



# Navigating viral respiratory tract infections:

Essential best practices for clinicians

26<sup>th</sup> OCT 2023, THU | 16.30-18:00 (SGT, GMT+8)



# Welcome & introduction

**Dr Nidhi Loomba Chlebicka**

*Director*  
ASPAC Medical and Scientific Affairs, IDEM, Abbott



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# Meeting objectives

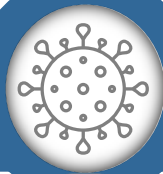
01



## Share expert perspectives

Share expert perspectives on navigating through viral respiratory tract infections to enhance patient care and improve outcomes.

02



## Disease burden & challenges

Understand the burden of viral respiratory diseases and the impact of antimicrobial resistance in disease management.

03



## Knowledge sharing for effective management

Provide an amalgamation of best practices and evidence-based strategies for effective diagnosis, prevention and management of viral respiratory tract infections.



# Speakers



**Dr Nidhi Lomba Chlebicka**  
*Director*

ASPAC Medical and Scientific  
Affairs, IDEM, Abbott



**Dr Ronald Irwanto**  
*Internist-Infectious  
Disease Specialist*

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Hospital, Singapore



**Prof Hsu Li-Yang**  
*Vice Dean of Global Health and  
Programme Leader of Infectious  
Diseases*

Saw Swee Hock School of  
Public Health, National  
University Singapore, Singapore



# Agenda

Time (SGT)	Topic	Speaker
16:30–16:40	Welcome and introduction	Dr Nidhi Loomba Chlebicka
16:40–16:55	Respiratory tract infections: Overview and benefits of POC testing	Dr Nidhi Loomba Chlebicka
16:55–17:10	Digital antimicrobial stewardship: Importance of differential diagnosis between viral and bacterial infections, and prudent management of respiratory tract infections	Dr Ronald Irwanto
17:10–17:25	Beyond the common cold: The serious consequences of viral respiratory infections	Adj Assoc Prof See Kay Choong
17:25–17:40	Advances in prevention of viral respiratory tract infections	Prof Hsu Li-Yang
17:40–17:55	Panel discussion	Moderator: Dr Nidhi Loomba Chlebicka
17:55–18:00	Closing remarks	Dr Nidhi Loomba Chlebicka



# Speaker



**Dr Ronald Irwanto**  
*Internist-Infectious  
Disease Specialist*

RASPRO Indonesia Study  
Group / Faculty of Medicine,  
Universitas Trisakti, Jakarta,  
Indonesia

Dr Ronald Irwanto is an Infectious Disease Specialist and Consultant based in Jakarta, Indonesia. He holds positions at several prominent institutions, including:

- Faculty of Medicine at the University of Indonesia
- Indonesian Society of Internal Medicine
- Tzu Chi Hospital
- Pondok Indah – Bintaro Jaya Hospital
- Pondok Indah – Puri Indah Hospital

Dr Irwanto is also the founder of the RASPRO Indonesia Study Group for Antimicrobial Stewardship and the Pelita RASPRO Indonesia Foundation. Furthermore, he serves as the Chairman of the Infection Control Committee at Pondok Indah – Bintaro Jaya Hospital and as a Lecturer in the Department of Internal Medicine at the Faculty of Medicine, University of Trisakti.

Last but not least, Dr Irwanto has been recognized as the Resistance Fighter (Indonesia) by the Antimicrobial Resistance Fighter Coalition (ARFC).





# Digital antimicrobial stewardship

Importance of differential diagnosis between viral and bacterial infections, and prudent management of respiratory tract infections

**Dr Ronald Irwanto**

***Internist-Infectious Disease Specialist***

RASPRO Indonesia Study Group / Faculty of Medicine Universitas Trisakti,  
Jakarta



# Digital Antimicrobial Stewardship:

Importance of differential diagnosis between viral and bacterial infections, and prudent management of respiratory tract infections



International - Asia Pacific Region

**Ronald Irwanto Natadidjaja**

RASPRO Indonesia Study Group

Faculty of Medicine Universitas Trisakti, Jakarta, Indonesia

[www.new.rasproindonesia.com](http://www.new.rasproindonesia.com)

 @rasproindonesia

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

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.

AWARE 2021



# The role of differential diagnosis (viral vs bacterial infections)

## • 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**

PASIE BARU

EMPIRIK/DEFINITIF    PROFILAKSIS

DASHBOARD DOKTER

Date : 01/10/2023    13/10/2023

Nama / RM :

SHOW    EXCEL

NO    PASIE    HISTORY

1 Choose the antibiotic indication:  
Empiric/Definitive  
Prophylaxis

DATA PASIEN RAWAT INAP

RM

Nama Pasien

Nama Ruangan

Nomor Kamar

e-RASAL    e-DEFINITIF

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

e-RASAL  
Antibiotic prudent use system by RASPRO

Fokus infeksi dengan gejala

TIDAK    YA

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

PILIH JENIS INFEKSI

Search...

(Stratifikasi 1) Pneumonia / Infeksi Paru Lainnya

(Stratifikasi 1) Bakterial Tonsillitis / Abses Peritonsil

(Stratifikasi 1) Intra Biliar, Pankreatitis dan Intra Hepatik (termasuk Abses Hati)

(Stratifikasi 1) Extra Biliar

(Stratifikasi 1) Typhoid Fever

(Stratifikasi 1) Disentri Basiler

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

**e-RASAL**  
Antibiotic prudent use system by RASPRO

Klinis progresif sepsis / septic syok / febril neutropenia / HAls

**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 onsite consultation with ASP team

**e-RASAL**  
Antibiotic prudent use system by RASPRO

Perforasi organ mengancam

**TIDAK** **YA**

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

**e-RASAL**  
Antibiotic prudent use system by RASPRO

Ensefalopati ec. infeksi bakterial

**TIDAK** **YA**

**e-RASAL**  
Antibiotic prudent use system by RASPRO

(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**

**e-RASAL**  
Antibiotic prudent use system by RASPRO

(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**

Antibiotik st [Stratifikasi 1] Pneumonia / Infeksi Paru Lainnya

1. [Stratifikasi] (Ampicilin Oral / IV) / Amoksisilin clindamisi (Oral / IV) / Ampicilin Sulbaktam (Oral / IV) +/- Gentamisin +/- Metronidazole IV/Oral

Alternatif Alergi Penisilin / Lain-lain: (Ciprofloksasin Oral / IV) / Ciprofloksasin (Oral / IV) / Azitromisin (Oral / IV) +/- Metronidazole IV/Oral

Keterangan: Metronidazole diberikan apabila teridentifikasi Abses.

Pada Stratifikasi Risiko Tipe 1 bila antibiotik yang digunakan terkategori WATCH (Levofloksasin, Ciprofloksasin, Azitromisin) harus dengan konsultasi dengan Tim PGA. Kontraindikasi anak disesuaikan dengan Peer Group Anak. Dosis normal / high dose pada anak disesuaikan sesuai anamnesis / Kecepatan Peer Group Anak.

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



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

e-RASAL

e-RASLAN

e-RASPRAJA

e-RASPATUR

e-RASGRASI

e-PROFILAKSIS

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

Spesimen \*

**TENTUKAN FOKUS INFEKSI**

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

PILIH JENIS INFEKSI ✕

Search..

- Pneumonia / Infeksi Paru Lainnya
- Bakterial Tonsilitis / Abses Peritonsil
- Intra Bilier dan Intra Hepatik (termasuk Abses Hati)
- Extra Bilier
- Typhoid Fever
- Disentri Basiler

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

**Antibiotik stratifikasi tipe I**

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

**Antibiotik Yang Ditambahkan :**

Obat	Detail
Ampicillin Sulbactam	Frek : 3 Dosis : 1.5 Satuan : gr Track : Drip <b>REGULAR</b>

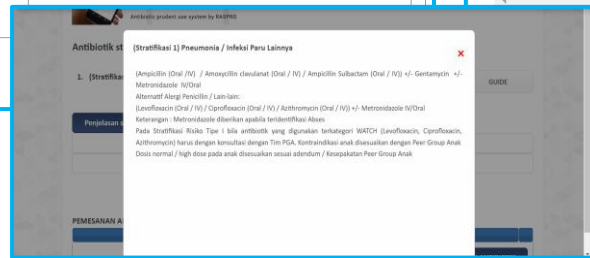
Obat Dalam Konfirmasi    Obat Dibatalkan

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	<input type="checkbox"/>
Tipe : REGULAR	
<b>1 Hari</b>	

**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?

**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**

Obat	Detail
Ampicillin Sulbactam	Frek : 3 Dosis : 1.5 Satuan : gr Track : Drip <b>REGULAR</b>

e-RASAL

e-RASLAN

e-RASPRAJA

e-RASPATUR

e-RASGRASI

e-PROFILAKSIS

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

# Case Illustration

Male, 65 years old

5 days fever with cough and productive mucous

No history of antibiotic use / hospitalization / medical device use in previous 3 months

Rhonchi +/+

Temperature 38C

Other Vital Sign : **GOOD**

Hb: 15.8

Leucocytes: 15.600

Platelets count: 280.000

Procalcitonin Level: NORMAL

Random Blood Sugar: 287 mg / dl

Chest X-Ray: Pneumonia Infiltrate +



# Is it viral or bacterial case?

- **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

→ **Completed data  
by Hospital Information System**

Risk Factor: > 60 years old with diabetes mellitus

**No history of antibiotic use / hospitalization / medical device use in previous 3 months**

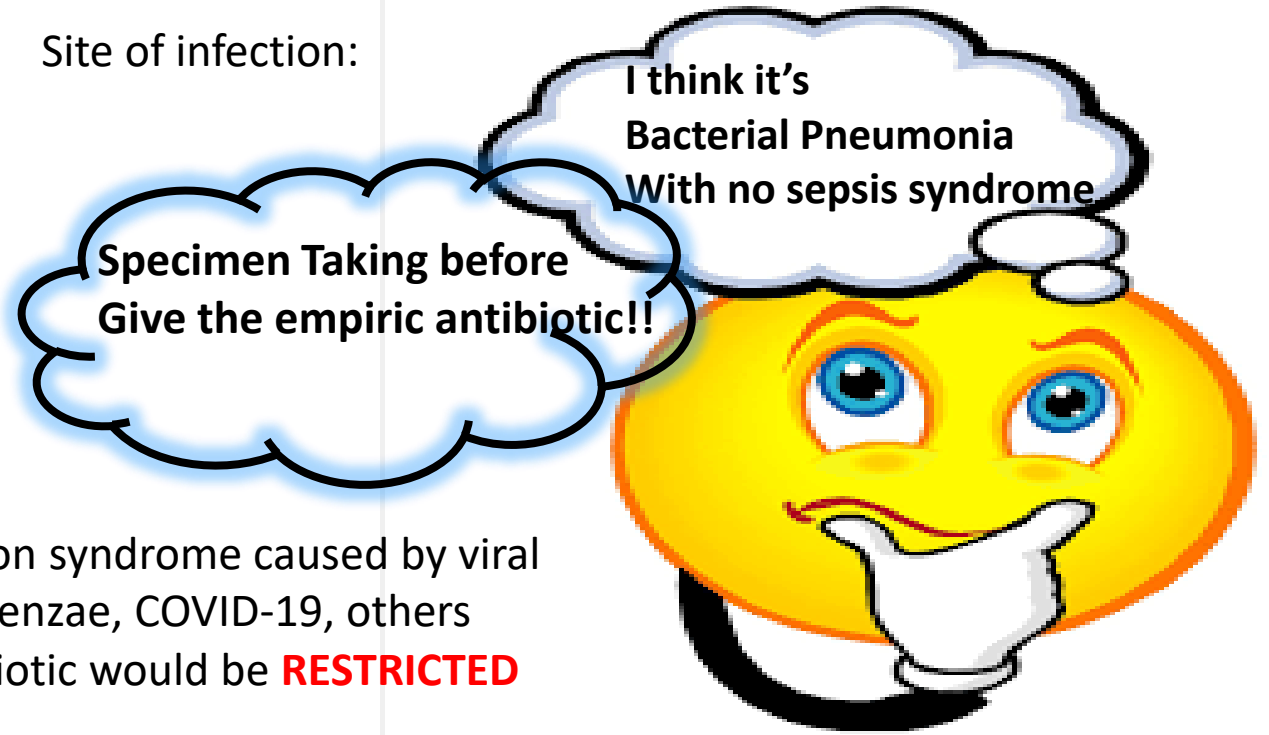
Fever +, **no sepsis syndrome, no life threatening**

Cough with productive mucous

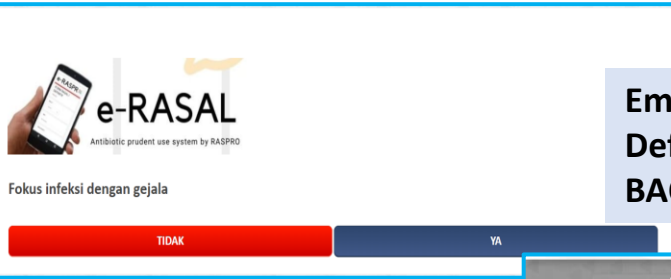
Rhonchi +/-

High leucocytes with pneumonia infiltrate (Chest X-Ray)

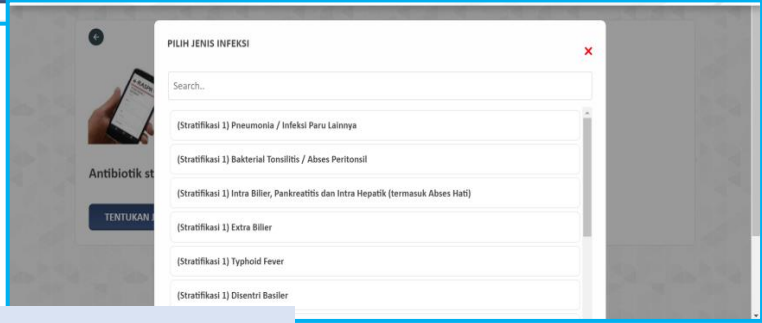
Site of infection:



If the infection syndrome caused by viral  
Such as Influenzae, COVID-19, others  
→ The antibiotic would be **RESTRICTED**



**Empiric antibiotic:  
Define the bacterial focus of infection :  
BACTERIAL PNEUMONIA**

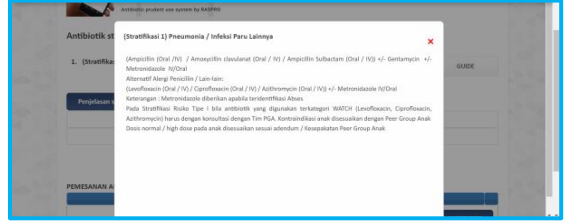


**Patient with bacterial pneumonia with  
NO sepsis / febrile neutropenia/ healthcare  
associated infections? AND / OR threatening  
organ perforation? AND / OR bacterial  
encephalopathy?**



**Define the Patient Risk Stratification**

- Type 3 ■ Local empiric guidelines for **WATCH Group Antibiotic**
- Type 2 ■ Local empiric guidelines for **ACCESS Group Antibiotic**
- Type 1 ■ Local empiric guidelines for **ACCESS Group Antibiotic**



**Observe the clinical symptoms  
during hospitalization**



**Pneumonia patient with DM,  
No sepsis syndrome, good vital sign  
No LIFE THREATENING  
No history of antibiotic use /  
hospitalization / medical devices use in  
previous 3 months**

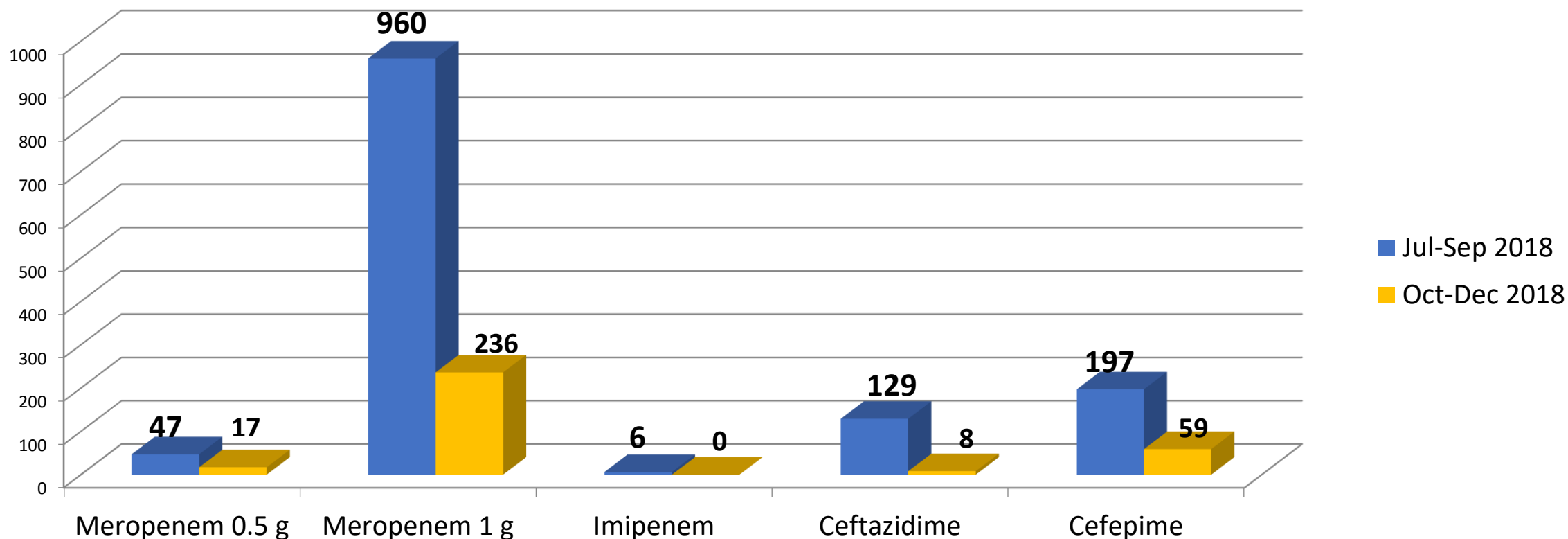


**Patient Risk Stratification Type 1**



**Start with ACCESS  
Empiric Antibiotic**

## 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)

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<sup>1,2,\*</sup>, R. Asmajaya<sup>2</sup>, H. Basrie<sup>2</sup>, H. Sumarsono<sup>2</sup>

<sup>1</sup>Internal Medicine, Faculty of Medicine, Universitas Trisakti, <sup>2</sup>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%).

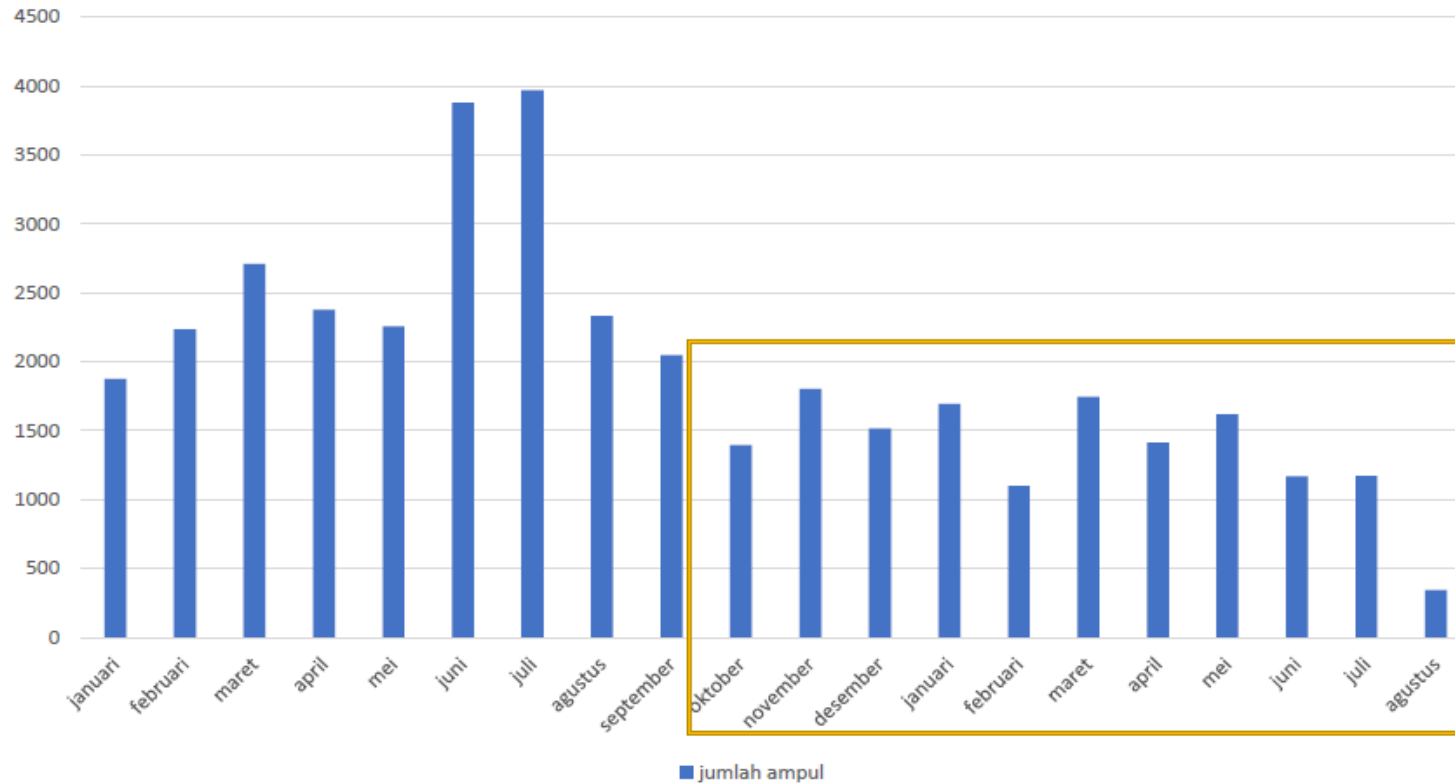
**Conclusion:** In conclusion, the implementation of RASPRO concept can be executed as an effort to reduce the quantity of antimicrobial use in hospitals. However, larger studies and longer monitoring are required in order to identify the impact of implementation of RASPRO concepts at a hospital.

**Disclosure of Interest**

None declared.

## 9 months before & after using digital ASP model

43% decline of Inpatient Antibiotic Usage

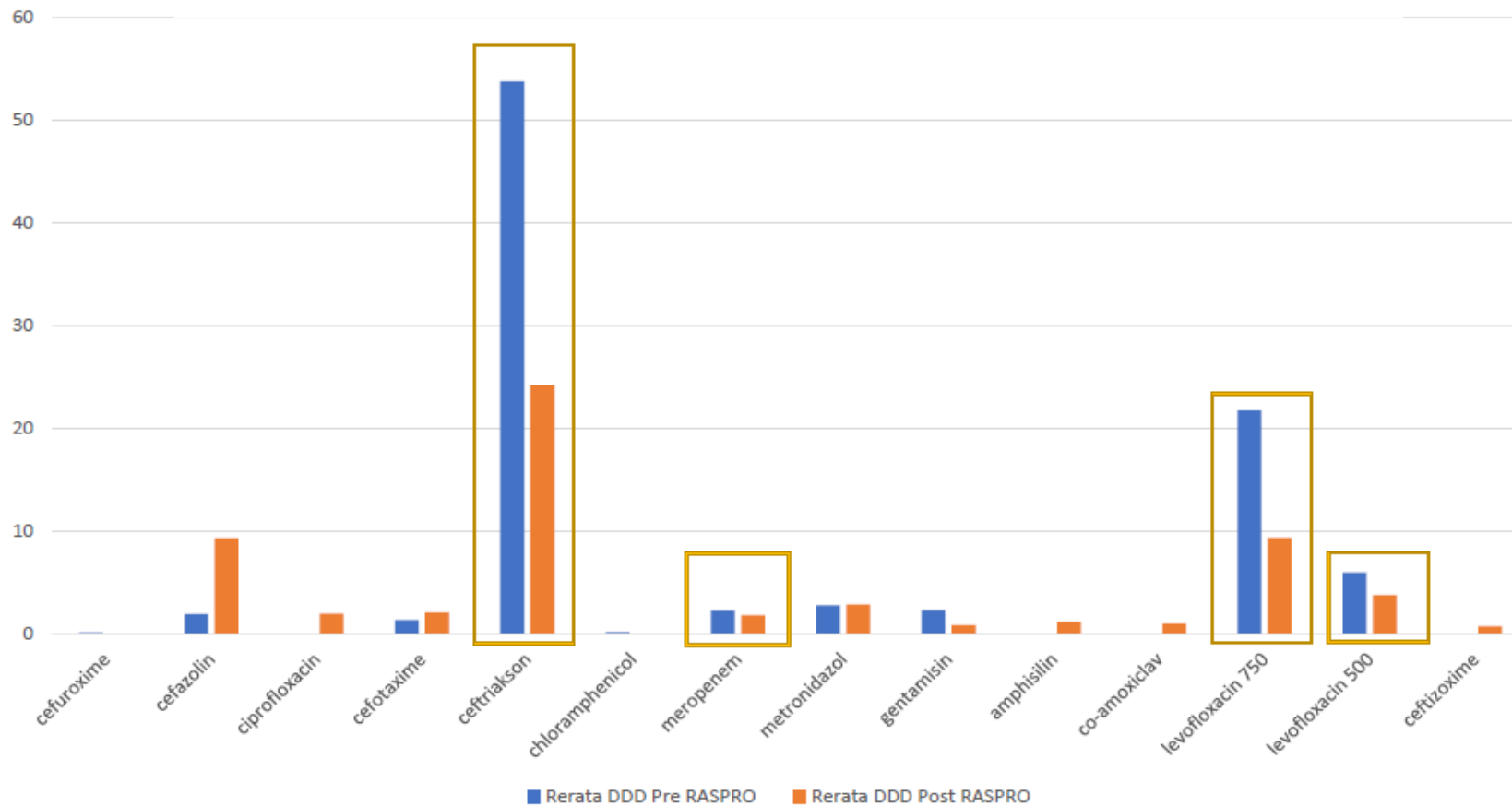


Dr. Iin Indra Pertiwi SpPD

RASPRO Indonesia - Indonesian Grass Root Meeting on Antimicrobial Stewardship (INDOGRAM)  
World Antimicrobial Awareness Week, November 2022

**To do further research in 3 hospitals , In progress publication**

# 9 months before & after using digital ASP model : average of DDD



20% Define Daily Dose (DDD) Decline of Meropenem  
57% Define Daily Dose (DDD) Decline of 750mg Levofloxacin  
37% Define Daily Dose (DDD) Decline of 500mg Levofloxacin  
55% Define Daily Dose (DDD) Decline of Ceftriaxone

Dr. lin Indra Pertiwi SpPD

RASPRO Indonesia - Indonesian Grass Root Meeting on Antimicrobial Stewardship (INDOGRAM)  
World Antimicrobial Awareness Week, November 2022

To do further research in 3 hospitals , In progress publication

# THANK YOU

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