AUTHOR'S SUMMARY OF THE DOCTORIAL (PHD) DISSERTATION

LUDOVIKA UNIVERSITY OF PUBLIC SERVICE

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The specificities of medical coverage in specialised counter-terrorism operations, the structure and practical application of the model of tactical medicine, the development of a European training system.

Scientific Theme Leader:

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THE TOPICALITY OF THE CHOICE OF SUBJECT

At the end of the 20th century and the beginning of the 21st century, the internal security situation of the countries of Europe (and the countries of the world) has changed radically. The threat of terrorism was no longer just a literary-historical fact of everyday life, but took the form of real terrorist attacks. The creation of special intervention units (SIUs), counter-terrorism units (CTUs), capable of rapid response, became an indispensable element of the response by the decision-makers responsible.

The modus operandi of terrorist attacks has also undergone significant changes, requiring constant evolution and renewal in the activities of SIUs and CTUs. This entailed a revision and renewal of intelligence, technical support and operational tactics. It has become clear that for various specialised operations in non-classical battlefields, such as counter-terrorism interventions, medical support is essential. The integration of medical coverage therefore became a new task for the units responsible for dealing with terrorism, if they were to meet the priority of "saving human life".

In this spirit, the CounterTerrorism Centre (TEK), established in Hungary in 2010, has set up a new type of medical support. As the head of the newly established medical department, I was ordered to organise the medical coverage of TEK's operations and close protection activities. In order to carry out this task qualitatively and effectively, I first had to become familiar with the tactical elements of the various TEK operations, the chain of command and decision-making and the nature of the modus operandi. The resulting picture showed the problems, the emerging needs and the possible responses to them. The fundamental objective was to integrate these two professional activities with very strong priorities, such as operational intervention and emergency medical care, in such a way that they do not interfere with each other's basic rules and thus ensure effective implementation.

This process has resulted in a unique health service in Europe, adopted as the TEK Tactical Medicine (TM) model. The TEK TM model has been adopted by the ATLAS Network, founded by the European Commission (EC), which invited TEK to form and lead the ATLAS MEDIC working group. As the leader of the Task Force, I had the opportunity to get an insight to the functioning of the specialised units in the European Union (EU) Member States, their applied health models, their problems in medical support. I was given the task of supporting the development, implementation and improvement of TM capabilities in Europe, at the level of the Member States. Within this remit that the ATLAS Network’s TM education and training programme has been defined. Building on the success of this centralised and standardised

training system, the first European law enforcement TM training centre, the EU ATLAS Centre of Excellence for Tactical Medicine (TacMed COE), was established at the TEK base in Budapest on behalf of the EC, EUROPOL and the ATLAS Network.

FORMULATING THE SCIENTIFIC PROBLEM

During the last 15 years of establishing TM in Hungary and developing its education system in Europe, I have encountered many challenges and problems to which neither the experience of military care nor the previously isolated and occasionally organised law enforcement medicine have provided an effective answer. New solutions therefore had to be found in the process of construction, most notably in the setting up of training structures, the development of the legal framework, the possibilities of cooperation with civil organisations or the combat algorithms to be used by the trainees.

TM as an interdisciplinary field of health care can be broken down into a number of distinct elements that are noteworthy in their own right. I think it is important to emphasise that TM is closely interlinked and interrelated in the way that each of these parts is represented in everyday practice. The scientific problems can be divided into groups of questions to which I have sought answers from the outset:

- **The social background and historical context of** the emergence and development of tactical medicine. How have the changing forms of terrorism and its various manifestations throughout history influenced the formation, development and deployment of law enforcement forces, with particular reference to their medical support systems?
- **The set of algorithms** that can and **should be used** in TM. Which protocol matrix can best meet the requirements of law enforcement, in which the tactical rules of CTUs are integrated with the applicable health algorithms in symbiosis?
- **The TM training system.** What should be the requirements for a TM training system for a Europe-wide network of CTUs at different levels of development in health interventions?
- **The framework of the TM's legal mandate.** How do the principles of health care controlled by strict legislation translate into the compromised practice of TM?

RESEARCH HYPOTHESES

My suggestions were formulated in connection with the development and application of the TM system in Hungary, the TEK model, and the implementation of the tasks defined by the EU

ATLAS Association. My proposals are based on personal experience in practice and a review of the available literature.

1. **The significant increase in the number of terrorist attacks and their victims in the 20th and 21st centuries have posed a new challenge to the civilian health care system, and I believe that the development of the health capabilities of the SIU and CTU units assigned to the eradication of these attacks could be a solution to organise an effective response.**
2. **I feel that a change in commanders' approach is essential for the integration of medical activities into law enforcement operations and the new responsibilities that this entails.**
3. **Due to the core tasks of law enforcement and national defence, I assume that health care integrated into police operations needs its own approach and modified health algorithms compared to military, battlefield health care to meet the expectations placed on it.**
4. **The new TM model of TEK, compared to the European CTU and SIU units' procedures for similar tasks, is in my opinion more sensitive and more comprehensive to the expectations of society and the operational environment, because it is based on a new approach to the survival/supply chain, which is formed by the overlapping of military, battlefield care and civilian, emergency care practices.**
5. **By centralising and standardising the training of the designated personnel of the counter-terrorism units, I believe that the health component of the support - service background of the European CTUs can be significantly improved, which will greatly facilitate their development in this direction.**
6. **I assume that in the absence of a relevant legal framework, the practical application of tactical medicine and the development of deployable competences is not feasible. The lack of legal authority for TM providers is a Europe-wide problem that needs to be addressed urgently**.

RESEARCH OBJECTIVES

In general, the aim of my research is twofold: on the one hand, the introduction of TM as an independent specialization into the Hungarian healthcare infrastructure. On the other hand, to achieve this, I feel it is essential to carry out a scientifically demanding processing, which will open the way for further development, setting an example for those professionals and graduates who have chosen this career or would like to develop in this direction in the future.

The aim of my thesis - in the narrow sense of my research - is to present the hypotheses, based on the tools of scientific processing:

1. Review the literature on the history of terrorism and its impact on the development of law enforcement intervention and health capabilities.
2. By comparing military battlefield care in harmony with the basic tasks of defence and TM based on the expectations of law enforcement, to illustrate the diversity, uniqueness and autonomy of health care provision in police operations.
3. To present the process of the introduction of TM in Hungary, the results of the work carried out, the practical value of the new TM procedures resulting from the fusion of military, battlefield, health algorithms and civilian health care protocols and priorities.
4. To demonstrate that the newly developed TM education system, introduced in the EU, has led to significant progress and positive results in the ATLAS Network member states.
5. To point out that health-related activities can only be carried out with the appropriate legal authorisation and that regulation of TM as a new health specialty is therefore essential.

RESEARCH METHODS

My research topic is clearly in the field of applied sciences, and I am convinced that the main measure of its results will be their practical applicability. In our country, there has been no systematic application of this field of study, nor has it been processed in a scientific manner. Therefore, the focus of my investigation is on the synthesis of practical knowledge and experience, questionnaire data collection, case studies and systematic analysis of data, and a combination of a systems approach to TM. The review of relevant literature and analysis of relevant databases provide the basis for the above.

THE STRUCTURE OF THE THESIS AND A BRIEF DESCRIPTION OF THE CHAPTERS

In the structure of my thesis, technical chapters will contain the content chapters defined by the research problem areas.

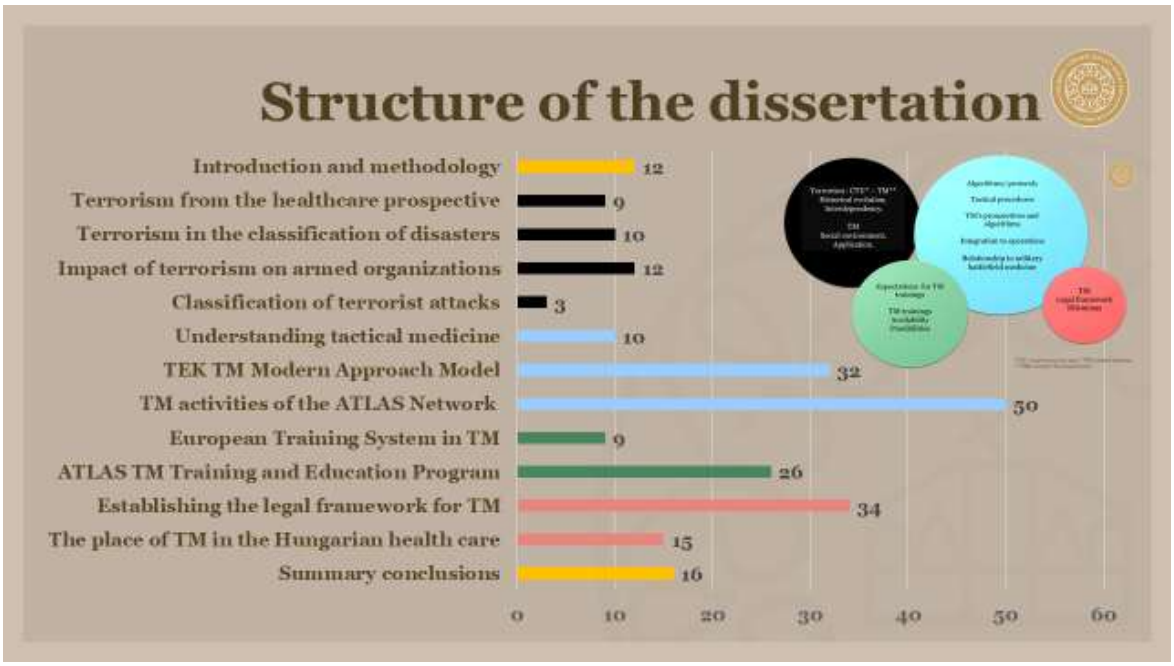

Figure 1: Structure of the dissertation

Chapter 1: Terrorism

I take a different approach to terrorism and its definition, a health approach. Based on the Kaiser - Tálas (2012) era division, I analyse how the eras, which can be distinguished on the basis of the characteristic and predominant perpetrator behaviour and motivation of terrorists, define the task of medical support. It can be concluded that classical terror gives clear instructions for the preparation of close protection TM, modern terror for the establishment of CTUs and their health and logistic systems, while postmodern terror gives clear instructions for the ability to handle mass casualty events.

Chapter 2: Terrorism in the classification of disasters

By the beginning of the 21st century, the consequences of attacks carried out on the global terror ground had reached the level of a catastrophic threat, and therefore terrorist attacks were included in the classification of man-made disasters. Terrorism has become a top list in security policy experts' analyses of global threats.

Terrorist attacks have posed new challenges for police forces. In these emergency situations, they have to act as administrators, a much more complex task and one that requires a more comprehensive approach than in the past. Meeting new societal demands requires complex skills. The CTUs and the police forces under their command can effectively enter the process of counter-terrorism and national resilience-building by taking into account the basic principles of the disaster management cycle. One of the most important elements of this is the immediate response, the saving of human lives in special circumstances, and the performance of "first responder" tasks. The understanding of the new system of tasks, the new direction of responsibility and the necessary changes and developments can only be implemented by changing the approach of law enforcement. This realisation led to the development of the new TM model of the TEK.

Chapter 3: The impact of the evolution of terrorism on the functioning and medical capabilities of armed organisations

In this chapter, I examine the effects of terrorism on armed organisations, with a particular focus on the organisation of the medical support of the police. It is concluded that the emergence of terror as a global threat has prompted a response from defence and law enforcement organisations. The solutions to the new challenges have required a change of approach, transformation and evolution, of which the ability to provide health care is an integral part. The new field-based medical activity in law enforcement, TM, undoubtedly builds on the experience, principles and algorithms of military battlefield care, but it is not only a form of it, adopted by law enforcement in a different organisational framework. TM was born and pushed in its own direction by the security environment of the 20th and 21st centuries.

Chapter 4: Counter-terrorism in the classification of terrorist attacks

There are few data available in the literature on the systematic breakdown of the modus operandi of terrorist attacks. In my opinion, the typology of offence behaviours can indicate directions that can help in prevention, preparation, effective planning and implementation of a rapid response. No two attacks are the same, but similar drivers can undoubtedly be found.

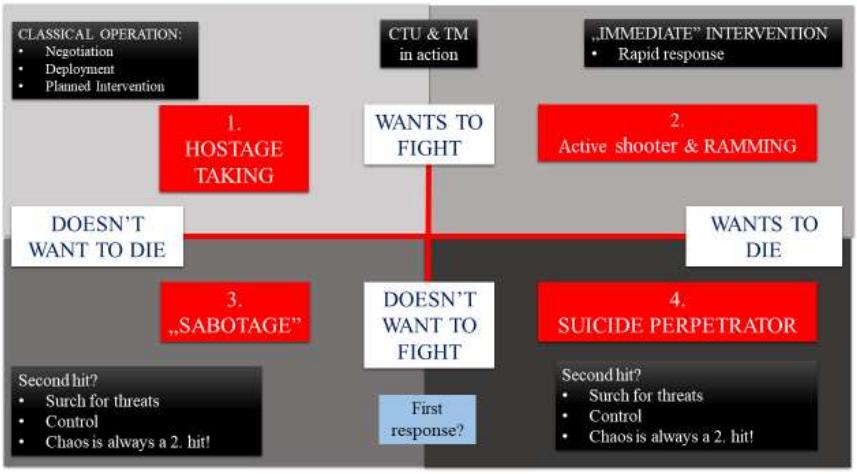

Figure 2: Classification of terrorist attacks (source: NATO SOF Congress (2018), Berlin, author's own editing)

I am convinced that a systematic approach can minimise the scope for error through improvisation.

Chapter 5: Understanding tactical medicine

In this chapter, I present two distinct models of TM in European practice. I will analyse their advantages and disadvantages in a comparative analysis. It can be concluded that TM has undergone a transformation in its relatively short history. The classical military model, based on historical traditions, has been complemented by a modern approach based on a 'first responder' approach, responding to wider societal needs. One driver of change has been the new approach of the TEK. The modern approach of TM also takes responsibility for the medical care of civilian casualties/patients found in operations. The new approach is based on the principles of "first responder" teamwork and incorporates the characteristic features and requirements of specialised rescue. This general and strongly grounded approach provides an opportunity to place it in the health infrastructure, to understand its social role and the broad possibilities for its deployment.

Chapter 6: TEK Tactical Medicine Modern Approach Model - architecture and algorithms

In this chapter, I will detail the conceptual and practical elements of the new TEK TM model, which can treat terrorist attacks as a disaster event, formulated at the conceptual level. It assumes its obligations arising from its basic police tasks, such as the direct protection of the lives and physical integrity of citizens. The professional algorithms will continue the experience and tradition of military medicine with the utmost respect for the results achieved so far. The model, however, breaks with the previous approach, which was a one-to-one application of the military medicine, military needs-based system, adapting it instead to law enforcement tasks, organisation and societal expectations. The TEK TM model, in its healthcare algorithms, has approached civilian prehospital protocols, integrating their applicable elements and regulating the course of care in a more rigorous and detailed way. The opening up towards civilian rescue, on the one hand, makes tactical medicine more acceptable in the legal and professional fields of health infrastructure. On the other hand, it fills a blank spot on the map of civilian health infrastructure with the ability to provide prehospital care in the "battlefield" of emergencies.

Chapter 7: Health activities of the ATLAS Network - MEDIC FORUM

The fight against global terrorism can only be fought effectively through international cooperation. The ATLAS Network, which brings together European counter-terrorism forces, was founded in this spirit and has been operating along these lines since 2008. In this chapter, I will describe the structure and functioning of the ATLAS Network, the circumstances surrounding the creation of the Medical Forum and its objectives. The TM aspects of the large-scale exercises will be developed as a case study and their experiences highlighted. I will show their positive contribution to TM training and practice.

The various professional working groups are responsible for developing best practices, organising the exchange of experience and information, organising joint exercises, managing and financing developments requiring significant investment and organising training in new skills. The ATLAS Network's Medic Forum collects and analyses information from its member units on operations and task implementation, which it incorporates into its training and education programme to ensure continuous improvement. By planning, implementing and, last but not least, funding large-scale exercises, the Medic Forum provides an opportunity to gain practical experience, test the proposed algorithms and identify the necessary directions for improvement. After a systematic analysis of the phenomena observed during the exercises and

drawing the appropriate conclusions, the TM working group shares its observations and recommendations with the command staff in a summary report and incorporates the experience gained into its training programme. The Medic Forum is a major contribution to the continuous development of TM practice in Europe.

Chapter 8: European Training System in Tactical Medicine - ATLAS Centre of Excellence for Tactical Medicine (TacMedCOE)

The Medic Forum of the ATLAS Network launched the TM Education and Training Programme in 2014. The main values of the education system are: accessibility of courses for all units, courses at different competence levels according to needs, use of a common nomenclature, algorithms that are well structured and easy to teach and learn, a common teaching methodology and a high instructor-to-candidate ratio. The training courses are conducted by experienced, qualified TM providers on the one hand and medical university lecturers on the other, which guarantees that both the specialities of police operations and the requirements of civilian health care are met at the same time. The range of courses offered in the training programme gives the opportunity for individual development and the acquisition of ever higher medical competences. For the management of mass casualty incidents, typical of postmodern terrorism, it offers a casualty classification system based on basic and intermediate medical skills in the form of stand-alone courses.

The ATLAS Education and Training Programme is based on the modern TM model, promotes a systemic approach, training TM instructors and proposing a TEMS structure to promote the autonomy of CTU units. In recognition of the TM training system, the first Law Enforcement Centre of Excellence, the ATLAS TacMed COE, was established in 2019 with the support of the EC.

Chapter 9: ATLAS Tactical Medicine Training and Education Programme and its implementation (2014-2024)

The Education and Training Programme of the ATLAS Network includes 7 different TM courses at 3 different levels of medical competence (basic, intermediate and advanced). 3 of the courses can be defined as basic training, complemented by 4 additional courses with specific topics (instructor, triage officer, mass casualty and paramedic). 28 international courses were organised between 2014 and 2024 by ATLAS MF and then by ATLAS TacMed COE. All ATLAS units participated in some form of these courses, which represents the training of 422

specialised police officers from 38 units in 32 countries. In addition to the above, 74 police officers from 15 law enforcement organisations were trained in TM at the request of the EU. Block TM training linked to ATLAS exercises is an integral part of the programme, with 480 operators and police officers and a further 9 non-ATLAS units participating. The TEK's own staffing is based on a fully equivalent system to the ATLAS courses, which will increase the number of trained personnel by a further 512 at basic level and 54 at intermediate and advanced levels. In total, 62 international units, 1 542 professional police officers have entered the ATLAS Education and Training Programme in the 10-year period under review.

The evaluation of the impact of the training programme on health skills shows that for each of the TM competency levels identified, there has been a significant increase in the number of units with qualified trainees, which also represents an improvement in health skills and available competencies. A further beneficial effect is the marked increase in the number of units able to deploy their own TM instructors, enabling them to organise their own basic medical training.

Thanks also to the increasing number of TM providers and instructors, an improvement in the systemic approach to the medical provision of operations in the units and in the organisation of TEMS can be observed.

Less objectively measurable, but based on the analysis of statistical data showing progress, it can be said that the change in commanders' attitudes is the decisive factor behind the positive shift, in the development of which the TM lectures, the training of commanders and the experience gained from daily practice, which is clearly visible, play a key role.

It can be concluded that the centralised and standardised training system of ATLAS contributes greatly to the health-oriented development of CTUs in Europe.

Chapter 10: Establishing the legal framework for Tactical Medicine

The maintenance of public order and public safety and the provision of health care are functions of the state that can be traced back to the constitution. Proper control requires proper legislation and a legal framework. It can be concluded that the health-related activities of the Hungarian Defence Forces are subject to comprehensive and well thought-out regulation. The acute health care capability of the Defence Forces is a response to the changing security challenges and emerging societal expectations of the 21st century. My research, through a

detailed analysis of the relevant legislation, clearly demonstrated that there is no comprehensive legal framework for the implementation of the acute medical response capability of the police, for the medical provision of its operations. TM practice has preceded legislation, leading to significant dilemmas in implementation. TM providers, building on their practice and using my research, have taken the initiative to develop an appropriate legal framework, which started with the amendment of the Health Law according to the rules of law-making and was completed with the creation of a relevant implementing regulation. The environment created by the regulation, which can be interpreted as an exception rule, allows TM in Hungary, according to its own rules, to fill the space not covered by the health infrastructure so far and to fill it with appropriate professional content.

The need for a stable legal framework to support the implementation of TM is not unique to Hungary. All EU Member States are struggling with the dilemmas arising from the lack of appropriate regulation. It can be concluded that the Hungarian legislation on TM is a precedent in the EU and can serve as a model for all Member States to address the lack of appropriate mandates.

Chapter 11: The place of Tactical Medicine in the Hungarian health care system

TM can be characterised as a multi-disciplinary, first responder activity at the intersection of police science and health science. It is one of the youngest disciplines within medicine. In general, it draws on the knowledge and experience of several disciplines and adds its own expectations and requirements. Within health care, it belongs to the large group of compromise medicine, where it forms a borderline with military and disaster medicine, oxyology, transport medicine, emergency medicine, intensive care and traumatology. Its professional content can range from minutes to days in time, its practice covers the priorities, timelines and sequencing of emergency, acute care. Its application requires a specific implementation that includes its scope of care, its tools and its procedures. Its integration into the health system as a fresh specialty is certainly justified. It can be said that its deployment is niche because of its capabilities, its adaptability, its ability to be deployed when necessary in situations requiring specialised rescue, and its ability not to take away powers from organisations or sectors.

SUMMARY CONCLUSIONS

TM covers the emergency, prehospital health care capabilities of law enforcement. Its emergence, systematisation and development are closely linked to the evolution of terrorism. By examining the health-related classifications of terrorist perpetrators' behaviours and motivations, it was found that each era can be described by characteristic features in terms of health effects. The era of classical terror, with its attacks on politically relevant persons, sent a message to units performing close protection tasks to integrate TM. The emergence of organised attacks in the era of modern terror justified the setting up of counter-terrorism units, where TM was introduced into units to protect intervention personnel, modelled on military combat care. Post-modern terror has brought a complete change of approach. The care of the injured in violent, extraordinary events that have risen to the level of catastrophic events has become a central issue. Successful operational qualification of the eradication can only be given by mitigating the damage and reducing the number of casualties. Terrorist attacks have ranged in outcome from one victim to thousands of injured and dead. Only a renewed and constantly evolving police force can combat terror, which is becoming global. My research examined the response of the police, with a particular focus on their health capabilities. By analysing the application of TM, I distinguished between two distinct practices, the classical TM model based on the military model and the modern TM model based on first responder principles. I must stress that from the perspective of CTUs, I have observed a significant added value of both models of care in their daily activities.

After the establishment of TEK, the Hungarian field of TM had to be built from scratch, without any decisive precedents. The start of my research therefore dates back to 2010. It was based on the vision of Lieutenant General János Hajdu, who, in contrast to contemporary police leaders, recognised that special police operations could no longer be carried out without medical support. He defined this support-service activity of counter-terrorism in terms of the highest available graduate medical competence. It was in this support environment that the TEK began to build its own TM model. An applied scientific approach has guided the work, and therefore the continuous translation of the partial results of my research into practice has been achieved throughout. The main feature of the modern TM model defined as a result of the research is that it expands the range of beneficiaries, in contrast to the classical model which focuses on the protection of life forces. It links care to need rather than to status (member of the herd). The care of civilians has raised a new set of problems, based on the experience gained from our operations, in addition to the traumatological aspects of combat medicine, the new model had

to take into account the care of decompensating chronic diseases such as acute myocardial infarction, status asthmaticus, epileptic, stroke, etc. All of these required a shift in the algorithms used towards civilian care in a way that could be validated while at the same time respecting and preserving the military battlefield experience to the maximum. The TEK TM model I have set up defines battlefield care as specialised rescue, which also means that the technical capabilities to eliminate or manage the threat and the medical care provided in extraordinary circumstances form a single entity. This provides the basis for operational integration of TM capability and implies that there should be overlap in the capabilities of each actor. Progressive care organisation at multiple levels of health competence cannot be avoided. The responders can therefore be divided into teams consisting of police officers with medical skills on the one hand, and graduated medical providers with tactical, police skills on the other. In this dissertation I will describe in detail the approach of the modern TM model of TEK based on my scientific research and the system built around the triad of force - instrument - method.

Following the terrorist attacks in New York, it became clear that global terror can only be tackled effectively if there is international cooperation. In 2008, with the support of the EC, the ATLAS Network was established, an organisation that aims to promote cooperation in support of the practice, with the aim of developing common "gold standards", achieving quality guarantees that can be achieved at any time throughout Europe and ensuring the feasibility of joint cross-border operations. The focus of the operation was on information exchange, implementation of common exercises and training. I came into contact with the ATLAS Network in 2012 in the context of the TM's start-up training project. In this context, I gained more and more insight into the medical capabilities of the European CTU units. My research has expanded in a new direction, the international expectations and opportunities for TM education and training. In 2013, building on the experience gained so far, I presented a comprehensive programme for the development of health capabilities to the commanders of the ATLAS Network, based on the TEK TM model. My series of presentations had the unconcealed aim of achieving a change in commanders' mindset, which is essential to achieve the integration and development of health capabilities. After much valuable discussion, the ATLAS Medic Forum was formed in 2014 and the Network has entrusted me to lead it.
The post gave me the opportunity to have a complete overview of the situation, daily practice, needs and current problems of the TM specialty in Europe. The continuous dialogue and the various forms of information gathering led to the launch of an ATLAS Tactical Medicine Education and Training Programme, which offers development opportunities for all units. The

main strengths of the training programme are the standardised nomenclature, the interconnected network of algorithms systems that are the same at different levels of competence, the user-friendly training methodology, the courses accessible to all and the differentiated progressive care approach involving four levels of care. A major contribution to the continuous development of education has been the scientific processing of information from large-scale exercises organised by the ATLAS Network and the translation of their results into practice, after drawing the appropriate conclusions. In 2019, in recognition of the results of the training system, which had been in operation for five years, the EC, together with EUROPOL and the ATLAS Association, established Europe's first Law Enforcement Centre of Excellence in Budapest, the Center of Excellence for Tactical Medicine, thus raising the issue of health provision in operations to an organisational level, recognising its indispensability in modern law enforcement practice. The results of the 10-year training programme and the experience of the exercises are an integral part of my dissertation.

Throughout my research, along historical traditions, I have observed a comparison between military battlefield care and TM. In my comparative analyses, I have highlighted the parallels and marked differences in the health capabilities of the defence and law enforcement services. The most striking difference was in the basic tasks and the resulting expectations. A not insignificant difference is the environment in which the operations are carried out, which fundamentally determines the functioning and the possibilities of operation of the entire supply chain. I should make a special mention of the legislative background to these specific healthcare activities. The military health support system has a long history. The commanders and policy makers responsible for its operation have had the opportunity to build the appropriate legal environment. The situation is different for the new and rapidly emerging speciality of TM. It was observed that the practice of law enforcement, responding to the demands of society, was rapidly developing in relation to the historical perspective, and preceded the legislation. The lack of legislation enabling the use of TM is a problem at European level. One of the main objectives of my research was to overcome this dilemma. Through more than 12 years of persistent work and research, I managed to achieve the amendment of the Health Law. as a precedent in Hungary and Europe, which, according to the rules of law-making, formed the basis for the implementing regulation on TM published in 2024 and entering into force in 2025. In my dissertation, I summarize the legislative context in which the TM regulation was born, the research thought process, which was based on analogies with the defence-oriented regulators.

The aim of my research was to support the establishment of a new health specialty in Hungary and the development of its international training system with a scientific approach. Therefore, I classify my work as applied science, the main outcome of which should be practical applicability. The new health profession must fit into the already existing health infrastructure, and I will complete this task at the end of my dissertation. I will demonstrate how TM, as a multi-boundary profession, fills a gap in our health care system to date by asserting citizens' rights to emergency care.

NEW SCIENTIFIC FINDINGS

A characteristic feature of applied sciences is that the aim of their research is practical applicability and the evaluation of their results is determined by their applicability. This approach has guided my research throughout.

The results that are fundamental to the practice of TM:

1. In the course of my research, I have reviewed for the first time the historical development and traditions of health support activities linked to the performance of counter-terrorism unit tasks, the new expectations based on global security challenges, the system of tasks that can be traced back to its specific environment and basic law enforcement tasks. I compared these with military, military medical and law enforcement practices, recommendations and relevant legal mandates. By synthesizing the data obtained in this way, I developed and implemented a new model, an uniform procedure and a system of tactical medicine in the medical speciality.
2. Using the new approach and procedural model of tactical medicine developed as a result of my research and based on the results of my surveys of the health capabilities of European counter-terrorism units, I have set up a multi-level, complex tactical medicine education and training programme, which has been the basis for the first European tactical medicine training system within the ATLAS Network.
3. The practical application of my research has led to a significant change in the perceptions of European counter-terrorism commanders about the health provision of operations.
4. Through a detailed analysis of the current and relevant Hungarian legislation, drawing an analogy with the legislation regulating health activities in military operations, I have shown the shortcomings of the regulation of tactical medicine, the need for its regulation and its possible content.

USES AND RECOMMENDATIONS OF THE RESEARCH

The aim of my research was to promote the development of TM, to find solutions to their challenges and to support police officers and health workers who plan to work in this field in the future by sharing the findings.

- The comprehensive thesis contributes to the understanding of the functioning and the tasks of the TM discipline, thus helping its integration and acceptance into the health and law enforcement sector systems, which is the basis for cooperation in "multiagency" task implementation. The inclusion of these organisations in the educational curricula can facilitate cooperation between law enforcement, health and disaster management.
- It can help police command staff to improve support for special police forces. It will show the usability of the TM capability set and the approach and conditions required for its operation. As a clear recommendation, an organisation that defines itself as a modern police force in the 21st century can only carry out its special intervention activities with a high risk of injury under medical support, and the results of my research can be used in this process.
- In defining the responsibilities of CTUs, the informed choice of the decision-maker responsible for the organisation can be supported by a detailed description of the classical and modern TM provider models identified as a result of the research. When organising health care provision, it is recommended to take into account the differences and similarities between the two models, on the basis of which an appropriate decision can be made and justified, and the research results can be used as an aid to command decision-making.
- The new SAR Triage casualty classification system described in the thesis, which takes into account technical rescue as a variable, can be applied in the daily practice of those involved in rescue in extraordinary circumstances and adapted to their own activities.
- The clear message and recommendation of the thesis for law enforcement decision-makers is that TM should always be understood and organised as a complex system along the force-asset-method axis. The TEK modern TM model as a whole or its individual elements and protocols can be used in units applying TM.
- Based on the lessons learned, a recommendation is made to implement an injury classification system based on basic health skills for all organisations that have a first responder role in the response to MASCAL incidents. Involving those with basic health skills in meaningful work will help to eliminate chaos,

protect personnel from developing PTSD. The Triage Impression identified in my research could well be used for this purpose.

- The most credible way to develop and train the TM skills of SIUs and CTUs is through a training centre with basic police tasks, operational principles, methods and experience. It is strongly recommended that TM training be conducted by TM instructors. The elements and methodology of the ATLAS TM Education and Training Programme can provide a model for the implementation of training in this direction.
- Complex exercises have a significant added value in the training and further training of CTUs, SIUs. Maintenance of operational skills should include the organisation of the implementation of casualty care. The analysis of well-planned exercises is one of the drivers of progress. The exercises processed in my thesis can serve as a model for the organisation of training.
- Dealing with the legislative background of combat benefits has raised a number of dilemmas that go beyond the scope of the TM implementing regulation and the subject of my thesis. In the case of those trained for health care activities, the limitation of the application of the acquired competence to military or law enforcement activities is questionable. It is inconsistent with the obligation to provide assistance under the Criminal Code. A revision and clear interpretation of the legislation in this direction is recommended. The duty to *'act as required'* and the competences acquired through training, in my opinion, give the persons concerned the authority to use their skills in any situation where their intervention could save lives. However, prosecutorial and judicial practice on this issue raises doubts and its resolution is strongly recommended.
- Once the TM legislation enters into force, the practical application of the minimum conditions of staff and material requirements laid down therein is no longer a recommendation, it is binding. However, the legislation helps in the organisation and operation of the TM system and is therefore of considerable practical value.
- A comprehensive approach to research can be used as a source of further academic work for all researchers working in frontier areas related to TM or specialised rescue and health support.

Since my posts, my academic research has been aimed at and my responsibility has been to support EU counter-terrorism forces in building up and running their TM systems and to provide opportunities for training in this area. Sharing the results is therefore not an option but an obligation. The translation of the dissertation and the TM Regulation into English and their

dissemination to ATLAS units is in my near future plans, so that the results of the research will be much more widely available and usable. Another unhidden aim is to encourage my colleagues in the European TM community to do research. More research in TM will help the development of this new health specialty.

LIST OF PUBLICATIONS OF THE DOCTORAL CANDIDATE IN THE FIELD

Single-authored publications, in German:

FAGGYAS, Attila dr. (2019): Tactical medicine in the ATLAS network: concept and training of counter-terrorism units. *tactics + medicine*, 2(4), 54-58.

Single-authored publications, in Hungarian:

FAGGYAS, Attila (2020) The dilemmas of the legal background of military and law enforcement battlefield health care in Hungary. *Domügyi Szemle*, 68(3), 19-55. Online: https://doi.org/10.38146/BSZ.2020.3.2.

Attila FAGGYAS (2020):The place of tactical medicine in the Hungarian health care system. *Domügyi Szemle*, 68(6), 53-69. Online: https://belugyiszemlejournal.org/index.php/belugyiszemle/article/view/662

Attila FAGGYAS (2020) Terrorism as a disaster. *Domügyi Szemle*, 68(10), 105-126., Online: https://belugyiszemlejournal.org/index.php/belugyiszemle/article/view/727

Attila FAGGYAS (2023):Reflections on the Counter-Terrorism Centre's special rescue activities in the light of the experience of the earthquake in Turkey. *Honvédorvos*, 2023/1-2, 14-29, Online: https://mkkot.hu/honvedorvos-2023-1-2-szam/

Co-authored publications, in Hungarian:

Péter DELY - Attila FAGGYAS (2022): *Critically injured rescue in emergency conditions*. In SZELEI Ildikó (ed.): *A war science current issues in our time Volume II*. Sziliko Szentikova, Ludovika University Press. 85-102. Online: https://tudasportal.uni-nke.hu/xmlui/static/pdfjs/web/viewer.html?file=https://tudasportal.uni-nke.hu/xmlui/bitstream/handle/20.500.12944/17628/974_A%20hadtudom%c3%a1ny%20aktu%c3%a1lis%20k%c3%a9rd%c3%a9sei%20II.pdf?sequence=1&isAllowed=y#page=86

Attila FAGGYAS - Dániel RÉMAI (2024) Modern and postmodern terrorism: the challenges of on-site health care. *Hungarian Policing*, 24(1), 45-55. Online: https://folyoirat.ludovika.hu/index.php/magyrend/article/view/7307/5976

Attila FAGGYAS - Dániel RÉMAI (2024) Modern and postmodern terrorism: diverse methods and means of perpetration. *Hungarian Policing*, 24(2), 259-272. Online: https://folyoirat.ludovika.hu/index.php/magyrend/article/view/7252/6043

Attila FAGGYAS dr. - Dániel RÉMAI (2025): *The diversity of terrorism - an interdisciplinary study of the phenomenon*. In: Dániel RÉMAI - János Taller (eds.): *Terrorism - Studies on the complex phenomenon and certain aspects of terrorism*. (in press).

THE DOCTORAL CANDIDATE'S PROFESSIONAL AND SCIENTIFIC CURRICULUM VITAE

Name: dr. Attila Faggyas

Place and date of birth: Budapest, 23.10.1971.

Studies:

He graduated summa cum laude from the Faculty of General Medicine of Semmelweis University in 1996. In 2001 he obtained a specialization in anesthesiology and intensive care therapy, and in 2007 in pediatrics with excellent results. In 2011 he graduated from the Police College of the Police Officer Training with excellent (97%) results. He passed the specialised examination in law enforcement (Administrative and Integrated Law Enforcement, Health and Psychological Administration of Law Enforcement Agencies) in 2013, the training of Chief of Law Enforcement in 2014 and the training of Master of Law Enforcement in 2015. He obtained the military, law enforcement first provider instructor diploma in 2011 (Hilversum, The Netherlands), the European Resuscitation Council Instructor qualification in 2007, the Hungarian Health Care Standard (ISO) internal quality assurance auditor qualification in 2009.

Professional career:

He started his professional activity in 1996 at the Central Anaesthesia and Intensive Care Unit (KAIBO) of the Szent László Hospital, and in 1997 he continued his work at the Pediatric Intensive Care Unit of the Szent László Hospital, where he was Deputy Head of Department from 2005, and was appointed Chief Physician in 2009. From 2010 he continued his work as a part time job at the Pediatric Intensive Care Unit until 2023, overlapping with KAIBO as a physician during the COVID epidemic. Currently, he is working as a head physician at the National Institute of Hematology and Infectology KAIBO, South Pest Central Hospital.

Founding member of the National Ambulance Service Children's Ambulance Service, established in 1999, he was a retired member until 2012.

Since the establishment of the Counter Terrorism Centre in 2010, he has been a member of the staff, from 2010 to 2014 he was the Medical Chief of the Emergency Medical Services Department, from 2014 he was the Commander Chief Medical Officer of the Special Medical

Divisiion of the Operations Directorate, from 2021.09.01 he was promoted to the rank of Colonel.

Head of the Medic Forum of the ATLAS Network, founded by the European Commission, since 2014.

Social functions, duties:

From 2006 to 2024, he is the President of the Foundation for Pseudo-Croup Children.

2007-2011 Vice-Chairman of the Public Employees' Council of the St. István and St. László Hospital and Outpatient Clinic, 2008-2011 Member of the Supervisory Board of the St. István and St. László Hospital and Outpatient Clinic.

2016 Member of the EMMI - Health Response to Terrorist Incidents Working Group, 2016 Member of the Health Professional College Disaster Directive Working Group.

Between 2023-2024, he will be a member of the board of the Hungarian Diving Association.

Honours, awards and recognition

In 2015, he was awarded the Hungarian Silver Cross of Merit *in recognition of his "work in developing the foundations and building the system of tactical medicine, a special field of the health profession."*

In 2023, he was awarded the Gold Degree of the Medal for Extraordinary Gallantry *"in recognition of his outstanding contribution to the response to the earthquake disaster in Turkey."*

In 2019, he was awarded the Gold Degree of the Medal of Merit for Extraordinary Gallantry *"In recognition of his rescue and search activities following a waterborne accident on the Danube in the capital on 29 May 2019."*

Scientific activity:

Since 1996 he has been a regular speaker at national and international medical congresses and conferences. His main topics are croupp syndrome, fulminant hepatic failure in children, thrombosis in children and intensive care in children recieving bone marrow transplantation.

Since 2014, he has been an invited speaker on tactical medicine at both national and international congresses.

Since 2016, he has been a scientific advisor at the Department of Defence, Disaster Management and Law Enforcement - Medicine, Semmelweis University.

Since 2018, he is an acting lecturer at the Counter Terrorism Department of the National University of Szeged.