RES-239

Molecular Characteristics of Macrolide Resistance Gene Mutation Patterns of *Mycoplasma pneumoniae* Infection Among Children in Jakarta, Indonesia, 2024

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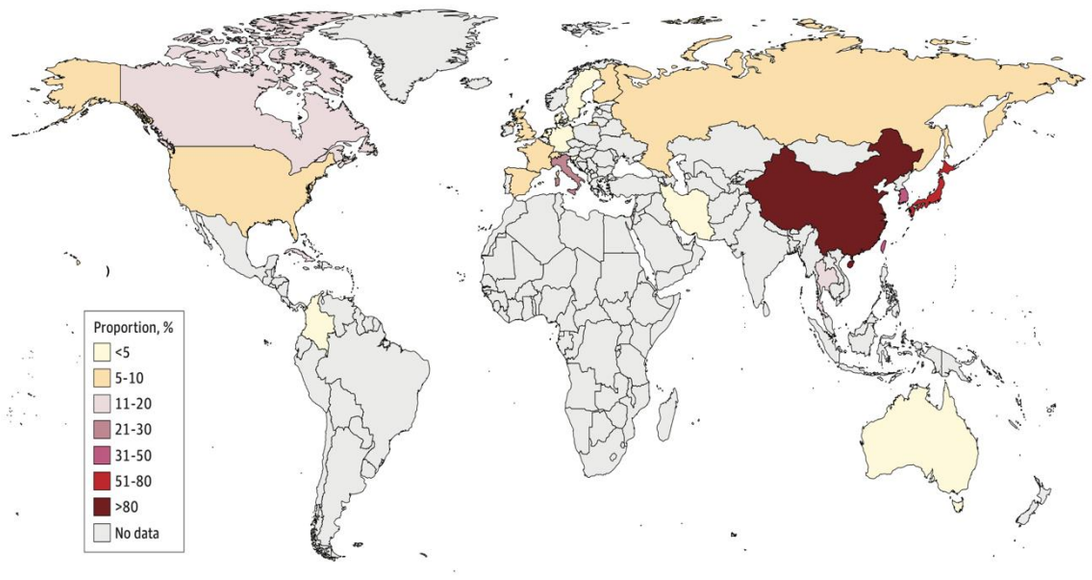
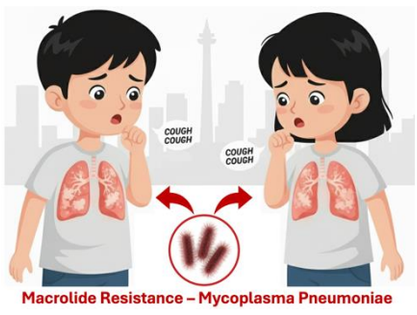
INTRODUCTION

Global Map of the Proportion of Macrolide-Resistance *M. pneumoniae*



JAKARTA - INDONESIA



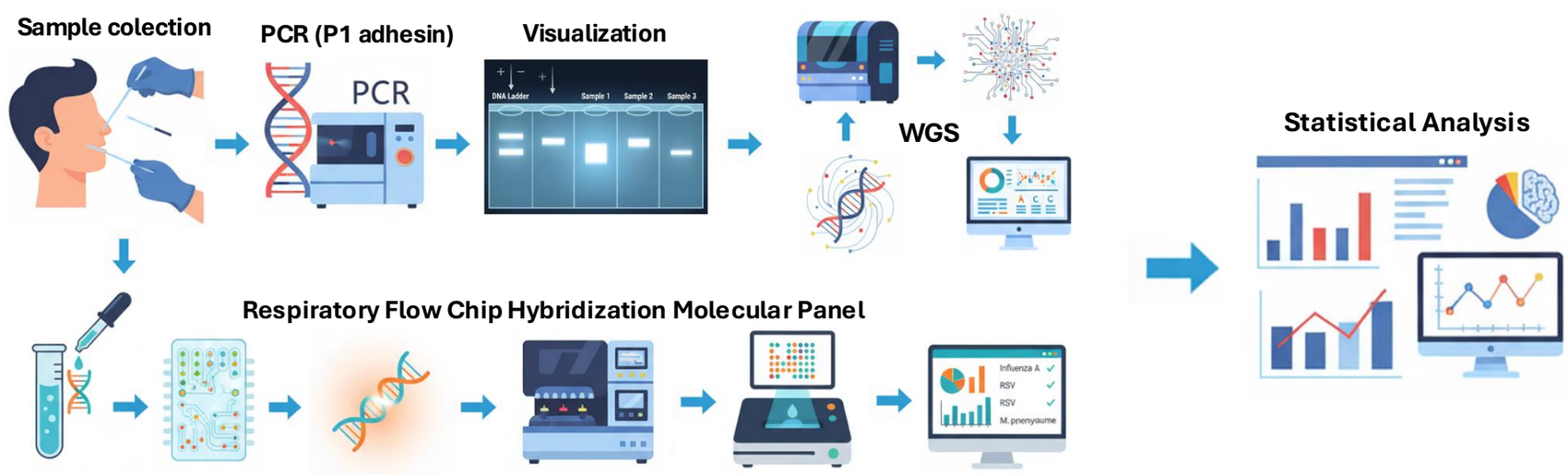
- **CAP**: Major cause of childhood morbidity/mortality, especially in developing countries like Indonesia.
- ***M. pneumoniae***: Key pediatric CAP agent → protracted cough, low-grade fever, dyspnea.
- **Diagnostic**: Clinical/X-ray & limited molecular diagnostics.
- **Prevalence** high in East Asia (12.3–59%), lower in Europe/America (5–15%).
- **Rapid global rise** (e.g., 79.5% in China); data scarce in Indonesia.

Study objectives:
✓ Determine M. pneumoniae prevalence in children with ARI in Jakarta.
✓ Characterize CAP etiology using multiplex panel.
✓ Analyze macrolide resistance patterns to inform policy.

METHODS

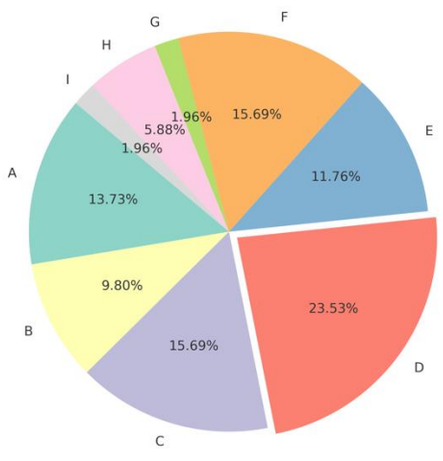
- Prospective Observational
- August 2024 – September 2025
- 51 children (0–18 years)
- Naso/Oropharyngeal swabs
- Diagnosed with CAP
- No Comorbidities
- Parental Consent

WGS : 23S rRNA (A2063G, A2064G, C2617G) & L4 (codons 65–70), L22 (codons 92–94)



RESULT

Age Group	(n)
A: 0–2 months	7
B: 3–6 months	5
C: 7 months–1 year	8
D: 2–4 years	12
E: 5–7 years	6
F: 8–10 years	8
G: 11–13 years	1
H: 14–16 years	3
I: 17–18 years	1
Total	51



Variable	(n=51)	(%)
Sex		
Male	22	43.1
Female	29	56.9
Hospitalization Status		
Inpatient	31	60.8
Outpatient	20	39.2
Sample Origin		
RSBA	34	66.7
RSCM	12	23.5
Primary Health Center	5	11.7

Respiratory Flow Chip Hybridization Molecular Panel (n= 42):

- Pathogen-Positive: 18/42 (42.86%)
- Co-infection: 10/18 positive samples (55.56%)
- Dominant Pathogens:
  - *Bordetella pertussis*: 16.67%
  - Rhinovirus: 14.29%
  - Enterovirus: 14.29%
- *M. pneumoniae:* 1/18 positive sample (2.38%), Co-infected with Enterovirus

WGS revealed NO MACROLIDE RESISTANCE MUTATIONS

***M. pneumoniae* Positive: 1/51 (1.96%)** via PCR → 2-year-old girl, 3 kg, 92 cm, alert, hospitalized with bronchopneumonia (Productive cough, fever: 37.5°C post-antipyretic, dyspnea, nausea/vomiting , lives in dense population, no school attendance

DISCUSSION

- **Low *M. pneumoniae*** prevalence contrasts with East Asia, indicating viral dominance in Jakarta's pediatric ARI - CAP.
- Co-infections (55.56%) suggest complex etiologies, emphasizing multiplex panels for accurate diagnosis.
- No resistance mutations support macrolide use, but surveillance is essential.
- **Limitations:** small sample size, severe case bias.
- **Future:** larger studies with seasonal analysis.

CONCLUSION

Molecular diagnostics reveal low ***M. pneumoniae*** burden and viral predominance in Jakarta's pediatric CAP, with no macrolide resistance detected. This supports reduced empirical antibiotic use and enhanced surveillance for optimal management.

- **Competing Interests:** The authors declare no competing interests.
- **Ethical Approval:** RSUPN Dr. Cipto Mangunkusumo Ethics Committee (KET-1025/UN2.F1/ETIK/PPM.00.02/2024), Faculty of Medicine, Universitas Indonesia (KET-643/UN2.F1.D/PPM.00.00/2024), Jakarta's Investment and One-Stop Service Agency (41/AF.1a/1/TM.23.04/e/2024), Informed consent was obtained from parents/guardians.

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