衞生防護中心
Centre for Health Protection

Antimicrobial Resistance (AMR) Surveillance on Urine Culture Specimen in Public Hospitals and Clinics - Hospital Authority AMR Data (2022)

April 2024

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Contents Outline

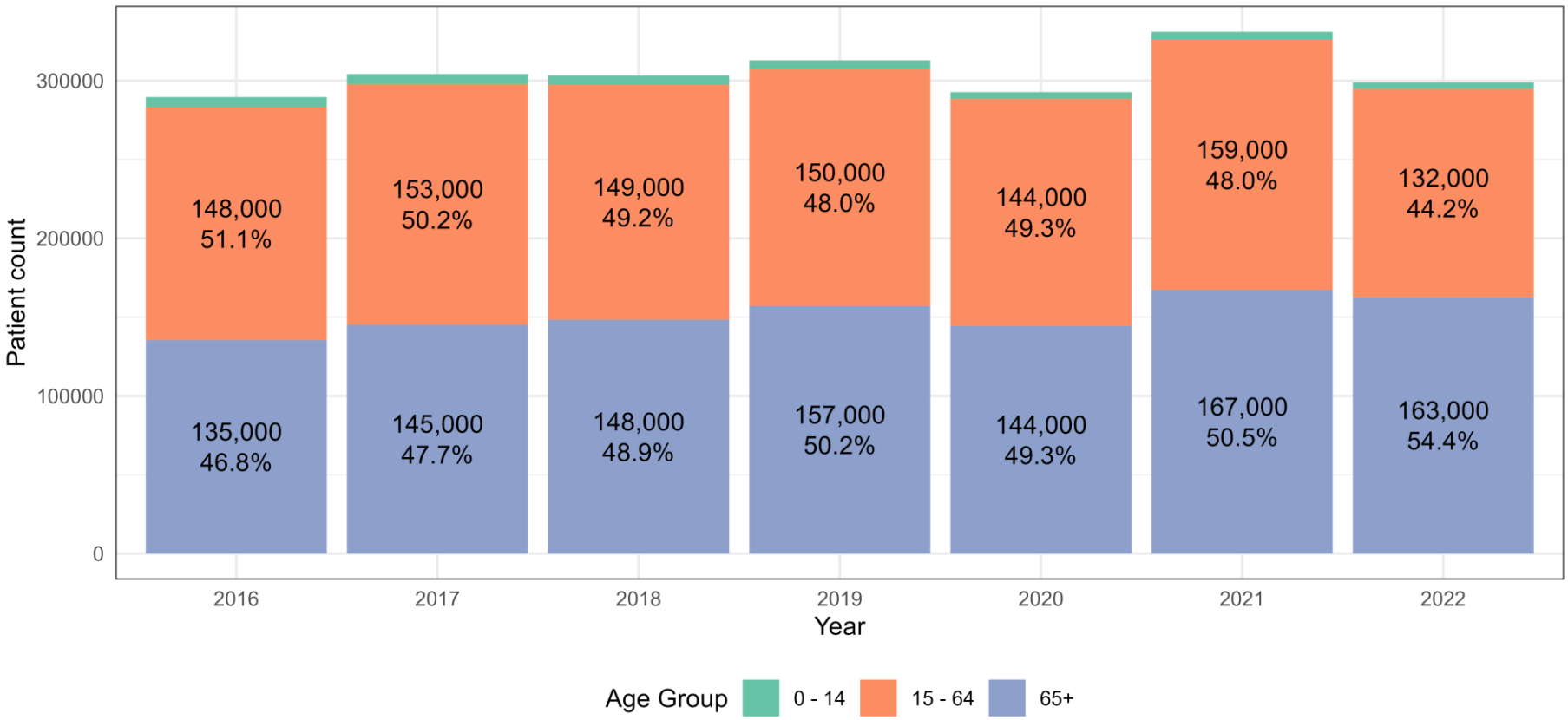
- Results
  - Overview on patients with urine culture
  - Overview on WHO priority organisms isolates from urine
  - Antimicrobial susceptibility test result
- Remarks on interpretation of results
- Summary
- Recommendations

- (Background, Data Scope, Definitions, Measurements, and Statistical Method remained unchanged compared to 2021, and can be referred in Supplementary slides)

Results

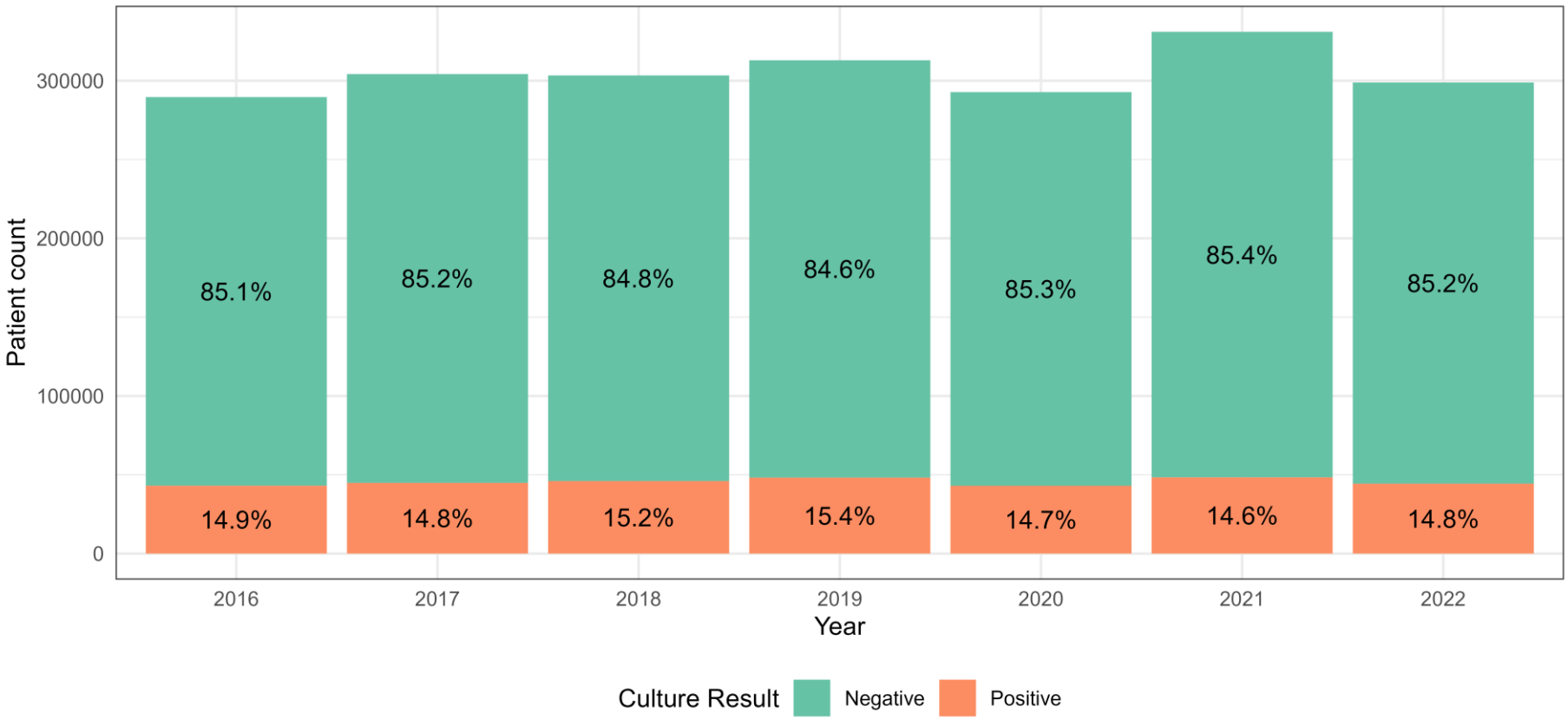
Overview on patients with urine culture

Age distribution of patients with urine culture



- No. of patients with urine culture decreased from 331,000 in 2021 to 299,000 in 2022 (9.7% decrease).

Percentage of patients with positive urine culture

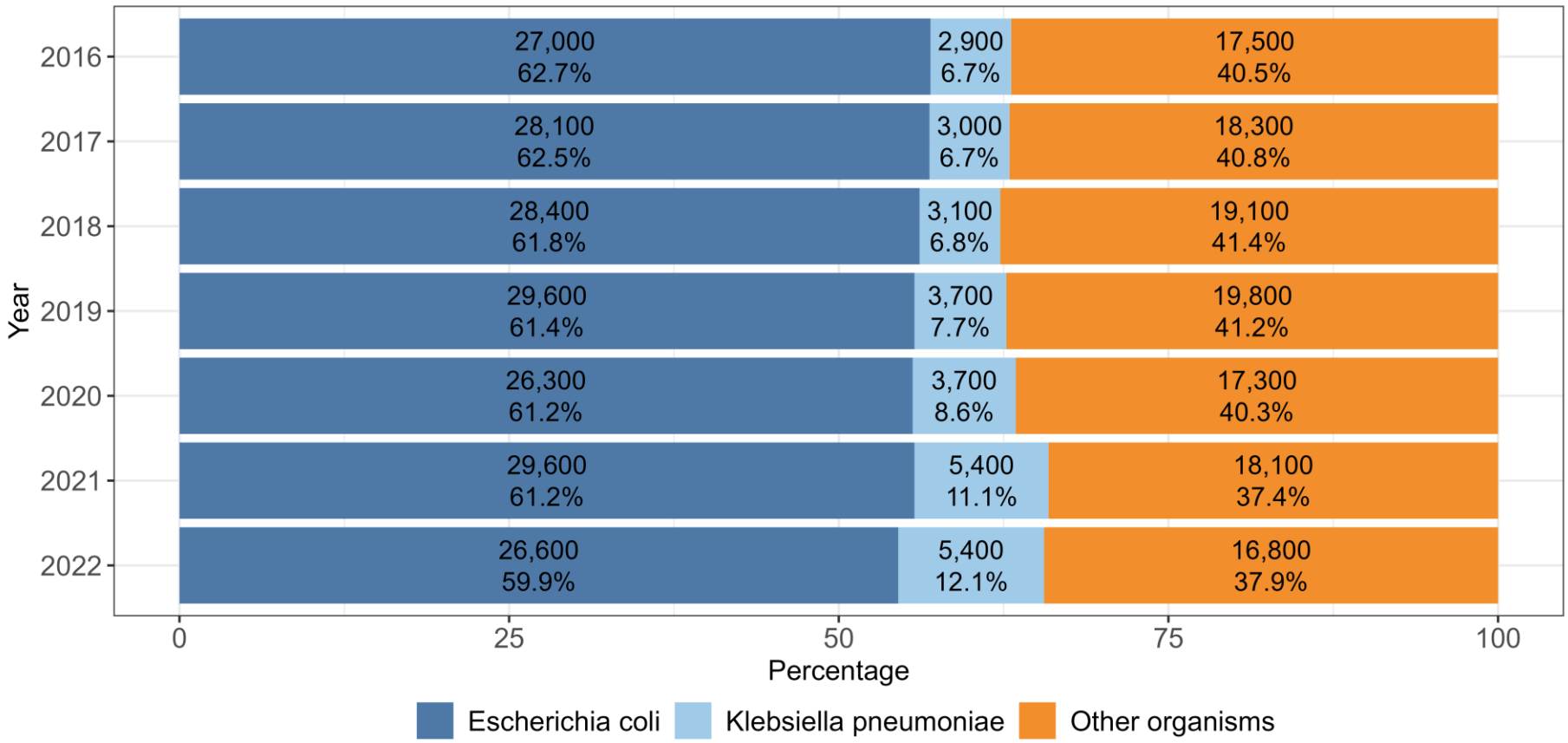


- % patients with positive urine culture remained stable over the past years at around 14-15%.

Results

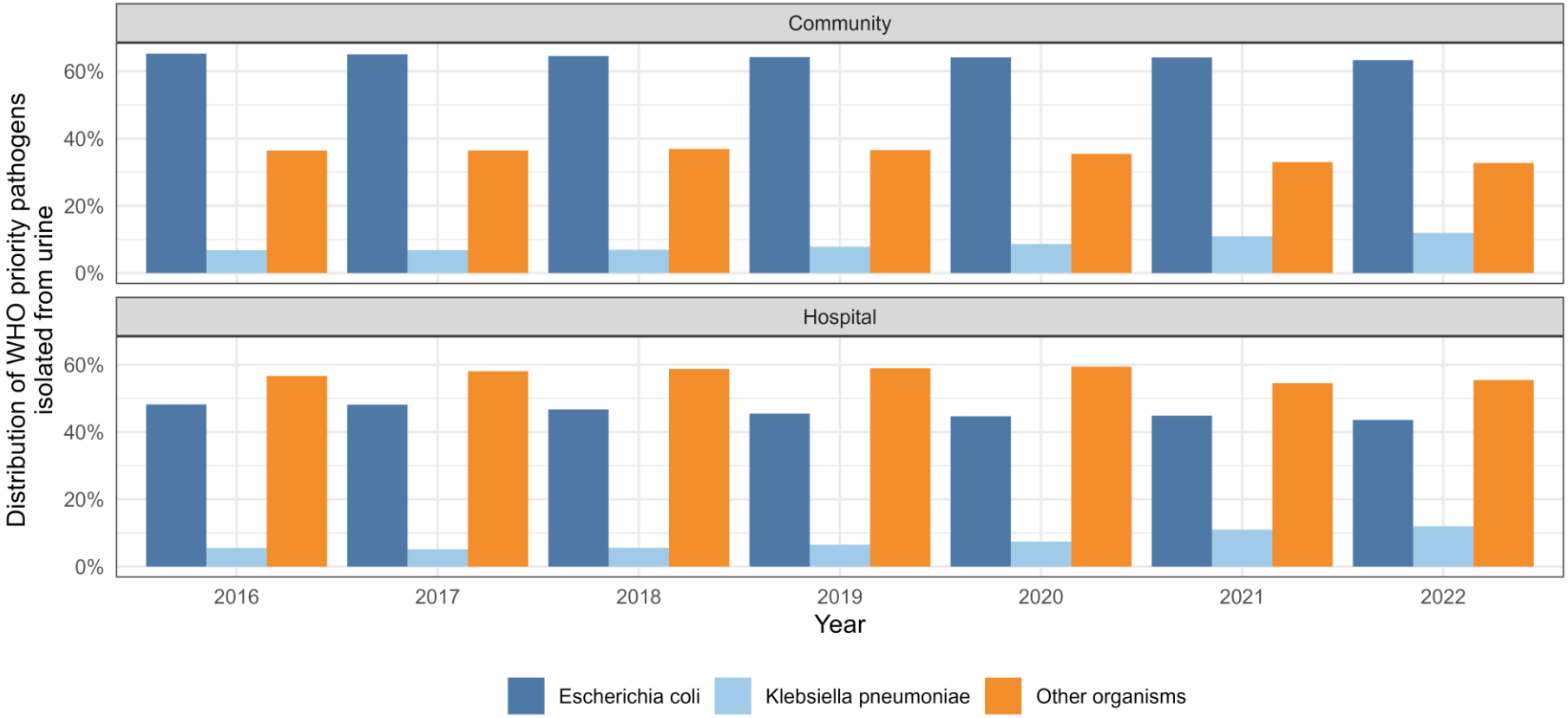
Overview on WHO priority organisms isolated from urine

Distribution of organisms by year



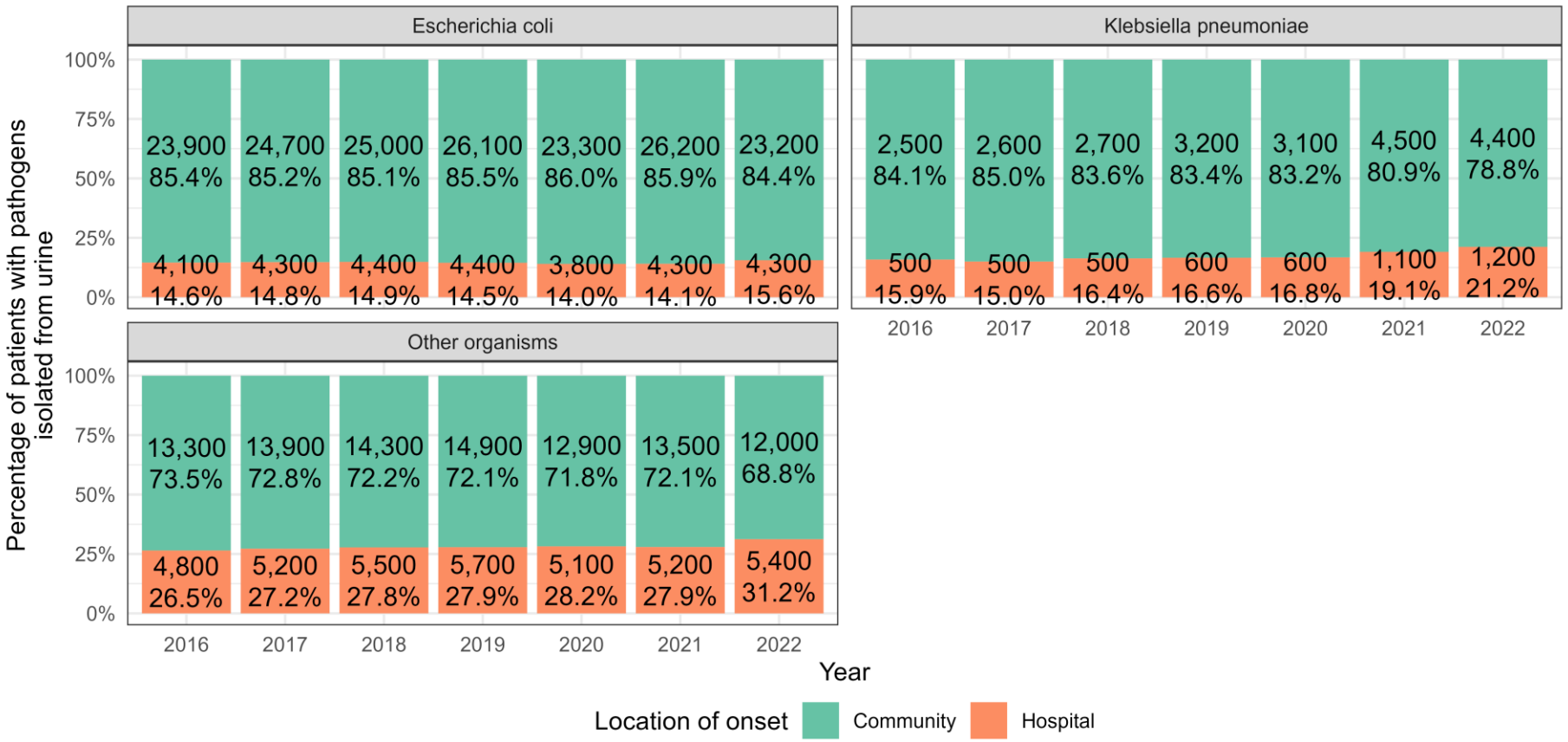
- The most common WHO priority organism cultured from urine remained to be *E. coli* from 2016 to 2022.

Distribution of organisms by location of onset



- Distribution of WHO priority organisms isolated from urine among patients remained stable for both community- and hospital-onset patients.

Distribution of organisms by location of onset

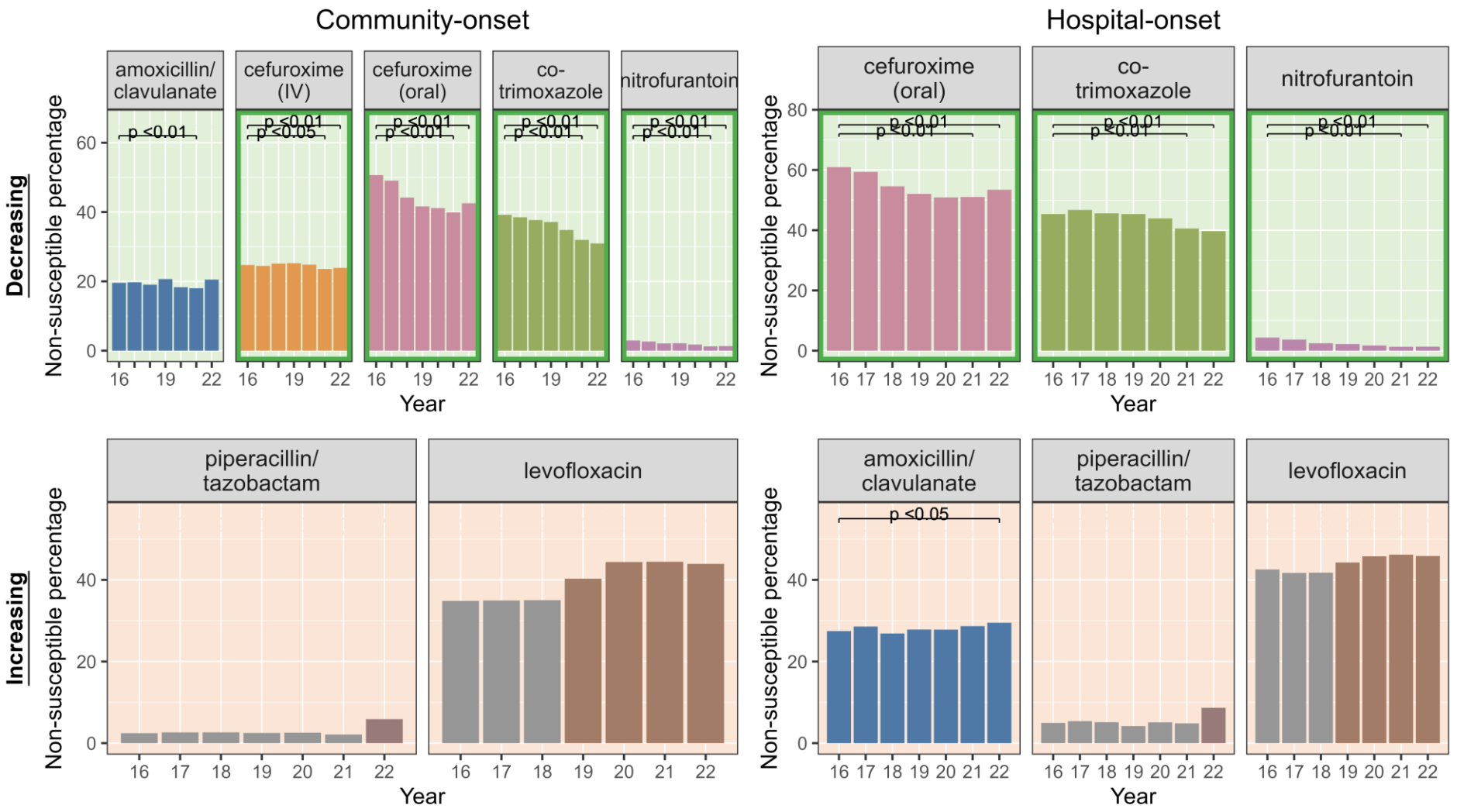


- Both *Escherichia coli* and *Klebsiella pneumoniae* were predominantly community-onset from 2016 to 2022.

Results

AST results for WHO priority organisms isolated from urine

AST results with significant trend for *E. coli* (16 to 22)



Note:
The CLSI released revised fluoroquinolones interpretive criteria for Enterobacteriaceae (excluding Salmonella spp.) in 2019, and revised piperacillin/tazobactam interpretive criteria for Enterobacteriaceae in 2022. These updates may have contributed to the observed increase in subsequent years compared to the years prior to the criteria changes.

- Continuous downward trends were observed for cefuroxime (IV) (community), cefuroxime (oral) (community & hospital), co-trimoxazole (community& hospital) and nitrofurantoin (community & hospital).

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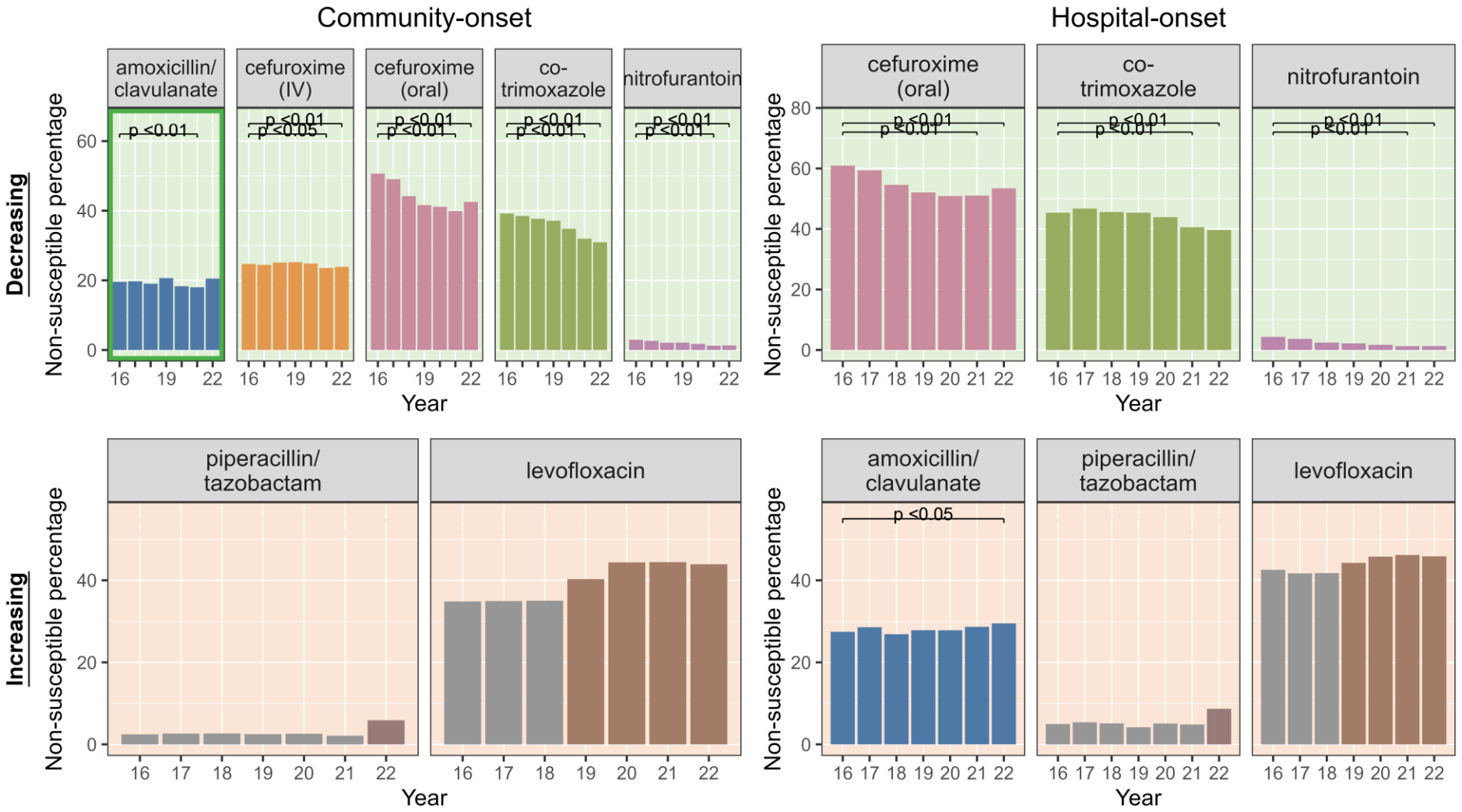
AST results with significant trend for *E. coli* (16 to 22)



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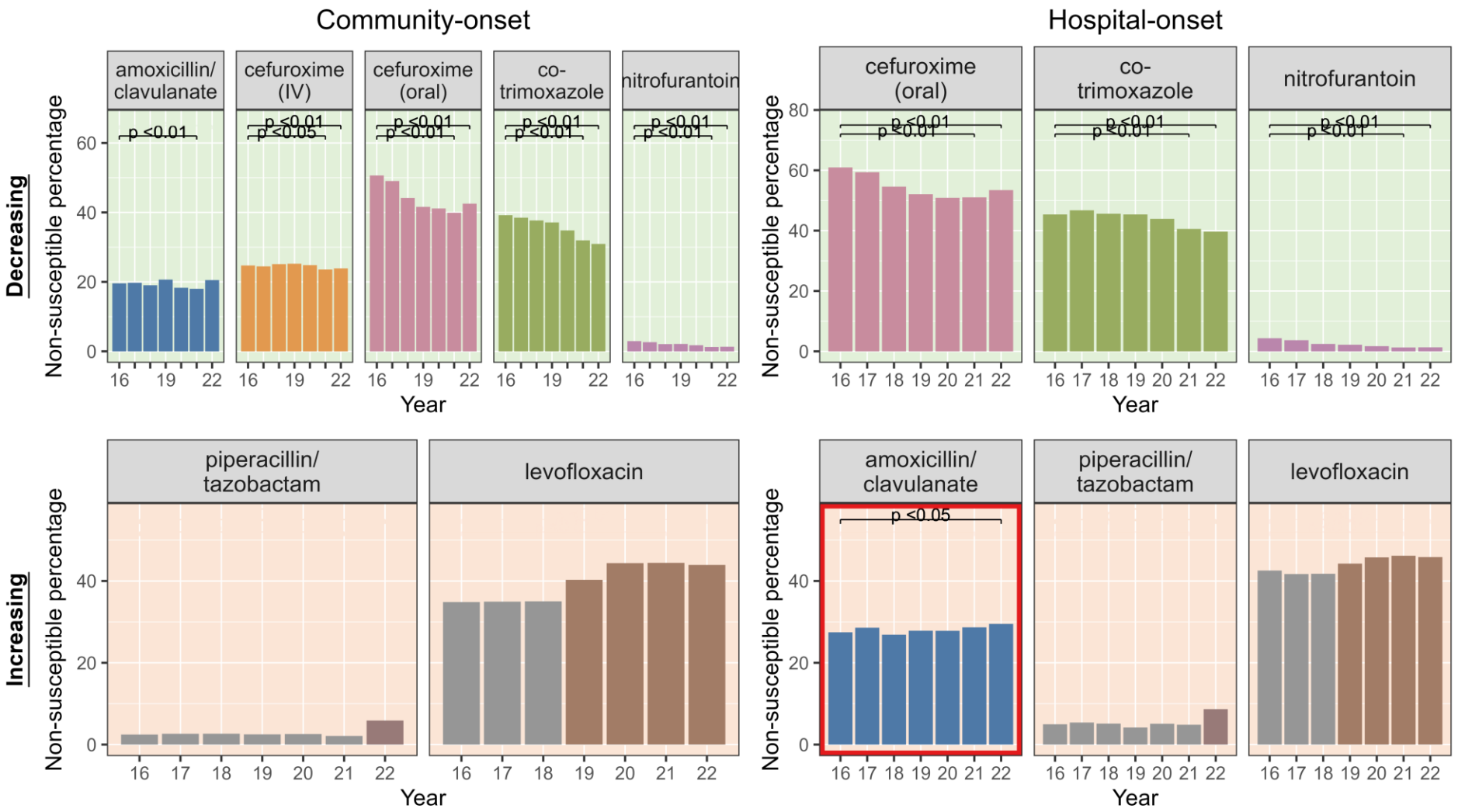
- NS% for amoxicillin/ clavulanate (community) fluctuated.

AST results with significant trend for *E. coli* (16 to 22)



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- NS% for amoxicillin/ clavulanate (hospital) showed increasing trend for the first time since the beginning of surveillance (16-22).

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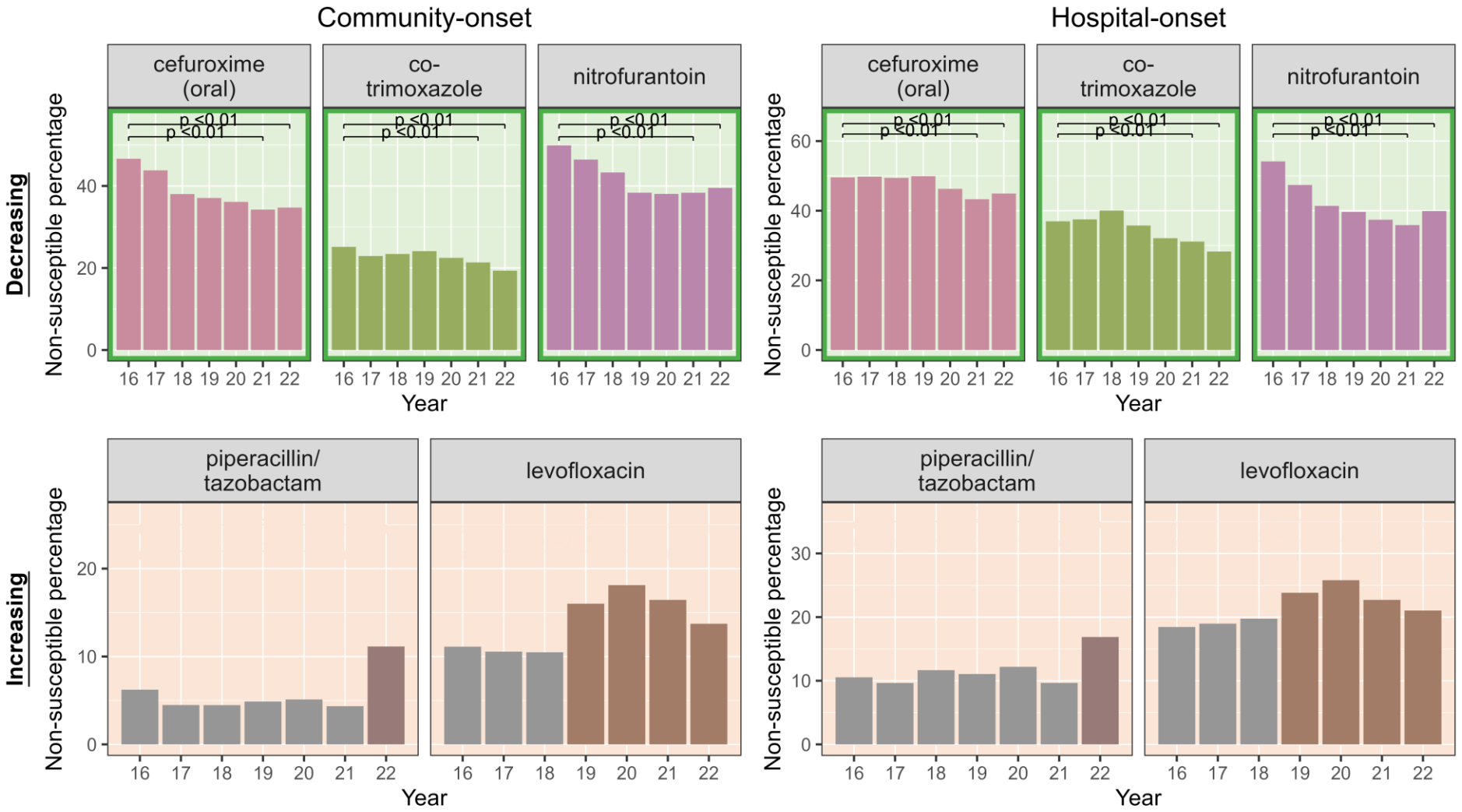
AST results with significant trend for *K. pneumoniae* (16 to 22)



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- For both hospital and community cases, continuous downward trends were observed for cefuroxime (oral), co-trimoxazole and nitrofurantoin.

Summary Table on Key Findings

WHO priority organism	Proportion of isolates being non-susceptible to antimicrobials, 2016 vs 2022	
	Community-onset	Hospital-onset
E. coli	⇩ cefuroxime(IV) 24.7% ➔ 23.9% ⇩ cefuroxime(oral) 50.7% ➔ 42.5% ⇩ co-trimoxazole 39.2% ➔ 30.9% ⇩ nitrofurantoin 2.9% ➔ 1.3%	⇩ cefuroxime(oral) 61% ➔ 53.4% ⇩ co-trimoxazole 45.4% ➔ 39.7% ⇩ nitrofurantoin 4.3% ➔ 1.3%
	None observed	⇧ amoxicillin/clavulanate 27.5% ➔ 29.5%
K. pneumoniae	⇩ cefuroxime(oral) 46.6% ➔ 34.7% ⇩ co-trimoxazole 25.1% ➔ 19.3% ⇩ nitrofurantoin 49.9% ➔ 39.5%	⇩ cefuroxime(oral) 49.6% ➔ 44.9% ⇩ co-trimoxazole 37% ➔ 28.3% ⇩ nitrofurantoin 54.2% ➔ 39.9%
	⇧ imipenem 0.6% ➔ 1.7%	**⇧ imipenem 2% ➔ 3.3%**

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Summary on findings

Summary

- Downward trends continued in 16-21 and 16-22:

  E. coli – cefuroxime, co-trimoxazole, nitrofurantoin

  K. pneumoniae – cefuroxime (oral), co-trimoxazole, nitrofurantoin

- Downward trend in 16-21 showed rebound in 2022:

  E. coli – amoxicillin/ clavulanate

Recommendations

- Continue ASP in public hospitals
  - NS% on selected antimicrobials for *E. coli* and *K. pneumoniae* continued to decrease from 2021 to 2022
- Attention needed on emerging drug-bug combinations shows increasing resistance