

## Commentary

# Antimicrobial resistance: a clear and present danger in Ghana

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The World Antibiotic Awareness Week (WAAW) is observed every year in November and is aimed at creating awareness of the increasing problem of antibiotic resistance. The celebration is also to encourage best practices among the general public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance.

In 2014, the World Health Organisation's report on Antimicrobial Resistance (AMR) showed high levels of resistance in all regions of the world.<sup>1</sup> The global impact of AMR remains unknown, however the European Center for Disease Prevention and Control (ECDC) estimates that AMR is responsible for some 25,000 deaths per year with 2.5 million extra hospital days in Europe.<sup>2</sup> Globally an estimated 10 million deaths attributable to AMR is expected to occur by 2050, with 4 million of these occurring in Africa.<sup>3</sup> The current impact of AMR in Africa remains unknown from lack of data, but there is evidence of a significant level of resistance to commonly prescribed antibiotics.<sup>4</sup>

Antimicrobial resistance, albeit a naturally occurring phenomenon, has been worsened as a result of inappropriate use of antibiotics in humans and animals. In Ghana, high rates of antibiotic use has been observed in humans and animals.<sup>5-8</sup> Inappropriate use of antimicrobial is facilitated by the unavailability or the lack of implementation of antibiotic prescribing guidelines, lack of diagnostic microbiology services as well as unregulated access to over the counter antimicrobials by the general populace.

Within hospitals and clinics, the spread of AMR is facilitated by poor implementation of Infection Prevention and Control (IPC) practices. Despite the presence of a national IPC policy in Ghana,<sup>9</sup> there are significant challenges with its implementation. For example out of ten hospitals surveyed recently only one had a full time infection control nurse<sup>10</sup> although WHO recommends one full time IPC worker per 250 hospital beds.<sup>11</sup> Several hospitals still struggle for access to hand hygiene supplies including running water, soap and alcohol hand rub.

In Ghana, there are increasing reports community and hospital acquired infections caused by Extended Spectrum Beta Lactamase (ESBL) producing organisms like *E. coli* and *Klebsiella sp.*<sup>12,13</sup> Anecdotal evidence also shows an increase in the incidence of carbapenem resistant *Acinetobacter sp* and *Pseudomonas sp* infections in vulnerable patient populations like those in intensive care units.

In a recent audit at the Medical Intensive Care Unit (MICU) at a Teaching Hospital, there was high resistance to gentamicin and ciprofloxacin among aetiological agents of severe sepsis, with 100% resistance to 3rd generation cephalosporins (unpublished work, Yaw Ofori-Adjei).

It is obvious that urgent strategies are needed for the control of AMR in Ghana. These strategies should include improving access to diagnostic microbiology services, improving knowledge of prescribers by incorporating AMR into educational curricula of healthcare institutions as well as continuous medical education of healthcare practitioners. There is the need set up surveillance of AMR at all levels of healthcare nationwide, adequately implement IPC protocols in hospitals, train more Clinical Microbiologists and Infection prevention staff to increase and maintain focus on AMR and IPC in hospitals. Meanwhile there is the urgent need to embrace antibiotic stewardship programs to protect the few potent antimicrobials available on the local market. Also, there is the need to improve access to alternative agents for treating multi-drug resistant infections to reduce the increasing morbidity and mortality from these organisms.

The presence of a national Infection control and AMR policies shows the existence of the necessary political will towards combatting the problem of AMR in Ghana.<sup>9,14</sup> A concerted effort is however needed to ensure that both policies are implemented at all levels in our health care delivery system including the private sector.

This year's WAAW was observed from the 12 – 18 of November. The WHO is encouraging the incorporation of two key messages to help guide the discussion on antibiotic use and take steps towards wider public understanding of antibiotic resistance. They are "Think twice. Seek Advice." and "Misuse of Antibiotics puts us all at Risk". As prescribers, we do need to question our decisions to prescribe and rethink our choices of antibiotics. The antibiotics we have in our armament to combat resistant strains have limited accessibility to the average patient due to cost and availability. We must therefore ensure that we are all poised to stop the development AMR. Failure to do these places all of us at risk.

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### REFERENCES

1. WHO. ANTIMICROBIAL RESISTANCE Global Report on surveillance. World Health Organisation; 2014.
2. ECDC E. The Bacterial Challenge—Time to React a Call to Narrow the Gap between Multidrug-Resistant Bacteria in the EU and Development of New Antibacterial Agents. Solna ECDC EMEA Jt Press Release. 2009;
3. O’Neill J. Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations The Review on Antimicrobial [Internet]. 2014 Dec. Available from: <https://amr-review.org/Publications.html>
4. Tadesse BT, Ashley EA, Ongarello S, Havumaki J, Wijegoonewardena M, González IJ, et al. Antimicrobial resistance in Africa: a systematic review. *BMC Infect Dis* [Internet]. 2017 Sep 11 [cited 2018 Dec 1];17. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5594539/>
5. Donkor ES, Newman MJ, Yeboah-Manu D. Epidemiological aspects of non-human antibiotic usage and resistance: implications for the control of antibiotic resistance in Ghana. *Trop Med Int Health*. 2012;17(4):462–468.
6. Boamah VE, Agyare C, Odoi H, Dalsgaard A. Practices and factors influencing the use of antibiotics in selected poultry farms in Ghana. 2016;
7. Ahiabu M-A, Tersbol BP, Biritwum R, By-gbjerg IC, Magnussen P. A retrospective audit of anti-biotic prescriptions in primary health-care facilities in Eastern Region, Ghana. *Health Policy Plan* [Internet]. 2015 Jun 4 [cited 2015 Jun 18]; Available from: <http://www.heapol.oxfordjournals.org/cgi/doi/10.1093/heapol/czv048>
8. Labi A-K, Obeng-Nkrumah N, Nartey ET, Bjerrum S, Adu-Aryee NA, Ofori-Adjei YA, et al. Antibiotic use in a tertiary healthcare facility in Ghana: a point prevalence survey. *Antimicrob Resist Infect Control*. 2018 Jan 26;7:15.
9. MOH. National Policy and Guidelines for Infection Prevention and Control in Health Care Settings. Accra, Ghana: Ministry of Health, Ghana; 2015.
10. Labi A-K, Obeng-Nkrumah N, Nartey ET, Bjerrum S, Adu-Aryee NA, Ofori-Adjei YA, et al. Antibiotic use in a tertiary healthcare facility in Ghana: a point prevalence survey. *Antimicrob Resist Infect Control*. 2018 Jan 26;7:15.
11. Storr J, Twyman A, Zingg W, Damani N, Kilpatrick C, Reilly J, et al. Core components for effective infection prevention and control programmes: new WHO evidence-based recommendations. *Antimicrob Resist Infect Control*. 2017;6:6.
12. Obeng-Nkrumah N, Twum-Danso K, Krogfelt KA, Newman MJ. High Levels of Extended-Spectrum Beta-Lactamases in a Major Teaching Hospital in Ghana: The Need for Regular Monitoring and Evaluation of Antibiotic Resistance. *Am J Trop Med Hyg*. 2013 Nov 6;89(5):960–4.
13. Eibach D, Campos CB, Krumkamp R, Al-Emran HM, Dekker D, Boahen KG, et al. Extended spectrum beta-lactamase producing Enterobacteriaceae causing bloodstream infections in rural Ghana, 2007–2012. *Int J Med Microbiol* [Internet]. [cited 2016 May 25]; Available from: <http://www.sciencedirect.com/science/article/pii/S1438422116300613>
14. admin ATA. Policy Documents | Ministry of Health [Internet]. [cited 2018 Dec 1]. Available from: <http://www.moh.gov.gh/policy-documents/> 🌐