

A Process Evaluation of the Isfahan Antibiotic Awareness Campaign: Developing Engagement on Antimicrobial Resistance

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Abstract

Background: One of the most prominent global health threats is antibiotic resistance, leading to infection treatment failure. The first Iranian antibiotic awareness week campaign was initiated to improve the prudent use and wise prescription of antibiotics.

Materials and Methods: The Isfahan antibiotic awareness campaign was held from November 30 to December 6, 2019, among two targeted populations; the general population and health-care workers by Isfahan University of Medical Sciences. In this campaign held in the main squares, streets, and a city's referral hospital, various educational methods were used to aware and sensitize the general population and medical staff about antibiotics and microbial resistance. These methods include face-to-face training, brochures, advertisement posters and billboards around the city, educational videos, social media messages, retraining for medical doctors and medical specialists, and interviewing in the Islamic Republic of Iran Broadcast.

Results: Two hundred and twenty general practitioners, medical specialists, and residents participated in two retraining educational conferences in Al-Zahra Hospital, Isfahan, Iran. The mean score satisfaction of the two conferences was three from four. Nearly 2000 of the general population were under face-to-face educational programs whom after that, 83.6% had the correct answer to the questions around antimicrobial awareness.

Conclusions: This campaign was an excellent experience as a pilot study with appealing issues. Further, activities are required to improve engagement with the target population and determine the impact of this campaign on antibiotic consumption and prescription behavior among the public and health-care professionals.

Keywords: Drug resistance, health behavior, health campaigns, health promotion

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INTRODUCTION

Antibiotic resistance (AMR) poses a significant threat to human health in the world. The report of the WHO in 2007 highlighted the issue of antibiotic resistance as one of the significant threats to public health security in the 21st century.^[1] The overuse and misuse of antibiotics have been the primary cause of the emergence and spread of resistant strains.

Improving awareness and understanding of AMR is one of the five strategic objectives of the WHO global action plan on AMR.^[2] International policies have been developed to address AMR that is feared to become the major leading cause of death globally by 2050.^[3] The production of novel antibiotics to combat the menace of antibiotic resistance has been created an

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upheaval of public health challenges to health policymakers, health-care workers, and the population globally.^[4,5]

The evidence shows that antibiotics are often used to treat upper respiratory tract infections, including the common cold, sore throat, and rhinitis, even though viruses cause most of these illnesses.^[4] Antibiotic abuse is a principal factor contributing to the development of antibiotic resistance. Factors leading to antimicrobial overuse are complex, involving knowledge and attitude, physician beliefs, and practice constraints.^[2] The increasing public health burden of antibiotic resistance has driven the upcoming annual Global Antimicrobial Awareness Week launched in November to focus on fighting antibiotic resistance by promoting effective awareness programs to combat the spread of multidrug-resistant organisms.^[6]

Global policymakers' main objective against AMR is to improve awareness and understanding of AMR through effective communication, education, and training.^[7] Of course, awareness rising is not the only global health policy tool to address AMR but is the most efficient step.^[8] Since the fight against AMR is a global emergency and similar to other parts of the world, its rate has increased dramatically in our country. Comprehensive interventional strategies are necessary. In Iran, no organized activity has been designed to increase the general populations' awareness of the proper antibiotic use and the importance of AMR yet. In 2015, Infectious Diseases and Tropical Medicine and Nosocomial Infection Research Center, Isfahan University of Medical Sciences launched a local antibiotic resistance surveillance program (Grant Number: 194042) in three general hospitals. The data showed a relatively high AMR rate in Isfahan, Iran. Hence, executors in Isfahan University of Medical Sciences decided to conduct the first antibiotic awareness campaign in Isfahan city simultaneous with World Antibiotic Awareness Week to assess the outputs, outcomes, and behavioral impacts of antibiotic educational activity in the community, university, and hospital setting.

MATERIALS AND METHODS

This camping was approved by the Ethics Committee of Isfahan University of Medical Sciences, Isfahan, Iran (approval number: IR.MUI.REC.50751) and took place from November 30 to December 6, 2019 on two fronts of the general population and medical staff levels. Isfahan University of Medical Sciences developed the campaign activities and resources under the leadership of the multidisciplinary committee. This committee included professionals from the Isfahan Public health organization, Infectious Diseases Research Center, Isfahan School of Medicine, Medical and Pharmaceutics Students' Research Committee, and the Vice-Chancellery for Research and Technology and health. Pledges were designed to encourage knowledge and attitude change around antibiotic prescribing, antibiotic use, antibiotic resistance, and prevention and infection control. Campaign materials including the name, key message (responsibility in prescription and awareness in use), logo, posters, brochures, and videos were designed and

endorsed by the multidisciplinary committee following user testing. The campaign was promoted through social, local, and traditional media press releases.

Two conferences (continuous medical education) were executed at the medical staff level, on December 2nd and 6th, and for general practitioners (GPs), specialists, and medical residents on strategies to prevent the spread of resistant bacteria and the rational administration of antibiotics. During the conferences, a 5-min video was presented that focused on hand hygiene and preventing the spread of AMR bacteria. At the end of the conference, participants completed an online survey on program quality.

At the general population level, educational posters were installed on the bus, subway stations, and cabins to sensitize and inform the community about AMR. During all campaign days, face-to-face training with educational brochures in the city was carried out by trained pharmaceutical and medical students. Based on the aims of the campaign, the promotional materials were disseminated among the population. A survey was used to understand misconceptions about the concept of using antibiotics and AMR. Experts in epidemiology and infectious diseases validated the content of the survey undertaken. Based on the received education, the general population was asked to determine whether the following sentences were true or false. The sentences included antibiotics are usually effective in the treatment of sore throats and coughs (false), antibiotics are used to treat all types of infections (false), taking antibiotics without a prescription by experts threatens the health of the whole community (true), antibiotics are effective against cold and flu (false), and I will continue taking antibiotics until my symptoms improve (true). A 5-min animated video was designed and posted on social media to teach people how bacteria can become resistant to antibiotics.

RESULTS

In two conference sessions held at the Al-Zahra hospital, Isfahan, Iran, 150 GPs, seventy specialists and medical students participated. All of them appreciated this occasion and suggested that this campaign continues for the following years. Of the 150 GPs, 49 (32.7%) persons completed the online program quality survey, and from 70 specialists and medical residents, 46 (65.7%) persons completed the online program quality survey. The results of the online quality survey are shown in Table 1. According to the view of participants, the overall quality of the two conferences was three from four.

In the community, the campaign was executed on seven bases in the main streets and the squares, shopping malls, and parks for face-to-face educational programs within 7 days. In these base centers, nearly 2000 ones of the general population participated. The knowledge evaluation of the general population after education through brochures and face-to-face learning showed that 83.6% of participants had chosen the correct sentence that was about antimicrobial awareness [Table 2].

Table 1: The view of general practitioners, specialists, and medical residents on the online program quality survey about the educational conferences

Questioner factors	Views					
	Very good		Good		No idea	
	GPs n/N	S and MR n/N	GPs n/N	S and MR n/N	GPs n/N	S and MR n/N
Clarity of program goals	44/49	37/46	0	3/46	5/49	6/46
Variety in presentation methods	35/49	32/46	8/49	7/46	6/49	7/46
Innovation in presentation	34/49	31/46	9/49	9/46	6/49	6/46
Appropriate cooperation with the participants	38/49	30/46	6/49	9/46	5/49	7/46
Motivate participants to learn more	41/49	37/46	3/49	3/46	5/49	6/46
Provide appropriate feedback to participants	40/49	31/46	3/49	3/46	6/49	12/46
Logical sequence of content presentation	45/49	34/46	1/49	5/46	3/49	7/46
Helping to meet the job needs of the participants	39/49	34/46	4/49	5/46	6/49	7/46
No duplication and overlap	42/49	32/46	4/49	7/46	3/49	7/46
No inconsistencies in the content	42/49	34/46	2/49	4/46	5/49	8/46
Having scientific credibility	43/49	34/46	2/49	4/46	4/49	8/46
Appropriate announcement and registration process	42/49	31/46	1/49	6/46	6/49	9/46
Appropriateness of program execution management	39/49	31/46	3/49	8/46	7/49	7/46

GPs: General practitioners, S and MR: Specialists and medical residents, n/N: Number of respondents/total participants

Table 2: The evaluation of knowledge and attitude of the general population after educational program during the campaign in the city sites

Sentences	True answers	False answers	Total answers
Antibiotics are usually effective in the treatment of sore throats and cough	451	93	544
Antibiotics are used to treat all infections	315	70	385
Taking an antibiotic without a prescription threatens the health of the whole community	388	48	436
Antibiotics are effective in treating cold or flu	249	59	308
I will continue taking antibiotics until my symptoms improve	225	49	274
Total, <i>n</i> (%)	1628 (83.6)	319 (16.4)	1947

DISCUSSION

It has been known that Iranian health care is suffered from incomprehensive AMR programs in political agendas. Significant barriers included the administrators' lack of interest and the lack of precise evidence to present to policymakers. It is suggested that gaining the community's trust using scientific and reliable sources can reduce the arbitrary use of antibiotics.

In November 2019, Isfahan University of Medical Sciences developed the behavior change and engagement campaign aimed at health-care professionals, health-care authorities, and the general population to tackle AMR in Isfahan, Iran.

According to a survey from Iran, the prevalence of antibiotic self-medication during 2000–2016 was raised, and antibiotic consumption was three times more than other investigated countries.^[9] In this campaign, despite limited financial resources, we focused on educating the general population. As mentioned in results after face-to-face general population training by pharmaceutical and medical students, 83.6% of the general population answered the questions correctly. Furthermore, in another survey held before and after the campaign on the effect of the campaign on the general

population's knowledge, attitude, and practice about antibiotic use and microbial resistance, the means of knowledge and attitude were increased significantly.^[10] Similar to our experience, in the first Antibiotic Awareness Campaign in Lebanese, a deficient level of antibiotic awareness was reported. They believed more educational programs need to raise public awareness about the proper use of antibiotics and antibiotic resistance.^[11]

In this campaign, we not only worked on educating the general public but also held a training conference for physicians, and the mean score satisfaction of the two conferences held for medical specialists and GPs has been 75%. In a survey was conducted in one of the Iran's cities, a lack of knowledge was observed on some aspects of AMR, and more educational programs need on AMR and antibiotic prescription.^[12]

To the best of our knowledge, this was the first national campaign awareness initiative to target antibiotic resistance in Iran. One of the most strengths of this campaign was the competition of the volunteer students. Furthermore, there was a high agreement of participants regarding the recommendations. To obtain more advantages in this aspect, more cooperation is needed between policymakers and stakeholders.

This campaign has been an opportunity to strengthen infection prevention and control messages that will inform actions in support of AMR national plans. Implementation of this campaign has recorded a massive reach with a commitment by many dedicated health-care workers and health-care facilities to commit to the fight against the spread of antibiotic resistance by promoting antimicrobial stewardship activities.

More awareness interventions involving political and health stakeholders using media, online content, and direct communication are needed throughout the year.

It is up to us to continue fighting to address AMR for the sake of global health. As the WHO message has been “fight antibiotic resistance, it’s in your hands.”

CONCLUSIONS

This study provides a valuable experience for public health strategies designed to amend antibiotic use. However, this was the first experience as a pilot, and future AMR campaigns continued promotion through the annual antimicrobial awareness.

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Conflicts of interest

There are no conflicts of interest.

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