



1 Background

Atypical pneumonia caused by *Mycoplasma pneumoniae* is common in pediatrics and can occur in outbreaks.

Rapid etiological diagnosis using multiplex syndromic panels is crucial for guiding macrolide treatment and avoiding unnecessary broad-spectrum antibiotics.

Objectives

This study aims to evaluate the **Impact of FilmArray Panel Implementation on antimicrobial prescriptions** during a *Mycoplasma pneumoniae* outbreak

A



Clinical Outcomes & Treatment

- Early initiation of targeted treatment against *Mycoplasma pneumoniae*

B



Antimicrobial Stewardship

- **Optimization of macrolide use** in pediatric patients with acute respiratory symptoms in emergency settings.
- Reduction of **unnecessary beta-lactam prescriptions** in atypical pneumonia caused by *Mycoplasma pneumoniae*.

2 Methods

A **retrospective pre-post study** was conducted at Hospital Universitari Mútua de Terrassa (Spain) to evaluate the impact of implementing the **BioFire® Respiratory Panel 2.1**.

- Patients **<18 years old**
- Clinical suspicion of atypical pneumonia
- Nasopharyngeal sample collected



Pre-intervention (May-June 2024)
Elite InGenius
Response Time: Several hours.
Standard molecular workflow

Post-Intervention (July–August 2024)
BioFire® Respiratory Panel 2.1.
Response Time: ~1 hour.
Rapid syndromic molecular test

Antimicrobial prescriptions at discharge were reviewed

Exclusion Criteria

Patients treated with macrolides for other atypical pneumonia pathogens (e.g., *Bordetella pertussis*).

3 Results

Pre-intervention (May-June 2024)
Elite InGenius
Response Time: Several hours.

Samples Analyzed: 83
Turnaround Time: 3–20 hours on weekdays, up to 3 days on weekends. *M. pneumoniae*
Detection Rate: **50.6%** (42/83)
Appropriate Antibiotic Treatment: 55.43%

Post-Intervention (July–August 2024)
BioFire® Respiratory Panel 2.1.
Response Time: ~1 hour.

Samples Analyzed: 55
Turnaround Time: Within 2 hours
M. pneumoniae Detection Rate: **43.63%** (24/55)
Appropriate Antibiotic Treatment: 94.55%

Table 1. Azithromycin Prescription at Discharge with Routine Molecular Diagnosis (ELITE InGenius®). **PRE-intervention**

Azithromycin at discharge	<i>M.Pneumoniae</i>		Total
	Negative	Negative	
No	22	18	40
Yes	19	24	43
Total	41	42	83

Table 2. Azithromycin Prescription at Discharge with BioFire® Respiratory Panel 2.1. **POST-intervention**

Azithromycin at discharge	<i>M.Pneumoniae</i>		Total
	Negative	Negative	
No	31	2	33
Yes	1	21	22
Total	32	23	55

- 18 *M. pneumoniae*-**POSITIVE** patients **did not receive** appropriate **macrolide** therapy (3 were discharged with beta-lactams).
- 19 *M. pneumoniae*-**NEGATIVE** patients were **unnecessarily treated** with azithromycin

- **Inappropriate antibiotic** use decreased from 44.57% to 5.45%.
- Reduced unnecessary beta-lactam prescriptions.
- Increased pathogen-targeted therapy at discharge.

4 Conclusions

The implementation of the BioFire® Respiratory Panel 2.1 in the emergency department significantly **improved antimicrobial stewardship during a *Mycoplasma pneumoniae* outbreak**. Rapid turnaround times allowed for more targeted macrolide prescriptions, reducing unnecessary beta-lactam use and inappropriate antibiotic therapy. These findings highlight the value of syndromic molecular diagnostics in optimizing antimicrobial management in pediatric emergencies and support their role in guiding real-time clinical decision-making during respiratory infection outbreaks.