

Review Article

The Effectiveness of the "Keep Antibiotics Working" Campaign in Raising Awareness about Antibiotic Resistance in the UK

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This study critically analyses the "Keep Antibiotics Working" public health campaign launched in the UK to raise awareness of Antimicrobial Resistance (AMR). The study uses data from Public Health England and other relevant sources to analyse the increasing antibiotic-resistant infections in the UK and the need for initiatives like the campaign. The study also explores the campaign's goals and its theoretical underpinnings based on health communication and behaviour change models using key frameworks such as Health Belief Model, fear appeals, and diffusion of innovations through mass media. The findings revealed that it was effective in conveying that antibiotics are not omnipotent but failed to adequately stress the severity of AMR. The paper concludes that while awareness was raised, a more aggressive narrative-based approach may be needed to drive real behaviour change the Antibiotics usage in the UK.

Keywords: Antibiotics; Keep antibiotics working; Antibiotic resistance; Diffusion paradigm; Health belief model**Introduction**

Antibiotic resistance, according to Purcell [1], is the ability of a bacteria to reduce the potency of an antibiotic which was once employed as first-line therapy, by adapting to the threat it poses. The increasing prevalence of a wide range of antibiotic-resistant bacteria creates a major health threat to mankind [2]. As reported by PHE [3], a minimum of 5,000 fatal cases per year are caused by non-functional antibiotics and it is estimated that more deaths will be recorded as a result of antibiotic resistance than mortality from diabetes and cancer in over 30 years time and evidence from existing literature gives credence to this analysis and prognosis. A startling statistic by Catherine et al. [4] showed that in 2018, England documented over 60,000 severe antibiotic-resistant infections. There are further indications that antimicrobial resistance-related death could be as high as 10 million per year by 2050 as England recorded a 35% increase in Antibiotic-resistant infections between 2013 and 2017 [5]. Hence, it is unsurprising that many countries are intensifying efforts to combat the inappropriate use of antibiotics [2]. For instance, the successful implementation of Anti-Microbial Resistance strategies such as WHO's World Antibiotic Awareness Week and the European Union's e-Bug school and community resources. However, a recent evaluation by the All- Party Parliamentary Group (APPG) on Antibiotics showed less evidence of continuation in awareness creation about antimicrobial use and Antimicrobial Resistance (AMR) [6]. Therefore, the Public Health England (PHE) as well as

the UK Department of Health and Social Care are positively reacting to this challenge by increasing the public and healthcare practitioner awareness campaigns, school education projects, and other local initiatives. Though the target was a reduction of inappropriate antibiotic prescribing levels by 50% by 2020, these initiatives have led to an 8% decrease in antibiotic consumption levels from 2015 to 2019 [7]. Hence, a rationale for the 'Keep Antibiotics Working' health campaign launched in 2017 in the UK to increase the awareness level of antimicrobial resistance issues. The campaign engages the public on the risk involved in taking antibiotics when not needed and urges them to adhere to their doctor's opinion and advice on antibiotics [8]. This essay aims to critically analyze the 'Keep Antibiotic Campaign' by discussing its theoretical underpinnings.

Antimicrobial Resistance

The early 20th century marked an unprecedented breakthrough in the fight against infection with the discovery of antimicrobial drugs. This was facilitated by Sir Alexander Fleming who discovered penicillin in 1928. Nevertheless, as the use of antibiotics became more frequent and pronounced, bacteria responded by evolving into several forms of resistance to these medications which has led to a global threat in today's world. An interesting observation about the reaction of bacteria is the direct proportionality between the increase in antibiotic use and the microbe's level of response and the complexity of its resistance.

Therefore, it is unsurprising that the 2015 WHO 'Global Action Plan on Antimicrobial Resistance (ARM)' behooved all governments and agencies to prioritize ARM with the ex- Director-General unequivocally stating that "Antimicrobial resistance threatens the very core of modern medicine and the sustainability of an effective, global public health response to the enduring threat from infectious diseases." The precarious antimicrobial resistance has been predicted by the O'Neill report on behalf of the UK government to claim 10 million lives by 2050 and will surpass the number of deaths from cancer which is 8.2 million per year. Thus, Public Health England after further research outlined its disease strategy for 2020-2025 in 2019 including the target to make the UK a global participant in the

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fight against AMR [9]. Over several decades, the use and misuse of antibiotics have been indiscriminate with patients typically requesting antibiotics from their health care practitioners [10]. According to recent UK estimates, community antibacterials are overprescribed by 8-23 percent [11]. Reacting to this, the English Department of Health created a strategy aimed at decreasing the use of antibiotics by reducing the levels of inappropriate prescription of antibiotics by 50% by 2020 [7]. A study by Alicia et al. [12], analyzed one of such strategies to be a health promotion campaign themed "Keep Antibiotics Working." This was first launched as a pilot program in the ITV Granada region in North West England (NW) and was highly welcomed in this high-prescribing region, with encouraging results after the initiative. The follow-up online and telephone survey revealed a minor but statistically significant decrease in antibiotic prescribing in primary care (Figures 1 and 2).

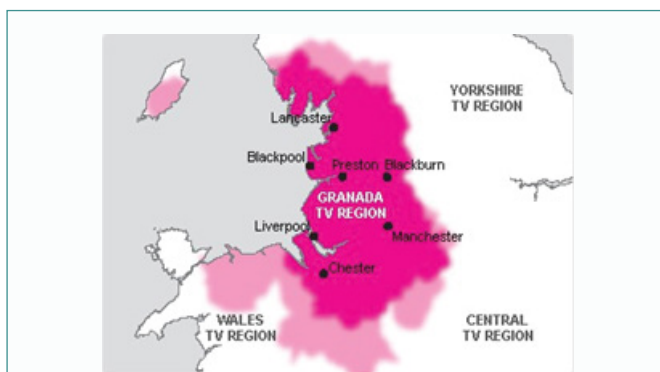


Figure 1: The national campaign follows a successful pilot in the NW of England (PHE, 2017).

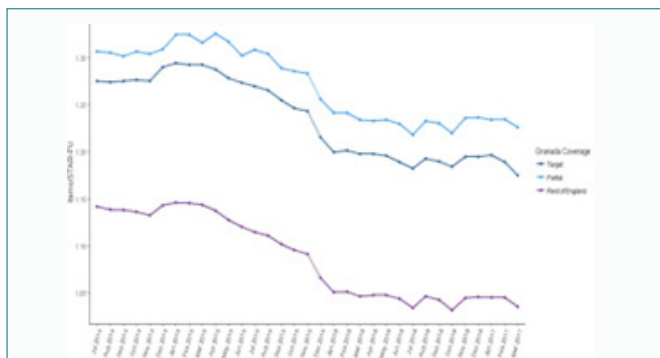


Figure 2: Antibiotic Prescriptions in items/STAR-PU (Rolling 12 month) By Granada Coverage, July 2014-March 2017 (PHE, 2017).

On the 23rd of October, 2017, Public Health England (PHE) relaunched the "Keep Antibiotics Working" health campaign on radio, social media, and television but this time on a national scale [3,6]. This health promotion is premised on the inadequate comprehension of the importance and appropriate use of antibiotics by the public, with evidence suggesting that some patients coerce prescribers for antibiotics, resulting in inappropriate prescriptions. Accordingly, PHE identified five essential factors that influenced this practice to be:

- Knowledge- patients find antibiotics as a solution to serious ailments rather than the type of morbidity, hence, difficult to know when to use them.
- Trust- despite claiming to trust their GP, patients change

when antibiotics are not prescribed.

- Voices- most people indulge in personal research and findings from the internet or by family and friends about health advice which in turn calls into question the voice of the prescriber.
- Validation and emotion: Sometimes, prescriptions can be perceived by patients to reflect the seriousness to which their condition is being taken.
- Practicality: difficulty experienced by patients in booking an appointment has also encouraged this act.

Conversely, prescribers have underscored pressure and anxiety as the main reason for prescribing as consumers can get concerned and hostile if not given their expected antibiotic drugs or misdiagnosing conditions that are treatable by antibiotics, especially when involving children. The campaign's major goal was to raise public awareness about AMR, lower public expectations for antibiotics, and encourage healthcare professionals to adjust their practices. The movement targeted two key audience groups: women within the age range of 20 to 45 who view family health as a primary responsibility across SEG groups, and older men and women aged 50 and over, with a concentration on individuals with recurrent illnesses and frequent visits to the doctor [3]. The movement was set out to increase audience awareness of the fact that antibiotics did not often work and to encourage consumers to heed their doctor's recommendations. This was conceptualized, executed, and evaluated based on the knowledge, attitude, action, and outcome of the campaign. At the pre-campaign stage, the awareness that antibiotics are essential when feeling sick is sufficient reason for a patient to visit a GP. However, leaving a doctor's appointment without an antibiotic prescription might be frustrating. This attitude results in pressurizing the GP for antibiotics prescription which will lead to continued long-term expectations of such an act. The post-campaign assessment revealed that customers developed the ideology that it is impossible to use antibiotics to cure all ailments. As a result, they are more receptive to the GP's advice on the necessity of taking antibiotics which will cascade to reduce the default dependence on antibiotics (Figure 3).

Antimicrobial resistance is majorly catalyzed by the selective pressure of its use. As a result, policymakers are paying close attention to adopting effective health promotion and psychosocial theories in an attempt to maximize the potency of curbing this global threat. One tool commonly employed by these decision-makers is Health Communication. In public health, health care, non-profits, and the corporate sector, health communication is an ever-evolving and important field. Despite many scholars' attempts to define or modify the definition, most agree on the importance of health communication to the people, societies, and health care professionals, officials in prompting, empowering and assisting them to adopt and maintain a behaviour or a change in policy that will advance their health outcomes [13]. The goal of the "Keep Antibiotics Working" television commercial was to create awareness about AMR and lower the expectations for antibiotics by the public. Antibiotic demand can be reduced due to modifying antibiotic-seeking behaviours, which improves public health outcomes.

Also, the 'Keep Antibiotics Working' campaign TV commercial was featured in a larger mass media campaign that used a diffusion strategy to spread information [14]. The diffusion paradigm is based on the concept that social and developmental problems are caused by a dearth of information, and that the solution is linear information

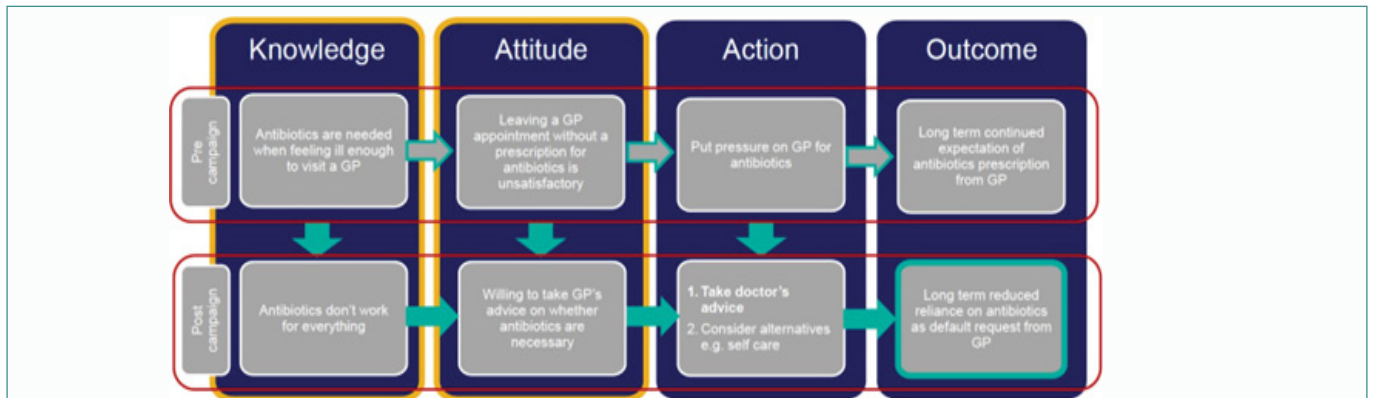


Figure 3: A flowchart depicting the focus of the campaign on improving audience knowledge about the misconstrue of antibiotics as a panacea and the outcome (PHE, 2017).

transmission through methods such as mass media campaigns [15,16]. Extensive literature by Snehendu et al. [14] showed that scholars have been critical of both the diffusion technique and mass media efforts. Researchers suggest that while well-designed mass Health Communication campaigns may attract public consciousness to an issue, they cannot have a major impact on health behaviour because they target homogeneous demographic groupings, whereas behaviour is entangled with cultural beliefs, knowledge, and attitudes. To bolster this assertion, Obregon and Waisbord [17] argue that mass communication efforts are more like mass information dissemination than communication and that an approach to Health communication that recognizes the relevance of social context in tackling health concerns is needed. Hence, PHE deftly employed the modified version of this framework to the 'Keep Antibiotics Working' campaign by empowering health practitioners to proselytise their patients by using flyers and flex. The campaign also emphasized the consumer's role in spreading antibiotic resistance in the core campaign theme, "Taking antibiotics when you don't need them puts you and your family at danger" [18]. Nevertheless, mass media campaigns can provoke change in behaviour in a population by increasing the knowledge and recognition of a problem, illustrating how changes can be produced, modifying ideas, creating awareness, and underscoring new social behaviours (AIDSCAP Behaviour Change Communication Unit) [19]. There are other theoretical frameworks for understanding health communication, but the Health Belief Model (HBM), is the most applicable to this study as it is primarily concerned with health inspiration and incentivises (UNICEF). According to Servaes [20], the Health Belief Model is premised on the idea that personal beliefs, attitudes, and feelings influence one's actions. This model submits initiatives are most effective when they are successful in engaging with a number of conditions centered on the perceived sensitivity by the audience to a health risk, sternness of a health condition, and seeming advantages of, and capacity to alter behaviour [21]. Detractors of the HBM argue that including other variables is necessary, such as future repercussions of conduct, perturbed about the interpretation of their actions by others, self-identity, and the perceived relevance of health conduct [22].

Avis [23], maintained that these variables are crucial because "relationships with partners, families, and the community can greatly impact how we behave." Additionally, fear is frequently utilized in health communication to encourage change in behaviour, as appealing to the audience's fears can influence them to follow a proposed health message [24]. As revealed by Obregon and Waisbord

[17], fear management is essential for successful Behaviour Change Communication (BCC) campaigns, as recognizing the audience's fears ensures that promotions get the desired result. Expert opinion on the effectiveness of employing trepidation-inducing tactics in health advertisements is diverse, although many theories believe that they can be highly effective if applied well but can backfire if not executed properly. According to PHE's Marketing Director, Mitchell, it was, therefore, critical to strike a balance in the 'Keep Antibiotics Working' campaign content between underlining the threat posed by AMR and creating a TV commercial that is appropriate to the consumer. Moreover, as contended by Witte and Allen [25], "The more individuals perceive they are vulnerable to a major threat, the more motivated they are to begin an evaluation of the efficacy of the proposed remedy." Despite people intrepidly ignoring the fear appeal if the threat is deemed unnecessary, individuals generate fear when a threat is believed to be real, and this fear drives the person to take action to alleviate their fear if they are convinced, they can perform the recommended response. This fear appeal's efficiency is said to be proportional to the level of fear they create in the observer, with the greater the fear, the more powerful the appeal as rightly pointed out by Wittie and Allen [25]. These theoretical frameworks are not parochial in their application as many Public Health experts have lauded the recent high success rate in the fight against antibiotic abuse. A prime example is the "Using Antibiotics Wisely" campaign in Canada, organized by Choosing Wisely Canada, with cooperation from the Public Health Agency of Canada. This is a national initiative to encourage clinicians and patients to talk about the overuse of antibiotics. The campaign's targets included reducing antibiotic usage in the community, where 92 percent of antibiotics are dispensed. The initiative was primarily concerned with the use of educational tools for patients and healthcare providers to reduce irrelevant prescription of antibiotics for Respiratory Tract Infections (RTI) which accounts for 50% to 70% of abuse. The campaign was predicted to change the practice involved in prescribing antimicrobial drugs by (a) using existing CWC networks (b) led by prescribers and (c) application of the implementation science principles. Empowering prescribers is a familiar strategy adopted by the 'Keep Antibiotics Working' campaign by authorizing health practitioners to lead the movement from the grassroots. As contended by Alan [26], the mass media influences all aspects of the life of people, especially motivating and empowering people. Thus, this contributed to the success of both campaigns as Teagan et al. [27], revealed that there was a 1.5% reduction in the rate of prescribing RTI-indicated antibiotics yearly in Canada.

The concept that antibiotics may stop working was reiterated throughout the “Keep Antibiotics Working” campaign which was effective in undermining the master narrative of antibiotics as omnipotent medicine, as well as influenced attitudes about antibiotic use.

Also, recognizing that antibiotics are susceptible to resistance may inform the audience about the severity of the problem of AMR, which can help to encourage behaviour change and support the campaign's goal of lowering pressure exerted by patients to take antibiotics. The development of audience awareness of an issue is a major component of Behaviour Change Communication (BCC) communication, and it can influence how serious the health threat is seen to be, as well as the advantages of threat avoidance. Despite the fact that this can encourage behaviour change, the campaign did not reflect the severity of the risk, or the nuances of the actual risk intended to be communicated in the commercial, and as a result, the 'proper' level of fear, conducive to driving behaviour change, was not incited. This is evident in a study by Anjuli [28], which submits that the television commercial failed to take advantage of the opportunity to inform the public about AMR. The way antibiotic resistance was framed contributed to a rise in misunderstandings about the problem, promoting the false notion that the human body develops resistance to antibiotics on its own [29]. The audience would not appreciate the gravity of the issue or the specific consequences of overusing antibiotics due to the way the issue was graphically framed using animated pill capsules, which was not conducive to encouraging behaviour change.

Conclusion

As a result, a more aggressive anti-AMR campaign is required using strategies such as the narrative theory which indicates that master narratives have an impact on human behaviors, practices, attitudes, and beliefs. Nonetheless, it is pertinent to acknowledge that the commercial did raise awareness of the fact that antibiotics are also not “all-curing,” and its role in establishing a new societal standard of people that responsibly apply antibiotics resulted in significant number of people recognizing drugs' fragility.

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