Public Health England

Protecting and improving the nation's health

Health Equity Assessment Tool (HEAT): practice example

Antimicrobial resistance (AMR)

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Programme or project being assessed	Antimicrobial resistance campaigns and interventions
Date completed	August 2017
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Name of strategic leader	Dr Diane Ashiru-Oredope

Steps to take	Your response – remember to consider multiple dimensions of inequalities, including protected characteristics and socio-economic differences
A. Prepare – agree the scope of work and assemble the information you need	
1. Your programme of work What are the main aims of your work? How do you expect your work to reduce health inequalities?	AMR is a global threat to public health affecting all healthcare systems and growing at an alarming pace. [1],[2] The implementation of antimicrobial stewardship programmes has been used within secondary care to help reduce this burden, with a focus on the UK Government ambition to reduce inappropriate antibiotic prescribing. [3] An important element of these programmes is the use of national campaigns to increase the overall reach. This HEAT assessment considers 4 of these national campaigns: • the Antibiotic Guardian campaign – a pledge-based system where healthcare professionals and members choose a relevant pledge relating to their practice or personal situation, in order to reduce AMR, change behaviour and increase knowledge[4] • E-Bug – an educational resource for teachers covering microbes, hygiene, antibiotics and the prevention of infection.[5] • TARGET (Treat Antibiotics Responsibly, Guidance, Education, Tools) – improving antimicrobial prescribing in primary care through multiple channels such as guidance, interactive workshops, patient facing educational and audit materials.[6] • Keep Antibiotics Working – a consumer-led campaign to help raise awareness of antibiotic resistance to members of the public and highlight the dangers of not using antibiotics appropriately.[7]

2. Data and evidence	Antibiotic prescribing and antibiotic resistance are inextricably linked, as overuse and incorrect use of antibiotics are major drivers of resistance. PHE Fingertips – AMR Local Indicators are publicly available data intended to raise awareness of antibiotic prescribing, AMR, Healthcare Associated Infections (HCAI), Infection Prevention and Control (IPC) and Antimicrobial Stewardship (AMS); and to facilitate the development of local action plans. These indicators and links to inequalities have been used to understand the issues in more detail and inform thinking around which areas to focus on.
What are the key sources of data, indicators, and evidence that allow you to identify HI in your topic? • Consider nationally available data such as health profiles and RightCare • Consider local data such as that available in JSNA, contract performance data, and qualitative data from local research	

B. Assess - examine the evidence and intelligence

3. Distribution of health	There is currently a lack of research assessing the potential health inequalities within antimicrobial resistance and in particular in public facing antimicrobial stewardship campaigns. However, over the years in the UK, data has emerged highlighting health inequalities in the prevalence of infections/infectious diseases, some of which have linked drug resistance, including influenza, tuberculosis and sexually transmitted infections (STI). [8] More recently, COVID-19 has highlighted even greater disparities, with the most recent research from the UK suggesting that both ethnicity and income inequality are independently associated with COVID-19 mortality. [9,10]
Which populations face the biggest health inequalities for your topic, according to the data and evidence above?	Within the UK, it has previously been reported that chronic lower respiratory diseases, which are frequently linked to infections, are 1 of 3 diseases with higher mortality rates in more deprived areas and account for a third of the total gap in life expectancy for both sexes. [11] The 2011 Chief Medical Officer report highlighted that "Respiratory infections, in particular pneumonia and exacerbations of chronic bronchitis, are the leading cause of infectious disease mortality and morbidity, particularly among the elderly and those with underlying chronic disease, such as chronic bronchitis, cancer or heart disease. A number of these cases are caused by bacteria that are very infrequently the cause of illness in the healthy population, and they represent an important inequality in disease experience among those at risk of the predisposing chronic diseases". [8]
	At a broader level, the report of the Special Programme for Research and Training in Tropical Diseases described the relationship between infectious diseases including bacteria infections and poverty. [12] It argued that poverty contributes to conditions that cause infectious diseases and subsequently prevents access to health care. They also described infectious diseases as "a proxy for poverty and disadvantage" with subsequent increased risk factors "affecting populations with low visibility and little political voice," "imposing a heavy health and economic burden," and "having a greater impact where health systems are weak."

	The primary aim of our study was to assess whether the public facing AMR initiatives are reaching a diverse population within England. At the time of the study, interpretation directly related to the AMR campaigns was based on a consensus approach/interpretation of available data highlighting that within the UK, those likely to be most at risk are [13] the following: Socio-economic status or geographic deprivation: Individuals from more deprived backgrounds may be unable to access or understand AMR resources.
	Inclusion Health and vulnerable groups (e.g. people experiencing homelessness, prison leavers, young people leaving care, migrant groups): Some vulnerable groups may not be able to access technology so may be excluded from online-only resources.
	Experience related to protected characteristics: If resources are only in English, those who speak other languages may be excluded from accessing them. Older people who do not use technology may be excluded from online-only resources.
4. Causes of inequalities What does the data and evidence tell you are the potential drivers for these inequalities? • Which wider determinants are influential, E.g. income, education, employment, housing, community life? • Which health behaviours play a role? • Does service quality, access and take up increase the chance of health inequalities in your work area?	Wider determinants such as education and community life may be relevant here, as this may affect whether an individual can understand or access resources. For resources aimed at health professionals such as GPs, there may be inequality among the members of the public who benefit from these, as some groups may be more likely to visit a GP than others.

Which of these can you directly control? Which can you influence? Which are out of your control?	

C. Refine and apply – make changes to your work plans that will have the greatest impact

5. Potential effects In light of the above, how is your work likely to affect health inequalities? (positively or negatively) Could your work widen inequalities by: • requiring self-directed action which is more likely to be done by affluent groups? • not tackling the wider and full spectrum of causes? • not being designed with communities themselves? • relying on professional-led interventions? • not tackling the root causes of health inequalities?	Antibiotic Guardian: • translated into 4 languages, making it more accessible • potential for widening inequalities due to website format which excludes those without internet access E-bug: • the e-Bug focuses on the education element of infections within children, young people and those hard to reach in the community • it has been translated into over 30 languages • the resources are developed for a range of ages and therefore abilities within the community • the antibiotic Beat the Bug resources include a specific patient facing pictorial resource for the public with language or learning difficulties TARGET: • the TARGET website contains patient facing resources to share in consultations for respiratory tract infections (including a pictorial version) and urinary tract infections for patients under and over 65 years • these patient leaflets are available in the most common non-English languages spoken in the UK Keep Antibiotics Working • all campaign research, including campaign tracking, strategic and creative development research was carried out across all socioeconomic groups • the campaign materials were designed for all groups to understand and were C2DE—skilled working class, working class and non-working (the 3 lower social and economic groups in a society) inclusive • the advertising featured red and white pills which have no gender or racial bias • leaflets were distributed to prisons and GPs who reach those from lower socioeconomic backgrounds
6. Action plan What specific actions can your work programme or project take to maximise the potential for positive impacts and/or to mitigate the	Antibiotic Guardian: • further engagement and understanding of the culture of specific groups (for example, Black, Asian and minority ethnic (BAME) and travelling community) or those in deprived communities would be beneficial to help promote the materials.

negative impacts on health inequalities?: • How can you act on the specific causes of inequalities identified above? • Could you consider targeting action on populations who face the biggest inequalities? • Could you design the work with communities who face the biggest health inequalities to maximise the chance of it working for them? • Could you seek to increase people's control over their health and lives (if appropriate)? • Could you use civic, service and community-centred interventions to tackle the problem – to maximise the chance of reaching large populations at scale? • Who who else can help?	• it may be advantageous to offer languages in line with the latest Census (for example, 2011 Census in England and Wales showed 7.7% of the population had another main language that was not English)[14] • it could be beneficial to create and promote paper versions (PDF/word) of antibiotic guardian pledges that can be used by local campaign leads so that individuals without the internet can also pledge • the website supports a subtitle function on the home page video, but a transcription of the video would improve accessibility • future interface designs of the website could be done in conjunction with specific minority groups E-bug: • the e-Bug trainer events should be targeted at areas with greater antibiotic use which have greater deprivation and ethnicity • there is an increased awareness within the project team of pictorial and foreign language resources, with a commitment to continue to reassess that the language being used is inclusive of all, especially for disadvantaged and minority groups • there is also an increased focus in the implementation of resources in deprived areas using additional work force and targeted training for local clinical commissioning group staff • an analytical review of the e-Bug website usage and views would help identify further development and improvement to reduce health inequalities and could be beneficial TARGET: • the use of community pharmacists in promoting the use of TARGET resources would help improve reach to patients Keep Antibiotics Working: • it would be recommended to conduct a review impact analysis of the campaign by age, sex and socioeconomic group, and where appropriate, change the campaign strategy based on this evidence • more more data is required to change the marketing or targeting specific populations, however the use of advertising routes that are set up to engage with minority groups (e.g. radio channels focusing on certain groups, promotion in religious areas) may be beneficial • it could be advantageous to translate resource leaflets into multiple languages in line with latest national Census and local population To improve the output of future campaigns, further research on health inequalities and AMR is needed. This would provide corresponding data to help tailor campaigns to specific individuals that may not be reached.

7. Evaluation and monitoring How will you quantitatively or qualitatively monitor and evaluate the effect of your work on different population groups at risk of health inequalities? What output or process measures could you consider?	Evaluating the effect of the broader work on tackling health inequalities for AMR will be taken forward in a more strategic approach through the AMR programme. In addition, quantitative analysis of data on the public's awareness and understanding of AMR could be taken forward as part of the regular national household survey of the UK population to assess the public's understanding and use of antibiotics [15] and as part of evaluating the Keep Antibiotics Working Campaign.
Set a health equity assessment review date, recommended for between 6 and 12 months from initial completion. Review date:	

D. Review – identify lessons learned and drive continuous improvement	
Date completed (should be 6-12 months after initial completion):	
Contact person (Name, Directorate, email, phone)	Dr Diane Ashiru-Oredope, HCAI & AMR Division, HCAI & AMR Division: diane.ashiru-oredope@phe.gov.uk
8. Lessons learned Have you achieved the actions you set? How has your work a) supported reductions in health inequalities associated with physical and mental health? b) promoted equality, diversity and inclusion across communities and groups that share protected characteristics?	Please contact the project lead for further information about the review. As a result of this work, tackling health inequalities is more firmly embedded in PHE's AMR programme, contributing to the overall UK AMR national action plan 2019 to 2024. More specifically, there is a commitment to embed the reduction of health inequalities as part of the programme and as an integral component underlying all AMR actions. It is recognised that, although work on tackling inequalities has started, in order to integrate and consolidate this across all AMR workstreams, a step by step approach is needed across the lifetime of the strategy, in order to avoid lapsing into a "tick box exercise". The AMR Programme has as an overall objective to link health inequalities across the AMR programme business planning, workforce development and evaluation workstreams. The aim is to strengthen the divisional understanding of health inequalities and to develop collaboratively an agreed approach to health inequalities that

What will you do differently to drive improvements in your programme? What actions and changes can you identify?	takes into account the specifics of AMR, considering ways of using the HEAT to review the components of the AMR programme and on the basis of results formulate a plan that identifies areas, priority groups and actions. The ultimate aim is to embed a systematic and holistic approach to reducing health inequalities in AMR, focusing on 2 main areas of work: 1) improve our understanding/knowledge of drivers and mechanisms that underpin how health inequalities influence antibiotic prescribing, infections and therefore AMR 2) develop an engagement strategy with the wider public health community (e.g. those working on smoking, cancer, migrant health, prisons, homeless) in relationship to health inequalities and AMR This work has been published via peer review and can be accessed here.

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2 Review on Antimicrobial Resistance. [(accessed on 17 January 2018)]; Available online: https://amr-review.org/background.html

3 Research Reveals Levels of Inappropriate Prescriptions in England. [(accessed on 17 July 2019)]; Available online: https://www.gov.uk/government/news/research-reveals-levels-of-inappropriate-prescriptions-in-england

4 The Antibiotic Guardian campaign: a qualitative evaluation of an online pledge-based system focused on making better use of antibiotics.
Kesten JM, Bhattacharya A, Ashiru-Oredope D, Gobin M, Audrey S. BMC Public Health. 2017 Jul 11; 18(1):5.

5 Overview of e-Bug: an antibiotic and hygiene educational resource for schools.
McNulty CA, Lecky DM, Farrell D, Kostkova P, Adriaenssens N, Koprivová Herotová T, Holt J, Touboul P, Merakou K, Koncan R, Olczak-Pienkowska A, Avô AB, Campos J, e-Bug Working Group.J Antimicrob Chemother. 2011 Jun; 66 Suppl 5():v3-12

6 An evaluation of the TARGET (Treat Antibiotics Responsibly; Guidance, Education, Tools) Antibiotics Toolkit to improve antimicrobial stewardship in primary care-is it fit for purpose?
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7 Keep Antibiotics Working. [(accessed on 17 January 2018)]; Available online: https://campaignresources.phe.gov.uk/resources/campaigns/58-keep-antibiotics-working/Overview

8 Annual Report of the Chief Medical Officer Volume Two, 2011 Infections and the rise of antimicrobial resistance.
https://www.gov.uk/government/publications/chief-medical-officer-annual-report-volume-2

9 PHE. COVID-19: review of disparities in risks and outcomes. 2020. https://www.gov.uk/government/publications/covid-19-review-of-disparities-in-risks-and-outcomes

10 PHE. COVID-19: understanding the impact on BAME communities. 2020. https://www.gov.uk/government/publications/covid-19-understanding-the-impact-on-bame-communities

11 PHE. Health profile for England: 2018. Chapter 5: inequalities in health. https://www.gov.uk/government/publications/health-profile-for-england-2018/chapter-5-inequalities-in-health

12 WHO. Global Report for Research on Infectious Diseases of Poverty. 2012. [(Accessed on 04 September 2020)]; Available online: https://www.who.int/tdr/capacity/global_report/en/

13 Hood G, Toleikyte L, Ashiru-Oredope D. Assessing National Antimicrobial Resistance Campaigns Using a Health Equity Assessment Tool (HEAT). Antibiotics (Basel). 2019;8(3):121. Published 2019 Aug 17. doi:10.3390/antibiotics8030121

14 ONS. Language in England and Wales. 2011.
https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/language/articles/languageinenglandandwales/2013-03-04

15 McNulty CAM, Collin SM, Cooper E, Lecky DM, Butler CC. Public understanding and use of antibiotics in England: findings from a household survey in 2017. BMJ Open 2019;9:e030845. doi:10.1136/bmjopen-2019-030845 Available at: https://bmjopen.bmj.com/content/bmjopen/9/10/e030845.full.pdf