

Intermediate Trauma Management

A **Cadus e.V.** Course



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I. PURPOSE STATEMENT AND DESIGN

The war launched by the Russian state on the Ukrainian state in February 2022 immediately highlighted the need to practically prepare every member of society for the eventuality of managing situations and injuries similar to those suffered by soldiers on the battlefield. This is due to both:

- the increasing need to mobilize citizens for military or civil defense duties and thus deliver advanced tuition in battlefield first aid response; and
- the frequent and deliberate targeting of civilian infrastructure across the entirety of Ukraine by Russian armed forces, leading to civilians often being the first on the scene of battlefield-like situations.

Intermediate Trauma Management (ITM) develops further the curriculum of Basic Trauma Management (BTM) course, introducing further objectives and skills.

Thus, the ITM curriculum is either a second day of a 2-day course or a stand-alone trauma course, with 2 fundamental goals:

- refresh of the BTM approach (MARCH)
- Development of further skills and competences in addition to BTM.

Overview of the Module Plan:

MODULE NO.	MODULE TITLE
1	Scene Safety and Primary Assessment (including Massive Hemorrhage)
2	C-spine assessment, Stabilization and Restriction
3	Airway and Respiratory Management
4	Circulation, Hypothermia and Further Hemorrhage Management)
5	Head injuries and Consciousness Assessment
6	Additional Injuries (Burns, Eye Injuries, Limb Fractures)
7	Wound Management
8	Medical Documentation, Handover and Communication
9	Non-technical Skills

LEARNING OBJECTIVES

This course is built on a set of 10 Terminal Learning Objectives (Endgoal), which are supported by 70 sets of enabling learning objectives:

Module Plan 1: Scene Safety and Primary Assessment (including Massive Hemorrhage)	
TLO	ELO
<p>01 Given a combat-like or trauma scenario, demonstrate an understanding of how to manage the situation safely and enact the primary assessment of any casualties.</p>	<p>01 Define the actions required before engaging with a casualty, to prevent harm or additional casualties.</p> <p>02 Identify appropriate actions and priorities to treat and move casualties in Care Under Fire.</p> <p>03 Describe the techniques used to assess a casualty for responsiveness.</p> <p>04 Identify the importance of disarming and securing communications equipment of a casualty with altered mental status.</p> <p>05 Describe the techniques used to move the casualty to prevent further injury or death.</p> <p>06 Describe the principles, advantages, and disadvantages of one person drag/carry or two person drag/carry in Care Under Fire.</p> <p>07 Demonstrate the one-person drags and carries of a casualty in Care Under Fire.</p> <p>08 Demonstrate two-person drags and carries of a casualty in Care Under Fire.</p> <p>09 Perform a rapid casualty assessment in the proper order using the MARCH sequence.</p>
<p>02 Given a combat-like or trauma scenario, demonstrate basic care for a casualty with massive bleeding in accordance with International Guidelines.</p>	<p>10 Given a trauma casualty with life-threatening bleeding and a tourniquet, apply a tourniquet to the casualty or to oneself to stop the bleeding within 1 minute and secured within 3 minutes.</p>

Module Plan 2: C-spine assessment, Stabilization and Restriction

TLO	ELO
<p>03 Given a combat-like or trauma scenario, demonstrate the means of assessing a casualty for injury to cervical spine and taking ensuing steps to stabilize suspected fracture and restrict casualty movement for safe transport.</p>	<p>11 Understand the anatomy of the cervical spine. 12 Perform an assessment of the casualty's neurological status for signs of cervical spine injury. 13 Take action to stabilize casualty's cervical spine through manual maneuvers and use of equipment. 14 Identify considerations and precautions required for evacuating casualties with suspected spinal injuries.</p>

Module Plan 3: Airway and Respiratory Management

TLO	ELO
<p>04 Given a combat-like or trauma scenario, demonstrate basic care for a casualty with a compromised airway or respiratory distress in accordance with International Guidelines.</p>	<p>15 Identify signs/symptoms of an airway obstruction.</p> <p>16 Given a trauma casualty with an airway obstruction, or decreased level of responsiveness, place the casualty in a recovery position.</p> <p>17 Demonstrate opening the airway with the head-tilt chin-lift or jaw-thrust maneuver.</p> <p>18 Given a casualty who is unresponsive or has an airway obstruction, understand the further, progressive strategies for airway management and the limitations.</p> <p>19 Demonstrate opening the airway with the head-tilt chin-lift or jaw-thrust maneuver.</p> <p>20 Demonstrate the insertion of a nasopharyngeal airway (NPA) into a casualty in Tactical Field Care.</p> <p>21 Describe the technique for ventilating a casualty with a bag valve mask (BVM) in Tactical Field Care</p> <p>22 Identify the signs and symptoms of respiratory distress.</p> <p>23 Identify the signs and symptoms of a life-threatening chest injury.</p> <p>24 Identify the signs and symptoms of open pneumothorax (sucking chest wound) in Tactical Field Care.</p> <p>25 Identify the importance and implications of vented and non-vented chest seals.</p> <p>26 Demonstrate the application of a chest seal to an open chest wound.</p> <p>27 Identify the signs, symptoms, and initial treatment of tension pneumothorax in Tactical Field Care.</p> <p>28 Demonstrate a needle decompression of the chest at the second intercostal space in midclavicular line.</p> <p>29 Demonstrate a needle decompression of the chest at the fifth intercostal space in the anterior axillary line.</p> <p>30 Identify the signs of recurring or unsuccessful treatment of tension pneumothorax.</p>

Module plan 4: Ventilation Forms	
TLO	ELO
<p>05 Describe the further steps that can be taken to manage massive hemorrhage, circulatory compromise and hypothermia.</p>	<p>31 Identify and describe various ventilation modalities, including volume-controlled ventilation, pressure-controlled ventilation, and pressure support ventilation, CPAP and BiPAP</p> <p>32 Identify the principles of wound packing and applying pressure bandages</p> <p>33 Demonstrate wound packing and applying a pressure bandage.</p> <p>34 Demonstrate the application of a CoTCCC -recommended hemostatic dressing.</p> <p>35 Demonstrate an evaluation of previously applied tourniquets for hemorrhage control effectiveness.</p> <p>36 Demonstrate improvised junctional hemorrhage control with hemostatic dressing and direct pressure.</p> <p>37 Identify the signs, symptoms, and considerations of a pelvic fracture</p> <p>38 Identify the signs, symptoms and management of shock in a trauma casualty with life -threatening bleeding.</p> <p>39 Identify the importance of level of consciousness and radial pulse as indicators of shock in Tactical Field Care</p> <p>40 Understand the significance and pathophysiology of hypothermia in the context of trauma and the importance of immediate action.</p> <p>41 Identify the progressive strategies, indications, and limitations of hypothermia prevention of a trauma casualty in Tactical Field Care.</p> <p>42 Demonstrate active external warming hypothermia prevention measures on a trauma casualty.</p> <p>43 Identify passive hypothermia prevention measures on a trauma casualty</p>

Module Plan 5: Head injuries and Consciousness Assessment	
TLO	ELO
<p>06 Given a combat-like or trauma scenario, identify a head injury of a casualty.</p>	<p>44 Identify external forces that can cause a head injury.</p> <p>45 Identify signs and symptoms of a head injury.</p> <p>46 Identify the critical observations that should be reported to medical personnel for trauma casualties with a suspected head injury.</p>
Module plan 6: Additional Injuries (Burns, Eye Injuries, Limb Fractures)	
TLO	ELO
<p>07 Describe the basic care of burns, fractures and eye injuries.</p>	<p>47 Identify the appropriate care for a trauma casualty with an eye injury.</p> <p>48 Describe the application of an eye shield or suitable rigid concave materials.</p> <p>49 Identify signs of a suspected fracture.</p> <p>50 Demonstrate the basic care of fractures.</p> <p>51 Demonstrate proper splint application using a malleable rigid or improvised splint to a suspected fracture in Tactical Field Care.</p> <p>52 Identify the specific scene safety issues and actions required of a trauma casualty with burns, before evaluation and care of the casualty.</p> <p>53 Identify the severity of burn in accordance with the conventional burn classification.</p> <p>54 Identify how to estimate the body surface area burned using the Rule of Nines.</p> <p>55 Demonstrate the application of a dry dressing to a burn casualty.</p> <p>56 Demonstrate techniques used to prevent heat loss in a severe burn casualty.</p>

Module Plan 7: Wound Management	
TLO	ELO
<p>08 Given a combat or noncombat scenario, perform assessment and initial management of wounds.</p>	<p>57 Identify wound management considerations in Tactical Field Care.</p> <p>58 Demonstrate application of wound dressings on a trauma casualty in Tactical Field Care.</p>
Module Plan 8: Medical Documentation, Handover and Communication	
TLO	ELO
<p>09 Given a combat or noncombat scenario, perform documentation of care.</p>	<p>59 Identify the methods to assess level of consciousness, pulses, and respiratory rate on a trauma casualty in Tactical Field Care.transport, mode of transport, type of patient)</p> <p>60 Demonstrate assessment of radial/carotid pulse and respirations in a trauma casualty in Tactical Field Care.</p> <p>61 Identify the importance of and techniques for communicating casualty information with evacuation assets and/or receiving facilities.</p> <p>63 Identify how to document casualty information on the DD Form 1380 TCCC card and the proper placement of that card on the casualty</p>

Module Plan 9: Non-technical Skills

TLO	ELO
<p>10 Given a combat-like or trauma scenario, demonstrate the non-technical skills in the domains of:</p> <ul style="list-style-type: none"> • communication • leadership • team-working • decision-making • situation-awareness. 	<p>63 An appropriate assessment of the CUF (red) and TFC (amber) zones and associated management of the scene.</p> <p>64 Demonstration of situational awareness of safety and patient condition, including an evaluation of safety before entering the CUF zone.</p> <p>65 Identified options for casualty movement, if necessary, and effect an optimally safe evacuation of the casualty</p> <p>66 Demonstration of assignment of a team leader and appropriate team structure.</p> <p>67 Clear communication between team leader and team members.</p> <p>68 Effective use of IFAKs, including their state of readiness</p> <p>69 An awareness of patient dynamics, including sufficient attention to airway (positioning), risk of hypothermia and reassurance of the casualty.</p> <p>70 Appropriate / ongoing attempts to evaluate patient consciousness, respiration and circulation, including signs suggesting respiratory distress and shock.</p>

II. STANDARDS ALIGNMENT

Cadus's Intermediate Trauma Management (ITM) training is based primarily on

- the **Tactical Combat Casualty Care** (TCCC) curriculum developed by the Committee on Tactical Combat Casualty Care (CoTCCC), the Prehospital arm of the Joint Trauma System of the U.S. Department of Defense, Defense Health Agency (DHA), specifically combining the objectives of the 1st level (**All Service Members, ASM**) with further objectives from the 2nd level (**Combat LifeSaver, CLS**);

The ITM curriculum aims to combine the most relevant elements of TCCC's CLS curriculum with certain objectives and skills relating to civilian medical care which feature in the following curricula / standards:

- The **International Mine Actions Standards** (IMAS) 10.40 (Medical support to de-mining operations) and 10.40 / 01 (Medical Support Technical Note).
- the **Tactical Emergency Casualty Care** (TECC) curriculum developed by The Committee for Tactical Emergency Casualty Care (C-TECC), a civilian committee modeled on the CoTCCC, which seeks to '*speed the transition of military medical lessons learned from the battlefield to evidenced- and best-practiced based operational medical guidance for medical response and treatment of the injured during high risk and atypical civilian operational scenarios*'.

The ITM curriculum is therefore a stand-alone module, which fits within an international recognized scheme of learning and builds upon the BTM curriculum, to equip emergency responders with intermediate skills and knowledge to manage more complicated scenarios.

SPECIFIC VARIATIONS TO ITM CURRICULUM

Individual training centers can amend the curriculum according by adding or subtracting to the ITM curriculum

- There are additional clinical competencies in TCCC's CLS and the IMAS standards which can be added to the curriculum by course providers, but we have chosen to leave aside for present competencies, such as
 - intravenous cannulation
 - oropharyngeal airway placement
 - supraglottic airways and
 - those relating to resuscitation
- The ITM curriculum features c-spine management which is not part of the TCCC CLS curriculum, but is highly relevant in the civilian setting.

III. OUTCOME STATEMENT

The ITM curriculum is directed towards civilians, whether healthcare professionals or not, who are exposed during their lives or work to risk of injuries resulting from trauma, whether immediate military fire (rocket, artillery, drone), intentionally placed ordinance (mines) or explosive remnant of war.

In particular, the ITM module aims to

- I. Ensure participants have a developed sense of safety, both their own and of those around them during trauma or military scenarios
- II. Reinforce the principles of response to traumatic situation encountered during the BTM course
- III. Develop a full form ABCDE style response and victim assessment
- IV. Add further competencies to the BTM competencies in the domain of
 - A. *c-spine management*
 - B. *hemorrhage control*
 - C. *airway management*
 - D. *respiratory management (including pneumothorax management)*
 - E. *consciousness assessment (in the context of head injuries)*
 - F. *wound management (eye injuries, burns, fractures)*
 - G. *casualty reassessment*
 - H. *communication and handover of patient vital signs.*
- V. Develop the following skills to save lives
 - A. *Junctional hemorrhage control (Pressure Delivery Device)*

- B. NPA insertion
- C. Bag-valve mask
- D. Chest seal application
- E. Needle decompression
- F. Pelvic fracture management
- G. Additional wound management (burns, eyes, splinting, head injuries)
- H. Communication of casualty information and completion of appropriate documentation (such as D1380)
- I. Complete tactical trauma assessment (MARCH)
- J. C-spine stabilisation and restriction

VI. Are aware of the importance of the following non-technical skills:

- A. Communication skills
- B. Leadership skills
- C. Team-working skills
- D. Decision-making skills
- E. Situation-awareness skills.

NB The extent to which the course explicitly teaches non-technical skills depends on individual centre preference and on sufficient time.

IV. STRATEGY FRAMEWORK

The ITM classroom is based on a traditional lecture configuration, with audience and 'teacher', but then weaves in practical instruction with the aim of creating fast, efficient, automated responses to traumatic situations.

The acute nature of such trauma situations necessitates in favor of learned rather than reasoned responses. The approach is based therefore on a strict enacting of the TCCC/TECC guidelines rather than a nuanced interpretation.

Therefore, it is essential to the method that instructors follow an algorithmic approach to training, based around a strict following of the curriculum without unnecessary adjustments based on the personal experience of the trainer.

V. PREREQUISITES OF PARTICIPANTS

A. PREPARATION / PREEXISTING KNOWLEDGE

The ITM course is divided between limited theoretical elements and skills training building on the BTM curriculum.

Participants are expected to be familiar with the theory in advance, whether as healthcare workers or participants previously in a basic trauma course such as BTM.

The theoretical knowledge would be orientated around basic anatomy and physiology such as:

- The circulatory system (heart, artery location)
- Airway and respiratory structures
- Basic vital parameters, cardiac and respiratory rate, body temperature, blood pressure
- The meaning and significance of pneumothorax, shock and hypothermia

The practical elements of the course rely on a familiarity with the competencies of BTM, though there will be opportunities to refresh such competencies whilst introducing further skills in domains such as hemorrhage and airway management.

Participants do not need prior healthcare training, but we would expect them, if they are not trained healthcare professionals, to have prior experience of attending formal trauma training and experience / responsibilities in the field in this domain.

B. FITNESS, PHYSICAL CONDITION

Participants are required to take part in physical exercises and the final assessment. Such exercises will include

- lifting of other participants to practice safe handling of casualties
- placement of limb tourniquets on themselves and other participants
- lying on the ground as a casualty
- kneeling down to assess casualties.

The exercises require a basic level of fitness and strength. We would advise that such information be communicated to all participants in advance with an appropriate safety warning such as:

“You are expected to participate in physical exercises and assessments. Please declare any existing injuries or serious past injuries, including those involving major joints such as knees and shoulders, which may impact your ability to participate safely. Further, any cardiac or respiratory condition should be made known to course organizer in advance. You remain responsible for your own safety and well-being and we ask you to abstain from participating if at any stage you are concerned about your ability to do so safely.”

C. PSYCHOLOGICAL PREPAREDNESS

The course raises issues of trauma resulting from conflict situations and features images and videos of trauma and ensuing management. While the images, videos and discussions should be framed sensitively, avoiding a sense of voyeurism or deliberate shock techniques, participants should be warned prior to the course about the nature of the material and given the choice to approach the organizers on the day if they are concerned about their own psychological response.

VI. ESSENTIAL RESSOURCES

Based on a class size of 15-20 Participants

A. PHYSICAL SPACE AND FURNITURE

The ITM curriculum requires a large physical space to carry out the practical demonstrations and participant exercises.

In general, the space needs the following core elements:

- Space for classroom/didactic learning, with chairs/desks, a whiteboard for projection or SmartTV screen
- Space for skills instruction. This requires a safe, neutral, clean space where participants can lie down at times for practice on each other

- Space for larger form exercises, potentially outside, with scope for multiple casualties and evacuation practice.

The classroom and skills instruction spaces can be combined and should be large enough to allow for creation of multiple sub-groups of participants.

This could be approximately defined as 3-4m² per participant, or 6-8m x 10m for a group of 15-20 participants.

Whilst there will be short sections of didactic presentation and seating facing a whiteboard, the expectation is that there will be sufficient space and flexibility in furnishing that the traditional classroom can be dismantled to create large, open spaces for skills practice, **with chairs and desks moved aside easily or reconfigured into new positions.**

Fixed furniture would be problematic.

In addition to the classroom space, it is advantageous to have an outdoor setting which can be used for real-life simulated exercises. The more similar such a space is to a real-life setting, the richer and more impactful the training will be.

Due to the active nature of the practical exercises, consideration needs to be given to making the learning spaces safe, without trip hazards (cables), slippery surfaces or sharp-edged objects. The outdoor space needs to be methodically assessed in terms of trip hazards, external objects and other environmental elements.

An assessment should be carried out in advance on learning spaces to eliminate risks to participant safety.

B. TECHNOLOGY

The didactic component of the training requires a whiteboard to project from a laptop or a Smart TV for direct connection. The facility will need a modern, efficient laptop, with up-to date software (powerpoint) and adaptors to connect to projector or screen.

C. PARTICIPANT EQUIPMENT

Each participant should be given at the outset, for the duration of the training, the following items as a minimum (the same as BTM):

- A CAT training tourniquet
- An emergency battlefield pressure dressing ('Israeli bandage')
- 2 rolls of ordinary gauze (for wound packing)
- A simple pouch to carry the above items.

This is referred to as the Individual First Aid Kit (**IFAK**) which participants will be familiar with from the ITM course.

The following items should be available for each participant, ideally 1 per participant but minimum 1 per instructor or 6 participants:

- C-spine hard collar
- Ambu-bag for manual ventilation (1-1.5L)
- A nasopharyngeal airway (NPA) (adult size, 7-8cm)
- A chest seal for thoracic injuries
- Needle decompression kits
- Pelvic splint for fracture management
- Eye dressings
- Burn dressings
- SAM splints for limb fractures
- Wound dressings

- Field blanket for hypothermia management

D. INSTRUCTOR EQUIPMENT

The instructors will ideally have access to the following items to demonstrate practical skills:

- Floor mats for safe placement of volunteers during skills demonstration or practice
- A wound tamponade mannequin (minimum 2, 1 per instructor)
- Artificial blood substitute for wound tamponade mannequin
- Sufficient gauze for wound packing
- An airway cross-section model to demonstrate simple airway obstruction management
- An airway and respiratory mannequin to demonstrate further airway obstruction management, including NPA placement (*optional*)
- Red tape or water-based red paint to simulate wounds on victims

E. TIMINGS

The ITM curriculum is envisaged to take around 8 hours with a class size of 15-20. This can occur either as:

- A stand-alone 1-day session
- The second day of a fuller trauma management course, combined with the ITM curriculum.

See Appendix [A] for suggested course schedule.

VII. INSTRUCTOR COMPETENCE / QUALIFICATION

The training needs to be conducted by experienced trainers who have good theoretical and practical knowledge of the curriculum and the core skills. We recommend healthcare workers, doctors, nurses or paramedics (or equivalent) but first aid responders or experience first aid trainers would be able to teach the ITM curriculum if they:

- Have sufficient previous experience in real-life trauma management
- Have attended similar trauma courses
- Demonstrate a comprehensive knowledge of the curriculum.

Training competence can be demonstrated by any of the following certificates:

- Official certificated NAEMT TCCC course (Combat Lifesaver or Combat Medic-Corpsman)
- Unofficial TCCC course from reputable provider
- Certificated PHTLS course
- Certificated ITLS course
- Other reputable pre-hospital course qualifications.

There can also be additional qualifications that evidence an Instructor's specific training / teaching ability and experience.

Overall, it is important to verify Instructor competence through direct observation and review of curriculum vitae.

LEAD INSTRUCTOR

Each course should have a lead instructor who is responsible for:

- Completing the pre-agreed prerequisites to teach the ITM course (whether attendance as a learner at a similar TCCC orientated course or thorough self-guided study) and ensuring fellow instructors do similarly
- Consistently oversee and monitor correct application of subject matter knowledge, and be confident and competent in performing and assessing core skills
- Ensuring you and your fellow trainers are familiar with the course plan, training materials, medical supplies and equipment in advance of the course
- Overseeing teaching that uses the standardized BTM curriculum
- Overseeing objective and structured assessment of the student's abilities to achieve basic competency in the core skills.

INSTRUCTOR TO PARTICIPANT RATIO

The didactic elements are anticipated to be deliverable by a single instructor to up to 20 participants, to allow for questions and appropriate interactive elements.

The practical elements rely on a lower ratio, around 6-8 participants per instructor.

On this basis, an ITM session of 15-20 participants would require 2 instructors.

VIII. TEACHING METHODOLOGY

A. BASIC APPROACH (CRAWL, WALK, RUN)

The course relies on the following methods and steps:

- 1) Theoretical instruction (the 'why' of the skill)
- 2) Demonstration of the skill by Instructor
- 3) Performance of the individual skill by the Participants with focus on specific micro-elements
- 4) Incorporation of individual skill into broader context and scenario
- 5) Utilization of individual skill in scenario alongside other skills and the complete assessment

The idea (referred to as Crawl, Walk, Run in TCCC military culture) is to build muscle memory by increasing the speed and stress of the skill practice, with additional distracting / confounding elements added through the session.

Thus, the basic skill can be tested with increasing additional elements such as:

- Noise and light stress
- Multiple casualties
- Environmental conditions

Distracting injuries (additional to injury subject to skill practice)

B. SKILLS TEACHING

There are different methodologies and variations for teaching practical skills. The most traditional is the 4-stage approach:

- **Stage 1: Demonstration of the skill by instructor at real speed.** This stage provides visual imagery and a realistic look at how the skill should be completed. No commentary or explanation is given, but any talking that ordinarily accompanies the skill should be included (e.g., shouting for help).

- **Stage 2: Repetition of the demonstration by the Instructor with dialogue**, providing the rationale for actions. This provides reinforcement — the performance is slowed and broken into parts to allow for questions on clarity and checking for understanding.
- **Stage 3: The demonstration is repeated, but the Instructor is verbally guided by one of the participants**. This phase begins the transition of the skill session to the participant. The participant talks the Instructor through the skill while the Instructor performs it. The Instructor does not lead the participant.
- **Stage 4: The participant repeats the demonstration with observation from the other participants**.

After the 4 stages, the participants practice independently. It is important that instructors circulate through the room and confirm understanding and practical skills.

If an instructor feels inclined, the 3rd and 4th stages could be combined.

IX. VERIFICATION METHOD

CERTIFICATION

There are numerous options for certification for trauma management courses, which confer benefits on the individual participant, a participant employer or academic institution to which the participant belongs, including:

- Quality control of both curriculum (knowledge component) and practical elements
- The potential for such certification to fit into national and international schema of continuous professional development.

However, in general there are issues surrounding external certification of courses, which mean that it is not an issue to rush or approach without consideration as to long term goals of the training course.

- *External certification by bodies such as AHA and NAEMT can incur fixed costs.*
- *External certification can often mean fixing a curriculum to one which is not 100% relevant to a context, and removes flexible and adaptive learning objectives.*
- *Ordinarily, to award externally validated certificates, a training centre needs to be accredited (with significant administrative requirements) and needs to utilize separately accredited instructors. Accreditation ordinarily involves regular, fixed term review.*
- *Accreditation ordinarily involves regular, fixed term review, with requirements for trainee numbers over a period.*

In general, Cadus prefers to adopt a more flexible model, maintaining high quality training through experienced trainers and up to date equipment, utilizing respected open-source curricula (such as TCCC), without the limitation of having to deliver training only in accredited training centers and fix a curriculum to a context outside of its countries of operations.

Each course provider will need to decide if they wish to offer:

- **certificate of attendance only**
- **certificate of competence / attainment of standards, and which set of standards they are using.**

If the latter, the methodology and certifying body (internal or external) will need to be established in advance and made clear to participants, including how it fits with existing official systems of assessment and ongoing professional development.

KNOWLEDGE ASSESSMENT

There is no written exam ordinarily used for assessment in either TCCC or TECC courses, due to the highly practical orientation of the curriculum.

However, Cadus is able to administer a simple written exam to assess knowledge of the curriculum and learning objectives if this assists an educational facility to provide certification pursuant to a plan of continuing medical education.

BASIC APPROACH TO PRACTICAL ASSESSMENT

Practical assessment is based around candidate(s) being assessed against pre-agreed checklists of actions. The situations and injuries that a participant encounters should be those which have been covered by the formal teaching.

The scenarios should not be unnecessarily complicated or involve application of skills or techniques outside of the curriculum. The casualties should be physically accessible, not obstructive of the assessment and without excessive distracting elements to prevent the participant from recognizing the skill being assessed.

For instance, the following approaches should be avoided:

- Complicated scene management, with distracting elements such as passers-by or active / dynamic threats (explosions, moving objects etc...)
- Casualties who do not allow assessment of their own wounds or potentially manifest a threat, physical or verbal, to the participant
- Situations where the casualty cannot be accessed safely, such as placed in a position which is unsafe to the casualty of rescuer or without adequate lighting
- Additional events such as seizures or chest pain which require treatment of conditions outside of the curriculum.
- Management of multiple casualties simultaneously (triage).

Thus the participant must be faced with a managed simulation / controlled reality facilitating success and not setting-up failure.

CORE SKILLS TO BE ASSESSED

There are 5 core skills which should have been introduced and developed to satisfactory level by participants during the BTM course:

- rapid casualty assessment
- tourniquet application
- wound packing
- the application of a pressure dressing and
- airway manoeuvres.

The ITM course will introduce additional skills as follows:

- Cervical spine injury assessment and appropriate stabilization via manual maneuver or rigid collar
- Manual ventilation with ambu-bag
- Nasopharyngeal airway placement

- Pneumothorax recognition, chest seal placement and needle decompression
- Pelvic splinting in case of fracture
- Formal consciousness assessment (head injury management)
- Splinting of limb fractures

The participant should have access to the checklist after the assessment with his / her own performance marked.

NON-TECHNICAL SKILLS

Non-Technical Skills are interpersonal skills which include:

- communication skills
- leadership skills
- team-working skills
- decision-making skills
- situation-awareness skills.

They do not include the technical skills required to get the job done e.g. the technical skill or know-how to perform a procedure or use equipment. However, they complement these technical skills making them more efficient and effective.

There are many different versions of non-technical skills checklists, such as Anesthetists' Non-Technical Skills (ANTS), used in medical settings.

CATEGORY	ELEMENTS
Situation awareness	Gathering information
	Recognizing and understanding
	Anticipating
Teamwork and communication	Co-ordinating with the team
	Supporting colleagues
	Asserting authority
	Exchanging information
	Assessing capabilities
Task management	Planning and preparing
	Prioritizing and problem solving
	Providing and maintaining standards
	Identifying and utilizing resources
Decision-making	Identifying options
	Balancing risks and selecting options
	Re-evaluating

Whilst teaching the non-technical skills can be difficult and is not part of the existing TCCC curriculum (reliant as much on experience as didactic learning), certain of the BTM learning objectives (ELOs 3, 6, 8, 9, 18, 19, 23) are heavily reliant on non-technical skills, and performance of the technical skills in a real-life or simulated context depends on non-technical skills performed alongside technical skills.

The decision to explicitly teach the Non-Technical Skills is at the discretion of the training provider

The following are included as ELOs which rely exclusively or heavily on non-technical skills.

- An appropriate assessment of the CUF (red) and TFC (amber) zones and associated management of the scene.
- Demonstration of situational awareness of safety and patient condition, including an evaluation of safety before entering the CUF zone.
- Identified options for casualty movement, if necessary, and effect an optimally safe evacuation of the casualty
- Demonstration of assignment of a team leader and appropriate team structure.
- Clear communication between team leader and team members.
- Effective use of IFAKs, including their state of readiness
- An awareness of patient dynamics, including sufficient attention to airway (positioning), risk of hypothermia and reassurance of the casualty.
- Appropriate / ongoing attempts to evaluate patient consciousness, respiration and circulation, including signs suggesting respiratory distress and shock.

INDIVIDUAL VS GROUP ASSESSMENT

The extent to which each individual can be assessed methodically in each domain is dependent on timing and training session structure.

If BTM and ITM are run consecutively over 2 days, then there is greater flexibility to ensure individuals are assessed methodically (whether formatively or summatively).

If ITM is run as a 1-day stand-alone course, particularly if heavily populated, there may be insufficient time for such assessment. In this case, we recommend that participants be assessed in their assigned groups, but still preserving an element of individual assessment.

FORMATIVE (CONTINUAL) ASSESSMENT

Throughout the course, the instructors will informally assess participants, with regular correction and feedback. Although this should not form a part of a formal assessment linked to certification, it will assist with learning and also helped to identify participants who may not be ready to achieve the minimum standard required to be certified.

SUMMATIVE (FINAL) ASSESSMENT

If the course provider wishes to certify a participant according to an official standard (whether internal or external), they should give each participant their own skills assessment checklist at the start of the day, both to guide the participant and for completion by an instructor who can note the individual skills demonstration as far as possible given the number of participants.

If the number of participants does not allow for summative assessment for each key skill, it would be advisable that each of the key skills be assigned to a single team member of a group, such that by the end of the assessment, as a minimum each participant has been assessed thoroughly with at least 1 skill.

All feedback, whether as part of the practice of key skills, skills assessment (formative or summative) or at the end of course, should adhere to core principles such as but not limited to:

- **Focus feedback on the task, not the learner.** Avoid comments that are directed at participants and refer to individual attributes.
- **After highlighting any issue, offer constructive advice on how to improve.**
- **Keep feedback brief and focused.**
- **Refer back to learning objectives.** Limit references to elements that are not part of the learning objectives of the course.
- **Give learners the opportunity to reflect on their performance.**
- **Remain positive, unbiased and objective.**

All instructors should have basic training / significant professional experience in the practice of feedback and debriefing.

Feedback is always assisted by design of tasks and assessment that clearly and simply test the learning objectives of the course and avoid overcomplicating or aggregating too many tasks together. Such tasks and assessments should be described in advance in terms of specific learning objectives:

“This task will test your ability to rapidly assess a casualty and use an appropriate technique to move the casualty to a safe location.”