

# EUROPEAN MILITARY MEDICAL SERVICES



2020



First observations of the  
COVID-19 pandemic

Interview with Brigadier  
General Dr Kowitz

NATO's Medical Support in the  
Current Security Environment

European Challenge 2020  
„Together we are strong!“



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Dear Reader,

Today, I already present to you the third edition of the EUROPEAN MILITARY MEDICAL SERVICES (EMMS) – we are very happy that with the EMMS we can accompany and support the process of the European cooperation of Military Medical Services.

The interview with the Director of the Multinational Medical Coordination Center (MMCC), Brigadier General Dr. Stephan Kowitz, will give you a good impression of where the focus of the MMCC's work lies. The contributions from the MMCC itself will show how far the Center has already progressed in its work. Especially the article Covid shows how valuable European cooperation is in such times of crisis.

Furthermore, we report on multinational exercises, which are important elements of the cooperation process.

Be inspired by the common aim of multinational cooperation. We will all only be able to meet the challenges together. We will continue to report on this process next year.

I wish you a stimulating read and look forward to receiving your reactions, suggestions and contributions!

**Heike Lange**  
Publisher

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## Dear readers,

The reassessment of the simultaneousness and equal status of national and collective defence tasks on the one hand and international crisis management, even out-of-area, on the other demands a great deal of all allies. The challenges and demands on the provision of medical care to armed forces are steadily increasing. We are aware that robust and sustainable medical support, which is based on current scientific and technological standards, is a “sine qua non” for the operational readiness of armed forces.

Not all nations are capable of ensuring the provision of all facets of medical support of a NATO- or EU-led operation on their own. Purely national approaches devour enormous amounts of scarce resources – but together we are strong! Cooperation, common standards, combined planning, and joint procurement enhance operational readiness and interoperability in the medical care of our alliances, while at the same time, resources can be saved. Also the contribution to the European Battle Group (EU BG) and “European Challenge 2020”, which is devoted to the interaction and training of international forces, points in this direction.



To promote international cooperation and joint task accomplishment within the scope of the Framework Nations Concept (FNC) of NATO, the signing of the Declaration of Intent in Koblenz in May 2017 laid the symbolic foundation for a Multinational Medical Coordination Centre (MMCC). From the European perspective, the Permanent Structured Cooperation (PESCO) initiative “European Medical Command (EMC)” also aims to strengthen interoperability of the medical services of the European nations and, thus, to reinforce the European pillar of NATO. Under the motto “two initiatives – one task”, both initiatives have been combined in one organisational element at Bundeswehr Medical Service Headquarters (BwMedSHQ). After first elements of the multinational staff had set to work on 1 April 2018, an important milestone was reached with the ceremony on the declaration of Initial Operational Capability (IOC) on 3/4 September 2019 under the direction of Brigadier General, Medical Corps, Dr Kowitz. Already 15 member states are involved in this joint project of multinational coordination of medical task accomplishment by NATO and EU armed forces. It gives me great pleasure that this project has met with such approval within a short time, and I invite all partner nations to participate in this initiative. International cooperation in medical matters, thus, reaches a new level in terms of quality – more coordinated, more interoperable, and more efficient! This increases significantly our potential to act.

Since the Bundeswehr Medical Service has been set up, common standards and the conviction that international cooperation is becoming ever important have entered the modern training of my medical personnel. The detailed article on the digitalisation of training in the Bundeswehr Medical Service shines an exemplary light on the chances of simulation training for tactical combat casualty care. Application of modern technology and didactic methods in training is a trend we must follow systematically. We are getting started at the national and international scale, but there still is a way to go. Irrespective of this: as piloting organisational element, we are pioneer in the field of the systematic digitalisation of a military major organisational element within the German armed forces.

The changing security policy parameters require us to remain transatlantic in the further development of our Medical Services while at the same time becoming more European. Under the Graduated Response Plans (GPR), NATO and EU place high expectations on all of us. We, the Bundeswehr Medical Service, take on the challenges involved with Germany’s role as Framework Nation, being aware that we can only master them in concert with our partners.

**Dr Ulrich Baumgärtner**

Lieutenant General (MC) and Surgeon General of the Bundeswehr



## „ ... stay focused on achieving full operational capability of MMCC/EMC”

Interview with Brigadier General Dr Kowitz, Director MMCC/EMC



Brigadier General Dr Kowitz (right) with LTC Tamás Bognár MD (HUN) (©Beta Verlag)

### **Brigadier General Dr Kowitz, you have been holding the position of Director MMCC/EMC since August 2019. How has MMCC/EMC developed?**

First of all, I would like to thank you very much, Ms Lange, for having invited me to this interview for your third issue. When talking with international colleagues, the feedback regarding your journal “European Military Medical Services” of Beta Publishing is very positive. I thank you for accompanying and supporting the exchange of knowledge and experience in particular of the European medical services with this journal. Back to your question.

When I took over as Director MMCC/EMC from my predecessor, Brigadier General Dr Most, whom I would like to thank for his excellent preparatory work, the staff consisted of 7 personnel. Owing to the influence and commitment of the Surgeon General of the Bundeswehr, Lieutenant General Dr Baumgärtner, all German billets of MMCC/EMC were opened for manning with effect from 1 October 2019, and have been manned with priority since. Beside our NLD medical officer, France will permanently man a billet at MMCC/EMC from September 2020 on.

We have been able to triple our personnel strength over the last few weeks. The new personnel must be trained and integrated. This takes time. Full operational capability (FOC) of MMCC/EMC

shall be established by the end of 2021. Furthermore, working procedures and structures within MMCC/EMC and between the stakeholders are gradually developing. At the moment, the focus of the buildup is on information exchange and coordination with all major interest groups, and on the development of expert networks. In September last year, the MMCC/EMC Steering Committee approved the first Programme of Work, which has been updated and refined over the last weeks. The MMCC/EMC Steering Committee consists of the representatives of meanwhile 17 participating nations and represents the governance and supervision structure of MMCC/EMC.

### **How successful has been the combination of both NATO and EU initiatives so far?**

As the lessons learned during operations have shown, most medical support concepts are based on multinational solutions and concepts. Furthermore, there is a huge dependency between civilian and military stakeholders in NATO and the EU in the medical service functional domain. There exists an operational capability gap with regard to the further development of civil-military coordination and cooperation between NATO and the EU. MMCC/EMC is the ideal body to close this capability gap since its

roots originate both in a NATO and an EU initiative, respectively. During the 2014 NATO summit in Wales, the heads of state and government of the member states adopted the Framework Nations Concept (FNC). One of the projects started under the FNC was the Cluster "Medical Support" from which in May 2017 the eight participating nations developed the Multinational Medical Coordination Centre (MMCC) Initiative under the coordination of the Bundeswehr Medical Service. In 2017, the Council of the European Union established the Permanent Structured Cooperation (PESCO). The European Medical Command (EMC) project, for which the Bundeswehr Medical Service assumed the coordinating role, was listed among the initially agreed projects.

None of the nations is capable of ensuring the provision of all facets of medical support required for a NATO- or EU-led mission/operation on its own. Therefore, both initiatives pursue the goal to further increase interoperability and operational readiness of medical capabilities through coordination and support. This also includes to strengthen and make use of cooperation between the military medical services and the civilian health systems of the respective nations.

In conformity with the COMEDS declaration of 2018 and the EU-NATO Joint Declaration of 2016 and 2018, MMCC/EMC is further developed as one entity. Our project is an example for new ways of cooperation and serves as a role model for the efficient use of resources through coordinated national efforts and multinational cooperation. Goals, tasks, and processes at MMCC and EMC are highly similar and comparable although different institutions are served. Our team pursues the goal to exploit the strengths of both organisations – NATO and EU – for mutual benefit.

A presentation given during the meeting of the Directors of NATO's International Military Staff (IMS) and the European Union Military Staff (EUMS) on the development of MMCC/EMC was received favourably. Furthermore, the tasks and activities of MMCC/EMC were illustrated at the EU Military Committee where the project was assessed as one of the most purposeful ones having a high benefit. Plans are to hold a presentation at the NATO Military Committee (MC) in the coming months.

#### **What is the international acceptance of MMCC/EMC?**

On 4 September 2019, the 14 member states during a solemn ceremony signed initial operational capability (IOC) of MMCC/EMC. On the occasion of the COMEDS Plenary held in Brussels in late November 2019, the Slovak Republic signed the joint declaration of initial operational capability, and at the beginning of 2020, finally, Poland and Lithuania joined the MMCC/EMC project. As of April, thus, 17 European nations are cooperating at MMCC/EMC. In particular the scarce resources in the field of the medical services are motivation for many NATO and EU partners to provide their contribution to our organisation in the future. This contribution may be gradual: Participation in the activities of our Programme of Work, cooperation in the SME network (communities of interest), temporary dispatch or permanent assignment of personnel to MMCC/EMC.

During the preparation of exercise US Defender 2020, a deployment exercise of a combined joint division from the United States to Europe, close contacts with USAREUR in Wiesbaden and USEUCOM in Stuttgart have been made. Regrettably, the exercise fell victim to the COVID-19 pandemic. In addition, there are close personal contacts with the US Transportation Command

(TRANSCOM) Patient Movement Requirements Center EAST in Ramstein that coordinates strategic MEDEVAC of the US armed forces. Another important stakeholder and point of contact for strategic MEDEVAC for the MMCC/EMC is the Aeromedical Evacuation Control Centre (AECC) at the European Air Transport Command (EATC).

#### **Which are the activities of MMCC/EMC so far, and what are your further plans?**

The last six months have been very labour-intensive and successful. We have gained valuable experience, especially in the field of war gaming. We conducted a multinational tabletop exercise (EX Casualty Move - CAMO 2020) to train medical support concepts of a multinational major unit (larger formation) within the scope of a NATO Article 5 joint operation (MJO). With 60 participants from ten nations, incl. representatives of NFS/NCS headquarters, this exercise was a great success. All training goals were achieved and important lessons learned.

Based on the experience gained from a number of tabletop exercises (TTX) in the last twelve months, the preparations of the NOR Medical Service to take over as Lead Nation of the medical treatment facility (MTF) at Kabul airport were supported with a one-week TTX.

Based on a network of experts of the national medical services, we started to establish a picture of the medical situation at operational level during the preparation of exercise US Defender 2020. MMCC/EMC, thus, functions as a military medical information and reachback hub for NATO and EU. In this context, the nations are asked, after prior consultation, to provide MMCC/EMC with current and, thus, reliable information for instance on the capacities of intensive care beds or special beds, or of laboratories for diagnosing highly infectious pathogens if required. We want to be ready and available as a broker of information, when a nation needs support in a crisis: for instance to distribute across Europe as quickly as possible an elevated number of burn patients after a disaster or a terrorist attack.

In cooperation with the Federal Office of Civil Protection and Disaster Assistance we hosted a workshop early March 2020, not long before the dramatically flaring corona crisis, on civil-military medical cooperation focusing on large-scale emergencies that are marked by elevated numbers of injured or sick persons. Although some participants regrettably had to cancel their participation owing to the preparations for the emerging corona crisis, the workshop with participants and lecturers from seven nations was very successful. The participants analysed previous large-scale emergencies with a medical focus, as for instance terrorist attacks in the United Kingdom and Belgium. One day of the workshop focused exclusively to the corona crisis. All workshop participants agreed that not only the results of this workshop, but also best practices and operational observations from the current corona crisis should be part of further activities in this field. To this end, MMCC/EMC will conduct a war gaming using corona pandemic best practices in cooperation with the European Centre of Excellence for Countering Hybrid Threats (Hybrid COE).

There were first cooperation activities with an international network of experts under the lead of King's College London that organised a workshop captioned War gaming the Pandemic's Effects. The MMCC/EMC war gaming project aims to provide a



substantial contribution in order to be better prepared in medical terms for hybrid threats or the outbreak of an epidemic.

#### How has MMCC/EMC been involved in the corona crisis so far?

The corona pandemic is a particular challenge, especially for the European Union, since Europe stands for open borders, a free and liberal lifestyle, close economic integration and unimpeded exchange of goods. Professor Łukasz Szumowski, Polish Minister of Health and cardiologist, in a newspaper interview describes the reaction of the European states to the corona crisis: "As a result, almost every country in the EU has quickly sealed itself off. This is understandable, because the first priority is always to protect our own citizens. But now is the time to talk about European solidarity and a removal of restrictions at a later date. We must learn to rebuild the Union".

"Cooperation, solidarity and multilateralism are key to our common success against coronavirus", the High Representative of the Union for Foreign Affairs and Security Policy, Joseph Borrell, wrote on Twitter. In this understanding, several federal states offered treatment capability in Germany for intensive care patients. So far, almost 200 patients from France, Italy and The Netherlands have been transferred to Germany. Also the Bundeswehr hospitals treat international patients. In addition, there have been medical material donations from Germany, partly coordinated by the MMCC/EMC.

For a young multinational facility still in the process of being established, the corona crisis is both a challenge and a chance. Our NLD liaison officer who usually works permanently at MMCC/EMC provided decisive support to the short-term establishment of a central patient flow management organisation in The Netherlands. Part of the MMCC/EMC staff was directly involved in the work of the CORONA Operations Support Coordination Centre at Bundeswehr Medical Service Headquarters. Here, contacts between the international medical services were established, professional expertise combined, and first observations and experience at operational level gathered. This collection of best practices and observations shall be exploited for future activities of MMCC/EMC, like stockpiling or railway movement of patients, to be better prepared for the next crisis.

#### To conclude: would you like to leave a final message to our readers?

We, the team of the MMCC/EMC, have a mission assigned to us by the nations. To fulfil this mission, we must - despite or perhaps especially because of the current corona crisis - stay focused on achieving full operational capability of MMCC/EMC. However, achieving this goal requires the support of NATO and the EU, as well as of the participating nations.

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# “The 7th domain of warfare”

## First observations of the COVID-19 pandemic

S. Kowitz

In the NATO Prague Summit Declaration (2002), the Heads of State and Government announced their commitment to fully implement the Civil Emergency Planning (CEP) Action Plan for the improvement of civil preparedness against possible attacks on the civilian population with chemical, biological or radiological (CBR) agents. Additionally, they endorsed the implementation of five nuclear, biological and chemical weapons defence initiatives, which will enhance the Alliance's defence capabilities against weapons of mass destruction. One of the five initiatives was the development of a disease surveillance system.

In 2003, the French and German Medical Services developed and tested a multinational medical surveillance system under the leadership of NATO Allied Command Transformation (ACT). Based on a series of successful multinational exercises, the creation of a permanent multinational Deployment Health Surveillance Capability (DHSC) structure was requested by ACT and the COMEDS Force Health Protection Working Group. In January 2010, a multinational DHSC branch was implemented at the German Federal Armed Forces Medical Office in Munich. In the following year, this branch was integrated as a satellite unit into the NATO Centre of Excellence for Military Medicine in Budapest (Hungary).

Since the last quarter of the 20th century, humankind has experienced various emerging infectious diseases. These diseases have developed as a result of the interaction between people and animals. Deforestation forces animals to live closer to human populations. In addition, living spaces that are shared by people and farm animals have resulted in an increase in the number and spread of these new human infections. Up to two-thirds of emerging infections originate from wild and/or domestic animals. These are infectious diseases that are newly identified and caused by previously unknown infectious agents. They lead to public health problems either locally, nationally, or internationally. The most recent examples are the 2003 SARS outbreak, the 2009 H1N1 influenza pandemic, the 2014 Ebola outbreak, and the 2016 Zika outbreak.

The Prague Summit (2002) and the Chicago Summit (2010) did not consider the specific challenges associated with naturally occurring epidemics. After the Ebola epidemic, the NATO nations did not decide to widen their planning scope to include communicable disease threats. NATO biodefence capability development is mainly focused on biological agents that can be weaponised or used for bioterrorist purposes. In 2016, The European Union Global Strategy acknowledged the necessity of change – “on health – we will work for more effective prevention, detection and responses to global pandemics”. The Ebola outbreak in West Africa and the current COVID-19 pandemic have demonstrated that health crises can pose threats to the stability of entire states, regions and ultimately the world. Such a health crisis has severe negative effects on the international economy and security. This shows that preparedness only for responding to the consequences of man-made biological agents is not sufficient.

The medical services of armed forces have assisted civilian health care providers to the greatest extent possible during the COVID-19 pandemic.

The first actions and responses of the armed forces' medical services to support civilian healthcare systems were realised in the following areas:

- Medical staff from the armed forces were assigned to assist civilian hospitals.
- Medical equipment of the armed forces was handed over to civilian hospitals.
- Military hospitals increased their capacity for COVID-19 patients in support of the civilian health care system – reinforced with reservists, active personnel, and equipment from medical units.
- Field hospitals and hospital ships were set up in the most affected areas to treat COVID-19 patients or to help the overwhelmed health care systems to treat non-coronavirus medical cases in order to ease the flow of patients into civilian hospitals.
- Support for the treatment of less critical COVID-19 cases with medical personnel and equipment and for quarantine wards.
- Treatment of ICU COVID-19 patients from other countries in military hospitals.
- Donation of medical equipment to other countries.
- Provision of personnel and equipment for coronavirus testing stations (“drive-in” testing stations).
- Medical personnel from the armed forces were assigned to the Ministries of Health and the Interior as liaison officers.
- Fixed-wing / rotary-wing medical evacuation of intensive-care COVID-19 patients in their respective countries or to other countries.
- Provision of medical personnel for the implementation of public health policies.
- Provision of military advice on establishing centralised patient flow management structures in various countries.

The COVID-19 pandemic has confronted the medical community with a new virus. For this reason, testing capabilities were not available at the beginning of the epidemic/pandemic and had to be developed, which took some time. Military institutes have in some cases been the first institutions to test COVID-19 with reverse transcription polymerase chain reaction (RT-PCR). It took time for this testing capability to be integrated into medical treatment facilities, especially for missions abroad.

There are thus far no signs that the involvement of medical services of armed forces in their home countries has had a negative effect on medical support for ongoing missions and for stand-by high-readiness forces. Isolation and quarantine before a mission as well as the earliest possible repatriation of personnel who are suspected of having or confirmed to be infected with the COVID-19 virus are the most common measures for prevent-



Soldiers of Logistics Battalion 171 unload medical protective equipment from the Antonov AN-225 at Halle-Leipzig Airport as part of the Strategic Airlift International Solution SALIS, on 27.04.2020. © Bundeswehr/ Anne Weinrich



ing the virus from spreading to mission contingents. Some nations have extended their rotation cycles for mission personnel. Several nations are using military (medical) personnel such as dental assistants and even regular soldiers to assist healthcare providers. For pandemics and other medical crises, it would be conceivable to have trained non-medical personnel in a secondary role outside their normal scope of practice.

The civil society has not properly recognised the significant cuts in military medical services over the past two decades - as a result of the global economic crisis and the peace dividends after the end of the Cold War. This has led in part to false expectations of capacities and the sustainability of military medical services, which no longer have extensive medical stockpiles or stockpiled field hospitals and have reduced numbers of personnel and limited or no capacity to produce pharmaceuticals. Personnel figures and capabilities of the military medical services have been oriented towards and optimised for non-Article 5 missions.

Additionally, civil protection agencies in most of the countries have reduced their equipment, capabilities and capacities in recent decades. Therefore, most nations have experienced supply shortages. National and multinational coordination has attempted to mitigate this.

Depending on the epidemiological situation in each country, the COVID-19 pandemic has stretched some military medical services to their limits. Known and reported shortfalls in the sustainability of military medical services and in medical personnel, equipment, and stockpiles for such a crisis have become apparent again.

"COVID-19 represents an unprecedented challenge to our nations. It has a profound impact on our people and our economies. The challenges posed by COVID-19 know no borders. And we are stronger and safer when we work with our partners" (J. Stoltenberg, Secretary General of NATO).

"Given the way the EU is set up, it was not surprising that national decisions prevailed at the very beginning of the crisis. Health has been a national responsibility and the capacity for rapid, executive action is much greater at the national level than the Europe-

an level. The COVID-19 emergency cannot be solved within one country, or by going it alone" (J. Borrell, High Representative of the Union for Foreign Affairs and Security Policy).

As underlined by the Secretary General and the High Representative, only by pulling together and cooperating across borders can we beat this virus and contain its consequences. This pandemic now demands more multinational solutions.

As a young organisation, the Multinational Medical Coordination Centre / European Medical Command (MMCC/EMC) will offer more prioritised support for coordinated international medical response and cooperation. The crisis has shown that our nations have been resilient to a certain extent but can be even more resilient if united. MMCC/EMC will provide situational awareness and a common operational medical picture. For a future pandemic response, we will require contingency planning and innovative stockpiling solutions, which MMCC/EMC will support with stockpiling concepts and lists and will define possible surge capabilities. MMCC/EMC will use best practices identified during the COVID-19 pandemic for scenario development in pandemic wargaming including hybrid threats that can severely threaten health care services. With such wargaming, MMCC/EMC will test, practice, and disseminate national, EU and NATO procedures for responding to and dealing with epidemics and pandemics.

One of the negative experiences with Ebola and now with the COVID-19 pandemic has been the lack of multinational coordinated medical intelligence and information. MMCC/EMC will support medical intelligence, information collection and analysis in future when the first indicators of an outbreak appear.

At the 2016 Summit in Warsaw, Allied leaders agreed on seven baseline requirements for national resilience against which member states can measure their level of preparedness. The only direct medical-related baseline requirement – the ability to deal with mass casualties – does not cover the entire spectrum of future medical needs. Especially the current COVID-19 pandemic and other healthcare-centred crises have identified the urgent need for an additional or adapted resilience baseline requirement. This



Medical personnel at the Airbus A-310 MedEvac (Hamburg Airport) take over the landed corona patients from Italy for onward transport to a Bundeswehr hospital on 29.03.2020. © Bundeswehr/Sandra Herholt

requirement for bio defence would range from traditional public health-oriented goals such as having systems of surveillance, detection, and diagnostic testing capabilities to rapid response to infectious disease threats.

The nexus between health and security in an increasingly interconnected and interdependent world makes medical preparedness more important. Biohazard events, especially naturally occurring ones, call for a comprehensive response across organisations

– and the speed of this response is of paramount importance. Admiral J. Foggo, Commander of the Allied Joint Force Command in Naples, “is opining now about a seventh domain, and that seventh domain is just simply germs”. From the perspective of the medical community, this is an excellent idea. This so-called “7th domain of warfare” should be seen in the context of biothreats, including communicable diseases, as well as more generally in connection with the health domain. Additionally, political leaders must be asked to increase investments in their military medical services so that they can secure the appropriate financial resources in the short term.

As Colonel M. Rogg postulates, “learning with and from the crisis means giving more strategic consideration to ‘global health and security’ in the future. This topic must become the centre of our attention — it must be the focus of our foreign and security policy and, thus, also of the armed forces.”

Evolving our concepts and organisations to meet future threats in this “7th domain of warfare” must be a priority and should be realised as soon as possible.

#### Literature with the author

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# Challenges for Medical Support in National and Collective Defence

Casualty Move 2020 (CAMO 20): A multinational wargame for training the medical support of a larger formation at the Multinational Medical Coordination Centre / European Medical Command

At the 2014 Wales Summit, the heads of state and government of the member states of NATO agreed to the development of the Framework Nation Concept (FNC). For the European NATO states, the nucleus of the concept is the structured development of military capabilities in multinational clusters and the buildup of larger formations. These capabilities are to be maintained and enhanced through continual cooperation, thus strengthening the defence capability of the Alliance and improving burden-sharing on a transatlantic basis.

The Joint Medical Service of the German Bundeswehr is responsible for coordination in the Medical Cluster. In 2017, seven nations of this FNC cluster decided to develop the Multinational Medical Coordination Centre (MMCC). In 2019, this initiative was merged with a PESCO project of the European Union, the European Medical Command (EMC), into one entity, the MMCC/EMC in Koblenz. A priority of the FNC Medical Cluster is the development of concepts for the multinational medical support of larger multinational formations (division level or higher).

With 60 participants from 10 nations the MMCC/EMC conducted a multinational wargame from 27 January to 7 February 2020 to test the medical support of a larger multinational formation, in this case 1st Armoured Division, in the framework of a NATO Article V major joint operation (MJO). The medical wargame CAMO was developed based on the tactical data of a previous exercise of 1st Armoured Division which was integrated into the SKOLKAN 1 scenario of NATO.

The exercise focused on concepts, processes and procedures of medical command, control, communications, computers and information (C4I) and patient flow management. The primary training audience (PTA) was the medical staff elements of 1st Armoured Division and its subordinate brigades. The secondary training audience (STA) was the parent 1st German/Netherlands Corps and the employed medical task forces (MedTF).

The exercise planning process made use of lessons learned in previous support services provided by the MMCC/EMC for larger formations since the end of 2018. The exercise was complex, however, because it was the first tabletop exercise to focus on this subject. The following objectives were determined in close cooperation with the PTA:

1. training and developing medical support for larger formations in an Article V MJO
2. generating common standards and best practices for medical C4I and common patient flow management within a joint operations area (JOA) for larger formations with a view to training decision-making processes and the exchange of information at all levels

3. promoting cooperation between the partner nations and the MMCC/EMC.

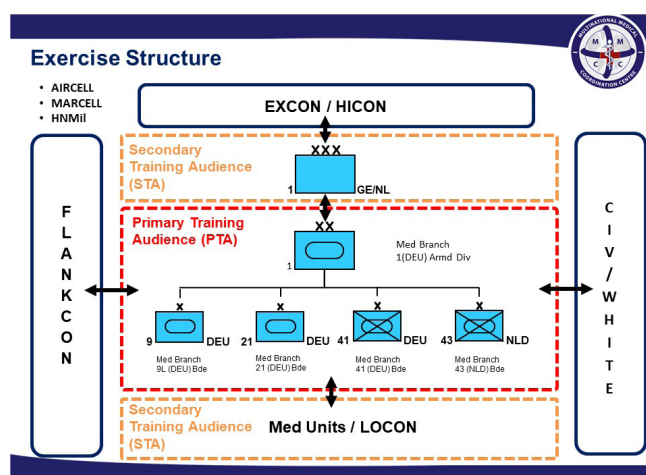


Fig. 1: Exercise Structure

A suitable and realistic basic exercise structure (Fig. 1) was then developed on the basis of these objectives. The focus for participants was the management of medical challenges through command decisions in an operation at division/brigade level. In addition, tactical and operational requirements were established, the exercise scenario was laid down, and basic information for the exercise was specified, including the speeds of vehicles and the capacities of medical treatment facilities (MTF). In terms of planning, this phase was the most comprehensive as a number of details had to be considered.

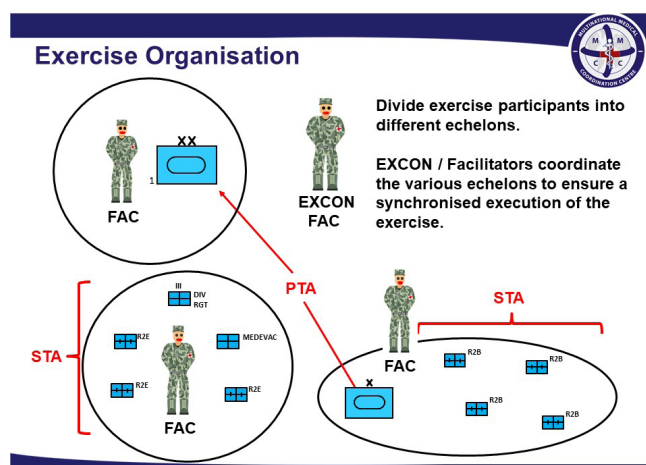


Fig. 2: Exercise Organisation



The first of the two exercise weeks was used to test the scenario of the tabletop exercise, to prepare exercise control (EXCON) personnel, and to provide participants with instructions on the exercise such as tactical and operational requirements and the exercise scenario, which is influenced and controlled by facilitators (FAC) (Fig. 2).

Twenty participants from five countries were allocated to the echelons brigade, division and corps. It was important that the exercise participants as well as all EXCON personnel were able to ensure the synchronised execution of the exercise. For this purpose, information for the cells to be trained was adapted according to echelon so that the medical challenges could be coordinated with the operational processes of 1st Armoured Division. Everything was then tested in a dry run in order to iron out any remaining problems.

At the beginning of the second exercise week, the command cells and echelons were harmonised (Fig. 3) in order to ensure a coherent exercise organisation. Personnel from the Bundeswehr Command and Staff College and the Bundeswehr Joint Medical Service, medical personnel from the Netherlands, Belgium and the Baltic states, and soldiers from agencies of the NATO Command Structure and the NATO Force Structure and NATO MILMEDCOE took part in the exercise as observers for the purpose of disseminating lessons learned. Their evaluations provided far-reaching synergy effects for all exercise participants.

Day two of the exercise began with the defensive tactical activity "delay". Every day commenced with a morning briefing (including the medical mission briefing) which provided participants with information about the operation and the medical situation. As the operation was already underway, participants had to evaluate information, implement the requirements and intent of the commander, and make and carry out their own medical decisions from the very beginning. During the course of the week, the tactical activity changed to "defensive" and finally resulted in a counter attack, which presented new challenges and required modified courses of action. Situations quickly arose which participants were able to master by way of clear decisions, transfers of responsibility, efficient communication, the determination of information needs by medical reporting, and the establishment of a robust and resilient medical command organisation. The exercise days concluded with an after-action review (AAR) in order to record lessons learned for the subsequent exercise evaluation. The AAR revealed the enormous innovation and development potential of training content and the high relevance for medical command personnel.

The final exercise day was used to examine all the lessons learned on previous days and to review the exercise week in order to verify these lessons.

## Conclusion

CAMO 20 proved to be a suitable instrument for achieving the above exercise and training objectives. The lessons identified will be summarised in a final exercise report. These must then be thematically incorporated into the areas of concepts, personnel, command, training/exercises, materiel/logistics and interoperability. The most important lesson learned was that, for the medical support of an MJO with expected loss rates, a decentralised



Fig. 3: „Response Cell“ during exercise execution

system of patient flow management had advantages over a centralised system. This decentralised system is based primarily on capabilities of the MedTF which are, however, not yet represented in NATO capability codes / capability standards. It is also important to check the reporting formats of all echelons in terms of their efficiency and absolutely necessary content and to adapt them to existing regulations and best practices. The planning of medical support is an integral part of operational planning and is particularly important; the factors forces, space and time in connection with estimates of loss rates, which are specified by G3 in cooperation with G2/G1 and G5, determine medical priorities. Mobility, the rapid and flexible employment of all MTFs, and patient flow management adapted to the conduct of the operation (e.g. skipping treatment levels) must ensure medical support within clinical time limits. Under the conditions of an Article V mission with high levels of casualties, the Role 1 MTF plays an important part in medical regulating. Not all wounded/ill must first be stabilised in the Role 2 MTF of a brigade for further transport out of the JOA. For this purpose, hubs must be established at the division/corps level which re-examine patients and prepare and stabilise them for further transport out of the JOA via strategic aeromedical evacuation. It must be examined whether this capability can be ensured by capabilities of the available NATO capability codes / capability standards.

The lessons learned in CAMO 20 will be studied in depth in an upcoming workshop. The following areas will be examined:

1. Establishing sustainable, adaptive medical support for fast-moving operations of larger formations in an uncertain environment
2. Meeting the challenges of multinational command, control, communication and information in a dynamic operation
3. Ensuring a robust, resilient and reactive PFM system.

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# Multinational Civil-Military Cooperation

A workshop hosted by the MMCC/EMC

In early March 2020, shortly before the coronavirus crisis took hold of Germany, the Multinational Medical Coordination Centre/European Medical Command (MMCC/EMC) held a workshop on medical civil-military cooperation with a focus on major incidents with large numbers of injured or sick casualties.

The workshop was held in cooperation with the Federal Office of Civil Protection and Disaster Assistance (BBK). Although some participants unfortunately had to cancel because of preparations for the developing coronavirus situation, participants and speakers from seven countries (BEL, DEU, FIN, GBR, HUN, ROU, USA) did attend and the workshop was a resounding success. In addition to the panel discussions that followed individual presentations, some topics were discussed in more depth in working groups. Participants discussed experiences and exchanged ideas on past and present incidents. The MMCC/EMC provides an ideal platform for this.



Brigadier General Kowitz greets the participants (Source: PiZ SanDSt/Bundeswehr)

On the first day of the workshop, Dr Weber of the BBK presented the German system of civil protection and disaster assistance from the civilian perspective. Brigadier General (MC) Kowitz then presented the military perspective and the role of the MMCC/EMC as a liaison element not just between military medical services in Europe but also between military medical services and civilian organisations and facilities. The highlight of the first day's presentations consisted of Adjutant-Majoor Jan Vaes (BEL) using his personal experience of the terrorist attacks in Brussels on 22 March 2016 to illustrate to the participants the medical challenges of major incidents. The lively discussion that followed highlighted the sometimes vastly different national organisational structures when it comes to civil-military cooperation. The general consensus was that we must be able to cooperate and take action not just nationally but across borders too. The participants unanimously agreed that multinational cooperation requires appropriate time to prepare as well as joint planning and exercises. The concept of triage, where patients are categorised based on their immediate need for medical intervention, is a tremendous challenge not just in military medicine. As part of his scientific research for his doctoral thesis, Lieutenant Colonel Simon Horne (GBR) is examining the topic of civil-military cooperation in humanitarian emergencies. His very interesting presentation, entitled "Mass casualty management and a new look at triage",



The time between the individual workshop sessions was also used intensively by the participants (Source: PiZ SanDSt/Bundeswehr)

inspired a controversial and important discussion of triage systems. Building on this, the participants worked on the topic of "Preconditions and challenges of medical civil-military cooperation in major incidents" as part of a first group project phase. When the results were presented and discussed, one aspect emerged as particularly important: civil-military cooperation, be it national or multinational, requires coordination, both immediate and in routine duty. Participants were able to gather new insights and good results with regard to matters of medical resource management in the context of a major incident as well as in the context of national and collective defence. One conclusion was that a review of how planning can be used to reduce possible bottlenecks in intensive care is required. It was suggested that ventilator units be planned that require less highly qualified personnel to operate, which should then be trained for that task. When it comes to diagnostic radiology for trauma patients, planning a telemedicine network would increase capacities for diagnosis and assessment of CT scans. Patient flow should be controlled and managed to optimise the use of available capacities by diverting patients with minor injuries or diseases away from tertiary care hospitals. Such patient flow management requires a situational picture and centralised regional control mechanisms.



Not only the topic of triage was discussed purposefully and prolifically (Source: PiZ SanDSt/Bundeswehr)





One of the working groups is discussing preconditions for civil-military cooperation (Source: PiZ SanDst/ Bundeswehr)

Although the coronavirus situation was not yet as pressing when the workshop was planned, outbreak scenarios in the event of an epidemic or pandemic were also discussed. How can we quickly and effectively respond together, what key positions must be staffed and what are the planning requirements? With his presentation on “Medical based hybrid threat scenarios”, Mr Aleksi Aho (FIN) of the European Centre of Excellence for Countering Hybrid Threats initiated a discussion on epidemics, pandemics and hybrid threats, which could not be more topical in times of the coronavirus outbreak.

The challenges and ideas that emerged during the productive discussions were reviewed and fleshed out in the second and third group work phases on the last day of the workshop.

The two phases were respectively entitled “Medical civil-military cooperation: How to react quickly and efficiently to epidemics/pandemics” and “Medical civil-military cooperation in cross-border incidents and hybrid threats: Essential stakeholders and planning requirements”. The discussions surrounding the topic of triage already showed that participants not only considered organisation and medical aspects but also factored in ethical and moral considerations that we must be prepared for. A good example of such a challenge is that of the different expectations placed on the health care systems in the different countries, from the civilian and the military side and in the different starting situations. Cuts in military medical services over the past two decades as a result of the peace dividend after the end of the Cold War in particular have not been properly recognised in the civilian environment. This translates to false expectations in terms of the capacities and sustainability of the military medical services, which do not have extensive stockpiles. Personnel numbers and capabilities have been oriented towards and optimised for Non-Article 5 missions. Only since 2014, in the wake of the annexation of Crimea, have the military medical services reoriented their capability spectrum towards preparing for greater numbers of wounded, injured and sick patients. This process of reorientation has only just begun and will take years and sufficient financial resources to complete. It was already becoming apparent during the workshop that the number of coronavirus cases in Europe would soon increase dramatically. The workshop programme was thus streamlined and

instead refocused on preparing for the looming coronavirus crisis / pandemic. In organisational and medical terms, the workshop participants agreed that certain medical and medicinal products would have to be stockpiled once more, not just at a national level but also in a coordinated multinational effort, for example at EU level. Quarantine systems and concepts must be developed and the participants agreed once more that the individual stakeholders and concerned parties need coordination in routine duty. As one participant aptly noted: “Efficiency comes from standardisation and communication.”

Besides many detailed and specific results and conclusions of this workshop, the bottom line is that – be it in the face of coronavirus, ebola or the attacks in Paris, Brussels and Berlin – nationally available medical resources may be insufficient for dealing with great numbers of sick or injured patients in a short time. Accidents or disasters with a cross-border impact are also a realistic scenario. Multinational civil-military cooperation in this context is thus particularly important. Through multinational coordination, based on joint planning and exercises, all military and civilian medical service providers can contribute their strengths to an overarching system to ensure best practice in providing medical care for sick and injured patients.

Finally, we – the MMC/EMC and the BBK – felt it was important that the workshop participants formulate the next steps and goals for working in this field. All participants agreed that not only the results of the workshop but also best practices and operational lessons learned from the current coronavirus situation should be incorporated. The MMCC/EMC in cooperation with the European Centre of Excellence for Countering Hybrid Threats and the BBK will conduct a relevant table-top exercise in order to operationalise initial theoretical approaches.

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# NATO's Medical Support in the Current Security Environment



Observation Collection on the Vigorous Warrior 2019 Exercise

Spending a couple years working for NATO, one can surely see some major changes in the otherwise continuous transformation of the Alliance. Just as the tectonic shifts in strategic priorities the 9/11 attacks induced started to solidify and resulted in an Alliance focused on far-away deployments, the Ukrainian upheaval and the following invasion by the paramilitary forces of Russia induced a much older instinct in the Alliance. Yet again, this has re-calibrated the overall strategies along which NATO Nations develop their forces and altered the priorities NATO standing organizations (political level, Command Structure, specialized bodies, like centres of excellence) follow throughout their activities. Naturally, the bigger the ship, the harder it is to steer it in another direction, and it is not an easy task to truly understand how deeply the shift from a deployment-focused military to territorial defence means. Also, this change means that most likely the enemy is our peer in technology, organisation and in certain cases in numbers as well.

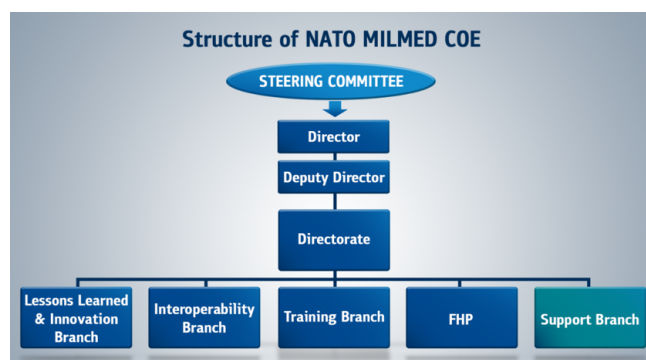
These changes have a very clear impact on the medical support of today's battlefield and logical conclusions on how the practicalities of that support should be realized. We have our calculations on requirements, on morbidity rates of peer-to-peer combat, as we were preparing to fight that particular fight for decades and while technological advancements altered the environment somewhat, we can still expect similar results, whether we call it territorial defence or hybrid warfare.

On the political level, we find only very concise guidance on how to proceed, as the Armed Forces Declaration states simply the following: "We will seek to enhance the sharing of best practices and lessons learned in support of our Armed Forces personnel and their families, including on our national approaches to providing medical care to injured personnel and support to families." While it is laudable, that the declaration focuses on sharing of lessons and best practices, it is hard not to perceive the intense word-

smithing behind, to make a promise that is not so concrete and relatively cheap to do. We may argue that going toe-to-toe with a peer-level adversary with nuclear capabilities is still very unlikely, as all rational actors are afraid of escalation, it is unadvisable to forget, that the basis of deterrence is still the capability itself and the willingness to use it. In terms of the nuclear weapons, we do have the capability, but these weapons are virtually undeployable, so one strategist may count on the possibility of a localised conflict, with a well-defined aim, without the fear of escalating it to apocalyptic levels. Also, in terms of non-nuclear forces, one may argue, that we have the will, but lack crucial capabilities to match our level of ambition, especially when we think about survivability of our troops in combat. Furthermore, while the quoted part of the Declaration has no reference on the actual quality of care, our most recent experiences about major missions like Afghanistan shows that the political leadership often expects (and rightfully so, if we can help it) that the medical care is at the level of the one the soldier may have received in the home country. In addition to that, medical support must cover the time before deployment, on the battlefield and after deployment as well, which is again, a very reasonable requirement, not to mention the various, human performance enhancement initiatives, as an additional task. Combining all these, we face multiple issues:

1. The jump in order of magnitude in terms of possible casualties.
2. The expected level of care.
3. The additional burden of family care and heightened expectations about medical support's role outside of the battlefield.
4. The requirement to actually share lessons and best practices.

The expected level of care and various other requirements are clearly laid out in the Military Committee publication, MC 326/4 - Principles and Policies of Medical Support, that defines rather high baselines for medical support, such as ensuring the continuity of care, providing emergency care (including life, limb or function preserving surgery) regardless of the conditions, while keeping clinical guidelines and capturing & sharing best practices or lessons. While we heartfully agree with all these principles (and the rest of them too), it is easy to see even for a layperson, that during high-intensity combat, performing at the required level and maintaining the same quality that we got used to in asym-



NATO MILMED COE's structure



Entrance of NATO MILMED COE's  
Budapest FacilityNATO MILMED COE Mobile  
Training Team in actionEntrance of NATO MILMED  
COE's Munich Facility

metric-warfare scenarios is going to be problematic with our current capabilities. At this point, we'd like to point out that everything we lay out here is well known in the medical community. We are painfully aware of the various capability gaps we face and to be fair, Nations are doing their best to mitigate these shortfalls to the best of their possibilities.

2018 MC endorsed Bi-SC Risk Assessment further analysed this issue and identified the following key areas, where we need to strengthen our efforts: Medical Support Management – Command, Control and Consultation, Medical Information and Intelligence, Force Health Protection, Military Health Care, Medical Evacuation, Medical Logistics. Now, this is a rather comprehensive list of main medical capabilities, and they are all identified as problematic areas. If we want to put the problem in very plain context, we have a situation, where a peer-to-peer or near peer-to-peer conflict (with dimensions of hybrid warfare included) would likely to generate a casualty rate and a level of disruption at the same time (cyber-attacks, misinformation, biological/chemical warfare, limited-scale nuclear weapons) that no military or civilian healthcare system would be able to cope with it or provide the preferred level of care. While NATO still retains the largest and best equipped overall force in the world, and it is reasonable to say that in any conflict would probably gain the upper hand, it is on us, the military-medical community to sound the alarm about the disproportion in terms of medical capabilities, when we are making the plans to win such a conflict.

Nevertheless, there must be a way forward in any situation and this one is no different. The main ideas are refraining the ideas the medical community has been promoting for decades in some way or form. The main idea not surprisingly is that we must ensure an unprecedented level of interoperability, when it comes to medical support. One of the main characteristics of a new, more resilient medical support system will have to be flexibility, so it can adapt and react to emerging threats. Also, this interoperability will have to include the civilian (state or private) health sector as well. As the Director of the NATO Centre of Excellence for Mil-

itary Medicine (NATO MILMED COE), I'm happy to report that we are working on these very topics, offering a regular forum for Civilian-Military Lessons Learned sharing and on multiple facets of interoperability through standardization, concept development and experimentation. Also, we are here to test these ideas out in reality as well, being the organizers of the single largest medical exercise series in NATO, the Vigorous Warrior. During the last iteration, we have been operating in an Article 3/5 setting and heavily involved our civilian colleagues from the disaster relief area and from the civilian healthcare sector. Moreover, we are aiming for a more comprehensive Force Health Protection capability in the Alliance, developing tools for faster, symptom-based disease surveillance, that combines algorithmic and expert analysis of the incoming data to predict or early-warn about epidemics or other systematic ailments.

Nevertheless, we are painfully aware of the limitations of a unit comprised of less than 50 people. It is not our vision to solve these issues and as being catalysers, we know that the actual fuel for this process will have to come from somewhere else. Naturally, these resources, as always, are at the Nations' disposal and they are careful on how to use them, as they should be. Therefore, one of the main tasks of the NATO MILMED COE will have to be to support the Nations, and the Surgeon Generals in their daily struggle to select the most critical areas for improvement, to provide evidence-based and expert advice for concepts and overall way-ahead, to foster a true multinational and civilian-military interoperability at the highest level and to be available for testing and validating the results.

What the Alliance will ultimately do about this is still being answered. In the meantime, as the Director of the NATO Centre of Excellence for Military Medicine, I can promise that the COE remains actively working on this, as our mission is to be the catalyst in the medical transformation of NATO.

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# THE ALLIANCE FOR BIOSECURITY

## A STRAWMAN ON MCM STOCKPILING CONSIDERATIONS FOR NATO

### Executive Summary

This paper is designed to support NATO's thinking as NATO and its Member States seek to improve strategic preparedness to respond to future chemical, biological, radiological, and nuclear (CBRN) threats. Informed by its experience in supporting the 2018 US National Biodefense Strategy, the paper presents a US biopharmaceutical industry perspective on policies to improve strategic preparedness – including the benefits of enhanced civil-military cooperation – and security of supply for medical countermeasures (MCMs). This paper aims to inform NATO of the dynamics and constraints that shape the industry's capabilities to respond to a CBRN crisis and highlights the benefits to NATO in developing a long-term strategic partnership with the biopharmaceutical industry.

### Who is the Alliance for Biosecurity?

The Alliance for Biosecurity is a collaboration among 18 pharmaceutical and biotechnology companies that are working in the public interest to improve prevention, diagnosis, and treatment of severe infectious diseases — particularly those diseases that present global security challenges.

The Alliance for Biosecurity promotes a stronger, more effective partnership between government, the biopharmaceutical industry, and other stakeholders in order to advance their shared goal of developing and ensuring availability of critically needed MCMs, including those for pandemic influenza and emerging infectious diseases (EIDs). The Alliance for Biosecurity seeks to develop sound public policy proposals that could bolster national efforts to rapidly develop, produce, stockpile, and distribute MCMs.

Alliance for Biosecurity member companies believe that innovations created in the biodefense space can inform and accelerate drug and vaccine development in many critical areas. The Alliance supports a long-term security vision for achieving and sustaining defenses against a range of infectious disease threats that present national security challenges.

### Purpose

The Alliance for Biosecurity recognises that we face multiple global health security challenges, whether these emanate from naturally occurring infectious diseases or from the deliberate development and use of CBRN weapons by state and non-state actors. Public health threats do not respect national borders; if not contained, a regional epidemic can rapidly spread to a global pandemic threat. For this reason, the Alliance for Biosecurity advocates for international collaboration and a strong public-private partnership to ensure MCMs are available to protect public health and enhance international health security.

The purpose of this whitepaper is to share an industry perspective on the importance of building public health preparedness in order to support NATO's policy of improving MCM stockpiling across Member States. The Alliance for Biosecurity believes that the generation of sustainable and responsive MCM stockpiles can

be achieved only by building a deeper strategic partnership between NATO and the biopharmaceutical industry.

### The Alliance for Biosecurity's Experience

The Alliance for Biosecurity and its members have significant experience supporting the US government in generating and sustaining the US Strategic National Stockpile; additionally, the Alliance plays a strong role in addressing the challenges that arise from pandemic influenza and EIDs. The Alliance for Biosecurity is also proud of its successes in supporting the US Congress and the Food and Drug Administration (FDA) in advancing policies related to the development of MCMs and has significant experience working with both public health and national defense organizations.

### Nature of the Threat

NATO and its Member States will be aware that there has been a strong focus on biosecurity and MCM stockpiling in the US since the 2001 Anthrax attacks. Recently, the US has taken steps to further strengthen its MCM stockpile in line with the 2018 US National Biodefense Strategy. This strategy was designed to protect the US against both naturally occurring biological threats and deliberate CBRN threats. This strategy identifies that “the use of biological weapons or their proliferation by state or non-state actors presents a significant challenge to our national security, our population, our agriculture, and the environment.” The risks to global health security that these threats pose are increasingly of concern to international and non-governmental organizations, including the European Union, the Global Health Security Initiative, and the World Economic Forum.

Defense organizations possess unique capabilities to protect against these threats, whether deliberate or naturally occurring. The military were instrumental in resolving the 2014/5 West African Ebola pandemic, the 2016 Brazilian Zika epidemic, and the 2018 chemical attacks in Salisbury, UK. Other threats, such as pandemic influenza, are also of concern and should also be considered. Most recently, we have seen a number of governments mobilize the military in response to the Covid-19 virus. For military forces to effectively respond to these threats, however, they must have access to MCM stockpiles.

### Supporting NATO Policies for MCM Stockpiling

The Alliance for Biosecurity is able to support NATO's consideration of the requirement for MCM stockpiles by sharing its perspective and experience of:

- Lessons in responding to public health threats. Lessons from the US Model. A brief summary from historic case studies and TTX lessons.
- The civil-military interface – generating value for money and avoiding duplication.
- Interoperability and the management of risk. Priority of supply in times of crisis. How will national stockpiles meet NATO operational requirements?



## Security of Supply

Key security of supply issues include:

- Timelines to Respond vs Timelines for Manufacturing.
- Specific issues in security of supply for MCM stocks. Relative security against 3rd party interference in supply chains, but uncertain variables over some parts of the pharmaceutical supply chain (e.g., availability of plasma, etc.).
- Policies for forward deployment and use of strategic stocks.
- Operational deployment of stockpiles.

## Industry Considerations on Designing and Managing MCM Stockpiles

Factors that are important to industry when supporting the development of MCM stockpiles include:

- The requirement for NATO to articulate its requirements.
- R&D cycle – how long does it take industry to respond to emerging threats?
- Global demand in times of crisis.
- Manufacturing timelines.
- Logistic constraints on forward supply during public health emergencies. Closure of borders and restrictions on transport, for example.

## Benefits of a Long-Term Strategic Partnership with Industry

- Security of supply chains.
- Collaborative R&D investment and the shared ownership of risk.
- Build-up and maintenance of stock over time.
- Innovation in manufacturing, including the potential to deploy vaccine manufacturing forward in support of the warfighter.
- Potential to increase visibility of stock and balance of supply amongst NATO member states.
- Access to volume discounts over time.
- Enhanced civil military cooperation, including programmed use of short shelf-life supplies.

## Conclusion

The Alliance for Biosecurity supports NATO's interest in improving its strategic preparedness to respond to future CBRN threats by assessing the needs of its stockpiles. Beyond that, NATO should consider how it will address pandemic influenza and EIDs in order to truly be fully prepared to respond to future biothreats.



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# Digital Training Projects of the Bundeswehr Medical Service<sup>1</sup>

## An integrative learning concept

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Highly trained medical and military personnel is essential for military organizations to face today's and future challenges as well as to react to newly arising risks confidently. This is especially true for military organizations facing today's global highly dynamic threat scenarios, spanning from terrorist attacks, civil medical support, disaster management and relief to global conflicts.

In 2022-2024, the Bundeswehr will provide a brigade for NRF (NATO Response Force) with VJTF (Very High Readiness Joint Task Force) in the 2023 focal point. The medical service will contribute to the medical care of the operational unit with personnel in the size of a battalion, which requires the personnel and material resources of 1-2 medical regiments in the background. Until 2032, ten brigades are assured within the NRF/VJTF framework, of which a third is partially active, i.e. will be provided by reserve service personnel. The personnel requirements calculation, which derives the conclusions for the Bundeswehr Medical Service, is not rocket science at this point.

With currently three active medical regiments, one in constitution and Rapid Medical Response Forces Regiment as regimental equivalent in a special role, there is a clear need for personnel and training. Irrespective of this calculation, further operational obligations and the provision of health care for the entire Bundeswehr will continue to exist during the NRF.

An ever-increasing specialization in the medical professions combined with a simultaneous shortage of instructors logically leads to an expansion of training requirements and a focus on competence-oriented training. The skills acquired in turn make it essential to maintain qualifications and continuous further training.

Due to the growing demand, reserve personnel will play an increasingly important role in the armed forces of the future. Since they have a civilian profession and have duties to fulfil, the armed forces will have to provide an alternative educational concept.

A lack of teaching staff in combination with increasing demand and a lack of time and space will lead to the implementation of alternative forms of training that will enable learners to take advantage of training opportunities independent of central learning locations.

Last but not least, the corona pandemic is currently forcing the Bundeswehr Medical Service to put the necessary transformation process into practice faster than planned, since face-to-face training courses with many soldiers on site will only be possible with considerable restrictions in the foreseeable future. The first projects in this direction are already being carried out in the context

of digitizing parts of the general basic training and career courses. Further content, for example in language training or basic medical skills for all soldiers, can be digitized in the short term.

In the medium term, there is no way around implementing a distance learning component in every training course within the Central Medical Service of the Bundeswehr in order to be able to react flexibly to changing requirements in terms of personnel and structure.

An important guiding principle here must be a combined solution for the German Armed Forces that also integrates existing competence-oriented training concepts in a flexible and scalable manner and reliably prepares trainees for certified examinations. Training is key to live up to today's military and medical challenges. Digitization therefore provides a chance to improve and support medical training and to save resources. Due to its pivotal position, the Bundeswehr Medical Service can be seen as a key player for digitization in addition to its universal impact on all operations and missions leading to a high and ever-increasing training demand that needs to be faced.

## Digitization in Military Medical Training

The Military medical service fulfills a special role within military organizations, as it is part of and provides professional medical training to any other military unit. Given it has to cover all possible medical scenarios, ranging from simple to critical injuries including armed conflict specific injuries as well as special threat scenarios such as CBRN situations, the military medical service has to offer a multitude of training courses. In general, training exercises require a large amount of resources, organization and personnel. These demands put the military medical service in a pioneering role employing the newly arising possibilities and capabilities of digitization to improve and expand the training that is offered while also increasing resource efficiency. The independency of time and location as digitization's inherent properties lead to an increased training intensity, reduction in trainee attendance time and improved adaptivity to new demands and arising challenges. This gain in adaptivity provides a dynamic framework to support alliance cooperation, allowing the military medical service to quickly adjust their training to new requirements of quickly evolving conflicts and political situations.

Compared to military operations and military medical medicine, in modern civilian clinical everyday life, training and education in hospitals are crucial to supporting and enabling the increased demand for individual medical care quality and cost-efficiency. In order to support training, simulation devices range from part-task trainers to full-scale simulations. Even though technology advances at a rapid pace, there always remains a certain degree of abstractness within the training and education sessions. This can include missing (patho-)physiological effects within simulations

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or missing details in the training setting itself, such as communications with the team. Moreover, the skill-trainer technology, especially for haptic skillsets, is normally bound to certain locations, such as simulation centers, and not available on demand (Hauer et al., 2019; Willy, 2019). Digitization can alleviate these deficits by providing training and education solutions available at any time to train on, improving efficiency and reducing idleness, given the solution has been hand-tailored to meet the specific target group's requirements and preferences.

## Digital Training for the Bundeswehr Medical Service

### San-Netz: An Online Learning Platform

Local and device-independent communication while protecting all content from unauthorized third-party access is becoming increasingly the standard in modern companies, especially in the field of training. In this context, the San-Netz is a central network and training platform for members of the Bundeswehr Medical Service. In contrast to the Bundeswehr's intranet, it allows authorized users exactly this device-independent use over the Internet. It thus enables a professional exchange on business trips, deploying an interface optimized for mobile devices, or from the home office. The user statistics at the end of 2018 show that this tool is mainly used by medical officers (SanStOffz) and medical officer candidates (SanOA). The SanOA is conducting his medical studies and usually does not have access to official Bundeswehr work computers or laptops and thus can make full use of the device independent access possibilities. The San-Netz is ever expanding and content is well received by the registered members. This platform consists of a multitude of different applications, learning opportunities, knowledge bases and possibilities for interactivity among its users:

- E-campus: It offers San-Netz users numerous variants of education and training and provides the base for all the different offers.
- Virtual library: It is possible to research in the virtual library with free access to multiple specialist journals, books and essays. Furthermore, there is the option to order specific literature easily.
- DynaMed Plus: More than 1.5 billion bibliographical data sets are currently available via this database for medical professionals. This database is updated daily and allows users to quickly get the latest information on diagnoses, diseases and treatment options.
- GIDEON: The Global Infectious Disease and Epidemiological Network (GIDEON) is an online database with focus on epidemiology. It features endemicity maps, laboratory findings and therapy notes among many other data points.
- CNE.online: is a virtual training concept designed specifically for health and nursing care. It is possible to earn CNE (Certified Nursing Education) training points that provide evidence of training.
- ILIAS: is a learning platform that offers various courses for independent continuing education.
- The "Virtual Clinic": is an internet-based learning and information system for medical education and training. Real or realistic civil and operationally relevant studies are processed. It is possible to train in learning mode or to work on Continuing Medical Education (CME) mode to obtain CME points to prove training. These CME points have been mandatory for specialists since 2004 in Germany.
- eRef: The eRef service provides access to various e-journals and e-books of Thieme in all relevant medical disciplines. This knowledge portal of Thieme supports the findings, research, as well as the training and further education, allowing additional acquisition of CME points.





Watch the replay of your gameplay and get points for correct treatment steps within the Serious Game SanTrain

- Via Medici: is a newly added program. It supports medical students throughout their entire medical studies by using it to prepare for their exams. Because of its modular and flexible design, it adapts to every learning situation and type of learning individually.
- PromoBörse: The E-Campus is rounded off by the PromoBörse which allows the publication of offers and requests for dissertation topics and applications. Both parties are independent of their place of employment and can exchange topics with each other freely.

With the San-Netz, as a learning and training platform integrating secure communication for members, the medical service not only has a powerful tool for forming virtual teams but also a sensible and effective defense strategy against the “shadow IT”. This is particularly important given the increased amount of cyber-attacks and the required digital political influence. This platform approach is particularly compelling in the face of human disasters such as the Sars-CoV-2 pandemic, in which, as part of policy measures, in-person events for teaching and information exchange in the department are significantly more challenging to conduct. The Bundeswehr Medical Service succeeds in continuing some of its education, pooling valuable resources and insights for the fight against the pandemic.

### SanTrain: A Serious Game for Training and Practice of Tactical Combat Casualty Care

In 2011, the SanTrain project was launched. It is supervised and contracted by the Bundeswehr Medical Service Academy in Munich and executed by the Universität der Bundeswehr München, Germany and ITIS GmbH. Its primary goal is to serve as a demonstrator providing proof-of-concept for the feasibility of digitization within military medical service training, labeling the Bundeswehr Medical Service as a paragon of innovation and digitization in training and education within the Bundeswehr.

SanTrain itself is designed as a serious game demonstrator. As such, its goal is to convey knowledge and training possibilities outside of regular exercises and give the users the possibility to train anytime, anywhere and without the need for supervision by an instructor. It does not only cover medical training but also embeds it within tactical scenarios, conveying both these most central aspects within the Tactical Combat Casualty Care algorithm. Its current state is focused on supporting the training process of a

Combat First Responder operating in hazardous situations. It provides tactical and medical cognitive training, but due to the missing part of hands-on haptic and tactical field training, it cannot and does not aim to replace on-site training exercises.

In order to do this, SanTrain incorporates different concepts, which could only have been created in an interdisciplinary effort: From the side of medicine and with the help of military experts, the learning contents are professionally tested. This is to ensure that players can trust the game content as important and correct in the field of SFIVET training. This requires permanent cooperation with experts in the above-mentioned practical areas. Achieved development steps of the Serious Game SanTrain are not only critically reviewed by the experts, but their knowledge is already integrated in the course of development the necessary basis for the Serious Game to achieve the required professional quality, applicability and fidelity of the demonstrator tailored to the explicit needs of the Bundeswehr Medical Service.

SanTrain will feature an adaptive gameplay system, automatically adjusting the content and level of difficulty during the game to the needs of the trainee, detecting possible deficits or increasing the complexity factor with progression in the trainee's skillset. This can be expanded upon by the deployment of artificial intelligence, creating digital learning pathways and customizing the learning environment to each trainee's professional and personal demands as well as mission's requirements. The SanTrain feedback system provides the trainee with insight into possible error sources and pointers to improve further. This feedback is given after every level to immediately display an adapted learning situation to the trainee. In case of critical errors as live support the feedback system jumps in during the training automatically.

One of the goals is to design the user interface according to learning theory and didactic knowledge and to present all this in a modern game design. This ensures that problems known from media education are avoided when learning through games: This includes avoiding undesired learning effects and ensuring that the targeted learning effects are achieved, which is aimed for by closely interlocking software development, learning theory and didactic requirements. The latter is realized by the fact that the modelling on the part of computer science takes place as early as possible and in a close coordination with the team of educational science. The possibilities and limits of computer science, the inclusion of human learning and, last but not least, the means of designing the game interface must be related to with each other. The cooperation of the various SanTrain specialist teams takes place in interdisciplinary mixed team meetings.

But most importantly, SanTrain features a fully dynamic (patho-) physiological simulation model, creating an unlimited amount of medical cases to train on. The patient dynamically reacts to the treatment procedure, and it matters what the trainee does and when he does it, making every course of treatment unique. The physiological model supports the injury patterns specific to military conflicts and normally not part of everyday life within the European domain, not even for medical professionals.

### SanTrainPSY: A Serious Game for psychological stress training

It is important to address not only medical and tactical skills in training but also stress as a relevant factor for most combat first

responders. Therefore, a holistic approach to training is very important. Personal resilience can be a crucial factor in combat, ensure the success of medical care and help to prevent post-traumatic stress disorders after military deployment. Therefore, the feasibility study SanTrainPSY explored the potential of an additional psychological stress training: A serious game as controlled stress resilience training can help to prepare soldiers before military deployment, can help to strengthen their personal resilience and in-situ performance and teach interventions to reduce stress. Stress scenarios in a serious game should address as many senses as possible to create an almost realistic virtual stress training with AR/VR supporting immersion. Showing serious injuries and including also non-medical stressors like background noises, underlying danger, (chaotic) radio communication, scents or poor visibility in combination with sensors to monitor the physical stress parameters of the trainee, it is possible to increase stress in a controlled way using adaptive gameplay. The next step after experiencing stress in SanTrainPSY is to teach interventions in-game to reduce stress and give the opportunity to train the interventions in-game. Motivation increased immersion, but also side effects have to be considered such as a too high stress level or simulator sickness. Another aspect is ethical concerns linked to stress training. Therefore, the team of SanTrainPSY is accompanied by the ethical committee of the Universität der Bundeswehr München, Germany. However, such training can help to improve the resilience of combat first responders, because it is far more realistic and the player can experience, what may happen during a military operation. Prevention through training is still the gold standard.

## Summary

The technical and organizational integration of digitization within a military organization, both in training and as mission support, brings its own set of challenges to the table. First and foremost, operational security has to be considered in every step of the development of a new solution. Due to these special requirements, commercial solutions are hardly applicable to military requirements and thus, off the shelf solutions cannot be used. The next challenge is the integration and enforcement of digitization. This is often limited by regulations, which need to be considered in the process of digitization. All training contents must be carefully (didactically) checked and aligned before "bringing them into digital training." The participation of instructors, trainees and decision-makers in the process of digitalization is the last – and maybe one of the biggest – challenge. The introduced projects and innovations of the Bundeswehr Medical Service in this article show how the way of digitization can look like, with all challenges and successes.

## Literature with the author

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Item No. 1022652





# EUROPEAN CHALLENGE 2020

## “Together we are strong!”

From the multinational Medical Task Force EUROPEAN BATTLEGROUP 2020-2

S. Funke

### Introduction

Originally, it was intended for the central certification of the EUROPEAN BATTLE GROUP 2020-2 (EUBG 2020-2): From 2 to 25 March, the large-scale exercise EUROPEAN CHALLENGE 2020 was planned to take place at the WILDFLECKEN and HAMMELBURG major training areas (MTA) as well as in the areas of GIEBELSTADT, VOLKACH, and KUELSHEIM.

However, before the “hot phase” could actually begin, planning - literally - turned into a European challenge. Owing to the corona pandemic, an increasing number of nations cancelled their participation. In the end, even the decision had to be made not to deploy troops any more, to cancel all planned “real” exercise phases, and to train the required processes “at the green table” instead.

No troops at all? No! Against all odds, one formation used the opportunity to train and to have itself finally evaluated for the upcoming EUBG 2020-2 standby phase ...

### EUROPEAN BATTLEGROUP 2020-2

On 1 July 2020, the standby phase of the 51st European combat unit, EUBG 2020-2, will begin (Fig. 2). It is to last until late January 2021.

The DEU Army Rapid Response Forces Division (RRFD) from STADTALLENDORF was designated as lead division and will provide the force headquarters (FHQ). The Multinational Joint Headquarters ULM (MN JHQ Ulm) will assume the role of higher operations headquarters.



Fig. 2: Coat of arms of the EUROPEAN BATTLEGROUP 2020-2  
(Source: Rapid Response Forces Division)

The core battlegroup of the combat unit is formed from an airborne manoeuvre battalion and consists of:

- six paratroop companies (3x DEU, 2x NLD, and 1x CZE), as well as
- one DEU-NLD airborne reconnaissance company,
- one IRL-DEU airborne engineer company,
- one DEU-NLD airborne combat service support company,
- one DEU-NLD airborne medical company - as part of the organic Army Medical Service (AMedS),
- one DEU-SWE NBC defence platoon, and
- one DEU reinforced air defence platoon

For combat service support purposes, also included are:

- a Medical Task Force (MedTF), the deployed medical battalion,
- a multinational military police company (MP coy) consisting of DEU, AUT, and CZE forces,
- a FIN reconnaissance platoon (recce plt),
- a DEU-AUT CIMIC support unit for civil-military projects, and
- a multinational psychological operations support element (PSE).

Logistic support is provided by:

- an AUT-led combat support service battalion,
- a national element, the national support element (NSE), as well as
- organic supply and transport elements.

The second particularity of this EUBG 2020-2 is that a highly mobile formation of the German Army, like RRFD, will be provided medical support to by a line regiment of the Bundeswehr Joint Medical Service (BwJMedS) with modular medical treatment facilities (MMTF). We will detail on these challenges later ...

### Multinational Medical Task Force (MN MedTF)

Together with fellow-soldiers of the medical services of the Austrian Armed Forces, the Army of the Czech Republic, and the Swedish Armed Forces, 2 Medical Regiment (Med Regt) WESTERWALD from RENNROD will provide the MN MedTF in the second half of 2020, the Medical Task Force EUROPEAN BATTLEGROUP 2020-2 (MedTF EUBG 2020-2).

This MedTF comprises 360 service members who accomplish their mission in a “classical” organisation. This includes:

#### The Medical Service Logistic Support Point

which on operations represents level 1 logistic support for the entire task force.

The focus here is the service and support company of 2 Med Regt WESTERWALD, which turns into a Combat Service Support (CSS) coy. This company is designed to ensure ideal parameters for operational readiness and capability of medical treatment facilities

(MTF) for and on missions abroad. To this end, the CSS coy inter alia provides for the essential common service and support tasks for the entire task force, as for instance supply of water, POL (petroleum, oils, and lubricants) and associated products, IT and communication links, or transportation services.

In the field of functional and technical support, the CSS coy is reinforced by a medical logistics squadron of Medical Logistics Centre (MedLogC) BLANKENBURG. This squadron is responsible for the entire “specialist logistics”, from the individual dose of medication, to oxygen supply, through to the maintenance and repair of medical equipment.

The personnel strength of the Medical Service Logistic Support Point is 150.

#### **The Medical Evacuation Company (MEDEVAC coy)**

which is tasked with ground medical evacuation of wounded, injured, and sick persons (patients) from the place where damage control resuscitation (DCR) is provided to the fighting force – the mobile aid station (MAS) (Role 1) – to the facility where damage control surgery (DCS) is provided – the mobile surgical hospital (MSHosp) (Role 2). Over long distances, transport capability is ensured by setting up ambulance exchange points (AXP).

The MEDEVAC coy is staffed with highly qualified medical assistance personnel who will be reinforced on operations by medical specialists experienced in emergency and rescue medicine. Materiel and equipment are highly mobile as required by the mission. In addition to the five DEU medical teams, two AUT protected mobile emergency physician teams (MEPT) - with DINGO - have been integrated into the mobile set of forces. Furthermore, an aeromedical evacuation (AE) team for tactical AE - primarily with CH-53 MEDEVAC - is kept available.

Taking account of the “special role” of RRFD, the unit is reinforced by its own Role 1 capability for the immediate provision of organic medical care for FHQ EUBG. To this end, Medical Squadron (MedSqn) BISCHOFSWIESEN of Medical Support Centre (MedSC) MUNICH is assigned to the MEDEVAC coy.

Personnel strength of the reinforced MEDEVAC coy is 50.

#### **The mobile surgical hospital (MSHosp) (Role 2 Enhanced/R2E)**

The primary task of this Role 2 MTF on operations is to provide damage control surgery (DCS) to patients from the area of operations. In addition, the portfolio of this MTF includes comprehensive shock treatment, intensive care, a limited capability of further diagnosis, and general nursing. Medical/dental, as well as outpatient and clinical specialist treatment supplement the spectrum of performance.

Here, too, multinationality is an important approach. Members of the medical service of the AUT Armed Forces, for instance, support with one team each the “emergency room/shock treatment”, “intensive care”, and “nursing” areas. In addition, one nurse each of the medical services of the Army of the Czech Republic and the Swedish Armed Forces reinforce the nursing ward.

Personnel strength of the R2E MTF is 120.

#### **The Command Post (CP)**

is in command of the individual units of the task force. At the same time, the CP is the point of contact (POC) for the division headquarters (HQ) leading the operation.

The CP mirrors the HQ of the task force with its primary staff func-

tions – S1: Personnel and leadership development and civic education, S2: Military security S3: Leadership and organisation, S4: Materiel and logistics, S6: IT/communication links.

AUT experts reinforce the CP elements also in the plans (S3) and combat service support (S4) field. The senior AUT officer at the same time exercises national command and control (C2) over the entire medical contribution provided by the AUT Armed Forces.

Personnel strength of the CP is 30.

After 2 Med Regt WESTERWALD – one of currently four “line regiments” of the Bundeswehr Joint Medical Service (BwJMedS) – had been set as the core of the MN MedTF EUBG 2020-2, considerations started on the preparation of the upcoming standby phase. It was clear from the beginning in this context that significant personnel and materiel challenges would have to be mastered on the way there.

There have been extensive personnel changes in recent years. In many areas, duty routine almost came to a standstill, not only owing to a change of commander “during the race”, but also because of a huge “bloodletting” in personnel qualified and experienced in the processes and materiel.

Another significant issue since the formation of the regiment in 2015 has been materiel and equipment. Even today, entire companies in terms of quality and quantity are not equipped as required by the table of organisation and equipment (TOE).

Overall, this was not an easy starting position to

- Have the personnel and materiel of the regiment “combat ready” for the MN MedTF EUBG 2020-2,
- Establish with the DEU personnel and materiel portion the core capability of all functions of a MN MedTF,
- Create the basis for integrating the personnel and materiel support provided by several Allied European medical services,
- Prepare and enable evaluation of this particular operational structure in the context of a large-scale exercise, and to
- Achieve certified preparedness of this multinational task force to ensure the provision of medical support to a European battle group in all its scenarios
- within two and a half years.

In anticipation of the order of battle (ORBAT) to be prepared by RRFD to determine the number of forces and their organisational assignment, extensive preparatory work started at 2 Med Regt WESTERWALD, already.

The specialist qualifications and capabilities required for a MedTF to support a highly mobile battlegroup were compiled in a draft of tailor-made lists of billets and provided with first ideas on personnel and materiel. Based on the lessons learned from EUBG 2016, hence, the image of a DEU core element of a MedTF quickly formed. However, it also became clear soon that this task could not be accomplished nationally alone, but that the European medical partners would have to provide their share regarding the provision of personnel and materiel.

Beside these preparations, also deployment training of the personnel had to be pushed on with. One advantage of a standing medical unit is that mission accomplishment in routine duty in Germany regularly also serves to maintain military proficiency of its specialist personnel. Therefore, the decision came naturally to train the setup of an MSHosp as intended for the EUBG. Hence the regimental exercise “BLAUE HATZ” was born.



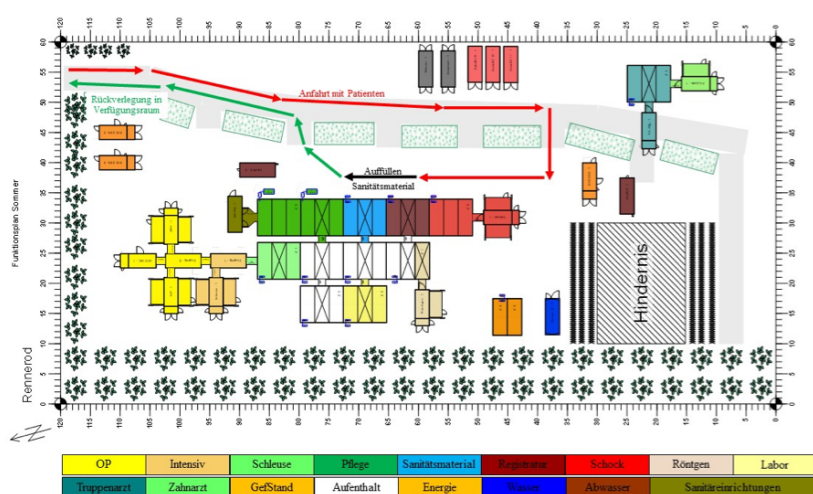


Fig. 4: Layout of the MSHosp BLAUE HATZ (Source: Bundeswehr)

Funktionsplan Sommer	Functional plan (summer)
Rückverlegung in Verfügungsraum	Return to vehicle holding area
Anfahrt mit Patienten	Approach with patients
Auffüllen Sanitätsmaterial	Medical materiel replenishment
Hindernis	Obstacle
OP	Operating room (OR)
Intensiv	Intensive care unit (ICU)
Schleuse	OR transfer area
Pflege	Nursing unit
Sanitätsmaterial	Medical materiel
Registratur	Registration
Schock	Trauma bay
Röntgen	X-ray
Labor	Laboratory
Truppenarzt	Unit physician
Zahnarzt	Dentist
GefStand	Command post (CP)
Aufenthalt	Waiting area
Energie	Power supply
Wasser	Water supply
Abwasser	Sewage
Sanitäreinrichtungen	Sanitation facilities

## BLAUE HATZ

Owing to the limited areas available at ALSBERG barracks in RENNROD and the difficult parameters shortly before the renewed materiel management inspection in the unit announced for November 2019, the decision was made to set up only the essential modules of the MSHosp (Fig. 4).

Added to that, clinical personnel of the Bundeswehr Central Hospital (BwCenHosp) KOBLENZ was not available for the exercise phase owing to the summer holidays in RHINELAND-PALATINATE. Here, the significance of our 5th company, the reinforcement reserve of 2 Med Regt WESTERWALD, deserves particular mentioning because our fellow medical specialists and the medical assistance personnel were highly motivated and ensured the functioning of the facility within the scope of reserve duty – and, thus, contributed significantly to the success of the exercise.

## EUROPEAN FALCON 2019

In the second half of October 2019, RRFD conducted the exercise EUROPEAN FALCON 2019 at MTA BERGEN. Beside the possibility of general, national but also multinational, military training activities being conducted by the core battlegroup – in the focus here was the DEU-NLD airborne unit and a few combat support elements – training of the FHQ RRFD was to focus in particular on its internal processes. To this end, the facility was extended by so-called “response cells” of the other forces of the EUBG, notably medical service and logistics.

The MN MedTF was represented on site with all its capability areas and supported the GMED staff division, especially in the implementation and rehearsal of the various processes of patient flow management in the patient evacuation coordination cell (PECC). Another important goal of EX EUROPEAN FALCON 2019, however, was to develop an appropriate operational scenario as the basis for the required generic planning of EUBG deployment. Resulting were two findings that are also important for the further preparation of the MN MedTF:

1. A maximum of three day's marches of 200 km each was planned for deploying into the then still assumed East African area of operations (AOO). In this phase, the medical evacuation chain is heavily stretched during the leapfrogging set-

ting-up of a Forward Operating Base (FOB) after debarkation of the personnel at the airport of debarkation (APOD) and of the materiel at the seaport of debarkation (SPOD).

In order to meet the relevant timelines of medical care by means of a sound CH-53 support to aeromedical evacuation (AE) during an operation, though, a facility for damage control surgery (DCS) was planned according to a Forward Surgical Element (FSE).

Since neither the TOE of 2 Med Regt WESTERWALD nor that of the other multinational elements do provide for such an FSE in personnel or materiel terms, a protected MAS of the MEDEVAC coy will be charged with this specialist task during an operation. For this purpose, the MAS will be staffed with one of the two surgical teams and, in materiel terms, will be enhanced by a basic DCS capability.

Upon arrival at the Main Operating Base (MOB), the second surgical team in the same configuration and with the same task will take over DCS in a prepositioned MAS of the core battlegroup.

When all forces are concentrated in the MOB, the surgical team will finally shift to the R2E MTF of the MN MedTF.

2. In the course of EX EUROPEAN FALCON 2019, the very different operational doctrines of RRFD on the one hand and 2 Med Regt WESTERWALD on the other became manifest repeatedly. The focus was on the differing temporal ideas and different procedures already during deployment, but in particular, when full operational capability (FOC) was established.

Considerations on how to optimise things were mainly driven by the endeavour to ensure the provision of both: required, preferably continuous DCS as well as quick and comprehensive medical care.

## Initial Operational Capability

In the course of the outlined considerations, initial operational capability was adapted to the system of MMTFs and the specific materiel resources of 2 Med Regt WESTERWALD (Fig. 5).

All participants were aware that the options for internal further development are quite limited in a battlegroup with MMTFs.

At the beginning, the required medical capabilities of the element were specified:

- Emergency room, including triage and treatment of shock,
- Diagnosis,
- Emergency surgery,
- Intensive care,
- Holding capacity,
- Materiel storage site.

Owing to the largely standardised setup procedure of an ideal MSHosp, the option of a variant emerged during further considerations that is adapted to the specific technical guidelines of the Bundeswehr Medical Service (BwMedS) as well as to the operational and tactical requirements of RRFD. Based on these planning fundamentals, admission and operation readiness within six hours was defined and specified for materiel configuration.

This approach then had to be implemented in the medical companies of the formation, making use of the extensive experience and individual expertise. Here, not only the pure setup plan was in the focus. Also the other factors that had to be considered were taken into account, as for instance the packing and stowing of equipment and its transportation by appropriate transport and delivery vehicles. This task developed into a multidisciplinary challenge for the entire formation: Senior Medical Service officers (SMedSO), the senior maintenance officer, nurses of most different specialisations, setup managers, personnel entrusted with cargo-securing tasks, specialists in public law tasks, water specialists, crane operators – everybody was extremely committed. And everybody knew, that only little time remained to find a solution and to implement it within the scope of the upcoming large-scale exercise. There would not be another trial prior to the exercise, it had to come off at one go!

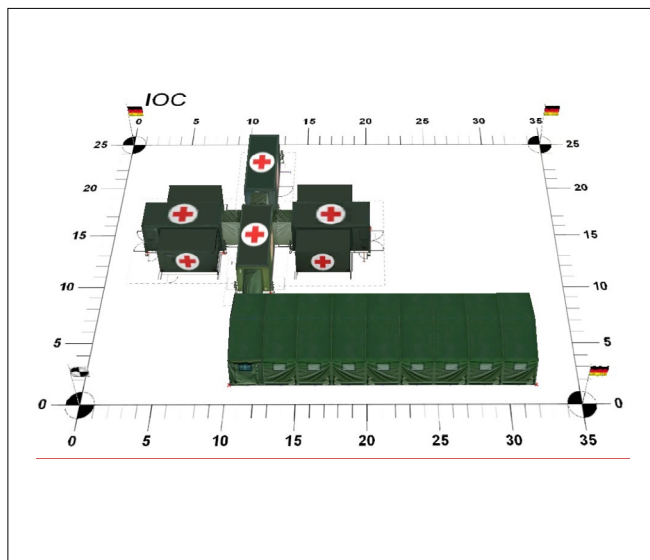


Fig. 5: Layout of Initial Operational Capability (IOC; Sergeant Jens Horst, Bundeswehr/Site Planning Tool, Airbus)

In the end, an approach emerged that was to ensure that IOC was established within six hours but also the steady continuation and conclusion of the further setup of the other capabilities of the MSHosp – and thus to achieve full operational capability (FOC) – within 72 hours.

## DEU-AUT Cohesion Exercise

In accordance with the multinational approach of the EUBG, a combined cohesion exercise with the medical service of the AUT Armed Forces, the strongest contingent in qualitative and quantitative terms, was planned for December 2019.

This at the same time provided the framework for testing the EUBG's IOC concept to improve the establishment of operational capability of MMTFs at least in the setup and initial in-service phases. During one week, 15 AUT fellow soldiers could familiarise with the MMTF system, exchange views across all specialties of a Role 2E MTF, discuss the particular requirements put on the camp support platoons as prerequisite for the setup and operation of the MTF, and coordinate procedures and processes within the PECC to be planned within the FHQ. Furthermore, the command personnel of both medical services could answer questions of the EUBG leadership and harmonise principles and procedures for and on operations.

It was a successful event, that served to understand common parameters and prerequisites regarding both the EUBG and the upcoming certification exercise EUROPEAN CHALLENGE. Furthermore, it offered the opportunity for those bearing technical and/or command responsibility for important (sub-) areas of the MN MedTF to get to know each other personally. Once again, the common spirit manifested, which both medical services feel committed to and which has proved to be a technically fundamental and always reliable element in many contingents already.

## Planning cycle EUROPEAN CHALLENGE 2020

The planning cycle for EX EUROPEAN CHALLENGE 2020 as certification exercise for EUBG 2020-2 ran in parallel to the Medical Service preparations. Intent of the Commander, Rapid Response Forces Division (CDR, RRFD) was to train in particular the processes and procedures of the FHQ in a live exercise (LIVEX) involving the forces on site. Independent evaluation portions were admitted for the core battlegroup, combat support, combat service support, and logistics elements, but were not the focus.

Actually, the limits due to the dimension of the exercise scenario became apparent repeatedly in the course of the planning process. Owing to the number of participating forces, thus, the exercise area for EUROPEAN CHALLENGE 2020 had to be stretched over several garrisons. Beside the main training areas WILDFLECKEN – for the command and control (C2) organisation, i. a. FHQ RRFD – and HAMMELBURG –i. a. for the AUT CSS battalion – the garrison areas KUELSHEIM and VOLKACH were set as exercise areas of the core battlegroup and GIEBELSTADT as conceived APOD. Also the very different medical care and operational concepts – the organic Army Medical Service of RRFD with an extended Role 1 capability on the one hand, and the Bundeswehr Joint Medical Service (BwJMedS) with a line regiment equipped with an MMTF on the other – had to be harmonised in the course of the planning cycle. A particular focus here was on resolving interface issues and defining handover processes. This was not an easy task for the DEU-NLD Division Surgeon/GMED division of RRFD!

In addition, the particular materiel requirements of 2 Med Regt WESTERWALD had to be taken into account. The need for an appropriately large, plane and hardly inclined installation site for the R2E MTF, thus, left only little leeway regarding the distribution of the available areas. Extensive site surveys and arrangements with



all organisations on site that were involved or had to be involved, in the end led to a sound result accepted by all parties. The particular commitment, the understanding and solution-oriented approaches of the supporting elements, above all at HAMMELBURG garrison (Infantry Training Centre (ITC)) and VEITSHOECHHEIM garrison (HQ 10 Armoured Division (10 AD)) – from the respective command personnel, to the garrison senior officer (GSO), to the responsible Bundeswehr service centre – must be clearly emphasized, though.

During the Final Coordination Conference, a “medical play” was prepared, with due consideration of the different scenarios. It took into account the requirements of all interest groups involved in the exercise: the organic Role 1 medical care of the core battlegroup during the different exercise phases, the RRFD Division Surgeon/GMED division holding overall responsibility, but also the MN MedTF EUBG (Fig. 6).

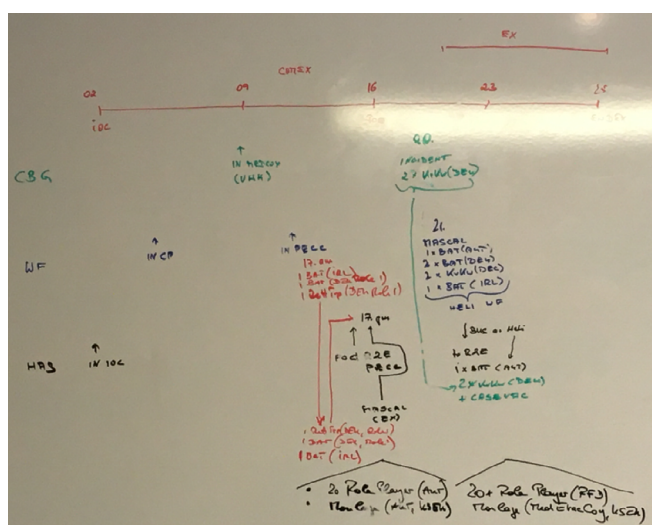


Fig. 6: “Medical play” EUROPEAN CHALLENGE 2020  
(Source: Colonel, Dental Corps, Dr Sven Funke, Bundeswehr)

The comprehensive coordination efforts also resulted in an adaptation in the organisation of the operational areas. Since the distance of 105 km between the individual exercise areas of the core battlegroup – VOLKACH, KUELSHEIM, and GIEBELSTADT – and the R2E MTF in HAMMELBURG from a medical tactical perspective proved too long for end-to-end ground medical evacuation, the decision was made to establish an ambulance exchange point (AXP) in VEITSHOECHHEIM. This not only gave a significantly more realistic picture but also met the conceptual requirements of the Bundeswehr Medical Service. In case transportation times/routes are that long, these requirements provide for repeated triage and possibly renewed stabilisation of the patients to maintain or re-establish fitness for transport. This exercise design not only provided for an opportunity to train for the MEDEVAC coy, but also for an effective loss in combat power on the spot – owing to the extraction of the role players from the core battlegroup – the military leaders had to cope with within the scope of their mission accomplishment. However, the MN MedTF EUROPEAN CHALLENGE 2020 had to master the implementation of this adaptation alone. It was not taken into account in the planning, command and control, and support process of the Rapid Response Forces Division.

After completion of the planning cycle, the organisation of the operational areas, hence, provided for the following deployment of forces (Fig. 7-9)

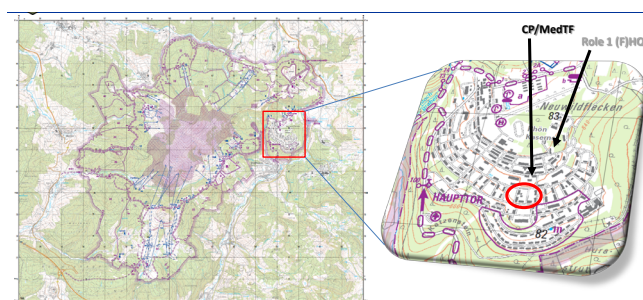


Fig. 7: Deployment of the Medical Task Force at WILDFLECKEN garrison  
(Source: Bundeswehr)

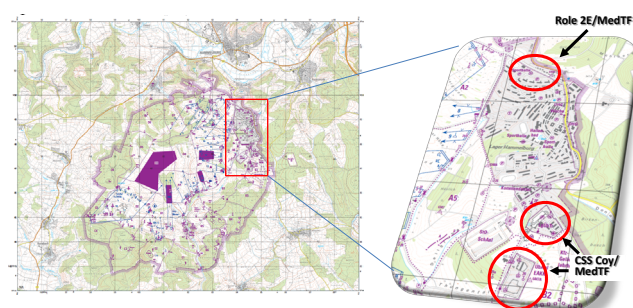


Fig. 8: Deployment of the Medical Task Force at HAMMELBURG garrison  
(Source: Bundeswehr)

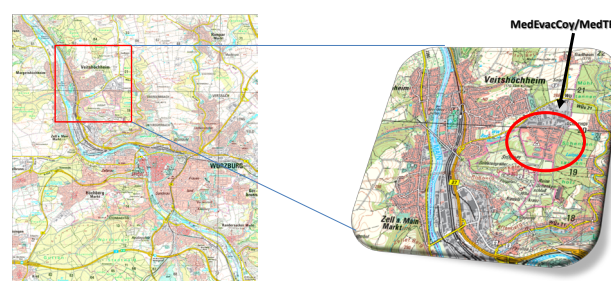


Fig. 9: Deployment of the Medical Task Force at WILDFLECKEN garrison  
(Source: Bundeswehr)

## Evaluation Exercise EUROPEAN CHALLENGE 2020

The following weeks were marked by intensive work to complete all preparatory measures and to establish notice to move (NTM) status. Extensive packing and stowing trials at the garrisons of 2 Med Regt WESTERWALD not only served to further train the personnel employed, but also to optimise the loading and unloading processes in organisational and procedural terms.

Core element of the preparations was initial operational capability of the R2E MTF of the MN MedTF EUROPEAN CHALLENGE 2020 as ordered. Based on the experience of the DEU-AUT cohesion exercise, but also in due consideration of the “challenges” of the significantly more mobile conduct of operations identified in the cooperation with RRFD, detailed plans for the initial phase of

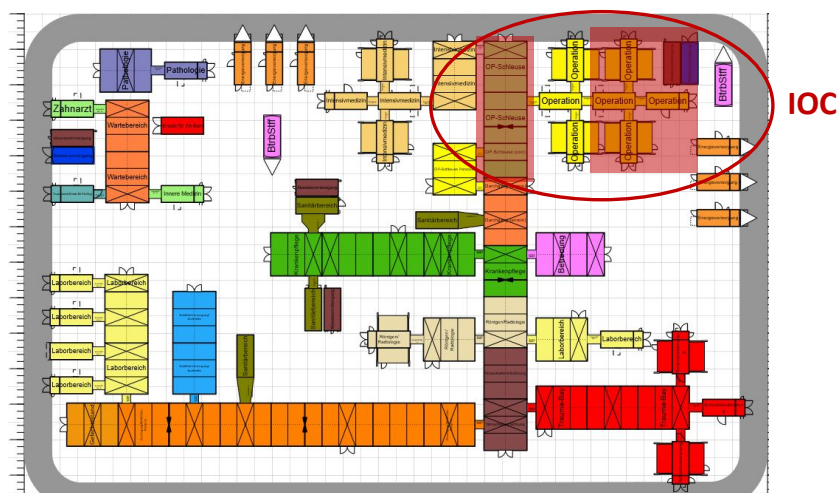


Fig. 10: R2E MTF with IOC portion  
(Source: Bundeswehr)

European Challenge / Blaue Hatz 2020	European Challenge / Blaue Hatz 2020
Role 2E (IOC)	Role 2E (IOC)
Pathologie	Pathology
Zahnarzt	Dentist
Wartebereich	Waiting area
Innere Medizin	Internal medicine
Laborbereich	Laboratory area
Gefechtsstand	Command Post (CP)
Sanitärbereich	Sanitary facilities
Trauma-Bay	Trauma bay
Röntgen / Radiologie	X-ray / radiology
Krankenpflege	Nursing
Abwasserbeseitigung	Sewage
Betreuung	Care
Operation	Operating room (OR)
OP-Schleuse	OR transfer area
BtrbStff	POL
Intensivmedizin	Intensive care unit (ICU)

the R2E MTF were adapted. The focus was shifted distinctly: from merely evaluating the speed of setup towards establishing IOC or the capability to provide medical care – under operational conditions! The reviewed concept now provides for (Fig. 10):

- An “OR star”, consisting of
  - 1x OR container,
  - 1x surgery preparation container, and
  - 1x access container,
- 3x type II standard tents as temporary infrastructure for the areas
  - Emergency room/shock treatment,
  - Intensive care,
  - Nursing or intermediate care, and
  - Materiel,
- 1x equipment supply container to ensure supply of the OR area with pressurised medical gases and water,
- 1x energy supply container to ensure supply of the initial element with power, as well as
- 1x cable network container to establish an electric power grid to operate the IOC infrastructure.

Owing to the contemporaneous large-scale exercise DEFENDER 20 to deploy a US division to the Baltic countries (straight through Germany and Poland), the planning process for the deployment of the MN MedTF EUROPEAN CHALLENGE 2020 had to be adapted considerably.

The commitment of forces resulted in significant delays in the Bundeswehr Logistics Centre (BwLOGC) in the issuance of movement credits for the individual march columns. Furthermore, neither was the Integrated Movement and Transport System of the Bundeswehr capable of providing support with tractor and trailer units, nor could military police forces convoy the march routes. In the end, plans were to deploy all equipment in two tours, exclusively using the entire vehicle pool of the regiment available. Preparations constituted a most impressive orchestration of an extensive but extremely smooth-running and divers gear work – to start with the precisely defined loading of the tractor and trailer units and the marking of their components and their movement in column formation into assigned marshalling areas at ALSBERG barracks in RENNROD. Followed by the unloaded tractor and

trailer units returning from the installation site in HAMMELBURG that had to be loaded again by our own “materials handling detachment” for another rotation (the only way to make sure that the legally required driving and rest times of the military drivers were complied with). Through to carrying out routine duty on site by a “team HOTEL”.

During the preparation phase, already, major adjustments were made to the national personnel and materiel resources of the MN MedTF EUROPEAN CHALLENGE 2020. The respectively responsible superior commands for instance decided not to bring in important clinical and public law specialists especially in the setup and initial phases of the R2E MTF, and not to provide for materiel and equipment relevant for the setup planning and the internal technical processes, either. Behind this decision were issues regarding the Working Time Act and budgetary guidelines on the sometimes comprehensive and expensive individually and bulk expendable items of supply relevant in terms of military medicine and pharmacy or food chemistry.

Beginning at midnight in the night between 2 and 3 March 2020, three march columns of 30 small vehicles and tractor and trailer units each left the barracks in the direction of WILDFLECKEN and HAMMELBURG (Fig. 11). Four and a half hours later, personnel and materiel arrived safely at the exercise areas without any loss.



Fig. 11: March column leaving ALSBERG barracks in RENNROD  
(Source: Colonel, Dental Corps, Dr Sven Funke, Bundeswehr)



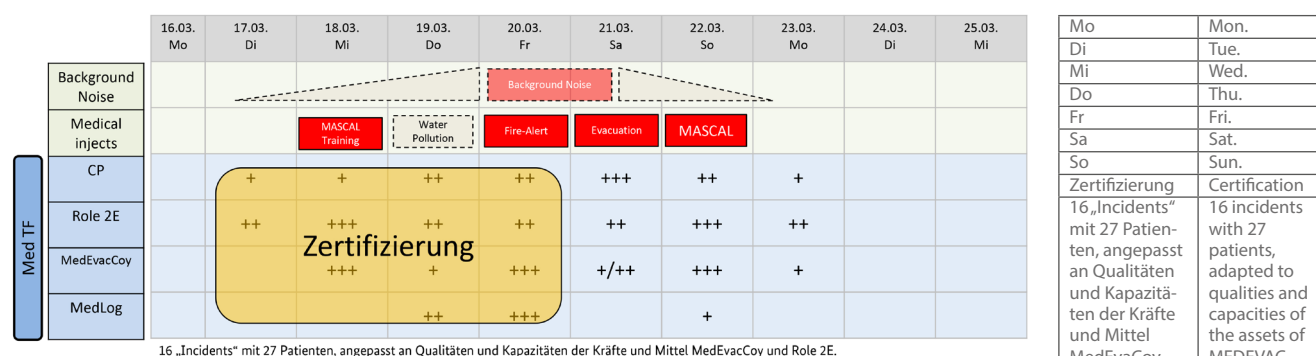


Fig. 12: Scheduled phases of EX BLAUE HATZ 2020  
(Source: Bundeswehr)

With the arrival of the first seven tractor and trailer units at the installation site at SAALECK barracks in HAMMELBURG, time ran for the setup of the R2E MTF. Despite significant personnel deficits, the different setup teams – “OR star”, container periphery, tents – interacted masterly within a sophisticated system. The responsible company commander was able to report IOC of the R2E MTF to CDR MN MedTF EUROPEAN CHALLENGE 2020 after six hours, and FOC after 72 hours. An impressive performance of all persons involved!

Immediately after the setup, preparations for evaluation started. Existing standing operating procedures (SOP) were reviewed during their implementation and adapted to the conditions of the R2E MTF of the MN MedTF EUROPEAN CHALLENGE 2020. The required technical processes of patient admission, diagnosis and care in the medical treatment facility were defined. These preparatory measures conclude with the development and training of a plan for a mass casualty situation, the MASCAL plan.

At that time, however, the corona pandemic already cast its shadows on EUROPEAN CHALLENGE 2020. Especially RRFD had to cope with the measures taken to avoid the spread of COVID-19: The rules on social distancing cannot easily be implemented in an FHQ; reduction of personnel inevitably results in a loss in competence and capabilities. Furthermore, several multinational partners decided not to deploy to GERMANY their exercise participants who still were in their respective home countries.

The MN MedTF EUROPEAN CHALLENGE 2020 was affected by this development, too. The CZE and SWE nursing personnel did not travel; the contingent of the medical service of the AUT armed forces was already on its way to HAMMELBURG when it was called back. The clinical personnel was held back in the Bundeswehr hospitals for the “real employment” that became ever more likely. Equally, the support personnel from the central institutes of the Bundeswehr Medical Service (CIPwMedS) and the supervisory centres for public law tasks of the Bundeswehr Medical Service (SC PLT BwMedS) in their respective institutes and centres prepared for a possible real “employment on German territory”. Likewise, MedLogC BLANKENBURG, essential part of the Medical Service logistic support point, could collocate only few elements of its range of services together with the CSS coy.

Thus, the personnel conditions for establishing, training, and finally evaluating the processes in the MN MedTF EUROPEAN CHALLENGE 2020 deteriorated increasingly. Especially in the R2E MTF, a coordinated preparation in particular of the MASCAL procedures now was out of the question. Starting from the “admis-

sion areas” triage, emergency and shock treatment, to radiology, through to OR, all medical specialist competences required were lacking. A realistic simulation of regular medical treatment, care, and assistance processes, thus, was not possible.

That was the hour of the reserve duty personnel of 5/2 Med Regt WESTERWALD. Their support even on few medical specialist positions became the medical specialist backbone of the medical care procedures in the R2E MTF trained. This contribution was supplemented by the outstanding performance of the many senior non-commissioned officers (SNCO), proven experts some of whom simulated medical specialist and organisational competences in order to contribute a minimum of realism to the exercise and evaluation procedures.

In the end, RRFD decided to slash the starting LIVEX to an extended command post exercise (CPX). Now the focus was on training the FHQ EUROPEAN CHALLENGE 2020, reinforced by response cells of the subordinate units. At the same time, it was determined to cancel the exercise elements of the other force contingents, which were to immediately redeploy to their home stations or to not even start deployment into the exercise areas.

At the same time, the planned exercise scenario had to be adapted to the new situation (Fig. 12). The civilian role players of RRFD were dropped just like the incidents envisaged for the original exercise areas of the core battlegroup.

Before there was a chance to adopt the new exercise structure, RRFD cancelled EUROPEAN CHALLENGE 2020 completely. The remaining elements of the FHQ at WILDFLECKEN garrison redeployed immediately to the home station of the division, STADT-ALLENDORF in Hesse. A subsequent “small” CPX initially envisaged involving less and significantly smaller response cells of the subordinate units in the end had to be cancelled, too. Completed parts of the EUROPEAN CHALLENGE 2020 setup phase in the end were evaluated within HQ RRFD.

## BLAUE HATZ 2020

In view of the fact that evaluation of the medical support of EUBG 2020-2 was upcoming and had to be pursued, CDR MN MedTF decided to turn EX EUROPEAN CHALLENGE 2020 into an exercise of 2 Med Regt WESTERWALD. Without much effort and without the presence of medical support elements of multinational partners, hence, the personnel and materiel already in exercise mode on site as well as the appropriately designed processes of the MedTF could be employed for the evaluation process.

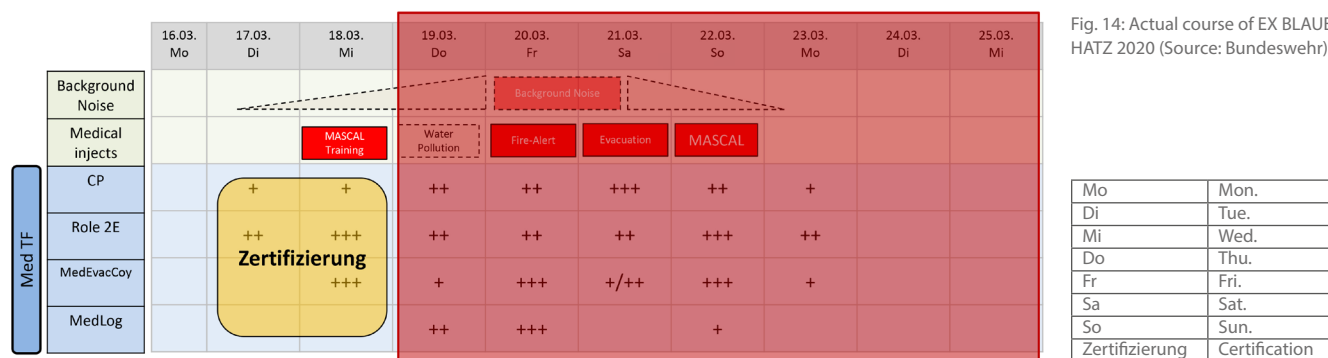


Fig. 14: Actual course of EX BLAUE HATZ 2020 (Source: Bundeswehr)

For this purpose, the originally multinational MedTF EUROPEAN CHALLENGE 2020 was “mirrored” into a (fictitious) national medical exercise BLAUE HATZ 2020 (Fig. 13).

At the same time, personnel not necessarily needed redeployed home in due consideration of the CORONA threat situation. This was in line with the provisions by the HAMMELBURG GSO for the military and civilian agencies at the garrison. The systematic implementation of the disaster alert declared in the federal state of BAVARIA for barracks and camps, as well as for HAMMELBURG MTA already entailed strong limitations for the exercising unit. This affected less the use of military infrastructure but above all the required support services by the Bundeswehr service centre.

## EVALUATION OF THE MEDICAL TASK FORCE BATTLEGROUP 2020-2

Mid-March 2020, then, the MedTF EUBG 2020-2 was evaluated under the lead of the responsible Operational Medical Support Command (OpMedSCOM).

Beside the post-related fundamentals, like the standing operating procedures (SOP), the 11-member evaluation team from DORNSTADT, FELDKIRCHEN, LEER, MUENSTER, and WEIßENFELS, which was affected by the provisions to master the CORONA pandemic itself, checked in particular the entire procedure of the medical evacuation chain. From initial treatment of the exercise patients “in the field” by the medical team, to damage control resuscitation (DCR) at the AXP, through to triage, admission and stabilisation, as well as damage control surgery (DCS) and the subsequent provision of clinical care in the R2E MTF. In addition, the team considered and evaluated the management of the entire portfolio of medical support by the PECC.

The absence of the exercising elements turned out to be a big challenge. Owing to the discontinuation of the exercise, interaction between PECC and RRFD Division Surgeon/GMED division, for instance, could not be trained. The training and experience levels of the multinational personnel – each troop-contributing nation (TCN) had planned to provide at least one “dispatcher” (MedS SNCO), the Medical Services of the Bundeswehr and the AUT armed forces, additionally, would have integrated officers with operational experience into the PECC for EX EUROPEAN CHALLENGE 2020 – could neither be verified nor harmonised.

The general conditions for a reasonably organised course of the exercise that further deteriorated under CORONA in the end resulted in another adaptation of the exercise phases and, thus, the battle rhythm of EX BLAUE HATZ 2020. Only two complete days of exercise activities remained from the previously planned whole

week! Therefore, “capable with limitations” was the result of evaluation. The evaluation team identified the following limitations:

1. Owing to the insufficient lead time, the standing operating procedures were not completely available and not fully adapted to the actual situation and procedures in the R2E MTF, and
2. There was a significant qualitative and quantitative lack of (specialist) personnel indispensable for a swift setup, comprehensive operation, and thus, reasonable process-related evaluation.

In the light of these limiting conditions decided by the superior commands, however, the evaluation result is “an extremely respectable achievement that will be reflected in a corresponding positive certification of the MedTF EUBG 2020-2.”

## Conclusions

For 2 Med Regt WESTERWALD, EX EUROPEAN CHALLENGE 2020 was an experience beyond comparison – starting with the first considerations on the internal optimisation of the available modular equipment through to the evaluation result.

Never before have such dramatic and significant changes in the conditions, parameters and the course of a large-scale exercise occurred that was planned and prepared long before and thoroughly. And never before has such a degree of outstanding and unabated readiness, flexibility, and goal orientation been demanded in the shortest possible time from all interacting parties involved on site and the supporting superior commands.

The goal was achieved, mission accomplished! None of the parties involved is interested in a repetition under these adverse conditions. However, the experience gained/lessons learned from this exercise have been worth every effort of its participants. The success achieved in spite of all adversities, indeed historical, has been more than deserved!

2 Med Regt WESTERWALD has stood the test under particularly challenging conditions – because its servicemen and women have proved themselves true to its motto: “Together we are strong!”

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# Study confirms excellent stability performance of the Push ortho Ankle Brace Aequi

In a comparative study by the Fraunhofer Institute for Manufacturing Engineering and Automation (IPA),<sup>1</sup> the Push ortho Ankle Brace Aequi was tested for its stability together with four other ankle braces. The results show the Push Aequi allowing the least inversion movement and thus stabilizing the ankle very effectively.

Ankle sprains are among the most common injuries, both in military and civilian life. The majority of cases are caused by an excessive inversion of the foot, which can result in damage to the ankle ligaments, most commonly the lateral ones. As treatment for this kind of injury, ankle braces or orthoses are generally used and recommended.<sup>2</sup> During high-risk activities, including airborne operations, ankle braces can also be used as a preventive measure to reduce the risk of injury.<sup>3</sup>

To examine the support function of the Push Aequi and four other ankle braces, a new testing model was developed by the IPA. It includes a new sensory integrated artificial foot, which was used in combination with an actuator to test the braces dynamically. Inversion and a combined movement of inversion and plantar flexion (supination) was simulated using a hydraulically controlled prothesis test rig.

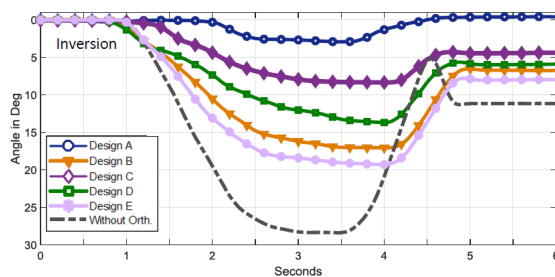


figure A: results of dynamic inversion ankle brace test (mean graphs, n=3) (© IPA)

The results of the inversion test shown in figure A demonstrate the excellent stability of the Push Aequi (Design A). It showed the highest stability with an inversion movement of only 3,02 degrees. In the combined movement test the inversion movement was even smaller: With an angle of only 0,79 degrees the Push Aequi allows almost no movement in this direction and thus stabilizes the foot very effectively.

The design of the orthotic system was identified as the primarily important factor for the support function of the orthoses. In this regard, the Push Aequi uses an innovative principle: a slim, purely medial reinforcement fixated by an inelastic strap supports the ankle and prevents talus tipping and anterior translation. The Push Aequi also leaves maximum freedom of movement for a physiological gait and actively supports dorsiflexion. This makes the Push Aequi ideal for functional therapy after lateral ankle ligament lesions, the after-treatment of fractures or in the event of chronic instabilities. Further information on the product and a summary of the study by the Fraunhofer Institute in English can be obtained at: Nea International bv, Tel. +31 (0)43-407 92 20, cs@push.eu. For materials in German you may also contact Ofa Bamberg GmbH, Tel. +49 0951 6047-333, kundenservice@ofa.de.

1 Czapka, P. et. al.: A novel method for functional testing of ankle braces based on a modified prosthetic foot testing machine. Whitepaper. Stuttgart: Fraunhofer IPA, 2019. This study was ordered by Nea International, manufacturer of the Push ortho Ankle Brace Aequi.

2 Kerkhoffs, G. M. et al.: Diagnosis, treatment and prevention of ankle sprains: an evidence-based clinical guideline. British journal of sports medicine, 2012, vol. 46, no. 12, pp. 854–860.

3 Bullock, S. H. et al.: Prevention of Physical Training-Related Injuries. Recommendations for the Military and Other Active Populations Based on Expedited Systematic Reviews. American Journal of Preventive Medicine, 2010, 38 (15): pp. 156–181.

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## A first announcement

### Third Symposium on Tropical Medicine and Infectious Diseases in an International Military Medical Context 2021

H. Frickmann



Participants of the Tropical Medicine Symposium 2019  
(© BwKrhs Hamburg)

More than 100 experts in the field of tropical medicine from 18 nations had registered for the “Second Symposium on Tropical Medicine and Infectious Diseases in an International Military Context 2019”, which took place on 27th and 28th June 2019 at the Bundeswehr Hospital in Hamburg, Germany. During this multinational event, the main focus was on infectious diseases, thereby allowing intensive discussions of the topics of prevention, diagnostics, treatment and disease management. The appealing and diverse range of topics including practical workshops invited interested individuals to friendly networking and intensive technical discussions. The multifaceted program was framed by a festive evening in the officers’ mess of the Helmut-Schmidt University. Outside of the crowded symposium program, this gave our participating medical officers the opportunity to exchange ideas and information in a relaxed atmosphere with the international guests to establish contacts and to make friends across borders. And maybe one or the other could be inspired to take a closer look at infectious diseases and tropical medicine in the future.

With reference to the successful event in 2019, a “Third symposium on tropical medicine and infectious diseases in an international military context 2021” will be held in 2021 in Hamburg, Germany. The topic is still up-to-date, because military conflicts and humanitarian crises requiring military intervention remain an ongoing concern. Associated deployments may lead to the importation of infectious agents such as gastrointestinal parasites, atypical or even multidrug-resistant bacteria, viral causes of chronic infections and rare or emerging tropical pathogens. Diagnostic, preventive and therapeutic solutions of these persistent problems of military medicine on deployment and after the return of the service members to their home countries are of importance as a focus of military medical research.

Next to this, military deployments inside failing or failed states within tropical settings that are rich in zoonotic and vector-borne infectious diseases are a matter of concern. Knowledge, awareness

and expertise in the fields of prevention, diagnosis, therapy and management of tropical and infectious diseases are crucial to face the challenge. This is particularly true for remote settings as well as on board of military ships.

Due to the overwhelming interest in the exceptional case reports sessions during the last symposium, again all participants are cordially invited to present extraordinary case reports comprising infections with rarely observed pathogens like tissue parasites, dimorphic fungi, tropical spirochetes as well as pathogens causing impressive tropical dermatoses, just to give a few examples. As it is not uncommon for the diagnostic and therapeutic procedures for such exceptional infectious diseases to be insufficiently evaluated, we are quite sure that there will be a wide field for constructive-critical discussions within the group of interested experts.

This symposium intends to bring international experts together again to discuss up-to-date developments and state-of-the-art procedures. Finally, the symposium will provide the attendees with an opportunity to meet with colleagues and friends, as well as to exchange information and ideas. In addition, young colleagues and students may be mentored and encouraged to join the community of military medical officers specializing in infectious disease prevention, diagnosis and management. A social event will provide the relaxed atmosphere to facilitate the multinational dialog.

So please be informed that the call for abstracts including more detailed information on the symposium will follow soon. Please save the date and we will be happy to see you in 2021 in Hamburg.

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A handwritten signature in blue ink that reads "Lutz Bandekow".

Dr med Lutz Bandekow  
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# A German-British Exchange Project with a Future

The 1st Hanseatic Military and Medical Intern Conference (HaMMICon)  
at the Hamburg Bundeswehr Hospital, 6 to 10 May 2019

Selina Dittrich, Daniel Hinck, Wilm Rost, Joachim Hoitz

In May of last year, the Hanseatic Military and Medical Intern Conference (HaMMICon) was established and held for the first time at the Bundeswehr Hospital in Hamburg, a city in the north of Germany. The objective of the conference is to promote the international exchange of ideas between medical officers in their first years of training.

During this one-week conference, experts from different medical specialties presented the most important basic principles required in preparation for a first deployment abroad. There were also presentations on initial and follow-on training systems for medical officers in the different armed forces.

The conference further featured practical training elements in the fields of Tactical Combat Casualty Care (TCCC) and crew resource management (CRM).

The Hanseatic Military and Medical Intern Conference (HaMMICon) was held for the first time at Hamburg Bundeswehr Hospital from 6 to 10 May 2019.

Against the backdrop of the United Kingdom potentially leaving the European Union as well as the lack of an international platform to foster the exchange of ideas between young physicians in the medical services of NATO forces, the Bundeswehr Medical Service Headquarters tasked the Hamburg Bundeswehr Hospital with cultivating existing contacts.

The medical services as represented by Defence Medical Group (North) and Hamburg Bundeswehr Hospital have remained in close contact since a visit by a British delegation to Hamburg in 2017, a training course in medical history named Northern Relief with a focus on the medical care provided to those wounded during Operation Gomorrah in World War II and to potential casualties in a mass casualty situation, and the return visit by a German delegation from the Department of General and Visceral Surgery at Hamburg Bundeswehr Hospital to Doctors' Symposium of Defence Medical Group (North) in 2018.

The event was organised under the leadership of Brigadier (MC) Hoitz, former hospital commander and medical director of Hamburg Bundeswehr Hospital, with the aim of establishing an international military medical forum for young medical officers. This year's training focused on theoretical and practical knowledge and skills in preparation for a first deployment abroad.

Eleven British medical officers from various specialties accepted the invitation to the first HaMMICon in Hamburg. Participants ranged from medical students in their final semester of training to senior physicians in the fields of anaesthesiology, surgery, emergency medicine, psychiatry and urology.

On Monday morning, Brigadier (MC) Hoitz welcomed the participants in the assembly hall and opened the conference. He then gave the floor to Lieutenant Colonel (MC) Hinck, deputy clinical director of the Department of General and Visceral Surgery and the person primarily responsible for organising and conducting

the conference. Lieutenant Colonel (MC) Hinck outlined the history of the Bundeswehr hospital, from its establishment in 1958 to the present.

With this knowledge, the participants visited the central emergency room and the international ward, where wounded soldiers from Ukraine were currently being treated.

The next item on the agenda, a presentation of the rescue department by Commander (MC) Schüttler, was met with great approval, as participants had the opportunity to take a closer look at rescue vehicles and, to everyone's delight, the rescue helicopter.

In the afternoon, the programme continued with a military history lecture given by Lieutenant Colonel (MC) Hinck on World War II Operation Gomorrah. In the summer of 1943, thousands of citizens were killed and large parts of Hamburg destroyed in air raids and the resulting firestorm. Lieutenant Colonel (MC) Hinck focused on the medical care provided to the thousands of casualties.

Colonel (MC) Schütz of the Hamburg Command and Staff College then drew a line from the past to the present and future in his very informative lecture on the challenges of medical services in the face of current developments in crisis and conflict situations. His presentation of tasks that will need to be tackled in the coming years was very entertaining.

Commander Stannard, consultant at the Department of Vascular Surgery at James Cook University Hospital in Middlesbrough, and Major (MC) Mulrow from the Department of General Surgery then compared the British and the German medical services in terms of organisation and structure. Both sides were found to face similar issues as well as the difficulty of ensuring military medical training while also trying to strike a proper balance between civilian and military requirements.

A barbecue at the hospital mess provided an opportunity to socialise at the end of the first day of the conference and to continue discussing topics that had been touched on earlier.

The following day was devoted to field medicine.

The focus was on sharing experiences and lessons learned on deployments abroad, which were brought to life by various medical experts with operational experience.

First up was Lieutenant Colonel (MC) Wiemer, head of the Department of Tropical Medicine at the Bernhard Nocht Institute (BNI), with her lecture on tropical pathogens and parasites in Mali and Afghanistan, two theatres of operations for the Bundeswehr. Lieutenant Colonel (MC) Engels then used case studies to illustrate challenges in the field of internal medicine in the countries of deployment.

Despite all the care that is taken to assess the health of military personnel before deployment, they are not immune to heart attacks, for example. Much more common health issues, however, are rather mundane infections, diarrhoea and dehydration.

Following these lectures by conservative care specialists, Colonel

(MC) Johann, director of the Department of Orthopaedics and Trauma Surgery at Hamburg Bundeswehr Hospital, gave a very practically oriented presentation on injuries requiring trauma surgery and the treatment options available in countries of deployment.

Lieutenant Colonel (MC) Hinck then outlined the surgical challenges posed by gunshot wounds and blast injuries. In such cases, the primary focus and most important treatment option must be to control any bleeding. Available evidence suggests that haemorrhage is still the most frequent cause of death for those on deployments abroad and the one that, depending on the site of bleeding, is easiest to avoid with immediate and appropriate treatment.

In the afternoon, Commander (MC) Fohr of the Department of Anaesthesiology spoke of his maritime career and the issues and peculiarities that come with providing medical care for crews at sea. For the final lecture of the day, Major (MC) Walter of the Department of Psychiatry then talked about posttraumatic stress disorder. She discussed symptoms and treatment options and detailed the measures that can be taken after traumatic and stressful experiences on deployment abroad.

This very informative series of lectures was followed by a cultural programme. During a guided tour of the city and the town hall, the guests gained an insight into the history of the Hanseatic City and were able to see for themselves what Hamburg has to offer beyond the Bundeswehr hospital.

On Wednesday, our colleagues from the Bernhard Nocht Institute once again opened the day's series of lectures.

Lieutenant Colonel (MC) Frickmann, a microbiologist and deputy head of the Department of Tropical Medicine, discussed basic hygiene measures that are vitally important given the crowded conditions inside of camps and the often insufficient infrastructure outside of them.

The rest of the day was devoted to lectures given by our British guests. The topics ranged from the career path of a medical service officer and the various opportunities for basic and advanced training to presentations by a number of participants on their individual careers in the British forces. An explanation of the medical training that medical service officers undergo within the British healthcare system was particularly informative.

There is just one military hospital in the United Kingdom. Medical officers receive medical training in hospitals operated by the National Health Service. Doctors are released from their duties at these hospitals for the purpose and duration of military training courses, such as officer education and training, pre-deployment training courses as well as maintenance of military competence and exercises.

Given the relatively small number of medical specialists in the Royal Army, it is impressive how many of them serve on deployments abroad.

In contrast, the system in the Bundeswehr Medical Service in Germany includes five Bundeswehr hospitals under military leadership where all segments of medical training take place.

Particularly the differences in terms of training in pursuit of the same objective of providing medical and military training for highly qualified personnel – and retaining this personnel in the long term – were the subject of lively discussions.

This was followed by a practical training session on the subject of crew resource management, conducted by the Department



British Medical Service officers practice the correct application of a tourniquet.

of Anaesthesiology, Intensive Care and Emergency Medicine. Pre-deployment cooperation and exercises will most certainly be important topics in the next few years, given the increasingly international nature of the work done on deployments.

On Thursday, the Tactical Medicine working group, led by Lieutenant Colonel (MC) Horst and supported by personnel of Helmut Schmidt University and from the 31st Paratroop Regiment in Seedorf, carried out Tactical Combat Casualty Care (TCCC) training. Different stations were set up on the hospital grounds for participants to practice and train skills such as applying a tourniquet, establishing intraosseous access on a medical practice dummy and performing an initial assessment of wounded soldiers according to the MARCH algorithm (massive haemorrhage, airway, respiration, circulation, hypothermia/head).

The training concluded with a military competition, which the British guests won by a narrow margin.

At the end of the week, the participants received their certificates of participation and were bid farewell by the Commander of Hamburg Bundeswehr Hospital.

They were also invited to watch the Grand Arrival Parade on occasion of the 830th Port Anniversary from the observation point at the Bernhard Nocht Institute.

It appears that Hamburg Bundeswehr Hospital and Defence Medical Group (North) close – not just geographically but also at the military medical level – and that the event was popular with all participants.

Hosting an annual event like this for young medical officers from NATO countries like a great idea.

All images: S. Herholt, Hamburg Bundeswehr Hospital

Lieutenant Colonel (MC) Daniel Hinck,  
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Captain (MC) Selina Dittrich,  
email: selinadittrich@bundeswehr.org

Department of General and Visceral Surgery, Vascular Surgery,  
Hamburg Bundeswehr Hospital

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# LITHUANIA



**Capital:** ..... Vilnius  
**Area:** ..... 65.200 km<sup>2</sup>  
**Population:** ..... 3.000.000  
**Official Language:** ..... Lithuanian  
**Armed Forces Personnel:** ..... 11.800  
**Medical Officers:** ..... n/a  
**Military Hospitals / Institutes:** ..... 0/n/a  
**Missions:** ..... n/a



## Surgeon General

Jolita Sesartienė  
*Lieutenant Colonel*



## The Office of the Surgeon General

Lithuanian Armed Forces  
 Military Medical Service  
 Vytauto 49  
 44331 Kaunas  
 LITHUANIA

## Basic Tasks of the Medical Service / Vision

The main tasks of MD Jonas Basanavičius Military Medical Service:

- to ensure medical support for military operations of the Armed Forces branches and subdivisions in Lithuania and beyond its boundaries in correspondence with NATO standards and assistance to the government and municipality institutions in extreme conditions in law determinate order
- to ensure soldiers and other lawful persons personal and public health care and specialized medical expertise performance
- to ensure military society education and training in military medicine field
- to ensure psychological care to military personnel

## Training

Military Medical Training Centre was established in 1999. There is a variety of courses lectured:

1. Military Medical Doctors and Military Medical Doctor's Assistance course (8 weeks)
2. Paramedics course (32 weeks)
3. Paramedics refreshment course (2 weeks)
4. Narrow specialization Military Medical Doctors and Military Medical Doctor's Assistance course for reserve (2 weeks)
5. Junior Medical Officers course for reserve (3 years)
6. Military Public Health specialists course (1 week)
7. Medical Instructors course (1 week)
8. Battlefield Advanced Trauma Life Support course (5 days)
9. Prehospital Combat Casualty Care course (4 days)
10. Basic Staff Medical Officers course (11 days)

11. Basic CBRN Medicine course (1 week)
12. Military Major Incident Medical Management and Support course (3 days)

## Field Deployments

MD Jonas Basanavičius Military Medical Service is responsible for medical support of military operations of the Armed Forces' branches and subdivisions in Lithuania and beyond its boundaries in correspondence with NATO standards and assistance to the government and municipality institutions in extreme conditions and law determinate order.

Medical Support Units Group consists of:

### 1. Land Forces Medical Support Unit

It consists of five Role 1 Medical Support Units and Role 2 LM (light maneuver) Medical Support Unit:

- Role 1 MSU provides Role 1 medical support with necessary treatment and evacuation capabilities for military units during military or other types of operations on BN level.
- Role 2 LM Medical Support Unit is being developed.

### 2. Air Forces Medical Support Unit

- Role 1 functions,
- 24/7 search and rescue team work;
- aeromedical evacuation with fixed-wing aircraft.

### 3. Naval Forces Medical Support Unit

- Role 1 functions;
- support on ships;
- divers medical care;
- hyperbaric therapy.

Role 3 and Role 4 medical support is provided at Lithuanian civilian hospitals.

# POLAND, REPUBLIC OF



**Capital:** ..... Warsaw  
**Area:** ..... 312.679 km<sup>2</sup>  
**Population:** ..... 38.437.000  
**Official Language:** ..... Polish  
**Armed Forces Personnel:** ..... 96.000  
**Medical Officers:** ..... 760  
**Military Hospitals / Institutes:** ..... 8/3  
**Missions:** ..... multiple



**Surgeon General (Civ)**  
 Dr Aurelia OSTROWSKA  
*Director*



**Department of the Military Medical Service**  
 Ministry of National Defence  
 Królewska 1  
 00-909 Warsaw  
 POLAND

## Basic Tasks of the Medical Service / Vision

The central institution is **Department of the Military Medical Service** of Ministry of National Defense (MOD). The Department is responsible for overall coordination of the Military Medical Service activities. The Surgeon General of the Polish Armed Forces is the head of the Department. Other institutions responsible for the medical functional area are:

**Directorate of the Military Medical Service** subordinated to General Command of the Polish Armed Forces (joint command of Army, Navy, Air Force, Special Forces and Inspectorate of Support) and Medical Service Division of the Inspectorate of Support.

### I. Department of the Military Medical Service – subordinated and supervised institutions

The majority of institutions and facilities (total number: 104) are subordinated or supervised by Department of the Military Medical Service. The stationary potential is located in 8 Preventive and Healthcare Regions.

#### Military Institute of Medicine in Warsaw (MIM)

MIM consists of The Central Teaching Hospital of MOD – the biggest military hospital in Poland (bed capacity: 978)

#### Military Teaching Hospitals

There are four Military Teaching Hospitals located in Wrocław, Bydgoszcz, Kraków and Lublin. There are three Military Hospitals employing civilian and military personnel and five Military Hospitals employing only civilian personnel.

### II. General Command of the Polish Armed Forces – subordinated medical units and institutions

The Role 1 elements are integral to military units. The Medical Support Groups of brigades provide Role 2 of medical support.

#### Military Field Hospitals

There are two Military Field Hospitals located in Bydgoszcz and Wrocław. The 1st Military Field Hospital in Bydgoszcz was recently reorganized. It comprises staff elements and Role 2E / Role 3 medical modules.

#### Polish Armed Forces Epidemiological Reaction Centre

#### Military Medical Training Centre in Łódź

#### Garrison Infirmaries

## Field Deployments

Military medical potential is organized to provide the best possible standards of medical care as well as the continuity of health-care and evacuation activities (Role 0 – Role 4). The equipment of Role 1-3 include:

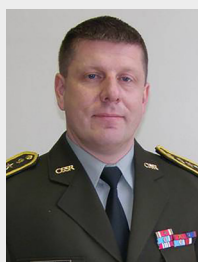
- mobile dressing rooms 20'ft container with tents (Role 1)
- immediate care unit based on tents system
- trauma room (triage)
- 40'ft containers – pre- and surgical rooms, intensive care unit and diagnostic/lab elements
- 20'ft containers – pharmacy and logistic equipment



# SLOVAK REPUBLIC



**Capital:** ..... Bratislava  
**Area:** ..... 49.030 km<sup>2</sup>  
**Population:** ..... 5.410.784  
**Official Language:** ..... Slovak  
**Armed Forces Personnel:** ..... 12.500  
**Military Hospitals / Institutes:** ..... 2/2  
**Missions:** ..... multiple



**Surgeon General**  
 Vladimír Lengvarský MD MPH  
*Brigadier General*



**The Office of the Surgeon General**  
 Slovak Armed Forces  
 Ul. generala Miloša Vesela 21  
 034 26 Ružomberok  
 SLOVAKIA

## Basic Task of the Military Medical Service

Military Medical Service provides basic and specialised diagnostic and therapeutic medical service for professional soldiers, retirees, relatives of soldiers and civilian patients and necessary medical and veterinary support during training and operations in multi-national military and humanitarian operations, search and rescue and relief-works.

## Structure

The Office of the Surgeon General is the central authority of the Military Medical Service of the Armed Forces of the Slovak Republic (strategic level). It is headed by Surgeon General of the Armed Forces of the SR who is the highest representative of the Slovak Military Medical Service. He is directly subordinated to the Chief of General Staff (CHOD) of the Slovak Republic. The Office of the Surgeon General has 6 divisions. In Slovakia there are two basic military forces – Army and Air Force. At the HQ of each of them (operational level) there are Medical Departments, which professionally manage and command individual medical troops within military units. Medical departments are professionally managed by the Office of the Surgeon General but are subordinated to the Army and Air Force Commanders. Each of brigades, AF bases and battalions (tactical level) have in their structure – Role 1.

The level of brigades and battalions includes the Medical Units (35) and their structure corresponds to Role 1. The level of the primary medical care within the armed forces includes Garrison Out-patient's Departments (19) and Health Centres (3), which ensure the primary contact of the members of the armed forces with the

medical service. These medical facilities are subordinate to the Central Military Hospital.

Central Military Hospital, Ružomberok (CMH Ružomberok): CMH Ružomberok takes an important position in the wide web of military health care facilities. It is the largest military hospital in the territory of the Slovak Republic with its ca. 1360 employees. This hospital belongs to the group III.A. type hospitals. The hospital consists of 18 clinics/wards. Its 400 beds are placed in 5 bed pavilions. All the hospital sections are fully supplied by 257 doctors. Hospital has accreditation to offer University level of education for hospital medical staff in cooperation with Catholic University in Ružomberok and its 22 doctors acquired a PhD and 6 doctors Assoc Prof and Prof Degrees.

## Institutes

Military aviation staff undergoes regular examinations at the Institute of the Aviation and Preventive Medicine in the Aviation Military Hospital, Košice, which is the only of its kind in Slovakia. Team lead by three 2nd degree specialized doctors provides examinations required by national law for all civilian air staff as well. Formerly mentioned hospitals together with St. Michal Hospital in Bratislava perform through their Occupation Medicine Depts. checkup of every soldier leaving for and returning from the operation. Tasks in the area of the public health service are covered by the Military Institute of Hygiene and Epidemiology, Bratislava (VUHE). Besides the tasks within this area, the VUHE also provides vaccination for the members of the armed forces who are sent abroad to carry out tasks in the foreign missions. All these institutions work closely together under the supreme control from the Office of the Surgeon General.

# Overview of all members of the MMCC

	<b>Belgium, Kingdom of</b>	<b>Surgeon General</b> Pierre Neirinckx MD, <i>Major General MC</i>
	<b>Czech Republic</b>	<b>Surgeon General</b> Zoltan Bubenik MD, <i>Brigadier General</i>
	<b>Estonia</b>	<b>Surgeon General</b> Targo Lusti, <i>Lieutenant Colonel</i>
	<b>French Republic</b>	<b>Surgeon General</b> Maryline Gygax Généro, <i>Lieutenant General</i>
	<b>Germany, Federal Republic of</b>	<b>Surgeon General</b> Dr Ulrich Baumgärtner, <i>Lieutenant General</i>
	<b>Greece (Hellenic Republic)</b>	<b>Surgeon General</b> Georgios Toulumis MD, <i>Major General</i>
	<b>Hungary, Republic of</b>	<b>Surgeon General</b> Dr István Kopcsó, <i>Brigadier General</i>
	<b>Italian Republic</b>	<b>Surgeon General</b> Nicola Sebastiani, <i>Major General</i>
	<b>Lithuania</b>	<b>Surgeon General</b> Jolita Sesartienė, <i>Lieutenant Colonel</i>
	<b>Luxembourg, Grand Duchy of</b>	<b>Surgeon General</b> Cyrille Dupont MD, <i>Lieutenant Colonel</i>
	<b>Netherlands, Kingdom of the</b>	<b>Surgeon General</b> Remco Willem Blom, <i>Commandeur (Rear Admiral)</i>
	<b>Norway, Kingdom of</b>	<b>Surgeon General</b> Jon Gerhard Reichelt, <i>Major General</i>
	<b>Poland, Republic of</b>	<b>Surgeon General (Civ)</b> Dr Aurelia OSTROWSKA, <i>Director</i>
	<b>Romania, Republic of</b>	<b>Surgeon General</b> Dragoş-Marian Popescu MD PhD, <i>Brigadier General</i>
	<b>Slovak Republic</b>	<b>Surgeon General</b> Vladimir Lengvaský MD MPH, <i>Brigadier General</i>
	<b>Spain, Kingdom of</b>	<b>Surgeon General</b> Antonio RAMON CONDE ORTIZ, <i>Major General MC</i>
	<b>Sweden, Kingdom of</b>	<b>Surgeon General</b> Claes Ivgren DVM, <i>Colonel</i>
	<b>United Kingdom of Great Britain And Northern Ireland</b>	<b>Surgeon General (Civ)</b> Peter Homa, <i>Director General</i>



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