

RESPONSE TO LETTER

Intrinsic Resistance: A Significant Characteristic in Evaluating Antibiotic Sensitivity Pattern [Response to Letter]

Asmamaw Nitsuh Woreta 1,2, Habtamu Biazin Kebede 1, Yonas Tilahun, Solomon Gebreselassie Teklegiorgis, Woldaregay Erku Abegaz

Correspondence: Habtamu Biazin Kebede, Email habtamu.biazin@aau.edu.et

Dear editor

We would like to thank the readers and their valuable comments suggested. We have carefully reviewed their comments and responded to each comment one by one as follows.

(a) This study reported *Providencia stuartii* as 100% sensitive (only one strain isolated and tested) to Ampicillin and Gentamicin whereas *P. stuartii* is considered intrinsically resistant to several antibiotics including Ampicillin, Gentamicin, and Tobramycin.^{2,3} The bacteria with intrinsic resistance to antibiotics should be reported as "Resistant" only.² Moreover, intrinsic resistance is highly important as it along with another resistance mechanism may result in poor clinical outcomes.^{4,5}

Responses: Thank you for your insightful comments. Notably, *Providencia stuartii* is a known drug resistance opportunistic pathogen. However, no documented evidence reveals *Providencia stuartii* is intrinsically resistant to stated antibiotics (Ampicillin, Gentamicin, and Tobramycin). There is a text on CLSI guidelines that stated *Providencia stuartii* should be considered resistant to gentamicin and tobramycin but not intrinsically resistant to amikacin. This sentence means that if the organism is resistant to ampicillin, Augmentin, cephalosporin I, tetracycline, Nitrofurantoin, Polymyxin, and colistins, the organism should be considered drug-resistant. This evidence is supported by a recently published work 51.3%, 51.3% of sensitivity for Gentamicin, and Tobramycin among 76 isolates, respectively. More than 60% of *P. stuartii* isolates were found to be sensitive to aminoglycosides (gentamicin, streptomycin, and tobramycin), penicillin (amoxicillin, Augmentin, and ampicillin). This substantial evidence revealed that *P. stuartii* is not intrinsically resistant to the aforementioned antibiotics (Ampicillin, Gentamicin, and Tobramycin) at this time.

(b) Further, this study reported 16.7% (1 out of 6 strains) resistance in *Streptococcus pneumoniae* to penicillin. However, CLIS guidelines have not recommended reporting penicillin-resistant *S. pneumoniae* strains based on disk diffusion method(s).²

Responses: Thank you for raising important comments. Oxacillin disk is used as a surrogate antibiotic susceptibility test against penicillin for *Streptococcus pneumoniae*. Predicts penicillin susceptibility if the oxacillin zone is \geq 20 mm with the disc diffusion method. If the oxacillin zone is \leq 19 mm, penicillin MIC must be done. As a result, it proposed groupings of antimicrobial agents approved for clinical use and should be considered for testing and reporting on fastidious organisms with disk diffusion method with Oxacillin disk.¹⁻³

1625

¹Department of Microbiology, Immunology and Parasitology, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia; ²Microbiology Unit, Department of Laboratory Sciences, Menelik II Referral Hospital, Addis Ababa, Ethiopia; ³Department of Ophthalmology, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia

Woreta et al **Dove**press

NCCLS also recommends that all invasive S. pneumoniae isolates found to be "possibly resistant" to beta-lactams (ie, an oxacillin zone size of less than 20 mm) by oxacillin screening should undergo further susceptibility testing by using a quantitative MIC method acceptable for penicillin, extended-spectrum cephalosporins, and other drugs as clinically indicated.8

(c) The study was started in January 2019 but the authors had used CLSI M100 guidelines of 2017. In the modern world of increasing anti-microbial resistance, CLSI updates M100 guidelines on yearly basis introducing a variety of antimicrobial combinations against multi-drug and pan-drug resistant isolates. Since the author is dealing with antibiotic susceptibility patterns, so, the latest CLSI guidelines must have been used. If still, authors want to adhere to old CLSI guidelines then a short explanation in the published paper might be of great importance.

Response: Thank you for your comment. We agree that each experiment should be carried out by the CLSI criteria, which were just released. At the time of the data collection, the new version was not available freely. Unless there was a modification in the amended version of the guideline, which did not result in any changes, whether we use the new version or the old one. 1-3 This holds true for this particular case.

Disclosure

The authors declare no conflicts of interest in this communication.

References

- 1. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for Antimicrobial Susceptibility Testing. 27th ed. CLSI supplement M100. Wayne, PA: Clinical and Laboratory Standards Institute; 2017.
- 2. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for Antimicrobial Susceptibility Testing. 28th ed. CLSI supplement M100. Wayne, PA: Clinical and Laboratory Standards Institute; 2018.
- 3. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for Antimicrobial Susceptibility Testing. 29th ed. CLSI supplement M100. Wayne, PA: Clinical and Laboratory Standards Institute; 2019.
- 4. Liu J, Wang R, Fang M. Clinical and drug resistance characteristics of Providencia stuartii infections in 76 patients. J Int Med Res. 2020;48 (10):300060520962296. PMID: 33081537; PMCID: PMC7588764. doi:10.1177/0300060520962296
- 5. Penner JL, Preston MA. Differences among Providencia species in their in vitro susceptibilities to five antibiotics. Antimicrob Agents Chemother. 1980;18(6):868-871. PMID: 7235674; PMCID: PMC352980. doi:10.1128/AAC.18.6.868
- 6. Woods TD, Watanakunakorn C. Bacteremia due to Providencia stuartii: a review of 49 episodes. South Med J. 1996;89(2):221-224. PMID: 8578355. doi:10.1097/00007611-199602000-00013
- 7. Bonfiglio G, Perilli M, Stefani S, Amicosante G, Nicoletti G. Prevalence of extended spectrum beta-lactamases among Enterobacteriaceae: An Italian survey. Int J Antimicrob Agents. 2002;19(3):213-217. PMID: 11932144. doi:10.1016/s0924-8579(01)00497-6
- 8. National Committee for Clinical Laboratory Standards (NCCLS). Performance Standards for Antimicrobial Susceptibility Testing. Vol. 14. NCCLS document M100-S5. Villanova, PA: National Committee for Clinical Laboratory Standards; 1994.

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Infection and Drug Resistance (letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Infection and Drug Resistance editors. While all reasonable steps have been taken to confirm the content of each letter. Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the

Infection and Drug Resistance

Dovepress

Publish your work in this journal

Infection and Drug Resistance is an international, peer-reviewed open-access journal that focuses on the optimal treatment of infection (bacterial, fungal and viral) and the development and institution of preventive strategies to minimize the development and spread of resistance. The journal is specifically concerned with the epidemiology of antibiotic resistance and the mechanisms of resistance development and diffusion in both hospitals and the community. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit http://www.dovepress.com/testimonials.php to read real quotes from published authors

Submit your manuscript here: https://www.dovepress.com/infection-and-drug-resistance-journa