IMPACT OF THE 2020 EUCAST « I » DEFINITION ON THE TREATMENT OF *PSEUDOMONAS AERUGINOSA* INFECTIONS: A NATIONAL MULTICENTRIC OBSERVATIONAL STUDY IN BELGIAN HOSPITALS

BONACINI L.[1] • CATRY B.[1 2] • CATTEAU L.[1 3]

1. Department of Epidemiology and public health, Sciensano, Brussels, Belgium • 2. Faculty of Medicine, Université libre de Bruxelles, Bruxelles, Belgium • 3. Faculty of Medicine and Pharmacy, Université de Mons, Mons, Belgium

In 2020, the European Committee on Antimicrobial Susceptibility Testing (EUCAST) updated the 'I' category to promote the use of targeted, narrow-spectrum antibiotics classified as 'Susceptible at Increased doses'.

Healthcare practitioners, previously trained to avoid 'I' (Intermediate) antibiotics, may now prescribe more broad-spectrum antibiotics still labeled as 'S' (Susceptible at Standard doses) to treat *Pseudomonas aeruginosa* while first-line antipseudomonal agents are now labeled as 'I' (Susceptible at Increased doses).

Objective

Evaluation of the impact of the new EUCAST 'I' definition on meropenem prescription to treat *Pseudomonas aeruginosa* infections in Belgian hospitals.

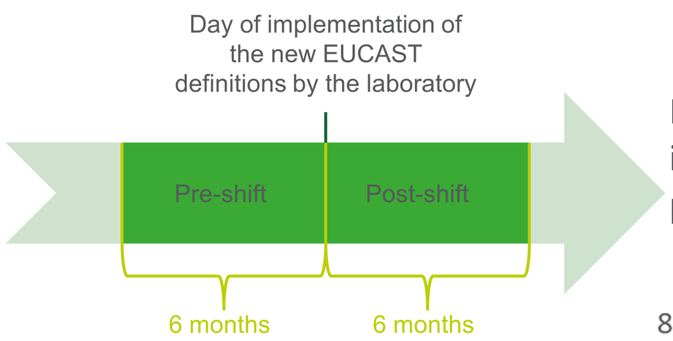
Methods

Design

- Multicentric retrospective observational study
- Belgian acute care hospitals
- On a voluntary basis

Population & study period

Hospitalized adults treated for wild-type *Pseudomonas aeruginosa* infections during a six-month period pre- or post-implementation of the new EUCAST definition



Patients was included in the study only if the isolate was identified as

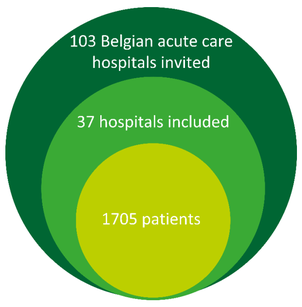
Pre-shift	Post-shift
Susceptible (S) to meropenem	**Susceptible, normal dosage (S)** to meropenem
Susceptible (S) to either ceftazidime, piperacillin/tazobactam, ciprofloxacin or cefepime	**Susceptible, increased dosage (I)** to either ceftazidime, piperacillin/tazobactam, ciprofloxacin or cefepime

Data collection

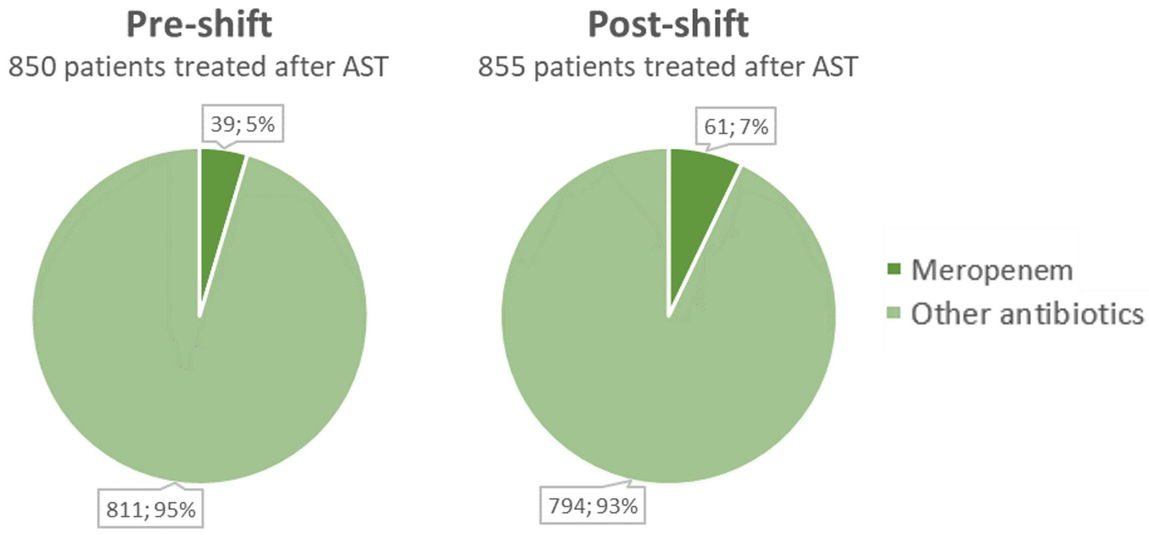
- REDCap©
- November 2023 - June 2024
- Epidemiological, clinical, microbiological, and antimicrobial therapy details

Results

36% nationwide participation.



Meropenem prescription **significantly increased** post-implementation of the new EUCAST 'I' definition, rising from 4.6% pre- to 7.1% post-implementation.



This increase was observed in 48,6% (18/37) of the participating hospitals.

Conclusion

The 2020 EUCAST criteria implementation led to a significant increase in meropenem prescriptions to treat *Pseudomonas aeruginosa* infections in Belgian hospitals.

This underscores the need for further research into prescribing practices and reinforces the importance of prescriber education and antibiotic stewardship programs.

Perspectives

A multilevel logistic regression analysis will be performed to identify factors associated with the increased prescription of meropenem.

REFERENCES

- Munting, A., Damas, J., Viala, B., et al. (2022). Impact of selective reporting of antibiotic susceptibility testing results on meropenem prescriptions for the treatment of *Pseudomonas aeruginosa* infections after 2020 EUCAST criteria update: An observational study in a university hospital. Antimicrobial Resistance & Infection Control, 11, 165. https://doi.org/10.1186/s13756-022-01203-x
- Ourghanlian, C., Fihman, V., et al. (2022). Overly broad-spectrum antibiotic treatment of wild-type *Pseudomonas aeruginosa* infections in relation to the EUCAST new definition of susceptibility testing categories: A retrospective multicentre cohort study. JAC Antimicrobial Resistance. https://doi.org/10.1093/jacamr/dlac099
- Munting, A., Regina, J., Damas, J., Lhopitallier, L., Kritikos, A., Guery, B., Senn, L., & Viala, B. (2021). Impact of 2020 EUCAST criteria on meropenem prescription for the treatment of *Pseudomonas aeruginosa* infections: An observational study in a university hospital. JAC Antimicrobial Resistance. https://doi.org/10.1016/j.cmi.2021.03.034

ACKNOWLEDGEMENTS

We extend our warmest thanks to all the hospitals and laboratories that participated in this study. We would also like to express our gratitude to the National Antibiogram Committee (NAC) for designing the study in collaboration with Sciensano and for providing funding to compensate the hospital and laboratory staff. Special thanks to the following experts for their invaluable contributions: Dr. Laetitia Brassinne (Cliniques de l'Europe), Prof. Dr. Daniel Huang (CHU Namur), and Dr. Caroline Briquet (UCLouvain).

This research was funded by the Belgian National Antibiogram Comitee (NAC)

Sciensano • Laura Bonacini • +32(0)2 642 50 08 • laura.bonacini@sciensano.be • **www.sciensano.be**