

# BATLS/BARTS/BBTLS TRAINING FOR SWEDISH ARMED FORCES MEDICAL PERSONNEL – A TEN YEAR RETROSPECTIVE STUDY

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## Abstract

**Objective:** The British BATLS/BARTS concept was introduced in Sweden in 1998. Perceived changes within the student group, regarding purposes for taking the course and previous trauma training were the subject of the study.

**Methods:** Records from all Swedish courses during 1998-2007 were examined and analyzed.

**Results:** In all, 61 courses with a total of 1254 students were conducted. Among the participants were 295 doctors, 764 nurses, 176 medical orderlies and 19 belonging to other categories. The course has by time become a pre-mission course. Also, a large number of the students now have previous (often civilian) trauma life support training.

**Conclusion:** When the British BATLS/BARTS concept was introduced in Sweden ten years ago, the general level of trauma training among medical personnel was inadequate for the wartime needs of the Armed Forces. Today, the majority of individuals selected for international service already have previous trauma life support training. This has led to the courses now being aimed mainly at improving their knowledge of the tactical medical skills particular to the environment in which they will serve.

## Introduction

The Advanced Trauma Life Support (ATLS) course was developed in response to a perceived need to identify a safe, consistent, standardized, and effective way to initially evaluate and resuscitate patients with multiple injuries. Originally focusing primarily on the physician who treats injured patients infrequently, the ATLS program has become the generally accepted norm for trauma training. Most scholars agree that the common foundation and language of ATLS is advantageous and constitutes an excellent method for training students in the initial resuscitation and evaluation of injured patients [1]. ATLS training has also been found to have a clinical impact on the outcome of injured patients, with a decreased mortality during the “golden hour”, i.e. the first hour after trauma [2].

ATLS takes a standardized approach to casualty management, appropriate for civilian trauma, which is mainly blunt trauma due to road traffic accidents or falls. In short, it is a course for physicians working in the safe environment of a hospital. It was understood early that these principles had to be adjusted for the military environment. Practical modifications to ATLS protocols for the military environment have been described by Bellamy [3], who emphasised surgical airway management in destructive ballistic injuries of the face and de-emphasised cervical spine management in penetrating neck injury.

Furthermore, in armed conflict, the distance from place of injury to a first aid post or field hospital can be vast and the equipment limited. The provision of timely and balanced

resuscitation to the austere battlefield environment is an issue requiring an understanding of both the tactical and the clinical demands. The indiscriminate application of civilian techniques and approaches to trauma management is not possible [4,5].

Due to these limitations of the ATLS course, the British Army developed a specific military course, based upon the principles of ATLS but augmented and adjusted in order to fit military needs. The course was named Battlefield Advanced Trauma Life Support (BATLS) and was introduced in the United Kingdom in 1987. Some years later, a similar course for other providers of medical care such as nurses and medical orderlies was introduced. This was named Battlefield Advanced Resuscitation Techniques and Skills (BARTS), and was given in parallel with the BATLS course. Both courses use the same format as the ATLS course with interactive lectures, hands-on skills stations, group discussions and practical moulage training. The mandatory training in the BATLS/BARTS concept has improved care of wounded in recent conflicts [6].

## BATLS/BARTS in Sweden

In the Swedish Armed Forces, the need for a new organisational structure was identified in the late 90's. In this structure casualties would be picked up on the battlefield by armoured medical evacuation vehicles and transported directly to the battalion aid station. Also, the need for a battlefield-related trauma course in order to increase the training level of all medical personnel was recognized [7].

The British BATLS/BARTS concept was introduced in Sweden in August 1998, when five instructors from the U.K. conducted the first course in Sweden. The BATLS/BARTS course was soon declared mandatory for all doctors and nurses serving with the Swedish Armed Forces (SwAF). A Swedish course manual has been available since 2001 [8].

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With the increasing need to raise the level of knowledge among the medical orderlies needed for international missions, a third course (Battlefield Basic Trauma Life Support, BBTLS) was developed for this category. Thus, the basic Swedish course concept until now has been the following:

BATLS (Battlefield Advanced Trauma Life Support) – for doctors.

BARTS (Battlefield Advanced Resuscitation Techniques and Skills) – for nurses.

BBTLS (Battlefield Basic Trauma Life Support) – for medical orderlies.

The BATLS/BARTS/BBTLS courses are given in parallel for different categories of personnel. All personnel participate in the lectures but in the skills stations the participants are only trained in the skills adequate for their profession. Occasionally, other categories of health care personnel have been allowed to participate in the courses. Also, some military health care personnel from other nations, as well as civilian health care personnel from collaborating hospitals, have been invited to attend the Swedish courses.

In time, two trends have been observed among Swedish Armed Forces medical personnel:

- 1) The BATLS/BARTS/BBTLS courses have become pre-mission training.
- 2) Students now more often have a previous trauma life support training when they attend the mandatory BATLS/BARTS/BBTLS course prior to an international mission.

The objectives of this paper are to:

- Present cumulated data of participants (all categories) in the Swedish BATLS/BARTS/BBTLS courses during the period 1998-2007.
- Present the number of Swedish Armed Forces medical personnel taking a BATLS/BARTS/BBTLS course either as pre-mission training or as continued training during the same period.
- Present the occurrence of previous attendance at similar courses among Swedish Armed Forces medical personnel taking a BATLS/BARTS/BBTLS course prior to an international mission.

## Material and methods

### Participants in Swedish BATLS/BARTS/BBTLS courses during the period 1998-2007

Records of all BATLS/BARTS/BBTLS students, from the first Swedish course in August 1998 until the end of 2007, were examined. Students have been categorized into the following categories:

*Doctors:* SwAF Regular Officers, SwAF Reserve Officers, SwAF conscripts, SwAF volunteers for international missions, military participants from other nations, civilian participants.

*Nurses:* SwAF Regular Officers, SwAF Reserve Officers, SwAF conscripts, SwAF volunteers for international missions, military participants from other nations, civilian participants.

*Medical orderlies:* SwAF active duty, SwAF volunteers for international missions.

*Other categories:* SwAF Regular Officers, SwAF Reserve Officers, SwAF volunteers for international missions.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	TOTAL	
<b>Number of courses</b>	<b>2</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>61</b>	
<b>Doctors</b>	<b>12</b>	<b>45</b>	<b>40</b>	<b>67</b>	<b>41</b>	<b>19</b>	<b>21</b>	<b>16</b>	<b>13</b>	<b>21</b>	<b>295</b>	
- SwAF regular officers		4	1	3	5	3	5	1	2	2	26	
- SwAF reserve officers		5	8	6	3	9	3	1			35	
- SwAF conscripts		7	33	30	29	19	4	8			130	
- SwAF volunteers for international missions				3	12	7	9	7	15	11	19	83
- military participants from other nations					20						20	
- other (civilian participants)						1					1	
<b>Nurses</b>	<b>33</b>	<b>56</b>	<b>100</b>	<b>122</b>	<b>72</b>	<b>86</b>	<b>75</b>	<b>76</b>	<b>52</b>	<b>92</b>	<b>764</b>	
- SwAF regular officers		27	6	2	27	18	17	36	20	9	4	166
- SwAF reserve officers			8	5		1		1				15
- SwAF conscripts		6	39	62	56	23	24	21	13			244
- SwAF volunteers for international missions			2	27	33	23	44	17	43	43	84	316
- military participants from other nations					5						4	9
- other (civilian participants)			1	4	1	7	1					14
<b>Medical orderlies</b>	<b>0</b>	<b>16</b>	<b>11</b>	<b>12</b>	<b>31</b>	<b>18</b>	<b>12</b>	<b>30</b>	<b>26</b>	<b>20</b>	<b>176</b>	
- SwAF active duty		16	5	1	22	9						53
- SwAF volunteers for international missions				6	11	9	9	12	30	26	20	123
<b>Other categories</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>19</b>	
- SwAF regular officers					1							1
- SwAF reserve officers		2	4	2								8
- SwAF volunteers for international missions					1			1	3	5		10
<b>Total</b>	<b>47</b>	<b>121</b>	<b>153</b>	<b>203</b>	<b>144</b>	<b>123</b>	<b>109</b>	<b>125</b>	<b>96</b>	<b>133</b>	<b>1254</b>	

Table 1. Participants in BATLS/BARTS/BBTLS courses conducted in Sweden during the years 1998-2007.

**Reason for taking the BATLS/BARTS/BBTLS course during the period 1998-2007**

Swedish Armed Forces medical personnel (doctors, nurses and medical orderlies) were categorized as to whether they were taking the BATLS/BARTS/BBTLS course as a prerequisite to an international mission or if they were taking the course merely for continued training.

**Previous attendance at similar courses among Swedish Armed Forces medical personnel taking a BATLS/BARTS/BBTLS course prior to an international mission.**

All doctors, nurses and medical orderlies attending a BATLS/BARTS/BBTLS course in one year (2006) have been asked about previous attendance at a BATLS/BARTS/BBTLS course or a “similar civilian course” according to this scheme:

- Doctors: Military course (BATLS), civilian courses (ATLS, PHTLS).
- Nurses: Military course (BARTS), civilian courses (TNCC, ATCN, ATSS, PHTLS).
- Medical orderlies: Military course (BBTLS), civilian course (PHTLS).

**Definitions:**

- TNCC = Trauma Nurse Core Course
- ATCN = Advanced Trauma Care for Nurses
- ATSS = Akut Traumasjukvård för Sjuksköterskor  
(a Swedish basic trauma care course for nurses)
- PHTLS = PreHospital Trauma Life Support

**Results**

From 1998 to 2007 61 courses were conducted in Sweden BATLS/BARTS/BBTLS courses conducted in Sweden with a total of 1254 students. Table I shows the number and categories of students.

The total number of doctors (295) was distributed in the following way: SwAF Regular Officers (26), SwAF Reserve Officers (35), SwAF conscripts (130), SwAF volunteers for international missions (83), military participants from other nations (20) and civilian participants (1). Military participants from other nations included doctors from Estonia, Latvia, Lithuania and Norway. The single civilian participant was an orthopaedic surgeon from the Central Hospital in Karlstad, frequently engaged to give the extremities lecture on the BATLS/BARTS/BBTLS courses at the Armed Forces Medical Centre.

The total number of nurses (764) was distributed as follows: SwAF Regular Officers (166), SwAF Reserve Officers (15), SwAF conscripts (244), SwAF volunteers for international missions (316), military participants from other nations (9) and civilian participants (14). Military participants from other nations included nurses from Finland and Norway. Civilian participants included nurses from the Central Hospital in Karlstad, The Swedish Rescue Services Agency and The Swedish Red Cross.

The total number of medical orderlies (176) was distributed in the following way: SwAF active duty (53) and SwAF volunteers for international missions (123). A large proportion of the volunteers for international missions consisted of people with a civilian background as Paramedic or Licensed Practical Nurse at hospital A&E departments.

The total number of other categories (19) was distributed as follows: SwAF Regular Officers (1), SwAF Reserve Officers (8) and SwAF volunteers for international missions (10). The SwAF Regular Officer was a pharmacist. SwAF Reserve Officers included veterinary surgeons and environmental health officers. SwAF volunteers for international missions included platoon leaders, Medical APC drivers, and one environmental health officer.

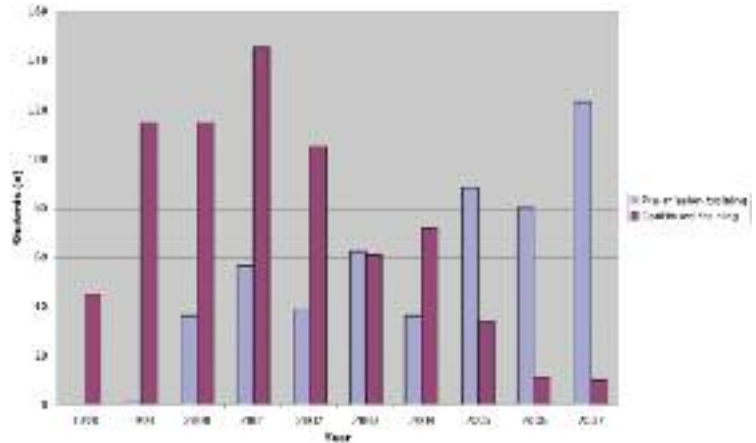


Figure 1. The number of Swedish Armed Forces medical personnel (doctors, nurses and medical orderlies) taking the BATLS/BARTS/BBTLS course, either as pre-mission training or as continued training during the period 1998-2007.

Fig. 1 shows a graphic display of the number of Swedish Armed Forces medical personnel (doctors, nurses and medical orderlies) taking the BATLS/BARTS/BBTLS course either as pre-mission training or as continued training (not pre-mission) during the period 1998-2007. The trend that the course has become pre-mission training is similar for all categories.

Category	n	Previous military course (%)	Previous civilian course (%)	Previous mil/civ course (%)			
<b>Doctors</b>	<b>11</b>	<b>3</b>	<b>27%</b>	<b>6</b>	<b>55%</b>	<b>7</b>	<b>64%</b>
Afghanistan	7	2	29%	5	71%	5	71%
Other int mission	4	1	25%	1	25%	2	50%
<b>Nurses</b>	<b>43</b>	<b>19</b>	<b>44%</b>	<b>18</b>	<b>42%</b>	<b>31</b>	<b>72%</b>
Afghanistan	20	12	60%	10	50%	17	85%
Other int mission	23	7	30%	8	35%	14	61%
<b>Medics</b>	<b>26</b>	<b>3</b>	<b>12%</b>	<b>5</b>	<b>19%</b>	<b>7</b>	<b>27%</b>
Afghanistan	9	1	11%	3	33%	3	33%
Other int mission	17	2	12%	2	12%	4	24%

Table II. The number and percentage of Swedish Armed Forces medical personnel who previously had taken at least one short trauma course prior to taking a pre-mission BATLS/BARTS/BBTLS course in 2006.

Table II shows the number of Swedish Armed Forces medical personnel who previously had taken at least one short trauma course prior to taking a pre-mission BATLS/BARTS/BBTLS in 2006.

*Doctors:* Of 11 doctors, 7 (64%) had taken at least one previous short trauma course prior to the present BATLS course.

*Nurses:* Of 43 nurses, 31 (72%) had taken at least one previous short trauma course prior to the present BARTS course.

*Medical orderlies:* Of 26 medical orderlies, 7 (27%) had taken at least one previous short trauma course prior to the present BBTLS course.

Medical personnel going to Afghanistan in general have more previous training than those going to other mission areas.

**Discussion**

**Participants in Swedish BATLS/BARTS/BBTLS courses during the period 1998-2007**

The BATLS course has been mandatory for all Swedish Armed Forces doctors from 2000, including Regular Officers, Reserve Officers, conscripts and volunteers for international missions. From December 2004, however, doctors have not

been subject to conscript service. The main reason for this is that personnel doing their national service cannot be sent abroad.

The BARTS course has been mandatory for all Swedish Armed Forces nurses from 2000, including Regular Officers, Reserve Officers, conscripts and volunteers for international missions. From February 2005, however, nurses have not been subject to conscript service, for the same reason as above.

#### **Reasons for Swedish Armed Forces medical personnel taking the BATLS/BARTS/BBTLS course during the period 1998-2007**

It can be seen that the BATLS/BARTS/BBTLS course has over time become a pre-mission course. During the first two years (nine courses), only two persons (nurses) took the BARTS course as pre-mission training. This can be compared with the last year in this study (2007) when 123 out of 133 students (92%) took the BATLS/BARTS/BBTLS course as pre-mission training. The numbers are similar for all three categories: doctors 90%, nurses 91% and medical orderlies 100%.

#### **Previous attendance at a BATLS/BARTS/BBTLS course or a "similar civilian course" among Swedish Armed Forces medical personnel during one year (2006)**

BATLS/BARTS training ten years ago filled two needs: 1) ABC training, 2) Military training. Today, a large number of students already have appropriate trauma training according to basic ABC principles when they come to the Armed Forces, for which reason the focus now is shifting from an ATLS-like course to a course with more focus on the tactical applications of medical skills.

Modification of trauma care according to the tactical threat has been described by Butler et al (9). A staged approach to trauma care is identified, including Care Under Fire (a fire fight is ongoing), Tactical Field Care (the fight is over, but resources are limited and the surroundings potentially dangerous) and Combat Casualty Evacuation Care (when the casualty is being extracted from the incident).

BATLS originally adhered closely to the ABC (i.e. Airway–Breathing–Circulation) principles of ATLS. However, the latest edition of BATLS (10) has introduced a shift to <C>ABC, where <C> stands for catastrophic haemorrhage. The aim is to first of all rapidly deal with life-threatening external bleeding using the field dressing, tourniquet and topical haemostatic agents. When control of catastrophic haemorrhage has been achieved, ABC is dealt with according to the conventional trauma paradigm (11).

## **Conclusions**

1. When the British BATLS/BARTS concept was introduced in Sweden ten years ago, the general level of trauma training among medical personnel was inadequate for the wartime needs of the Armed Forces. Today, the majority of individuals selected for international service already have previous (often civilian) trauma life support training. This has led to the courses now being aimed mainly at improving their knowledge of the tactical medical skills peculiar to the environment in which they will serve.
2. The model of conducting the BATLS, BARTS and BBTLS courses in parallel has proved to be advantageous for organisational reasons, and also promotes the team building and mutual understanding between the groups.
3. The inclusion of participants from other countries has made students more aware of the multinational milieu which characterizes international missions.
4. The courses have been well received both by the participants and by their parent organisations, and will be continued along the same lines in the future.
5. The continuous support from the British BATLS faculty has been of crucial importance for the success of the Swedish training programme.

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