Original articles

Advanced Trauma Life Support instructor training in the UK: an evaluation

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Summary

The paper reports on a questionnaire evaluation of the UK-based ATLS (Advanced Trauma Life Support) instructor course. The trainee instructors who responded were mainly at consultant grade with some senior registrars. The course was regarded as being very effective in achieving most of its objectives and in raising the confidence of postgraduate medical instructors, especially those lacking previous training in instructional methods. This is particularly so for practical skills training. The least effective areas of the course concern small group teaching and questioning techniques.

Keywords: advanced trauma life support programme; training

The advanced trauma life support (ATLS) programme for physicians was devised by the American College of Surgeons in 1978.¹ The ATLS programme introduced to the UK under the auspices of the Royal College of Surgeons of England consists of two separate courses. The ATLS **provider** course is aimed at those physicians who need the knowledge and skills of ATLS in order to perform their duties on a daily basis. The ATLS **instructor** course is designed to provide approved instructors who can act as teaching faculty on ATLS provider courses. This instructor course is the focus of the present study.

The programme of course provision is now an approved aspect of postgraduate medical training in the UK. This growth is partly in acknowledgement of the effectiveness of the ATLS procedures in trauma care and the general recognition among all specialists involved in trauma care that an ATLS qualification is desirable for career progression. There is a wealth of published evidence to show that ATLS courses bring about an improvement in trauma care. Several authors have reported the positive outcomes of ATLS training.^{2–4}

More recently, initiatives in postgraduate medical education in the UK have meant that all hospital trust practitioners who also undertake teaching and training duties must have formal training in teaching methods. The ATLS instructor course seems to be in a good position to fulfil one element of such a requirement.

With these issues in mind and thinking especially of the rapid growth of ATLS course pro-

vision, it seemed an appropriate time to conduct a large scale evaluation of the ATLS instructor course. Such an evaluation is made more interesting by the fact that the postgraduate training provided is directed at highly qualified, successful and articulate hospital doctors who are likely to offer a perceptive and critical appraisal of any training courses which they experience.

The main aim of the study was to evaluate the effectiveness of the present ATLS instructor course (as offered in the UK) in providing experienced physicians with the training skills necessary to deliver successfully an ATLS provider course.

The ATLS instructor course

All instructors must be able to:

- deliver a lecture on ATLS core content and procedures
- teach specific practical and surgical skills to ATLS providers
- run divergent and convergent discussion groups in dealing with patient triage decision making
- manage initial skills assessment work stations in which trainees assess and stabilise a trauma patient
- project the value and worth of ATLS philosophy and procedures to their trainees
- constructively criticise the performance of trainees and assess the performance of trainees as objectively as possible.

The ATLS instructor course achieves these aims over a period of two intensive days of demonstrations, employing active and interactive learning experiences. Over this two-day period each participant is assessed in six areas:

- core knowledge is tested by multiple-choice questions
- lecturing skills are tested during peer group microteaching exercises
- practical skills teaching is assessed during practical skill station exercises involving peer group teaching
- management of an initial skills assessment exercise is assessed by conducting a moulage
- critiquing skills are tested throughout the course by requiring peer groups to critique instructor faculty and themselves under supervision
- discussion skills are tested during peer group microteaching exercises.

If a participant is successful in all areas they are deemed to have passed the course and are regarded as instructor candidates.

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The instructor course has four basic but related elements and all participants are required to:

- teach a practical skill station
- present a mini-lecture or run a discussion group on an ATLS topic
- manage an initial skills assessment moulage
- act as a critiquer for different peer group members on each of the three exercises outlined above.

The participants work in small teams of four or five, learning the presentation skills by practice and by mutual critiquing and reflective discussion of their performances. These activities are interspersed with inputs from the educator on topics such as formulating training objectives, structuring lectures, running discussion groups, and using appropriate questioning techniques.

Aims of the evaluation study

The study was set up to assess the extent to which the ATLS instructor course enables successful instructor candidates to teach on ATLS provider courses, and to identify any teaching skills which might require further development. The extent to which the ATLS instructor course increased the confidence of medical trainers was assessed. The relation between previous experience in training and the usefulness of the ATLS course components provision was also examined.

Methodology

A total of 175 questionnaires were sent in a single mailing to individuals who had completed an ATLS instructor course in 1994, 1995 and 1996. Those receiving the questionnaires were aware that the survey was being conducted by an ATLS educator, with a view to revising the instructor course. Respondents were not required to identify themselves in their responses. The analysis presented here is based on 117 replies received; a response rate in excess of 66%. It is important for the reader to consider the type of people who were responding since in this case it acts as a further validation of the results. All of the respondents held the post of registrar or above, with almost 33% being senior registrar and almost 53% being consultants. A similar profile was found amongst the non-respondents.

More than 75% of the respondents work in accident and emergency medicine, anaesthetics or orthopaedics while 17% came from other areas of surgery. Almost all of the respondents had some previous teaching experience prior to ATLS training but 31% described themselves as being 'not very experienced' in this respect. When asked how much training as instructors they had received prior to ATLS the results were quite significant; 39% had never received any training in instructional methods and only 18% claimed to have received a reasonable amount of such training. So fewer than one in five of the respondents claimed to have had reasonable training in instructional techniques, although 70% had more than limited teaching experience. All of the respondents had com-

pleted an ATLS instructor course and had also acted as an instructor on at least one ATLS provider course; 74% of the responders had taught on up to three ATLS provider courses while 25% had acted as instructors on four or more courses.

How successful is the ATLS instructor course?

Respondents were invited to compare (on a seven-point scale) the quality of previous post-graduate training they had received with that provided by ATLS. The results are shown in table 1.

The respondents' rating of the ATLS instruction was much higher than that given to any previous training, regardless of the degree of previous teaching experience. What was rather surprising was the low rating given by such senior practitioners to their previous training experiences.

A similar seven-point scale was used to assess the confidence of the respondents as trainers, both before and after the ATLS instructor course. Table 2 shows that there is again clear evidence that the ATLS instructor course had significantly raised the training confidence of most of the respondents.

These two results are very gratifying and reflect the careful attention to training needs which preceded the original design and subsequent revisions to the ATLS instructor course. Interestingly, those respondents who were not already experienced trainers recorded very low confidence ratings prior to ATLS (mean 3.14) but this same group had a confidence rating of 5.36 after the course.

Of the large group who had received very little prior training on instructional methods, only 13.6% indicated high levels of confidence prior to the ATLS course while 92.6%

Table 1 A comparison of the quality of ATLS and other training

	<i>Previous training</i>		<i>ATLS training</i>
High quality	7	2	25
	6	7	68
	5	19	18
Average	4	19	2
	3	23	2
	2	28	0
Low quality	1	12	0
Mean score		3.6	6.0

Table 2 Pre and post-ATLS training confidence

	<i>Pre-ATLS</i>		<i>Post-ATLS</i>
Very high	7	2	8
	6	7	65
	5	17	33
Average	4	39	9
	3	42	0
	2	9	0
Very low	1	0	1
Mean score		3.8	5.57

recorded high levels of confidence after the ATLS course.

Taken as a whole these results indicate clearly the overall success of the ATLS instructor course as a means of giving initial experience in instruction to potential trainees. The significant positive effects on the least prepared and least experienced respondents indicates that the ATLS course is addressing fundamental training objectives rather than simply building on experiences and expertise gained elsewhere.

The ATLS instructor course is delivered as a short intensive experience with a very high tutor:trainee ratio of about 1:2. Thus the degree of tutor : trainee interaction is extremely high and is enhanced because it comes from a wide variety of tutor expertise. Mann and Chayter⁵ have suggested that for continuing medical education to be successful then the courses need to be based on an integrated theoretical perspective which can guide learner needs analysis and ATLS courses are designed in precisely this manner. It is also the case that the ATLS instructor course is highly active from the point of view of the learner. Opportunities abound for learners to demonstrate, practice and refine their teaching skills within the context of ATLS.

Does the ATLS instructor course prepare respondents to teach an ATLS provider course?

The instructor course focuses on how to convey ATLS core knowledge and skills. Members of the instructor faculty, who are experienced ATLS trainers, are encouraged to help their less experienced colleagues during provider courses since it is accepted that the initial two-day intensive course will not fully develop all aspects of training. This supportive team ethos is a fundamental aspect of all ATLS instruction.

In this survey, 97% of respondents felt they had received a lot of help of this nature from more experienced faculty. Perhaps as a result of this support, over 74% of respondents had found it easy to assume the role of instructor on their first provider course. Clearly the ATLS committee would prefer this figure to be even higher but for 75% of all new instructors to feel comfortable as they undertake the role is quite impressive.

The ATLS course is divided into distinct instructor activities. The trainee may be involved in lecturing and in running discussion groups, practical skill stations and initial assessment moulage as well as critiquing and assessing participants. The respondents were asked to rate their confidence in executing each of the main instructional tasks on a provider course. The results are summarised in table 3.

The results suggest that not all skills are equally well developed and that interactive skills in particular (running discussions and counselling participants) have lower confidence ratings than other skills. However, more familiar, subject-related skills (practical skills and the moulage) are highly rated. The high

Table 3 Respondents' confidence in undertaking specific provider course training activities

<i>Skill</i>	<i>% expressing high confidence</i>	<i>% expressing no confidence</i>
Lecturing	54	5
Practical skills	71	4
Running moulage	63	4
Test moulage	65	8
Triage discussion	39	11
Critiquing participants	64	7
Assessing participants	56	4
Counselling participants	43	15

ratings given to the practical skills teaching is undoubtedly due in part to the familiarity of these skills but it is probably also a tribute to the ATLS training method which follows closely the four-stage instructional model advocated by Seymour.⁶ In this model the learner must first know what needs to be done, then have the skill demonstrated before first verbalising the skill, then undertaking the skill, and finally developing proficiency.

In general terms the confidence of the trainers increases as they experience more provider courses. Table 4 summarises the effect on confidence of increased ATLS provider course experience.

What is interesting is that confidence increases with experience in most of the training activities but in the areas of critiquing participants and informal counselling of participants, self-confidence is reduced with experience. Significantly, these two areas both require the trainer to have good analytical and interactive skills including the ability to empathise with and be supportive of the trainee on a one to one basis. It may be that with greater experience the trainer becomes aware of more complexities and nuances in such interactions and is consequently more prepared to acknowledge his/her own limitations.

Respondents were asked to indicate where they felt they needed additional emphasis or instruction across the range of specific skills used on the provider course. The results are summarised in table 5.

While the overall course was rated as being very useful, some aspects of the course were seen to require further additional input. While a great deal of practical experience is provided during the two-day course, 36% of trainee instructors felt that it was too short while less than 2% of participants felt that it was too long. This response is emphasised by less experienced trainers where 47% felt that the course was too short.

Table 4 Confidence (%) in ATLS training procedures in relation to provider course experience

	<i>1-2 courses</i>	<i>3 or more courses</i>
Lecturing	51	67
Practical skills	71	82
Running moulage	61	75
Test moulage	65	77
Triage discussion	51	61
Critiquing participants	70	61
Assessing participants	59	71
Counselling participants	51	44

Table 5 Provider teaching skills requiring greater degrees of emphasis

	% Requiring further input		
	<i>A little</i>	<i>A lot</i>	<i>Total</i>
Planning lectures	32	20	52
Delivering lectures	30	16	46
Asking questions	25	11	36
Using AV aids	26	13	39
Teaching practical skills	21	16	37
Running moulages	22	24	46
Assessing moulages	27	17	44
Critiquing students	16	14	30
Assessing students	27	15	42
Running triage discussions	29	17	46
Running other discussions	22	13	35

The request for further training support was analysed against the perceived length of the ATLS instructor course. Again it is apparent that those participants who have not had much previous training in instructional techniques are the ones who feel the need for supplementary training input. There may be some merit in considering the possibility of offering a two-day ATLS instructor course for more experienced trainers while requiring less experienced trainers to complete a three-day training programme.

There is little published work related to the effect of ATLS on specific training abilities but Gautam and Heyworth reported that A&E nurses who have attended ATLS courses score low on triage-related issues which are dependent on good interactive discussion skills on the part of the trainer.⁷ Since, in the experience of the author, trauma nurses usually display well developed interpersonal skills, this is taken to be a reflection of the weakness of the ATLS course in this respect.

Specific components of the ATLS instructor course

Finally, an in-depth analysis of the detailed components of the ATLS instructor course was carried out. Participants were asked to rate the usefulness of 19 course components/experiences from the ATLS instructor course. These are presented in table 6 where the figures recorded are from participants choosing the very positive responses of 'extremely useful' and 'quite useful' from a five-point scale.

When previous training experience is used as a cross-reference it is seen that, in general, the components of the ATLS instructor programme are perceived as most useful by those with little or no training experience. However, the findings in table 6 reveal a number of specific issues. The development of questioning techniques (an essential precursor to the delivery of interactive lectures, discussions or skill stations) is relatively poorly developed in the course. The demonstration of triage discussion technique (which is dependent on good questioning technique) also needs to be improved. Triage discussions are essentially small group teaching strategies and in ATLS, small groups are used as an opportunity to recall previous knowledge, to focus on

Summary points

- consultants and senior registrars form the majority of trainees attending UK ATLS instructor courses
- the ATLS instructor course is regarded by the trainees as an example of high quality postgraduate medical education
- the course promotes high levels of trainee confidence, even among trainees with little previous training experience
- the confidence and expertise developed in the ATLS instructor course is further developed by experienced instructor faculty when instructor candidates take part in their first few provider courses
- training skills requiring expertise in interactive methods are less well developed than are more didactic strategies
- trainees with little or no previous experience in training are most appreciative of the ATLS instructor course
- the ATLS instructor course is successful in enabling new instructors to learn the basic skills required to deliver an ATLS provider course

problem-solving activities and to move towards influencing trainee attitude. These are all acknowledged as valid small group objectives.⁸ However, the development of instructional techniques using interactive small groups requires the acquisition of complex skills on the part of the trainer. Bramley⁹ comments on the variety of special skills needed for good small group teaching and emphasises the support of a peer group in acquiring such skills. Van Ments¹⁰ also emphasises the complex and potentially varying role of the small group tutor. The conclusion seems to be that small group management skills are complex and versatile and it is desirable to focus more clearly on these skills within the two day training programme.

Perhaps predictably, those with the least prior experience of instruction found the practical elements of the course very useful.

Table 6 The usefulness of ATLS Instructor Course components in relation to previous experience

	Usefulness rating (%)		
	<i>All</i>	<i>Very experienced</i>	<i>Not very experienced</i>
Pre-course information	57	67	55
ATLS philosophy	52	48	53
Faculty role	62	62	62
Demonstration lectures	84	76	85
Critiquing faculty	73	76	73
4 step skill model	68	71	67
Running skills	74	71	75
Critiquing skills	69	52	73
Demonstration of triage	58	57	58
Demonstration of microteaching	76	71	78
Microteaching work	83	71	86
Microteaching critiques	76	71	77
Discussion of teaching	70	52	74
Running moulage	69	57	72
Critiquing moulage	71	57	74
Questioning techniques	53	48	55
Criticism from faculty	76	62	79
Discussions with peers	67	71	66
Discussions with faculty	71	62	73

Running a skill station or a small group discussion or delivering a lecture, critiquing the presentations of their peers and the constructive criticism provided by the faculty members, were all rated as very useful by at least 75% of the less experienced trainers.

This detailed analysis has meant that we shall be able to attend to those specific aspects of the instructor course which fall below the overall high standard and seek to improve them still further. However these specific responses, together with the earlier general responses, indicate that ATLS instructor courses are extremely successful in their contribution to postgraduate medical education in general and to trauma care in particular.

Conclusions

ATLS instructor courses provide the instructors who deliver ATLS provider courses. The very high value attributed to ATLS personnel in trauma therapy is a direct reflection on the quality of ATLS instructor courses. This is

reinforced by the extremely positive responses generated in this survey and the very high ratings attributed to ATLS instructor training quality and the high levels of confidence of ATLS instructor candidates.

However it is clear that more careful attention needs to be paid to the development of interactive skills related to questioning and the management of discussion groups. These latter skills might be regarded as general training skills rather than specific, ATLS-related skills and they are not well developed in the two-day instructor course. It may be that an intensive two-day programme does not allow the full development of complex interactive skills but this is something which the ATLS educators will need to consider in part of the ongoing process of refining the ATLS provision.

The author is an approved Educator for the ATLS programme of the Royal College of Surgeons of England and for the Royal Colleges of Surgeons and Physicians of Glasgow and Edinburgh.

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