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LETTER

Combating Antimicrobial Resistance: A Pharmacist-Led PDCA Stewardship Program in a Tertiary Hospital [Letter]

Qing-Qing Shan

Department of Respiration, Chengdu Integrated TCM & Western Medicine Hospital, Chengdu, 610095, People's Republic of China

Correspondence: Qing-Qing Shan, Department of Respiration, Chengdu Integrated TCM & Western Medicine Hospital, No. 18, Wangxiang North Road, High-Tech Zone, Chengdu, Sichuan, 610041, People's Republic of China, Tel +86-028-85311622, Email shanqingqing52377@126.com

Dear editor

We read with great interest the article by Li et al titled "Combating Antimicrobial Resistance: A Pharmacist-Led PDCA Stewardship Program in a Tertiary Hospital" recently published in *Infection and Drug Resistance*.[1] The authors present a well-structured antimicrobial stewardship program demonstrating significant reductions in antibacterial use density (AUD) and improvements in prescribing quality. We commend the authors for their innovative "1+X" ward-based clinical pharmacist model and the successful integration of precision diagnostics. However, we wish to respectfully highlight two methodological aspects that warrant further discussion to enhance the interpretability of these promising findings.

First, the potential confounding effect of seasonal variation on AUD reduction deserves careful consideration. The study's quasi-experimental design compared a pre-intervention period (October 2023 to March 2024, autumn-winter) with a post-intervention period (April 2024 to September 2024, spring-summer). Respiratory tract infections, a major driver of antimicrobial prescribing, exhibit well-documented seasonal patterns with peak incidence during winter months. A recent study by Abdelsalam-Elshenawy et al demonstrated that community-acquired pneumonia admissions peaked in December, illustrating the seasonal burden of respiratory infections. Conversely, warmer months typically see reduced respiratory infection rates, which may naturally lower antimicrobial consumption.[2] Serletti et al further demonstrated significant seasonal variation in antibiotic prescribing for respiratory tract diagnoses in primary care, with higher rates consistently observed during winter seasons.[3] The 25.06% AUD reduction observed by Li et al may therefore represent a composite of intervention effect and seasonal trend. We wonder whether the authors observed differential AUD reductions across infection types (eg, respiratory versus non-respiratory infections) or after adjusting for seasonal baselines, which might help clarify the seasonal contribution.

Second, the economic analysis, while reporting a 7.8% reduction in antimicrobial acquisition costs, may benefit from a more comprehensive perspective. A recent systematic review by Huser et al emphasized that high-quality economic evaluations of antibiotic stewardship programs should account for implementation costs, including diagnostic testing and personnel time.[4] The authors report a 7.7-fold increase in therapeutic drug monitoring (TDM) utilization and rapid adoption of droplet digital PCR (ddPCR). These advanced diagnostics generate significant operational costs that were not incorporated into the economic analysis. Carland et al systematically reviewed economic evaluations of TDM interventions in acute hospital settings and found that while most studies determined TDM to be economically favorable, comprehensive reporting of all cost categories is essential to inform investment decisions.[5] Similarly, the intensive "1+X" pharmacist model requires substantial human resources, including time spent on ward rounds, case discussions, and prospective audit and feedback. While the reduction in drug expenditure is commendable, the net economic impact remains uncertain without accounting for these intervention costs. The umbrella review by Pollard et al confirms that most antimicrobial stewardship interventions are cost-effective, but the comparator and cost categories included significantly influence conclusions.[6] We

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wonder whether the authors have data on the incremental costs of TDM/ddPCR implementation and additional pharmacist time that could inform a full cost-consequence or cost-effectiveness analysis.

The integration of differentiated intervention pathways and precision diagnostics represents an important advance in the field. We thank the authors for their valuable work and the editor for the opportunity to engage in scholarly dialogue.

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References

1. Li CHB, Lv L, Jiang H, et al. Combating antimicrobial resistance: a pharmacist-led PDCA stewardship program in a tertiary hospital. *Infect Drug Resist*. 2026;19:592120. doi:10.2147/IDR.S592120
2. Krishnamoorthy Y, Govindan D, Karunakaran M, et al. Global impact of antimicrobial stewardship programs in healthcare: an umbrella review of effectiveness, cost-efficiency, and implementation strategies. *J Infect Chemother*. 2025;31(8):102753. doi:10.1016/j.jiac.2025.102753
3. Serletti L, Dutcher L, Degnan KO, et al. Analysis of seasonal variation of antibiotic prescribing for respiratory tract diagnoses in primary care practices. *Antimicrob Steward Healthc Epidemiol*. 2023;3(1):e147. doi:10.1017/ash.2023.418
4. Huser J, Dörr T, Berger A, et al. Economic evaluations of antibiotic stewardship programmes 2015-2024: a systematic review. *Swiss Med Wkly*. 2025;155(5):4217. doi:10.57187/s.4217
5. Carland JE, Carland DJ, Brett J, et al. Economic evaluations of therapeutic drug monitoring interventions in acute hospital-based settings: a systematic review. *Br J Clin Pharmacol*. 2024;90(9):2038–2066. doi:10.1111/bcp.16164
6. Pollard J, Agnew E, Pearce-Smith N, et al. Umbrella review of economic evaluations of interventions for the prevention and management of healthcare-associated infections in adult hospital patients. *J Hosp Infect*. 2025;158:47–60. doi:10.1016/j.jhin.2025.01.006

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