

## Narasumber:



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Spesialis Penyakit Dalam (Internist)  
Konsultan Penyakit Tropik & Infeksi

**Internist – Infectious Disease (ID) Specialist**

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## Formal Education

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

## Organization

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

# RASPRO Model in Primary Care Setting : Focused on Respiratory Tract Infection & Diarrhea

**Ronald Irwanto Natadidjaja**

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Komisi Akreditasi Rumah Sakit

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Vol 01, Edisi 2, hal 36-40  
Tanggal Publikasi, 31 Juli 2019

## Artikel Penelitian

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

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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 (%)
<b>Persepsi Responden Terhadap Kemampuan Dokter sebagai Anggota PPRA di Rumah Sakit</b>		
<b>Mampu</b>	36	23.0%
Sebagian Mampu	102	65.38%
Tidak Mampu	12	7.69%
Tidak Tahu	6	3.85%
<b>TOTAL</b>	<b>156</b>	<b>100.00%</b>
<b>Persepsi Terhadap Hambatan dalam Pelaksanaan Program di RS yang Sudah Menjalankan PPRA</b>		
Membuat PPAB	8	19.05%
Praktik Implementasi PPAB	17	40.48%
Restriksi Antibiotik	14	33.33%
Evaluasi Antibiotik	3	7.14%
<b>TOTAL</b>	<b>42</b>	<b>100.00%</b>
<b>Persepsi Responden Terhadap Kemampuan Anggota PPRA dalam Melakukan Restriksi AB</b>		
Sepenuhnya Mampu	6	14.29%
Belum Sepenuhnya Mampu	26	61.90%
Belum mampu	9	21.43%
Tidak tahu	1	2.38%
<b>TOTAL</b>	<b>42</b>	<b>100.00%</b>
<b>Persepsi Kebutuhan dalam Pelaksanaan PPRA bagi Rumah Sakit yang Belum Menjalankan PPRA</b>		
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%
<b>TOTAL</b>	<b>114</b>	<b>100.00%</b>

RONALD IRWANTO<sup>1,2</sup>, DJOKO WIDODO<sup>2</sup>, AZIZA ARIYANI<sup>3</sup>, HADIANTI ADLANI<sup>2</sup>

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



# Di seluruh Dunia : Tidak ada Model PPRA Rumah Sakit yang Valid

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.

Aztrenonam  
Ceftazidime Avibactam  
Ceftaroline Fosamil  
Ceftolozane Tazobactam

Imipenem cilastatin-  
relebactam

Fosfomycin IV  
Colistin  
Polymixin B  
Tygecycline

RESERVED

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

Quinolones  
Azithromycin

2<sup>nd</sup>, 3<sup>rd</sup> & 4<sup>th</sup> Generation  
of Cephalosporin

Piperacillin Tazobactam  
Carbapenems

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

WATCH

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

Ampicillin Sulbactam  
Ampicillin  
Amoxicillin Clavulanate  
Amoxicillin

1<sup>st</sup> Generation of  
Cephalosporin

Amikacin  
Gentamycin

ACCESS

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

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.<sup>7</sup> Currently, 65 countries track antibiotic use but only 29 meet the 60% Access national consumption goal.<sup>8</sup> 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.

# RASPRO Model on AWARE Categories Hospital Setting

Patient with  
bacterial  
infection

Empiric

Definitive

Prophylaxis

Empiric  
Step Up  
Step Down

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



De-escalation



ACCESS

WATCH

RESERVE

ACCESS

WATCH

RESERVE

ACCESS

If there is a  
special case,  
outside regulation

FREE by Indication

Supervision – Restricted  
by Indication  
PGA team agreement

FREE by Indication

Supervision – Restricted  
by Indication  
PGA team agreement

Supervision  
PGA team agreement

Automatic STOP  
Order if not  
reasonable



Integrated  
Assessment  
(FORKIT)

# 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<sup>1,2\*</sup>, Tarcisius Henry<sup>1</sup>, Hadiani Adlani<sup>1</sup>, Aziza Ariyani<sup>1</sup> and Rika Bur<sup>1</sup>

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



WHO- SEARO  
Webinar Series 6 :

Role of Diagnostics in  
Antimicrobial Stewardship  
and Laboratory Surveillance

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

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

Fig. 1. RASAL flowchart.

## RASPRO Indonesia Patient Risk Stratification

### Strat. Risk Type III

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

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

### Strat. Risk Type II

Group of patient that should give anti  
ESBLs antibiotic empirically  
**WATCH**

### Strat. Risk Type I

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





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

AB = Antibiotic  
IV = Intravenous  
HAIs = Healthcare Associated Infections

Fig 2. RASLAN flowchart.

RASPRAJA

I. Patient  
Name .....  
Age .....  
Gender .....  
Medical Record Number .....

II. Infection Site  
1. ....  
2. ....  
3. ....

III. Antibiotics  
Type ..... Start date : .....

IV. Planning for to Stop Antibiotic  
Type ..... Stop date : .....

V. Reason of Prolong Use of Antibiotic  
1. ....  
2. ....  
3. ....

Physician / Surgeon,  
  
Name & Signature

RASPATUR

I. Patient  
Name .....  
Age .....  
Gender .....  
Medical Record Number .....

II. Specimen Taken from  
1. ....  
2. ....  
3. ....

III. Culture Based Antibiotics  
Type ..... Start date : .....

Physician / Surgeon,  
  
Name & Signature

Fig 4. RASPATUR form.

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

Ronald Irwanto Natadidjaja<sup>\*\*</sup>, Yuhana Fitra<sup>\*\*</sup>, Yudianto Budi Saroyo<sup>\*\*</sup>, Augustine Matatula<sup>\*\*</sup>, Rinna Wamila Sundariningrum

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

### Results.

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

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

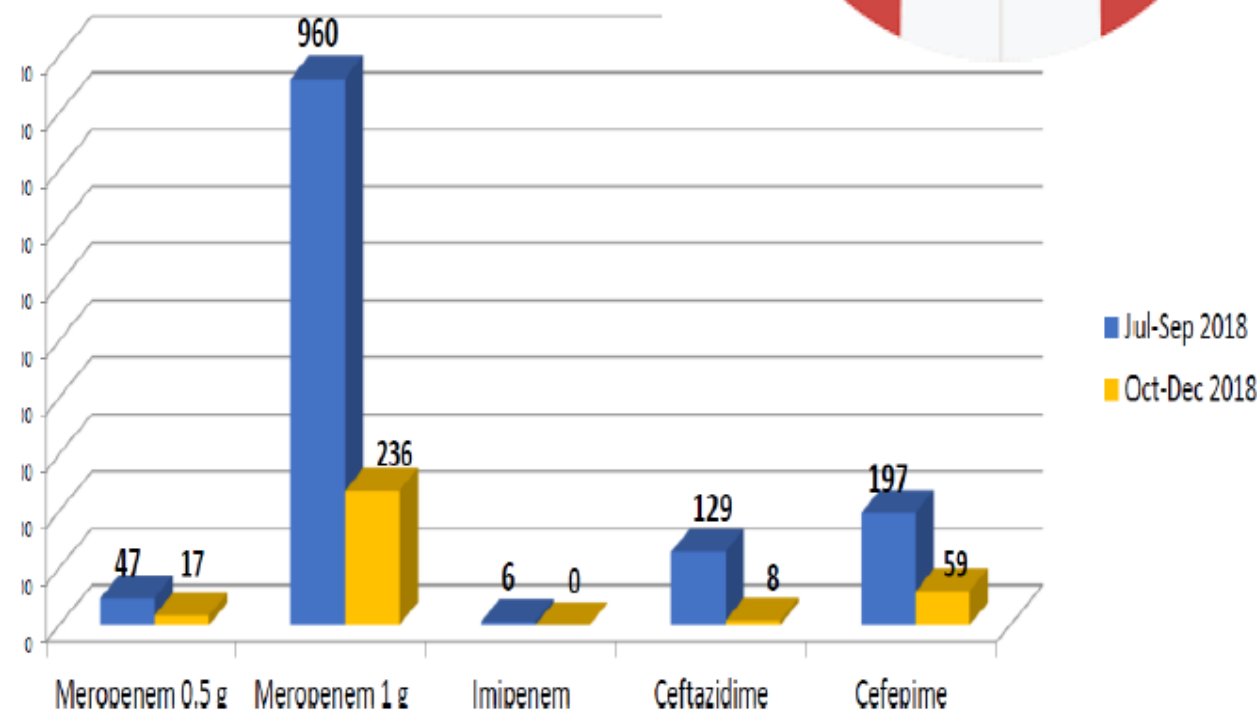
*A 93.80% decreasing of Cefazidime and 70.05% Cefepime unit sold also reported. Overall, we noted 76.10% broad spectrum reduced before-after RASPRO-RASAL implemented.*

### Conclusion.

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

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

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



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

Sari Pediatri 2020; 22(2): 109-114

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

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

RONALD IRWANTO NATADIDJAJA<sup>1,2</sup>, YUHANA FITRA<sup>1</sup>, AZIZA ARIYANI<sup>1</sup>, RIKA BUR<sup>1</sup>, NUGROHO BUDI SANTOSO<sup>1</sup>



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

Rinna W. Sundariningrum,<sup>1</sup> Darmawan Budi Setyanto,<sup>2</sup> Ronald Irwanto Natadidjaja<sup>3</sup>

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

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

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

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

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

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

## MEETING ABSTRACTS

## Open Access

# International Conference on Prevention and Infection Control 2023



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

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**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.

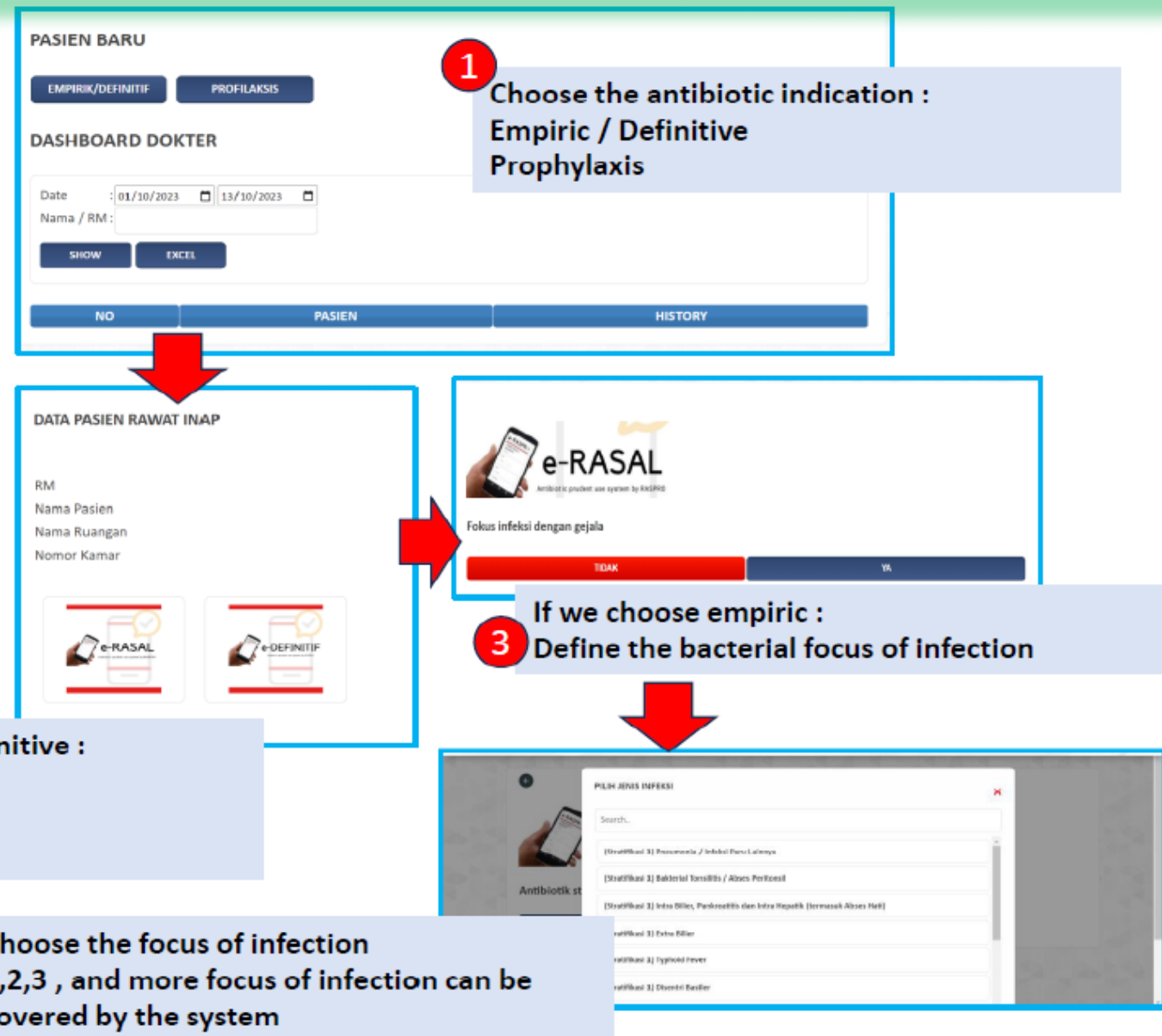
**Results:** We found reduced use of Ceftriaxone as many as 890 ampules (37.11%), for Cefotaxime the reduction was 580 ampules (67.13%); while the use of Cefoperazone reduced as many as 76 ampules (47.50%) and Ceftazidime reduced as many as 10 ampules (7.14%). The use of Ciprofloxacin reduced as many 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.








Klinis progresif sepsis / sepsis syok / febril neutropenia / HAls

**TIDAK** **YA**



Perforasi organ mengancam

**TIDAK** **YA**



Ensefalopati ec. infeksi bakterial

**TIDAK** **YA**

**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**

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

**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**


Define the Patient Risk Stratification

Type 3  Local empiric guidelines :  
Type 2  **WATCH** Group Antibiotic  
Type 1  Local empiric guidelines :  
**ACCESS** Group Antibiotic



(Imunokompromis DAN / ATAU DM tidak terkontrol) + (Riwayat Penggunaan Antibiotik DAN / ATAU Riwayat Hospitalisasi >=48 jam DAN / ATAU Riwayat Penggunaan Instrumen Medis < 30 hari yang lalu) ATAU  
(Imunokompromis DAN / ATAU DM tidak terkontrol dengan Penggunaan Instrumen Medis saat ini)

**TIDAK** **YA**




(Imunokompromis DAN / ATAU DM tidak terkontrol) + (Riwayat Penggunaan Antibiotik DAN / ATAU Riwayat Hospitalisasi >=48 jam DAN / ATAU Riwayat Penggunaan Instrumen Medis < 90 hari yang lalu)

**TIDAK** **YA**

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

Obat	Detail	
Ampicillin Sulbactam	Prek : 0 Dosis : 1.5 Satuan : gr Track : Drip <b>REGULAR</b>	

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



# e-DEFINITIF

Antibiotic prudent use system by RASPRO

Spesimen \*

TENTUKAN FOKUS INFEKSI

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

PILIH JENIS INFEKSI

Pneumonia / Infeksi Paru Lainnya

Bakterial Tonsilitis / Abses Peritonsil

Intra Biliar dan Intra Hepatik (termasuk Abses Hati)

Extra Biliar

Typhoid Fever

Disentri Basiler

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

Konsultasi Team PGA

Antibiotik stratifikasi tipe I

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

Antibiotik Yang Ditambahkan :

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

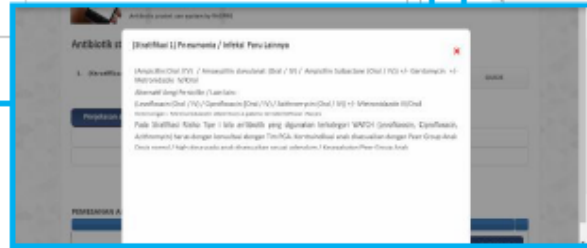
Obat Dalam Konfirmasi    Obat Dibatalkan

RM : 237  
Nama : TN.MIKPO

PERAWATAN SELESAI

DETAIL	13 OKT 23
<b>Ampicillin Sulbactam</b>	Ampicillin Sulbactam 2023-10-13
Frek : 3	<input type="checkbox"/>
Dosis : 1.5	<input type="checkbox"/>
Satuan : gr	<input type="checkbox"/>
Track : Drip	
Tipe : REGULAR	
1 Hari	

SUBMIT



## Pharmacist screen

Evaluation :

If :

Empiric / Prophylaxis Antibiotic :

Is it Antibiotic ACCESS / WATCH / RESERVE?

Is it proper with local guidelines ?

If :

Definitive :

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

Duration of Empiric Antibiotic Usage

**De-Escalation to DEFINITIVE Antibiotic**

Is the any dose adjusted?

**On Site Consultation with ASP team if it's needed**

## Nurse Screen

Watching :

Empiric / Prophylaxis / Definitive

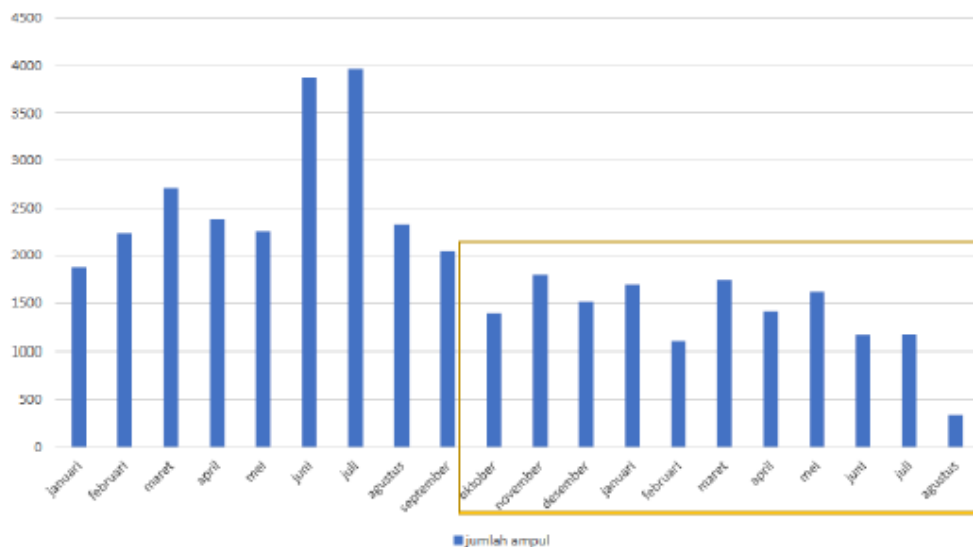
Dose & Duration of Empiric Antibiotic Usage

**De-Escalation to DEFINITIVE Antibiotic**

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

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

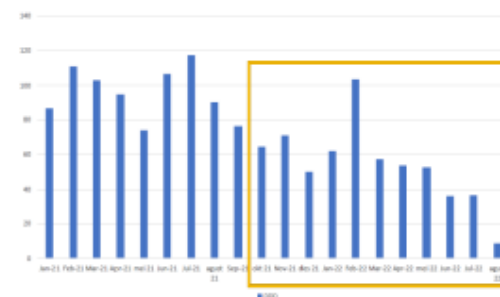
Jumlah Pengeluaran Antibiotik Injeksi Rawat Inap (Ampul)  
Periode Januari 2021 – Agustus 2022



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

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

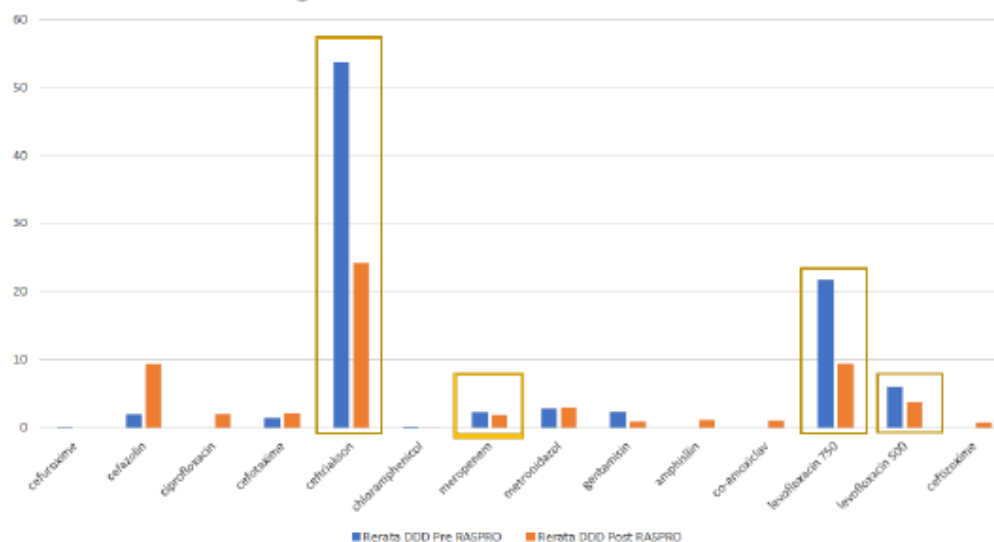
Jumlah Pengeluaran Antibiotik Injeksi Rawat Inap (DDD)  
Periode Januari 2021 – Agustus 2022



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

Pasca penerapan RASPRO

Perbandingan Rerata DDD 9 Bulan Pre dan Post RASPRO



Penurunan AB kategori "RESERVE"

- Penurunan DDD meropenem → 20%

Penurunan AB kategori "WATCH"

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

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

Dr. Iin Indra Pertiwi, SpPD  
RASPRO INDOGRAM

World Antimicrobial Awareness Week 2022

# PENGUNAAN KUANTITATIF ANTIBIOTIK PROFILAKSIS

DESEMBER 2021 (PRA RASPRO)

Permenkes 28/2021

Prophylaxis : **Cephazolin!!**

PENGUNAAN AB PROFILAKSIS DESEMBER 2021

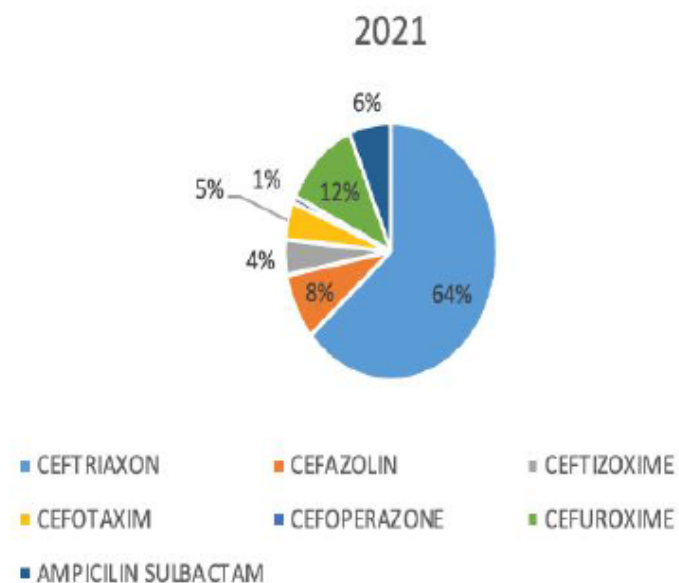
NO	ANTIBIOTIK	TOTAL PENGUNAAN	DDD
1	CEFTRIAXON	298	14,9
2	CEFAZOLIN	39	13
3	CEFTIZOXIME	21	0,53
4	CEFOTAXIM	22	0,55
5	CEFOPERAZONE	4	0,1
6	CEFUROXIME	54	1,8
7	AMPICILIN SULBACTAM	30	7,5

Documentation

Dr. Hadianti Adlani, SpPD, Subsp. PTI

RASPRO INDOGRAM -World Antimicrobial Awareness Week 2022

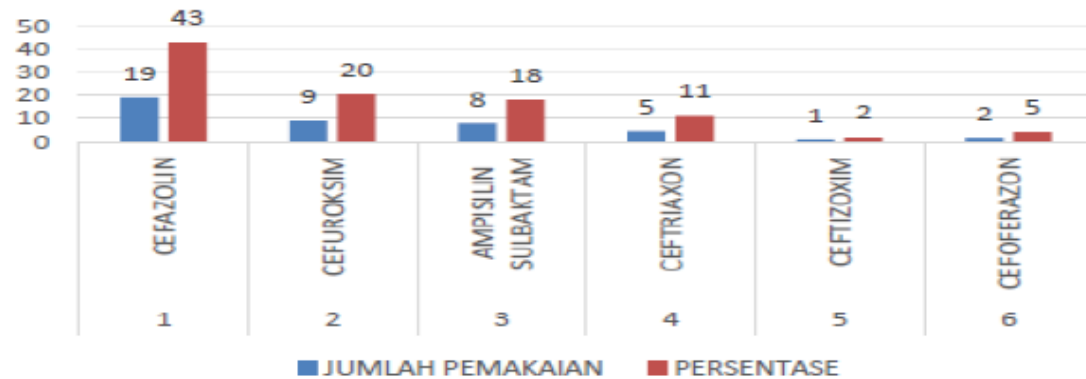
PERSENTASE PENGUNAAN AB PROFILAKSIS DESEMBER



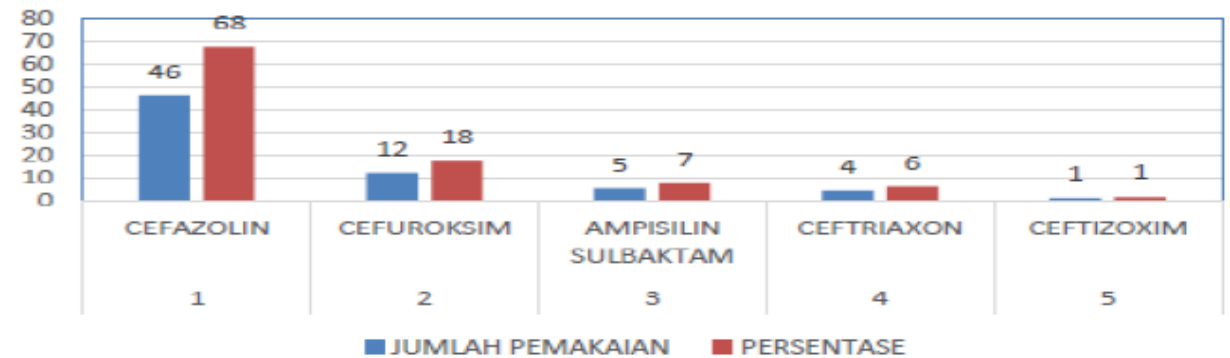
a Hospital in Ciputat : e- RASPRO Model

## PENGUNAAN ANTIBIOTIK PROFILAKSIS JANUARI– MARET 2022 (PASKA RASPRO)

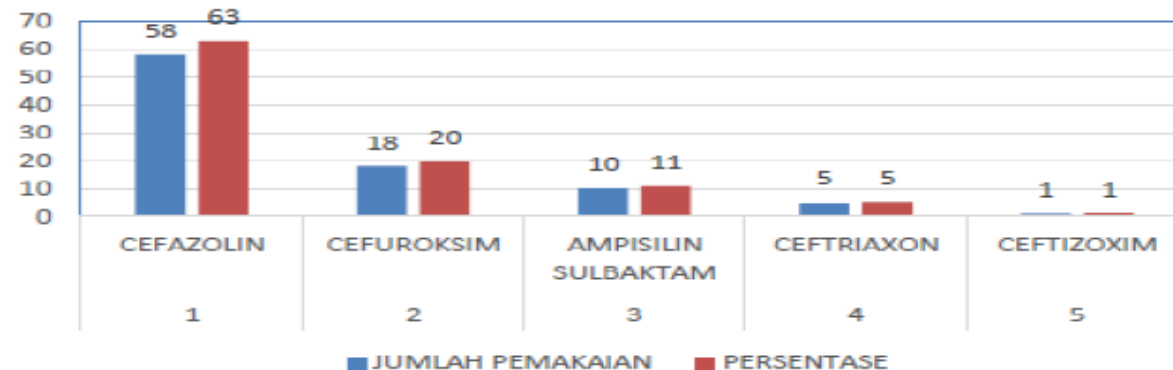
PERSENTASE PENGUNAAN ANTIBIOTIK  
PROFILAKSIS JANUARI 2022



PENGUNAAN ANTIBIOTIK PROFILAKSIS  
FEBRUARI 2022



PENGUNAAN ANTIBIOTIK PROFILAKSIS  
MARET 2022



a Hospital in Ciputat :  
e- RASPRO Model

## 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<sup>1,2</sup>, Aziza Ariyani<sup>1</sup>, Hadiani Adlani<sup>1,3,4</sup>, Raymond Adianto<sup>1</sup>,  
Iin Indra Pertiwi<sup>5</sup>, Grace Nerry Legoh<sup>6</sup>, Alvin Rantung<sup>6</sup>, Dianawati<sup>5</sup>, Sri Mulyani<sup>4</sup>,  
Ronaningtyas Maharani<sup>4</sup>, Desi Anggiat<sup>4</sup>, Triyoko Septio Marja<sup>4</sup>, Hadi Sumarsono<sup>1</sup>

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

Aztrenonam  
Ceftazidime Avibactam  
Ceftaroline Fosamil  
Ceftolozane Tazobactam

Imipenem cilastatin-  
relebactam

Fosfomycin IV  
Colistin  
Polymixin B  
Tygecycline

RESERVED

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

Quinolones  
Azithromycin

2<sup>nd</sup>, 3<sup>rd</sup> & 4<sup>th</sup> Generation  
of Cephalosporin

Piperacillin Tazobactam  
Carbapenems

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

WATCH

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

Ampicillin Sulbactam  
Ampicillin  
Amoxicillin Clavulanate  
Amoxicillin

1<sup>st</sup> Generation of  
Cephalosporin

Amikacin  
Gentamycin

ACCESS

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

# RASPRO Model on AWARE Categories Hospital Setting

**Empiric**  
Step Up  
Step Down

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

**Empiric**



**De-escalation**

**Definitive**



**Prophylaxis**



**ACCESS**

**FREE by Indication**

**WATCH**

**Supervision – Restricted  
by Indication  
PGA team agreement**

**RESERVE**

**ACCESS**

**FREE by Indication**

**WATCH**

**Supervision – Restricted  
by Indication  
PGA team agreement**

**RESERVE**

**ACCESS**

**If there is a  
special case,  
outside regulation**

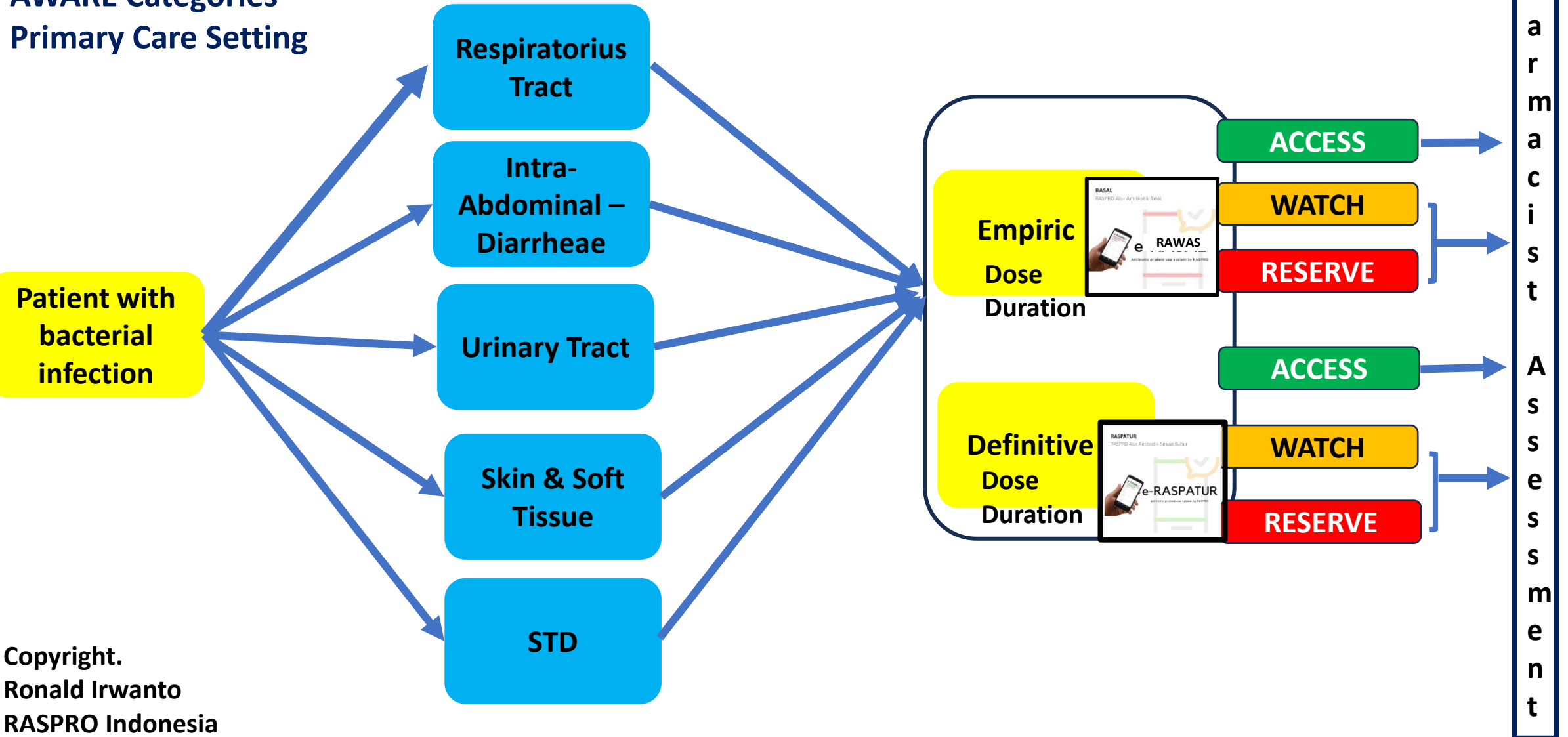
**Supervision  
PGA team agreement**

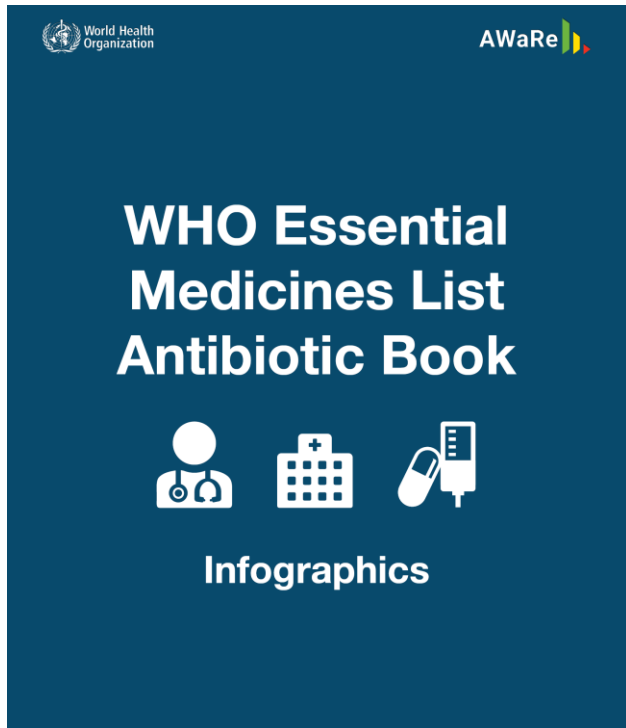
**Automatic STOP  
Order if not  
reasonable**



**Integrated  
Assessment  
(FORKIT)**

**RASPRO Model on  
AWARE Categories  
Primary Care Setting**





<b>Primary Health Care .....</b>	<b>3</b>
Bronchitis .....	4
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Pharyngitis .....	9
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**Table 2.1 – Common infections in primary health care where mild cases can be safely treated with No Antibiotic Care (i.e. symptomatic management only) – see individual chapters for more details**

Infection (in alphabetical order)	Can it be safely treated without antibiotics?	Comment
Acute diarrhoea	Yes, in the great majority of cases (unless there is significant bloody diarrhoea)	Most cases do not require antibiotic treatment because the infection is of viral origin and the illness is usually self-limiting regardless of the causative pathogen. The cornerstone of treatment is rehydration and electrolyte replacement.
Bronchitis	Yes	Nearly all cases have a viral origin and there is no evidence that antibiotics are needed.
COPD exacerbations	Yes, in most mild cases	Most exacerbations of COPD are not triggered by bacterial infections; only certain cases will benefit from antibiotic treatment.
Dental infections	Yes, in most mild cases	Dental treatment rather than prescribing antibiotics is generally more appropriate in the management of dental infections.
Otitis media	Yes, in most mild cases	Most mild cases of acute otitis media can be managed symptomatically and do not require antibiotic treatment.
Pharyngitis	Yes, in most mild cases	Most cases do not require antibiotics because the infection is viral. <sup>a</sup>

**Table 2.1** *continued*

Infection (in alphabetical order)	Can it be safely treated without antibiotics?	Comment
Sinusitis	Yes, in most mild cases	Most cases do not require antibiotics as the infections is viral.
Skin and soft tissue infections (mild)	Only for certain conditions and in certain patients	In cases of wounds at low risk of becoming infected, antibiotic treatment is not needed. In cases of animal bites, only wounds in high-risk anatomical locations and patients with severe immunosuppression benefit from antibiotic treatment.
Urinary tract infection (lower)	Only in very select patients with no risk factors for complicated infections	In young women who are not pregnant, with mild symptoms and who may wish to avoid or delay antibiotic treatment, symptomatic treatment alone can be considered.

COPD: chronic obstructive pulmonary disease.

<sup>a</sup> Refer to the pharyngitis chapter for situations that require antibiotic treatment, for example, pharyngitis in settings where rheumatic fever is endemic.



# Bronchitis

## Most Likely Pathogens

### Respiratory viruses:

- Rhinovirus
- Influenza virus (A and B)
- Parainfluenza virus
- Coronavirus (including SARS-CoV-2)
- Respiratory syncytial virus
- Metapneumovirus
- Adenovirus
- Other respiratory viruses

## Treatment

### No Antibiotic Care


- Symptomatic treatment
- Bronchodilators (in case of wheezing), mucolytic or antitussive agents, can be considered based on local practices and patient preferences

Patients should be informed that:


- Great majority of cases are self-limiting and of viral origin
- Cough can persist for several weeks

### Symptomatic Treatment

*Medicines are listed in alphabetical order and should be considered equal treatment options*

 Ibuprofen 200-400 mg q6-8h (Max 2.4 g/day)

OR

 Paracetamol (acetaminophen) 500 mg-1 g q4-6h (max 4 g/day)  
• **Hepatic impairment/cirrhosis:** Max 2 g/day

### Antibiotic Treatment

Antibiotic treatment is **not recommended and should be avoided** as there is no evidence of a significant clinical benefit and there is a risk of side effects of antibiotics



# Pharyngitis

## Centor Clinical Scoring System

- This system can help indicate infection origin (bacterial or viral) and whether antibiotics are necessary
- However even with a high score of 4, the probability of GAS infection is only 50% and this score has only been validated in high-income settings

### Signs & Symptoms (1 point each)

- ☐ Fever > 38.0°C
- ☐ No cough
- ☐ Tender anterior cervical lymphadenitis
- ☐ Tonsillar exudates

### Score 0-2

- GAS pharyngitis unlikely
- **Symptomatic treatment only**

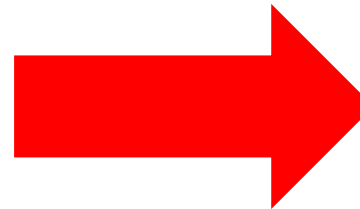
**Score 3-4** - In case of low risk of RF (e.g. countries with **low** prevalence of RF)

- **Antibiotic treatment can be withheld** even in cases of likely GAS pharyngitis

**Score 3-4** - In case of high risk of RF (e.g. countries with **med/high** prevalence of RF)

- Antibiotic treatment recommended

## Antibiotic Centor Score 3-4



RF = Rheumatic Fever


## R<sub>x</sub> Antibiotic Treatment

*The only clear indication for antibiotic treatment is to reduce the probability of developing rheumatic fever in endemic settings (however, after 21 years of age the risk of RF is lower)*


*All dosages are for normal renal function*

*Antibiotics are listed in alphabetical order and should be considered equal treatment options unless otherwise indicated*


### First Choice

 Amoxicillin 500 mg q8h **ORAL**


OR

 Phenoxyethylpenicillin 500 mg (800 000 IU) q6h **ORAL**

### Second Choice

 Cefalexin 500 mg q8h **ORAL**

OR

 Clarithromycin 500 mg q12h **ORAL**

*GAS remains universally susceptible to penicillin. However, resistance to macrolides is common in some communities*





# Community-Acquired Pneumonia

## CURB-65 Severity Scoring System

### Signs & Symptoms (1 point each)

- ☐ Presence of **Confusion** (new onset)
- ☐ **Urea** > 19 mg/dL (or > 7 mmol/L)\*
- ☐ **Respiratory rate** > 30/min
- ☐ **Systolic BP** < 90 mmHg (<12 kPa) or **Diastolic BP** ≤ 60 mmHg (<8 kPa)
- ☐ Age ≥ 65 years

### Score 0-1

- Consider outpatient treatment

### Score 2

- Consider inpatient treatment
- **Consider adding clarithromycin to beta-lactam for atypical coverage**
- Perform microbiology tests

### Score ≥3

- Inpatient treatment (consider ICU)
- **Consider adding clarithromycin**
- Perform microbiology tests

Other considerations such as severe comorbid illnesses or inability to maintain oral therapy should be taken into account. CURB-65 has not been extensively validated in low-income settings.

\*The **CRB-65 score**, which does not require laboratory values for its calculation, can also be used, the score value interpretation is the same as for CURB-65

## Rx Mild to Moderate Cases

All dosages are for normal renal function

Antibiotics are listed in alphabetical order and should be considered equal treatment options unless otherwise indicated

### First Choice



Amoxicillin 1 g q8h **ORAL**

OR



Phenoxymethylpenicillin 500 mg (800 000 IU) q6h **ORAL**

### Second Choice



Amoxicillin+clavulanic acid 875 mg+125 mg q8h **ORAL**

OR



Doxycycline 100 mg q12h **ORAL**



## Acute Infectious Diarrhoea & Gastroenteritis

### Clinical Considerations

- **Antibiotics usually not needed**, including in cases with severe dehydration
- Consider antibiotic treatment **ONLY** if:
  - Significant acute bloody diarrhoea
  - Severely immunocompromised patients
- If symptoms do not resolve within 24-48 hours of treatment, consider giving metronidazole for treatment of *Entamoeba histolytica* and *Giardia intestinalis*



**WATCH**

### Rx Antibiotic Treatment

*All dosages are for normal renal function*

*Antibiotics are listed in alphabetical order and should be considered equal treatment options unless otherwise indicated*

#### First Choice



Ciprofloxacin 500 mg q12h **ORAL**  
**Treatment duration:** 3 days

#### Second Choice



Azithromycin **ORAL**  
 • Day 1: 500 mg q24h  
 • Day 2-4: 250 mg q24h  
**Treatment duration:** 4 days

*Azithromycin is preferred in case of high prevalence of ciprofloxacin resistance among bacteria frequently associated with acute infectious diarrhoea (e.g. Salmonella spp., Shigella spp.)*

OR



Cefixime 400 mg q24h **ORAL**  
**Treatment duration:** 3 days

OR



Sulfamethoxazole+trimethoprim 800 mg + 160 mg q12h **ORAL**  
**Treatment duration:** 5 days

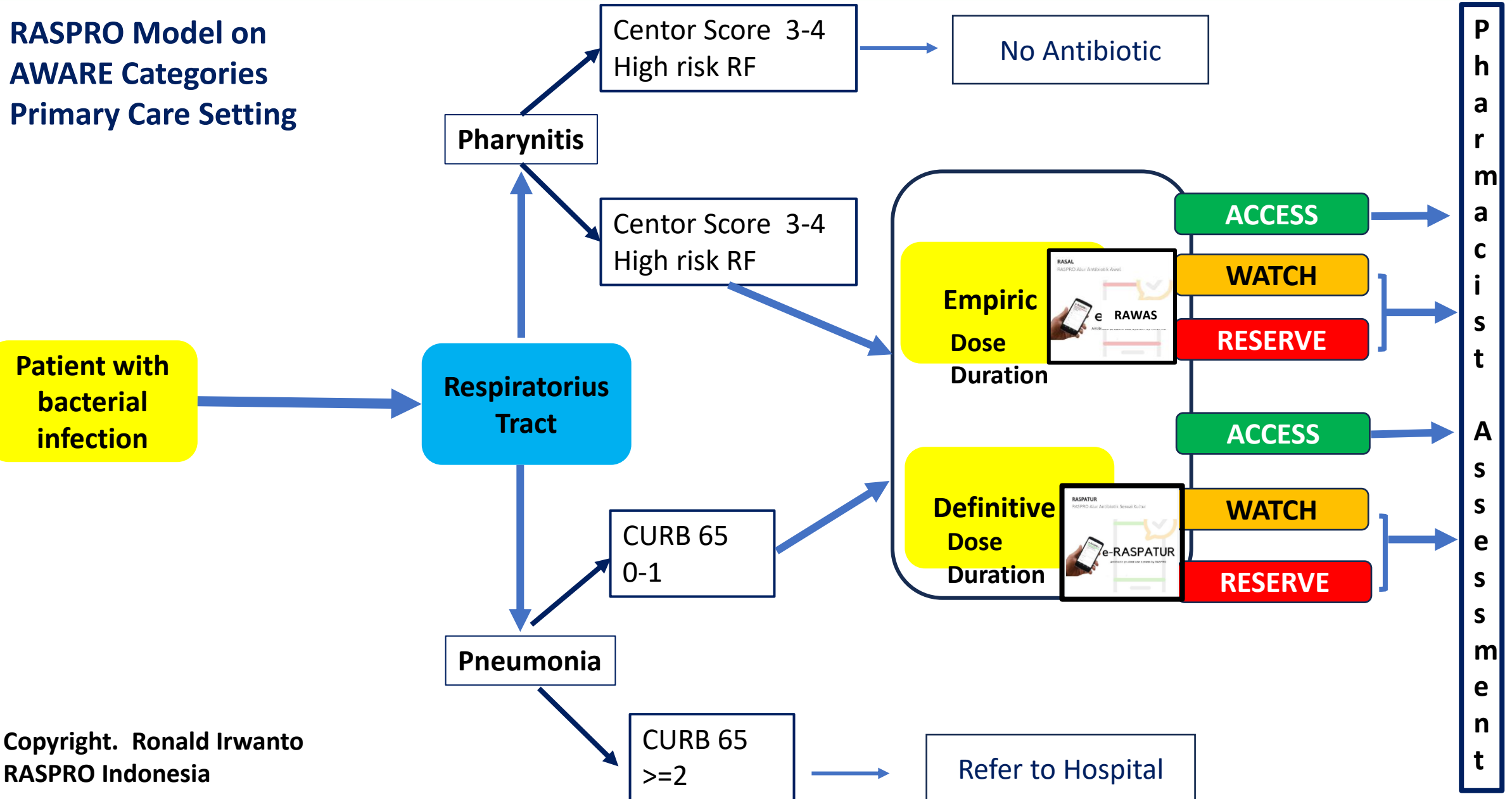
*Use only if local data suggest susceptibility*  
*In patients taking sulfamethoxazole-trimethoprim for prophylaxis, treat with a different antibiotic unless susceptibility is confirmed*

OR

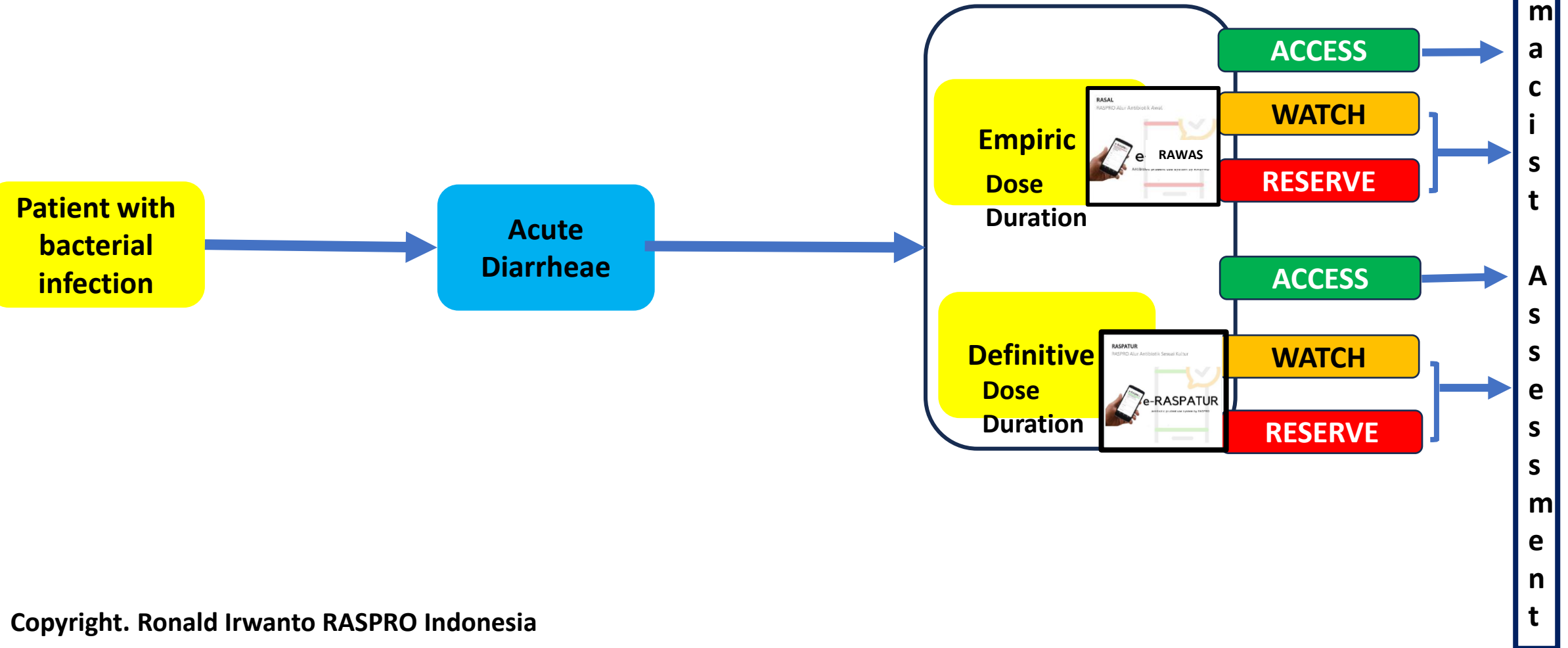


Ceftriaxone 1 g q24h **IV/IM**  
**Treatment duration:** 3 days

**RASPRO Model on  
AWARE Categories  
Primary Care Setting**



RASPRO Model on  
AWARE Categories  
Primary Care Setting



# RAWAS (RASPRO Alur Antibiotik Dalam PENGAWASAN)



○ **Pharyngitis**

**Signs & Symptoms  
(1 point each)**

- Fever > 38.0°C
- No cough
- Tender anterior cervical lymphadenitis
- Tonsillar exudates

**Score 0-2**

- GAS pharyngitis unlikely
- Symptomatic treatment only

**Score 3-4** - In case of low risk of RF (e.g. countries with **low** prevalence of RF)  
• Antibiotic treatment can be withheld even in cases of likely GAS pharyngitis

**Score 3-4** - In case of high risk of RF (e.g. countries with **med/high** prevalence of RF)  
• Antibiotic treatment recommended

○ **Pneumonia**

**Signs & Symptoms  
(1 point each)**

- Presence of Confusion (new onset)
- Urea > 19 mg/dL (or > 7 mmol/L)\*
- Respiratory rate > 30/min
- Systolic BP < 90 mmHg (<12 kPa) or Diastolic BP ≤ 60 mmHg (<8 kPa)
- Age ≥ 65 years

**Score 0-1**

- Consider outpatient treatment

**Score 2**

- Consider inpatient treatment
- Consider adding clarithromycin to beta-lactam for atypical coverage
- Perform microbiology tests

**Score ≥3**

- Inpatient treatment (consider ICU)
- Consider adding clarithromycin
- Perform microbiology tests

**WATCH**

**Duration**

**Explanation**

Type

Duration

○ **Respiratory Tract**

○ **ENT Infection**

○ **Skin & Soft Tissue**

○ **Intra-abdominal infection**

○ **Bacterial Diarrhea**

○ **Enteric Fever**

○ **Sexual Transmitted Disease**

○ **Urinary Tract Infection**

○ **Others**

○ **Cefixime**

<=7 days, > 7 days

○ **Ciprofloxacin**

<=7 days, > 7 days

○ **Levofloxacin**

<=7 days, > 7 days

○

○ **Ceftriaxone**

<=7 days, > 7 days

○ **Cefotaxime**

<=7 days, > 7 days

○ **Ceftazidime**

<=7 days, > 7 days

○

○

○



## RASPATUR

## Specimen taking

- Sputum
- Pus
- Urine
- Feces
- Blood

## WATCH

## Duration

## Explanation

Type

Duration

- Cefixime
- Ciprofloxacin
- Levofloxacin
- 
- Ceftriaxone
- Cefotaxime
- Ceftazidime
- 
- 
- 

&lt;=7 days, &gt; 7 days

&lt;=7 days, &gt; 7 days

&lt;=7 days, &gt; 7 days

&lt;=7 days, &gt; 7 days

&lt;=7 days, &gt; 7 days

&lt;=7 days, &gt; 7 days

*thank you*



**@rasproindonesia**

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