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Hungarian Army Role 2 Capability
From Concept to Realisation

Abstract

The Fundamental Law of Hungary and the National Military Strategy both state that the Hungarian Defence Forces are responsible for the defence of the independence of the state, and its citizens and enforcement of the state's interests. Thus, the Hungarian Government decided to extend the capabilities of the Hungarian Defence Forces with a Role 2 field hospital. Being a NATO member country Hungary has decided to join NATO and other joint missions providing both with military force, and logistical and medical support. However, until now, Hungary was not able to support its troops or NATO allied forces with an independent Role 2 level medical facility, which would be able to provide life-saving, limb-saving and function saving surgeries, and short term intensive and postoperative care outside Hungary's borders as a deployed field hospital. According to the instruction of the Hungarian Government, the planning stage has begun and the first steps of the acquisition process was made. This article guides the reader through the doctrinal and legislative frameworks, the organisational structure, and the facilities and capabilities of the Role 2 field hospital unit.

Keywords: field hospital, Role 2, damage control resuscitation, military environment, field care, Hungarian Defence Forces Medical Center

The Fundamental Law of Hungary sits at the apex of the legislative hierarchy in Hungary. In Article 45 it states that “Hungary’s armed forces shall be the Hungarian Defence Forces. The core duties of the Hungarian Defence Forces shall be the military defence of the independence, territorial integrity and borders of Hungary and the performance of collective defence and peacekeeping tasks arising from international

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treaties, as well as carrying out humanitarian activities in accordance with the rules of international law". The Government of Hungary has the responsibility to "decide on any troop movement of the Hungarian Defence Forces and foreign armed forces that involves crossing borders" and the National Assembly has to decide with two thirds of the votes "on the deployment of the Hungarian Defence Forces abroad or within Hungary and on stationing them abroad".

The National Military Strategy of Hungary,\(^5\) enacted in 2021, states that "the renewing Hungarian Defence Forces will develop and organize their capabilities in line with the Government's defence policy considerations, ensuring the defence of the country's sovereignty, territorial integrity and citizens, and the enforcement of its interests. As a result of the force development, Hungary's military self-reliance will increase significantly, which is crucial not only for its self-defence and deterrence capabilities, but also to remain an effective contributor to regional, European, and transatlantic security efforts".

To be able to fulfil its pivotal role, not only the combat, combat support and combat service support capabilities of Hungary's military had to be renewed, but the medical support capabilities also needed reformation and expansion. According to the National Military Strategy, the medical support capabilities are an essential prerequisite to any military operation, therefore a "partially deployable medical and logistics capability" needs to be created. The goal of the reform was that the Hungarian Army Medical Center shall be able to provide a state-of-the-art, effective and flexible medical support including deployable medical care capabilities that can function effectively even in environments with nuclear, biological, or chemical contamination. The resolution confirmed that the Hungarian Army needs technological improvement to be able to support the tactical and operational tasks of the Land Force units and Air Force assets.

Within the above political and legislative framework, the Hungarian Government issued Resolution 1674/2018 (XII.13.) that invited the Minister of Defence to start the process of acquiring the capability of a Role 2 medical support for the Hungarian Army, by allocating over 20 million USD for the first batch of items.\(^6\)

Being a NATO member country, the medical support must cover operations within and outside the borders of Hungary, in Allied or other international operations. Regarding engagements abroad, the Hungarian Army stationed over 900 members in peacekeeping missions in 2020, with the majority of those serving in NATO missions. Currently, the largest peacekeeping mission of the Hungarian Army is in KFOR Kosovo, where a Hungarian general serves as the head of KFOR, the commander of the NATO's peace mission in Kosovo. Before the NATO forces were withdrawn from Afghanistan, Hungary had approximately a hundred troops stationed there. The NATO Training Mission Iraq is a non-combat advisory and capability-building mission with over 150 Hungarian soldiers providing mainly guarding and training capabilities.\(^7\) All these missions needed medical personnel for direct support of the Hungarian troops. Specifically, the Hungarian Army currently provides Role 1 medical capability

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in Kosovo and under the Baltic Air Policing mission, among others, but so far, it had no capability to be able to provide Role 2 medical support outside Hungary’s borders. The Hungarian Army Medical Center, however, provided clinical leaders, anaesthesiologists, surgeons and nurses to many NATO missions and Role 3 facilities for example in Afghanistan, Masar e Sharif and Kabul, which provided and excellent opportunity to gather valuable experience in deploying, maintaining and operating a deployed medical facility be that a Role 2 or a Role 3 asset.

**Doctrine**

The NATO AJP-4.10 Publication, the Allied Joint Doctrine for Medical Support, describes the capabilities of the medical support facilities, offering classification from Role 1 to Role 4. The spectrum of the provided medical care, and the deployed medical support capability should correspond to the mission, the risks involved and the size, strength and function of the deployed military force. These facilities operate in a network-like structure, balancing the tactical situation and the clinical requirement providing fast and incremental, step-up clinical care to enhance the survivability of battlefield injuries and diseases. The functions and capabilities of each level of medical care is designed to provide the necessary medical care, and the goal is to transfer the patient to a higher level of care only when needed and when the tactical situation allows. Therefore, the medical facilities have to provide not only medical care but air or land evacuation capabilities as well. Since the renewal of this doctrine is issued, the classic Role 1 to Role 4 categorisation could be subject to change in the near future.

The Role 1 of military medical care capability includes triage, pre-hospital emergency care and essential diagnostics. Its capability of holding a patient and its medical supply is limited, therefore, it relies primarily on medical evacuation and medical logistics. However, its main advantage is its size; being a small and mobile unit, the Role 1 medical facility can move with military forces to provide medical care in as little timeframe as possible.

The Role 2 military treatment facility involves the healthcare capabilities of the Role 1 unit but is also capable of providing medical care to preserve life, limb and function, and to stabilise the patient for further transport and medical care. A highly mobile version (Role 2 forward) is designed to be deployable into remote, austere and tactically unsecure positions, to provide damage control resuscitation and damage control surgery for battlefield injuries. The Role 2 Basic version enables life, limb and function preserving resuscitative and surgical interventions, short term postoperative critical care after damage control resuscitation and surgery (Figure 1). The Role 2 Basic must be able to provide blood transfusion and handle blood products.

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8 NATO Standardization Office 2019.
Figure 1: Layout of the Hungarian Army Medical Center Role 2 Basic unit  
Source: compiled by the authors.

The Role 2 Enhanced version is capable of providing specialist care, and houses a blood bank, a pharmacy, and an extended laboratory capability and designed to prepare the patients for strategic evacuation (Figure 2).

Figure 2: Layout of the Hungarian Army Medical Center Role 2 Enhanced unit  
Source: compiled by the authors.
The Role 3 health care is the next level of medical care, with computed tomography, deployed specialist care available. This level of deployed medical care might reduce the need of strategic evacuation by providing high standard medical care.

The Role 4 involves the full spectrum of military healthcare: from outpatient and inpatient facilities to reconstructive surgery and rehabilitation. Importantly, this large medical facility is non-deployable, therefore, the Role 4 medical support is a national responsibility, and it is provided by military or civilian hospitals in the casualty’s country of origin.

The Hungarian Government decided to develop a Role 2 Basic capability in a short timeline, while Role 2 Enhanced being the final goal in the next step, years after. Being a NATO member country and as the Role 2 facility shall be able to operate in a multinational environment in NATO or other missions, the Hungarian Army Medical Center had to adhere to the NATO Capability Targets while planning the Role 2 Basic facility. According to this regulator, the Role 2 Basic should be able to

- provide general and emergency medical and primary surgery care including Damage Control Surgery and surgical procedures for emergency surgical cases
- provide triage and advanced resuscitation procedures, appropriate medical intensive care, and post-operative care
- have the capacity to operate four critically wounded patients per day and up to 12 critically wounded patients in 24 hours during periods of surge
- incorporate or be augmented by additional medical modules in accordance with the Modular Approach to Medical Support (AJP-4.10)
- provide basic laboratory and imaging functions (X-ray, ultrasound)
- hold up to 12 patients until they can return to duty or can be evacuated

Besides medical tasks and functions, the Role 2, being a military asset, should be able to

- integrate into the planning process of the military operation
- integrate into the tactics of the military operation and the command structure
- track personnel using standard NATO information systems
- have effective medical communication and information system
- operate in austere conditions, in cold or extreme hot weather
- operate without resupply for a minimum of three consecutive days
- provide CBRN collective protection to critical elements, such as the operating theatre and intensive care unit
- plan its mission documents (SOP – standing operational procedures, TTP-tactics, techniques and procedures)
- provide medical advice to the military command structure
- communicate with the military command in a secure and efficient way

The acronym DOTMLPFi stands for Doctrine, Organization, Training, Materiel, Leadership, Facilities, and Interoperability. This is a well-known framework in the military for developing joint concepts, in order to achieve preplanned objectives for developing new capabilities and implementing plans into applicable processes. The DOTMLPFi concept structure was defined in the United States Joint Capabilities
Integration System\(^9\) initially, but it has been widely adopted by NATO for development and planning purposes. The doctrines in regard to the Hungarian Role 2 development procedure are the national legislative structure and the applicable NATO regulations, as written above. The organisational structure was developed so that the Role 2 should be able to fulfil its military and medical tasks in a fast and efficient way, to deliver state-of-the-art medical support and to sustain its capabilities during the whole mission.

**Organisation**

The Role 2 is a military asset with special medical capabilities, therefore, the commander of the unit is a military officer, who does not necessarily have medical background. As a unit commander, he is responsible for establishing effective medical and military command structure to ensure that the policies and procedures are well defined and well planned, their subordinates are well trained to fulfil their duties and are aware of their obligations, and that the Role 2 unit as a whole is ready to fulfil its primary function: saving the life of injured personnel. The decisions of the Role 2 commander are supported by a medical advisor and a medical planner unit, who are well trained to provide the necessary inputs regarding medical planning. According to the NATO AJMEDP-1 Allied Joint Medical Planning Doctrine\(^10\) the medical planners’ contribution to operational planning is twofold: 1. provide medical knowledge and expertise which serve as a fundamental input for the commander’s decision-making process; and 2. develop and implement a Medical Support Concept and Medical Support Plan for the planned operation.

![Diagram: The basic command structure of the Role 2 unit](source: compiled by the authors)

\(^9\) Chairman of the Joint Chiefs of Staff Instruction 2016.

\(^{10}\) NATO Standardization Office 2018.
Being key assets, the aim of the Medical Support Planning processes is to develop a plan, which includes the consideration of disease prevention, medical treatment and medical evacuation, to determine the organisation and structure required for appropriate, efficient, flexible and focused medical support for the specific mission. Furthermore, it must identify threats and possible shortfalls, and the requirements to be able to continuously support and sustain the military operations and to determine the requirements and possibilities of civil-military cooperation, such as host nation support, or in some cases, local contracting. The medical planner has the responsibility to provide an estimate in the foreseeable casualty rate and to develop a plan to ensure the proper medical care of patients arriving in surges. Moreover, the medical planners have to understand the strategic situation to be able to provide operational advice and determine how the main course of action can be medically supported.

The Medical Director is the head of the medical organisation, accordingly their duties include commanding and supervising the subordinate medical units, development and implementation of medical policies and treatment plans, to ensure satisfactory patient flow and patient management. They must also ensure that the medical staff is adequate in size, equipment, training and experience. The logistics is a crucial part of a deployed hospital. Not only the hospital itself has to be set up, containers levelled, tents connected, water and power supply granted, but since the Role 2 must be able to operate in harsh environments, the heating and cooling mechanism must work properly. The medical logistics of a field hospital involves significant advance planning. The Role 2 unit must be able to operate independently for three consecutive days, which means all the necessary equipment, medicines and disposable medical equipment has to be transported with the Role 2 unit.
To ensure the success of a Role 2 unit's mission, to save limbs and life, every personnel appointed to a Role 2 position, be that military or medical in nature, has to have the necessary combined military and medical training. Most importantly, they have to learn and internalise how to operate a field hospital. Pivotal trainings and concepts to follow for Role 2 medical personnel are Triage, Damage Control Surgery, and Damage Control Resuscitation. In short, the main goal of this type of medical treatment is to prioritise care for those who are in the most severe need, to ensure lifesaving and limb saving and function saving surgery and resuscitation, but not aiming for complete resolution of injuries, or full surgical care. The detailed explanation of these concepts lie beyond the scope of this article, but has been

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11 Blackbourne 2008.
13 CAP et al. 2018: 36–43.
comprehensively reviewed elsewhere.\textsuperscript{14} The priority is to move those in need further up in the medical chain using ground based or rotary wing medical evacuation\textsuperscript{15} to a deployed Role 3 or directly to a home front Role 4. This means that the medical team is able to care for the next patient as soon as possible. There is excellent evidence that by adhering to guidelines of damage control resuscitation\textsuperscript{16} and damage control surgery,\textsuperscript{17} with including early management of bleeding,\textsuperscript{18} a field hospital is able to save lives of injured personnel and allow judicious patient management and economical, frugal operation. This needs preplanned policies, expertise, excellent teamwork and vigilance from the medical personnel. To be able to follow this medical concept, the Role 2 medical personnel has to go through training in advanced life support and has to successfully accomplish a European trauma course. While not deployed, all medical personnel have assignments in the Hungarian Defence Forces Medical Center, so that their training remains up-to-date, and by continuously treating severely injured civilians and military personnel in this top-level trauma center, they keep in practice. Besides the daily medical practice, the Hungarian Defence Forces Medical Center has the possibility to provide live tissue and human cadaver trainings, virtual reality, and teamwork trainings to provide advanced training for the Role 2 medical personnel.

**Equipment**

In the absence of state-of-the-art medical equipment and medicines no doctor or nurse can provide the necessary medical care a frontline patient needs. Thus, the Role 2 logistic support platoon’s primary responsibility is to ensure that all necessary equipment and consumables are present. Currently, the Role 2 is equipped with modern patient monitoring devices, ventilators, infusion pumps and surgical equipment. The quality and quantity of medical supplies and consumables highly depend on the nature of the mission, the operational area, the possibilities of medical evacuation and the length of deployment among others. The logistical and resupply routes also influence the quantity of supplies brought along with the initial deployment. Therefore, in advance military and medical planning is crucial to ensure the operability of this asset. In specific circumstances, the Role 2 has to provide logistic background for the forward Role 1 units, which should be taken into account when developing the logistical plan.

\textsuperscript{14} Ball 2015: 538–543.
\textsuperscript{15} Parker 2006: 202–211.
\textsuperscript{17} Roberts et al. 2021: 10–33.
\textsuperscript{18} Rossaint et al. 2010.
Personnel

The Role 2 unit is a special military unit, its specialty is medical treatment, but it is still a military unit. Therefore, the command structure, the medical and logistical personnel are all selected professional or contracted soldiers, with some reservists. The current number of staff is 135 people, of that 6 military officers (Role 2 command) and 22 medical officers. The Role 2 has 65 non-commissioned with 49 having medical specialty. The number of other ranks is 42, from which 8 have medical specialty. Currently, 73% of the various medical and non-medical posts is assigned, further replenishment is planned.

Leadership

In peacetime, the Role 2 is commanded by the Hungarian Army Medical Center. It is especially important that the medical personnel can keep their expertise, improve their knowledge and skills by treating patients and injured person. Therefore, in peacetime, they take part in patient management in various units of our Role 4 medical center.

When deployed, the Role 2 is under the command of a specific military unit. The Hungarian Army Medical Center Role 2 Basic asset can be commanded by the brigade command, or when deployed as an independent unit under NATO or other
multinational missions, the command structure is established according to the specific mission. Currently, after bilateral negotiations with NATO, the Role 2 Basic asset has to reach initial operational capability by the 1st of January 2023. Certain caveats are present in order to take advantage of this new asset as soon as possible after acquisition: 1. ground transportation will be acquired in 2024; 2. some module elements (such as CT scan) in 2025; 3. telemedicine and C4I (command, control, communications, computers and Intelligence System) capability will be available from 2027. Consequently, full operational capability is planned to be reached towards the end of 2027.

Facilities

The Role 2 Planning Committee decided to choose a hybrid field hospital, consisting of containers and tents. The NATO green (RAL 6031) containers have a size of 6,508 mm of length, 2,438 mm of width, external height of 2,591 mm. The internal height is 2,240 mm which allows for a safe working environment and comfortable space. The weight of the empty containers is approximately 3,000 kg, but the extendable containers (type 1:2 and 1:3) and the inside structures and medical equipment increase the weight up to 5,000 kg. These containers can be lifted and transported by a military 8-wheel container transporter.

![Figure 7: Opening of a type 3:1 container](source: compiled by the authors.)

The first batch of items arrived in 2022 including 11 standard 20-foot containers and 8 tents having a combined value over 2 billion HUF (approximately 53 million USD). These unites were purchased from the German Zeppelin Mobil Systeme GmbH through the Hungarian Suppline Kft. The intensive care unit container, the operating room container and the emergency care container are type 3:1 containers, meaning that while transportation the container fits a standard 20-foot container transport vehicle. However, when deployed, both sides can be opened and then the 20 foot container unfolds into a triple size room, with enough space to provide the necessary space for medical care (Figure 7). The X-ray container was purchased as a type 2:1, which doubles its space after deploying and unfolding, which means it can hold the patient and the necessary X-ray and ultrasound machines to provide state-of-the-art diagnostic imaging examinations. The laboratory container, the storage container and the power aggregator container are type 1:1. All these containers are designed to be interconnected with tents such as the ones already purchased. The containers have to be levelled with the built-in levellers. The internal walls are covered with gap free
sandwich panels, the painting of which resists antiseptic and disinfectant solutions. The built-in LED lighting system provides the operational brightness for medical interventions without the need of additional operating room light. The containers can be connected to oxygen generators and pressurised air generators, with that the patient ventilators can be connected to AGA wall fittings. The containers are equipped with medical equipment necessary to their role: the ICU container has, for example, 3 critical care beds with modern patient ventilator, volumetric pumps and perfusors, defibrillator, ultrasound machine and modern patient monitoring system which can be connected to a central monitoring station by WiFi or LAN connection. The laboratory container has the capability to provide results of 200 samples per hour. Furthermore, blood count, blood chemistry, coagulation studies, blood gas testing and immunochemistry are all available.

![Figure 8: X-ray container (type 1:2)](source)

Source: compiled by the authors.

After lifting the container from the 8-wheeler to the ground, it takes approximately 10 minutes to level them and to extend the type 1:2 and 1:3 containers to their full working area. This operation does not need a winch or mechanical power, it can be done by two people with human power. The floor of the containers is covered with an anti-slip flooring; the metallic fixing points makes it possible that all necessary equipment (including ICU beds and operating table, cupboards and shelves) remain inside the container during transport. With this solution full operability can be reached within hours.

The tents have an aluminium core covered with durable plastic coating. The tents have 4 entrances (one on each side), have the dimensions of 600 cm (width), 804 cm (length). Their weight is approximately 450 kg. The material of the plastic coating is fire resistant, UV resistant and water resistant, the tents can resist a wind force of 100 km/h or 50 kg/m2 snow.
The facilities of the Role 2 basic unit fit international and military standards regarding steel products (DIN EN 10204), fire safety (DIN 4102), electric safety (BGV A3, DIN VDE 0100-600), electromagnetic interference (MIL STD 461) can operate and provide air conditioning in extreme climatic conditions, between −20°C and +50°C (NATO STANAG 2895, AECPT-200), the fittings and installation of medical devices fulfil the standards of road safety (MSZ EN 1789).

Figure 9: The layout and dimension of medical tents
Source: compiled by the authors.
Summary

The Hungarian Government made the decision to significantly strengthen the Hungarian Defence Forces by acquiring a mobile and deployable Role 2 unit. Accordingly, the Hungarian Army Medical Center has made the first acquisitions, and is in the process of putting into operation this new asset. The Role 2 Basic containers and tents have arrived in Hungary, the command structure has been set up, the personnel has been selected and the primary logistical challenges have been solved. Therefore, after the NATO combat readiness evaluation in November 2022, the Role 2 unit is set to reach its initial operating capacity in January 2023. With that, the Hungarian Army Medical Center will have the capability in the coming years to deploy a Role 2 unit to wherever it will be needed by the Hungarian Army or the NATO alliance, to preserve the lives of injured soldiers and personnel.
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