**Development and evaluation of a web-based capacity building course for primary healthcare professionals in the EUR-HUMAN project**

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# Abstract

## Background:

The ongoing refugee crisis has revealed the need for enhancing primary healthcare (PHC) professionals’ skills and training. The current study aimed to develop a template for an online course, to strengthen these professionals in European countries, to provide high quality care for refugees and migrants in an informed, integrated, person-centered, competent and safe way (for refugees, migrants as well as the healthcare professionals).

## Methods:

A web-based course of 8 stand-alone modules was developed on the basis of the results of the EUR-HUMAN project. The course contained information about acute health issues of refugees, legal issues, provider-patient communication and cultural aspects of health and illness, mental health, sexual and reproductive health, child health, chronic diseases, health promotion, and prevention. The course was translated into seven languages and adapted to the local contexts of six countries. Pre- and post-completion knowledge tests were administered to generate a baseline and to effectively assess the progress and knowledge increase of participants. An online evaluation survey following course completion was used to assess the acceptability and practicability of the course from the participant perspective. The data was analysed descriptively.

## Results:

A total of 390 participants registered for the online course in 6 countries with 175 completing all modules of the course, 47.7 % of them medical doctors. The mean time for completion was 10.77 hours. The highest pre vs. post change was observed for the module on acute health issues (54% vs. 91%) and for the module on chronic diseases, health promotion, and prevention (47% vs. 86%). The lowest difference on average was observed for the module on sexual and reproductive health (77% vs. 88%). In total, 123 participants completed the online evaluation survey; the modules on acute health needs, legal issues (both 44.1%), and provider-patient communication/cultural issues (52.9%) were found particularly important for the daily practice. A majority expressed a will to promote the online course among their peers.

## Conclusion:

This course is a promising learning tool for PHC professionals and when relevant supportive conditions are met. The course has the potential to empower PHC professionals in their work with refugees and other migrants.

# Key-words

Refugees, migrants, primary healthcare, capacity building, training

# Background

In 2015, close to 1,3 million people applied for asylum within the countries of the European Union [1]. The number of refugees from the Middle Eastern and Sub-Saharan countries entering European countries highly increased; in the first quarter of 2016 the number of arrivals was 174,395, compared to 21,018 in the same period of 2015[2]. The refugees arrived mainly to the Greek islands, and from there continued travelling through the Western Balkan route towards their destination countries in Northern Europe [3]. This strong migration flow led to the introduction of the term “international refugee crisis” [3, 4]. In March 2016, the migratory flow through the “Western Balkan Route” was halted due to restrictive migration policies [5].

The population on the move and – at the point of and following arrival – in the destination countries was, and still is, in need of healthcare. European countries were very concerned about refugees bringing infectious diseases to their countries; however, evidence to corroborate these particular fears was missing [4]. Overall, the health problems of refugees and migrants are similar to those of the rest of the population and include accidental injuries, hypothermia, burns, gastrointestinal illnesses, cardiovascular events, pregnancy- and delivery-related complications, diabetes and hypertension. However, one key issue with chronic diseases of refugees and other migrants is the interruption of care during and after the flight [6-8]. Female refugees often face challenges particularly in terms of maternal, newborn and child health, sexual and reproductive health, and might have experienced violence prior or during the flight [6, 9-11]. Furthermore, pre-migration physical or psychological traumas and post-arrival challenges, as well as prior mental health issues, can contribute towards the development of various mental health issues, often becoming manifest upon or after arrival in the destination countries [12].

Countries that have received and registered a large numbers of refugees are struggling to meet the new population’s healthcare needs – particularly those countries that recently underwent a financial crisis and/or protracted austerity period like Greece [13, 14]. The significant increase in the number of people in a relative short period of time combined with sparse resources caused various challenges particularly for PHC professionals in all destination countries of refugees, as PHC is the first point of entry to the healthcare system in most countries.

The European Refugees – Human Movement and Advisory Network (EUR-HUMAN project) (website: <http://eur-human.uoc.gr/>) was funded by the 3rd Health Program of the European Union (EU) and ran from January to December 2016. It aimed to identify, design, assess and implement measures and interventions to improve primary healthcare delivery for refugees and other migrants with a focus on these vulnerable groups. The main objective of the EUR-HUMAN project was to reinforce and develop skills and abilities, and to expand knowledge and experience in the EU Member-States receiving refugees and migrants, ultimately aiming to successfully address the various health needs of these vulnerable groups in an effective manner, as well as to ensure that all population groups in these European countries are well-protected, safeguarding them from specific risk factors and at the same time minimizing cross-border health risks.

There are many differences and similarities in the provision of healthcare services in different EU countries. To mention some examples: in Germany the Asylum Seeker’s Medical Benefits Act (AsylbLG) only guarantees emergency treatment [15], while in other countries, such as Austria, asylum seekers can fully access healthcare services under the same parameters as all other health insured inhabitants [16], and in the case of general practitioners (GPs), adding to an already high workload in the medical practices [17, 18]. The Italian National Health Service is responsible for the asylum seekers in the same manner as for all other Italian inhabitants, as well. Contrary to that, in 2016, in Slovenia, primary healthcare for refugees, was provided by medical teams directly in reception and accommodation centers. In cases of emergency, migrants from the reception centers were accompanied to a healthcare institution by the center’s medical staff. Similarly, in Hungary, contracted medical staff provides healthcare directly in the refugee accommodation centers, while asylum seekers are entitled to emergency medical treatment under the same access rules as Hungarian citizens. In Greece, the National Healthcare system is responsible for the health status of refugees and migrants staying in camps in several regions in Greece, furthermore, several NGOs provided substantial care to refugees and other migrants upon and after arrival at hotspots and hosting centers [19].

Qualitative research conducted in the framework of the EUR-HUMAN project in seven EU countries (Austria, Croatia, Greece, Hungary, Italy, the Netherlands, and Slovenia) [20] using a Participatory Learning and Action (PLA) research methodology [21], showed challenges that concerned both the PHC professionals and the refugees and other migrants in need of healthcare: for instance, systemic challenges were identified, such as the difficulty of remuneration and the lack of interpretation services either free of charge or, given numerous languages and dialects, scarce number of interpreters even with payment, as well as a lack of trained cultural mediators. Social insurance and healthcare administration systems came under pressure leading to problems concerning health insurance coverage [19, 22]. Interviewed PHC professionals referred to the problem of language barriers and communication differences –lack of interpretation services was combined with lack of cultural mediators- as well as the lack of specific knowledge relevant for refugee care. Particularly in context of communication issues, time pressure was commonly mentioned. Culture-related communication differences were seen as particularly challenging for mental health diagnoses. Another aspect was the lack of psychological support available to refugees, as well as the lack of knowledge about mental healthcare options available for refugees among GPs [20, 22]. The results of this research are consistent to earlier studies [23-25].

Given all of the abovementioned challenges, it was essential to strengthen PHC professionals and to enable them to provide adequate healthcare to refugees and other migrants. The project EUR-HUMAN aimed, first, to strengthen the PHC professionals in European countries which are involved in primary healthcare for refugees, asylum seekers and other newly arrived migrants; secondly, it aimed to support the PHC professionals in European countries to provide high quality primary care for refugees in an informed, integrated, person-centered, as well as competent and safe way (both for the refugee and the provider) [26]. In the framework of the EUR-HUMAN project, the project team of the Medical University of Vienna (MedUni) developed a template in English for an online course. The aim was to offer a concise modular training that was based on the needs of the refugees and PHC professionals as assessed in the project and to evaluate whether PHC professionals who were willing to the complete the training, were able to increase their knowledge, and to recommend the training to others.

# Methods

## Program development

Identification of needs for capacity building for the provision of healthcare was the starting point of the EUR-HUMAN project [26]. The EUR-HUMAN online course was developed in the context of this project and was piloted between October and December 2016 in six different EU countries (Austria, Croatia, Greece, Hungary, Italy, and Slovenia). It was one of the core interventions of the project. The online course was designed under the leadership of the MedUni in Work Package (WP) 6 of the project, which had the aim to translate available knowledge and guidelines into ready-to-use training programs for capacity building [26]. The design of the course was informed by results of the other WPs of the EUR-HUMAN project (see Figure 1): interviews with refugees (living in hotspots, transit centers and long-term stay centers) GPs, and other personnel involved across different organizational levels of PHC [19, 22, 27, 28], as well as via an international systematic and narrative literature review [27] and an expert consensus meeting [28]. Furthermore, already existing materials from International Organization of Migration (IOM), European Center for Disease Control (ECDC), and previously conducted relevant projects, were included.

This online course aimed to support capacity building of PHC professionals. Its main target is to fill in the knowledge gaps regarding different issues in the context of PHC for refugees and other migrants in the destination countries. The web-based online course for PHC professionals was developed to include text, as well as audiovisual media (e.g., photos, videos, etc.) and links to relevant resources, including documentation and information in organizations providing refugee aid. The course was designed to provide information in an easily accessible form over a relatively short period of time: the aim was to develop a training that was concise while still containing the most important information for the GPs. Therefore, the training takes approximately 11 hours learning hours and can be easily managed in addition to a full-time employment within 4 weeks. The intent was to avoid overwhelming the target group, PHC professionals, who often already have a high workload to manage [18].

The course followed a modular design. Multiple experts, both from the research team at MedUni (2 medical anthropologists, 1 PHC specialist, 1 medical student, and 1 vaccination expert) and external partners (2 pediatricians, 2 legal experts, a team of mental health specialists, 1 psychotherapist, a team of experts on women’s health issues, 1 expert from the Austrian Red Cross) created the content of the modules of the online course. First, a template version was developed in English. This consisted of 8 modules, including an introductory one. Each module had several chapters covering the various topics relevant to the care for refugees and other migrants. The original template version in English can be used as basis to develop similar initiatives in case stakeholders or policymakers are interested in transferable practices, best practices, and available tools.

The content of the template needs to be adapted for the particular country’s situation, legal system, health care system, epidemiology, as well as links to helpful organizations and information in that particular country had to be added. Furthermore, target‐group specific context adaptations (physicians, nurses, midwifes, health visitors, PHC teams etc.) had to be made when needed.

The EUR-HUMAN course for PHC professionals was piloted in six countries between October and December 2016: Greece, Italy, Croatia, Slovenia, Hungary and Austria (2 versions). MedUni provided an adaptation and translation guideline to the partners together with the English template. For Austria, the entire English version was translated into German and in an abbreviated version, into Arabic. The translation was partly done by members of the EUR-HUMAN teams (Croatian, German, Greek, Hungarian, Italian), and partly by official translation agencies (Arabic, Slovenian); and the content was adapted to the respective local needs.

The course was hosted by Health[e]Foundation, a Dutch organisation that is committed to establishing sustainable methods of training for healthcare workers on patient management and care, including disease prevention (<http://www.healthefoundation.eu/>). The login code and password were provided to participants upon online registration; the procedure is user-friendly and self-explanatory. The course format allowed the target groups (physicians/ GPs/other PHC professionals) to do the training on any device, including mobile devices, in their chosen location. The participants could follow their individual time management, with the option to switch back and forth between modules and chapters.

The target group in Austria were GPs, as they are the main PHC professionals. In Croatia, the situation is similar: a large number of GPs deliver PHC services. Due to the fact that Croatia is not a preferred destination country, overall, PHC professionals do not have much experience in providing services to migrants. In Italy, refugees and other migrants are enrolled in the National Health Service. Therefore, the target group included GPs, nurses, and midwives. In Greecedifferent target groups included both PHC professionals and government officials, civil servants, and local stakeholders on the island of Lesvos. The policymakers were encouraged to persuade healthcare personnel to take part in the online course. The target groups for the online course in Hungary were PHC professionals experienced in working with migrants and refugees or interested in the information and knowledge provided in the course. The target group for the online course in Slovenia comprised PHC professionals who have experience working with migrants and refugees. In Greece, Hungary, and Italy, an initial face-to-face training took place before the participants started the online course to facilitate the uptake of the training.

## Program content

The program content was organized in eight stand-alone modules, including an introductory one, with multiple subsections: 1) Introduction; 2) Acute health needs of refugees; 3) Legal issues; 4) Provider-patient communication; 5) Mental health; 6) Sexual and reproductive health; 7) Child health; 8) Chronic disease, health promotion, and prevention (for a more detailed overview of the subsections of the modules see additional file 1). The modules were designed for PHC professionals, who are involved in PHC for refugees and other newly arrived migrants. After registration, the user was directed to Module 1, the introductory module with instructions for the course. The online course incorporates audiovisual material (e.g., pictures, graphical representations) including statistical ones, excerpts from policy and guidance documentation, links to relevant resources in external websites, including to videos, to external documents, etc., and to organizations providing refugee aid. These links need regular update to ensure that they remain up-to-date.

### Module 1: Introduction

Module 1 introduces the learner to the background and aims of the EUR-HUMAN project. Furthermore, basic instructions on the course are given and the theory behind the course are explained.

### Module 2: Acute health needs of refugees

Module 2 gives the learner an insight into the healthcare processes upon arrival of the refugees and other migrants during the registration procedure, before they enter the regular healthcare system of a given country. Furthermore, Module 2 highlights general and specific to the destination country healthcare considerations in order to guarantee an informed treatment process. To this end, this module deals with different aspects of newly arrived refugees and other migrants. First, the aspect of continuity of care is highlighted. Continuity of care is a core principle when trying to establish cross-border healthcare between countries of origin, transit and destination. By now, different approaches are in the process of being implemented in an effort to harmonize the policy and processed of monitoring the health status of refugees and other migrants across the countries. Secondly, aspects regarding flight-specific health needs and red flags in a short-stay setting, as well as infectious diseases and vaccination coverage, are discussed (see figure 2).

### Module 3: Legal issues

Module 3 discusses legal questions regarding the medical care for refugees during their asylum procedure and beyond. This concern, first, the legal basis for the treatment of refugees, where it can take place and by whom it can be provided. Secondly, it deals with the legal characteristics regarding the care for refugees and other migrants once a PHC provider has made a decision for treatment. Furthermore, the module introduces probable solutions for the use of interpreters, translators and cultural mediators. This module had to be adapted according to the local regulations applicable in each country where the course was used.

### Module 4: Provider-patient interaction

Module 4 is split into two sections. First, it gives an overview on communication principles in healthcare and issues of intercultural communication. The second part of Module 4 gives an introduction into socioeconomic and cultural aspects of health and illness, distress, or pain. Thus, the module supports PHC professionals in an effort to bridge the duties and processes of healthcare and the patient’s point of view, and to understand a patient’s way of experiencing an illness in a new environment, as well as his or her wishes and preferences. Culturally sensitive healthcare can support the empowerment of the new refugee and other migrant population and ensure that they receive equitable access to healthcare, as well as paving the ground for a smoother integration in foreign society (see figure 3).

### Module 5: Mental health

Module 5 serves to reinforce knowledge on mental health and psychological support, as well as on first aid for stress reduction in people with primary and secondary traumatization. The module gives an introduction to specific mental health issues of refugees; it informs about how to approach refugees in need of mental healthcare. Furthermore, the module offers information on (the prevention of) burn-out or secondary trauma of PHC professionals and aid workers.

Some refugees are at risk of developing mental health issues. Some do not develop mental health issues but can require some form of psychosocial support. The module gives the learner insights in the background and origin of refugees’ mental health problems and the associated risk factors, whilst, at the same time, ensuring adequate information on the specific mental health issue signs a PHC professionals may encounter such as in terms of manifestation of grief, depression and somatic expressions of distress. Furthermore, screening tools and possible treatments for mental health problems, as well as other options for psychosocial support of refugees and other migrants, are introduced.

### Module 6: Sexual and reproductive health

Module 6 introduces the learner to specific issues concerning the sexual and reproductive health of female refugees and other female migrants under particularly difficult living conditions. It discusses all kinds of particular topics such as needs in the peri- and post-natal phase, menstruation, contraception, abortion, and sexually transmitted infections (STIs). Furthermore, the module informs the learners of red flags and health risks pertaining to sexual and gender-based violence among refugees and other migrants.

### Module 7: Child health

Module 7 is a tool for efficient diagnostics and therapy, the prevention of physical and mental health issues among children in the refugee population as well as the prevention of communicable diseases. The module is widely based on the Austrian Recommendations of the Working Group for Refugee Children [29]; it addresses probable infectious diseases among refugee children, necessary vaccinations, prevention of health issues, as well as how to deal with refugee children in the daily practice.

### Module 8: Chronic disease, health promotion, and prevention

In the final module, we provided the learners with an overview on possible options to do health promotion among the refugee and other migrant population. As the PHC professionals are very likely the first and most important point of contact for the refugees and other migrants in matters of healthcare and prevention, they are able to help them to orient themselves in the healthcare system of their destination country. Furthermore, options about how to deal with chronic diseases in the refugee and other migrant groups are discussed. Finally, Module 8 provides a comprehensive list of refugee aid organisations for the psychosocial support for refugees and other migrant groups in the destination country (orientation, information offices for refugees and other migrants, family matters, children and adolescents´ matters, mental health support).

## CME Evaluation

In Greece, it was possible to directly observe the application of the newly gained knowledge after the course in a refugee camp on the island Lesvos. However, in Austria, Croatia, Hungary, Italy and Slovenia, in general, PHC professionals are spread over the countries and work in their individual practices. Due to this starting situation, it was clear that participants of the online course would apply the newly learned knowledge without the possibility to directly observe the application.

For each module, except for the introductory module, a pre- and a post-test of knowledge on issues regarding the health care for refugees and other migrants was established to assess the progress and the knowledge increase of participants of the EUR-HUMAN online course: the authors of the individual modules prepared multiple choice questions (MCQs) based on the content they developed. There was no minimum score for the knowledge pre-test, however, the minimum score for a passing mark of the knowledge post-test to pass was set at 75%. The pre- and post-tests of knowledge allowed the participants to see their personal knowledge gain. The learning curve can be approximated by comparing the scores of the knowledge pre-test and the post-tests for each module and assessing the increase.

In Austria, the course was accredited by the Austrian Physicians Chamber with 10 Continuous Medical Education (CME) credits. In Croatia, the course was accredited by the Croatian Medical Chamber with 7.5 CME credits. In Slovenia, the course was accredited both by the Slovenian Medical Chamber (24 CME credits), and the Chamber of Nurses (25 CME credits). In Hungary, the online course was accredited by the official (OFTEX) portal by the University of Debrecen with 20 CME points for GPs, occupational specialists, internists, and pediatricians. In Greece and Italy, no CME credits were negotiated; participants only received a certification.

Additionally, as part of WP7 of the EUR-HUMAN project, all participants were invited to participate in an online evaluation survey after the course to assess the acceptability and practicability of the course. A tailored version of the NoMAD questionnaire, based on the Normalization Process Theory (NPT), was used to gather respondents’ views on different aspects of implementation, usability and integration of the course into primary care services for refugees and migrants in their countries [30]. This paper refers to selected aspects of the NoMAD online survey results and points to findings of the questionnaire regarding the implementation of PHC services, the course experience and the appreciation of the course (see table 3); a detailed presentation of the methods and findings of the survey conducted using the NoMAD questionnaire will be published in a subsequent paper from the EUR-HUMAN Consortium. For this paper, demographic variables from the NoMAD questionnaire such as gender, completion of the course, profession, practice specialty, average results pre- and post-test, time needed to complete all modules, appreciation (fully appreciated, less appreciated), as well as importance for the daily practice were chosen. The participants could freely enter their profession and practice specialty when appropriate; as some participants did not specify more than that they were working in healthcare, for the analysis, the variable undefined or other healthcare workers was created. Another question concerned the willingness to support the training program by promoting; it involved the variables no statement, strongly agree, agree, and neither agree nor disagree. A convenience sampling was used.

## Data Analysis

The results of the knowledge tests were collected via a statistical tool, which was directly integrated in the online course by the Health[e]Foundation, with the data transferred to MedUni. The highest possible score for each test was 100%. Points for each knowledge pre- and post-test regarding the different modules are presented in the results’ section, as are the differences between the pre- and post-test per module. The data of the online evaluation survey and the data collected via the pre- and post-test of knowledge were analysed descriptively.

# Results

A total of 390 participants registered for the online course in 6 different countries with 44.9% (n=175) completing all modules (Table 1). Among the participants in all countries were 47.7% medical doctors and 58.1% of them were general practitioners. Among all participants, 8.2% were undefined or other healthcare workers including midwives, infection control specialists, nutritionists, public health specialists. Several migration officers (2.1%) and health managers (1.5%) participated (Table 2). For all course versions except the Arabic, the majority of the participants were female (Table 1).

The knowledge pre- and post-test results differed depending on the module (Table 3): While the average results of the pre-test results were relatively low for Modules 2 (acute health needs) and 8 (chronic disease) (54% and 47% respectively), the pre-test results for the modules 3 and 6 were comparably high (71% and 77%). Significant pre-post changes were obtained for Module 2, with a difference of 36 points in the average score of the results, and for Module 8, with a difference of 39 points in the average score of the results. The lowest difference was measured in the assessments for Module 6, with 11 points of difference between the averages of knowledge pre- and post-test results.

In total, 123 course participants responded to the invitation for the online evaluation survey and filled out the online survey (Table 4). Their statements show that the mean time for completing the course was 10.77 hours. Module 3 (legal issues) and module 5 (mental health) were the most highly evaluated modules, as 57.7% of the survey participants fully appreciated them. Only 40.7% of the survey participants fully appreciated module 8 (chronic disease health promotion, and prevention). Module 8 was also considered less appreciated by 21.1% of the survey participants while, in comparison, module 2 (acute health needs) was less appreciated only by 4.1% of the survey participants. Above that, 53.7% of participants fully appreciated module 4 (provider-patient interaction). The latter was also found particularly important for daily practice by 52.9% of the Austrian survey participants.

A majority of the survey participants strongly agreed or agreed that they are willing to support the online course by promoting it among their peers.

# Discussion

## Main findings

Research has shown that PHC professionals and refugees or other migrants face equally great challenges when it comes to PHC encounters during the flight, upon and after arrival in the destination countries [20, 22-25]. In response to these challenges, an online course/ CME course for PHC professionals was developed, offering comprehensive knowledge on the respective healthcare system in relation to healthcare for refugee and on the issues of migrants’ health to participants from different countries. Studies show the positive effects of web-based CME courses [35, 36].

Our online course/CME course findings indicate that participants were able to increase their knowledge on primary healthcare for refugees and that the course positively influenced the daily practice of PHC providers among the participants, according to their self assessment. In examining knowledge pre- and post-test differences, we found that there were significant changes in the knowledge pre- and post-test results of the different modules pointing to a knowledge gain of our participants. It is important to note that in particular modules the knowledge pre-test results were already very high and the knowledge gain therefore comparably lower than for other modules. The participants seem to have been well informed particularly well in the topics *legal issues* and *sexual and reproductive health* (Module 3) prior to the online course.

The module 4 on provider-patient interaction/ intercultural communication was deemed to be particularly important by our participants. This need is consistent with previous reports in the literature focusing on communication [31-34].

We were able to strengthen the target group in providing healthcare for refugees and other migrants. Overall, our CME course was well accepted as indicated by CME evaluation of participants.

## Related work

In developing this CME, we found other CME material that covers similar subject areas in regard to migrants or refugees: MEM-TP (http://www.mem-tp.org) and SH-CAPAC (<http://www.sh-capac.org>). Both of these courses, developed under previous (MEM-TP) and the same as EUR-HUMAN (SH-CAPAC) funding actions of the European Union (CHAFEA) have complementary material to our online course and touch upon similar aspects in terms of minority groups (i.e., Roma for MEM-TP) and other public health needs (SH-CAPAC) in the context of care refugees and migrants to a wide variety of target groups in healthcare. Both projects have their material available online under the Creative Commons license, and we, therefore, cross-referenced and linked, as appropriate, to the content of those courses in our own course, whenever appropriate.

 However, while both abovementioned courses are designed to convey knowledge, the approach of delivery requires they are conducted over an extended time period and several weeks to months are required for their completion, whereas our course aims at rapid capacity increase, conveying much needed knowledge about the treatment of refugees and other migrants in short time and in a flexible and user-friendly manner.

## Strengths and weaknesses

In the development of our course, a key consideration was brevity, to allow a greater number of participants to take part despite limited time due to work realities as PHC professionals, as they usually do not have much time available and especially in PHC [18] [adding something for the settings…for refugees?]. The users can always further investigate on particular topics on their own, but they would still have acquired a sound basis through the knowledge gained in our course. These facts suggest that a concise web-based solution with an approximate time frame of 8-10 hours represents be the best option in terms of feasibility and acceptability. As shown above, participants needed a mean time of 10.77 hours to complete the course.

We choose an Internet platform, accessible from any device, including mobile, since it allows for easy access, flexibility, and updateability. It is a main advantage of the online format that it can be accessed at anytime and anywhere, from any electronic/smart device with Internet access without the need for travel or the need for succumbing to a time frame of a face-to-face action. The chosen format of the course as an online accessible version allows the participants flexible access in terms of the time of participation and the duration of training per session/log in, as they can log in the course whenever they have time available; the participants are also given flexible options being allowed to choose the sequence of the modules and to navigate between modules and chapters. The participants are autonomous in the choice of the content: they can prioritize on issues that are of most relevance to them.

A basic characteristic of the format in such an online course is that individuals do a course from their own devices and that there are rather limited possibilities for interaction with others. This is considered to be a weakness of the course: limited possibilities were given for the participants to exchange ideas and interact, to join discussions and to ask questions directly. Basic possibilities for interaction for the participants would have been available on the portal’s homepage, but they were not promoted, due to lack of time and resources to supervise the training with an e-tutor. Furthermore, the format of an **online course makes it potentially easier for the participants to procrastinate or to neglect the learning process.**

To some extent, theinstructional design and didactical methods, but also the limits of the online format and the framework of the available platform constitutes a weakness of the current version of the course. While the online course incorporates pictures, graphs, statistics, excerpts from policy documents, links to relevant websites, to videos, to external documents, to organizations, still most of the course content is conveyed through (reading) text. The given timeframe and resources of the EUR-HUMAN project did not allow a translation of the content of the course of the audiovisual material (video presentations, films, web streaming, video conferencing etc.) in all countries. The course could be improved by mutual group activities, posting, sharing, blogging, commenting on content online or through actual additional face-to-face trainings, workshops or gatherings e.g. at the beginning of the online course.

The use of a single group knowledge pre- and post-test evaluation method could be considered limited. The focus of the course was on knowledge transfer and there was neither funding nor opportunity to survey the impact of the course on the PHC professionals’ practice behavior. Therefore, we were unable to conduct a randomized control study (RCT) in this regard.

## Long-term objective

The long-term objective of the EUR-HUMAN project was the optimization of healthcare provision for refugees and other migrants. The course can only be an effective instrument contributing to this long-term objective when relevant implementation factors are met: In order to increase the chance that the content of the course becomes an integral part of the healthcare delivery process for refugees, it is necessary to understand relevant implementation factors for recommended interventions, as well as the extent to which those factors are available in the target area of the online training. Flottorp and colleagues (2013) categorized potential “determinants of practice” into seven domains: guideline factors; individual health professional factors; patient factors; professional interactions; incentives and resources; capacity for organizational change; and social, political and legal factors [37-39]. Knowledge about factors like these, that might differ locally and between professional healthcare disciplines, can increase the potential of the course in optimizing healthcare provision.

We can explain in discussion the emphasis on the dissemination to show to policymakers there are free and good available tools, etc.

# Conclusion

Despite some of the limitations, the online course is a promising contribution to an optimization of healthcare for refugees and other migrants, combining and integrating insights from many different disciplines and perspectives. The participants of the course found the training useful and their knowledge had grown shortly after the training. The course is a promising learning tool for PHC professionals and when relevant supportive conditions are met locally, it has the potential to empower them in their work with refugees or other migrants. It appears worthwhile to further disseminate the course and to show policy makers that there are free high quality tools available to train and support PHC professionals in their work with refugees and other migrants.

# List of abbreviations

CME Continued Medical Education

EUR-HUMAN European Refugees – Human Movement and Advisory Network

GP General practitioner

MedUni Medical University of Vienna

PHC Primary Healthcare

# Declarations

## Ethical Approval

The retrospective data analysis was approved by the ethical commission of the Medical University of Vienna (1575/2017)

## Consent for publication

n/a

## Availability of data and material

The English draft of the online course is available under a Creative Commons license on http://eur-human.uoc.gr.

## Competing interests

The authors declare no conflict of interest.

## Funding

This paper is part of the project ‘717319 / EUR-HUMAN’ which has received funding from the European Union’s Health Program (2014-2020).

## Authors' contributions

EJ wrote the first draft of the paper and revised the paper. KH, EM, EAM, AA, DSP, EP, MM, TL, MD, LK, IR, DP, DC, GB, MC, DA, PG, NG, CD, CL commented on the draft, added content, or suggested revisions. All authors agreed with the final version of this paper.

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## Acknowledgements

We thank all authors of the modules of the online course: Flora Haderer (Austrian Red Cross), Wolfgang Maurer (Vienna Vaccine Safety Initiative), Karoline Leitner, Maria Kletecka-Pulker (IERM University of Vienna), Corné Versluis, Carlijn van Es, Jurriaan Jacobs, Trudy Mooren, Annelieke Drogendijk (ARQ), Caroline Kunz (GP), Saskia Wolf-Abdolvahab, Regina Rath-Wacenovsky (Department for Pediatrics, SMZ-Ost, Vienna), Ruth Kutalek, Elena Jirovsky, Elisabeth Anne-Sophie Mayrhuber, Kathryn Hoffmann, Daniela Dorneles de Andrade, Werner Lagler, Alexandra Derjusch (Medical University of Vienna), Kathleen Löschke, Huberta Haider (FEM Süd, Vienna), and Alaa Nadar. We strongly thank the team of the course platform Health[e]foundation. We thank all experts from Expert Consensus Meeting in Athens, in June 8 -9 2016: Paraskevi Apostolara, Manila Bonciani, Michalis Chatzigiannis, Paola D’Acapito, Daniela Dorneles de Andrade, Elisabeth Farmer, Achilleas Gikas, David Ingleby, Athena Kalokairinou, Rolf Kleber, Areti Lagiou, Daniel Lopez-Acuna, Jan De Maeseneer, Manfred Maier, Elena Maltezou, Wolfgang Maurer, Teymur Noori, Takis Panagiotopoulos, Dimitrios Patestos, Androula Pavli, Antoni Peris, Sanja Pupačić, George Samoutis, Pela Soultatou, Agis Terzidis, Dimple Thakrar, Pinar Topsever, Maria Tseroni, Philomene Uwamaliya, Elena Val, Stamatis Vardaros, Apostolos Veizis, Victoria Vivilaki, Chrysa Botsi, Yeşim YASİN and Vassilis Zacharopoulos.

# References

1. Eurostat. Asylum statistics. 2017. <http://ec.europa.eu/eurostat/statistics-explained/index.php/Asylum_statistics>. Accessed 3 May 2018.

2. IOM. Mixed Migration Flows in the Mediterraean and Beyond: Compilation of Available Data and Information. 2015. <https://www.iom.int/sites/default/files/situation_reports/file/Mixed-Flows-Mediterranean-and-Beyond-Compilation-Overview-2015.pdf> . Accessed 27 July 2016.

3. UNHCR. The sea route to Europe: The Mediterranean passage in the age of refugees. 2015. <http://www.unhcr.org/5592bd059.pdf#zoom=95>. Accessed 4 October 2017.

4. Khan MS, Osei-Kofi A, Omar A, Kirkbride H, Kessel A, Abbara A, Heymann D, Zumla A, Dar O. Pathogens, prejudice, and politics: the role of the global health community in the European refugee crisis*.* Lancet Infect Dis. 2016; 16(8):e173-e177.

5. Arsenijevic J, Schillberg E, Ponthieu A, Malvisi L, Ahmed WAE, Argenziano S, Zamatto F, Burroughs S, Severy N, Hebting C *et al*. A crisis of protection and safe passage: violence experienced by migrants/refugees travelling along the Western Balkan corridor to Northern Europe. *Confl Health.* 2017; 11:6.

6. WHO. Migration and health: key issues. <http://www.euro.who.int/en/health-topics/health-determinants/migration-and-health/migrant-health-in-the-european-region/migration-and-health-key-issues#292115>. Accessed 12 Sept 2017.

7. Pfortmueller CA, Schwetlick M, Mueller T, Lehmann B, Exadaktylos AK. Adult Asylum Seekers from the Middle East Including Syria in Central Europe: What Are Their Health Care Problems? PloS one. 2016; 11(2):e0148196.

8. Alberer A, Wendeborn M, Löscher T, Seilmaier M. Erkrankungen bei Flüchtlingen und Asylbewerbern. Daten von drei verschiedenen medizinischen Einrichtungen im Raum München aus den Jahren 2014 und 2015 [Spectrum of diseases occurring in refugees and asylum seekers: data from three different medical institutions in the Munich area from 2014 and 2015]. Dtsch Med Wochenschr.2016; **141**(1):e8-e15.

9. Freedman J. Engendering Security at the Borders of Europe: Women Migrants and the Mediterranean ‘Crisis’. J Refug Stud. 2016; doi:10.1093/jrs/few019.

10. Freedman J. Analysing the Gendered Insecurities of Migration. Int Fem J Polit. 2012; 14(1):36-55.

11. Freedman J. Mainstreaming gender in refugee protection. Cambridge Rev Int Affairs*.* 2010; 23(4):589-607.

12. Priebe S, Giacco D, El-Nagib R. Public health aspects of mental health among migrants and refugees: a review of the evidence on mental health care for refugees, asylum seekers and irregular migrants in the WHO European Region. In Health Evidence Network (HEN) Synthesis Report, edited by WHO Regional Office for Europe. Copenhagen; 2016.

13. Hunter P: The refugee crisis challenges national health care systems: Countries accepting large numbers of refugees are struggling to meet their health care needs, which range from infectious to chronic diseases to mental illnesses. *EMBO Rep.* 2016. doi 10.15252/embr.201642171.

14. Amnesty International. Trapped in Greece: An avoidable refugee crisis. London: Amnesty International Publications; 2016.

15. Hyde R. Refugees need health cards, say German doctors. The Lancet. 2016; 388(10045):646-648.

16. Hofmarcher MM. Austria. Health system review. Health Systems in Transition. WHO; 2013.

17. Hoffmann K, George A, Dorner TE, Süß K, Schäfer WLA, Maier M. Primary health care teams put to the test a cross-sectional study from Austria within the QUALICOPC project. BMC Fam Pract.2015; **16**(1):168.

18. Hoffmann K, Wojczewski S, George A, Schäfer WLA, Maier M. Stressed and overworked? A cross-sectional study of the working situation of urban and rural general practitioners in Austria in the framework of the QUALICOPC project. Croat Med J. 2015; 56(4):366-374.

19. Mayrhuber ES, Jirovsky E, Hoffmann K. EUR-HUMAN Deliverable 6.1 - Report about the results of the assessment of the local situation and resources available. 2016. http://eur-human.uoc.gr/wp-content/uploads/2017/05/D6\_1\_Report\_about\_the\_results\_of\_the\_assessment\_of\_the\_local\_situation\_a.pdf. Accessed 4 October 2017.

20. van Loenen T, van den Muijsenbergh M, Hofmeester M, Dowrick C, van Ginneken N, Mechili EA, Angelaki A, Ajdukovic D, Bakic H, Pavlic DR *et al*. Primary care for refugees and newly arrived migrants in Europe: a qualitative study on health needs, barriers and wishes. Eur J Public Health. 2018; 28(1):82-87. doi: 10.1093/eurpub/ckx210.

21. O'Reilly-de Brun M, de Brun T, Okonkwo E, Bonsenge-Bokanga JS, De Almeida Silva MM, Ogbebor F, Mierzejewska A, Nnadi L, van Weel-Baumgarten E, van Weel C *et al*. Using Participatory Learning & Action research to access and engage with 'hard to reach' migrants in primary healthcare research. BMC Health Serv Res. 2016; 16:25.

22. van Loenen T, van den Muijsenbergh M. EUR-HUMAN. Deliverable 2.1. Communication and liaison with stakeholders and refugees groups. Health needs, views on and experiences with healthcare of refugees and other newly arriving migrants throughout their journey in Europe. 2016. <http://eur-human.uoc.gr/d2-1-report/>. Accessed 15 February 2018.

23. Flores G. The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review. Med Care Res Rev. 2005; 62(3):255-299.

24. ECDC. Rapid risk assessment: Communicable disease risks associated with the movement of refugees in Europe during the winter season – 16 November 2015. <https://ecdc.europa.eu/en/publications-data/rapid-risk-assessment-communicable-disease-risks-associated-movement-refugees>. Accessed 3 May 2018.

25. Bradby H HR, Newall D, Phillimore J. Public health aspects of migrant health: a review of the evidence on health status for refugees and asylum seekers in the European Regio**n**. Health Evidence Network Synthesis Report 44. 2015.

26. Lionis C, Petelos E, Mechili EA, Sifaki-Pistolla D, Chatzea VE, Angelaki A, Rurik I, Pavlic DR, Dowrick C, Duckers M *et al*. Assessing refugee healthcare needs in Europe and implementing educational interventions in primary care: a focus on methods. BMC Int Health Human Rights. 2018; 18(1):11.

27. Dückers M, de Beurs D, van Veldhuizen M, Baliatsas C, Schoenmakers T, de Bakker D. 2016. Deliverable 3.2. Final Synthesis. Understanding the factors that promote or hinder the implementation of health care interventions for refugees and others migrants in European health care settings. <http://eur-human.uoc.gr/wp-content/uploads/2017/05/D3_2_Final_synthesis.pdf>. Accessed 4 October 2017

28. van de Muijsenbergh M, van Loenen T, Hofmeester M, Lionis C, Mechili AE, Angelaki A, Dowrick C, van Ginneken N. 2016. Deliverable 4.1. Report on the content of optimal primary healthcare for refugees and other migrants based on the outcomes of the expert meeting.http://eur-human.uoc.gr/wp-content/uploads/2017/05/D4\_1\_Report\_of\_expert\_meeting.pdf.Accessed 4 October 2017.

29. Grois N, Auer H, Beeretz I, Blaha-Hauser B, Fohler O, Forstner A, Fröhlich C, Grisold A, Huemer M, Kasper D *et al*. Empfehlungen für medizinische Maßnahmen bei immigrierenden Kindern und Jugendlichen. Pädiatrie & Pädologie. 2016; 51(2):51-58.

30. Finch TL, Rapley T, Girling M, Mair FS, Murray E, Treweek S, McColl E, Steen IN, May CR. Improving the normalization of complex interventions: measure development based on normalization process theory (NoMAD): study protocol. Implementation Sci. 2013; 8:43-43.

31. Meeuwesen L, Tromp F, Schouten BC, Harmsen JA. Cultural differences in managing information during medical interaction: how does the physician get a clue? Patient Educ Couns. 2007; 67(1-2):183-190.

32. Schouten BC, Meeuwesen L, Tromp F, Harmsen HA. Cultural diversity in patient participation: the influence of patients' characteristics and doctors' communicative behaviour. Patient Educ Couns. 2007; 67(1-2):214-223.

33. Capinha-Capote J. The Process of Cultural Competence in the Delivery of Healthcare Services: A Model of Care. J Transcult Nurs. 2002; 13(3):181-184.

34. Saha S, Beach MC, Cooper LA. Patient centeredness, cultural competence, and healthcare quality. J Natl Med Ass. 2009; 100(11):1275-1285.

35. Lam-Antoniades M, Ratnapalan S, Tait G. Electronic continuing education in the health professions: An update on evidence from RCTs. J Cont Edu Health Prof. 2009; 29(1):44-51.

36. Weston CM, Sciamanna CN, Nash DB. Evaluating online continuing medical education seminars: evidence for improving clinical practices. Am J Med Qual. 2008; 23(6):475-483.

37. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. Implement Sci. 2011; 6:42.

38. Flottorp SA, Oxman AD, Krause J, Musila NR, Wensing M, Godycki-Cwirko M, Baker R, Eccles MP. A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implement Sci. 2013; 8(35).

39. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations. Milbank Q. 2004; 82(4):581 - 629.