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EDITORIAL

Exploring barriers and enablers of antibiotic amnesty campaigns

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ABSTRACT

This editorial highlights the different barriers and enablers of antibiotic amnesty campaigns in community pharmacies. The main enablers of antibiotic amnesties included effective counselling and successful use of promotional resources, whilst the main barriers included lack of education in patients and staff. Enabling factors such as effective counselling and use of promotional resources should be continued with patients, whilst the main barriers can be tackled with provision of sufficient education, training, and knowledge for patients. Educating staff, by providing appropriate training to all staff members present in the pharmacy, can positively contribute to the success of antibiotic amnesty campaigns. The findings of this work can inform the development of interventions needed to improve antibiotic amnesties, resulting in more antibiotics being returned and contributing towards tackling the issue of antimicrobial resistance (AMR).

Background

The misuse of antimicrobials can cause the development of antimicrobial resistance (AMR), which is a public threat worldwide, causing significant morbidity, mortality, and healthcare cost (Laxminarayan et al., 2013). Research showed improper disposal practices of antibiotics, including discarding unused or expired antibiotics with other household waste (Sharma et al., 2021; Muflih et al., 2023; Kharaba et al., 2024). These actions have a detrimental impact on the environment since they can increase antimicrobials exposure to microbes and contribute to the development of resistance (Antibiotics found in some of the world's rivers exceed 'safe' levels, global study finds (University of York, 2019). Returning

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unused antibiotics to community pharmacies is important since it ensures safe disposal, prevents environmental contamination, and AMR from accelerating, and prevents patients from antibiotic misuse e.g., the practice of self-medicating with antibiotics for other conditions or sharing it with others. In the UK, the disposal service is an essential service all community pharmacies offer. It consists of patients returning their unused and expired medication to pharmacies for safe disposal by an NHS approved waste contractor at different periods of time. This service is used as part of antibiotic amnesty campaigns to reduce AMR. Antibiotic amnesties are a form of public health campaign that look at raising awareness about the hazards relating to unsafe disposal and reminding the relevant people of the appropriate methods to carry this out (Jamieson et al. (2022)). These campaigns encourage the return of unused, expired, and leftover antibiotics to pharmacies for safe disposal. Community pharmacies play a vital role in carrying out amnesty campaigns as they are one of the first contacts the public have to healthcare and how they can access antibiotics. Community pharmacies are known as a good setting to raise awareness surrounding safe and appropriate use of antimicrobials by suggesting advice on how to distinguish between bacterial and viral infections, counselling on self-limiting infections and safety-netting (Ghiga & Stålsby Lundborg, 2016; Isah et al., 2023). Amnesty campaigns were undertaken across community pharmacies, encouraging people to return unused antibiotics for safe disposal (Aggarwal et al., 2022; Wickware, 2022). Barriers and enablers to the campaigns need to be explored so that relevant actions can be taken to ensure antibiotics are appropriately returned for safe disposal. To fill in the gaps of knowledge regarding enablers and barriers to antibiotic amnesties, we conducted a semi-structured qualitative study (20 interviews) to investigate the different barriers and enablers of antibiotic amnesty campaigns in community pharmacies in the UK.

Findings and key lessons learned

The main identified themes included: factors enabling campaigns, antibiotic challenges relating to unnecessary use, education enabling amnesty campaigns, and raising awareness to maximise return of unwanted antibiotics. Enablers for antibiotic amnesty campaigns were: counselling patients, promotional resources and personal approach. The barriers were lack of educating staff, antibiotic misuse by patients, fear of re-infection (saving spare), minor ailments service, inappropriate prescribing and lack of patient education. Penicillins, especially amoxicillin, were the most frequently returned antibiotics. The findings of this study reported several themes for pharmacists, technicians, and medicine counter staff. The main themes identified across all pharmacy staff were promoting antibiotic amnesty campaigns using education and resources, misuse and awareness challenges and ways

to increase antibiotics returned. Participants reported their perspectives on the barriers and enablers to patients returning their antibiotics, from how the staff contribute and what the patients can do to help ensure proper antibiotic use.

Effective counselling was seen as an encouraging factor, exercised by all staff members in the community pharmacy setting, trying to get patients to return their unused, expired and leftover antibiotics. Also highlighted was the use of an antibiotic checklist, as the pharmacy staff mentioned a tool to urge the correct use of antibiotics and ensure they are dispensed for the correct appropriate indications (TARGET antibiotic checklist, 2024). This suggests that the continuous efforts made by the pharmacists within their community pharmacy role contribute to the success of the campaigns carried out. Using the provided resources increases the chances of success with campaigns such as antibiotic amnesties as it provides appropriate information while reducing misunderstanding and myth-busting. The public needs to utilise the resources available in the pharmacy setting to ensure they have the correct information when dealing with their antibiotics and are responsible for their use. It is recognised that targeting the general public and clinicians with multi-faceted communication interventions can reduce antibiotic prescribing (Cross et al., 2017). This suggests the positive impact pharmacists can have when considering the possible ways to make important information more accessible and logical for the patient. Meanwhile, it is essential for the patient also to have a sense of responsibility for their use and misuse of antibiotics. The pharmacists also reflected on how the patient perceived the antibiotic amnesty campaigns. There was mention of ways to encourage and enable patients to return their antibiotics, such as putting posters outside the consultation room and making leaflets available. Resources can be an enabler as educational interventions are beneficial to improve a patient's understanding and engagement.

Educating patients was a common theme among all the staff members interviewed, as the lack of education posed a barrier to the appropriate use of antibiotics and the return of unused, expired and leftover antibiotics. Therefore, this can be seen as the biggest barrier, as the lack of education means a rise in misunderstandings and the inappropriate use of antibiotics. Despite the efforts of healthcare professionals, it is ultimately the patient's choice to return antibiotics. Once the patient has collected the antibiotics, it is their responsibility to not misuse them and therefore be responsible for their actions so to ensure there is appropriate use; there is a need for adequate patient education. While patient education is an issue that needs to be resolved, educating staff is also an area which can be further explored, as it may positively contribute to the success of antibiotic amnesty campaigns. This may include more training for pharmacy staff during their career, e.g., Continuing Professional Development (CPD) which targets AMR, to ensure

they are kept updated about changing standards and counselling points. It is vital that appropriate targeted training is applied and given to all staff members present in the pharmacy to ensure the consultation points given to patients are consistent and appropriate. Doing this will ensure the public is aware of the relevant information to increase the number of antibiotics returned and reduce the risks of antibacterial resistance.

While some participants could not state the most frequently returned antibiotic to the pharmacy, when asked, the most frequent answer was different types of penicillin, for example, amoxicillin. This may be because amoxicillin is commonly the recommended first line of treatment for bacterial respiratory infections in patients, and the course length is usually 5–7 days. Amoxicillin is commonly used as shown by other studies (Karimi et al. (2023)). Therefore, it is prescribed and dispensed more, leading to it accumulating in the population. However, nitrofurantoin, the second most commonly prescribed, is usually for three days, and fewer returns are seen because patients tend to complete the course. There is growing evidence that shorter courses are as effective as longer courses for many respiratory bacterial infections (Spellberg, 2024), and that the shortest effective course should be prescribed to avoid leftovers because the patient is feeling better (Llor et al., 2022). There is debate about putting "complete the course" on the label with verbal re-enforcement because patients often do not complete the course anyway (Llewelyn et al., 2017).

The study has the strength of exploring the views and perceptions of pharmacists, pharmacy technicians and medicine counter assistants. The sample selected for this work was a convenient sample (20 participants), where we included a fair representation of each professional role in community pharmacy, while considering the difference in their roles and patients' involvement. Most of the participating pharmacy staff were from Bradford, compared to Huddersfield, Sheffield, and other surrounding areas, and most of them (75%) were females. Increasing the sampling area, and the study period, to represent more districts and regions within the UK and more balanced gender participation would allow further trends to be analysed and identify how enablers and barriers may differ based on location and between males and females. Ethnicity was overlooked in this study. Identifying ethnicity could allow analysation of how ethnicity impacts antibiotic returns. They may need tailored interventions to increase health literacy in certain areas or for certain ethnic groups that will increase antibiotics returned. An example is counselling in different languages for patients whose first language is not English. Future studies should include more medium and large chain pharmacies over a wider geographical area.

In conclusion, the main enablers of antibiotic amnesties included effective counselling and successful use of promotional resources, whilst the main barriers included lack of education in patients and staff. Enabling factors such as

effective counselling and use of promotional resources should be continued with patients, whilst the main barriers can be tackled with provision of sufficient education, training, and knowledge for patients. Educating staff, by providing appropriate training to all staff members present in the pharmacy, can positively contribute to the success of antibiotic amnesty campaigns. To reduce leftovers, options such as shorter courses, back-up prescriptions or alternative treatment should be considered. The findings of this work can inform the development of interventions needed to improve antibiotic amnesties, resulting in more antibiotics being returned and contributing towards tackling the issue of AMR.

Disclosure statement

This work was approved by the School of Applied Sciences Research Integrity and Ethics Committee at the University of Huddersfield (SASSRIEC-04.01.23-1).

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