



## Commentary

**Neglecting antibiotic stewardship in prisons: A concern for antimicrobial resistance response**

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Antimicrobial resistance is a global public health issue that has the potential to return us to the pre-antibiotic era, when there were no medicines against common diseases and, as a result, human suffering was enormous [1]. The widespread, injudicious, and unnecessary use of antibiotics, among other factors, has aided in the emergence and spread of antibiotic-resistant infections [2]. Given the worrisome increase in cases of antibiotic resistance and the dearth of newly discovered antimicrobial medications, it is essential to keep an eye on pathogen epidemiology in order to make informed treatment decisions and to continuously monitor antibiotic use in all settings, including correctional facilities [3]. While antimicrobial resistance is a concern for the entire population, it is likely to pose more serious risks to groups that are at a higher overall risk of contracting infectious diseases, such as those in prisons, jails, and other closed settings [4]. Although antibiotic use patterns among inmates have not been extensively studied, it is clear that antibiotic misuse would not be uncommon in prisons. In this letter, we discuss how neglecting antibiotic misuse in correctional facilities is a concern for antimicrobial resistance response.

Efforts to combat antimicrobial resistance have always focused on the general population, while people in correctional facilities and other closed settings are frequently overlooked. Inmates are more likely to contract infectious diseases, particularly those spread through airborne transmission, due to prison and prisoner characteristics such as overcrowding, poor hygiene conditions, poorly ventilated areas, limited access to diagnostic tests and healthcare services, and their compromised health status when compared to the general population [5,6]. A systematic review of seventeen studies, for example, found a high prevalence of Multi-Drug Resistant Tuberculosis in prison populations in post-Soviet states [7]. Many studies have also found a direct link between an increase in infectious diseases and an increase in the risk of antimicrobial resistance emerging [8,9]. This means that if there are no major efforts to combat infectious diseases in prisons, the use of antimicrobials will rise, increasing the likelihood of antibiotic misuse among inmates. This can make prisons a possible ecological reservoir for antimicrobial-resistant pathogens, which can lead to pathogens spread within the prison and into the community via prison workers and visitors. The establishment of measures to prevent or reduce the occurrence of infectious diseases and their risk factors in correctional facilities is

critical, not only from the standpoint of health equity but also in response to antimicrobial resistance.

In comparison to the general population, there is a significant lack of programs in correctional facilities aimed at raising awareness about antimicrobial resistance. Poor knowledge of antimicrobial resistance is to be expected, and this can lead to antibiotic misuse, which can contribute to the spread and emergence of antibiotic-resistant infections. This is concerning because it has been reported that respiratory tract infections, specifically acute upper respiratory tract infections, and oral diseases are among the conditions with a high risk of antimicrobial over-prescription in prisons [10]. Complex medical and lifestyle histories (age, sedentary lifestyle, asthma, and obesity), a high prevalence of multimorbidity, and various life-threatening conditions are all associated with a high prevalence and transmissibility of disease agents in prisons [11]. These issues are more prevalent in low- and middle-income correctional facilities [12]. Besides this, overuse of over-the-counter topical antibiotics has been reported in correctional facilities [13]. Some studies have also revealed an alarmingly common practice of inappropriate antimicrobial prescriptions in prisons [10,14]. This is frequently aided by the widespread empirical use of antibiotics due to diagnostic insufficiency. Healthcare professionals must encourage inmates to finish their antibiotic courses and educate them on the dangers of antimicrobial resistance. To curb AMR in prisons, there is a need for diagnosis-specific monitoring of antimicrobial use combined with evidence-based prison-focused antimicrobial stewardship policies.

Correctional institutions are frequently left out of global initiatives to improve antimicrobial resistance and use surveillance, despite an increase in such efforts. This suggests that there is a severe lack of information regarding the epidemiology of infectious diseases and the usage patterns of antibiotics in prisons. This is concerning because this information will allow for the development of a tailored strategy to combat antimicrobial resistance in such settings. Surveillance is a crucial tool to inform policy and infection prevention and control strategies. Data is crucial because it serves as the basis for determining how AMR is spreading and for informing and tracking the effectiveness of local, national, and international initiatives. This necessitates immediate efforts to incorporate prisons and other closed environments into antimicrobial surveillance strategies in order to facilitate adequate plans to

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combat the spread of antibiotic-resistant pathogens.

We urge governments and health authorities around the world to take steps to combat antibiotic resistance, strengthen infection and prevention control measures, and advance antimicrobial stewardship in prisons and other confined environments. More research should be conducted to advance our understanding of antimicrobial use and resistance in prisons, jails, and other correctional facilities. Neglecting prison health puts everyone at risk, because no one is truly safe until everyone is safe.

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### Author contribution

Yusuff Adebayo Adebisi and Nafisat Dasola Jimoh conceptualized the letter and wrote the first draft of the letter. Adeleke Adekunle Faid, Maleek Olanrewaju Olatunji, Esther O. Opone, Obafemi Arinola Olarewaju, Adesoji Praise-God Adetunji, Somtochukwu Marycynthia Ezema, Jean Claude Niyibizi, Don Eliseo Lucero-Prisno III contributed to the second and third draft of the paper. All the authors signed the correspondence for immediate action by stakeholders and agreed to the final manuscript.

### Consent

Not Required.

### Registration of research studies

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### Guarantor

Nafisat Dasola Jimoh.

### Declaration of competing interest

None.

### References

- [1] Y.A. Adebisi, N.D. Jimoh, I.O. Ogunkola, et al., The use of antibiotics in COVID-19 management: a rapid review of national treatment guidelines in 10 African countries, *Trop. Med. Health* 49 (1) (2021) 51, <https://doi.org/10.1186/s41182-021-00344-w>. Published 2021 Jun 23.
- [2] R.J. Fair, Y. Tor, Antibiotics and bacterial resistance in the 21st century, *Perspect. Med. Chem.* 6 (2014) 25–64, <https://doi.org/10.4137/PMC.S14459>. Published 2014 Aug 28.
- [3] Y.A. Adebisi, A.J. Alaran, M. Okereke, G.I. Oke, O.A. Amos, O.C. Olaoye, I. Oladunjoye, A.Y. Olanrewaju, N.A. Ukor, D.E. Lucero-Prisno 3rd, COVID-19 and antimicrobial resistance: a review, *Inf. Disp.* 14 (2021 Jul 31), 11786337211033870, <https://doi.org/10.1177/11786337211033870>. PMID: 34376994; PMCID: PMC8327234.
- [4] J.L. Warren, L. Grandjean, D.A.J. Moore, A. Lithgow, J. Coronel, P. Sheen, J. L. Zelner, J.R. Andrews, T. Cohen, Investigating spillover of multidrug-resistant tuberculosis from a prison: a spatial and molecular epidemiological analysis, *BMC Med.* 16 (1) (2018 Aug 3) 122, <https://doi.org/10.1186/s12916-018-1111-x>. PMID: 30071850; PMCID: PMC6091024.

- [5] A. Wali, D. Khan, N. Safdar, et al., Prevalence of tuberculosis, HIV/AIDS, and hepatitis; in a prison of Balochistan: a cross-sectional survey, *BMC Publ. Health* 19 (1) (2019) 1631, <https://doi.org/10.1186/s12889-019-8011-7>. Published 2019 Dec 4.
- [6] V.N. Nweze, U.G. Anosike, J.F. Ogunwusi, Y.A. Adebisi, D.E. Lucero-Prisno 3rd, Prison health during the COVID-19 era in Africa, *Public Health Pract (Oxf)* 2 (2021 Nov), 100083, <https://doi.org/10.1016/j.puhip.2021.100083>. Epub 2021 Jan 23. PMID: 33521740; PMCID: PMC7826114.
- [7] M. Drozwin, A. Johnson, A.M. Johnson, Multidrug resistant tuberculosis in prisons located in former Soviet countries: a systematic review, *PLoS One* 12 (3) (2017), e0174373, <https://doi.org/10.1371/journal.pone.0174373>. Published 2017 Mar 23.
- [8] Antimicrobial Resistance Collaborators, Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis, *Lancet* 399 (10325) (2022 Feb 12) 629–655, [https://doi.org/10.1016/S0140-6736\(21\)02724-0](https://doi.org/10.1016/S0140-6736(21)02724-0). Epub 2022 Jan 19. PMID: 35065702; PMCID: PMC8841637.
- [9] C. Lanteri, K. Mende, M. Kortepeter, Emerging infectious diseases and antimicrobial resistance (EIDAR), *Mil. Med.* 184 (Suppl 2) (2019 Nov 1) 59–65, <https://doi.org/10.1093/milmed/usz081>. PMID: 31004432; PMCID: PMC6802279.
- [10] G. Di Giuseppe, R. Lanzano, A. Silvestro, F. Napolitano, M. Pavia, Pattern and appropriateness of antimicrobial prescriptions for upper respiratory tract and dental infections in male prisoners in Italy, *Antibiotics (Basel)* 10 (11) (2021 Nov 20) 1419, <https://doi.org/10.3390/antibiotics10111419>. PMID: 34827357; PMCID: PMC8614964.
- [11] S. Fazel, J. Baillargeon, The health of prisoners, *Lancet* 377 (9769) (2011 Mar 12) 956–965, [https://doi.org/10.1016/S0140-6736\(10\)61053-7](https://doi.org/10.1016/S0140-6736(10)61053-7). Epub 2010 Nov 18. PMID: 21093904.
- [12] Ukor NA, Adebisi YA, Alaran AJ, Micheal AI, Lucero-Prisno III DE. Case 15 - CASE HEALTHCARE IN the PRISONS: the CASE of SUB-SAHARAN AFRICA. *Casebook on Advocacy in Public Health*. Page 183 - 193.
- [13] C. Herzig, D. Mukherjee, F. Lowy, C. Lee, Z. Apa, D. Gage, O. Jovanovic, E. L. Larson, Overuse of topical antibiotics among inmates entering maximum-security correctional facilities in New York state, *Am. J. Infect. Control* 40 (5) (2012 Jun 1) e177.
- [14] P.S. de la Hoya, J.S. Payá, C. Alia, M. Bedía, J. De Juan, A.P. Valenzuela, J. García, L. Vasallo, A. Mora, C. Iñigo, V. Zarauza10, Study of the use of antibiotics in respiratory infections within the prison setting, *Rev. Esp. Sanid. Penit.* 7 (2005) 52–58.

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