

An Evaluation on Iran International Public Health Summer School in Relation to its Efficacy Based on Participants' Experience and Opinions

Abstract

Background: A serious challenge to educate health staff for public health is to appear encouraging enough to persuade them for learning issues on this field and implementing new educational methods and innovative ways. Iran International Public Health Summer School (IPHS) made an effort to provide medical sciences students with a fortune to get familiar with and involved in public health. This study intended to evaluate the efficacy of this event. **Materials and Methods:** This cross-sectional study was performed in March–April 2015 by the help of an electronic self-administered questionnaire filled out by 49 Iranian participants 6 months after IPHS2014. The questionnaire assessed the main goals in seven main domains: Interest, activities, and general knowledge in the field of public health, general skills, educational methods, educational and executive schedules, and general satisfaction. **Results:** Average scores of all domains were >3 (the mean), and all were statistically significant. The highest average score belonged to educational methods (3.92) and the lowest was calculated for the item regarding participants' activities on public health (3.5). No significant difference was found between positive answers of individuals who were interested or active in public health prior to the event and those who had no background. **Conclusions:** We believe IPHS was a unique instance in Public Health Education in Iran. Considering the level of success of this program to reach its goals for both students' with or without any previous background on public health, it is recommended as a general model to be simulated in other developing countries.

Keywords: Education, public health, public health professional

Introduction

Based on Winslow's presented definition in 1920, public health refers to "the science and art of preventing disease, prolonging life and promoting health through organized efforts and informed choices of society, organization, public and private communities and individuals."^[1] Public health has a general holistic view and encompasses all individuals or social attempts in line with this approach with a glance at the whole population.^[2] Today, the importance of public health and attention to this issue is not obscure to anyone; as much as in the late 90s, public health was posed as one of the human rights.^[3,4] Considering the pivotal role of public health in community health promotion, it seems necessary for health care providers to be skilled in preventive and health promoting programs beside their ability to treat, not only approaching individuals but also larger populations and the whole community.^[5] However, numerous challenges and various

aspects regarding public health issues in the 21st century have made organization of educational programs a highly noticeable task which requires abundant careful attention. It also seems that former approaches to train, educate, and provide individuals for public health are not thoroughly in line with today's demands and not so appropriate and comprehensive.^[6] The recent fact is also highlighted in the report of the review meeting of the World Health Organization (WHO) expert groups of South-East Asia. Revision of academic curriculum and implementation of new educational methods and more innovative ways for teaching public health to medical students are among the most prominent recommendations of this report.^[7] Though, there is greater emphasis on teaching public health issues to medical students as future managers of health system, necessity of training health care providers at all levels for public health should be taken into consideration.^[8]

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One serious challenge to educate health staff for public health is to appear motive and encouraging enough to persuade them for learning issues in this field.^[9] On the other hand, providing medical students with qualified skills for appropriate understanding and perception leading to opportune act on public health propositions is another important challenging aspect.^[10] Nevertheless, it seems possible to establish a properly planned strategy considering demands of modern public health and its interdisciplinary practical aspects, not only for empowering healthcare providers but also training more professionals and eligible experts in public health field.^[11]

Summer schools are believed to be one of the good ways to motivate students for getting involved and more interested in a specific topic.^[12] History of holding the first summer schools comes from almost a century ago; the oldest available documents of which belong to Cambridge summer school in 1895 and raising number of summer schools have been held afterward.^[13] Like any educational course, summer schools have various impacts depending on the scheme and scopes they follow. Transferring and raising knowledge,^[14,15] improving abilities and capacities,^[16] and developing efficacious connections among enthusiastic individuals and experts in a field^[17] are among most summer schools' goals. Thus, as arbitrary and voluntary courses, summer schools have provided the fortune of better training of students for a specific content and despite the shortage of duration; they have a significant effect on future practice of participants.^[18-20]

Summer schools have been welcomed in Iran since several years ago. In 2010, Royan Institute gathered 200 attendees and set up the first official summer school in Iran,^[21] which has been annually held thereafter.^[22,23] Another known summer school in Iran is Shiraz interdisciplinary summer school.^[24]

Considering the great importance of public health and previously mentioned advantages of summer schools, with the aim of introducing public health issues to medical students and direct their interests toward involvement in this field, the first Iran International Public Health Summer School (IPHS) was held at Kish Island on September 2013. This program was organized with an expanding aim and as a trial for the second IPHS, which could becomingly achieve its goals. The second IPHS was held on September 2014 under the supervision of Isfahan University of Medical Sciences in Isfahan City of Iran, with higher quality- and quantity-related standards both in educational and executive items. Ninety university students studying different majors of medical sciences attended this 1-week course. To apply a stronger engaging power and impressiveness, utilization of modern educational methods were highly considered in the second IPHS to make the most interest in students about public health issues. As an acceptable method which has been indicated to accompany with raised motive and

satisfaction, gamification was found to be a very good choice to use.^[25,26] Although drafting an educational game is a not too easy affair and considering that it is a delicacy and skill required well-organized task, 5 distinct educational games were ultimately designed and implemented in accordance with main topics and aims of second IPHS. As being emphasized, raising knowledge of public health should be combined with gaining suitable abilities besides.^[27] While our main goal in IPHS was raising general knowledge in public health field, general skills improvement comprising attention to details, cooperation and team working, communication skills, creative thinking, problem solving, leadership, team management, and disagreement management were taken into consideration as additional goals, which are known as public health interdisciplinary core competencies.^[28-30]

The present study was intended to weigh the efficacy of second IPHS and its prosperity to achieve its defined goals and effects in seven main domains comprising interest, further activities, and general knowledge in the field of public health, general skills, educational methods, educational and executive schedules of the program, and general satisfaction, based on participants' opinion.

Materials and Methods

The present survey was a descriptive, cross-sectional study evaluating 49 Iranian participants' opinion regarding the effect of the second IPHS on their interests and activities in public health field. This evaluation was performed in March–April 2015 by the help of an electronic self-administered questionnaire filled out by participants 6 months after. Sixty questions gathered in the questionnaire to assess the following seven main domains: (1) The effect of IPHS on making interests in public health field (2) the effect of IPHS on participants' activities in public health field (3) the effect of IPHS on participants' general skills (4) the effect of IPHS on general knowledge of public health (5) participants' opinions regarding educational methods used through the program (6) participants' viewpoint about educational and executive schedules of the program (7) general satisfaction.

The questionnaire consisted of 2 yes/no questions and 58 items of 5-point Likert scale (strongly agree, agree, undecided, disagree, strongly disagree). Questionnaires were all sent for 67 Iranian participants of IPHS2014 via email. Demographic information including age, gender, educational major, and degree was available in IPHS2014 registration database gathered formerly.

Face and content validities of questionnaire were confirmed by 4 experts in public health and medical education fields, and the reliability was assessed on a separate sample of 26 Iranian attendees of the summer school via Cronbach's alpha coefficient which was estimated to be 0.93.

A period of 1-month was considered to receive filled out questionnaires. Reminder text messages were sent and

reminding calls were made to the respondents during this time.

Acquired data were then analyzed by SPSS software package (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY, USA: IBM Corp.) using one-sample and independent *t*-tests as well as descriptive statistical tests such as mean, standard deviation, percentage, and frequency.

Results

From all 67 sent questionnaires, 49 were filled out and sent back which indicates a 73% response rate. Twenty-nine (59.2%) respondents were female, and twenty were male. The range of ages varied from 17 to 26 with the average of 21.37 ± 1.76 years old. The majority of participants (85.7%) were medical students and the portion of pharmacy, radiology, dentistry, and nutrition students were 6.1%, 4%, 2%, and 2%, respectively. Almost 94% were doctorate students while the rest 6% were studying in master degree.

Interest and activity

Thirty-four students (69.4%) stated that they were interested in public health prior to participating in IPHS whereas 15 attendees (30.6%) had no previous interest in this field. Twenty-three of participants (46.9) had some previous experience in public health, and the rest 26 (53.1%) had no activity in this field before IPHS.

The average score for the effect of this summer school on making interest in public health field was calculated 3.54 ± 0.67 ($P < 0.001$), and this score was 3.54 ± 0.85 ($P < 0.001$) for its effect on participants' further activities in public health. Mean value was considered to be 3 in analysis of each item. Forty-three students had become more sensitive and concerned about public health state of the society, and forty individuals stated their raised enthusiasm for being involved in public health discussions. As indicated in Table 1, the items with the highest disagreement in this section were the ones about membership in public health-related websites as well as public health active groups, with which 51% and 44.9% of participants were strongly disagreed. The item asking about IPHS prosperity in making participants interested in public health field got the most agree or strongly agree answers from 34 students (64.5%).

Independent *t*-test showed no statistically significant difference for an average score of any 7 evaluated domains between those who had or did not have prior interest in public health issues as well as those who were previously active in public health field or not (all $P > 0.05$). The comparative data are summarized in Table 2.

Knowledge, skills, and educational methods

Average score for the effect of IPHS on students' general skills was calculated as 3.9 ± 0.62 ($P < 0.001$). The

most applauded items in this domain were those related to the improvement of team working skills and creative thinking in solving health-related problems with which 43 individuals (87.8%) had agreed with no disagree or strongly disagree answers, and also idea development and communication skills improvement with 77.6% and 73.5% agree or strongly agree answers, respectively. In comparison, items related to encourage others to achieve team scopes and skill of solving disparities got less agreed answers, 65.3% and 63.3%, respectively.

Mean score for the effect of this summer school on students' general knowledge of public health was 3.61 ± 0.63 ($P < 0.001$). The most agree and strongly agree choices are illustrated in Table 3, were chosen for the utility of epidemiology knowledge in discovering the etiology of epidemics (81.6%), programming and executive principals in health-related projects (79.6%), and understanding problems and challenges in health management of societies (75.5%). Understanding the effective factors on social justice in health care as well as learning how to write a health-related policy statement were the items with the most disagreed and strongly disagreed responses the disagreement percentage of which were 32.7% and 22.4%, respectively.

The average score of participants' opinion regarding educational methods of the program was 3.92 ± 0.53 ($P < 0.001$). The four items with the highest agreement score were those related to participants' ideas about the effectiveness of group activities on public health learning and the one asking about the appropriateness of selected games in IPHS, both with 87.8% agreement, and the items asking about the effectiveness of lecturing beside group activity and gamification on enhanced learning as well as the item about effect of game-based learning on knowledge consolidation, each with 85.7% positive answers. Related data are shown in Table 3 in more detail.

Educational and executive schedules and general satisfaction

The average score of participants' viewpoint about educational and executive aspects of the program was 3.81 ± 0.46 ($P < 0.001$). There was no disagreement regarding the three following items related to effect of the campus interior designing and decoration on students' enthusiasm for getting more involved in educational programs, positive effect of allocation of a specific place for group activities and also the one asking about participants' comfort because the executive team was made up of students. Each of the mentioned items received 77.6%, 93.9%, and 98.8% positive answers, respectively. Only 25 individuals (51%) were agreed with the idea that involvement of students with different majors was effective on achieving a more comprehensive view of public health.

Participants' general satisfaction got the average score of 3.77 ± 0.7 ($P < 0.001$). All respondents stated their

Table 1: Percentage frequency distribution and average scores of two domains of interest and activity in public health field according to participants' answers

Item	Disagree and completely disagree (%)	Neutral (%)	Agree and completely agree (%)	Mean	SD
This summer school made me interested in public health	20.4	10.2	69.4	3.73	1.05
This summer school made me enthusiastic to know more about public health	2.0	16.3	81.6	3.94	0.71
I have had some studies regarding public health after this summer school	16.3	28.6	55.1	3.29	1.15
I pay more attention to public health news after this summer school	6.1	26.5	67.3	3.69	0.94
I have become a member of some public health related websites after this summer school	51.0	14.3	34.7	2.37	1.46
I have become a member of public health related groups of social networks	28.6	14.3	57.1	3.08	1.41
I have gotten more sensitive about public health issues of my society after this summer school	2.0	10.2	87.8	4.12	0.75
I have become more thoughtful regarding public health issues of my society after this summer school	4.1	8.2	87.8	4.12	0.88
I have become a member of an active group in public health after IPHS	44.9	10.2	44.9	2.67	1.59
I have attended an event or program related to public health after this summer school	26.5	12.2	61.2	3.24	1.46
This summer school gave me good ideas for possible activities on public health	8.2	14.3	77.6	3.94	1.10
I have cooperated in holding an event related to public health after this summer school	26.5	14.3	59.2	3.22	1.46
I have informed my friends about public health news and events after this summer school	8.2	26.5	65.3	3.63	1.01
I have encouraged my friends to get involved in public health activities after this summer school	6.1	22.4	71.4	3.92	1.05
I have become enthusiastic for getting involved in public health related discussions after this summer school	8.2	10.2	81.6	3.92	1.05

IPHS: International Public Health Summer School, SD: Standard deviation

Table 2: Comparison of average scores of all seven domains between students with previous interest and activity in public health and students with no public health background

Domain	Interested in public health		Was active in public health	
	Yes (n=34)	No (n=15)	Yes (n=23)	No (n=26)
Interested in public health after IPHS	3.52±0.72	3.59±0.58	3.67±0.68	3.42±0.66
Had an action on public health after IPHS	3.56±0.88	3.37±0.78	3.85±0.54	3.19±0.95
General competencies	3.99±0.59	3.70±0.65	4.01±0.53	3.81±0.68
Public health knowledge	3.67±0.58	3.48±0.75	3.73±0.62	3.50±0.63
Educational methods	3.88±0.58	4.00±0.41	3.83±0.67	4.00±0.36
Attitudes about educational and executive program	3.82±0.40	3.81±0.59	3.90±0.39	3.74±0.51
Satisfaction	3.75±0.69	3.83±0.74	3.90±0.65	3.66±0.73

IPHS: International Public Health Summer School

pleasure for making new relationships with students from other universities. Forty-five individuals (91.8%) had found involvement in designed games enjoyable, 43 (87.8%) of all were inspired by the executive team which was completely made up of students, and finally, forty students (81.6%) admitted that they recommend attending IPHS to others while according to the data,

only 16 attendees (32.7%) were satisfied with educational aspect of the event. Table 4 demonstrates detailed data regarding educational and executive domains and general satisfaction of participants.

Average scores of all 7 evaluated domains are summarized in Table 5.

Table 3: Percentage frequency distribution and average scores of three domains of knowledge, general skills, and educational methods according to participants' answers

Item	Disagree and completely disagree (%)	Natural (%)	Agree and completely agree (%)	Mean	SD
Group activities of this summer school helped me to respect other ideas more easily	4.1	22.4	73.5	3.92	0.93
I believe This summer school have improved my communication skills	2.0	12.2	85.7	4.08	0.75
Through this summer school I understood the necessity of thinking to various solutions to solve health problems		12.2	87.8	4.16	0.62
This summer school helped me to know how to develop an idea	10.2	12.2	77.6	3.96	1.20
This summer school helped me to know the necessity of minor steps for solving major problems	8.2	20.4	71.4	3.78	1.06
This summer school helped me to improve my team working skills	6.1	6.1	87.8	4.18	1.01
In this summer school, I learned how to engage others to achieve the goal of the team	10.2	24.5	65.3	3.65	1.12
In this summer school, I learned how to manage disparities	16.3	20.4	63.3	3.53	1.30
I know the effects of social determinates of health on community health state	6.1	28.6	65.3	3.71	0.97
I know the factors influencing justice in health care	32.7	16.3	51.0	3.27	1.13
I understood the usage of epidemiology knowledge in discovering etiology of epidemics	8.2	10.2	81.6	3.80	0.97
I know how to write a health related policy statement	22.4	24.5	53.1	3.27	1.39
I learned the basics of leadership in health services	10.2	18.4	71.4	3.61	1.03
I learned the basics of planning and implementation of health related projects	6.1	14.3	79.6	3.88	0.94
I understood existent problems and challenges of social health management	8.2	16.3	75.5	3.78	1.02
Combination of lectures with games and team works improved learning level	6.1	8.2	85.7	4.16	1.02
Appropriate games were presented in this summer school	8.2	4.1	87.8	4.12	1.09
Game-based learning is a proper way of learning for public health issues	8.2	10.2	81.6	4.14	0.91
Gamification method helps consolidation of knowledge	6.1	8.2	85.7	4.16	0.82
Existent competition among groups enhanced participants desire to learn	6.1	14.3	79.6	3.96	0.99
Team workings of this summer school improved learning	4.1	8.2	87.8	4.06	0.68
Team working of IPHS up made a good realization of a health market to produce prototype health related prototype	16.3	20.4	63.3	3.43	1.22
Team working of IPHS up made a good realization of clients of health services	18.4	26.5	55.1	3.35	1.30

IPHS: International Public Health Summer School, SD: Standard deviation

Discussion

Precise gathering, analyzing, and publishing the data of every early event is of great importance. To the best of our knowledge, IPHS was the first short-term course of public health targeted for medical sciences students in Iran, and the published report is comparable with derived data from further similar experiences in other developing countries. The efficacy of the program was evaluated in seven main categories the results of which are discussed below.

Data from the first two evaluated domains - which were the effectiveness of IPHS on participants' interest and activities in public health field - revealed that the most prominent effect of the event was making students more sensitive and thoughtful regarding public health issues and more enthusiastic for getting involved in relevant

discussions. Since our survey was carried out 6 months after the event, students' answers seem nearer to reality than estimations and doubts based on their experienced feelings and actions during or right after the course. Nevertheless, noticeable disagreements with the items indicating necessity of membership in active websites or groups relating to public health, shows that despite receiving the most important message of IPHS and getting vigilant enough for public health, students does not still have positive opinion or experience about active groups; they can join and public health activities on the net. It can be partly due to the lack of information about these possibilities in our country, and the not completely known role of these groups for students. This finding highlights the necessity of informing the attendees sufficiently during such events about the accessible ways they can follow their

Table 4: Percentage frequency distribution and average scores of two domains of Educational and executive schedules and general satisfaction according to participants' answers

Item	Disagree and completely disagree (%)	Neutral (%)	Agree and completely agree (%)	Mean	SD
Appropriate topics were selected for this summer school	6.1	20.4	73.5	3.69	0.87
One week was not a long duration for this summer school	14.3	16.3	69.4	3.71	0.97
Selection criteria according to participants' cover letter and motivation letter was appropriate	8.2	24.5	67.3	3.71	0.93
Appropriate individuals were selected to participate this summer school	8.2	26.5	65.3	3.69	1.06
Being in touch with contact persons of the summer school prior to its initiation was a good ploy	4.1	12.2	83.7	4.02	0.87
The summer school was not held in a proper place	16.3	12.2	71.4	3.73	1.13
Design and decoration of the environment was effective on enhanced involvements in educational program	0.0	22.4	77.6	4.04	0.70
Allocation of a distinct place to each group was effective on learning through group works	0.0	6.1	93.9	4.43	0.61
Half day jaunts and social programs influenced on participants' learning during the summer school	16.3	26.5	57.1	3.43	1.00
Postsummer school trip to Shiraz had motivating effect for participating this summer school	6.1	53.1	40.8	3.53	0.93
Holding the summer school with the help of students as executive team did not lower the quality of the event	14.3	12.2	73.5	3.96	1.09
The executive team made up of students made participants feel more comfortable	0.0	10.2	89.8	4.14	0.57
Participation of students with different majors was effective on making a more comprehensive view of public health	8.2	40.8	51.0	3.55	0.89
This summer school could reach my expectations	28.6	20.4	51.0	3.31	1.10
I'd like to participate a similar course in future if there would be any	8.2	16.3	75.5	3.98	1.14
I recommend others to participate this summer school	4.1	14.3	81.6	4.08	0.93
Educational schedule of this summer school fulfill my expectations	32.7	26.5	40.8	2.88	1.45
Being involved in designed games of the summer school were enjoyable	0.0	8.2	91.8	4.43	0.64
I'm glad for communicating with students of other universities in this summer school	0.0	0.0	100.0	4.59	0.49
I was inspired by the executive team of the summer school which was entirely made up of students	2.0	10.2	87.8	4.18	0.78
Accommodations were satisfactory	26.5	16.3	57.1	3.24	1.05
I'm satisfied with what I've learnt in this summer school	24.5	28.6	46.9	3.31	1.06

SD: Standard deviation

interest and continue their activities on the presented field (public health in this case) more easily after the event and keep in touch with others as a member of authentic groups.

The noteworthy finding was that the majority of participants found IPHS efficacious in general skills improvement, which represents the prosperity of the event to achieve one of its secondary but important educational goals and this success is partly attributable to the presence of team working and practical activities embedded in the scheme. Previous studies have underscored the positive influence of general skills on individuals' main career^[30] and have remarked the necessity of paying more attention to general skills improvement in educational planning.^[31]

While most participants showed satisfaction for getting the content of the utility of epidemiology knowledge section which was presented in a game-based manner, their most negative opinion regarding educational schedule was allocated for the section of policy statement writing, which was taught in a teamwork manner. However, modern educational methods were considered to use for both mentioned sections but the more innate difficulty and complexity of the second item makes the present result sensible to some extent. The difference between the number of disagreed answers to the item talking about justice in health and the item regarding social determinants of health was noticeable whereas there was no big difference

Table 5: Average scores of all seven evaluated domains according to participants' answers

Domain	Mean	Mean score	P
Interested in public health after IPHS	3.54±0.67	3	<0.001
Had an activity on public health after IPHS	3.50±0.85	3	<0.001
General skills	3.90±0.62	3	<0.001
Public health knowledge	3.61±0.63	3	<0.001
Educational methods	3.92±0.53	3	<0.001
Attitudes about educational and executive program	3.81±0.46	3	<0.001
General satisfaction	3.7778±0.70	3	<0.001

IPHS: International Public Health Summer School

between the numbers of positive answers given to these items. This might be because the question regarding justice in health was written as a negative statement.

Among all items, the highest average score belonged to the one asking about the appropriateness of educational methods used in this summer school. Though game-based learning was welcomed by students in our study and was expressed as an element for consolidation of knowledge, some investigations do not support this notion, indicating that gamification method may not be the method of choice for instructing health care providers.^[32] Nevertheless, as being declared by Telner *et al.*, gamified instruction brings higher levels of general satisfaction.^[33] Our findings, in this case, may be due to such an enhanced satisfaction of participants.

According to our findings, most of the students were pleased with the decoration and designs as well as considering a distinct place for team working which were all found as important items influencing on higher involvements. It was also noteworthy that many students had found the young executive team good and qualified enough causing to feel even more comfortable in such an event and it should be taken into consideration, especially in further events that all attendees had the same opinion regarding making new connections with students from other universities in IPHS, and it seems to be one of the most prominent factors affecting general satisfaction of attendees.

In our study, there was no significant difference found between given answers of those who had previous interest and experience in public health field and those who did not, which indicates that this event was interesting and beneficial enough even for those with prior background of public health and had various aspects to make it profitable to everyone.

In a systematic review regarding existent gaps in global health education, it is discussed that most of programs and events of this field are held for medical students and assistants, and the minority define students of other

majors of medical sciences as their target group. The view of participants in our study showed that just half of attendees believed that interdisciplinary aspect of IPHS was positively effective on making a more comprehensive view of public health for them.

Although occurrence of recall bias was probable in our study to evaluate participants' opinion 6 months after the main program and the authors were aware of risk of this kind of bias, it seemed to be inevitable because we needed a time gap to let the participants go, practice, and take actions by their own, so that they could answer questionnaires with more realistic view not only about their satisfaction regarding scientific aspect of the summer school but also about its practical effect on their actions in real world. Considering all these, 6 months seemed good enough to authors to receive data based on both conceptions and further affected experiences of individuals in the field of public health.

All in all, though the lack of interest in public health among students of medical sciences is more prominent in developing countries, most of the engaging programs relating this field or other health-related fields are organized and held by developed countries of North America.^[34] It seems really essential for developing countries to value successful models and make more progress by assessing their points of strength and weakness in public health education programs in their region. IPHS, as the earliest model of this type in Iran, was showed to be of good advantage and is recommended as a general model to be simulated in other developing countries. Further comparable and detailed data of future similar events will help better understanding of required interventions to improve public health education, especially in the frame of a summer school.

Conclusions

Our results pointed to an overall success of raising personal interests and individual actions on public health by students attending the 1 week game-based Public Health Summer School (IPHS2014), but an unaffected tendency to join bigger professional groups of this field, yet. The use of modern educational methods and gamification was properly welcomed by participants, which seemed to be highly effective on their general satisfaction and general skills improvement. IPHS as the earliest model of this type in Iran was showed to be of good advantage and is recommended as a general model to be simulated in other developing countries.

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Conflicts of interest

There are no conflicts of interest.

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