

Antibiotic stewardship program: Barriers and enablers of implementation in primary health care, EHS, UAE

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Introduction

Antibiotics are considered one of the most useful discoveries in the history of medicine as they successfully treated infectious diseases that were the cause of mortality and morbidity. However, the inappropriate use of antibiotics decreased the effectiveness of some of these agents. Antimicrobial resistance (AMR) forced clinicians to use expensive alternatives. Antibiotic overuse would cause more severe illnesses, more medicalization of self-limiting conditions, increase the duration of diseases and the risk of complications. The World Health Organization stated that an excess of US\$ 20 billion has been caused by multidrug resistance. CDC considered AMR one of the biggest public health challenges at the current time and the most urgent health issue. In the US, at least 2 million people get an antibiotic-resistant infection yearly and at least 23,000 persons die from it. AMS programs are cost-effective. \$200,000–\$900,000 are the estimated annual cost savings of stewardship programs in published studies. NICE recommended the implementation of an AMS program in all healthcare settings and the allocation of resources to support the program such as IT support and laboratory testing. During the COVID-19 pandemic, the World Health Organization alerted that the use of antibiotics will lead to bacterial resistance and this will jeopardize AMS. 72% of 2,010 COVID-19 patients were given broad-spectrum antimicrobial therapy in hospitals, despite that only 8% had bacterial and fungal co-infection. In 2014, the Gulf Cooperation Council Center for Infection Control developed a strategic plan to be adopted by GCC countries to implement plans to tackle AMR.

Aim

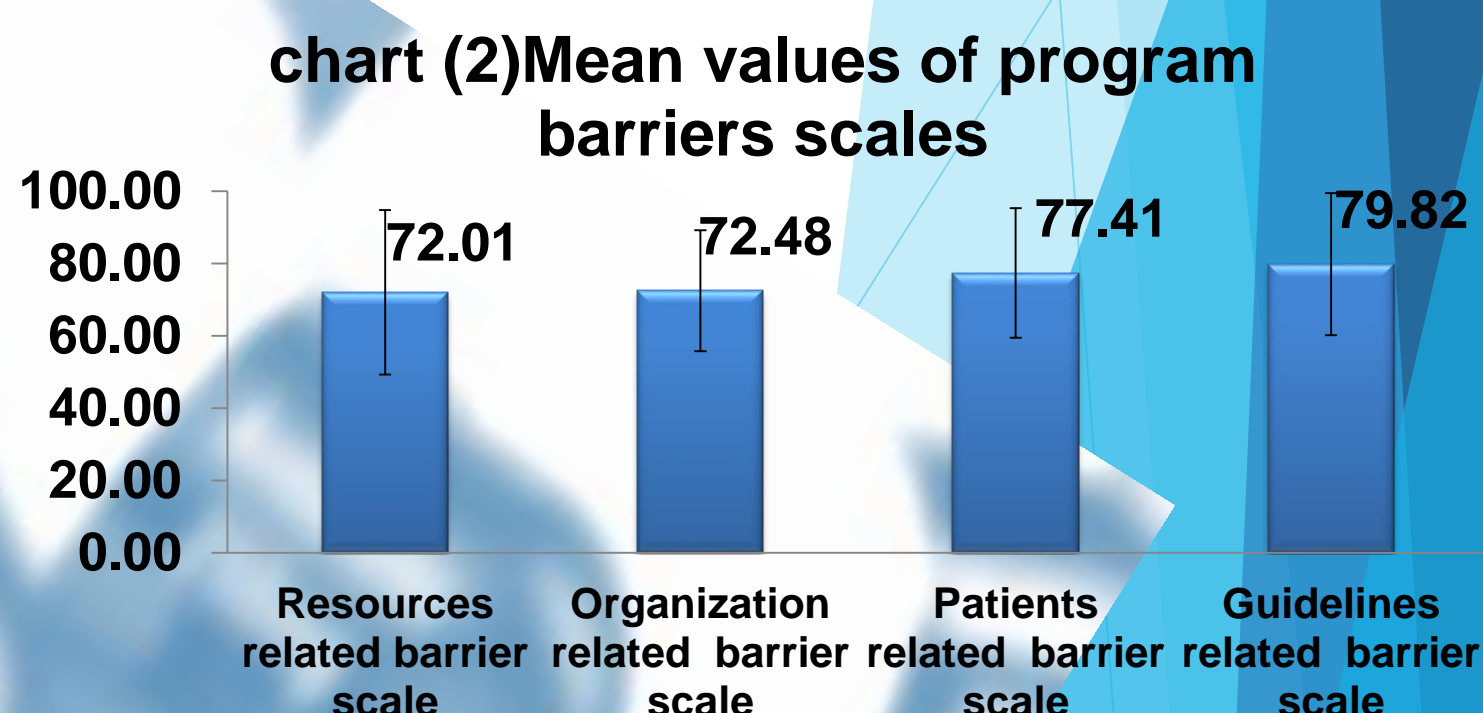
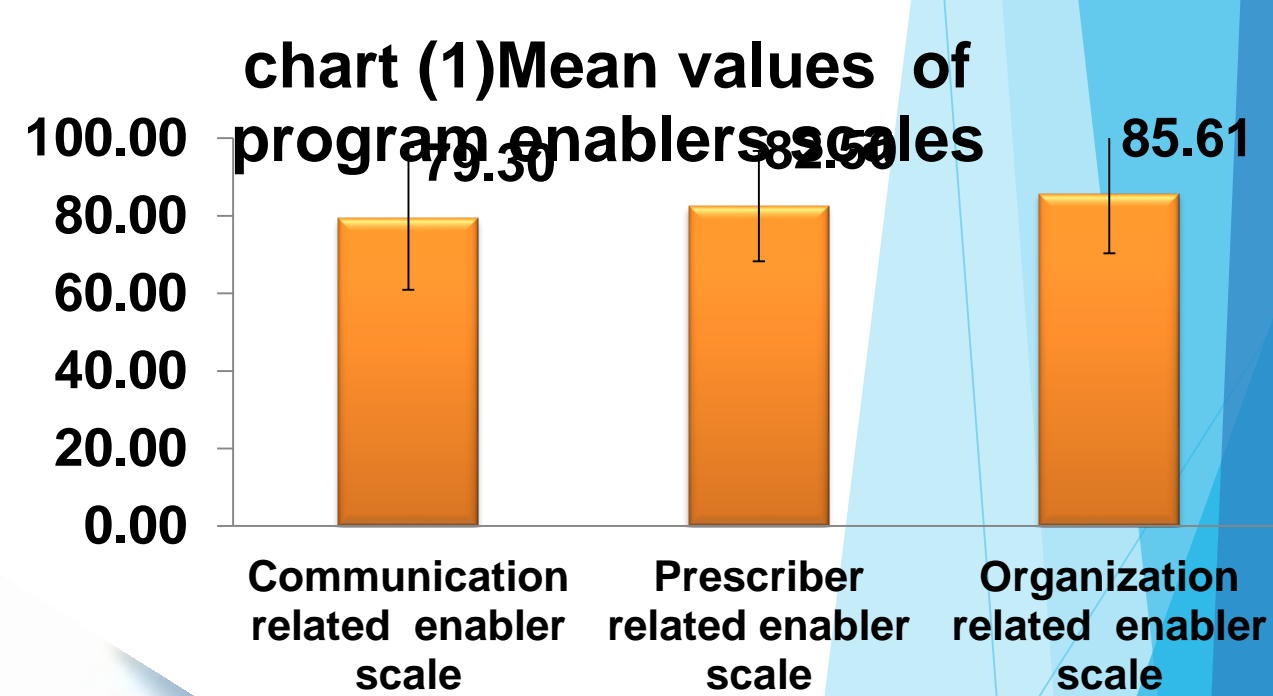
- Explore the challenges and facilitators from the perspective of healthcare workers.

Methods

- Cross-sectional study based on an electronic online questionnaire survey distributed to all physicians and pharmacists in Emirates Health Services primary health care centers.
- The sample size was calculated using Leslie Fischer's formula. According to the MOHAP website, open data of the year 2017, published in 2021, the estimated number of physicians (GPs, specialists) and pharmacists working in primary health care centers was about 550.
- The confidence interval was set at 95%, the desired margin of error (d) was 5% and the sample proportion was believed to be 80%. So the required sample size was 171, out of which, the number of participants who responded to the survey was 192 of physicians and pharmacists from EHS PHC.
- Inclusion Criteria:** All physicians and pharmacists in Emirates Health Services' primary health care centers agree to participate in the survey.
- We distributed an online questionnaire survey among general physicians, specialists, and pharmacists in primary health care centers in Emirates Health Services to explore barriers affecting the implementation of antibiotic stewardship. Invitations to answer the questionnaire were sent through EHS email.
- Questionnaires were collected between January 2022 till March 2022. The questionnaire was formed of two parts. The sociodemographic section of the questionnaire obtained information regarding the place of work, Doctor's Age, years of experience, position, and membership in the AMS team. One question about the knowledge of the AMR concept. The second part included 10 questions divided into 2 sections. The first section included 2 questions (7 & 8) regarding their perception of the AMR problem and the program. The second section question from 9 to 18 about enablers and barriers of the program from the physician and pharmacist point of view. The level of agreement or disagreement with the statements from question 7 to question 18 was measured by a five-point Likert scale.
- All scales are normalized on a 100-point scale starting from 0 up to 100 to facilitate comparison and interpretation. As you mentioned without normalization, the first section will range from 2 to 10 and the second, from 9 to 45. This makes the interpretation very difficult. A much better and more professional way is to normalize the scale range by subtracting the lowest possible scale score, dividing by the range of the scale, and multiplying by 100.

Results

- Around 89% of the participants thought that AMR was a problem in our community. 86% agreed and strongly agreed that the AMS program effectively reduces antibiotic use. Years of experience had no statistically significant relation to the perception of an AMS program's effectiveness or the perception of the AMR problem. Those with experience above 20 years and shorter than 5 years had the highest mean perception score toward AMS programs. At the same time, those with long experience had a higher perception of AMS program effectiveness, as well as those who had experience from 6–10 years.
- Around 88% agreed and strongly agreed that feedback from the ASP committee enables them in implementing antibiotic stewardship.
- Around 97% of the respondents reported that physician education and training about AMS was important for the implementation of the ASPs.
- Most of them (95%) agreed that proper documentation could improve the implementation of the AMS program.
- Most of them (95%) reported that organizational support could help implement the AMS program.
- 94% agreed that patient education about AMS was important for the implementation.
- We found that the Organization-related enabler (physician education and organizational support) scale was the highest, followed by the Prescriber-related enabler (proper documentation and patient education) scale and the Communication-related (feedback from ASP) enabler scale.
- The position had no statistically significant relationship with any of the enablers, however, specialists tend to have higher mean values for all Communication enablers, Prescriber-related enablers, and Organizational enablers.
- 87% reported that the non-clarity of the guidelines could be a barrier to AMS program implementation.
- 76% showed that limited diagnostic tests are a barrier to AMS programs.
- 67% showed that limited consultation time was also a barrier to AMS.
- 81% experienced pressure from patients to prescribe antibiotics. 85% agree that unrestricted patient access to antibiotics could be a barrier to ASP implementation.
- The guideline-related barrier of antibiotic ASPs had the highest scale, followed by patient-related barrier scales, while the Resources-related barrier and Organization-related barrier scale was the lowest.



Conclusion

- Healthcare workers highly perceived the antibiotic resistance problem, antimicrobial stewardship program, and its effectiveness. This study concluded that organizational support was the most perceived enabler of the program, while the guideline-related barrier was the most perceived barrier by healthcare workers.