Online Pre-race Education Improves Test Scores for Volunteers at a Marathon

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Physicians, nurses, physician assistants, certified athletic trainers and physical therapists who volunteer to provide medical care for race participants during a marathon may be unfamiliar with the types of injuries and diseases they will encounter. Although pre-race lectures are offered, these may be poorly attended. This study examined whether an online course might be better received and lead to increased knowledge about the medical issues clinicians might encounter during a marathon.

Materials and Methods
IRB approval was obtained prior to initiation of this study. Health care professionals who had volunteered to provide medical coverage for an annual marathon were eligible to participate. A 17-question test regarding the most pertinent medical issues encountered during a marathon was created by the authors and administered before and after the online course. The course took approximately 20 to 30 minutes to complete.

Demographic information about the medical volunteers including their profession, specialty, education level and number of marathons they had participated in were collected. Questions about medical issues were categorized into five groups: general, heat illness, exertional hyponatremia, orthopedic and cardiac.

Descriptive data were described by means and standard deviations. A student t-test was used for comparison between level of education, specialty, experience and each of the question categories when data were normally distributed. For data that were not normally distributed, a Mann-Whitney U test was performed. P value for significance was set at <0.05.

Results
Sixty-five subjects were included in the final analysis (volunteers who took the course and did both the pre- and post-test). The overall average score for the pre-test 10.33 (+/-2.95) and for the post-test was 12.63 (+/-3.67) (p<.0001). Participants who had never previously provided medical coverage during a marathon scored the lowest (8.86 +/-2.96) compared with those who had provided coverage before (in one to five races [11.91 +/-2.25] and six to 10 [10.92 +/-1.65] (p<.0001)). Their scores even after taking the course were still lower by an average of 20% (p=.03) than those of the participants who had previously provided coverage. However, subjects who had never participated and those with less experience had an average improvement of 13% compared with those who had volunteered at more than 10 marathons (p=.013). The greatest improvement was noted in nurses and physician assistants (average 18%). Physicians had higher average pre-test scores than nurses and physician assistants by 1.5%. Their scores were lower than those of certified athletic trainers by 1%. Physicians showed the least improvement on the test scores (2.5%), and their scores on the post-test were lower than those of all the other groups by 11% (p<.0001). Primary care physicians who did not have sports medicine fellowship training scored lower than physicians from all other specialties on both the pre-test and the post-test (7% and 17%, respectively). The topics with the greatest improvement in scores were exertional hyponatremia and heat illness (average improvement of 50% for each topic).

Conclusion
Online pre-race education improved test scores for volunteers who provide medical coverage at marathons. Physicians who are not sports fellowship trained, those with less marathon coverage experience, and nonphysicians are most likely to see improvement in post-test scores. Exertional hyponatremia and heat illness were the subjects that yielded the greatest improvement in scores. Future studies should focus on identifying optimal times and strategies for pre-race education.