Juli 2018, di DKI Jakarta
Jangka waktu pelindungan	: Berlaku selama hidup Pencipta dan terus berlangsung selama 70 (tujuh puluh) tahun setelah Pencipta meninggal dunia, terhitung mulai tanggal 1 Januari tahun berikutnya
Nomor pencatatan	: 000121541

adalah benar berdasarkan keterangan yang diberikan oleh Pemohon.
Surat Pencatatan Hak Cipta atau produk Hak terkait ini sesuai dengan Pasal 72 Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta.

a.n. MENTERI HUKUM DAN HAK ASASI MANUSIA
DIREKTUR JENDERAL KEKAYAAN INTELEKTUAL

Dr. Freddy Harris, S.H., LL.M., ACCS.
NIP. 196511151994031001

Implementing the Antimicrobial Stewardship Program (ASP) is a global issue for declining the risk of resistant pathogens appearance.

World Health Organization (WHO) campaign 3 categories of antimicrobial agents: ACCESS, WATCH, and RESERVE.

RASPRO / e-RASPRO as a manual / digital model of ASP, developed by RASPRO Indonesia Study Group, may guide the antibiotic prescribing by patient risk stratification due to: host immune status, disease severity, and medical history.

Previous Before – After studies show a decreasing of antimicrobial quantity after manual RASPRO concept intervention.

In the next step, RASPRO / e-RASPRO hopefully can shift the antibiotic prescribing pattern from WATCH to ACCESS category as targeted by WHO.

Ronald Irwanto, TRISAKTI – Annual Medical Practitioner Meeting 2023

Antimicrobial Stewardship program is not about how to restrict the broad spectrum but how to use antibiotic in good!!

RASPRO Concept, 2013

RASPRO CORE Concept : 3 PIE (Promoting Guidelines – Implementation – Evaluation)

Promoting Guidelines (Pembuatan PPAB di rumah sakit) dengan mempertimbangkan:

A. Status imun, severitas penyakit dan riwayat medis pejamu yang di stratifikasi stratifikasi RASPRO Indonesia *Study Group*, yaitu:
   a. Stratifikasi Risiko Tipe I
   b. Stratifikasi RisikoTipe II
   c. Stratifikasi Risiko Tipe III

B. Farmakokinetik dan Farmakodinamik Antibiotik, mempertimbangkan:
   a. Dosis antibiotik
   b. Cara pemberian antibiotik
   c. Penetrasi antibiotik di jaringan

C. Pola Kuman Lokal dengan mempertimbangkan 3-TCP:

3T:
   a. *Timing* (Waktu pengambilan spesimen)
   b. *Technique* (Teknik pengambilan spesimen)
   c. *Transport* (Pengiriman spesimen)

3C:
   a. *Clinical Laboratory Standard Institute* (CLSI)
   b. *Completing Minimal Inhibitory Concentration* (MIC)
   c. *Completing Disc* (bila belum terdapat fasilitas pemeriksaan MIC)

3P:
   a. *Proper Setting* (Kesesuaian tempat/ kelompok sampel diambil)
   b. *Proper Size* (Kesesuaian jumlah sampel yang diambil)
   c. *Proper Percentage* (Kesesuaian pelaporan persentasi sensitifitas antibiotik)

P

Implementation / Implementasi PGA

A. Penguatan Pengetahuan Klinisi melalui:
   a. Pelatihan
   b. Sosialisasi
   c. Diskusi

B. Pengendalian Perilaku Penggunaan Antibiotik
   a. Kredensial
   b. Re-krediendial
   c. Regulasi dan Konsultasi

C. Sistem: membangun ekosistem di rumah sakit sehingga penggunaan antibiotik bisa terpandu, terpantau dan terlaporkan pada praktek sehari-hari.

I

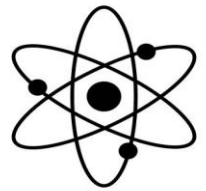
Evaluasi Pelaksanaan PGA

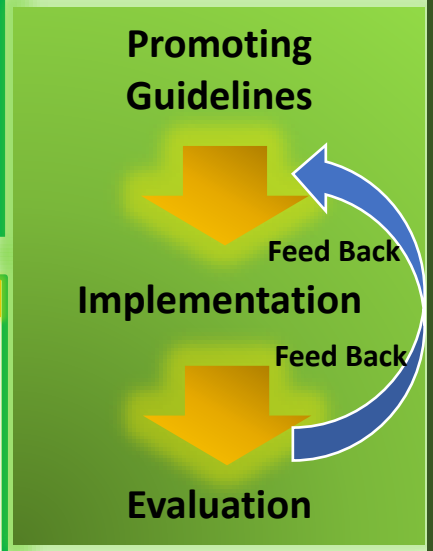
A. Evaluasi Efek Antibiotik pada Pejamu:
   a. Lama tinggal di rumah sakit
   b. Biaya penggunaan antibiotik dalam perawatan di rumah sakit
   c. Morbiditas dan Mortalitas

B. Evaluasi Mikroba: survei mikroba resisten di rumah sakit

C. Evaluasi Penggunaan Antibiotik, dapat dievaluasi:
   a. Kuantitas (jumlah penggunaan antibiotik dan *Define Daily Dose* (DDD))
   b. Kualitas penggunaan antibiotik (saat ini dievaluasi dengan Tabel *Gyssens*)
   c. Pelaksanaan Forum Kajian Infeksi Terintegrasi (FORKIT)

E





Core Concept

RASPRO Indonesia Risk Stratification for Developing Empiric Antibiotic Guidelines

RASPRO Indonesia divides patient with infection into 3 Risk Stratification :

Risk Stratification Type 3 (Severe or Suspected ESBLs or Other MDRO)

Risk Stratification Type 2 (Suspected (Beta-Lactamase Producers) to ESBLs)

Risk Stratification Type 1 (Non Risk Stratification Type 3 and / or 2)

RASPRO indonesia
Risk Stratification

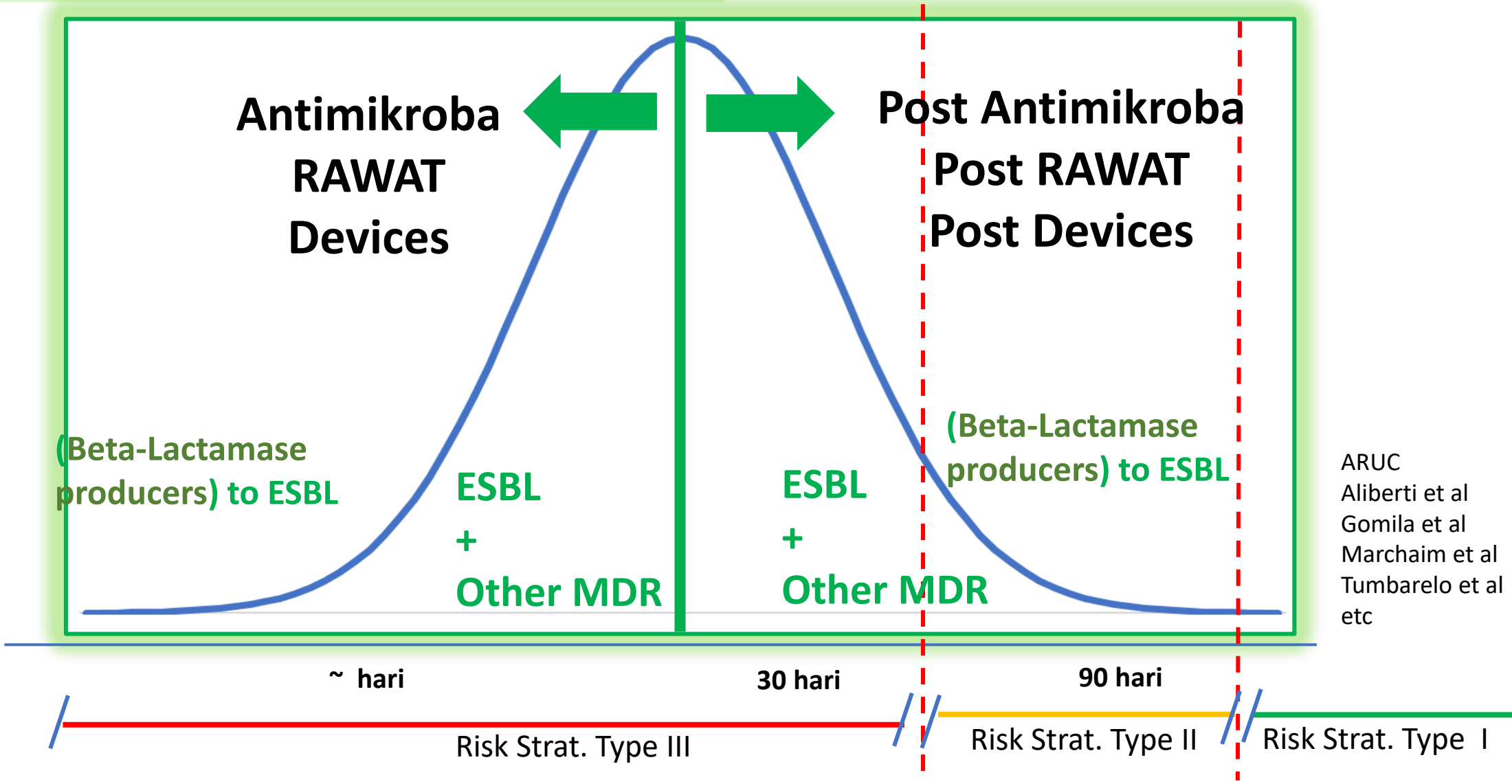
The system is carried out by disqualifying the worst possibilities regarding the severity and possibility of MDRO

Sorted from Risk Stratification Type 3 to 1 to prioritize patient safety

RASPRO Indonesia Risk Stratification is not a diagnostic tools!! but a consensus by citations

The empirical antibiotic guidelines strategy is carried out with institution approval by considering existing internal conditions

RASPRO Indonesia Files and Documents



Faculty of Medicine Universitas Trisakti – RASPRO Indonesia

Risk Stratification Type 3

Severe /HAIs / Febrile Neutropenia / Threatening Organ Perforation
AND / OR
Immunocompromized AND / OR Uncontrolled DM :
+
History of antibiotic use in the last 30 days
AND / OR
History of ≥ 48 hours hospitalization in the last 30 days
AND / OR
History medical devices use in the last 30 days

Empiric Antibiotic for Severe Case or Suspected ESBLs or Other MDRO

RESERVE | RESERVE | WATCH | WATCH

Risk Stratification Type 2

Non Severe / Non Life Threatening – Non HAIs
Immunocompromized
AND / OR Uncontrolled DM :
History of antibiotic use in the last 90 days
AND / OR
History of ≥ 48 hours hospitalization in the last 90 days
AND / OR
History medical devices use in the last 90 days

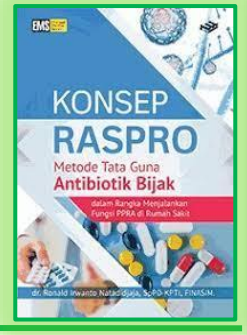
Empiric Antibiotic for Suspected (Beta Lactamase Producers) to ESBLs

WATCH | WATCH | WATCH | ACCESS

Risk Stratification Type 1

Non Risk Stratification Type 3 and / or 2

RASPRO indonesia
Risk Stratification



Empiric Antibiotic for Multi-Sensitive Organism

ACCESS | ACCESS | ACCESS | ACCESS | ACCESS

Faculty of Medicine Universitas Trisakti – RASPRO Indonesia

Risk Stratification Type 3

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Risk Stratification Type 2

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Risk Stratification Type 1

Journal citations

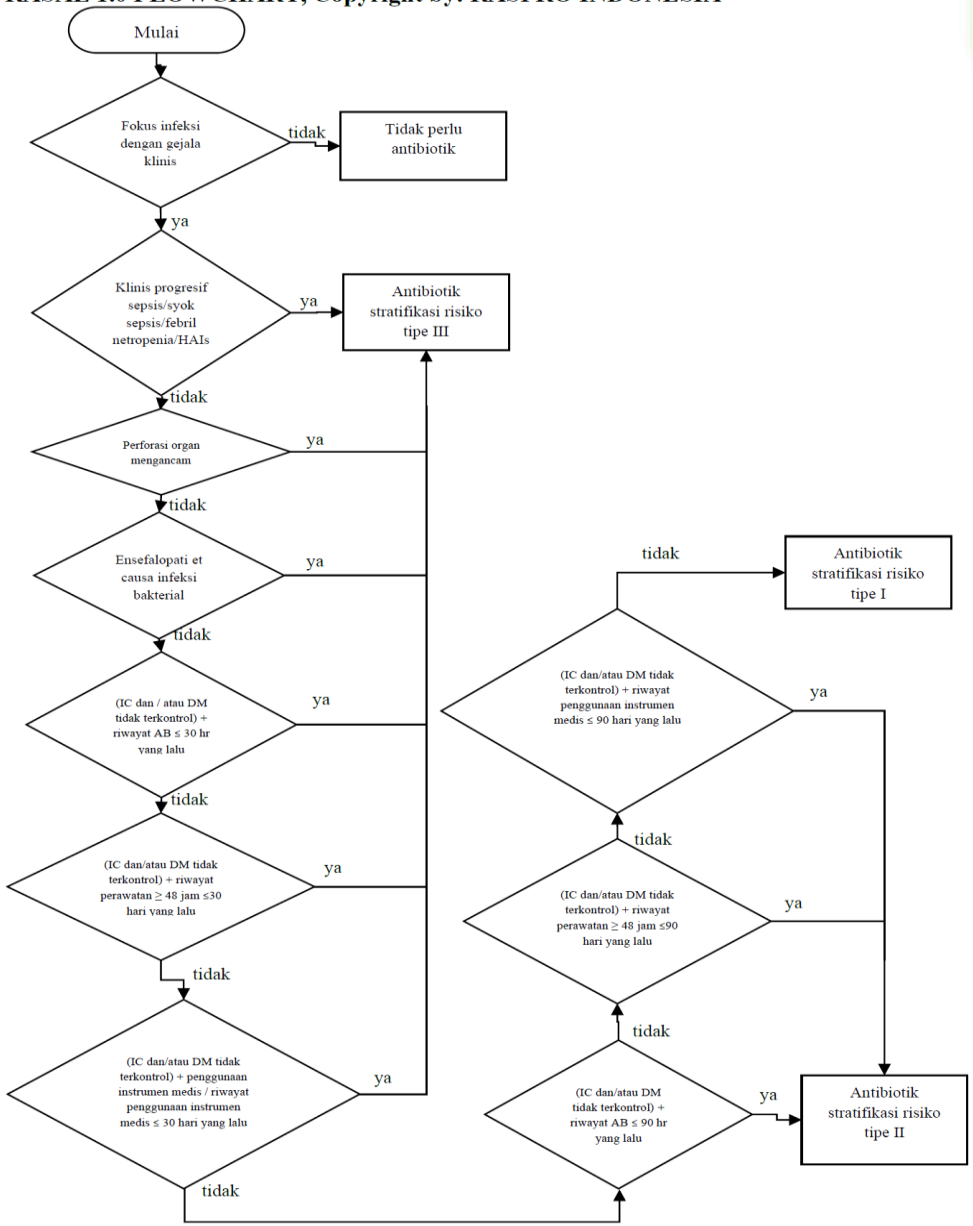
Empiric Antibiotic for Severe Case or Suspected ESBLs or Other MDRO

Empiric Antibiotic for Suspected (Beta Lactamase Producers) to ESBLs

Empiric Antibiotic for Multi-Sensitive Organism

RESERVE | RESERVE | WATCH | WATCH | WATCH | WATCH | WATCH | ACCESS | ACCESS | ACCESS | ACCESS | ACCESS

RASAL 1.0 FLOWCHART, Copyright by: RASPRO INDONESIA



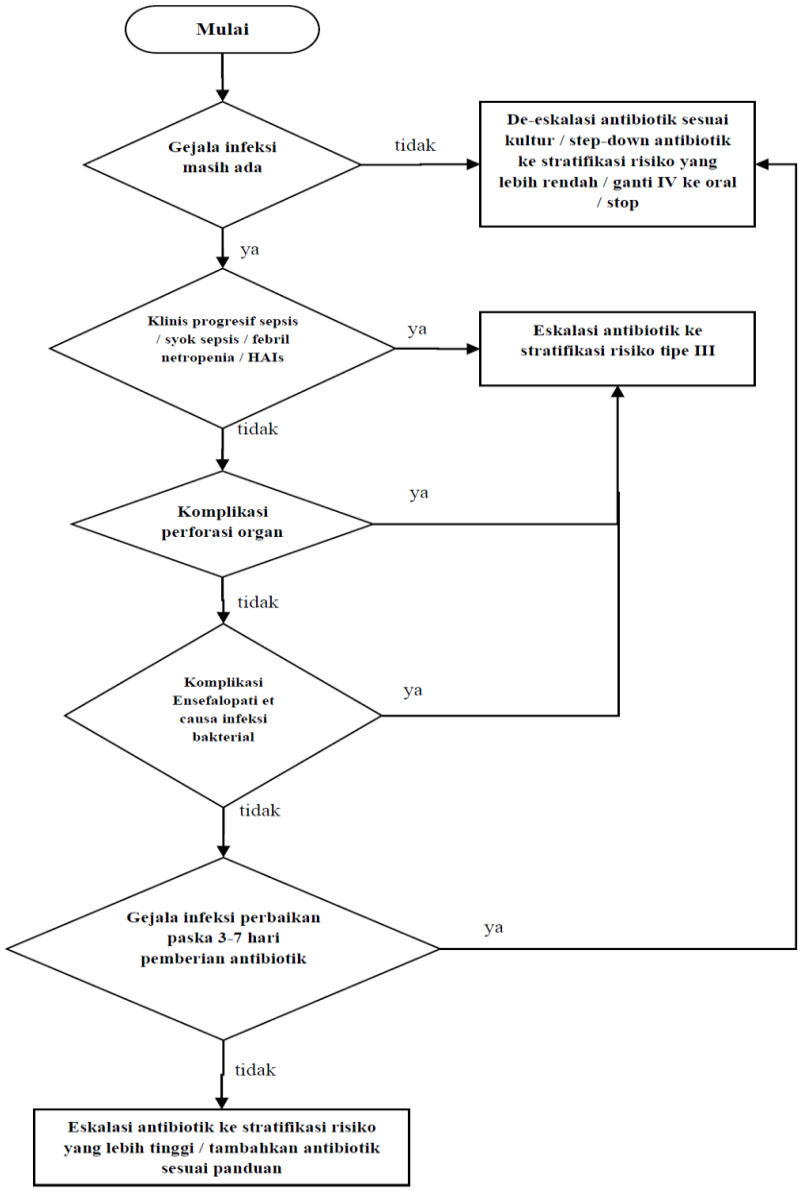
RASPRO Indonesia Empiric Antibiotic Initiation Form

RASPRO Alur Antibiotik Awal (RASAL 1.0)

Copyright: Ronald Irwanto

NO.	SPESIFIKASI	FLOW	KET.	TINDAKAN	AB
1.	Fokus infeksi dengan gejala infeksi	Tidak	henti	Tidak perlu antibiotik	
		Ya	Fokus Infeksi :		
2.	Klinis progresif Sepsis / Septic Shock / Febril Netropenia / Terkategori HAIs	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
3.	Perforasi organ mengancam	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
4.	Encephalopathy et causa infeksi bakterial	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
5.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat konsumsi antibiotik ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
6.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat perawatan ≥ 48 jam ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
7.	(Immunocompromised dan / atau DM tidak terkontrol) + penggunaan instrumen medis atau riwayat penggunaan instrumen medis ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
8.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat konsumsi antibiotik ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak			
9.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat perawatan ≥ 48 jam ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak			
10.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat penggunaan instrumen medis ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak	Antibiotik Stratifikasi Risiko Tipe I		

RASLAN 1.0 FLOWCHART, Copyright by : RASPRO INDONESIA



RASPRO Indonesia Empiric Antibiotic Change Form

RASPRO Alur Antibiotik Lanjutan (RASLAN 1.0) Copyright: Ronald Irwanto

NO.	SPESIFIKASI	FLOW	KETERANGAN	TINDAKAN	AB AWAL	AB LANJUT
1.	Gejala infeksi masih ada	Tidak	Henti (Isi AB awal - AB lanjut)	De-eskalasi antibiotik sesuai kultur / step-down antibiotik ke stratifikasi risiko yang lebih rendah / pindah IV ke oral / stop		
		Ya	Fokus Infeksi :			
2.	Klinis progresif Sepsis / Syok Sepsis / Febril Netropenia / Terkategori HAIs	Ya	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
3.	Komplikasi perforasi organ	Ya	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
4.	Komplikasi ensefalopati et causa infeksi bakterial	Ya	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
5.	Gejala infeksi perbaikan paska 3-7 hari pemberian antibiotik	Tidak	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko yang lebih tinggi / tambahkan antibiotik sesuai panduan		
		Ya	Henti (Isi AB awal - AB lanjut)	De-eskalasi antibiotik sesuai kultur / step-down antibiotik ke stratifikasi risiko yang lebih rendah / pindah IV ke oral / stop		

RASPRO Indonesia Definitive Antibiotic Form

Formulir RASPATUR 1.0

FORMULIR ANTIBIOTIK SESUAI KULTUR

Ketentuan : Formulir diisi apabila antibiotik akan diberikan sesuai kultur

Nama Pasien : …….

Nomor RM : …….

Fokus Infeksi : …….

Spesimen : …….

Antibiotik diberikan sesuai sensitifitas kultur kuman :

1. …….

2. …….

RASPRO Indonesia Prolong Antibiotic Form

RASPRO Formulir Antibiotik Berkepanjangan (RASPRAJA)

RASPRAJA

Tanggal, ……..

I. Identitas Pasien
Nama Pasien : ……
Umur : ……
Jenis Kelamin : ……
No. RM : ……

II. Indikasi Penggunaan Antibiotik
A. Ada, sebutkan ……
B. Tidak ada

III. Bila Terdapat Indikasi Penggunaan Antibiotik
Fokus Infeksi : ……
Gejala Infeksi Saat Ini : a. Negatif
b. Positif, sebutkan ……

IV. Komorbid
A. Ada
B. Tidak ada
Bila ada : (boleh diisi lebih dari satu)
a. Diabetes melitus
b. Imobilisasi
c. Retensi sputum
d. Keganasan
e. Febrile Netropenia
f. Penggunaan instrumentasi
g. HIV / AIDS
h. Autoimune
i. Lain-lain, sebutkan ……

V. Antibiotik yang Digunakan

Jenis	Dosis	Lama Pemakaian
1.		
2.		
3.		
4.		
5.		
6.		

Alasan penggunaan antibiotik di luar panduan / jangka waktu di luar ketentuan :

VI. Konsultasi dengan PPRA RS.X
A. Ada
B. Tidak ada

Pelapor,

Dokter (Nama dan Tanda Tangan)

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Implementing the Empiric Antimicrobial Guidelines

Antibiogram + Antibiotic / PKPD

Processing

Implemented by RASAL-RASLAN

Risk Stratification Type 3

Anti-ESBLs and other MDRO

RESERVE
- Linezolid
- Tygecycline
- Fosfomycin
- Polymixin
- Reserve BL /BLIs

WATCH
- Carbapenems group 2
- Piperacillin Tazobactam
- Vancomycin
- Quinolones
- 3th & 4th Gen Cephalosporins

+/- Combination
- Amikacin
- Gentamycin
- Metronidazole

+/- (for anaerobic suspected)

Empiric Antibiotic for Severe Case or Suspected ESBLs or Other MDRO

RESERVE RESERVE WATCH WATCH

Risk Stratification Type 2

Anti- (Beta-Lactamase Producers) to ESBLs

WATCH
- Carbapenems group 1
- Piperacillin Tazobactam

ACCESS
- Amoxicillin Clavulanate
- Ampicillin Sulbactam

+ Combination
- Amikacin
- Gentamycin
- Metronidazole

+/- (for anaerobic suspected)

Considering :
Carbapenem sparing regimen for ESBLs

Empiric Antibiotic for Suspected (Beta Lactamase Producers) to ESBLs

WATCH WATCH WATCH ACCESS

Risk Stratification Type 1

ACCESS
- Amoxicillin Clavulanate
- Ampicillin Sulbactam

+/- Combination
- Amikacin
- Gentamycin
- Metronidazole

+/- (for anaerobic suspected)

WARNING!!
Avoid antibiotic use in
The case of viral infections

Empiric Antibiotic for Multi-Sensitive Organism

ACCESS ACCESS ACCESS ACCESS

RASPRO Alur Antibiotik Awal (RASAL 1.0) Copyright: Ronald Irwanto

NO.	SPESIFIKASI	FLOW	KET.	TINDAKAN	AB
1.	Fokus infeksi dengan gejala infeksi	Tidak	henti	Tidak perlu antibiotik	
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2.	Klinis progresif Sepsis / Septic Shock / Febril Netropenia / Terkategori HAIs	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
3.	Perforasi organ mengancam	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
4.	Encephalopathy et causa infeksi bakterial	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
5.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat konsumsi antibiotik ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
6.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat perawatan ≥ 48 jam ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
7.	(Immunocompromised dan / atau DM tidak terkontrol) + penggunaan instrumen medis atau riwayat penggunaan instrumen medis ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
8.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat konsumsi antibiotik ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak			
9.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat perawatan ≥ 48 jam ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak			
10.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat penggunaan instrumen medis ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak	Antibiotik Stratifikasi Risiko Tipe I		

RASPRO Alur Antibiotik Lanjutan (RASLAN 1.0) Copyright: Ronald Irwanto

NO.	SPESIFIKASI	FLOW	KETERANGAN	TINDAKAN	AB AWAL	AB LANJUT
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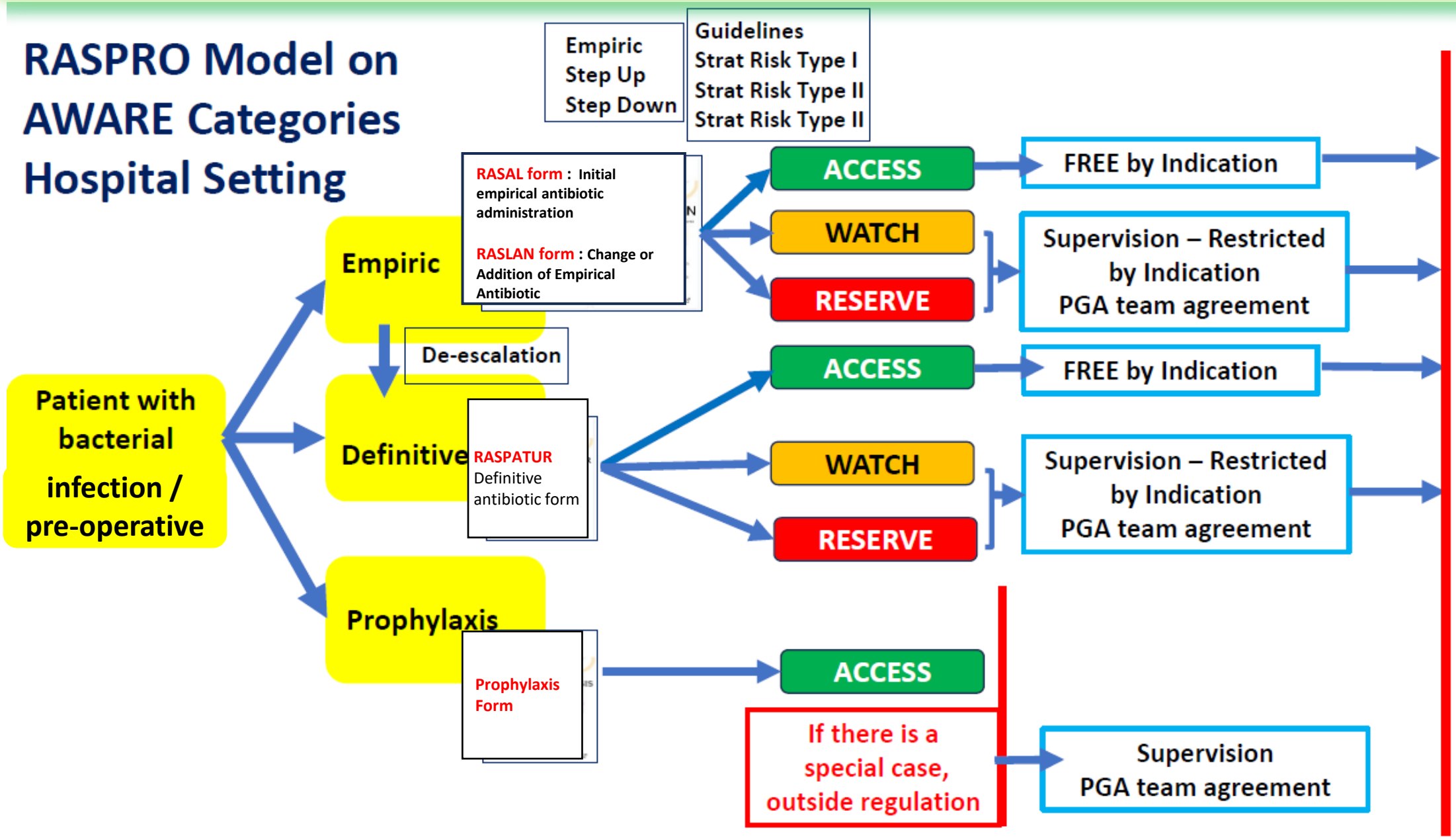
		Ya	Fokus Infeksi :			
2.	Klinis progresif Sepsis / Syok Sepsis / Febril Netropenia / Terkategori HAIs	Ya	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
3.	Komplikasi perforasi organ	Ya	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
4.	Komplikasi ensefalopati et causa infeksi bakterial	Ya	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
5.	Gejala infeksi perbaikan paska 3-7 hari pemberian antibiotik	Tidak	Henti (Isi AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko yang lebih tinggi / tambahkan antibiotik sesuai panduan		
		Ya	Henti (Isi AB awal - AB lanjut)	De-eskalasi antibiotik sesuai kultur / step-down antibiotik ke stratifikasi risiko yang lebih rendah / pindah IV ke oral / stop		

RASPRO Model on AWARE Categories Hospital Setting



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

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

Bali Medical Journal
Published by Bali Medical Journal

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 Kusuma[2], Gede Bangun Sudradjad[3], Lies Nugrohowati[4]

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.

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JURNAL ILMU KEFARMASIAN INDONESIA, Oktober 2020, hlm. 246-251 Vol. 18, No. 2
ISSN:1693-1831, E-ISSN: 2614-6495

Efektivitas Meropenem-Levofloxacin dengan Meropenem-Amikasin terhadap LOS & Leukosit Pasien Pneumonia Komuniti Stratifikasi III RASPRO

(Effectiveness of Meropenem-Levofloxacin with Meropenem-Amikasin Towards LOS & Leukocytes to RASPRO III Stratification Community Pneumonia Patients)

HADI SUMARSONO[1]*, DIAN RATIH LAKSMITAWATI[2], RONALD IRWANTO[1]

Abstrak: Pemberian antibiotika di rumah sakit swasta "X" menerapkan konsep bernama *Ronald Irwanto Antimicrobial Steweardship Program* (RASPRO). Saran kombinasi antibiotika empiris pada pasien pneumonia komuniti dengan stratifikasi tipe III antara lain menggunakan kombinasi meropenem - levofloxacin atau meropenem - amikasin. Tujuan penelitian adalah untuk mengetahui pengaruh kombinasi antibiotika empiris meropenem - levofloxacin dengan meropenem - amikasin pada pasien pneumonia komuniti stratifikasi tipe III RASPRO terhadap LOS dan penurunan leukosit. Sampel uji dihitung menggunakan rumus perbedaan dua proporsi dan dianalisa menggunakan metode Chi square. Variabel perancu diabetes mellitus, imobilisasi dan geriatri dikontrol berdasarkan uji analisa multivariat regresi logistik. Hasil penelitian menunjukkan kombinasi meropenem - levofloxacin memiliki kecenderungan 1,81 kali untuk mengalami LOS < 5 hari dan 0,92 kali untuk mengalami penurunan leukosit ≥10% dibandingkan meropenem - amikasin, namun keduanya tidak signifikan (p 0,161 dan p 0,835). Hasil kontrol variabel perancu ditemukan bahwa geriatri sebagai variabel perancu yang bermakna dalam mempengaruhi LOS dan tidak ada variabel perancu yang dianggap dapat mempengaruhi penurunan leukosit. Sebagai kesimpulan, tidak terdapat pengaruh kombinasi antibiotika empiris meropenem - levofloxacin dengan meropenem - amikasin terhadap LOS & penurunan leukosit pada pasien pneumonia komuniti stratifikasi tipe III RASPRO dengan menggunakan statistik setelah mengontrol variabel perancu.

RASPRO Risk Stratification Type 3
Meropenem + Amikacin ((WHO) WATCH + (WHO) ACCESS)
VS
Meropenem + Levofloxacin ((WHO) WATCH + (WHO) WATCH)

Non Significant for Length of Stay (LOS) and infection laboratory indicator improvement (decreasing leucocytes level)

Tabel 2. Perbandingan LOS antara kombinasi antibiotika empiris meropenem - levofloxacin dan meropenem - amikasin.

		LOS		*Unadjusted*			*Adjusted*		
		< 5 hari	> 5 hari	Nilai p	OR	IK95%	Nilai p	OR	IK95%
Kombinasi antibiotik	Meropenem - Levofloxacin	22 (44,9)	27 (55,1)	0,211	1,85	0,81 – 4,23	0,161	1,81	0,79 – 4,17
	Meropenem - Amikasin	15 (30,6)	34 (69,4)						

Tabel 3. PPerbandingan penurunan leukosit antara kombinasi antibiotika empiris meropenem - levofloxacin dan meropenem - amikasin.

		Penurunan Leukosit		*Unadjusted*			*Adjusted*		
		≥10%	<10%	Nilai p	OR	IK95%	Nilai p	OR	IK95%
Kombinasi antibiotik	Meropenem - Levofloxacin	30 (61,2)	19 (38,8)	1,000	0,92	0,40 – 2,08	0,835	0,92	0,40– 2,07
	Meropenem - Amikasin	31 (63,3)	18 (36,7)						

New Age of
Antimicrobial Stewardship Spirit

RASPRO indonesia

Antibiotic De-Escalation & Consideration for Making Guidelines

Timing & Appropriateness

CHAPTER 3 : Diagnostic

Pola Kuman Lokal dengan mempertimbangkan 3-TCP:

3T:

a. *Timing* (Waktu pengambilan spesimen)
b. *Technique* (Teknik pengambilan spesimen)
c. *Transport* (Pengiriman spesimen)

3C:

a. *Clinical Laboratory Standard Institute* (CLSI)
b. *Completing Minimal Inhibitory Concentration* (MIC)
c. *Completing Disc* (bila belum terdapat fasilitas pemeriksaan MIC)

3P:

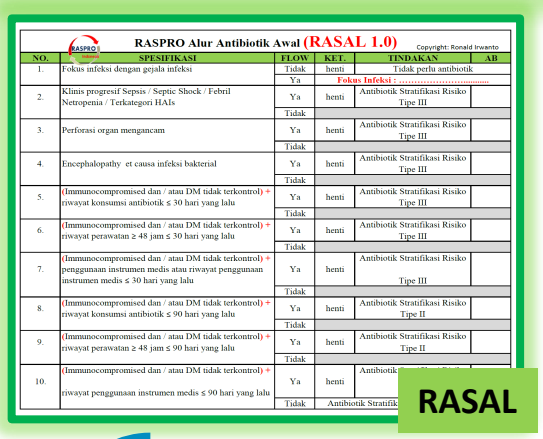
a. *Proper Setting* (Kesesuaian tempat/ kelompok sampel diambil)
b. *Proper Size* (Kesesuaian jumlah sampel yang diambil)
c. *Proper Percentage* (Kesesuaian pelaporan persentasi sensitifitas antibiotik)

Sample Tacking for
Definitive treatment
Making antibiogram

The Best should be taken :
- Before administering the empiric antibiotic
- With good technique
- and with transport according to procedures

Homogenous Result for Antibiotic Guidelines
Good Consideration !!

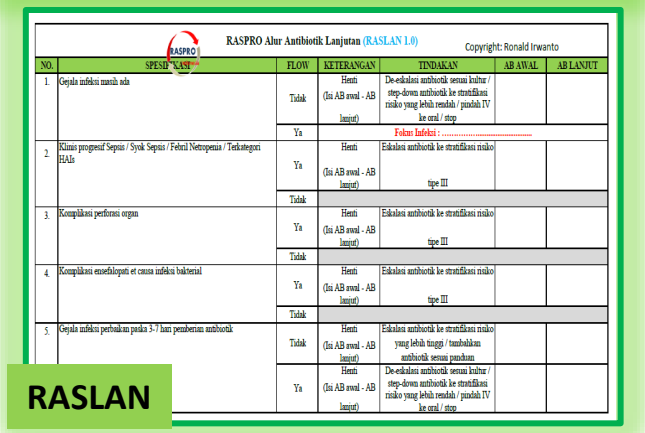
Faculty of Medicine Universitas Trisakti – RASPRO Indonesia



RASPRO Alur Antibiotik Awal (RASAL 1.0) Copyright: Ronald Irwanto

NO.	SPESIFIKASI	FLOW	KET.	TINDAKAN	AB
1.	Fokus infeksi dengan gejala infeksi	Tidak	henti	Tidak perlu antibiotik	
		Ya		Fokus Infeksi :	
2.	Klinis progresif Sepsis / Septic Shock / Febril Netropenia / Terkategori HAIs	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
3.	Perforasi organ mengancam	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
4.	Encephalopathy et causa infeksi bakterial	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
5.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat konsumsi antibiotik ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
6.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat perawatan ≥ 48 jam ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
7.	(Immunocompromised dan / atau DM tidak terkontrol) + penggunaan instrumen medis atau riwayat penggunaan instrumen medis ≤ 30 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe III	
		Tidak			
8.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat konsumsi antibiotik ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak			
9.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat perawatan ≥ 48 jam ≤ 90 hari yang lalu	Ya	henti	Antibiotik Stratifikasi Risiko Tipe II	
		Tidak			
10.	(Immunocompromised dan / atau DM tidak terkontrol) + riwayat penggunaan instrumen medis ≤ 90 hari yang lalu	Ya	henti	Antibiotik	
		Tidak		Antibiotik Stratifik	

RASAL



RASPRO Alur Antibiotik Lanjutan (RASLAN 1.0) Copyright: Ronald Irwanto

NO.	SPESIFIKASI	FLOW	KETERANGAN	TINDAKAN	AB AWAL	AB LANJUT
1.	Gejala infeksi masih ada	Tidak	Henti (Ini AB awal - AB lanjut)	De-eskalasi antibiotik sesuai kultur / step-down antibiotik ke stratifikasi risiko yang lebih rendah / pindah IV ke oral / stop		
		Ya	Fokus Infeksi :			
2.	Klinis progresif Sepsis / Syok Sepsis / Febril Netropenia / Terkategori HAIs	Ya	Henti (Ini AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
3.	Komplikasi perforasi organ	Ya	Henti (Ini AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
4.	Komplikasi ensefalopati et causa infeksi bakterial	Ya	Henti (Ini AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko tipe III		
		Tidak				
5.	Gejala infeksi perbaikan pada 3-7 hari pemberian antibiotik	Tidak	Henti (Ini AB awal - AB lanjut)	Eskalasi antibiotik ke stratifikasi risiko yang lebih tinggi / tambahkan antibiotik sesuai panduan		
		Ya	Henti (Ini AB awal - AB lanjut)	De-eskalasi antibiotik sesuai kultur / step-down antibiotik ke stratifikasi risiko yang lebih rendah / pindah IV ke oral / stop		

RASLAN

RASPATUR

De-escalation

De-escalation

Formulir RASPATUR 1.0

FORMULIR ANTIBIOTIK SESUAI KULTUR

Ketentuan : Formulir diisi apabila antibiotik akan diberikan sesuai kultur

Nama Pasien : .....

Nomor RM : .....

Fokus Infeksi : .....

Spesimen : .....

Antibiotik diberikan sesuai sensitifitas kultur kuman :

1. .....

2. .....

Evaluating the De-Escalation (De-Escalation cannot be done when the result is MDR / XDR / PDR?)

1. **Timing :**
   - a. Result information timing
   - b. De-escalation timing : (would be depend on)
     - Disease Severity
     - Antibiotic stock
2. **Appropriateness – should be discussed by clinicians and laboratory doctors**

Should be evaluated well for Hospital with complete microbiology facilities !!

Pola Kuman Lokal dengan mempertimbangkan 3-TCP:

3T:

a. *Timing* (Waktu pengambilan spesimen)
b. *Technique* (Teknik pengambilan spesimen)
c. *Transport* (Pengiriman spesimen)

3C:

a. *Clinical Laboratory Standard Institute* (CLSI)
b. *Completing Minimal Inhibitory Concentration* (MIC)
c. *Completing Disc* (bila belum terdapat fasilitas pemeriksaan MIC)

3P:

a. *Proper Setting* (Kesesuaian tempat/ kelompok sampel diambil)
b. *Proper Size* (Kesesuaian jumlah sampel yang diambil)
c. *Proper Percentage* (Kesesuaian pelaporan persentasi sensitifitas antibiotik)

Culture result :

1. **Definitive Therapy**
2. **Cumulative Antibiogram**

3-TCP

UNIVERSA MEDICINA
January-April, 2013 Vol.32 - No.1

Culture-and nonculture-based antibiotics for complicated soft tissue infections are comparable

Ronald Irwanto*,**, Suhendro**, Khie Chen**, and Murdani Abdullah***

BACKGROUND
Data collected in 2010 from Cipto Mangunkusumo Hospital indicate that complicated skin and soft tissue infections accounted for more than 10% of cases. Etiological diagnoses are based on the findings on bacterial culture and thus evaluation of the effectiveness of bacterial culture becomes a necessity. The purpose of this study was to evaluate the operational effectiveness of bacterial culture for etiological diagnosis of complicated skin and soft tissue infections.

METHODS
This was a historical cohort study using secondary data of patients with complicated skin and soft tissue infections admitted for hospitalization to Cipto Mangunkusumo Hospital, Jakarta from July 2011 to July 2012. The 90 subjects meeting the inclusion and exclusion criteria were divided into 2 groups of 45 patients each. Group 1 comprised patients who received initial antibiotic therapy according to cultural results, while the patients in group 2 received initial antibiotic therapy without reference to cultural results. Successful diagnostic culture was assessed by the absence of therapeutic failure. Therapeutic failure was determined using 3 parameters that had to be fulfilled, viz. absence of antibiotic escalation, repeat operations, and clinical deterioration. The latter parameter was assessed by clinical judgement of the attending physician.

RESULTS
After controlling for confounding variables (age, severity of infection, comorbidity), there was no statistical difference in therapeutic success between culture-based and non-culture based initial antibiotic therapies (OR=0.45, p=0.085).

CONCLUSION
This study demonstrates the ineffectiveness of bacterial culture as a diagnostic criterion for appropriate antibiotic therapy of complicated skin and soft tissue infections.

When De-Escalating Antibiotic :

Disease Severity & Antibiotic PK/PD should be considered in administering definitive antibiotics rather than just culture suitability alone

Table 4. Comparison of success and failure rates between culture- and nonculture-based initial antibiotic treatment in complicated skin and soft tissue infections

	Success		Failure		Bivariate		Multivariate	
	n	%	N	%	p	OR (95% CI)	p	Adjusted OR (95% CI)
Antibiotic								
Culture-based	26	57.8	19	42.2	0.120	0.50 (0.20-1.21)	0.085	0.45 (0.18-1.12)
Nonculture-based	33	73.3	12	26.7				

Risk Stratification based Microorganism Pattern

	Multisensitif		MDR				Prediksi	
			ESBL		Non ESBL			
	n	%	n	%	n	%	Sesuai	Tidak Sesuai
Gram Negatif								
Acinetobacter sp.	0	0,00	0	0,00	4	10,00	4	0
Pseudomanas sp.	0	0,00	0	0,00	7	17,50	7	0
Klebsiela pneumonia	15	26,32	2	22,22	6	15,00	21	2
Escheceria 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**	**3**
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

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RONALD IRWANTO NATADIDJAJA[1,2], HADIANTI ADLANI[2], HADI SUMARSONO[2,3]

International Journal of INFECTION CONTROL

ORIGINAL ARTICLE

Patient risk factor stratification is essential for the hospital antibiogram

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Abstract

Empiric antimicrobial therapy in hospitalized patients is guided by an institution's cumulative antibiogram, which may not be adequate in giving information on decision-making for optimal treatment in different patient populations. Adding patient risk factors can make it more useful for clinicians in guiding empiric therapy and for antimicrobial stewardship. Cumulative data were obtained for blood culture and urine isolates from the laboratory information system of a tertiary care hospital for 6 months (January to June 2019). Further stratification of organism types and resistance rates on the basis of patient risk factors (Patient Types 1, 2, and 3) was performed and analyzed. *Salmonella* spp. was seen in community-acquired ward patients (Types 1 and 2). *Streptococcus pneumoniae* was seen in Type 1 patients, and *Acinetobacter* spp. was seen in Type 3 patients. Extended-spectrum beta-lactamase-producing gram-negative infection rates were higher in community patients than in hospital patients. Carbapenem-resistant *Enterobacteriaceae* rates were high in Type 3 hospitalized patients. Cumulative blood methicillin-resistant *Staphylococcus aureus* rates were 43% but stratification showed it only in Type 2 and Type 3 ICU patients with 0% in ward patients. Stratified antibiograms based on patient risk factors are valuable for antimicrobial stewardship and help to optimize empiric therapy and increase the understanding of antimicrobial resistance trends.

Keywords: *antimicrobial stewardship; antibiogram; drug resistance; risk factors; India*

Conclusions

Clinicians' reliance on institution wide antibiograms that do not accurately reflect susceptibility rates in certain patient groups might lead to inappropriate empiric antibiotic prescribing. Usual antibiogram studies have only laboratory data, but our study went further and incorporated relevant patient-related clinical history and other factors to stratify susceptibility data.

Stratifying the antibiogram by incorporating patient risk factors is a valuable antibiotic stewardship tool that helps in appropriate empiric antibiotic selection and improved surveillance of antimicrobial resistance trends. Such stratification is key to antimicrobial stewardship program (3).

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Risk Stratification Type 3

Severe /HAIs / Febrile Neutropenia / Threatening Organ Perforation
AND / OR
Immunocompromized AND / OR Uncontrolled DM :
+
History of antibiotic use in the last 30 days
AND / OR
History of >=48 hours hospitalization in the last 30 days
AND / OR
History medical devices use in the last 30 days

Sample taken from Patients with characteristics above

CUMULATIVE ANTIBIOGRAM RESULT? + Antibiotic PK/PD

Empiric Antibiotic Guidelines for Risk Stratification Type 3

Risk Stratification Type 2

Non Severe / Non Life Threatening – Non HAIs Immunocompromized AND / OR Uncontrolled DM :
+
History of antibiotic use in the last 90 days
AND / OR
History of >=48 hours hospitalization in the last 90 days
AND / OR
History medical devices use in the last 90 days

Sample taken from Patients with characteristics above

CUMULATIVE ANTIBIOGRAM RESULT? + Antibiotic PK/PD
Considering :
Carbapenem sparing regimen

Empiric Antibiotic Guidelines for Risk Stratification Type 2

Risk Stratification Type 1

Non Risk Stratification Type 3 and / or 2

Sample taken from Patients with characteristic above

CUMULATIVE ANTIBIOGRAM RESULT? + Antibiotic PK/PD

Empiric Antibiotic Guidelines for Risk Stratification Type 1

New Age of
Antimicrobial Stewardship Spirit

Developing the Antimicrobial Stewardship System and Ecosystem : MANUAL to DIGITAL

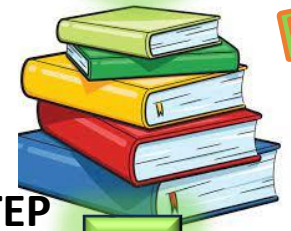
Hospital Internal Peer Review

CHAPTER 4 :
Socialization & Implementation

Faculty of Medicine Universitas Trisakti – RASPRO Indonesia

Antibiograms

STEP 1



Pro & Cons

In vitro sensitivity
Pharmacokinetic-Pharmacodynamic
National Regulation

Journal synthesis

STEP 2

Alternative treatment
Sparing regiments
Prize
BPJS claim

Hospital Antibiotics Stock Data

STEP 3

RASPRO indonesia

RASPRO
Manual Empirical Antibiotic Guidelines
AWARE

RASPRO 3 TCP

Timing	CLSI /	Proper setting
Technic	Complete MIC/	Proper size
Transport	Complete Disc	Proper Percentage

RASPRO Antibiotic
MANUAL Guidelines & System

Antibiogram as a consideration for making antibiotic guidelines is different from surveillance
Sample should be homogenous in COLLECTING TIME, HOST STATUS, MEDICAL HISTORY.
In RASPRO model we should think about microbiologic pattern form each risk stratification for translating into the empiric antibiotic guidelines
PLUS
Do Journal Synthesis

Check the availability of antibiotics in hospitals and national stock

RASPRO Risk Stratification : AWARE
a Model divide patients into 3 groups

Risk Stratification Type 3 :
Severe and/ or immunocompromised with Risk of ESBL + Other MDRO
Risk Stratification Type 2:
Mild - immunocompromised with Risk of (Beta lactamase Producers) to ESBLs
Risk Stratification Type 1 :
Non Risk Stratification Type 3 and / or 2

HOMOGENIZATION
Specimen Collecting Timing
Setting
Host Status

DISCUSSION
Internal Expert Peer Review
Antimicrobial Resistance Watch
Hospital Management

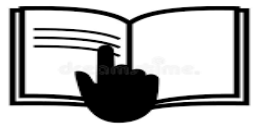
AGREEMENT
Agreement from hospital management

SOCIALIZATION
Guidelines and Flowchart
Training of Trainers
Clinicians
Pharmacist
Nurse

STEP 4

RASPRO Manual FORM AWARE

RASPRO Antimicrobial Stewardship Flowchart : Prophylaxis Empiric Definitive



RASPRO Antibiotic MANUAL Guidelines & System

EXECUTION & FEED BACK

RASPRO Model on AWARE Categories Hospital Setting

Manual Mode

Empiric
Step Up
Step Down

Guidelines
Strat Risk Type I
Strat Risk Type II
Strat Risk Type II

Patient with bacterial infection / pre-operative

Empiric

RASAL form : Initial empirical antibiotic administration
RASLAN form : Change or Addition of Empirical Antibiotic

ACCESS → FREE by Indication
WATCH → Supervision – Restricted by Indication PGA team agreement
RESERVE → Supervision – Restricted by Indication PGA team agreement

De-escalation

Definitive

RASPATUR Definitive antibiotic form

ACCESS → FREE by Indication
WATCH → Supervision – Restricted by Indication PGA team agreement
RESERVE → Supervision – Restricted by Indication PGA team agreement

Prophylaxis

Prophylaxis Form

ACCESS

If there is a special case, outside regulation → Supervision PGA team agreement

Automatic STOP Order if not reasonable

RASPRAJA : Form for Prolong Use of Antibiotic

Integrated Assessment (FORKIT)

If want to continue for running the digital model (e-RASPRO)……

STEP 1 → STEP 2 → STEP 3 → STEP 4 → PLUS → STEP 5

RASPRO Antibiotic
DIGITAL: Guidelines & System

Bridging Guidelines to Digital System e-RASPRO

SOCIALIZATION
Guidelines and Digital System
Training of Trainers
Clinicians
Pharmacist
Nurse

EXECUTION & FEED BACK

RASPRO Model on AWARE Categories Hospital Setting

Digital Mode

Empiric
Step Up
Step Down

Guidelines
Strat Risk Type I
Strat Risk Type II
Strat Risk Type II

Patient with bacterial infection / pre-operative

Empiric


ACCESS → FREE by Indication
WATCH → Supervision – Restricted by Indication PGA team agreement
RESERVE → Supervision – Restricted by Indication PGA team agreement

De-escalation

Definitive


ACCESS → FREE by Indication
WATCH → Supervision – Restricted by Indication PGA team agreement
RESERVE → Supervision – Restricted by Indication PGA team agreement

Prophylaxis


ACCESS → Supervision PGA team agreement

If there is a special case, outside regulation → Supervision PGA team agreement

Automatic STOP Order if not reasonable

Integrated Assessment (FORKIT)

RASPRO Concept Socialization

AWARE category- Local Antimicrobial Guidelines
How to use the antimicrobial guidelines
Fulfill the RASPRO Form
Appropriate antibiotic prescription
- Type
-Dose
-Time
Regulation & Authority

AWARE category- Local Antimicrobial Guidelines
How to verify the antibiotic appropriateness
Consultation with Antimicrobial Stewardship Team
Reporting Quantity & Quality of antibiotic use

AWARE category- Local Antimicrobial Guidelines
Fulfill the RASPRO nurse cardex
Antibiotic prudent use reminder

New Age of
Antimicrobial Stewardship Spirit

Digital Antimicrobial Stewardship : e-RASPRO model

Developed by RASPRO Indonesia Study Group

Manual Mode INTO Digital Mode

e-RASPR
Antibiotic prudent use system by RASPRO

CHAPTER 5 : Digital

Slide Citation . Dr. Djoni Darmadjaja
KARS-RASPRO ARTS Class VI, 2023

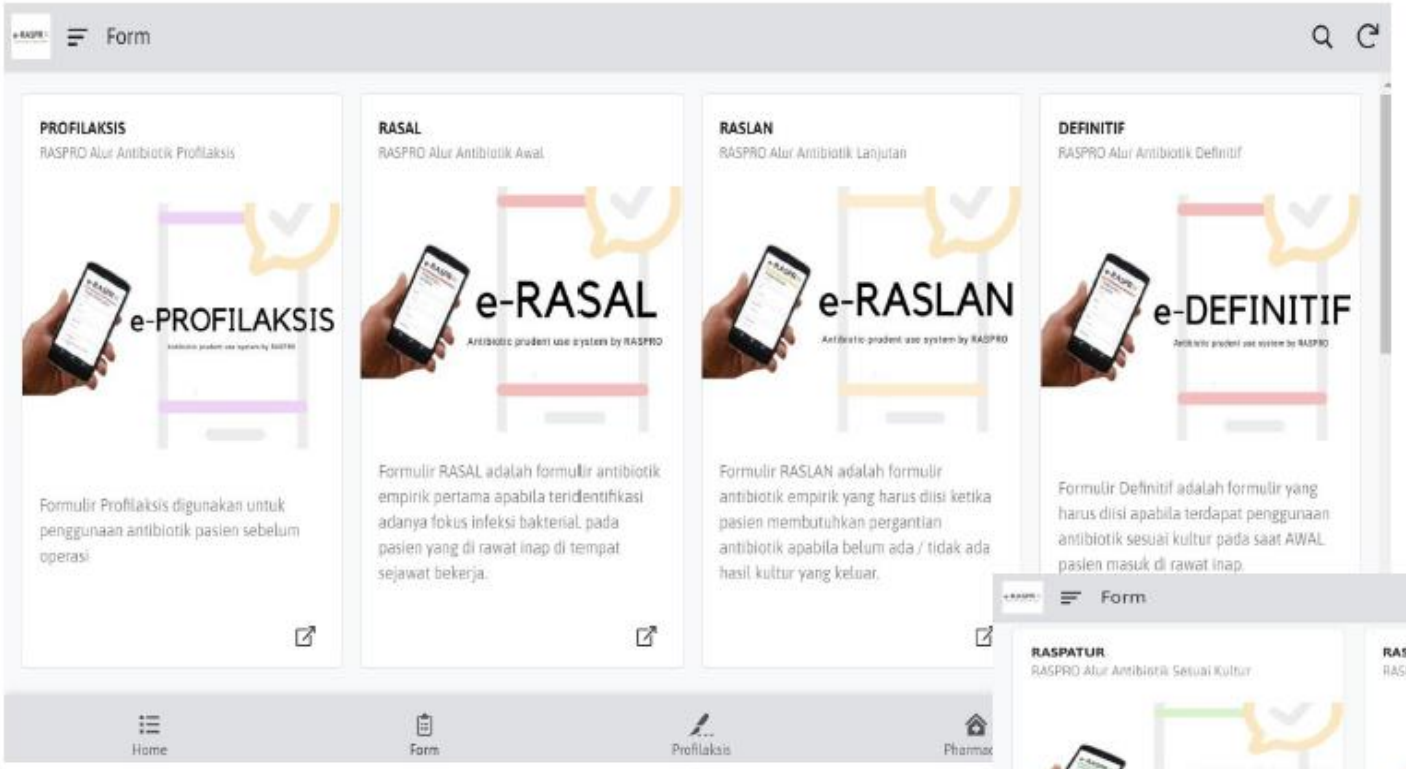
Electronic prescription

Error-Reduction Strategy	Power (leverage)
Fail-safes and constraints	High
Forcing functions	
Automation and computerization	
Standardization	
Redundancies	
Reminders and checklists	
Rules and policies	
Education and information	
Suggestions to be more careful or vigilant	Low

Table 1. Rank order of error-reduction strategies

Sumber: Institute for Safe Medication Practice

e-RASPRO : a Model of Digital Antimicrobial Stewardship



e-RASPR

Antibiotic prudent use system by RASPRO

ELEKTRONIK RASPRO

e-Raspro Introduction

→ Aplikasi elektronik untuk menerapkan metode RASPRO di Rumah Sakit

Konsep/Metode

RASPRO

GAP!

ADMINISTRATIF

KEDISIPLINAN

EVALUASI

Manfaat

1. Comply terhadap regulasi pemerintah
2. Mencegah terjadinya resistensi antibiotik
3. Mencegah biaya antibiotik yg tidak perlu
4. Menekan length of stay – meningkatkan turnover pasien
5. Image Rumah Sakit

e-RASPR

Antibiotic prudent use system by RASPRO

Slide Citation. Raymond Adianto, ST, MM
RASPRO ARTS Class VI, 2023

Ekosistem

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Antibiotic prudent use system by RASPRO

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RASPRO ARTS Class VI, 2023

DOKTER

- Histori pemberian AB pasien
- Diagnosa (algoritma Raspro)
- Peresepan Antibiotik

FARMASIS

- Cek peresepan Antibiotik
- Konsultasi dengan tim PGA (real time)
- Restriksi/Pengadaan Antibiotik

PERAWAT

- Pemberian Antibiotik
- Pemantauan pemberian AB
- Selesai perawatan

ADMIN

Pendaftaran/pencabutan serta pemberian akses semua User
Pelaporan dan evaluasi

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Ekosistem Terpadu

e-Raspro membentuk sebuah ekosistem terpadu di rumah sakit dalam penggunaan antibiotiknya

Pengelolaan Mandiri

Pengelolaan user dan akses rumah sakit dapat dilakukan secara mandiri oleh Rumah Sakit sehingga sangat memudahkan dalam implementasinya

PPAB Elektronik

Panduan penggunaan Antibiotik pada e-Raspro sesuai dengan kondisi masing-masing rumah sakit

Jumlah User tidak dibatasi

Jumlah user dikelola sendiri oleh RS dan tidak dibatasi jumlahnya

Konsultasi secara Real-time

e-Raspro menyediakan fitur yang memudahkan farmasi berkonsultasi secara langsung.dengan dokter

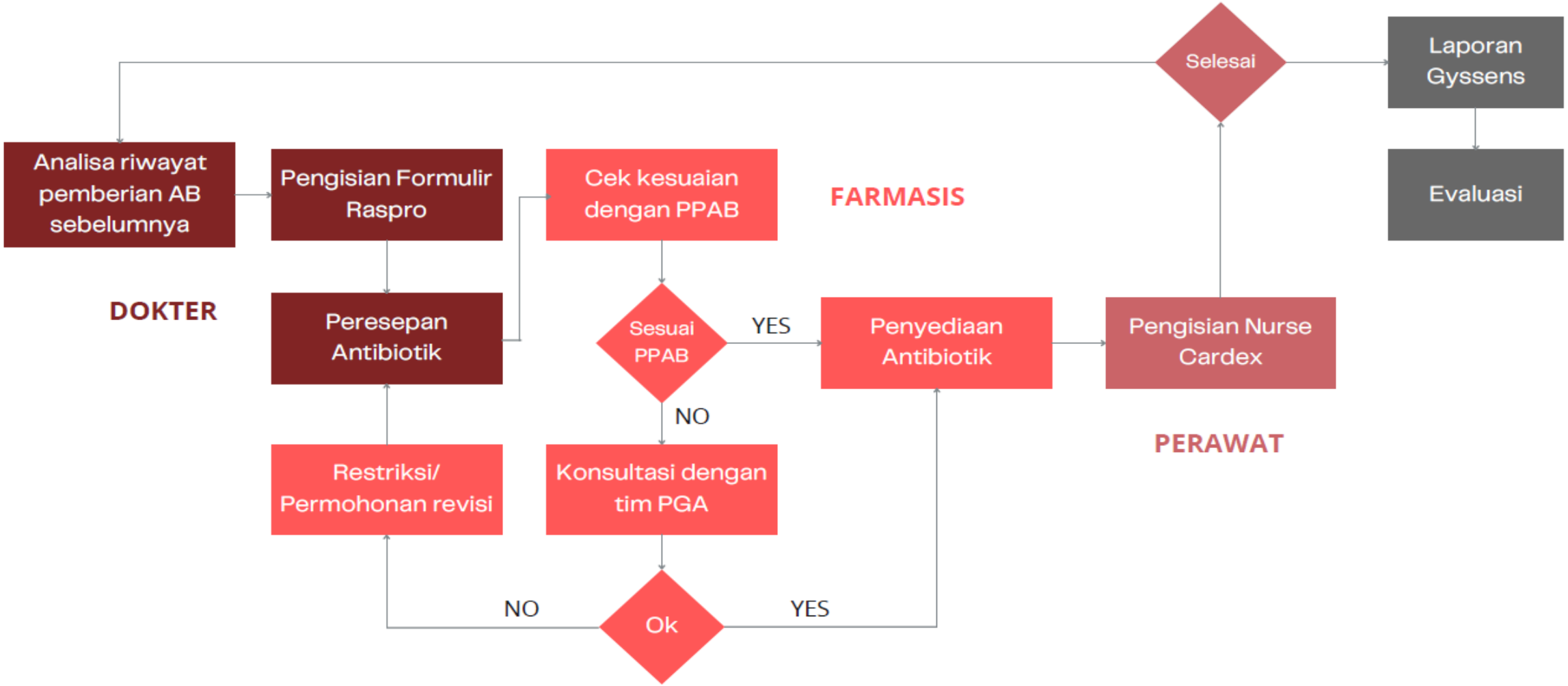
Laporan & Evaluasi

e-Raspro menyimpan semua data dan dapat menyajikan laporan secara rinci termasuk pengisian laporan Gyssens.

INITIAL DESIGN

Slide. Raymond Adianto, ST, MM
RASPRO ARTS Class VI, 2023

Process Flow (for Empirical Antibiotic)



RASPRO Model on AWARE Categories Hospital Setting

Digital Mode

Empiric
Step Up
Step Down

Guidelines
Strat Risk Type I
Strat Risk Type II
Strat Risk Type II

Patient with bacterial Infection / preoperative

Empiric

ACCESS → FREE by Indication

WATCH → Supervision – Restricted by Indication PGA team agreement

RESERVE → Supervision – Restricted by Indication PGA team agreement

De-escalation

Definitive

ACCESS → FREE by Indication

WATCH → Supervision – Restricted by Indication PGA team agreement

RESERVE → Supervision – Restricted by Indication PGA team agreement

Prophylaxis

ACCESS

If there is a special case, outside regulation → Supervision PGA team agreement

Automatic STOP Order if not reasonable

Integrated Assessment (FORKIT)

e-RASPR

Antibiotic prudent use system by RASPRO

- **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

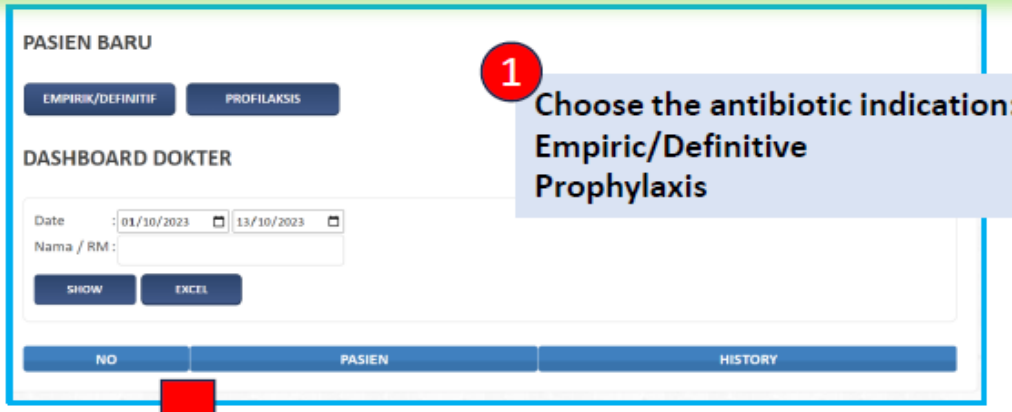
- **Laboratory**

Full Blood Count, CRP, Procalcitonin

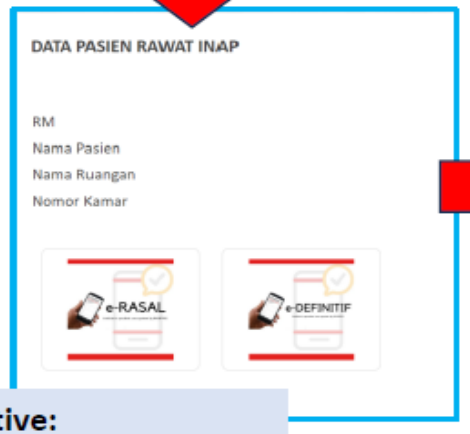
Culture Finding

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

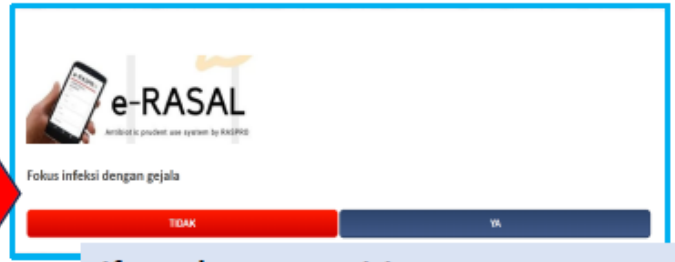
→ The antibiotic would be **RESTRICTED**



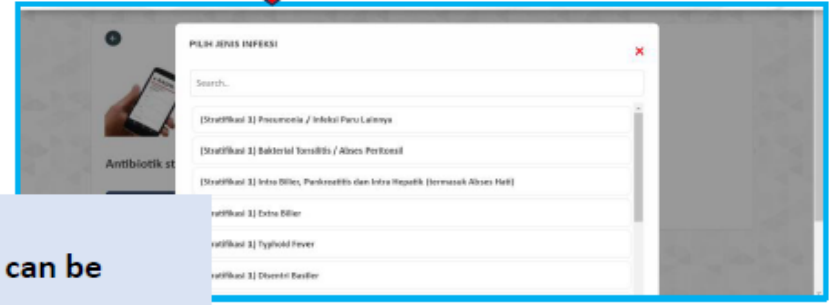
1 Choose the antibiotic indication:
Empiric/Definitive
Prophylaxis



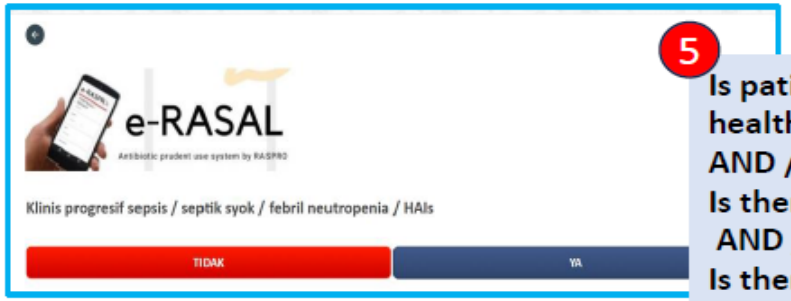
2 If we choose empiric/definitive:
Confirmation:
empiric (e-RASAL) or
definitive (e-definitive)



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



5

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

6

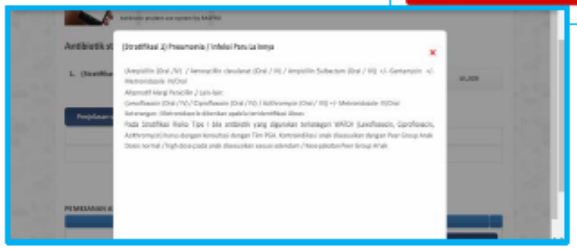
Is patient sepsis / febrile neutropenia / healthcare associated infections?
AND / OR
Is there any threatening organ perforation?
AND / OR
Is there any bacterial encephalopathy?

If NO

e-RASPR
Antibiotic prudent use system by RASPRO

Request by system and local empiric guidelines for WATCH or RESERVE Group Antibiotic
Anti ESBLs / Pseudomonas sp / Anti MRSA
Note: by onsite consultation with ASP team

Define the Patient Risk Stratification
Type 3
Type 2
Local empiric guidelines:
WATCH Group Antibiotic
Type 1
Local empiric guidelines:
ACCESS Group Antibiotic



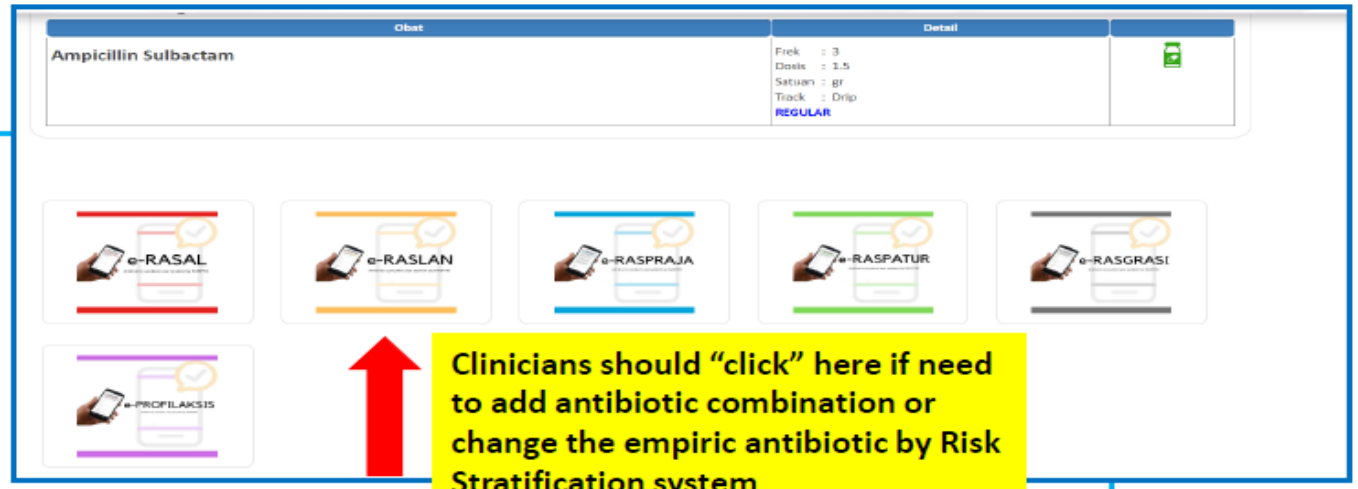
Digital Empiric Antibiotic Guidelines by Patient Risk Stratification (RASPRO Indonesia Model)

e-RASPR

Antibiotic prudent use system by RASPRO

e-DEFINITIF

Antibiotic prudent use system by RASPRO



Spesimen *

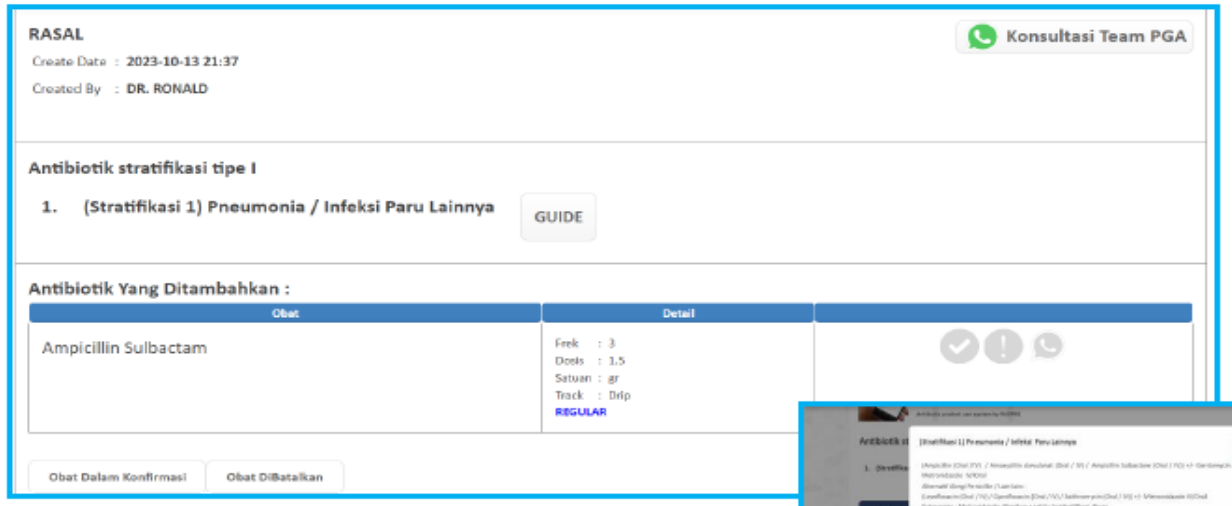
TENTUKAN FOKUS INFEKSI

Antibiotic De-Escalation

Timing

Focus of Infection

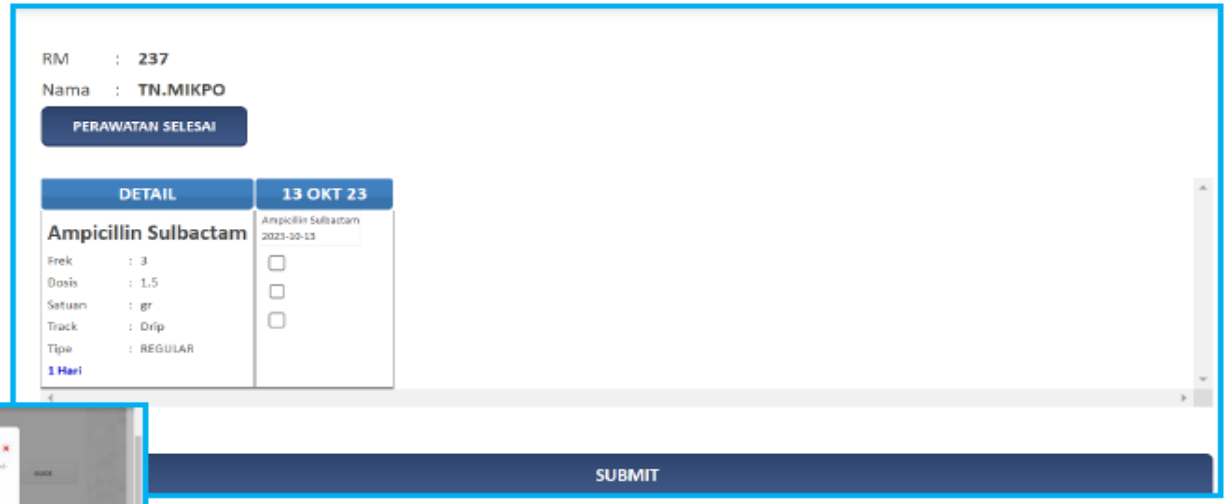
Specimen from site of infection



Pharmacist screen

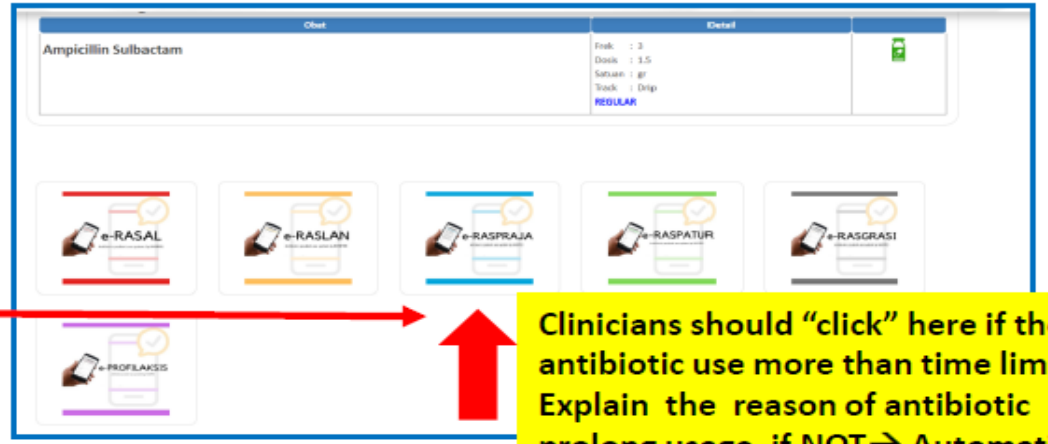
Evaluation:
If:
Empiric / Prophylaxis Antibiotic:
Is it Antibiotic ACCESS / WATCH / RESERVE?
Is it proper with local guidelines?
If:
Definitive:
Check the data Is it Antibiotic ACCESS / WATCH / RESERVE?

Duration of Empiric Antibiotic Usage
De-Escalation to DEFINITIVE Antibiotic
Is the any dose adjusted?
Onsite consultation with ASP team if it's needed

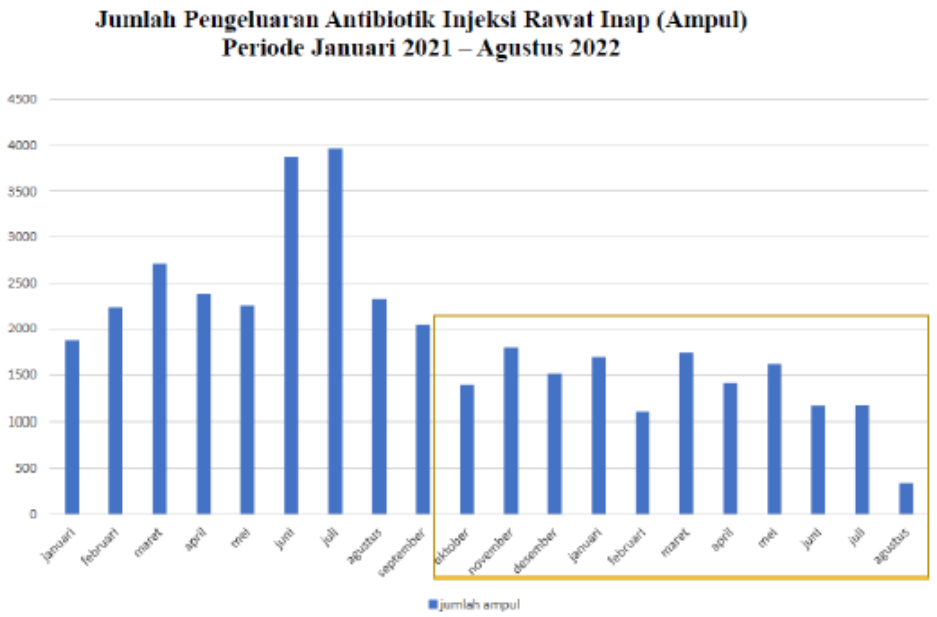


Nurse Screen

Watching :
Empiric / Prophylaxis / Definitive
Dose & Duration of Empiric Antibiotic Usage
De-Escalation to DEFINITIVE Antibiotic

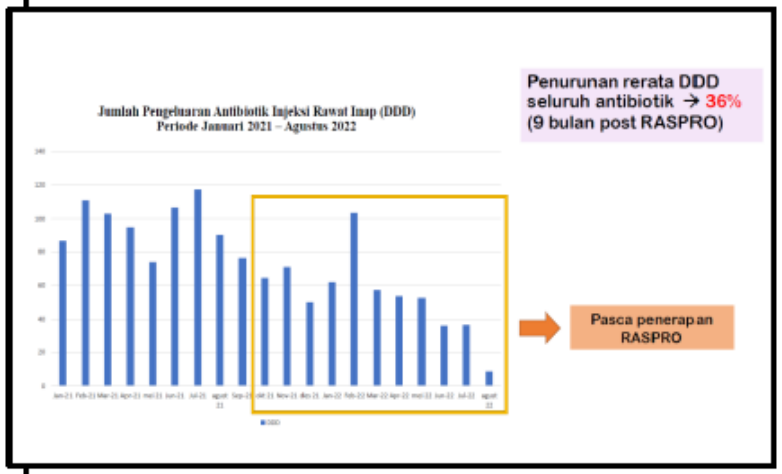


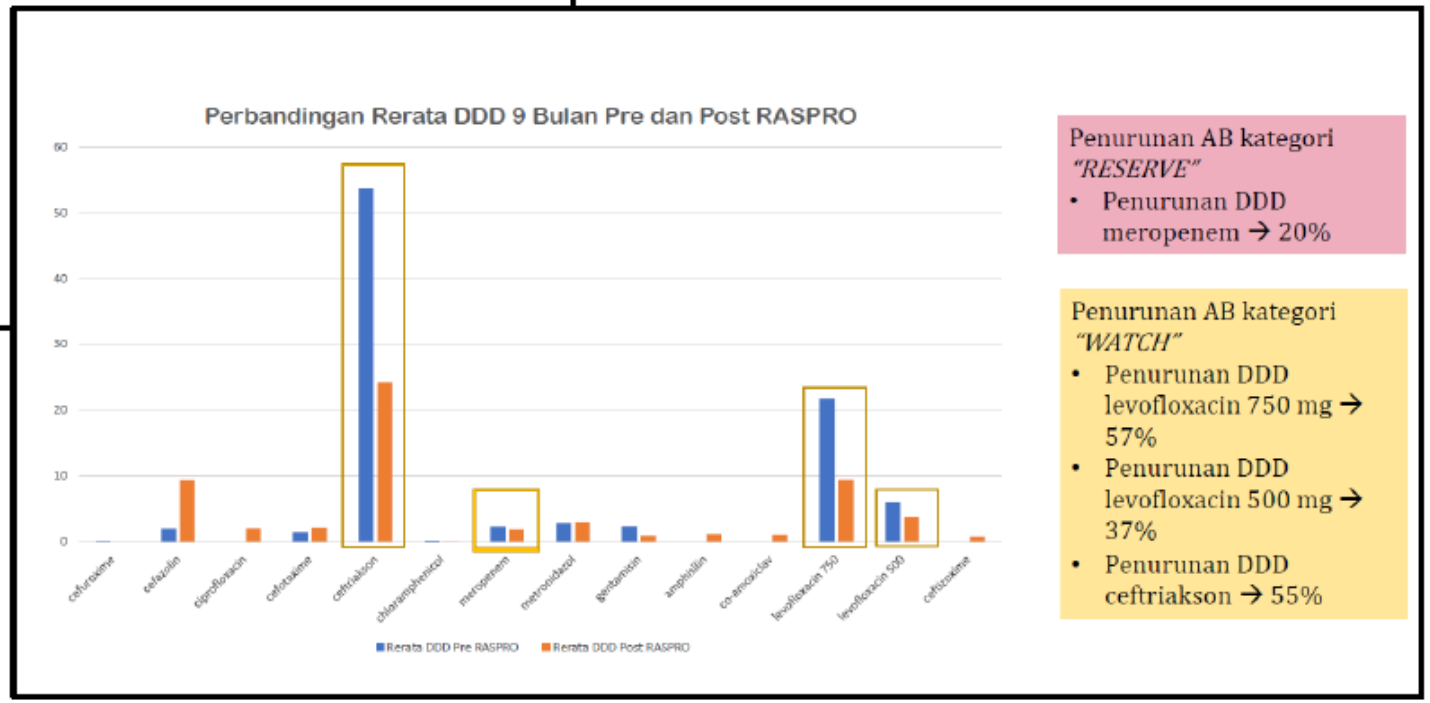
Clinicians should "click" here if the antibiotic use more than time limit. Explain the reason of antibiotic prolong usage. if NOT→ Automatic Stop Order (ASO) will be enforced



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)





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 ceftriakson → 55%

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

Documentation

Dr. Iin Indra Pertiwi, SpPD
RASPRO INDOGRAM

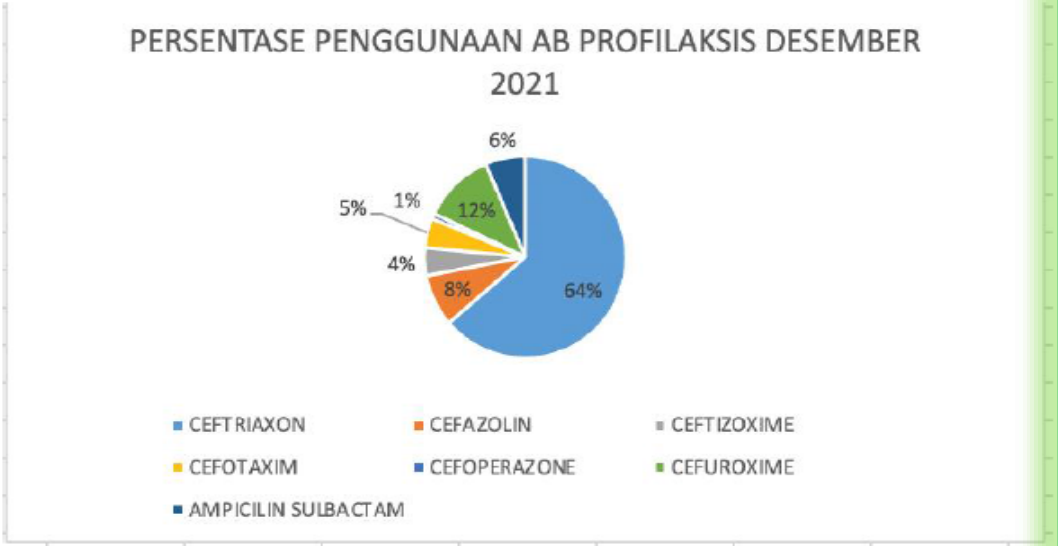
World Antimicrobial Awareness Week 2022

PENGGUNAAN KUANTITATIF ANTIBIOTIK PROFILAKSIS DESEMBER 2021 (PRA RASPRO)

PENGGUNAAN AB PROFILAKSIS DESEMBER 2021			
NO	ANTIBIOTIK	TOTAL PENGGUNAAN	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

Permenkes 28/2021

Prophylaxis : **Cephazolin!!**



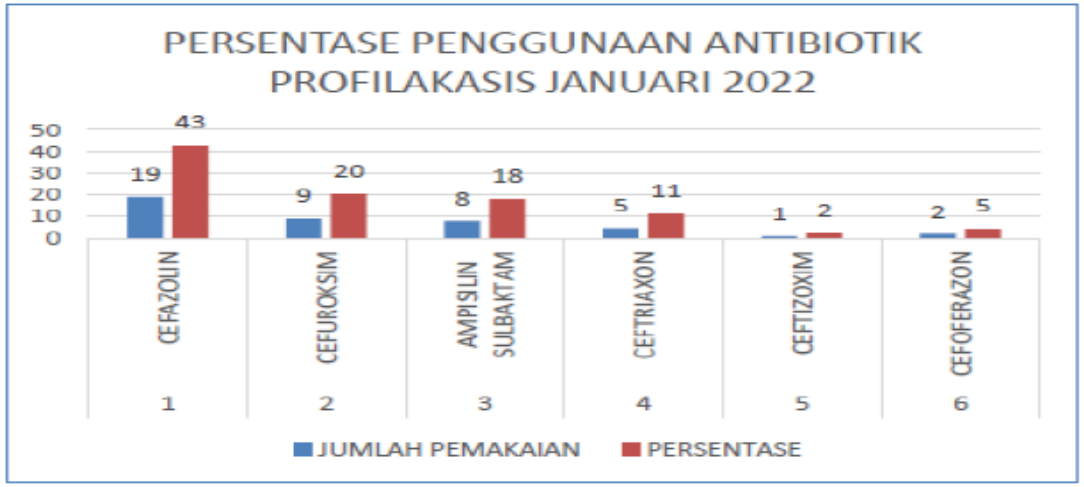
Documentation

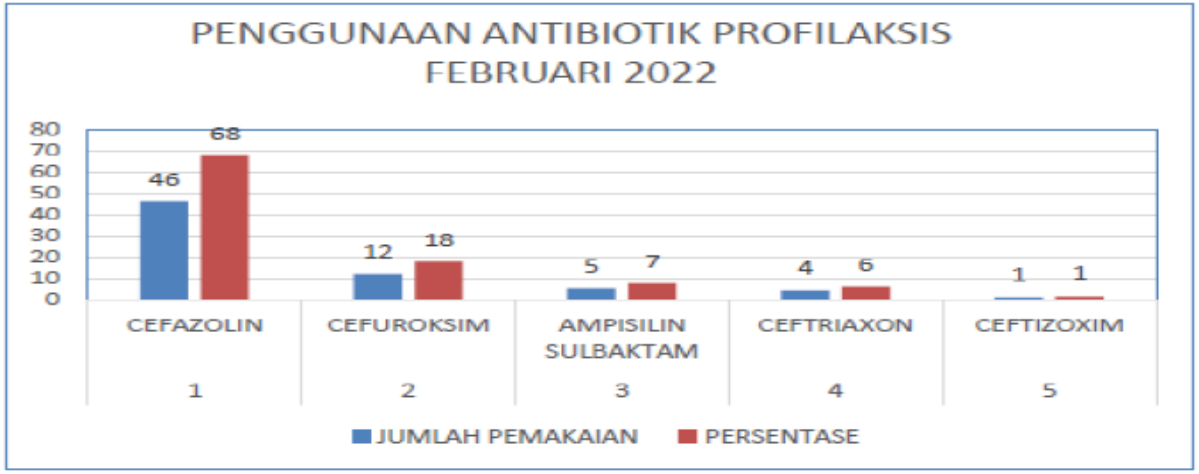
Dr. Hadianti Adlani, SpPD, Subsp. PTI

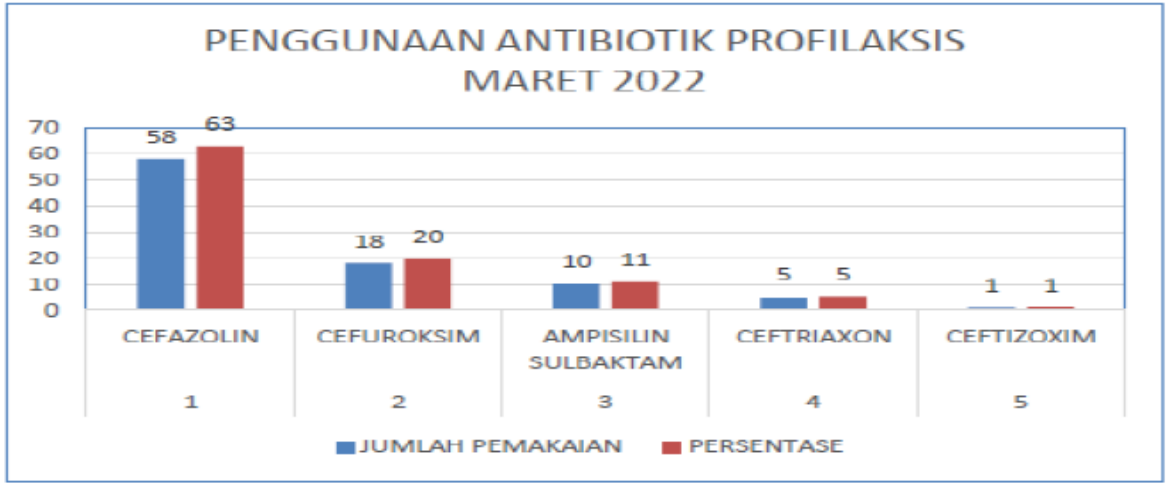
RASPRO INDOGRAM -World Antimicrobial Awareness Week 2022

a Hospital in Ciputat : e- RASPRO Model

PENGGUNAAN ANTIBIOTIK PROFILAKSIS JANUARI– MARET 2022 (PASKA RASPRO)







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

a Hospital in Ciputat :
e- RASPRO Model

Jurnal Biomedika dan Kesehatan *Vol. 4 No. 1 Maret 2021*

ORIGINAL ARTICLE

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

Teulis Sumiartini[1], Dian Ratih Laksmitawati[1], Hesti Utami Ramadaniati[1], Ronald Irwanto Natadidjaja[2,3], Rudi Asmajaya[3]

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.

J Biomedika Kesehat 2021;4(1):5-11
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".

Antibiotic for Prophylaxis

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 Ariyani[1], Hadianti Adlani[1,3,4], Raymond Adianto[1], Iin Indra Pertiwi[5], Grace Nerry Legoh[6], Alvin Rantung[6], Dianawati[5], Sri Mulyani[4], Ronaningtyas Maharani[4], Desi Anggiat[4], Triyoko Septio Marja[4], Hadi Sumarsono[1]

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

New Age of
Antimicrobial Stewardship Spirit

Quality Indicator : Quantity of Antibiotic Use in Hospital

CHAPTER 6 : Quantity

MENTERI KESEHATAN
REPUBLIK INDONESIA

PERATURAN MENTERI KESEHATAN REPUBLIK INDONESIA
NOMOR 8 TAHUN 2015

TENTANG

PROGRAM PENGENDALIAN RESISTENSI ANTIMIKROBA
DI RUMAH SAKIT

Pasal 11

Indikator mutu Program Pengendalian Resistensi Antimikroba di Rumah Sakit meliputi:

a. perbaikan kuantitas penggunaan antibiotik;
b. perbaikan kualitas penggunaan antibiotik;
c. perbaikan pola kepekaan antibiotik dan penurunan pola resistensi antimikroba;
d. penurunan angka kejadian infeksi di rumah sakit yang disebabkan oleh mikroba multiresisten; dan
e. peningkatan mutu penanganan kasus infeksi secara multidisiplin, melalui forum kajian kasus infeksi terintegrasi.

VIII. INDIKATOR MUTU PROGRAM PENGENDALIAN RESISTENSI ANTIMIKROBA

Dampak keberhasilan program pengendalian resistensi antimikroba di rumah sakit dapat dievaluasi dengan menggunakan indikator mutu atau *Key Performance Indicator* (KPI) sebagai berikut:

a. perbaikan kuantitas penggunaan antibiotik

   Menurunnya konsumsi antibiotik, yaitu berkurangnya jumlah dan jenis antibiotik yang digunakan sebagai terapi empiris maupun definitif

b. perbaikan kualitas penggunaan antibiotik

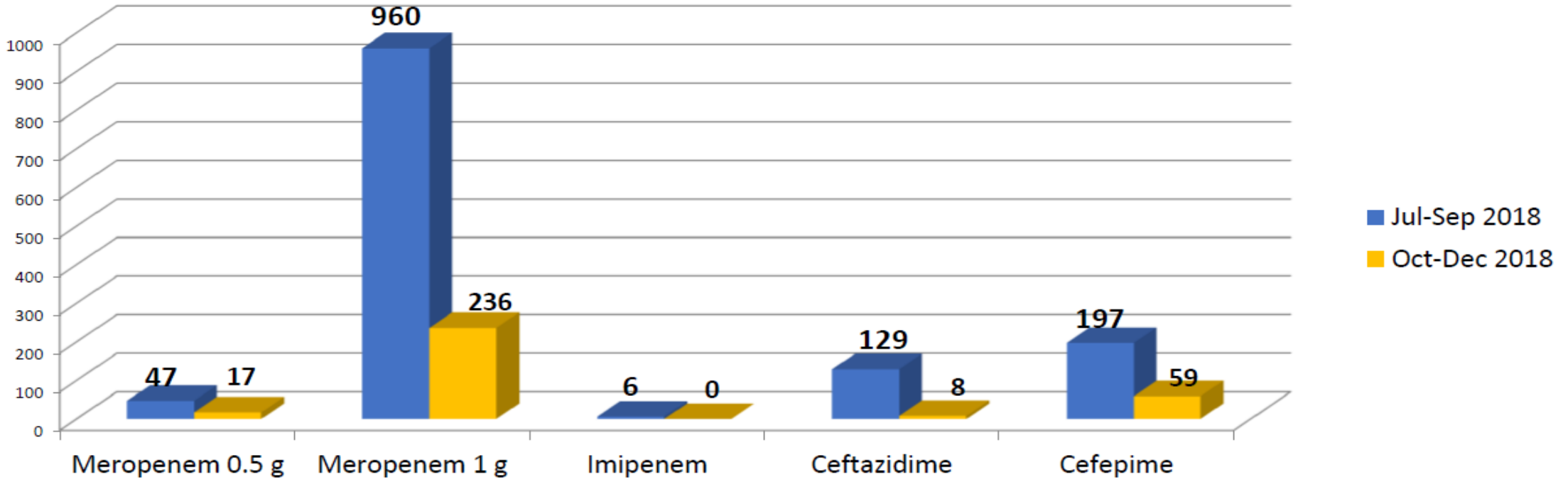
   Meningkatnya penggunaan antibiotik secara rasional (kategori nol, *Gyssens*) dan menurunnya penggunaan antibiotik tanpa indikasi (kategori lima, *Gyssens*)

c. perbaikan pola sensitivitas antibiotik dan penurunan mikroba multiresisten yang tergambar dalam pola kepekaan antibiotik secara periodik setiap tahun

d. penurunan angka infeksi rumah sakit yang disebabkan oleh mikroba multiresisten, contoh *Methicillin resistant Staphylococcus aureus* (MRSA) dan bakteri penghasil *extended spectrum beta-lactamase* (ESBL)

e. peningkatan mutu penanganan kasus infeksi secara multidisiplin, melalui forum kajian kasus infeksi terintegrasi.

Three Months Comparison of Broad Antibiotics Unit Sold: Before and After RASPRO-RASAL Criteria Implemented



Ronald Irwanto Natadidjaja*#, Yuhana Fitra**, Yudianto Budi Saroyo**, Augustine Matatula**, Rinna Wamila Sundariningrum

(MANUAL Model)

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

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 Henry[1], Hadianti Adlani[1], Aziza Ariyani[1] and Rika Bur[1]

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

Abstract

Methods: A pre–post-descriptive study was conducted in 2019 for 3 months at a private hospital in Central Java, Indonesia, to evaluate the implementation of the Regulation on Indonesian Antimicrobial Stewardship Program (ASP), namely, the Prospective Antimicrobial System/Regulasi Antimikroba Sistem Prospektif Indonesia (RASPRO). Outcomes were measured before and after the implementation of the RASPRO in the ward including: 1) intravenous antibiotic defined daily dose (DDD) per 100 patient-days, 2) antibiotic expenditure, and 3) antibiotic expenditure per inpatient.

Result: The total antibiotic consumption was expressed in DDD/100 patient-days. For the levofloxacin category, the number increased intensely from 2.38 to 15.29; carbapenem escalated from 0.51 to 2.31, ceftriaxone from 32.10 to 38.03, and ampicillin sulbactam from 1.14 to 1.18. In contrast, cefuroxime significantly reduced from 17.25 to 1.38, cefotaxime decreased from 10.33 to 6.83, gentamicin decreased from 3.18 to 1.91, and amikacin decreased from 2.27 to 2.13. The overall cephalosporin usage decreased from 19.89 to 15.41. The total antibiotic expenditure had a decline of 20.28%, followed by 14.44% reduction on the percentage of antibiotic expenditure per inpatient.

Conclusion: Our study describes the 3-month analysis of antimicrobial usage before and after the implementation of the RASPRO by evaluating several parameters. The antibiotic consumption expressed in DDD/100 patient-days for each antibiotic category has demonstrated that there are different impacts that may be debatable and calls for further evaluation. A decrease in the total antibiotic expenditure has also been reported. However, since our study is a preliminary study, it should be continued by further studies that involve longer study duration to observe further impacts of the program.

Komisi Akreditasi Rumah Sakit

Journal of Hospital Accreditation, 2020
Vol 02, Edisi 4, hal 57 - 62
Tanggal Publikasi, 17 Agustus 2020

Laporan Peningkatan Mutu

Konsep RASPRO: Upaya Melaksanakan Amanah Permenkes 8/2015 untuk Menurunkan Kuantitas Penggunaan Antibiotik

RONALD IRWANTO NATADIDJAJA[1,2], YUHANA FITRA[1], AZIZA ARIYANI[1], RIKA BUR[1], NUGROHO BUDI SANTOSO[1]

[1]RASPRO Indonesia Study Group

Abstrak

Masalah Mutu: *Extended Spectrum Beta-Lactamase* (ESBL) muncul sebagai masalah global akibat penggunaan betalaktam yang berlebihan. Tahun 2015, Kementerian Kesehatan Republik Indonesia mengeluarkan Peraturan Menteri Kesehatan No. 8/2015 agar rumah sakit dapat mengatur penggunaan antibiotik secara bijak. Standar Nasional Akreditasi Rumah Sakit (SNARS) 2018 juga mengkaji berbagai indikator mutu dalam penggunaan antibiotik di rumah sakit, termasuk *Define Daily Dose* (DDD) dan unit penjualan antibiotik. Oleh karena itu, dibutuhkan sebuah *tools* yang dapat mengatur klinisi agar penggunaan antibiotik menjadi lebih efisien.

Pilihan Solusi: *Regulasi Antimikroba Sistem Prospektif* (RASPRO) merupakan sebuah konsep *tools* berupa tabel untuk pengaturan penggunaan antibiotik empirik dan definitif prospektif di rumah sakit yang bertujuan untuk mengoperasionalkan Peraturan di atas. Indikator perbaikan penggunaan antibiotik yang digunakan adalah penurunan DDD dan unit penjualan antibiotik sesuai SNARS.

Implementasi: RASPRO membentuk Panduan Penggunaan Antibiotik (PPAB) dengan pertimbangan pola kuman lokal, dan membaginya ke dalam stratifikasi I-III sesuai dengan risiko infeksi dan tingkat keparahan penyakit pasien. Aplikasi RASPRO dilakukan dengan menggunakan tabel yang wajib diisi klinisi pada peresepan antibiotik. Tabel tersebut mengarahkan klinisi mengenai jenis antibiotik yang harus digunakan sesuai PPAB berdasarkan kondisi pasien dan tingkat keparahan penyakit, sesuai gambar dalam stratifikasi. Antibiotik di*reserve* dan direstriksi melalui sistem tabel RASPRO, apabila peresepan tidak sesuai stratifikasi.

Evaluasi dan Pembelajaran: Tampak penurunan signifikan DDD ceftriaxone dan meropenem di RS A sebelum dan sesudah sosialisasi PPAB-RASPRO dengan model stratifikasi pada fokus-fokus infeksi besar (pneumonia, infeksi saluran kemih (ISK), infeksi intra abdomen). Penjualan unit antibiotik carbapenem dan ceftazidime (cephalosporin anti-pseudomonas) dalam tiga bulan di RS Y, yang telah menerapkan tabel aplikasi RASPRO, dijumpai jauh lebih rendah dibandingkan RS X yang belum menerapkan program RASPRO. Dijumpai penurunan total peresepan betalaktam dan meropenem pada RS X dalam 3 bulan setelah konsep RASPRO diterapkan sebagai projek ujicoba di beberapa bangsal.

Kata kunci: RASPRO, penurunan, penggunaan, antibiotik

	RS X	RS Y
	447 tempat tidur	250 tempat tidur
Meropenem	1.196	236
Imipenem	80	-
Ceftazidime	265	8
Total	1.541	244

	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

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

R. I. Natadidjaja[1,2,*], R. Asmajaya[2], H. Basrie[2], H. Sumarsono[2]
[1]Internal Medicine, Faculty of Medicine, Universitas Trisakti, [2]Pelita RASPRO Indonesia Foundation, Jakarta Barat, Indonesia
Correspondence: R. I. Natadidjaja

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.

(MANUAL Model)

New Age of
Antimicrobial Stewardship Spirit

Quality Indicator : Quality of Antibiotic Use in Hospital

CHAPTER 7 : Quality

MENTERI KESEHATAN
REPUBLIK INDONESIA

PERATURAN MENTERI KESEHATAN REPUBLIK INDONESIA
NOMOR 8 TAHUN 2015

TENTANG

PROGRAM PENGENDALIAN RESISTENSI ANTIMIKROBA
DI RUMAH SAKIT

Pasal 11

Indikator mutu Program Pengendalian Resistensi Antimikroba di Rumah Sakit meliputi:

a. perbaikan kuantitas penggunaan antibiotik;
b. perbaikan kualitas penggunaan antibiotik;
c. perbaikan pola kepekaan antibiotik dan penurunan pola resistensi antimikroba;
d. penurunan angka kejadian infeksi di rumah sakit yang disebabkan oleh mikroba multiresisten; dan
e. peningkatan mutu penanganan kasus infeksi secara multidisiplin, melalui forum kajian kasus infeksi terintegrasi.

VIII. INDIKATOR MUTU PROGRAM PENGENDALIAN RESISTENSI ANTIMIKROBA

Dampak keberhasilan program pengendalian resistensi antimikroba di rumah sakit dapat dievaluasi dengan menggunakan indikator mutu atau *Key Performance Indicator* (KPI) sebagai berikut:

a. perbaikan kuantitas penggunaan antibiotik

   Menurunnya konsumsi antibiotik, yaitu berkurangnya jumlah dan jenis antibiotik yang digunakan sebagai terapi empiris maupun definitif

b. perbaikan kualitas penggunaan antibiotik

   Meningkatnya penggunaan antibiotik secara rasional (kategori nol, *Gyssens*) dan menurunnya penggunaan antibiotik tanpa indikasi (kategori lima, *Gyssens*)

c. perbaikan pola sensitivitas antibiotik dan penurunan mikroba multiresisten yang tergambar dalam pola kepekaan antibiotik secara periodik setiap tahun

d. penurunan angka infeksi rumah sakit yang disebabkan oleh mikroba multiresisten, contoh *Methicillin resistant Staphylococcus aureus* (MRSA) dan bakteri penghasil *extended spectrum beta-lactamase* (ESBL)

e. peningkatan mutu penanganan kasus infeksi secara multidisiplin, melalui forum kajian kasus infeksi terintegrasi.

Gyssens Table for measuring the quality of antibiotic use : National Quality Indicator

NO	PENGAMATAN	HASIL	AB					KATEGORI	TINDAKAN	CATATAN
			I	II	III	IV	V			
1	Data lengkap	tidak						VI	henti	
		ya								
2	Indikasi Antibiotik sesuai	tidak						V	henti	
		ya								
3	Alternatif lebih efektif	ya						IVa		
		tidak								
4	Alternatif kurang toxik	ya						IV b		
		tidak								
5	Alternatif lebih murah	ya						IVc		
		tidak								
6	Alternatif lebih sempit	ya						IVd		
		tidak								
7	Durasi terlalu panjang	ya						IIIa		
		tidak								
8	Durasi terlalu singkat	ya						IIIb		
		tidak								
9	Dosis tepat	tidak						IIa		
		ya								
10	Interval tepat	tidak						IIb		
		ya								
11	Rute tepat	tidak						IIc		
		ya								
12	Waktu pemberian tepat	tidak						I		
		ya						0		Tepat

Raspro matrix to guide filling in the Gyssens table

KATEGORI VI

"DATA LENGKAP ?"

RASPRO SISTEM	
data tidak lengkap	data lengkap
tidak	ya

KATEGORI V

"INDIKASI ANTIBIOTIK SESUAI?"

RASPRO SISTEM	
fokus infeksi tidak disebut	fokus infeksi disebut
tidak	ya

KATEGORI IVa

"ADAKAH ALTERNATIF LEBIH EFEKTIF?"

RASPRO SISTEM				
kultur (-) / tidak sesuai kultur		kultur (+) / sesuai kultur		
sesuai RASAL/ RASLAN	di luar stratifikasi RASAL/ RASLAN/ PPAB	sesuai RASAL / RASLAN	di luar stratifikasi RASAL/ RASLAN	di luar PPAB
				Situasional
tidak	ya	tidak	tidak	

KATEGORI IVb

"ADAKAH ALTERNATIF KURANG TOXIK?"

RASPRO SISTEM					
kultur (-) / tidak sesuai kultur			kultur (+) / sesuai kultur		
sesuai RASAL / RASLAN	di luar RASAL/RASLAN/ PPAB		sesuai RASAL / RASLAN	di luar RASAL/RASLAN/ PPAB	
	telusur IVb RASPRO (dibandingkan dengan AB tertera di PPAB sesuai stratifikasi RASAL/RASLAN)			telusur IVb RASPRO (dibandingkan antar AB tertera di kultur)	
	kurang toxik (-)	kurang toxik (+)		kurang toxik (-)	kurang toxik (+)
tidak	tidak	ya	tidak	tidak	ya

KATEGORI IVc

"ADAKAH ALTERNATIF LEBIH MURAH?"

RASPRO SISTEM					
kultur (-) / tidak sesuai kultur			kultur (+) / sesuai kultur		
sesuai RASAL/ RASLAN	di luar RASAL/RASLAN/PPAB		sesuai RASAL / RASLAN	di luar RASAL/RASLAN/PPAB	
	telusur IVc RASPRO (dibandingkan dengan AB tertera di PPAB sesuai stratifikasi RASAL/RASLAN)			telusur IVc RASPRO (dibandingkan antar AB tertera di kultur)	
	lebih murah (-)	lebih murah (+)		lebih murah (-)	lebih murah (+)
tidak	tidak	ya	tidak	tidak	ya

KATEGORI IVd

"ADAKAH ALTERNATIF LEBIH SEMPIT?"

RASPRO SISTEM			
kultur (-) / tidak sesuai kultur			kultur (+) / sesuai kultur
sesuai stratifikasi RASAL/ RASLAN	stratifikasi RASAL/ RASLAN lebih tinggi	stratifikasi RASAL/ RASLAN lebih rendah/di luar PPAB	
tidak	tidak	ya	tidak

KATEGORI IIIa

"DURASI TERLALU PANJANG ?"

RASPRO SISTEM	
> 7 hari (form RASPRAJA +)	≤ 7 hari (form RASPRAJA +)
ya	tidak

Catatan :

1. Hari durasi terlalu panjang disepakati menurut kesepakatan bersama.
2. Hari durasi terlalu panjang tetap berlaku walaupun antibiotik diberikan sesuai kultur.

KATEGORI IIIb

"DURASI TERLALU SINGKAT ?"

RASPRO SISTEM	
< 3 hari (RASPRO cardex)	≥ 3 hari
ya	tidak

Catatan :

1. Hari durasi terlalu singkat disepakati menurut kesepakatan bersama, berlaku untuk semua kasus pemberian antibiotik empirik yang dihentikan pemberiannya dalam waktu kurang dari waktu yang ditentukan, apapun penyebabnya.
2. Hari durasi terlalu singkat tetap berlaku walaupun antibiotik diberikan sesuai kultur.

KATEGORI IIa

"DOSIS TEPAT ?"

RASPRO SISTEM	
sesuai PPAB	tidak sesuai PPAB
ya	tidak

KATEGORI IIb

"INTERVAL TEPAT ?"

RASPRO SISTEM	
sesuai PPAB	tidak sesuai PPAB
ya	tidak

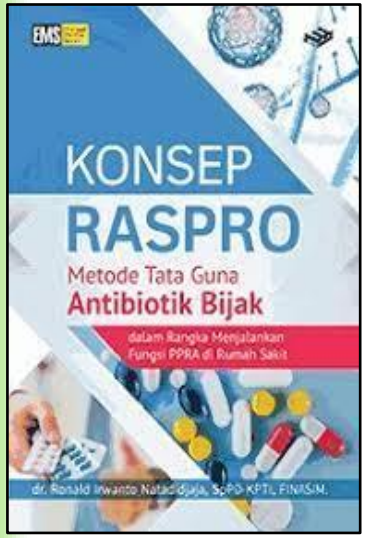
KATEGORI IIc

"RUTE TEPAT ?"

RASPRO SISTEM	
sesuai telusur RASPRO IIc	tidak sesuai telusur RASPRO IIc
ya	tidak

KATEGORI I

RASPRO SISTEM	
sesuai waktu pemberian pada RASPRO nurse cardex	tidak sesuai waktu pemberian pada RASPRO nurse cardex
ya	tidak



The RASPRO matrix only an option to guide filling in the Gyssens table in hospitals that already use the RASPRO model. This matrix cannot cover all situations and conditions, it still has to be filled in through discussion.

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]

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

New Age of
Antimicrobial Stewardship Spirit

Additional Journals, Posters, Thesis & Books : RASPRO Indonesia Library

CHAPTER 8 : Additional

POLA RESISTENSI DAN UJI KEPEKAAN MIKROORGANISME GRAM POSITIF PADA INFEKSI JARINGAN LUNAK KOMPLIKATA DI TIGA IGD RUMAH SAKIT DI JAKARTA

Ronald Irwanto[1], Suhendro[2], Khie Chen[2], Yeva Rosana[3]

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[2]*Divisi Tropik-Infeksi, Departemen Ilmu Penyakit Dalam Fakultas Kedokteran Universitas Indonesia / Rumah Sakit Cipto Mangunkusumo*

[3]*Departemen Mikrobiologi Klinik Fakultas Kedokteran Universitas Indonesia / Rumah Sakit Cipto Mangunkusumo*

ABSTRAK

Latar Belakang:

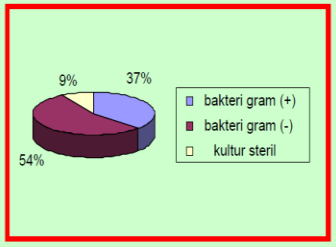
Berbagai masalah yang saat ini muncul akibat infeksi mikroorganisme gram positif, antara lain MRSA, MRSE dan VRSA. Penelitian ini dilakukan di tiga Instalasi Gawat Darurat (IGD) rumah sakit di Jakarta dengan tujuan memperoleh gambaran mengenai pola resistensi dan kepekaan mikroorganisme gram positif pada infeksi jaringan lunak komplikata dari komunitas dengan berbagai manifestasi klinisnya.

Bahan dan Metode:

Desain deskriptif cross sectional pada pasien-pasien dengan infeksi jaringan lunak komplikata yang memenuhi kriteria inklusi. Sampel diambil di tiga IGD rumah sakit di Jakarta, masing-masing RSCM, RSPAD Gatot Subroto dan RS.Sint Carolus antara bulan September sampai Oktober 2008. Uji resistensi dan kepekaan mikroorganisme aerob dengan metode *Clinical and Laboratory Standart Institute* (CLSI).

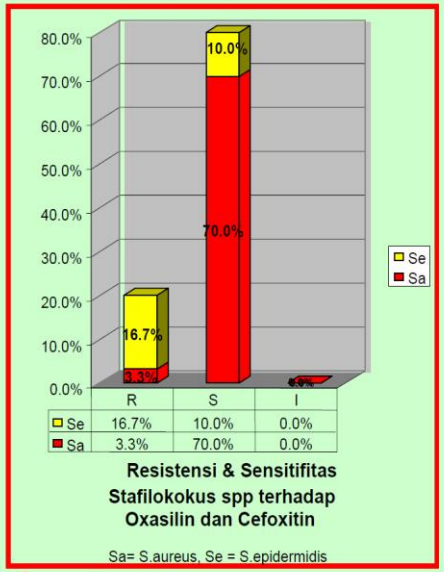
manifestasi klinis	total	
	n	%
ulkus on malignancy	28	30.4%
trauma tumpul/tajam	9	9.8%
ulkus on AIDS	6	6.5%
selulitis non DM	8	8.7%
ulkus diabetikum	33	35.9%
combutio	4	4.3%
ulkus dekubitus	4	4.3%
total	92	100.0%

Presentase subjek laki-laki sebanyak 47,8% dan perempuan sebanyak 52,2% dengan kelompok umur tertinggi 45-54 tahun sebanyak 38%.



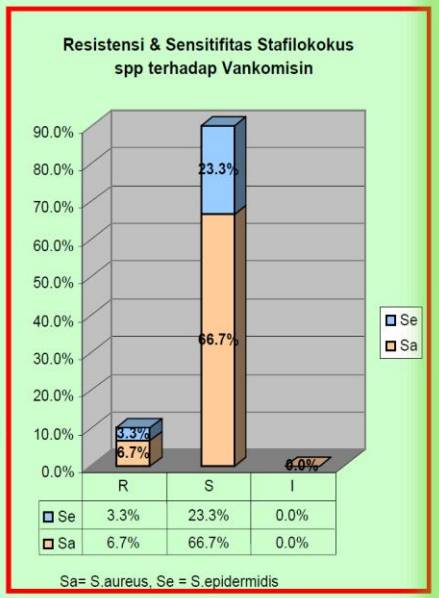
Stafilokokus aureus masih menempati urutan teratas gram positif penyebab infeksi, yaitu sebanyak 22 kultur dari 38 kultur gram positif atau sekitar 57,8%.

Sedangkan Stafilokokus epidermidis dan Streptokokus spp masing-masing ditemukan 8 biakan atau sekitar 21,05% dari seluruh kultur gram positif.



Kesimpulan: Stafilokokus masih merupakan mikroorganisme terbanyak yang ditemui dari total keseluruhan kultur. Angka kejadian Stafilokokus aureus resisten beta laktam masih tergolong rendah, sedangkan resistensi Stafilokokus epidermidis terhadap beta-laktam cukup tinggi. Telah dijumpai pula adanya Stafilokokus Spp yang resisten terhadap vankomisin.

Golongan Streptokokus spp angka kepekaan tinggi masih ditunjukkan terhadap amoxixilin (100%), levofloksasin (87,5%), moxifloksasin (75%) dan ofloksasin (87,5%). Angka kepekan tinggi Streptokokus spp juga ditunjukkan terhadap kloramfenikol (75%).



Patient-focused approaches to managing invasive fungal infections

China National Convention Centre, Beijing, China **Saturday 27 October 2012**

The second of Astellas' satellite symposia at the 13th Asia-Pacific Congress of Clinical Microbiology and Infection focused on the unique challenges of managing invasive fungal infections (IFIs) in specific patient groups, and the importance of keeping the patient at the heart of all decisions relating to antifungal management strategies. The symposium, **Patient-focused approaches to managing IFIs**, was co-chaired by Professor Minggui Wang (Shanghai, China) and Professor Robert Masterton (Ayr, UK).

Managing IFIs in the HIV patient

Even without a proven diagnosis, patient factors and antifungal characteristics can determine the optimal treatment strategy

Ronald Irwanto
Faculty of Medicine
University of Indonesia
Jakarta, Indonesia

Physicians recognise the importance of early treatment of invasive fungal infections (IFIs), but recognising which patients should be treated and selecting the most appropriate antifungal agent are important challenges.

> "[In some countries] it is very difficult to make a complete diagnosis of an invasive fungal infection"

Diagnosing IFIs remains challenging

Timely, accurate diagnosis of IFIs remains difficult, and Dr Irwanto highlighted that obtaining a definitive diagnosis can be extremely challenging in some Asian countries, where conventional tests are the only available diagnostic approaches.

For example, the clinical signs and symptoms of IFIs are typically not specific for fungi, particularly early in the course of the infection. By the time characteristic evidence becomes apparent, the infection can be well established and antifungal treatment strategies are less likely to be successful. Differentiating between colonisation (which may not require treatment) and infection (which would require treatment) can also be difficult and, although this can be aided by taking biopsies, such invasive procedures are not always possible due to a patient's underlying disease or comorbidities [Figure 1].

Dilemmas in diagnosing IFIs

- Clinical symptoms are not characteristic
- Fungi can be both colonisers and pathogens, and even laboratory contamination
- Biopsy is often precluded by co-morbidities
- Objective evidence usually occurs late in the course of infection

Figure 1 – Difficulties in diagnosing IFIs

Although criteria have been developed to help diagnose and classify IFIs, Dr Irwanto highlighted that these definitions were developed for use in clinical trials, and are generally not appropriate for use in routine clinical practice.[13,14] For example, the European Organisation for Research and Treatment of Cancer (EORTC)'s classification of IFIs relies on the presence of host factors, clinical features, histopathology and mycological findings [Figure 2]. However, Dr Irwanto stressed that, in his centre, obtaining a diagnosis of a proven IFI (typically based on detecting fungal elements in diseased tissue) is uncommon, particularly during the crucial early stages of infection.

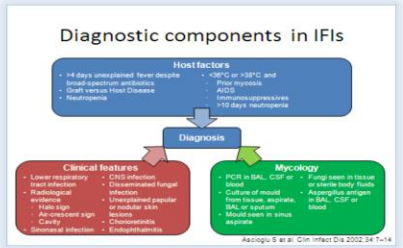


Figure 2 – Components contributing to the diagnosis of IFIs

When to start antifungal therapy

Deciding when to start antifungal therapy is critical, and Dr Irwanto outlined the balance between starting therapy very early in the disease course (but risking exposing patients who do not actually have IFIs to antifungal agents) and starting therapy later (based on greater diagnostic certainty, but risking under-treatment and suboptimal clinical response rates).[15]

As early treatment is typically associated with improved response rates, a number of factors need to be considered when initiating antifungal therapy. Dr Irwanto stressed that, in addition to proven efficacy and broad-spectrum activity, issues including tolerability and ease of use (such as a simple administration schedule and lack of clinically relevant drug–drug interactions) can be important in selecting the most appropriate antifungal agent for an individual patient. He also highlighted that in many Asian countries, cost effectiveness is another important consideration [Figure 3].

Correlation between Modification of Diet in Renal Disease(MDRD) and Serum Cystatin C in 40–70 Years Old

Jason Jus,[1] Ronald Irwanto,[2] Pusparini[3]

Abstract

Reporting of the estimated glomerular filtration rate (GFR) in every creatinine test is suggested, despite the fact that every laboratory reports it in their result. Modification of Diet in Renal Disease (MDRD) is a formula that is used to estimate the GFR using serum creatinine. Serum cystatin C is a relatively new test and superior for assessing kidney functions. The purpose of this study was to show the correlation between MDRD and serum cystatin C. A cross-sectional study was conducted using secondary data from 260 subjects, aged 40–70 years old to assess serum creatinine and serum cystatin C at a private laboratory in West Jakarta, during the period of January 2013–September 2014. The result of the study showed that the mean age of subjects was 55.7+7.8 years old, the mean serum cystatin C level was 0.99 + 0.6 mg/L, and the mean MDRD was 80.24±28.1 mL/min/1.73 m2. Pearson correlation analysis showed a negative correlation between MDRD and serum cystatin C with r = -0.767 and p =0.001. In conclusion, higher MDRD presents lower cystatin C serum; hence, MDRD can be used as an alternative renal function test when serum cystatin C is not available. [**MKB**. 2016;48(3):129–34]

pISSN: 0126-074X; eISSN: 2338-6223; http://dx.doi.org/10.15395/mkb.v48n3.605 **MKB,** Volume 48 No. 3, September 2016

BACTERIAL SEPSIS OF UNKNOWN SOURCE IN IMMUNOCOMPETENT PATIENT WITH DENGUE HEMORRHAGIC FEVER : A CASE REPORT

Melisa [1], Ronald Irwanto Natadidjaja [1,2]

[1] | Pondok Indah Puri Indah Hospital, Jakarta, Indonesia
[2] | Division of Tropical Medicine and Infectious Disease, Department of Internal Medicine, Trisakti School of Medicine, Jakarta, Indonesia

1 BACKGROUND

Dengue Hemorrhagic Fever (DHF) is currently defined by WHO:

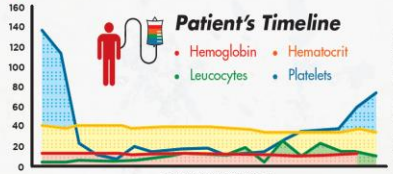
- fever or recent history of ***fever lasting 2-7 days***
- any hemorrhagic manifestation
- thrombocytopenia ***(platelet <100.000 mm3)***
- evidence of increased vascular permeability

Prolonged thrombocytopenia is unusual in the course of this disease. So does administering antibiotics, yet it showed good responses in our patient.

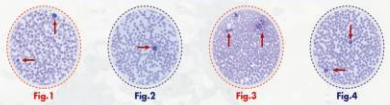
2 OBJECTIVE

To present an interesting case of prolonged thrombocytopenia in DHF caused by bacterial translocation.

3 CASE



Day of Administration	0	0	1	2	3	4	4	5	6	6	7	7	8	8	9	9	10
Hemoglobin	14.3	13.7	14.8	14.9	14.9	13.1	13.8	14.6	13.6	13.8	13.4	13.2	12.1	12.5	12	12	12.2	13.6	13.3
Hematocrit	41	40	43	43	43	38	39	42	40	40	39	38	35	36	35	35	36	39	38
Leucocytes	4.7	4.1	7	7	6.3	7.5	10	12	13.2	13.2	12.2	19.1	8.4	26.1	10.6	23.9	17.3	10.4	11.7
Platelets	136	114	12	12	8	20	16	17	19	19	12	14	16	27	35	38	38	60	76



Peripheral Blood Film (PBF) shows changing characteristic from Blue Lymphocyte Predominant (Fig.1 & Fig.2) into segmented Neutrophils (Fig.3 & Fig.4)

A 38 year old man came with a chief complaint of fever for 5 days prior to hospital and afterward was diagnosed with DHF. During hospitalization his thrombocytopenia persisted, whereas during that time, his platelet count was expected to have risen.

Malaria, HIV, Hepatitis, Autoimmune, malignancy were already excluded. DIC profile was normal.

He received fresh frozen plasma and platelet apheresis transfusion, but the platelet counts failed to reach the normal range.

A serial tests were performed to find out caused of his prolonged thrombocytopenia. PBF shows changing characteristic from blue lymphocyte predominant into segmented neutrophils which indicates bacterial infection. Steroid administration did not elicit any improvement. His Procalcitonin level and leucocytes were escalating which indicates bacterial infection.

No clinical symptom of lung, skin and soft tissue, urinary tract, intra abdominal infection.

We treated the patient for sepsis with antibiotics and he displayed good response.

Subsequently, his platelet level slowly increased and leucocytes began to drop.

4 CONCLUSION

Prolonged thrombocytopenia in DHF is uncommon when the platelet counts will automatically raised into normal range with clinical improvement.

Elevation of Procalcitonin and better response to antibiotics in this case confirms that prolonged thrombocytopenia in DHF predominantly was caused by bacterial sepsis, that we predict caused by bacterial translocation from gut.

Therefore, physicians should consider bacterial translocation as differential diagnosis for prolonged thrombocytopenia in DHF.

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PO 363

BACTERIAL SEPSIS OF UNKNOWN SOURCE IN IMMUNOCOMPETENT PATIENT WITH DENGUE HEMORRHAGIC FEVER: A CASE REPORT

Melisa [1], Ronald Irwanto Natadidjaja[1,2]

1. Pondok Indah Puri Indah Hospital, Jakarta, Indonesia
2. Division of Tropical Medicine and Infectious Disease, Department of Internal Medicine, Trisakti School of Medicine, Jakarta, Indonesia

Background. Dengue Hemorrhagic Fever (DHF) is currently defined by WHO: fever or recent history of fever lasting 2-7 days, any hemorrhagic manifestation, thrombocytopenia (platelet <100.000 mm3), evidence of increased vascular permeability. Prolonged thrombocytopenia is unusual in the course of this disease. So does administering antibiotics, yet it showed good responses in our patient.

Objective. To present an interesting case of prolonged thrombocytopenia in DHF caused by bacterial translocation.

Case. A 38 year old man came with a chief complaint of fever for 5 days prior to hospital and afterward was diagnosed with DHF. During hospitalization his thrombocytopenia persisted, whereas during that time, his platelet count was expected to have risen. Malaria, HIV, Hepatitis, Autoimmune, malignancy were already excluded. DIC profile was normal. He received fresh frozen plasma and platelet apheresis transfusion, but the platelet counts failed to reach the normal range. A serial tests were performed to find out caused of his prolonged thrombocytopenia. PBF shows changing characteristic from blue lymphocyte predominant into segmented neutrophils which indicates bacterial infection. Steroid administration did not elicit any improvement. His Procalcitonin level and leucocytes were escalating which indicates bacterial infection. No clinical symptom of lung, skin and soft tissue, urinary tract, intra abdominal infection. We treated the patient for sepsis with antibiotics and he displayed good response. Subsequently, his platelet level slowly increased and leucocytes began to drop.

Conclusion. Prolonged thrombocytopenia in DHF is uncommon when the platelet counts will automatically raised into normal range with clinical improvement. Elevation of Procalcitonin and better response to antibiotics in this case confirms that prolonged thrombocytopenia in DHF predominantly was caused by bacterial sepsis, that we predict caused by bacterial translocation from gut. Therefore, physicians should consider bacterial translocation as differential diagnosis for prolonged thrombocytopenia in DHF.

Keywords. Bacterial, Sepsis of unknown source, Dengue

The 9th International Congress of APSIC 2019

APPLICATIVE CONCEPT OF RASPRO: HOW INDONESIAN IMPLEMENT THE ANTIMICROBIAL STEWARDSHIP PROGRAM IN PRIVATE HOSPITALS

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Abstract

The Multi Drug Resistant (MDR) Bacteria run to be a global issue in worldwide. Antibiotic resistance can be achieved by either acquisition of foreign antibiotic-resistance genes, or mutations in indigenous genes encoding the target or the transport systems of the drugs.[1] Outbreaks of MDR A. baumannii have been reported in the New York area of the USA over the past 10 years.[2] MDR (carbapenem-resistant and carbapenem susceptible) A. baumannii have also been reported in Canada. Simor et al. described an outbreak of MDR A. baumannii (carbapenem-susceptible) at a 14-bed burn unit in a Toronto hospital involving 31 patients that was resolved through strict compliance with infection control practices.[3]

Major issue developed in Indonesia is how to run the Antimicrobial Stewardship Program (ASP). We have many policies for controlling antibiotics, but until 2017 in private hospitals we have no idea for implementing the ASP. Basically, resistant problem will appear when a type of antibiotic can not inhibit 90% *in vitro* bacterial growth based on Clinical Laboratory Standard Institute (CLSI) cut off (American). According to this resistant standard, the term of selective pressure created. Every antibiotic administered, can only inhibit 90% bacterial growth and left around 10% resistant bacteria. This knowledge lead us to understand that everybody with previous antibiotics usage tend to have the experience of MDR microorganism infection or colonization.

Ronald Irwanto Antimicrobial Stewardship Program (RASPRO) created in a private hospital in Indonesia for running the hospital ASP. RASPRO was formulated from many kinds of academic journals, research and expert conclusion that adjusted to the daily clinical practice. This concept is consist of: 3 basics of Promoting Guidelines, 3 basics of Implementation, and 3 basics of Evaluation, known as The Rule of 3 PIE.[4] RASPRO synthesized the Tumbarelo, Duke, Aliberti, Carmeli Conclusion, etc, about how to predict the infection, followed by what kind of antibiotics should be administered based on the host characteristic. We divide the host character into 3 types: type 1 predicted for multi sensitive infection, type 2 predicted for Extended Spectrum Beta Lactamase (ESBL) infection, type 3 predicted for the MDR infection. We made antibiotic guidelines with stratification system, continued with RASPRO form and flowchart for implementing and evaluating the ASP in ours.

Quality indicator, quantitative antibiotic used based on Define Daily Dose (DDD) and qualitative antibiotic used (Gyssens table), according to the requirement of our National Hospital Accreditation Committee (KARS) and the National Antimicrobial Resistance Watch Committee (KPRANas) has been measured in private hospital X before and after RASPRO implemented. The DDD of meropenem decreased from 16.93 (2016-2017) (before) to 6.61(2017-2018) (after), while the DDD of ceftriaxone decreased from 37.85 (2016-2017) (before) to 10.45 (2017-2018) (after). The qualitative indicator measured by Gyssens Table showed the increasing of prudent use of antibiotic 62.08% (2016-2017) to 79.84% CI 95% ; p <0.05 (2017-2018). We still work on this program and do some periodic evaluation.

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The corelation between procalcitonin to transaminase serum level in sepsis patients: a preliminary study

BACKGROUND

Sepsis is an event of Systemic Inflammation Response Syndrome (SIRS) due to the infection. Sepsin is still the main cause of death on critical-state patient around the word. At least 1.7 million people per year resulted sepsis with 270.000 death per year in USA reported by CDC 2016. Figuring this issue, the Procalcitonin (PCT) stay being a gold standard to judge the sepsis event. Multi-organ failure, including liver failure frequently occured due to sepsis. This study is a preliminary study, which tries to see the correlation between increased PTC with transminases serum in patient that diagnosed with sepsis.

METHODS

This observastional analytic research done as a cross sectional preliminary study in ICU room of a hospital in West Java for showing the correlation between PCT level to transaminase serum (SGPT) on 36 subjects. Confounding factor reduced by inclution and exclution criteria, continued by spearman correlation analysis before normality test.

RESULT

Mean age data is 47.5 ± 3.57 years old. Mean of PCT level in sepsis patient is 6.5083± 0.78 ng/ml, while the mean oftransaminase serum (SGPT) level each is 60.4167± 1.65 /mm3. The coefficient corelation of PCT to the SGPT show r = 0.812 ($p<0.05$).

CONCLUSION

This research showed that liver dysfuunction may indicates the early event of sepsis. The high correlation between PCT and transamnase elevation resulted in this research.

Nur Hadi Kuswoyo[1] Ronald Irwanto Natadidjaja[2]

J Biomedika Kesehat 2019;2(1):15-19
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Increasing the Antibiotic Prudent Use in a Private Hospital in Central Java: RASPRO Best Practice Implementation

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Ronald Irwanto Natadidjaja*,**, Tarcisius Henry*, Hadianti Adlani*, Aziza Ariyani*, Rika Bur*
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** Infectious Disease Division, Trisakti School of Medicine, Indonesia

Introduction

Ronald Irwanto Antimicrobial Stewardship Program (RASPRO) has been launched as the one of Indonesian Best Practice for running the prospective antimicrobial stewardship in hospital setting.

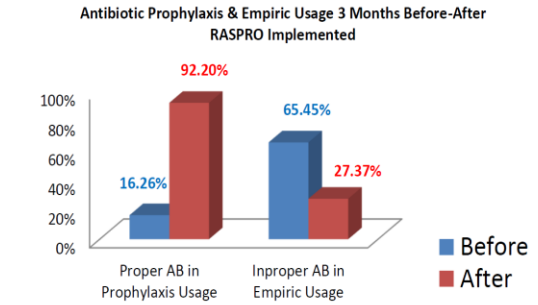
RASPRO was a copyright and inspired by selective pressure theory and Antimicrobial Risk Stratification for predicting any possibilities of infection caused by the multi sensitive or multi resistant microorganism.

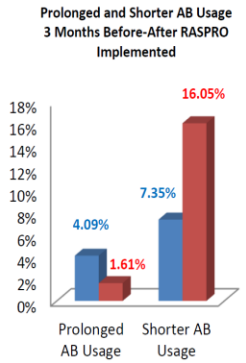
Interventions

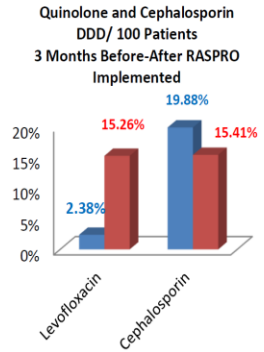
RASPRO predicted antibiotics that should be administered based on the disease severity, immune status, and previous antibiotics taking, hospitalization or medical instrument exposure. Through this program, hospitals guided clinicians to define the sites of infection, and when to use or not to use antibiotics and when to use broad or narrow spectrum empirically while waiting the culture result for a definitive treatment. This program has been implemented and studied in a private hospital in Central Java, Indonesia.

Results

In mid of 2019, the 3 months before-after RASPRO implementation study was done. We calculated a significant increasing of appropriate percentage rate of antibiotic prophylaxis used 16.26% to 92.2% and a significant decreasing rate of inappropriate antibiotic used from 65.45% to 27.37% and decreasing rate of prolonged antibiotic administered from 4.09% to 1.61%. Increasing rate of shorter antibiotics use from 7.35% to 16.05%, increasing rate of Levofloxacin Define Daily Dose (DDD) from 2.38 to 15.26 and decreasing of cephalosporin DDD rate from 19.88 to 15.41 also noted.







The rate of total antibiotics used per inpatient was 15.22% reduced.

IFIC Congress, Serbia 2020

Conclusions

RASPRO guided clinicians for using antibiotics in prudent. In general, RASPRO implementation showed a good impact for controlling the antimicrobial usage in daily practice. Further study is needed to be done for improving this best practice.

Increasing the antibiotic prudent use in a private hospital in Central Java: RASPRO best practice implementation

Ronald Irwanto Natadjijaja, Tarcisius Henry, Hadianti Adlani, Aziza Ariyani, Rika Bur

RASPRO Indonesia Study Group, Jakarta, Indonesia

Results:

In mid of 2019, the 3 months before-after RASPRO implementation study was done. We calculated a significant decreasing rate of inappropriate antibiotic used from 65.45% to 27.37% and decreasing rate of prolonged antibiotic administered from 4.09% to 1.61%. Increasing rate of shorter antibiotics use from 7.35% to 16.05%, increasing rate of Levofloxacin Define Daily Dose (DDD) from 2.38 to 15.26 and decreasing of cephalosporin DDD rate from 19.88 to 15.41 also noted. The rate of total antibiotics used per inpatient was 15.22% reduced.

Conclusions:

RASPRO guided clinicians for using antibiotics in prudent. In general, RASPRO implementation showed a good impact for controlling the antimicrobial usage in daily practice.

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REGULASI ANTIMIKROBA SISTEM PROSPEKTIF (RASPRO): SISTEM TATA GUNA ANTIBIOTIK UNTUK KENDALI MUTU DAN KENDALI BIAYA DI RUMAH SAKIT SEBAGAI UPAYA MENURUNKAN BEBAN BPJS KESEHATAN

WIDYAWATI LEKOK[1]
RONALD IRWANTO NATADIDJAJA[2, 3]
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Abstract: According to various analyses, Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS) is experiencing a significant deficit. Inefficiency in the use of drugs in health services, including prescribing and using antibiotics, creates a bigger burden for BPJS. In the term of these conditions, quality and cost control is necessary to be done. RASPRO is an antibiotic stewardship program that can be used as an alternative to increase the effectiveness of antibiotic quality and cost control as listed in PERMENKES 8/2015 concerning antibiotic resistance control as an effort to reduce BPJS costs.

Keywords: RASPRO, Antibiotic, Quality, Cost, BPJS

Ayuningtyas *et al.*
Journal of Medical Case Reports (2022) 16:154
https://doi.org/10.1186/s13256-022-03376-w

Journal of Medical Case Reports

CASE REPORT Open Access

Confirmed severe acute respiratory syndrome coronavirus 2 encephalitis in cerebrospinal fluid: a case report

Triana Ayuningtyas[1*], Ronald Irwanto Natadidjaja[1,2,3], Chyntia Octaviani[1], Felly Sahli[1] and Hadianti Adlani[1,3]

Abstract

Background: Patients with severe acute respiratory syndrome coronavirus 2 infection show various clinical manifestations, including neurological . Altered consciousness due to severe acute respiratory syndrome coronavirus 2 encephalitis is a very threatening condition if not treated immediately.

Case presentation: We present the case of a 34-year-old Asian female who tested positive for severe acute respiratory syndrome coronavirus 2 infection using a nasopharyngeal swab sample and presented with acute changes in consciousness without typical respiratory symptoms. Empiric therapy was immediately and simultaneously given with cerebrospinal fluid analysis using polymerase chain reaction, which later also showed positive results for severe acute respiratory syndrome coronavirus 2 infection.

Conclusions: It is important to consider the diagnosis of severe acute respiratory syndrome coronavirus 2 encephalitis when a patient presents with acute altered consciousness and no typical respiratory symptoms. Early empiric therapy can improve patient outcomes.

Keywords: SARS-CoV-2, Encephalitis, Altered consciousness, Case report

Author details

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REVIEW ARTICLE

RASCANDIS 1.0 Form: Therapeutic Approach of Systemic Anti-Candidiasis for Non-Transplant Patients

Formulir RASCANDIS 1.0: Pendekatan Terapi Anti-Kandida Sistemik untuk Pasien Non-Transplantasi

Ronald Irwanto Natadidjaja[1,2], Aziza Ariyani[1], Hadianti Adlani[1], Anti Dharmayanti[1,3], Joyce Bratanata[1,4]

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ABSTRACT

It has been a concern that using antifungals may induce some fungi to develop antifungal resistance in the future. Therefore, systemic anti-candidiasis agents should become a focus in controlling antifungal drugs since it is quite commonly used. There are currently three approaches to using systemic anti-candidiasis agents based on their indication, i.e. definitive, empiric and pre-emptive indication. These can be applied by observing supportive findings such as the presence of *Candida sp* infection or colonization, the severity of the infection and the patient's risk factors. The severity of invasive candidiasis is usually severe, and various risk factors need to be considered, such as Total Parenteral Nutrition (TPN), catheterization including deep vein catheter, central venous catheter (CVC), etc.

Antifungal stewardship program, including management of systemic anti-candidiasis, is essential nowadays. Therefore, it is necessary to have a program that can serve as a guideline for clinicians to implement a treatment approach for systemic anti-candidiasis. *RASPRO Alur Anti Candida Sistemik (RASCANDIS)* 1.0 form or the Indonesian Regulation on the Prospective Antimicrobial System on Systemic Anti-Candidiasis Flowchart 1.0 form is an actual implementation to provide guidelines for clinicians to administer systemic anti-candidiasis agents for non-transplant patients. The form is not a diagnostic tool, but it is more likely to serve as a review and summary of knowledge obtained from various scientific journals, which is expected that it can be proposed as an effort to administer therapeutic management of systemic anti-candidiasis appropriately.

Keywords: systemic anti-candidiasis; non-transplant; RASCANDIS 1.0; appropriately

The Thesis

RASPRO Indonesia Study Group

- **Tesis**

PENGARUH PEMBERIAN ANTIBIOTIK BERDASARKAN PANDAUAN PADA PASIEN PNEUMONIA KOMUNITAS DI RUMAH SAKIT
Fetri Charya Munarsih
Telah Lulus Ujian Program Magister Fakultas Kefarmasian Universitas Pancasila

- **Tesis**

ANALISIS KUANTITATIF ANTIBIOTIK CEFTRIAKSON SEBELUM DAN SESUDAH PENERAPAN PANDUAN PENGGUNAAN ANTIMIKROBA KONSEP RASPRO PADA SATU RUMAH SAKIT SWASTA TIPE B DI BANDING
Grace N Legoh
Telah Lulus Ujian Program Pendidikan Subspesialis / Fakultas Kedokteran Universitas Padjajaran, Bandung

- **Tesis**

EVALUASI PENGGUNAAN ANTIBIOTIK PROFILAKSIS DENGAN METODE RASPRO TERHADAP INSIDENSI INFEKSI DAERAH OPERASI DI RS ADVENT BANDUNG
Sunny N. Pasaribu.
Telah lulus ujian di Magister Kesehatan Masyarakat , Fakultas Kesehatan Masyarakat Univ.Padjajaran,Bandung

The Thesis

RASPRO Indonesia Study Group

- **Tesis**

PERBANDINGAN PENGARUH PEMBERIAN KOMBINASI ANTIBIOTIKA EMPIRISMEROPENEM – LEVOFLOXACIN DENGAN MEROPENEM – AMIKASIN TERHADAP LOS& PENURUNAN LEUKOSIT PADA PASIEN PNEUMONIA KOMUNITI STRATIFIKASI TIPE III RASPRO DI RUMAH SAKIT "X" TAHUN 2018-2019

Hadi Sumarsono.

Telah lulus ujian di Magister Kefarmasian, Fakultas Kefarmasian Universitas Pancasila.

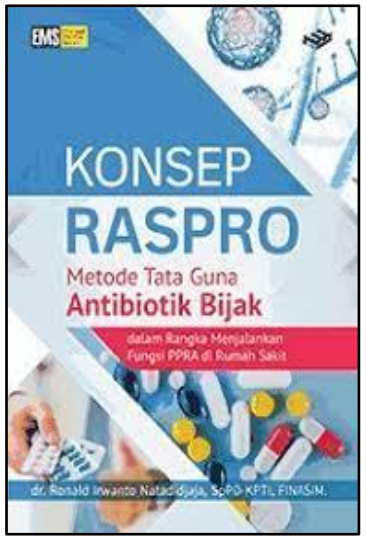
- **Tesis**

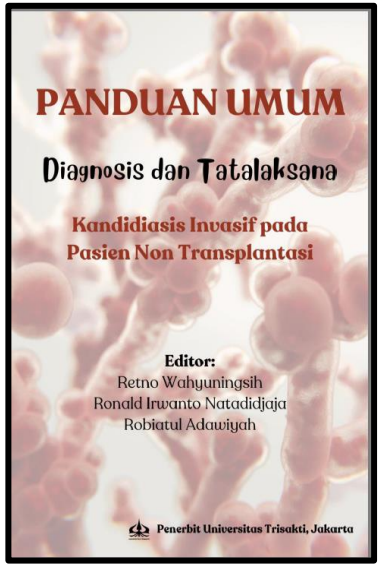
PENGARUH PEMBERIAN ANTIBIOTIK TERHADAP TANDA INFEKSI DAERAH OPERASI SUPERFISIAL DAN LAMA TINGGAL PASIEN SECTIO CAESARIA

Teulis Sumiartini

Telah lulus ujian di Magister Kefarmasian, Fakultas Kefarmasian Universitas Pancasila.

Faculty of Medicine Universitas Trisakti – RASPRO Indonesia





in progress publication 2nd edition

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 Ariyani[1], Hadianti Adlani[1,3,4], Raymond Adianto[1], Iin Indra Pertiwi[5], Grace Nerry Legoh[6], Alvin Rantung[6], Dianawati[5], Sri Mulyani[4], Ronaningtyas Maharani[4], Desi Anggiat[4], Triyoko Septio Marja[4], Hadi Sumarsono[1]

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

INVESTIGASI

Rumah Sakit Menghemat Biaya dari Pengendalian Antibiotik

Sejumlah rumah sakit justru bisa menghemat biaya dengan mengendalikan peresepan antibiotik oleh dokter.

Audio Berita 9 menit

Oleh **INSAN ALFAJRI, ADITYA DIVERANTA**
23 Maret 2024 13:58 WIB · 4 menit baca

A TEKS

KOMPAS/ADITYA DIVERANTA

Antrean pasien di salah satu ruangan RSUD Dr Mohamad Soewandhie, Surabaya, Jawa Timur, Kamis (15/2/2024).

KOMPAS/ADITYA DIVERANTA

Direktur Utama RS Mardi Rahayu Pudjianto

SURABAYA, KOMPAS — Sejumlah rumah sakit yang memperjuangkan program pengendalian antibiotik bisa menghemat biaya untuk pengeluaran obat. Cara itu diakui tidak mudah. Namun, akhirnya membuahkan hasil, yakni penggunaan obat yang lebih efisien.

Hal itu terungkap dalam wawancara harian *Kompas* dengan sejumlah rumah sakit selama Januari-Februari 2024. *Kompas* mendatangi sejumlah lokasi, antara lain Rumah Sakit Mardi Rahayu Kudus di Jawa Tengah, RS Dr Mohamad Soewandhie dan RSUD Dr Soetomo di Surabaya, Jawa Timur.

Rumah sakit itu telah menjalankan Program Pengendalian Resistensi Antimikroba (PPRA) yang diamanatkan Peraturan Menteri Kesehatan Nomor 8 Tahun 2015. Program tersebut adalah serangkaian kegiatan meliputi kontrol dan audit penggunaan obat antibiotik di rumah sakit. Peraturan tersebut dalam rangka menghadapi ancaman bakteri-kebal (resisten) yang telah menjadi isu global penting di bidang kesehatan saat ini.

Rumah Sakit Mardi Rahayu telah menjalankan PPRA sejak 2018. Direktur RS Mardi Rahayu Pujianto mengatakan, pelaksanaan itu semula untuk mengejar akreditasi tertinggi di rumah sakit. Saat berlakunya mandat regulasi Permenkes No 8/2015, dia mengakui tidak semua dokter siap dengan pengendalian antibiotik kala itu.

Meski begitu, Puji menyebut dukungan manajemen terhadap komite PPRA rumah sakit sudah kuat. "Memang tergantung dari komitmen manajemen. Kalau sudah berkomitmen, maka, ya, dihadapi. Kuncinya di situ," ujar Pujianto saat ditemui di rumah sakit, Senin (12/2/2024).

Baca juga: Resistensi Antimikroba Penyebab Utama Kematian Global

Puji menceritakan, salah satu dampak dari pengendalian antibiotik yaitu berkurangnya biaya pengadaan obat. Sebelum ada PPRA, pria ini memberikan gambaran bahwa antibiotik adalah obat peringkat pertama yang paling sering dipakai di RS. Akibat pemakaian itu, ada masanya manajemen mengeluarkan biaya Rp 1 miliar hanya untuk satu jenis antibiotik.

Setelah berjalannya PPRA hampir lima tahun di RS Mardi Rahayu, pembelian antibiotik tidak lagi menjadi urutan pertama. Hal itu karena dalam sistem PPRA, antibiotik yang dokter resepkan harus mengikuti persetujuan tim komite dari rumah sakit. Penggunaan antibiotik secara otomatis menjadi dibatasi.

"Urutannya langsung melorot. Pembelian kita menjadi hanya sekitar Rp 400 juta untuk satu jenis antibiotik," ungkapnya, Senin siang.

"Urutannya langsung melorot. Pembelian kita menjadi hanya sekitar Rp 400 juta untuk satu jenis antibiotik," ungkapnya, Senin siang.

Puji mengakui belum ada studi khusus yang menghitung dampak PPRA dari segi penghematan biaya di RS Mardi Rahayu. Namun, secara perhitungan kasar, keuntungan rumah sakit pasti akan turun karena penggunaan obat-obatan menurun.

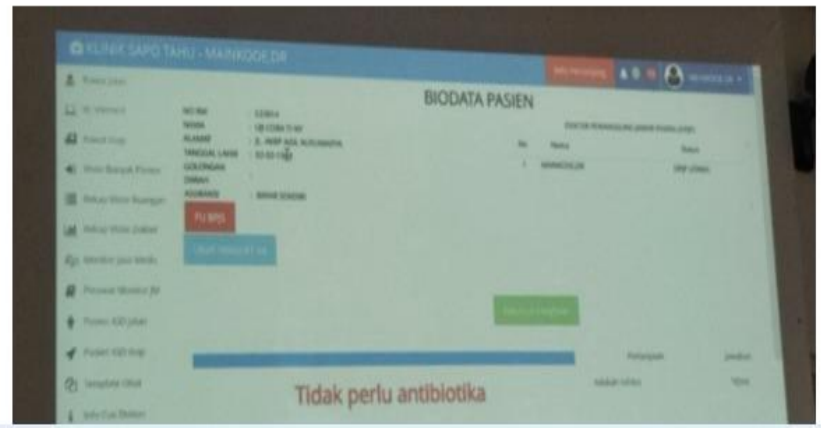
Baca juga: Gunakan Antibiotik Hanya untuk Penyakit akibat Infeksi Bakteri

Di sisi lain, tren pasien pengguna BPJS Kesehatan makin banyak. Puji menjelaskan, dalam konteks BPJS Kesehatan itu, rumah sakit sudah terikat dengan pagu anggaran. Artinya, penggunaan antibiotik atau obat lainnya tidak bisa ugal-ugalan karena memang dibatasi.

RS Mardi Rahayu juga mengadaptasi sistem regulasi antimikroba sistem prospektif secara elektronik atau E-Raspro sejak 2021. Sistem ini memudahkan pengawasan dan audit terhadap resep antibiotik dirawat inap.

Kompas menyaksikan simulasi sistem itu. Seorang dokter yang hendak meresepkan antibiotik ke pasien harus memasukkan sejumlah indikasi yang sesuai dengan kriteria. Apabila kriteria sesuai, pilihan antibiotik baru bisa disetujui.

Baca juga: Ihwal Upaya Mengubah Paradigma Antibiotik di Indonesia



KESEHATAN

Raspro, Siasat Teknologi dalam Pengendalian Antibiotik

Raspro merupakan aplikasi yang bisa menunjang progam pengendalian antibiotik di rumah sakit secara lebih efisien.

Audio Berita 15 menit

Oleh **Tim Kompas**
7 April 2024 12:16 WIB · 8 menit baca

TEKS

KOMPAS/SARIE FEBRIANE

Ronald Irwanto, dokter spesialis penyakit dalam yang menggagas rumusan Raspro, sebuah sistem aplikasi pengendalian antibiotik yang bisa diintegrasikan dengan sistem elektronik di rumah sakit.

JAKARTA, KOMPAS — Program Pengendalian Resistensi Antimikroba atau PPRA di rumah sakit yang diamanatkan pemerintah kerap masih terkendala persoalan teknis pelaksanaan. Salah satu perangkat pendukung berbasis teknologi yang telah dikembangkan saat ini adalah "Raspro". Sistem itu membuat pelaksanaan PPRA menjadi lebih efesien, punya daya-giring, sekaligus [illegible] gesekan di antara tenaga kesehatan di rumah sakit.

Raspro di Hermina

Raspro saat ini baru diadopsi di 150 rumah sakit dari sekitar 3.000 rumah sakit di Indonesia. Salah satu grup rumah sakit yang memanfaatkan Raspro adalah Hermina Hospitals yang membawahi 47 rumah sakit di sejumlah kota di Indonesia.

AGUIDO ADRI

PT Federal Internasional Finance atau FIF Group bersama Rumah Sakit Umum Hermina Depok menghadirkan rumah singgah bagi keluarga pasien di Kota Depok, Jawa Barat, Rabu (28/9/2022).

Kepala Departemen Pelayanan Medis PT Medika Loka Manajemen Grup Hermina Ronaningtyas Maharani mengatakan, sejak Maret 2023, Hermina mengaplikasikan elektronik Raspro di 24 rumah sakit Hermina. Sebelumnya pada tahun 2020, Hermina melakukan uji coba Raspro di tiga rumah sakit, yakni Hermina Ciputat di Tangerang, Banten; lalu Hermina Bekasi; dan Hermina Depok di Jawa Barat.

"Nah, sebenarnya kita dilatih bukan hanya menggunakan aplikasi (Raspro), tetapi konsepnya sendiri, konsep PPRA dengan menggunakan Raspro. Jadi sisanya (di luar 24 rumah sakit Hermina) meskipun belum memakai aplikasi (Raspro), kita tetap menjalankan PPRA dengan konsep Raspro tersebut," kata Rona.

Dengan demikian, menurut Rona, sejumlah 23 RS Hermina lainnya untuk sementara ini menjalankan Raspro secara manual, yakni dengan menggunakan semacam formulir panduan.

Seperti yang disampaikan Ronald perumus Raspro, formulir manual tersebut pun saat ini bisa diakses dan diunduh oleh semua rumah sakit atau fasilitas pelayanan kesehatan secara bebas di situs Raspro Indonesia. Aplikasi Raspro tersebut pun, menurut Ronald, sengaja tidak dikenakan biaya royalti bagi rumah-rumah sakit yang menggunakannya.

Rona menjelaskan, Panduan Penggunaan Antibiotik (PPAB) yang wajib disusun di setiap rumah sak[illegible]ta kuman ditanamkan ke

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