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“Implementing the Framework Convention on Tobacco Control Article 14 in Armenia through Advocacy and Training”

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1. Abstract

Abstract (maximum 250 words)

Purpose: To develop a national capacity in implementing the Framework Convention on Tobacco Control (FCTC) Article 14 in Armenia.

Scope: Although FCTC Article 14 highlights that the parties/countries should strengthen or create a training capacity to arm physicians with the evidence-based smoking cessation counselling and treatment knowledge and skills, no formal smoking cessation training had been designed for primary healthcare providers in Armenia, a country with one of the highest smoking prevalence among adult males.

Methods: Center for Health Services Research and Development (CHSR) within the Gerald and Patricia Turpanjian School of Public Health at the American University of Armenia designed, implemented and evaluated the first smoking cessation training program for practicing primary healthcare professionals in Armenia. The project employed a quasi-experimental design to evaluate the overall effectiveness of the training.

Results: The results of the evaluation demonstrated high satisfaction with the content, design and delivery process of the training, as well as significant improvement in physicians' knowledge and self-reported practice in tobacco dependence treatment four months after the trainings. Paired analysis of baseline and follow-up data revealed improvement in the intervention group physicians' knowledge score (10.23 vs.12.46, $p<0.001$), medication knowledge score (3.23 vs.5.51, $p<0.001$), practice regarding all components of the 5A's model (10.34 vs. 14.96, $p<0.001$) and confidence in providing tobacco dependence treatment (4.44 vs.6.28, $p<0.001$). The changes in the control group were not statistically significant. Based on the study findings, the research team developed a set of recommendations.

Key Words: Armenia, tobacco dependence treatment, trainings, primary healthcare physicians

2. PURPOSE

The project aimed to develop a national capacity in implementing the Framework Convention on Tobacco Control (FCTC) Article 14 in Armenia through:

a) Building smoking cessation training capacity of the medical faculty on evidence-based methods and tools for teaching physicians the basic skills for working with smokers and counselling them on smoking cessation;

b) Training primary healthcare physicians to provide them with knowledge and skills to provide smoking cessation counselling to smokers;

c) Developing a White Paper: “Mapping the FCTC Article 14 Implementation in Armenia” and discussing it with the health policymakers and other stakeholders;

d) Strengthening the support from the key stakeholders, including the policy and decision making community and the institutions of medical education to sustain the project outcomes and advocate for a system-wide change.

3. SCOPE

The tobacco epidemic is one of the biggest public health threats killing around 6 million people per year worldwide (1). Eastern Europe has the highest smoking rates in Europe, yet tobacco dependence treatments are virtually unavailable to smokers in many Eastern European countries (2). The smoking rate among the Armenian men is one of the highest in the European region (63% in 2010) (3,4). Smoking is also remarkably prevalent among Armenian physicians (48.5% -male, 12.8% -female) and medical students (50.0%-male, 7.7% -female) (5). Armenia was the first former soviet union country to accede to the World Health Organization (WHO) FCTC (November 2004); soon after that Armenia adopted a national tobacco control law to ban smoking in healthcare, education, culture facilities and public transport (6). Armenia also banned tobacco advertising on TV and radio (2002) and on billboards (2006) and subsequently introduced larger (30%) health warnings on cigarette packs (2006). One of the areas where Armenia’s progress is less than satisfactory is the implementation of the FCTC Article 14. The Ministry of Health (MOH) approved “Guidelines for tobacco cessation counseling and treatment” for primary healthcare physicians in 2009, however no further steps were undertaken to enable physicians to implement these guidelines.

The FCTC Article 14 highlights the role of healthcare workers in smoking cessation stating that:

- "Healthcare workers should play a central role in promoting tobacco cessation and offering support to tobacco users who want to quit.
- All healthcare workers should be trained to record tobacco use, give brief advice, encourage a quit attempt, and refer tobacco users to specialized tobacco dependence treatment services where appropriate.
- Tobacco control and tobacco cessation should be incorporated into the training curricula of all health professionals and other relevant occupations both at pre- and post-qualification levels, and in continuous professional development" (6).

Studies suggest that trained physicians are about twice as likely to offer assistance to their patients who smoke compared to non-trained physicians (7,8). Yet, inadequate training on tobacco dependence and its treatment is one of the major obstacles to acquiring consistent and effective treatment of tobacco dependence (9,10). Surveys indicated that up to 30% of medical students in Eastern European countries use tobacco products (11). This is another important barrier to the provision of quitting assistance, as physicians who smoke are less likely to advise patients to quit.

Physicians play a key role to initiate and promote smoking cessation. Smoking is a chronic disease and repeated, opportunity-based interventions are most effective in addressing physical dependence and modifying deeply ingrained patterns of beliefs and behavior (12). The US Clinical Practice Guideline for Treating Tobacco Use and Dependence recommends that tobacco use should be addressed at every patient visit using the 5 A's model (13). The 5 A's model is an evidence-based approach to increase smoking cessation. The 5 A's methodology has been used in a variety of smoking cessation intervention programs (14). According to this model, clinicians should *ask* about smoking status of patients at each visit and document smoking status in the patient's medical record. Physicians should then deliver personal *advice* to quit smoking and *assess* the willingness to make a quit attempt. If the patient is willing to quit, the clinician should *assist* him/her in making a quit attempt by offering medication and providing or referring for counseling or additional treatment, and *arrange* for follow-up contacts to prevent relapse. If the patient is unwilling to make a quit attempt, the physician should provide a motivational intervention and arrange to address tobacco dependence at the next clinic visit (13,14).

Although FCTC Article 14 highlights that the parties/countries should strengthen or create a training capacity to arm physicians with evidence-based smoking cessation counselling and treatment knowledge and skills, no formal smoking cessation training had

been designed for primary healthcare providers in Armenia. In order to address this gap Center for Health Services Research and Development (CHSR) within Gerald and Patricia Turpanjian School of Public Health (SPH) at the American University of Armenia (AUA) implemented a project aimed to develop a national capacity in implementing the FCTC Article 14 in Armenia.

4. METHODS

Formative research - The majority of smoking cessation treatment approaches is based on the evidence from high-income countries that have different socioeconomic background and healthcare system. Therefore, the application of the existing best practices in a transition country such as Armenia (and perhaps in other low or lower-middle income countries) requires a careful examination and a thorough adjustment of the approaches to be used in knowledge transfer. This necessitated a formative research during the development of the training course including 1) a qualitative research (15) with future beneficiaries to clarify the perceived needs for training (see the full report [here](#)) and 2) a pharmaceutical market research (16) to determine availability, affordability, and prices of the smoking cessation drugs (see the full report [here](#)). The results of the formative research were extensively used during the training development/adaptation.

Training materials - A 2-day training curriculum was developed by the research team and included (a) didactic sessions on tobacco epidemics; neurobiology of nicotine addiction; the role of primary healthcare professionals in smoking cessation (5 A's); motivational interviewing; pharmacotherapy for smoking cessation; relapse prevention; and (b) interactive sessions including case studies, role play and film demonstrations, as well as demonstration of the breath carbon monoxide (CO) monitors as an example of a motivational visual aid in smoking cessation counseling. The film "30 seconds" produced by the English National Centre for Smoking Cessation and Training was used to highlight the importance of delivering a brief intervention to smokers by primary healthcare physicians (17). All the training materials were developed based on evidence-based international resources and were adapted to the local context using the findings of the formative research conducted in the frame of this project. The Ministry of Health accredited the training curriculum and designated five continuing medical education (CME) credits to the physicians that were involved in the training sessions.

Training facilitators - Smoking cessation trainings were conducted by the CHSR's senior researcher Arusyak Harutyunyan, MD, MPH and research assistant and clinical psychologist Armine Abrahamyan, MS, MPH, and the senior lecturer from the Department of

Family Medicine, Yerevan State Medical University Armine Danielyan, PhD. Dr. Arusyak Harutyunyan, the Principal Investigator of this project, is the only expert in Armenia that has the Mayo Clinic’s provisional Tobacco Treatment Specialist Certificate.

Training participants - The training participants (the intervention group) were identified through the existing network of family physicians’ association with assistance from Yerevan and Gyumri Municipalities’ Health Departments. Overall, 58 primary healthcare physicians (family physicians and general practitioners) from 18 polyclinics in Yerevan (n=40) and Gyumri (n=18) participated in the 2-day trainings (two trainings in Yerevan and one training in Gyumri). Control group participants (n=51) were selected by convenience among those physicians who were available at the time of visits to the polyclinics (Yerevan (n=36) and Gyumri (n=15)). Trainings were conducted in May, 2016. Upon completion of the study, all control group participants were invited to participate in the tobacco dependence treatment seminars (a shorter version of the trainings). Overall, 37 primary healthcare physicians from 8 polyclinics in Yerevan and Gyumri participated in the seminars and received all the materials. An additional 12 control group participants (Yerevan (n=9) and Gyumri (n=3¹)) who did not attend the seminars received only the training materials.

Evaluation design, study instruments and data collection - The project employed a quasi-experimental design to evaluate the overall effectiveness of the intervention/trainings (see the full report [here](#)).

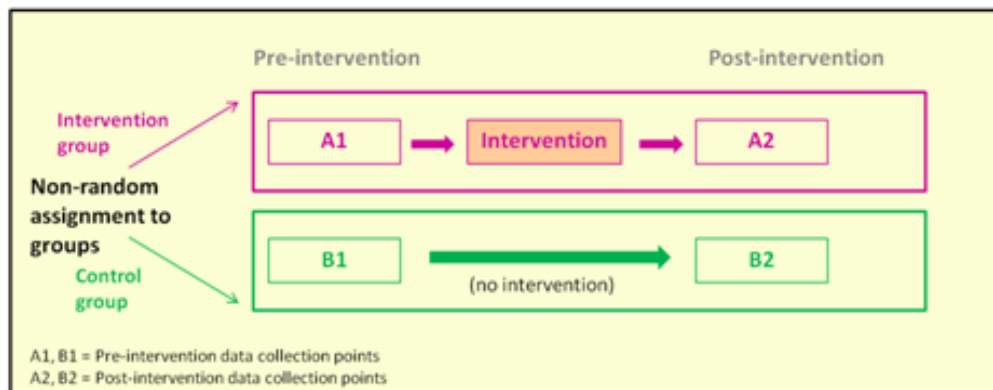


Figure 1. Evaluation design

For the evaluation of the intervention/trainings, the research team utilized three measurements: 1) training expectation, 2) training improvement, and 3) training effectiveness.

¹ One participant did not complete the follow-up KAP survey.

Evaluation

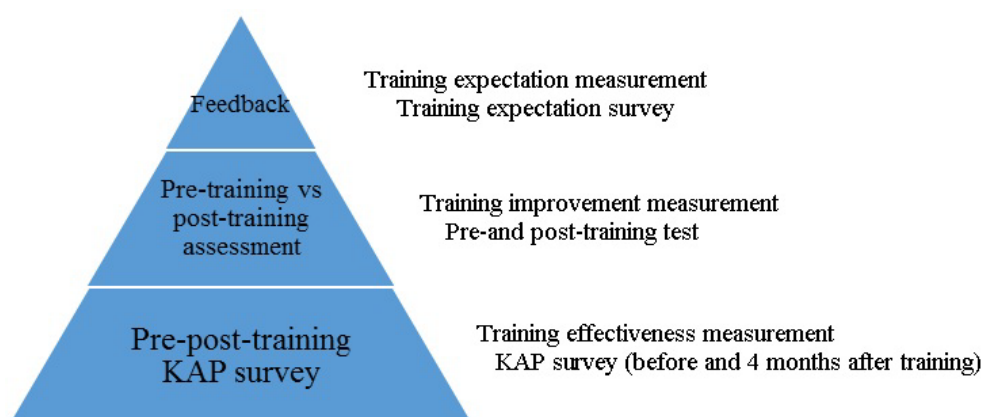


Figure 2. Training evaluation

1) *Training expectation survey* – Upon completion of the training (at the end of the 2nd day), participants were asked to complete a short training expectation evaluation questionnaire to assess their satisfaction with the training course. The project team developed the questionnaire based on widely used evaluation questionnaires and translated/adapted it into Armenian (18). This evaluation questionnaire contained 20 multiple choice and 6 open-ended questions. The mean duration of completing this evaluation form was 10 minutes.

2) *Training improvement survey* - In order to measure the training impact on the physicians' knowledge improvement, the pre- and post-training test was developed based on the training materials and contained 14 multiple-choice questions. Intervention group participants completed the pre-training test at the beginning of the 1st day of the training and the post-training test was administered upon completion of the training (at the end of the 2nd day). Both training tests were evaluated by the research team and the answers were discussed with the participants at the end of the training. Each participant received individual feedback on training improvement at the end of the training. The mean duration of completing the pre- and post-training tests was 12 minutes.

3) *Training effectiveness survey* - The study team utilized a self-reported, structured questionnaire to evaluate primary healthcare physician's knowledge, attitude and practice (KAP) regarding smoking cessation. The KAP survey questionnaire had five main sections including: primary healthcare physicians' knowledge, attitudes, and practices regarding smoking cessation, as well as questions on physicians' confidence and potential obstacles in providing smoking cessation counseling. The survey questionnaire also included the questions on socio-demographic characteristics of the study participants. The mean

duration of completing the KAP questionnaire was 20 minutes. The KAP questionnaire was administered among both the intervention and control group participants during the baseline (pre-intervention) and follow-up (post-intervention) data collections. The intervention group participants completed the baseline KAP questionnaire at the beginning of the 1st day of the training. The trained interviewer visited the control group participants at their polyclinics and asked them to complete the questionnaire. The follow-up KAP survey was conducted four months after the baseline measurements. Trained interviewers visited polyclinics and distributed self-administered questionnaires to the intervention group participants at their convenience. The control group participants were asked to complete the follow-up KAP questionnaire before tobacco dependence treatment seminars. The trained interviewers visited those control group participants who were not present at the seminars. They completed the KAP questionnaires at the time and place convenient for them and then received the training materials.

Data management and analysis - Single data entry was performed using SPSS 22.0 statistical package followed by logical and range checks to ensure the accuracy of data. Statistical analysis was done using SPSS 22.0 and STATA 13.0 statistical software. The study team used descriptive statistics to summarize the participant's characteristics. The mean, median, standard deviation (SD) and corresponding ranges were generated for the continuous variables and categorical variables were represented by percentages. Simple comparative analysis for categorical data included Pearson's Chi-square (χ^2) tests and Fisher's exact test (Yerevan vs. Gyumri; pre- vs. post- training answers, intervention vs. control groups) and for continuous variables, independent t-test (intervention vs. control, Yerevan vs. Gyumri), paired t-test (pre- vs. post- training scores, baseline vs. follow-up scores). In all analyses, statistical significance was accepted at $p < 0.05$.

Training expectation evaluation questionnaire included both "close-ended" and "open-ended" questions. "Open-ended" questions allowed participants to provide specific feedback. The open-ended questions were analyzed using content analysis (19). The content analysis involves both manifest (visible, obvious components) and latent (interpretation of the underlying meaning of the text) content (20,21). In the first step of the analysis, the answers were read by the researchers. The manifest messages that occurred more than 5 times were "coded" and sorted according to content and meaning (20). The sets of codes were included into categories. The manifest messages that occurred less than 5 times were included in the "Other" category. In the second step, a binary index (yes/no) was created with the purpose of exploring whether the created categories were present or absent in the individual's answers.

Training improvement survey questionnaire contained 14 multiple-choice questions with only one correct answer. In order to calculate the overall pre- and post-training test scores each correct answer was scored as one point, while incorrect or missing responses were scored as zero, which resulted in the maximum possible score of 14 points and a minimum score of 0.

The analysis of *training effectiveness survey* (KAP survey) data was performed by comparing the intervention and control groups, as well as baseline and follow-up data by both groups. Knowledge score was calculated by giving 1 point to correct answers, and 0 to wrong, “do not know” or missing answers. The range of knowledge score was 0 to 16. Attitude score was calculated by awarding 1 point to the desired answer and 0 to the wrong or missing answers. The higher the attitude score indicated more positive attitude toward smoking cessation. The range of attitude score was from 0 to 18. Practice score was calculated in two ways. First, the practice score 1 was calculated by giving 1 point if the respondent mentioned that he/she always includes recommended procedures in everyday practice and 0 if he/she answered “never”, “sometimes” or did not answer to that question. The practice score 2 was calculated by giving 1 point to “always” answers, 0.5 point to answered “sometimes” and 0 to those who answered “never” or did not answer to that question. The range for practice scores was from 0 to 28. During the calculation of the confidence score 1 point was awarded to those “confident” answers and 0 to “not at all confident” or “a little confident” answers. The range of confidence score was 0 to 8. In addition, we calculated the percent score to express the mean score as a percentage of the maximal possible score. We performed paired analysis to compare the baseline and follow-up data. Only those who completed both baseline and follow-up surveys were included in the paired analysis (57 pairs-intervention group, 48 pairs-control group). The McNemar’s test was used for matched data with binary outcomes and Wilcoxon signed-rank test for matched data with multiple levels. During the paired analysis the multiple level answers options of knowledge questions were collapsed into binary levels: “do not know” responses were combined with the wrong answers and coded as “0”, and right responses were coded as “1”. For example, for the statement “Patients should only be asked about their smoking history if they have a smoking related disease/ illness”, “true” response (wrong answer) and “do not know” answers were combined and coded as “0”, “false” (right answer) was coded as “1”.

Ethical considerations - The AUA Institutional Review Board approved that the study was in compliance with locally and internationally accepted ethical standards.

5. RESULTS

Socio-demographic characteristics of participants - Overall, 108 participants completed the baseline KAP survey² (intervention group - 52.78% (n=57) and control group - 47.22% (n=51)). The mean age of the participants was 53.19 (SD=10.19) and the majority were females (97.22% (n=105)). On average the participants worked as physicians for 25.41 (SD: 12.80) years. The majority of the participants (68.52%, n=74) mentioned that they did not participate in smoking cessation trainings prior to this intervention. The intervention and control groups were not statistically significant different in terms of baseline socio-demographic characteristics.

Results from the training expectation survey - The participants were asked to share their opinions on the extent of which the training course met its objectives. More than 80% reported that the training course strongly met all its objectives and none of them mentioned that the course did not meet any of its objectives. According to the participants the training course strongly met its objective in a) providing appropriate knowledge on smoking hazards and smoking related disease (92.98 %, n=53); b) identifying the advantages of quitting (98.25%, n=56); c) understanding the neurobiology of tobacco dependence (92.98%, n=53); d) defining the role of primary healthcare physicians in smoking cessation (94.74%, n=54), e) providing smoking cessation counselling depending on the patients' stage of motivation (87.50%, n=35); f) prescribing smoking cessation drugs (87.72%, n=50); and g) increasing self-confidence and commitment to support patients to quit (80.70%, n=46).

Participants were asked to share their impressions with the design and delivery process of the trainings. The great majority of participants strongly agreed that the training course was well-organized (92.98 %, n=53), the training enhanced their knowledge and skills in smoking cessation (91.23%, n=52), and that the trainers were knowledgeable about the training topics (94.74%, n=54). Most of the participants (68.42%, n=39) strongly agreed that they expect to use the knowledge and skills gained from the training, while the rest of them (29.82%, n=17) agreed with this statement. All the participants either agreed (10.53%, n=6) or strongly agreed (87.72%, n=50) that they were satisfied with the training course.

The "open ended" questions allowed participants to provide specific feedback on positive and negative aspects of the training as well as skills or lessons learned during the training. The most frequently reported positive aspects of the training included clear content of the materials (38.18%, n=21), teaching style (16.36%, n=9), delivery of up-to-date

² One intervention group participant joined the training when the KAP survey was already completed

information (14.55%, n=8), high quality of trainers (10.91 %, n=6) and proper organization of the training (10.91 %, n=6). While reporting about negative aspects of the training, the shortage of time was identified as the main negative aspect (32.50 %, n=13).

When asked about three skills or lessons learned during the training that would be applied at their worksite/practice, participants identified motivational interviewing (61.40 %, n=35), pharmacotherapy (58.93%, n=33), and counselling skills (15.79%, n=9). Only one primary healthcare physician from Yerevan (2.50 %, n=1) and three physicians from Gyumri (17.65%, n=3) reported that they were eager to use CO monitors in their daily practice.

Results from the training improvement survey - The pre-training test revealed varying degree of knowledge related to different components of the tobacco dependence treatment. The majority of the participants (96.55%, n= 56) correctly agreed with the statement that withdrawal symptoms reach their maximum intensity in the first 24 to 72 hours. About three-quarters of the participants (74.14%, n= 43) correctly recognized the definition of the ex-smoker (quitted smoking at least six months ago) and 67.24%, n= 39) identified from the listed options the combination nicotine replacement therapy as the most effective pharmacotherapy for treating tobacco dependence. Participants' knowledge regarding the duration of craving and correct order of 5A's components during the pre-training test was low. For instance, more than half of the participants (55.17%, n=32) wrongly chose the correct order of the 5A's components as: "ask, assess, advice, assist, arrange" rather than "ask, advice, assess, assist, arrange" (13.79%, n=8) and 55.17% (n=32) wrongly believed that cravings usually last 24-72 hours, rather than 3-5 minutes (15.52%, n=9). However, the percentage of correct answers to these questions improved about four times after the trainings (68.97% and 72.41%, respectively). During the pre-training test only one respondent correctly answered the question regarding the mechanism of Cytisine. However, during the post-training test 72.41% of primary healthcare physicians correctly answered this question.

During the pre-training test about one third of the participants correctly recognized the definition of relapse (34.48%, n=20), knew that the person should not eat or drink 15 minutes before or during the use of the nicotine gum (34.48%, n=20), and correctly identified that nicotine is not a carcinogen (29.31%, n=17). After the training, the proportion of correct answers to these three questions significantly increased by about three-fold: 91.38%, 93.10%, and 84.48%, respectively. The knowledge on motivational interviewing, which aims to promote initial motivation for smoking cessation, did not change significantly after the training (43.10 % to 48.28 % respectively, p=0.164). The two-fold statistically significant

increase in knowledge was observed for questions regarding Forgerstrom test for assesment of the nicotine dependence level, the side effects of Varenicline, and the most effective method for treating nicotine dependence (39.66% vs. 91.38%, 41.38% vs. 91.38%, 51.72% vs. 96.55%, respectively). During the pre-training test about half of the participants correctly answered that 50-60% of smokers die because of tobacco-related diseases. However, the knowledge improvement on this after the training was marginally statistically significant (50.00% vs. 67.24%, $p=0.072$).

The mean score for the pre-training test was 5.93 (SD=2.01) with the median of 6 while the mean score for the post-training test was 11.29 (SD=1.83) with the median of 11. The study found a statistically significant difference in pre- and post-training tests scores. On average, the mean test score increased by 5.36 (5.93 vs. 11.29) with SD=2.34 ($p \leq 0.001$). The increase of the mean test score was statistically significant in all three groups 4.94 (6.26 vs. 11.21), 5.50 (6.33 vs. 11.83), 5.61(5.28 vs. 10.90) respectively, $p \leq 0.001$).

Results from the training effectiveness survey

Participants' general knowledge about tobacco dependence treatment - At baseline most of the participants (82.41%, $n=89$) knew that patients should not only be asked about their smoking history if they have a smoking-related disease and that smoking cessation advice given by a health professional to a patient increases the patient's chances of quitting (89.81%, $n=97$). On the other hand, the majority of them did not know that smoking cessation advice should be linked to the patient's current health/illness (87.04%, $n=94$). Physicians knew (79.63%, $n=86$) that it is recommended to advise elderly patients to quit smoking as the damage of smoking can be reversed, but there was a statistically significant difference between the intervention and control groups in this regard (85.96% vs. 72.55%, $p=0.019$). Most of the participants (92.59%, $n=100$) knew that smokers who quit smoking at any age reduce their risk of premature death and they (84.26%, $n=91$) recognized smoking as a chronic disorder associated with relapse. On average, out of 16 knowledge questions 62.38% (mean knowledge score=9.98) were answered correctly. Overall, at baseline, the mean knowledge score was 9.98 (SD: 2.43) and there was no significant difference between the intervention and groups.

The paired analysis revealed that the mean knowledge score significantly improved from baseline to follow-up in the intervention group (10.23 vs. 12.46, $p<0.001$) but not in the control group (9.56 vs. 8.85, $p=0.529$). There was a statistically significant increase in the proportion of the intervention group physicians that answered correctly to most of the knowledge questions. For instance, at follow-up, significantly more intervention group

physicians know that counselling includes assisting patients to set a quit date (61.40 % vs. 82.46%, $p=0.007$), most of the withdrawal symptoms from smoking cessation disappear within 4 weeks of abstinence (57.89% vs. 92.98%, $p<0.001$), follow-up appointments should be made for the patients who are willing to stop smoking within the first week after quitting (78.95% vs. 91.23%, $p=0.021$), smoking is a chronic disorder associated with relapse (85.96% vs. 96.49%, $p=0.034$), quitting smoking at any age reduces patients' risk of premature death (89.47% vs. 98.25, $p=0.014$) and that nicotine replacement therapies are not contraindicated for people with cardiovascular diseases (42.11% vs. 80.70%, $p<0.001$).

Pharmacotherapy knowledge - Out of 7 questions related to smoking cessation medications on average only 39.95% of questions were answered correctly at the baseline (mean medication knowledge score=2.8) . About three-quarters of the participants (74.07%, $n=80$) knew that nicotine gum and patches are recommended for the treatment of nicotine dependence in smoking patients. On the other hand, only few participants (12.04%, $n=13$) mentioned Cytisine and Bupropion as recommended medication for treatment of nicotine dependence. At the baseline the intervention group physicians were significantly more knowledgeable about smoking cessation pharmacotherapy than control group physicians (3.23 vs. 2.31, $p=0.002$). At follow-up, the mean medication score improved significantly in the intervention group (3.23 vs. 5.51, $p<0.001$) and did not change in the control group. In the intervention group, the knowledge improvement was observed in regards to all listed medications, while in the control group there was statistically significant improvement only in terms of knowledge on nicotine lozenges as smoking cessation medication (31.25% vs. 50.00%, $p=0.025$).

Participants' attitude towards providing tobacco dependence treatment - Overall, at baseline participants demonstrated a positive attitude towards tobacco dependence treatment with an average attitude score of 15.84 (out of max possible score of 18). The percent score showing positive agreement with the statements was 88.01%. The intervention and control groups were significantly different in terms of baseline attitude scores (16.54 vs. 15.06, $p<0.001$). Most of the participants considered nicotine dependence as a chronic relapsing disease (81.48%, $n=88$) and agreed that routinely asking about patient's smoking status is their responsibility (93.52%, $n=101$) but the answers were statistically different between the intervention and control groups (89.47% vs. 72.55, $p=0.015$, 100.00% vs. 86.27%, $p=0.013$ respectively). Participants also demonstrated high agreement with the statements that: they serve as a role model for their patients and the public (93.59%, $n=101$), it is their responsibility to motivate patients to stop smoking (91.67%, $n=99$), counseling on harmful

effects of smoking usually helps with smoking cessation (91.67%, n=99), they should help patients who are motivated to stop smoking (93.52%, n=101), and that they should discuss relapse with patients (94.44%, n=102). Most of the participants (80.56%, n=87) disagreed that their patients' acute health problems take precedence over smoking cessation counseling/advice and there was a statistically significant difference between the intervention and control group (91.23% vs. 68.63%, p=0.001). Most of the participants disagreed that quitting is an individual choice and it is not up to them to advise a patient to quit smoking (93.52%, n=101). They also disagreed that they do not have sufficient time to provide advice and counseling to all their patients who smoke during routine consultations (76.85%, n=83), but there was a statistically significant difference between the intervention and control groups (87.72% vs. 64.71%, p=0.011).

The comparison of the baseline and follow-up attitude scores did not reveal a statistically significant difference either in the intervention group (16.54 vs. 16.65, p=0.681) or in the control group (15.21 vs. 15.81, p=0.194), which might be due to high baseline scores. There was a significant improvement in the intervention group at the follow-up regarding considering nicotine/tobacco dependence as a chronic relapsing disease (89.47% vs. 98.25%, p=0.046) and considering as their responsibility to motivate patients to stop smoking (91.23% vs. 98.25%, p=0.046). Interestingly, at follow-up a higher proportion of intervention group participants mentioned about not having sufficient time to provide advice and counseling to all patients who smoke during routine consultations (12.28% vs. 35.09%, respectively, p=0.002).

Participants' practice related to tobacco dependence treatment - Overall, out of 28 practice questions on average only 35.43% items were always performed in physicians' daily practice (mean practice score 1=9.92). The baseline practice scores 1 and 2 were not significantly different between the intervention and control groups at baseline.

At baseline most of the physicians mentioned about always ***asking*** about patients' smoking status (74.07%, n=80), number of cigarettes smoked per day (70.37%, n=76), but only 29.63%, n=32) were always recording patients' smoking history in the medical records. A relatively high proportion of participants were always ***advising*** a smoking patient to quit (87.96%, n=95). About half of participants mentioned about always advising to stop abruptly (51.85%, n=56) and 60.19% (n=65) were always advising patients to reduce the number of daily cigarettes. Most of the participants (73.15%, n=79) mentioned about always asking if the patients intend to stop smoking and 53.70% (n=58) were always ***assessing*** patients willingness to quit. In regards to ***assisting*** in smoking cessation, most of the participants

(76.85%, n=83) were always discussing the risks of smoking and benefits of smoking cessation with patients. However, many participants were never giving self-help materials to the patients (62.04%, n=67) and were never using pharmacological aids with patients (37.04%, n=40). A majority of the participants were never prescribing Cytisine (54.63%, n=59), Nicotine gum (49.53%, n=53), and Varenicline (84.26%, n=91). Less than half of the participants (41.67%, n=45) mentioned that they never **arrange** a follow-up appointment to review the progress of patients on quitting smoking (Table 13).

The mean practice scores 1 and 2 improved significantly from baseline to follow-up in the intervention group (10.34 vs. 14.96, $p<0.001$ and 14.30 vs. 18.97, $p<0.001$, respectively) but not in the control group (10.03 vs. 10.25, $p=0.739$ and 13.94 vs. 14.88, $p=0.117$, respectively). The comparison of participants' of baseline and follow-up practice in providing tobacco dependence treatment was conducted according to the 5A's model (13). The results indicated statistically significant improvement in the intervention group regarding all components of the 5 A model.

Ask. At follow-up there was no significant difference in the intervention group physician's practice regarding always asking about patients' smoking status (78.95% vs. 77.19%, $p=0.923$). However, higher proportion of the intervention group physicians reported about always asking more details about smoking history: the time of the first smoked cigarette (38.60% vs. 63.16% , $p=0.003$), patients' smoking behaviour at home (70.18% vs. 75.44%, $p=0.051$), and patients' previous quit attempts (63.16% vs. 80.70%, respectively, $p=0.019$).

Advise. At follow-up a higher proportion of the participants, in both the intervention and control groups, reported about always advising smoking patients on the need to quit, but the difference was statistically significant only in the intervention group (91.23% vs. 100.0%, $p=0.025$).

Assess. A significantly higher proportion of intervention group participants reported that they assess patients' willingness to quit at follow-up as compared to the baseline (49.12% vs. 66.67%, $p=0.005$).

Assist. Study results revealed that more intervention group physicians in the follow-up were always discussing the use of pharmacological aids such as NRT with patients (14.04% vs. 59.65%, $p<0.001$) and proposing their help to patients in quitting (45.61% vs. 85.96%, $p<0.001$). Similarly, more intervention group physicians were advising on behavioral "tricks" for quitting (29.82% vs. 64.91%, $p<0.001$), and preventing relapse (36.84% vs. 73.68%, $p<0.001$), giving self-help materials (3.51% vs. 31.58%, $p<0.001$) and

assisting the smoking patients to set up the target quit date (29.82% vs. 73.68%, $p<0.001$). At follow-up there was also significant improvement in prescribing pharmacological treatment: Cytisine (1.75% vs. 24.56%, $p<0.001$), NRT (5.36% vs. 24.56%, $p<0.001$), and Varenicline (3.51% vs. 8.77%, $p<0.001$).

Arrange. The follow-up results also highlighted that more physicians in the intervention group set up a follow-up appointment to review the patients' progress in quitting (21.05% vs. 50.88%, $p<0.001$).

Participants' confidence in providing tobacco dependence treatment - The participants were asked to rate their confidence in providing tobacco dependence treatment. Most of the respondents were confident in educating patients on the general health risks of smoking (76.85%, $n=83$), advising smokers on how to quit smoking (62.96%, $n=68$), assessing the willingness of the patient to quit smoking (62.04%, $n=67$), and motivating patients to consider quitting (58.33%, $n=63$). They were not at all confident in discussing various smoking cessation treatment options with patients (22.22%, $n=24$), recommending appropriate smoking cessation medications (45.37%, $n=49$), and helping recent quitters to cope with withdrawal symptoms (21.30%, $n=23$). The intervention and control groups were statistically significantly different only in terms of negotiating a target quit date (22.81% vs 45.10%, $p=0.019$). The mean baseline confidence score was 4.22 (out of max possible 8) and the score was not significantly different between intervention and control groups (4.44 vs. 3.98, $p=0.367$). The percent confidence score was 52.78%. The mean confidence score statistically significantly improved from baseline to follow-up in the intervention group (4.44 vs. 6.28, $p<0.001$) but not in the control group (4.13 vs. 4.60, $p=0.208$). The results of baseline and follow-up comparison of participants' confidence in providing tobacco dependence treatment revealed a statistically significant improvement in intervention group physicians' confidence related to all the listed statements. Meanwhile, statistically significant improvement among control group participants was only related to their confidence in advising smokers on how to quit smoking, motivating patients to consider quitting, and negotiating a target quit date for the patients to stop smoking.

Barriers in providing tobacco dependence treatment - Participants rated the listed barriers that hinder them from helping patients to stop smoking. According to participants' ratings the important barriers in descending order were the following: patients' noncompliance with information given on smoking cessation (46.30%, $n=50$), insufficient training on smoking cessation interventions (45.37%, $n=49$), followed by a lack of patient education material (brochures/pamphlets) (43.52%, $n=47$), lack of smoking cessation

specialists to refer patients to for further assistance (43.52%, n=47), and insufficient knowledge on smoking cessation interventions (41.67%, n=42). When asked about the lack of time as a barrier in assisting patients to quit smoking, half of the participants (50.00%) rated it as somewhat of a barrier and 30.56% identified it as an important barrier. At follow-up the proportion of intervention group participants that rated the listed barriers as being “important” decreased for all items and for the three of them the decrease was statistically significant. Those barriers included: lack of smoking cessation specialists to refer patients to for further assistance (54.39% vs. 29.82%, p=0.027), insufficient training on smoking cessation intervention (63.16 vs. 29.82, p=0.003) and insufficient knowledge on smoking cessation interventions (56.14 vs. 36.84, p=0.011). In contrast, in the control group we observed the increase in the proportion of participants that rated the listed barriers as “important” ones and for three of the items the increase was statistically significant. Those barriers included: lack of smoking cessation specialists to refer patients to for further assistance (33.33% vs. 47.92%, p=0.051), insufficient training on smoking cessation intervention (27.08% vs. 52.08%, p=0.009) and lack of awareness of smoking cessation guidelines (27.08% vs. 50.00, p=0.015).

Conclusions and Recommendations - The AUA Turpanjian School of Public Health research team 1) built smoking cessation training capacity on evidence-based methods and tools for teaching physicians the basic skills for working with smokers, 2) designed, implemented and evaluated the first smoking cessation training program for practicing primary healthcare physicians in Armenia, and 3) developed the White Paper: “Mapping the FCTC Article 14 Implementation in Armenia” based on the results of the formative research and used it during the development of the training course and discussions with stakeholders. Throughout the implementation of the project the research team collaborated and built partnership with key stakeholders, including the Ministry of Health, National Institute of Health, Yerevan State Medical University, and Yerevan and Gyumri Municipalities. The MOH accredited tobacco dependence treatment training package. The training was implemented and evaluated among primary healthcare physicians in Yerevan and Gyumri. The research team used several measurements to evaluate the effectiveness of the training including a training expectation survey, pre- and post-training tests and KAP surveys that were administered before the training and at 4-months follow-up. The results of the evaluation demonstrated high satisfaction with the content, design and delivery process of the training, as well as significant improvement in physicians’ knowledge and self-reported practice in tobacco dependence treatment four months after participation in the training.

In addition, the evaluation results demonstrated that at 4-months after the training significantly lower proportion of primary healthcare physicians were rating lack of smoking cessation specialists to refer patients to for further assistance, insufficient training on smoking cessation and insufficient knowledge on smoking cessation interventions as “important” barriers that hinder them from helping patients to stop smoking. However, there was no statistically significant change in regards to ratings of other barriers that were not targeted by the trainings, including lack of physicians/patients time, lack of patient education material (brochures/pamphlets), and patients’ non-compliance with information given on smoking cessation.

Taking into consideration the study findings, the research team presents the following recommendations:

1. Implement the tobacco dependence treatment training for all primary healthcare physicians in Armenia to provide them with evidence-based smoking cessation counseling and treatment knowledge and skills.
2. Regularly update the National Smoking Cessation Guideline and implement it into the primary healthcare physicians’ practice.
3. Implement and monitor the most affordable smoking cessation interventions.
 - Ensure that the provision of at least brief advice to all smokers is an essential part of standard medical practice;
 - Include the most affordable smoking cessation medications into the list of essential medications in Armenia.
4. Adapt and implement the tobacco dependence treatment training package for other healthcare professional groups (e.g. cardiologists, oncologists, TB physicians, nurses, and others) to ensure provision of evidence-based assistance on quitting to all patients at any medical contact.
5. Incorporate tobacco dependence treatment courses into the graduate and post-graduate training curricula of all health professionals.
6. Develop nationwide interventions targeting physicians’ perceived barriers hindering them from helping patients to stop smoking.
7. Continue the work towards further strengthening the support from key stakeholders, including the policy and decision making community and the institutions of medical education to sustain the project outcomes and advocate for a system-wide change in implementation of physicians’ tobacco dependence treatment trainings.

6. LIST OF PUBLICATIONS AND PRODUCTS

Bibliography of Published Works

Reports

[Primary Healthcare Physicians' Knowledge, Attitude and Practice towards Smoking Cessation in Armenia: A Qualitative Study](#)

[Availability, Affordability and Price of Smoking Cessation Products in Armenia](#)

[Evaluation of Tobacco Dependence Treatment Trainings for Primary Healthcare Physicians](#)

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[Trainings for Primary Healthcare Physicians in Tobacco Dependence Treatment: For the First Time in Armenia May 18, 2016](#)

[Center for Health Services Research and Development Advances Evidence-based Tobacco Dependence Treatment in Armenia May 5, 2016](#)

[AUA School of Public Health Senior Researcher Arusyak Harutyunyan Is Awarded Mayo Clinic's Tobacco Treatment Specialist Certificate Nov 23, 2015](#)

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[For the first time in Armenia: tobacco dependence treatment training for primary care physicians, Dec 20, 2016](#)

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[ENSP, Global Bridges connect for hands-on training programme April 19, 2016](#)

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