

Strategies for improving antibiotic use in Qatar: a survey of pharmacists' perceptions and experiences

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Abstract

Objectives The objectives of this study were to identify antimicrobial stewardship activities in Qatar, identify pharmacist involvement in activities and summarize perceived barriers for implementation of antimicrobial stewardship programs (ASPs).

Methods A cross-sectional survey was developed based on study objectives and completed by pharmacists in Qatar.

Key findings Most hospital settings have implemented components of ASP. Lack of infectious disease specialists and training of healthcare providers was the most common barrier to implementation or expansion of ASP identified in the hospital and community settings respectively.

Conclusion Pharmacists report some components of ASP have been implemented; however, barriers must be overcome to further expand ASPs.

Introduction

Antimicrobial stewardship is defined as a program or series of interventions to improve antimicrobial use while reducing the emergence of antimicrobial resistance, improving patient safety and reducing costs to the healthcare system.^[1] An effective antimicrobial stewardship program (ASP) should minimally consist of an infectious diseases physician along with a clinical pharmacist.^[1,2] The presence of a clinical pharmacist as a member of an ASP has been associated with an improvement in appropriate antibiotic selection and cure rates along with a reduction in treatment failure.^[3]

Limited information is known about ASPs in Qatar. The objectives of this study were to identify antimicrobial stewardship activities being conducted in Qatar, to determine pharmacist participation in these activities and to identify barriers for implementation and clinical pharmacists' involvement in these programs.

Methods

This study was designed as a cross-sectional survey. The survey was developed based on previously published literature and objectives of our study.^[4] The 13-item questionnaire was reviewed by two other pharmacists who were familiar with pharmacy practice in Qatar. This project was reviewed

by the institutional review board at Qatar University (QU) and was exempt from full ethics review.

All pharmacists currently living in Qatar were invited to attend a continuing professional development workshop on infectious disease at QU in Doha, Qatar. While the majority of ASPs are hospital driven initiatives, we included community pharmacists in this study in order to better understand challenges pharmacists face in implementing community-based services.

Pharmacists were invited to attend the workshop through e-mail communication to those who had a registered e-mail address with the continuing professional development program (CPPD) at QU and through notification of pharmacy site coordinators. The exact number of pharmacists practicing in Qatar is unknown; however, it is estimated based on our CPPD database that approximately 1000 pharmacists work in the country with a smaller proportion practicing as clinical pharmacists.

Sixty-two of 63 pharmacists attending the workshop were invited to anonymously complete this survey. One pharmacist attending the workshop was excluded as she was not practicing pharmacy in Qatar.

Data were collected and analyzed using SPSS (version 19). Data were summarized descriptively.

Results

Sixty out of a possible 62 respondents completed the survey representing a 97% response rate. Eighteen percent of pharmacists were clinical hospital pharmacists. Baseline characteristics are summarized in Table 1.

Reported current strategies to decrease antibiotic use are summarized in Table 2. The most common reasons for pharmacist consultation in the hospital setting included drug information [20/25 (80%)], dosage adjustments [19/25 (76%)] and therapeutic drug monitoring [12/25 (48%)]. The most prominent areas of pharmacist consultation in the community/primary care settings included dosage adjust-

Table 1 Baseline characteristics

Characteristic	n	%
Primary area of pharmacy practice		
• Community/primary care	32	53.3
• Hospital	25	41.7
• Other	2	3.3
Current pharmacy practice role		
• Community pharmacist	10	16.7
• Clinic pharmacist	11	18.3
• Dispensing pharmacist	16	26.7
• Clinical pharmacist	11	18.3
• Administrator	3	5.0
• Other	7	11.7
Years post-graduation		
• < 5 years	10	16.7
• 6–10 years	13	21.7
• 11–15 years	20	33.3
• 16–20 years	5	8.3
• > 20 years	11	18.3

Values may not sum to 60 as respondents were not required to answer all survey questions.

Table 2 Strategies to promote appropriate antibiotic use

Strategy	Community/ primary care n (%)	Hospital n (%)
Formulary restriction of antibiotics	10 (31.2)	21 (84.0)
Daily review of patient medications by pharmacists with feedback to the prescriber	6 (18.8)	12 (48.0)
Clinical practice guidelines for infectious diseases	7 (21.9)	15 (60.0)
Protocols that transfer authority from prescribers to pharmacists	3 (9.4)	3 (12.0)
IV to oral step-down guidelines	4 (12.5)	12 (44.0)
Education of prescribers	7 (21.9)	8 (32.0)
Patient education	12 (37.5)	9 (36.0)
Antimicrobial cycling	0	2 (8.0)
Use of clinical-decision technology	0	0

IV, intravenous.

ments [23/32 (72%)], drug information [18/32 (56%)] and patient education [17/32 (53%)].

According to hospital pharmacists, non-availability of an infectious disease specialists was the most prominent perceived barrier identified to implementation or expansion of ASP [13/25 (52%)], while training of healthcare providers was the most common barrier identified in the community/primary care settings [16/32 (50%)]. The most common barriers to hospital pharmacist involvement in ASP were training of pharmacists [13/25 (52%)] and current pharmacy staffing [13/25 (52%)]. Community and primary care pharmacists most commonly reported lack of pharmacist acceptance by the healthcare team [15/32 (47%)] and lack of pharmacist training [15/32 (47%)] as barriers.

Discussion

Findings from this survey indicate that implementation of antimicrobial stewardship activities are present in some but not all settings in Qatar. Results from this survey identified several barriers to implementation and expansion of ASP including lack of specialized healthcare professionals. Similar barriers including adequate personnel and additional costs to the healthcare system have been identified in the literature.^[5] To overcome these barriers, many strategies have been suggested including additional remuneration of healthcare professionals, patient and healthcare practitioner education, improved communication and formalize training in antimicrobial use.^[6]

The most common perceived barriers to pharmacist involvement included training of pharmacists, staffing and acceptance of pharmacists by the healthcare team. The College of Pharmacy at QU recently introduced a postgraduate Doctor of Pharmacy degree which will assist in advancing education of domestic pharmacists. In addition, hospitals have been rapidly expanding clinical pharmacy services. Acceptance by the healthcare team is a barrier which will take time to overcome. We anticipate, as pharmacy services expand and the level of education of pharmacists increases, that this barrier will be minimized.

Several limitations to this study should be considered when interpreting the results. Although the response to the survey was 97%, our study consisted of a small sample size. While generalizability may be limited, we feel our results provide valuable insight into the current status of ASPs in the country. This study also attempted to assess barriers to antimicrobial stewardship in both the hospital and community settings. Further larger studies of ASPs in specific practice settings are needed.

In addition, a number of bias should be considered when interpreting the results of this study. Pharmacists attending an infectious disease workshop may have had a prior interest in ASP and may have been more likely to take part in such

programs at their respective institutions. As a result, findings of this survey may overestimate actual rates of antimicrobial stewardship activities taking place locally. Furthermore, we acknowledge that the survey demands good use of the English language, which we believe the participants had as the CPPD workshop was delivered in English.

Despite limitations, results from this study highlight the current status of antimicrobial stewardship activities in Qatar. Pharmacists practicing in this country should work with an interdisciplinary team to promote ASPs within the hospital and community setting. Infectious disease teams and pharmacy departments should focus on recruitment and training of healthcare providers in infectious disease and ASP development to allow for expansion of currently offered services.

Conclusion

Further focus on antimicrobial stewardship within the hospital and the community settings with enhanced clinical pharmacy support beyond dosage adjustments and provision of drug information is needed as it is important for optimizing antibiotic therapy while reducing negative consequences of antibiotic use in Qatar. In order to successfully implement effect ASP, barriers must be overcome.

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Declarations

Conflict of interest

The Authors declare that they have no conflicts of interest to disclose

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Authors' contributions

EB was the principal investigator on this study and was responsible for overall study design. EB and AE developed the survey. SP was a Doctor of Pharmacy student during this research project and was responsible for data analysis and initial drafting of the manuscript under the mentorship of EB and AE. All authors contributed to interpretation of the analysis and writing of the manuscript. All authors had complete access to the study data that support the publication.

Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Survey.