RESEARCH

Delivering Tobacco Cessation Content in the Middle East Through Interprofessional Learning

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Objective. To explore the attitudes of pharmacy, pharmacy technician, medical, and public health students before and after an IPE activity that focused on smoking cessation in the Middle East.

Methods. A pre-post intervention research design using the Readiness for Interprofessional Learning Scale (RIPLS) was used for this study. The tool contained 20 items, categorized under the following subscales: teamwork and collaboration, professional identity, and patient-centeredness.

Results. A total of 47 out of 50 students from four different health disciplines in Qatar (medicine, pharmacy, pharmacy technician, and public health) who participated in the activity completed a pre- and post-intervention pre-validated questionnaire (94% response rate). Total attitude scores were calculated for all the 20 items along with attitudinal scores of the three domains. Most of the students reported having a positive attitude toward IPE; the number of students having a positive attitude toward IPE increased after the IPE session. The overall median (IQR) score increased from 82 (16) before the session to 84 (15) after the session. Students from different disciplines did not vary in their attitude scores.

Conclusion. Health care professional students in Qatar perceived IPE positively, believing that it enhanced their communication skills, collaboration and appreciation of professional roles. This study has implication on developing effective methods to implement IPE in various health professional education curricula.

Keywords: curriculum, interprofessional education, Middle East, tobacco cessation, attitude

INTRODUCTION

Incorporating interprofessional education (IPE) into curriculum is an emerging trend in health care professional education that is aimed at improving collaboration between future health care professionals and enhancing the quality of care received by patients as highlighted by the Centre for the Advancement of Interprofessional Education (CAIPE).¹ In an IPE environment, students are provided with structured learning opportunities, enabling them to acquire knowledge, skills, and professional attitudes in an interactive and collaborative manner. Learners should translate these skills into action once qualified, as endorsed by the World Health Organization (WHO) in

its report “Framework for Action on Interprofessional Education and Collaborative Practice.”² The WHO report strongly encourages efforts to develop and integrate IPE into health care professional education programs so that graduates of such programs can be better prepared and ready to deliver collaborative health care in their future practices. Although IPE has been extensively reported in the literature, there is a dearth of literature on IPE and collaborative practice originating from the Middle East region.

Delivering an IPE is a shared responsibility, and health care faculty members from the different disciplines need to work together with an interprofessional collaborative spirit and act as role models for their learners. Many models for IPE exist, but to date, the best practices for translating IPE into collaborative practice and team-based care are still not clearly defined.³ However, any IPE activity should be well-planned and include an intervention.

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An ideal one should include an element of reflection of learners' experiences and their perception of interprofessional learning before and after the IPE activity. The value of interprofessional care, accompanied by constructive instructor feedback, should enable the learners to reflect on their clinical practice.⁴

There is a growing evidence that different health care professionals have significant roles in promoting effective tobacco cessation.⁵⁻¹³ Hence, there is a great potential for collaborative practice among health care professionals as part of the strategies to control tobacco use in Qatar. The choice of an IPE activity focusing on smoking cessation intervention lay in its public health significance and the opportunities for providing collaborative care in smoking cessation clinics. The Government of Qatar has established an active tobacco control program, including the ratification of the WHO Framework Convention on Tobacco Control, tobacco cessation clinics, and several other national initiatives. Health care professionals including physicians, pharmacists, nurses, dentists, and others are in an ideal position to intervene with tobacco users. However, it is well documented that health professional education programs provide inadequate tobacco control content in undergraduate curricula.^{14,15}

To date, there is no published data regarding the nature and extent of tobacco-related education in health professional education programs in Qatar. However, tobacco-related curricular content varied across the curricula of the different health professional programs involved in the IPE session.

The College of Pharmacy at Qatar University has extensive curricular content in pathophysiology, pharmacotherapy and pharmacology courses about the health effects of tobacco use, principles of nicotine addiction and its pharmacology, cognitive behavioral therapy, and pharmacologic aids for tobacco cessation.

The tobacco curriculum at Qatar University's public health program addresses health risks and consequences of smoking, social determinants that shape people's behavior, prevention and smoking cessation content. The program equips public health specialists with the skills needed to assist smokers with smoking cessation and to promote reduction of exposure to second-hand smoke.

Weill Cornell Medicine - Qatar includes didactic teaching covering tobacco addiction risks and prescription medicines, while running a summative OSCE on smoking cessation in its family medicine curriculum.

The pharmacy technician program at the College of North Atlantic in Qatar covers smoking cessation topics in a community pharmacy course, including health effects of smoking, and non-prescription smoking cessation aids, specifically nicotine replacement

therapy. There is also discussion about the inter/intraprofessional team approach to assist patients in achieving the goal of smoking cessation. Increasing and coordinating this content by developing leaders in tobacco control through IPE can potentially facilitate capacity building at the institutions. The desired outcome is to produce a widespread beneficial impact on public health. Undergraduate education through IPE enables students to gain knowledge, skills, and positive attitudes toward tobacco cessation.

The objective of this study was to explore the attitudes of pharmacy, pharmacy technician, medical, and public health students before and after an IPE activity that focused on smoking cessation in Qatar.

METHODS

A pre-post intervention research design using the Readiness for Interprofessional Learning Scale (RIPLS) was used in this study. The RIPLS is a validated instrument commonly used for the assessment of students' perception in IPE research. The version of the RIPLS used in this study was previously validated in a Middle Eastern context.¹⁶ The developers of this version which was validated for use among undergraduate students from the Middle East had reported the instrument as having strong internal consistency reliability for the three of its subscales: teamwork and collaboration (0.86), professional identity (0.80), and patient centeredness (0.80).¹⁶

The tool contained 20 statements, categorized under the following subscales or domains: teamwork and collaboration (10 items), professional identity (5 items), and patient-centeredness (5 items). Two open-ended questions were added to elicit additional comments regarding IPE learning activities and IPE in general. Students completed the RIPLS in a classroom setting before the IPE session started and were asked to complete the post-session RIPLS with an additional evaluation form at the end of the session.

Fifty students from the four disciplines who participated in the smoking cessation IPE activity were invited to participate in the research study. The survey targeted all the students who participated in the IPE session.

The data collected were analyzed using Statistical Package for Social Sciences (IBM SPSS Statistics for Windows; IBM Corp, Armonk, NY) version 21. Both descriptive and inferential statistics were used for the data analysis. Frequencies and percentages were used to summarize all categorical responses generated from the survey, while median (IQR) applied to all ordinal data. The Wilcoxon Signed Ranks test was used to compare the scores of students' attitudes toward IPE, before and after

the IPE activity (ie, change in scores pre and post session). The level of significance was set *a priori* at $p \leq .05$.

The RIPLS assessment used a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree). Negative statements were reverse scored (5=strongly disagree, 4=disagree, 3=neither agree nor disagree, 2=agree, 1=strongly agree). Total attitude scores were calculated for the 20 items and attitude scores of each of the three domains. The maximum total score was 100 and the minimum total score was 20. For easy comprehension of data by the readers, we collapsed the proportions of strongly agree and agree (called “agree” in Table 2) as well as the proportions of strongly disagree and disagree (called “disagree” in Table 2).

A three-hour IPE activity focused on smoking cessation was completed on November 2014. Four different health care professional students were selected from the College of Pharmacy at Qatar University (Pharmacy), the Department of Public Health at the College of Health Sciences at Qatar University, the College of the North Atlantic (Pharmacy Technician), and Weill Cornell Medicine - Qatar (Medical). A team of seven health care professional educators was formed to develop the IPE activity focused on smoking cessation. The team met three times, designed the activity and prepared the IPE session to ensure its effective delivery. Attendance at the IPE activity was a mandatory part of the students’ course. Students were randomly assigned into six groups, with each group consisting of eight to nine health care students.

The learning objectives of this activity were selected from the IPE shared competency domains and competency statements developed for Qatar context.¹⁷ An introduction to the definition and misconceptions of IPE was discussed in an introductory lecture. During the IPE introductory session, students in groups were asked to explore each other’s discipline, discuss why they chose their disciplines and the nature of their academic programs in terms of curricular structure and duration. An icebreaker game called “Common Ground Game” followed. Students had to identify a commonality they all shared as a group. Each student identified a unique personal feature not shared by another student.

A short didactic lecture on tobacco use treatment followed, highlighting the challenges that smokers encountered as well as pharmacologic and non-pharmacologic treatment modalities for smoking cessation. Students watched two short videos on motivational interviewing. The teams were asked to discuss and reflect on the video content, and to consider how it succeeded or fell short of its objectives. They also discussed the relevancy of patient-centered care in each of the different health care

professions. Students were then given a case scenario of a patient recently diagnosed with chronic obstructive pulmonary disease (COPD) who was a heavy smoker and wanted to quit smoking. Students initially discussed each member’s professional perspective before making a team decision on how to manage the case. Finally, students were asked to establish criteria for a smoking cessation clinic. They were invited to consider how each discipline within the interprofessional health care team could help at such a clinic and how the team could work collaboratively to ensure that care delivered was patient-centered. A spokesperson from each small group presented the group’s findings to the larger group.

An ethics approval was granted by the Qatar University Institutional Review Board (QU IRB) with the other participating institutions waiving further approval. The questionnaire used contained a statement of the study purpose along with an informed consent statement. The questionnaire was anonymous, voluntary, and no individual identifiers in the data were required.

RESULTS

Of the 50 health care professional students who attended the interprofessional smoking cessation educational session, 47 completed the RIPLS questionnaire before and after the session (94% response rate). The participants were female (94%), aged between 20 and 24 years (98%), and were pharmacy students at Qatar University (51%). Prior IPE experience was reported by only one participant. Table 1 summarizes the demographic and educational characteristics of the study participants.

Despite being unfamiliar with IPE, students reacted positively toward the interprofessional session on smoking cessation. It was evident from their responses that the majority agreed with all the positive statements before attending the IPE session and that the scores of these students with positive attitude increased after the session (Table 2). Conversely, the students were mostly in disagreement with the negative statements before and after the session with subtle changes after the session (Table 2).

Inferential analyses enabled further assessment of the magnitude of the change in students’ attitude toward IPE after the session. In general, the proportion of students who reported positive attitude increased after the IPE session, although most did not reach statistical significance (Table 3). However, there was a significant increase in students’ perception toward believing that learning with other health care students before qualification would improve relationships after qualification and

Table 1. Demographics and Experience of Health Professional Students With Interprofessional Education in Qatar (N=47)

Characteristic	n (%)
Gender	
Female	44 (93.6)
Age	
<20	4 (8.5)
20-24	42 (89.4)
25-29	1 (2.1)
Discipline	
Medicine	6 (12.8)
Pharmacy	24 (51.1)
Pharmacy technician	6 (12.8)
Public health	11 (23.4)
Year of study	
Year 2	28 (59.6)
Year 3	17 (36.2)
Year 4	1 (2.1)
Other	1 (2.1)
Nationality	
Qatari	7 (14.9)
Egyptian	9 (19.1)
Sudanese	4 (8.5)
Palestinian	4 (8.5)
Jordanian	4 (8.5)
Syrian	2 (4.3)
Iranian	1 (2.1)
Other	16 (34)
Previous completion of Readiness for Interprofessional Learning Scale (RIPLS) survey	3 (6.7) ^a
Previous experience with interprofessional education	1 (2.4) ^b

^aTwo missing responses

^bFive missing responses

would help them become better team workers [both total median (IQR) scores increased from 4 (1) to 5 (1), $p=.021$ and $p=.028$, respectively] (Table 3). Likewise, there was a significant increase in the number of students agreeing that communication skills should be learned with other health care students [total median (IQR) score increased from 4 (1) to 5 (1), $p=.048$]. Despite not being statistically significant, students perceived that their collaborative roles would overlap more ($p=.420$).

Table 3 reports summary statistics for each subscale and for the overall attitude score. The overall score increased from 82 (16) before the session to 84 (15) after the session ($p=.31$). Teamwork and collaborative attitudes scores increased by 5 points ($p=.09$). Conversely, professional identity and patient centeredness attitudes showed a lesser increase in their scores (an increase of one point for each subscale).

No significant difference appeared between the students' attitudes across different disciplines before and after the session. Students obtained similar scores in their overall attitude and those of the three subscales ($p>.05$). Notably, medical students had higher scores than other students in terms of the overall attitude and that of professional identity and patient-centeredness subscales before the session. However, pharmacy students got higher scores on their overall attitude, teamwork and collaboration, and patient-centeredness subscales after the session. Medical students demonstrated a negligible decrease in professional identity and patient-centeredness attitudes after the IPE session. Public health students also scored lower on their overall teamwork and collaboration, and patient-centeredness scores post-session.

Qualitative data revealed that participating health care professional students agreed that IPE activity increased their knowledge and appreciation of their role and that of other disciplines in tobacco cessation; encouraged team and collaborative work for the benefit of the patient; and increased their understanding of the challenges associated with tobacco use and tobacco cessation. Some participants reported that the activity helped them understand where they best fit within the health care team without a silo mentality.

A medical student, said "I thought previously that I have to do all of the steps to help a patient who smokes, but it turned out that I can use the help of other health care professionals and get better patient health outcomes."

Also, students felt the activity encouraged them to communicate in a more collaborative and effective manner. The majority of the students said that the activity enhanced their understanding of the IPE strategy. One said, "This session alerted me to other disciplines contributing in smoking cessation, and it has increased my understanding of this topic."

Participants indicated that they exchanged knowledge and skills with other participants to promote collaborative practices when assessing, developing, and planning patient care. The open-ended responses also showed that they perceived the activity as valuable, enjoyable, and interesting as highlighted in Figure 1. The most interesting aspects of the IPE activity as reported by the participants were the case study, interacting with other participants and listening to others. Participants said that the least useful aspect of the activity was not having an equal distribution of health care specialties.

DISCUSSION

To our knowledge, this is the first study that focused on smoking cessation content from the context of the

Table 2. Health Professional Students' Attitudes Toward Readiness for Interprofessional Learning Before and After an Interprofessional Educational Session in Qatar (N= 47)

Statement	Before the Session				After the Session				p value ^e
	Disagree n (%)	Undecided n (%)	Agree n (%)	Score, Median (IQR)	Disagree n (%)	Undecided n (%)	Agree n (%)	Score, Median (IQR)	
Learning with other students will help me become a more effective member of a health care team	3 (6.4)	3 (6.4)	41 (87.2)	5 (1)	2 (4.3)	1 (2.1)	44 (93.6)	5 (1)	.11
Shared learning will help me to understand my own limitations ^a	3 (6.4)	1 (2.1)	42 (89.4)	4 (1)	2 (4.3)	2 (4.3)	43 (91.4)	5 (1)	.11
Shared learning with other health care students will increase my ability to understand clinical problems ^a	4 (8.5)	1 (2.1)	41 (87.3)	4 (1)	2 (4.3)	1 (2.1)	44 (93.6)	5 (1)	.20
Learning with health care students before qualification would improve relationships after qualification	3 (6.4)	4 (8.5)	40 (85.1)	4 (1)	2 (4.3)	2 (4.3)	43 (91.4)	5 (1)	.02
Communication skills should be learned with other health care students ^c	3 (6.4)	2 (4.3)	42 (89.3)	4 (1)	0 (0)	2 (4.3)	44 (93.6)	5 (1)	.05
Shared learning will help me to think positively about other professionals ^a	3 (6.4)	1 (2.1)	42 (89.4)	4 (1)	2 (4.3)	1 (2.1)	44 (93.6)	5 (1)	.05
Shared learning with other health care students will help me to communicate better with patients and other professionals ^c	4 (8.5)	3 (6.4)	40 (85.1)	4 (1)	2 (4.3)	2 (4.3)	42 (89.3)	5 (1)	.18
I would welcome the opportunity to work on small-group projects with other health care students ^{a,c}	5 (10.7)	6 (12.8)	35 (74.4)	4 (2)	7 (14.9)	2 (4.3)	37 (78.7)	4 (1)	.57
Shared learning will help to clarify the nature of patient problems ^a	3 (6.4)	3 (6.4)	40 (85.1)	4 (1)	3 (6.4)	3 (6.4)	41 (87.2)	4 (1)	.72
Shared learning before qualification will help me become a better team worker ^c	5 (10.7)	5 (10.7)	37 (78.6)	4 (1)	2 (4.3)	2 (4.3)	42 (89.3)	5 (1)	.03
I don't want to waste my time learning with other health care students ^c	33 (70.2)	6 (12.8)	8 (17)	2 (2)	36 (76.6)	3 (6.4)	7 (14.9)	1 (1)	.24
It is not beneficial for undergraduate health care students to learn together ^a	32 (68.1)	3 (6.4)	11 (23.4)	2 (2)	37 (78.7)	3 (6.4)	7 (14.9)	1 (1)	.04

(Continued)

Table 2. (Continued)

Statement	Before the Session				After the Session				p value ^e
	Disagree n (%)	Undecided n (%)	Agree n (%)	Score, Median (IQR)	Disagree n (%)	Undecided n (%)	Agree n (%)	Score, Median (IQR)	
Clinical problem-solving skills should only be learned with students from my own discipline ^a	31 (66)	4 (8.5)	11 (23.4)	2 (2)	35 (74.5)	5 (10.6)	7 (14.9)	2 (2)	.16
The function of nurses and therapists is mainly to provide support for doctors ^c	21 (44.7)	13 (27.7)	13 (27.6)	3 (2)	27 (57.5)	8 (17)	11 (23.4)	2 (2)	.33
There is little overlap between my future role and that of other health care professionals ^{a,c}	23 (48.9)	7 (14.9)	16 (34.1)	3 (2)	26 (55.3)	5 (10.6)	15 (32.0)	4 (3)	.42
I like to understand the patient's side of the problem ^{a,c}	2 (4.3)	4 (8.5)	40 (85.1)	5 (1)	2 (4.3)	3 (6.4)	41 (87.2)	5 (1)	.91
Establishing trust with my patients is important to me ^{b,d}	2 (4.3)	3 (6.4)	40 (85.1)	5 (1)	3 (6.4)	1 (2.1)	41 (87.2)	5 (1)	.77
I try to communicate compassion to my patients ^{a,c}	2 (4.3)	4 (8.5)	40 (85.1)	5 (1)	3 (6.4)	2 (4.3)	41 (87.2)	5 (1)	.82
Thinking about the patient as a person is important in getting treatment right ^{b,d}	2 (4.3)	4 (8.5)	39 (82.9)	5 (1)	1 (2.1)	1 (2.1)	43 (91.5)	5 (1)	.32
In my profession, you need skills in interacting and cooperating with patients ^{a,c}	2 (4.3)	3 (6.4)	41 (87.2)	5 (1)	3 (6.4)	1 (2.1)	42 (89.4)	5 (1)	.84

^aOne missing response from data collected before the session

^bTwo missing responses from data collected before the session

^cOne missing response from data collected after the session

^dTwo missing responses from data collected after the session

^ep value was calculated using Wilcoxon Signed Ranks test

Abbreviation: IQR = Interquartile Range

Table 3. Changes in Students' Overall Attitudes Toward Readiness for Interprofessional Learning After the Interprofessional Educational Session and Across the Three Subscales (N=47)

Subscale Score	Average ranking scores		p value ^a
	Before the session Median (IQR)	After the session Median (IQR)	
Overall attitude	82 (16)	84 (15)	.31
Subscale 1 Teamwork and collaboration	42 (8)	47 (10)	.09
Subscale 2 Professional identity	18 (6)	19 (5)	.11
Subscale 3 Patient centeredness	23 (5)	24 (5)	.83

^aWilcoxon Signed Ranks test

Abbreviation: IQR = Interquartile Range

Middle East. Tobacco smoking is one of the leading causes of mortality and morbidity in Qatar and the world. If global trends continue, smoking related deaths could rise from 6 million in 2011 to 8 million by 2030.¹⁸ Smoking cessation confers significant health benefits including decreased risk of cardiovascular diseases and smoking-related cancers.¹⁹ Studies have shown that adopting a multidisciplinary approach, including different health care professionals, can improve the effectiveness of smoking cessation interventions.^{20,21} Implementation of multidisciplinary smoking cessation services in Qatar is warranted.

The WHO code of practice on tobacco control highlights the significance of including tobacco control in the curricula of health institutions and education centers.²² The American Association of Colleges of Pharmacy (AACCP) has published a white paper describing the role of academic pharmacists in tobacco control.²³ Clinical practice guidelines for treating tobacco use and dependence by the

U.S. Department of Health & Human Services state that all health care professional students should be trained in tobacco intervention activities. Education and training in tobacco dependence treatment need to be included in the curricula of all health care disciplines.⁶

This study focused on the impact of a smoking cessation activity on students' attitudes toward IPE. Based on the study results, the students demonstrated positive changes in their interprofessional attitudes from pre- to post-IPE activity in the areas related to teamwork, communication skills, professional roles, and the benefits of multidisciplinary learning. The majority of students indicated that the IPE activity had increased their knowledge of smoking cessation and improved their understanding of addressing smoking cessation in a collegial and collaborative manner. Many students also mentioned that this activity helped them to understand their own role and that of other health care professional students when it comes to smoking cessation.

Figure 1. Health Professional Students' Experience with the Tobacco Cessation IPE Session (N=47).

Evidence suggests that collaborative work may improve patient care, decrease health care costs, decrease medical errors and reduce the length of a hospital stay.²⁴ Communication is an essential element for effective interprofessional teamwork. It can foster greater respect for each discipline.²⁵ Exchanging information about the roles and responsibilities of different team members and learning about optimal collaboration for patient care can help in the training of health care professionals. Sources such as the Institute of Medicine (IOM) and the AACP Professional Affairs Committee indicated that when health care professionals communicated effectively and understood the role of each team member, the quality and safety of patient care improved.²⁴⁻²⁶

The accreditation guidelines and standards of many health care professions emphasize the need for collaborative learning in education. For instance, Qatar University College of Pharmacy and the College of North Atlantic-Qatar are both accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP). The CCAPP had recently added new standards and guidelines that outlined the need for IPE in pharmacy curricula.²⁷ The establishment of the College of Pharmacy Interprofessional Education Committee (IPEC) “to provide guidance and support in implementing interprofessional education within the pharmacy curriculum at the College of Pharmacy in Qatar University and other health care profession programs in Qatar including medicine, nursing and health sciences” is a further driving force. Currently, formal IPE initiatives are coordinated and organized through IPEC with representatives from different health care academic settings.

The results from this study are an impetus for continued incorporation of public health topics in IPE initiatives in health care curricula in Qatar’s educational institutions. Generalizing the study results to other health care areas is plausible, as the survey questions did not focus on smoking but rather on students’ perceptions toward IPE. This IPE activity is a structured model that health care educational institutions in Qatar could adapt to target highly prevalent health care conditions in the country such as cardiovascular and respiratory diseases, as well as cancer.

Potential limitations of this study include test-retest bias. Students might recall the test survey instrument of measuring attitudes before and after IPE activity. The small sample size, the short duration of this one IPE activity (3 hours) and high level of readiness prior to the session likely resulted in the lack of significant differences in attitudes after the IPE activity. Moreover, although the response rate was relatively high, there was unequal participation from all the health care professions

which may have influenced the results. A further limitation could have been bias by some of the study investigators who were also facilitators in the IPE activity. Consequently, students may have responded more positively to the questions on the survey instrument. Lastly, the results of this study were mainly descriptive in nature and other forms of qualitative data collection, such as focus group, would have been desirable to explore the attitude of the students further.

CONCLUSION

IPE is an emerging trend in teaching health care professionals in the Middle East, encouraged and fostered by the guidelines from the WHO. Using a health promotion topic for an IPE session reinforces key information learning in combination with the team approach. Health care professional students perceived IPE positively, believing that it enhanced their communication skills, collaboration and appreciation of professional roles. They also felt that IPE as a concept was beneficial for overall learning. This study has implication on developing effective methods to implement IPE in various health professional education curricula.

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REFERENCES

1. CAIPE. Interprofessional education – a definition. 2002; Homepage of Centre for the Advancement of Interprofessional Education (CAIPE). <http://www.caipe.org.uk/resources/>. Accessed June 4, 2015.
2. World Health Organization. *Framework for Action on Interprofessional Education & Collaborative Practice*. Geneva, Switzerland: World Health Organization; 2010. http://www.who.int/hrh/resources/framework_action/en/. Accessed June 4, 2015.
3. Abu-Rish E, Kim S, Choe L, et al. Current trends in interprofessional education of health sciences students: a literature review. *J Interprof Care*. 2012;26(6):444-451.
4. Buring SM, Bhushan A, Brazeau G, Conway S, Hansen L, Westberg S. Keys to successful implementation of interprofessional education: learning location, faculty development, and curricular themes. *Am J Pharm Educ*. 2009;73(4):Article 60.
5. Rigotti NA, Bitton A, Richards AE, Reyen M, Wassum K, Raw M. An international survey of training programs for treating tobacco dependence. *Addiction*. 2009;104(2):288-296.
6. Fiore M, Jaén C, Baker T. Treating tobacco use and dependence: 2008 update. Rockville, MD: US Dept. of Health and Human Services, Agency for Healthcare Research and Quality.
7. Hudmon KS, Corelli RL, Chung E, et al. Development and implementation of a tobacco cessation training program for students in the health professions. *J Cancer Educ*. 2003;18(3):142-149.
8. Hudmon KS, Bardel K, Kroon LA, Fenlon CM, Corelli RL. Tobacco education in US schools of pharmacy. *Nicotine Tob Res*. 2005;7(2):225-232.

9. Schmelz AN, Nixon B, McDaniel A, Hudmon KS, Zillich AJ. Evaluation of an online tobacco cessation course for health professions students. *Am J Pharm Educ.* 2010;74(2):Article 36.
10. Corelli RL, Kroon LA, Chung EP, et al. Statewide evaluation of a tobacco cessation curriculum for pharmacy students. *Prev Med.* 2005;40(6):888-895.
11. Richmond RL, Debono DS, Larcos D, Kehoe L. Worldwide survey of education on tobacco in medical schools. *Tob Control.* 1998;7(3):247-252.
12. Ferry LH, Grissino LM, Runfola PS. Tobacco dependence curricula in US undergraduate medical education. *JAMA.* 1999; 282(9):825-829.
13. Roddy E, Rubin P, Britton J. A study of smoking and smoking cessation on the curricula of UK medical schools. *Tob Control.* 2004;13(1):74-77.
14. Pati S. Putting tobacco cessation and prevention into undergraduate medical education. *Int J Prev Med.* 2014;5(1):69-75.
15. Geller AC, Powers CA. Teaching smoking cessation in U.S. Medical schools: a long way to go. *Virtual Mentor.* 2007;9(1):21-25.
16. El-Zubeir M, Rizk DE, Al-Khalil RK. Are senior UAE medical and nursing students ready for interprofessional learning? Validating the RIPL scale in a Middle Eastern context. *J Interprof Care.* 2006; 20(6):619-632.
17. Johnson B, Abi Hayla M, Jewesson P, et al. Core Interprofessional Education (IPE) health competencies: the process of adaptation and implementation for a local environment. *J Local Glob J Health Sci.* 2015;1(3).
18. World Health Organization. WHO Report on the Global Tobacco Epidemic. 2011; http://www.who.int/tobacco/global_report/2011/en/. Accessed June 4, 2015.
19. Quitting Smoking. 2015; http://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/quitting/index.htm#benefits. Accessed June 4, 2015.
20. Hurt RD, Dale LC, Fredrickson PA, et al. Nicotine patch therapy for smoking cessation combined with physician advice and nurse follow-up. One-year outcome and percentage of nicotine replacement. *JAMA.* 1994;271(8):595-600.
21. Gorin SS, Heck JE. Meta-analysis of the efficacy of tobacco counseling by health care providers. *Cancer Epidemiol Biomarkers Prev.* 2004;13(12):2012-2022.
22. Code of practice on tobacco control for health professional organizations. 2015; <http://www.who.int/tobacco/communications/events/codeofpractice/en/>. Accessed June 4, 2015.
23. McBane SE, Corelli RL, Albano CB, et al. The role of academic pharmacy in tobacco cessation and control. *Am J Pharm Educ.* 2013;77(5):Article 93.
24. Greiner A, Knebel EE. *Health Professions Education: A Bridge to Quality*. Washington, DC: National Academies Press; 2003.
25. Lowry LW, Burns CM, Smith AA, Jacobson H. Compete or complement? An interdisciplinary approach to training health professionals. *Nurs Health Care Perspect.* 2000;21(2): 76-80.
26. Kroboth P, Crismon LM, Daniels C, et al. Getting to solutions in interprofessional education: Report of the 2006-2007 Professional Affairs Committee. *Am J Pharm Educ.* 2007;71 (Suppl):S19.
27. Accreditation standards for the first professional degree in pharmacy programs. 2014; http://ccapp-accredit.ca/wp-content/uploads/2016/01/CCAPP_accred_standards_degree_2014.pdf. Accessed June 6, 2015.