

Factors Contributing to Physicians' Success in the Advanced Trauma Life Support Program in Israel

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Abstract

Background: Since its introduction in Israel, more than 4,000 physicians from various specialties and diverse medical backgrounds have participated in the Advanced Trauma Life Support course.

Objectives: To analyze the factors that influence the success of physicians in the ATLS^{®1} written tests.

Methods: A retrospective study was conducted of 4,475 physicians participating in the Israeli ATLS[®] training program between 1990 and 1996. Several variables in the records of these physicians were related to their success or failure in the final written examination of the course.

Results: Age, the region of medical schooling, and the medical specialty were found to significantly influence the successful completion of the ATLS[®] course.

Conclusions: Physicians younger than 45 years of age or with a surgical specialty are more likely to graduate the ATLS[®] course. The success rate could be improved if the program's text and questionnaires were translated into Hebrew.

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Trauma continues to be one of the leading causes of morbidity and mortality. For many years the consensus among the medical profession in Israel was that the level of primary trauma care was satisfactory. A decade ago, several reports questioned the adequacy of the primary care provided to trauma victims in Israel [1,2], and, as a result, an effort was made in recent years to improve emergency trauma care services in this country [3,4]. The Advanced Trauma Life Support course was first introduced in Israel in 1990 [5]. This was an important step towards standardization of the initial care that the injured receive. During the subsequent 6 years, more than 4,000 physicians from various specialties and diverse medical backgrounds participated in more than 200 courses.

The ATLS[®] courses [6] were provided as a joint project of the Israel Defense Force Medical Corps and the Israel Surgical Society [7]. Currently, completing the ATLS[®] course is a requirement in surgical residency training in Israel. It is also an integral part of the curriculum of the Medical Corps officers course and of the training given to army reserve medical officers. The courses are taught by a single faculty and are supervised by the staff of the IDF² School of Military Medicine and the Surgeon General.

The purpose of this study was to retrospectively review data of all the physicians who had attended the ATLS[®] courses and to identify variables associated with success or failure in the program's final examination. The delineation of these factors will be useful for planning the future implementation of the ATLS[®] program in Israel.

Methods

The IDF Medical Corps computerized data bank was scanned for information on physicians who attended the ATLS[®] courses from January 1990 through December 1996. One faculty and the same team of instructors conducted all the courses.

Criteria for failure were defined according to ATLS[®] program regulations. A score of at least 80% on the final written examination was required for graduation [6]. Based on their final scores, physicians were divided into two groups: those who passed and those who failed. Professionally, physicians were divided into two categories: those who practice surgery or surgical subspecialties (including anesthesia and intensive care), and others. Physicians were categorized according to the geographical location of the medical schools from which they graduated. The graduates of medical schools in Israel, where English texts are used in the course of instruction, and the graduates of English-speaking countries were included in one group. Physicians who graduated from medical schools in other countries, especially immigrants from Eastern Europe, comprised the second group. This division was based on the assumption that members of the latter group have a

¹ ATLS[®] = Advanced Trauma Life Support

² IDF = Israel Defense Force

low proficiency in the English language. Physicians were also grouped by age — as younger or older than 45, since this is the age at which compulsory military reserve service ends.

The relative numbers of physicians in these groups were compared and analyzed by the Chi-square test, with the significance level set at $P < 0.05$.

Results

During the 6 year study period a total of 4,475 physicians attended the ATLS® program in Israel; 3,459 (77.3%) successfully completed the course with a final score of 87.7 ± 5 (mean \pm standard deviation), while 1,016 (22.7%) failed, averaging 65.3 ± 8 . A total of 993 (22.2%) failed the final written examination, and 113 (2.26%) failed the skill-station test. In this study, skill-station scores were excluded.

Variables that influenced the successful completion of the ATLS® course are shown in Table 1. Age less than 45 years, fluency in English, and training in surgery or surgical specialties were significantly predictive of successful graduation from the ATLS® training course. Of the students who were graduates of medical schools where instruction requires high English-language skills, approximately 95% passed the examination, compared to only 10.8% of physicians from other places who were assumed to have a low English-language proficiency ($P < 0.001$). The proportion of failures was twice as large among the older students than the younger group ($P < 0.001$). With regard to the participants from surgical specialties, the success rate was 82.3% compared to 75.1% among the physicians specializing in non-surgical disciplines ($P < 0.001$).

Discussion

This study was conducted in order to improve allocation of the limited resources for ATLS® training in the military setting. The identification of factors that influence failure or success is necessary to improve the selection of physicians for the course and for their prospective assignments, and is crucial for planning future courses in Israel.

The primary trauma care system in Israel is unique in that the civil and military emergency medical systems are closely related. Physicians of all ages and of diverse medical backgrounds participate in the ATLS® program, either as part of a requirement for surgical residency training or as part of their compulsory training as military medical officers [8]. The IDF Medical Corps is largely based on reserve units, where physicians are required to serve until they reach the age of 51 years regardless of their medical specialty. As such, they may be called upon to treat trauma victims even though trauma care is not a regular part of their day-to-day practice. The ATLS® program was therefore introduced as a component of the IDF Medical Corps officer training course.

A number of instructors have claimed that some physicians arrive at the course poorly motivated and without having done any of the assigned preparatory reading. Sev-

Table 1. Performance of physicians in the final examination of ATLS® courses in Israel 1990–96

Category	n	Passed	Failed	P value
Overall	4,475	3,459 (77.3%)	1,016 (22.7%)	
Age group (yr)	3,894			<0.001
24–44		2,270 (82.8%)	471 (17.2%)	
45–55		717 (64.7%)	391 (35.2%)	
Medical education	2,351			<0.001
English emphasized		1,712 (94.5%)	100 (5.5%)	
English marginal		58 (10.8%)	481 (89.2%)	
Specialty	3,110			<0.001
Surgical		1,036 (82.9%)	213 (17.1%)	
Non-surgical		1,396 (75.1%)	462 (24.9%)	

eral explanations have been offered for this lack of incentive: a) since no fees are charged for the course, some students feel they are not obligated to make a personal investment; b) some may suspect that success in the program may result in their assignment to combat units; and c) individual physicians have varying degrees of motivation or apprehension regarding military service. These variables might have affected the outcome of this study, but we were not able to measure their magnitude or their significance.

It is possible that setting a minimum passing grade in the ATLS® pre-course examination as a condition for enrollment may induce students to fulfill the reading assignment in preparation for the course. This strategy could improve the success rate of the students.

The factors associated with passing the ATLS® written final examination identified younger age, medical education that emphasized English-language proficiency, and surgical training. Command of the English language remains a major obstacle, as evidenced by the higher passing rate obtained in the practical examination compared to the written one (97.3% versus 77.3%). The population of physicians in Israel includes many who immigrated from non-English speaking countries [9]. Since their integration into the new society and professional life includes learning Hebrew, it is expected that translation of the ATLS® training material into Hebrew could improve their rate of success. We recommend that such translation be undertaken as soon as possible.

Since physicians with a surgical background have more exposure to trauma care than their colleagues, their higher success rate in the course is not surprising. Nonetheless, the adequacy of the ATLS® course for surgeons is controversial [10,11]. The value of the course in improving trauma care is widely recognized in Israel, and both physicians and surgeons should be encouraged to participate in the program, bearing in mind that the ATLS® course is not a substitute for years of accumulated experience.

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Capsule



Kidney filter failure

Regions in the kidney, the glomeruli, filter blood during urine formation. Glomerular epithelial cells, the podocytes, establish a filtration barrier by extending protrusions that interact to form a tight web called the slit diaphragm.

Shih et al. report that mice that do not express a cytoplasmic protein called CD2AP die of renal failure due to defects in these podocyte contacts. CD2AP was first characterized as a protein that assists in T cell adhesion to

antigen-presenting cells in the immune system. The authors report that CD2AP localized to podocyte processes in the kidney as well. CD2AP also interacted with nephrin, a membrane protein thought to maintain the integrity of the slit diaphragm. Hence, CD2AP may have a general role in facilitating specialized cell-cell adhesion complexes and may be implicated in certain nephrotic syndromes.

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