

Concise Communication

Ten ways to make the most of World Antimicrobial Awareness Week

Bradley J. Langford PharmD, BCIDP¹ , Kelly L. Matson PharmD, BCPPS² , Khalid Eljaaly³ ,
Anucha Apisarnthanarak MD⁴, Pamela L. Bailey DO, MPH⁵ , Lindsay MacMurray⁶, Alexandre R. Marra MD, MS⁷ ,
Kari A. Simonsen MD⁸ , Pranavi Sreeramoju MD, MPH, MBA⁹ , Priya Nori MD¹⁰ and Gonzalo M. Bearman MD, MPH¹¹ 

¹Health Protection, Public Health Ontario, Toronto, Ontario, Canada, ²College of Pharmacy, University of Rhode Island, Providence, Rhode Island, United States, ³Department of Pharmacy Practice, Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia, ⁴Infectious Diseases Division, Thammasat University Hospital, Pathum Thani, Thailand, ⁵Infectious Diseases, Prisma Health, Columbia, South Carolina, United States, ⁶Society for Healthcare Epidemiology of America, Arlington, Virginia, United States, ⁷Department of Internal Medicine, University of Iowa Carver College of Medicine, Iowa City, Iowa, United States, ⁸University of Nebraska Medical Center, Omaha, Nebraska, United States, ⁹Jefferson Health–Northeast, Philadelphia, Pennsylvania, United States, ¹⁰Department of Medicine, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, New York, United States and ¹¹Division of Infectious Diseases, Virginia Commonwealth University Health, Virginia Commonwealth University, Richmond, Virginia, United States

Abstract

One fundamental strategy to address the public health threat of antimicrobial resistance (AMR) is improved awareness among the public, prescribers, and policy makers with the aim of engaging these groups to act. World Antimicrobial Awareness Week is an opportunity for concerted and consistent communication regarding practical strategies to prevent and mitigate AMR. We highlight 10 ways for antimicrobial stewards to make the most of World Antimicrobial Awareness Week.

(Received 30 September 2022; accepted 3 October 2022)

Antimicrobial resistance (AMR) endangers health by its effect on morbidity, mortality, hospital length of stay, and healthcare costs.¹ Currently, global statistics estimate that 1.27 million deaths are directly related to AMR annually.² Moreover, AMR extends beyond increased health risks to agriculture, food security, and socioeconomic development, making it one of the world's most urgent public health issues.³ To bring about needed change, the World Health Organization (WHO) has developed a Global Action Plan on Antimicrobial Resistance. The first of 5 objectives of this plan is “to improve awareness and understanding of antimicrobial resistance through effective communication, education and training.” Awareness is the initial step toward ensuring the continued ability to treat and prevent infectious diseases worldwide.⁴ In this article, we convey key considerations when developing antimicrobial awareness campaigns, with a particular focus on World Antimicrobial Awareness Week, while highlighting relevant work published in *Antimicrobial Stewardship & Healthcare Epidemiology* (ASHE).

1. Think globally

Antimicrobial resistance (AMR) is a serious global health concern

World Antimicrobial Awareness Week (WAAW) is a global event held annually from November 18–24.⁵ WAAW promotes best

Author for correspondence: Bradley J. Langford, Public Health Ontario, 480 University Avenue, Suite 300, Toronto, ON M5G 1V2, Canada. E-mail: brad.langford@gmail.com

Cite this article: Langford BJ, et al. (2022). Ten ways to make the most of World Antimicrobial Awareness Week. *Antimicrobial Stewardship & Healthcare Epidemiology*, <https://doi.org/10.1017/ash.2022.320>

© King's Printer for Ontario and the Author(s), 2022. Published by Cambridge University Press on behalf of The Society for Healthcare Epidemiology of America. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

practices among the public, clinicians, and policy makers to reduce AMR. The WHO encourages the promotion of optimal antimicrobial use and preventive measures targeting AMR, collaborating across sectors and borders, and recognizing the interconnection between humans, animals, plants and the environment, a concept known as One Health.

2. Act locally

Adapt messaging to your audience

Most campaigns have generic messaging targeting the awareness of healthcare workers and the public. But adapting messaging to unique local issues may help close knowledge gaps or address different cultural beliefs related to antibiotics.⁶ Examples may include direct communication of local prescribing rates and antibiograms (if available) to practitioners and public education to reduce antibiotic misuse for viral infections. Countries' socioeconomics may also influence the messaging, such as minimizing access to antibiotics without a prescription in low- and middle-income countries and reducing sharing of antibiotics or the use of shorter courses in high-income countries.

3. Make it personal

While campaigns focusing on the approaching ‘antibiotic apocalypse’ work to capture public attention, qualitative interview data show that these messages are often too sensationalized, which may backfire on their credibility.⁷ Both clinicians and patients view AMR as a geographically and temporally distant phenomenon with a less personal impact on them.⁸ Rather than the more

nebulous societal consequences of AMR, antimicrobial awareness campaigns should shift focus to the personal impact of AMR, including the very tangible and current risk of side effects, personal risk of AMR affecting future treatment options, and the perturbations to the microbiome.

4. Make the invisible visible

What does AMR look like? The concept of AMR is abstract to many. The exceedingly large projections of the impact of AMR do not tell the personal story of the devastation caused by drug-resistant infections on individual lives. Sharing patient stories can help ‘put a face’ to AMR, making the problem more relatable and inspiring efforts for change.^{9,10} Campaigns like ‘Go Blue for AMR’ include wearing light blue and illuminating local buildings and landmarks in light blue, which can further the visibility of what some have called the ‘silent pandemic.’¹¹

5. Think beyond the hospital walls and beyond the prescriber

Antimicrobial stewardship was initiated in the hospital setting; however, 80% of antibiotics are used in the community.¹² Of those antibiotics, 20%–50% are used inappropriately. Primary care providers cite patient pressure for prescribing antibiotics for viral illnesses.¹³ Engaging physicians, veterinarians, and other health-care professionals and policy makers in AMR awareness is essential to promoting One Health coalitions.⁴ This need is highlighted by the WAAW 2022 theme, ‘Preventing antimicrobial resistance together.’⁵ Professional education and training for students and practitioners in human and animal health should also be established, as should the inclusion of antimicrobial use and resistance in school curricula and media to promote a better understanding of AMR.⁴

Several recent ASHE publications have stressed the importance of broadening the horizon of antimicrobial stewardship awareness beyond prescribers and patients as well as outside the hospital walls. Gullen *et al*¹⁴ found that while ambulatory cancer center staff largely knew the term “antimicrobial stewardship,” there were opportunities to improve knowledge about appropriate antibiotic use, particularly among nurses and other clinic staff. Catanzaro *et al*¹⁵ highlighted the importance of involving nurses in antimicrobial stewardship using educational modules. Similarly, Manning *et al*¹⁶ demonstrated how patient simulations can improve nursing-student awareness of their role in antimicrobial stewardship. Hughes *et al*¹⁷ identified several opportunities for improvement in dental antimicrobial stewardship, including improved awareness of and access to evidence-based guidelines, as well as harnessing social comparison to improve prescribing behavior.

6. Reframe what the “safe side” is

Antibiotics are often prescribed “just in case” and to “be on the safe side.” In a cross-sectional study using interviews of 90 dentists, 91.2% stated that they prescribed on a ‘just in case’ basis.¹⁷ In a retrospective cohort study, 205 patients (80.7%) received empiric antibiotic therapy indicated for presumed urinary tract infection despite meeting criteria for asymptomatic bacteriuria.¹⁸ However, given the known harms of antibiotic therapy, there is an opportunity to reframe messaging regarding “erring on the side of caution” to now mean thoroughly evaluating and monitoring the patient while considering other noninfectious causes before prescribing an antibiotic.

7. Meet the public where they are: use creative social media strategies

Social media has facilitated the rapid spread of health-related misinformation,¹⁹ but at the same time, it provides an instant connection between infectious diseases experts and the public. Social media platforms present not only an opportunity, but a responsibility to share accurate, clear, consistent, and engaging messaging on AMR.²⁰ Endless opportunities exist to engage health-care professionals and the public using creative approaches such as infectious diseases memes, clue-based knowledge assessment quizzes, and personality quizzes.²¹ Antibiotic awareness messaging can be embedded in each engagement strategy, tailored to the captive audience.

8. Leverage awareness related to the COVID-19 pandemic

The lessons we learned during the COVID-19 pandemic can also apply to antimicrobial stewardship.²²

- (1) *Antibiotics don’t treat viral infections*, whether it be COVID-19 or the common cold. In the United States, ~44% of outpatient encounters include acute upper-respiratory infections.²³ Despite the majority of illnesses being caused by viruses, many patients still receive antibiotics, suggesting a need for improved awareness of the risks and benefits of antibiotics in this setting.²⁴
- (2) *Infectious diseases can be devastating*. Unlike COVID-19, AMR is not caused by a single organism and presents a more insidious threat. We need to act quickly to prevent these devastating consequences while we still can. The increased awareness regarding the importance of infection prevention and control during the pandemic should also apply to AMR and may help garner research funding and public-sector support.²⁵

9. Use evidence-based messaging in awareness campaigns

Antimicrobial awareness messages should be based on scientific evidence. A previously common message to “finish the antibiotic course, even if you are feeling better” was replaced with more nuanced messaging recognizing the growing evidence base for shorter and more tailored courses of therapy.⁶ In addition, behavioral science needs to be incorporated into campaigns and formally evaluate and disseminate findings to help inform future antimicrobial awareness activities. Of 60 campaigns surveyed by the WHO, only 25 were evaluated, and for most of these campaigns, the results were not published.⁶ Wellcome’s Reframing Resistance report provides a list of practical evidence-based suggestions for awareness campaigns, including shifting fear-based messaging to that focusing on personal impact and opportunities for immediate action.⁷ Although there is evidence that fear-based messaging can be effective, it should be combined with empowerment to encourage action rather than apathy.²⁶

10. Continue antimicrobial awareness activities all year

Antimicrobial awareness should not end after WAAW. Awareness of AMR is necessary but insufficient to change behavior. The impact of awareness campaigns on antibiotic use is mixed, but any impact will not be sustained without ongoing messaging.²⁷ Thus, World Antimicrobial Awareness Week should be considered the first step in a long and iterative process, combined with policy, economic, and social strategies to improve antibiotic use.²⁸

In conclusion, AMR is a global and universal issue, neither respecting borders nor confined to certain populations. AMR already has a significant impact on health, and if no action is taken, it will become increasingly burdensome. AMR is a solvable issue and awareness of antimicrobial overuse and its consequences is the first step to safeguarding antimicrobials. The 10 concepts discussed in this article can be applied to help maximize antimicrobial awareness efforts as a vital step in ensuring that we can continue to treat and prevent infectious diseases in the years to come.

Acknowledgments.

Financial support. No financial support was provided relevant to this article.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

References

- Murray CJ, Ikuta KS, Sharara F, *et al.* Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. *Lancet* 2022;399:629–655.
- About antimicrobial resistance. US Centers for Disease Control and Prevention website. <https://www.cdc.gov/drugresistance/about.html#:~:text=Antimicrobial%20resistance%20is%20an%20urgent,resistant%20infections%20occur%20each%20year>. Published 2021. Accessed November 1, 2022.
- National antimicrobial resistance surveillance systems and participation in the Global Antimicrobial Resistance Surveillance System (GLASS): a guide to planning, implementation, and monitoring and evaluation. World Health Organization website. <https://apps.who.int/iris/handle/10665/251554>. Published 2016. Accessed November 1, 2022.
- World Health Assembly 69. Global Action Plan on Antimicrobial Resistance: options for establishing a global development and stewardship framework to support the development, control, distribution and appropriate use of new antimicrobial medicines, diagnostic tools, vaccines and other interventions: report by the Secretariat. World Health Organization website. <https://apps.who.int/iris/handle/10665/252682>. Published 2016. Accessed November 1, 2022.
- World Antimicrobial Awareness Week. World Health Organization website. <https://www.who.int/campaigns/world-antimicrobial-awareness-week/2022>. Published online 2022. Accessed November 1, 2022.
- Huttner B, Saam M, Moja L, *et al.* How to improve antibiotic awareness campaigns: findings of a WHO global survey. *BMJ Glob Health* 2019;4:e001239.
- Reframing resistance. Wellcome website. <https://wellcome.org/reports/reframing-antimicrobial-resistance-antibiotic-resistance>. Published 2019. Accessed November 1, 2022.
- Van Hecke O, Butler CC, Wang K, Tonkin-Crine S. Parents' perceptions of antibiotic use and antibiotic resistance (PAUSE): a qualitative interview study. *J Antimicrob Chemother* 2019;74:1741–1747.
- Patient stories: the faces of antimicrobial resistance. Infectious Diseases Society of America website. <https://www.idsociety.org/public-health/patient-stories/patient-stories/>. Published 2018. Accessed November 1, 2022.
- Combat AMR. Patient Stories. <https://www.combatamr.org/patient-stories>. Published online 2018. Accessed November 7, 2022.
- Go Blue campaign. World Health Organization website. <https://www.who.int/campaigns/world-antimicrobial-awareness-week/2021/go-blue-campaign>. Published 2021. Accessed November 1, 2022.
- Suda KJ, Hicks LA, Roberts RM, Hunkler RJ, Danziger LH. A national evaluation of antibiotic expenditures by healthcare setting in the United States, 2009. *J Antimicrob Chemother* 2013;68:715–718.
- Sanchez GV, Roberts RM, Albert AP, Johnson DD, Hicks LA. Effects of knowledge, attitudes, and practices of primary care providers on antibiotic selection, United States. *Emerg Infect Dis* 2014;20:2041–2047.
- Gulleen EA, Krantz EM, Zier J, *et al.* Antibiotic prescribing knowledge: a brief survey of providers and staff at an ambulatory cancer center during Antibiotic Awareness Week 2019. *Antimicrob Steward Healthc Epidemiol* 2022;2:e18.
- Catanzaro MT. Antibiotic stewardship for nurses: using e-learning modules to bridge the education gap. *Antimicrob Steward Healthc Epidemiol* 2022;2:e7.
- Lou Manning M, Pogorzelska-Maziarz M, Jack D, Wheeler L. Assessing baccalaureate nursing students' antibiotic stewardship knowledge using virtual standardized patient simulations. *Antimicrob Steward Healthc Epidemiol* 2021;1 suppl 1:s37–s37.
- Hughes AM, Evans CT, Fitzpatrick MA, *et al.* A qualitative approach to examining antimicrobial prescribing in the outpatient dental setting. *Antimicrob Steward Healthc Epidemiol* 2022;2:e102.
- Bixby ML, Raux BR, Bhalla A, McCoy C, Hirsch EB. Opportunities for antibiotic stewardship in emergency department or hospitalized patients with asymptomatic bacteriuria: identifying risk factors for antibiotic treatment. *Antimicrob Steward Healthc Epidemiol* 2022;2:e16.
- Lanier HD, Diaz MI, Saleh SN, Lehmann CU, Medford RJ. Analyzing COVID-19 disinformation on Twitter using the hashtags #scamdemic and #plandemic: retrospective study. *PLoS One* 2022;17:e0268409.
- Cawcutt KA, Marcelin JR, Silver JK. Using social media to disseminate research in infection prevention, hospital epidemiology, and antimicrobial stewardship. *Infect Control Hosp Epidemiol* 2019;40:1262–1268.
- Langford BJ, Laguio-Vila M, Gauthier TP, Shah A. Go V.I.R.A.L.: social media engagement strategies in infectious diseases. *Clin Infect Dis* 2022;74 suppl 3:e10–e13.
- Barlam TF, Al Mohajer M, Al-Tawfiq JA, *et al.* SHEA statement on antibiotic stewardship in hospitals during public health emergencies. *Infect Control Hosp Epidemiol* 2022. doi: 10.1017/ice.2022.194.
- Fleming-Dutra KE, Hersh AL, Shapiro DJ, *et al.* Prevalence of inappropriate antibiotic prescriptions among US ambulatory care visits, 2010–2011. *JAMA* 2016;315:1864.
- Arensman Hannan KN, Draper EW, Uecker-Bezdicsek KA, Gomez-Urena EO, Jensen KL. Identification of priority targets for intervention in outpatient antimicrobial stewardship. *Antimicrob Steward Healthc Epidemiol* 2022;2(1):e133.
- Seneghini M, Rüfenacht S, Babouee-Flury B, *et al.* It is complicated: potential short- and long-term impact of coronavirus disease 2019 (COVID-19) on antimicrobial resistance—An expert review. *Antimicrob Steward Healthc Epidemiol* 2022;2:e27.
- Roope LSJ, Tonkin-Crine S, Herd N, *et al.* Reducing expectations for antibiotics in primary care: a randomised experiment to test the response to fear-based messages about antimicrobial resistance. *BMC Med* 2020; 18:110.
- Bruyndonckx R, Coenen S, Hens N, Vandael E, Cattry B, Goossens H. Antibiotic use and resistance in Belgium: the impact of two decades of multifaceted campaigning. *Acta Clinica Belgica* 2021;76:280–288.
- Mathew P, Sivaraman S, Chandy S. Communication strategies for improving public awareness on appropriate antibiotic use: bridging a vital gap for action on antibiotic resistance. *J Fam Med Prim Care* 2019;8:1867.