EUROPEAN MILITARY MEDICAL SERVICES

2019

© Sanitätsdienst Bundeswehr/Bannert

BETA VERLAG & MARKETINGGESELLSCHAFT MBH

ZOLL®

IMPROVING OUTCOMES FOR EVERY ROLE IN MILITARY HEALTHCARE

FORCE HEALTH PROTECTION

MILITARY HOSPITALS

MILITARY / CIVILIAN COOPERATION

OPERATIONAL MISSIONS

For more than 25 years, ZOLL® has been a trusted partner delivering acute critical care technologies to the military. ZOLL is proud to honor your trust with unmatched commitment to those who care for others during operational, humanitarian, disaster and peacetime missions.

ZOLL helps improve survival outcomes and operational efficiencies. Thus, ZOLL devices are the products of choice as the standard chosen by many militaries in U.S., NATO and Global coalition partners.

Content

Dear Reader,

Releasing a new title is still something very special for us, and last year, when we published the first edition of the EUROPEAN MILITARY MEDICAL SERVICES, we eagerly awaited the reactions of the readers.

All of them were positive – we received a good deal of praise for our decision to advise and support the European medical services in their efforts to move closer together in publishing terms. That spurred us on, and you are now holding the second edition of EMMS in your hands.

We report on the activities and progress of the „European Medical Command“, publish two interviews with the Director of the Multinational Medical Coordination Center (MMCC), General Dr. Bruno Most and the French Surgeon General, Lt.Gen. Maryline Gygax Général, and are of the opinion that we have put together a whole series of exciting and interesting articles, for which we would like to thank all of the authors and advertisinig companies for their support and cooperation. Many thanks also to Peter Geschwill and Karen Thelen for coordinating the whole process.

Our focus will remain on EUROPE and we will also be reporting on this process and the developments next year.

I wish you a stimulating read and look forward to receiving your reactions, suggestions and contributions – please let us hear from you!

Heike Lange

Heike Lange
Publisher

Published by:
Beta Verlag und Marketing GmbH
Celsiusstraße 43
53125 Bonn
Germany

Tel.: +49 (228) 919 37-0
Fax: +49 (228) 919 37-23
E-mail: info@beta-publishing.com
www.beta-publishing.com
www.military-medicine.com

Managing Director: Heike Lange

Portraits of the Medical Services:
Brigadier General MC (ret)
Dr med Lutz Bandekow

Advertising: Peter Geschwill

Layout & Produktion:
www.two-up.de

Lt.Gen. Dr U. Baumgärtner, Surgeon General

Dear Reader,

Developments in security policy show that solutions to problems exceed national capacities. Even larger nations are having to change their thinking in order to turn „I" into „we". This applies in particular to the medical service. In Germany, in the city of Koblenz, the international centre for medical services in Europe is being created for this reason. The city has a long tradition of military history, as documented in particular by the mighty „Ehrenbreitstein" fortress, which is visible from a long way away and situated above the city. From here the view goes down to the Deutsches Eck and the confluence of the Rhine and Moselle Rivers, the place to which Koblenz also owes its name – „Castellum apud Confluentes", which in the meantime has developed into Koblenz. Roman, Prussian and short but distinctive French influences can still be felt here.

Upstream lies the Upper Rhine Valley, a UNESCO world heritage site. The transport connections, which are very important for an international headquarters, are more than sufficient. There are motorway connections in all directions and train connections to the airports in Cologne, Düsseldorf and Frankfurt.

At its summits in Wales and Warsaw, NATO responded with collective solidarity and the adoption of measures which are intended to strengthen the responsiveness of the Alliance. Multinationality is therefore clearly the key to success. With the Permanent Structured Cooperation (PESCO) within the EU and the NATO Framework Nations Concept (FNC), important preconditions have been created here to bundle the limited resources in a meaningful way. The next logical step was to institutionalise these forms of cooperation. This is precisely the task of the "Multinational Medical Coordination Centre" (MMCC) and the "European Medical Command" (EMC).

At the same time, we are under an obligation to develop a multinational network that will improve the quantity and quality of the support provided by the medical services of NATO and the EU through closer integration and coordination between the medical services.
The intention is to develop both initiatives - MMCC and EMC - together in one organisation. This avoids double structures with the resulting redundancies. NATO, as well as the EU, are currently facing major challenges, and will probably continue to do so in the future. Everyone will benefit from close cooperation between the nations in overcoming the common challenges. The MMCC/EMC will play a decisive role in providing multinational medical support services. Operations are supported from here directly.

In this way, we will be setting a few cornerstones with the MMCC/EMC in the next three years. Under the leadership of the Medical Services of the German Armed Forces and with the international participation of other medical services, the aim is for this element to become fully operational in support of NATO and the EU by December 2021. National solo efforts will then be a thing of the past.
At the same time, we are also moving in new directions organisationally: we will be creating a hybrid organisation. This consists of a core staff and experts distributed and networked in all nations and various institutions. These will then work together as required to provide the respective support services.

The MMCC/EMC is therefore an essential building block on the way to achieving successful international solutions.

Germany and the medical service are proud to have launched this project.

Dr Ulrich Baumgärtner
Lieutenant General MC and
Surgeon General of the Bundeswehr

One of the Important Partners within Europe – Interview with Lt.Gen. Gygax Généro, French Surgeon General

EMMS: Could you please be so kind as to describe the main structures of the Military Medical Services in your country? Are there any specific characteristics?

SG: As a joint service, the primary mission of the French military health service is to provide operational support to the forces. This support requires a range of medical, pharmaceutical, veterinary, dental, paramedical and medico-administrative procedures, the coordination of which is the responsibility of the division of operations.

To this end, the French military health service deploys a complete and coherent operational medical chain, implemented at all times, in all places and under all circumstances. Composed of non-combatant personnel, this chain represents the only service, which escorts the soldier as close as possible to the front line and often withdraws last from the theatre of operations. For that reason, the service constitutes a decisive support force.

To implement such a medical chain, the service relies on five components that form a coherent whole: medical clinics, hospital, research, medical supplies and training. Those require specific skills and expertise specific to the staff of our department.

EMMS: What role does the Medical Service play in your country's armed forces?

SG: The medical support to military units is composed of 16 regional medical centers (RMC), which run almost 200 armed forces medical clinics (AFMC). All the RMC are subordinated to the French military health service.

EMMS: How is the cooperation with other armed forces?

SG: It is structured with some countries (for example Germany), in the process of being formalized with some others, but all this is done under the cover of the Armed Forces Headquarters. However, the SSA retains a certain degree of autonomy according to its own objectives, particularly in operation.

EMMS: What developments has your Medical Service seen in the last 5 years and where do you see the specialist medical priorities in the future?

Lt.Gen. Maryline Gygax Généro, Surgeon General I (© BCISSA)

SG: The French Military Health Service has undergone significant transformations since 2013. To refine our model, we have been following two main guidelines: refocusing on our core mission, which is the operational medical support to the armed forces in operations, and opening up even further to the public health system and to the health services of allied armies.

These transformations included major efforts such as the release of 10% of our staff between 2013 and 2018, and an essential rebalancing at the benefit of the army medical support on the national territory, with additional human and financial resources. It also implied the establishment of strong and innovative partnerships between civilian and military hospitals in order for our military health practitioners to maintain high-grade skills.

My priority for the next few years is to consolidate these achievements, so that the Service fully remains the robust and effective operator the French armed forces needs for its medical support. We will also work on exploiting new

Forward mobile medical team (© COMLE)

technologies and improving operational efficiency - we are currently in the process of finalizing modern information systems and new operational medical units. Another decisive challenge will be to attract more staff and to retain them, in a context of direct competition with the civilian hospital sector.

EMMS: Many Military Medical Services suffer from a lack of personnel. What is your situation – are you able to fill all the positions and if not, where is there a specific shortfall?

SG: In a context marked by a situation of a competition between the different actors in the French health system, the SSA is facing difficulties in filling positions commensurate with its needs. This concerns in particular the military medical general practice and some of the hospital specialties, which is critical for the performance of the operational contract.

EMMS: What incentives do you use in order to convince applicants of the desirability of a position?

SG: Recruitment is therefore a major orientation of the SSA's HR policy and various actions have been taken to strengthen the attractiveness and retention of the medical staff. These actions (ongoing and future) concern different aspects:

- Promoting the values of our military medical service, which have been built from the last three centuries: the noblesse of our mission must be highlighted.
- Intensification of a specific recruitment communication using social networks.
- Implementation of new recruitment tools: „sourcing" contract entrusted to a specialized service provider, development of a „networking" strategy with the creation of a network of recruitment ambassadors, strengthening of „health - defense" training within faculties and health student training institutes.
- Improving the remuneration of practitioners through the implementation of incentives for recruitment or categorical measures to encourage physician retention.

EMMS: How is the quality of your technical equipment?

SG: Our equipment allows us to respond to all the spectrum of operations envisaged. We have particularly worked on the mobility of damage control surgery capabilities and the SSA has recently developed an in-flight surgical capability. At the same time, we are working on the renewal of the R2 segment in order to deploy a surgical capability in an austere environment, including two critical care stations, two surgical sites and four intensive care stations.

Medical simulation training on board (© Base aérienne 125)

EMMS: Cooperation on a European level is being intensified; one visible indication of this is the Multinational Medical Coordination Centre, MMCC. The medical service sector within the joint European defence policy is to be consolidated here. France has signed the PESCO Project EMC. How do you see France's role in this project?

SG: The PESCO was issued from the Lisbon treaty (2007) and aims to promote European defense. It was reactivated in November 2017. 23 EU countries, willing to engage further on European collective security and defense, agreed initially on 19 projects. EMC, the only medical one, was approved on December 11th 2017 and given priority number one.

In the spirit of 2016 Warsaw summit, COMEDS has issued a firm statement in its 49th plenary session to avoid duplication and thus merge this initiative with FNC/MMCC, with a broadened scope of missions, including operational ones.

Building such an innovative multinational organization, which will contribute to a stronger NATO and a stronger EU, can be challenging; this is why France participates actively to the steering group, bringing its operational experience and helping project leading nation with defining MMCC/EMC concept and governance.

EMMS: What are your expectations in this regard?

SG: Facing increasing and vivid threats, European nations must develop a common strategic vision and knowledge, understand each other, and be able to coordinate themselves to act promptly and effectively together. This new organization must enable all this. I expect it will include, in the near future, the European Medical Operations Forum (EMOF), which is the medical part of the European intervention initiative.

EMMS: Are there any particular points you would like to make us aware of?

SG: All European medical services face same organisational and operational challenges as human resource deficit, and solutions vary due to political and military national agendas. To continue a policy of strong international partnership appears, more than ever, paramount.

EMMS: Is there anything you would like to convey to our readers?

SG: Operational medical research and innovation, above all efforts, appear to be the real way ahead for upgrading military medicine and save always more lives.

EMMS: Lieutenant General, thank you very much for granting us this concise and highly informative interview.

The European Medical Operations Forum: Ecole du Val-de-Grâce – Paris 30th and 31st January 2019

F. Gonzalez

© F. TESTE - EVDG

„The place where MEDOPS meets and cooperates“

On January 30th - 31st. 2019, the French Military Health Service organized the first edition of the European Medical Operation Forum (EMOF) at l'Ecole du Val-de-Grâce - Paris. This French military health project is one of the many military initiatives that are being developed within the European Intervention Initiative (E2I).

As a reminder, the French E2I was launched by the president of the French republic on September 27th 2017. This initiative relies on a simple premise: Europe faces acute and common threats. It must therefore, develop a common strategic culture: the armed forces of the European countries must know, understand each other and be capable of reacting swiftly together. E2I aims at developing this common European strategic culture by establishing political, military bonds and cooperation to reinforce Europe's security and defence. Based on a pragmatic and an operation-orientated framework, the E2I reassembles 10 European countries , military capable of, and politically willing to ensure the security and the freedom of the European citizens through exchanges of officers, joint live exercises, doctrine and planning sharing, leading to common and shared military operations if necessary. The E2I is operation-orientated and does not interfere with any NATO or EU-PESCO capacity project. On July 28th 2018, Florence Parly, the French minister of armed forces signed the letter of intention together with the nine European partners.

With regards to the medical support of military engagements, we are also convinced that together we can improve our efficiency. The EMOF has been designed to gather the community of medical operations staff and allow them to know each other better, in a more informal manner, to present their organization, their operations but more importantly, to exchange their experience, concerns, and the challenges they are or will be confronted to, and find between them, the sensible and workable solutions that meet their needs, avoiding unnecessary duplications and redundancies, on an only „willing-to-re-

ciprocate“ agreement base. Delegates from Belgium, Denmark, France, Germany, Nederland, Portugal, Spain, United kingdom met in l’Ecole du Val-de-Grâce – Paris during two days and were received by Lieutenant General Maryline GYGAX-GÉNÉRO, surgeon general of the French military health service. This forum was an opportunity for MEDOPS staff to share the same professional issues and to speak in truth with the relevant level of confidentially. The exchanges were intense and the discussions remarkable by the high spirit of partnership and cooperation.

France offered to hold the permanent secretary in order to facilitate the organization of the forthcoming EMOF meetings, on an annual base but possibly, on request from a partner country, as often as needed, to help to maintain the network by facilitating the contacts between the members,

This meeting was unanimously appreciated and decision was made to meet again in l’Ecole du Val-de-Grâce- Paris next year in January for the next edition of the European Medical Operations Forum.

Médecin en chef Federico GONZALEZ
bureau relations internationales militaires
division opérations
direction centrale du service de santé des armées
France

Working on the Future – Interview with MMCC's First Director

General Dr. Bruno Most and Heike Lange, Publisher (Source: Beta Verlag GmbH)

EMMS: General Dr. Most, a year ago we conducted an interview with you as the new Director of the Multinational Medical Coordination Center – or MMCC for short. What has happened to the establishment of the Center this year?

Dir MMCC: First of all I would like to thank you very much for the opportunity to take part in this interview. This also gives me the opportunity to report on the current status of our project. The distribution of the „European Medical Services" by the Beta publishing house at the COMEDS Plenary in Prague last May had already attracted a lot of attention and interest in us, for which my staff and I were extremely grateful.

To your question – there have been many developments. A year ago we were faced with the challenge that as the result of a decision of the European Council, we were supposed to develop a so-called European Medical Command as one of 17 structured cooperation projects (PESCO) under German responsibility. The aim of this project is to support the provision of medical services for European-led deployments by providing appropriate skills and therefore also to strengthen the medical services share of a common European defence policy. When we considered the tasks which the founding nations of the MMCC demanded of us, we very quickly realized that both initiatives – the MMCC and EMC – have a common core in terms of content. For this reason we gradually arrived at the decision to bring together both projects under one umbrella. We benefited from the so-called NATO – EU Joint Declaration of 2016. In this, the member states of both treaty systems make it unmistakably clear that redundancies should be avoided wherever possible or – perhaps expressed more appropriately the other way around – that common added value should be promoted. A milestone for us was the fact that the Committee of Chiefs of Military Medical Services in NATO – COMEDS – gave us a strong endorsement at its plenary session in May. One of the statements submitted was „to maximize coherence and economy of effort and to avoid duplication, both initiatives should merge into one entity in a foreseeable future". That was precisely the central task for us last year. All workshops, conferences, bilateral discussions and conceptual papers served the one major aim of involving the participating NATO and EU nations in the realization and further development of the MMCC/EMC in such a comprehensive and transparent way that it was possible to turn the „make two into one" approach into reality as the basic idea. In November last year, the inspector of the German Armed Forces Medical Service set out this basic idea in a conceptual framework and distributed it to the member nations. The feedback to this was extremely positive, so that we make use of this concept as the basis for our further work.

EMMS: If you are talking about a NATO merger process with an EU initiative, then very different nations are certainly affected. What is the resulting picture?

Dir MMCC: With this question you have addressed a core aspect of our current activities. Indeed, the picture for the participating nations is very complex. We have nations that have signed both initiatives. In addition to Germany, these are the Czech Republic and the Netherlands. Then there are the nations that have so far only signed the joint declaration relating to the MMCC. These are Norway, Belgium, Hungary, Luxembourg and Estonia, with Great Britain having joined at a later date. And then there is the group of nations that have only signed the EMC PESCO project. These are Sweden, Romania, France, Spain and Italy. The challenge is to steer the interests of all of them in a common direction, while satisfying the national expectations of each individual nation. The inspector of the German Armed Forces Medical Service has invited the inspectors of all member nations of the MMCC and EMC to an Initial Operating Ceremony on September 3rd and 4th. This will provide an opportunity to sign a joint declaration which is intended to express this consistency of the common pathway that is being followed.

EMMS: ... and a standardised name?

Dir MMCC: A seemingly simple topic, but one which is difficult to implement. For the PESCO EMC project, the European Council has finally agreed on a name for this project. Our discussions with our partner nations showed that the concept of a Coordination Center is considered to be more appropriate than the term Command. We will take advantage of the time available in the next few months to find a joint term and incorporate this into the political decision-making process.

EMMS: We have now spoken a lot about political and conceptual challenges. What form does the work programme of your centre take?

Dir MMCC: First of all, when answering this question, we have to make it clear that we are currently only talking about a formation staff of seven German employees and a Dutch staff officer and that we are supported from time to time by a Norwegian and a British individual. We only speak of an Initial Operating Capability from September 2019 on, which includes participation in international exercises, for example. But we are already exceptionally active with the small team. The work programme is derived from the tasks of the MMCC and EMC, which means that the main focus is on developing joint medical service skills and creating a joint overview of the situation. Specifically, we hold workshops and small exercises on our own premises and in our member nations, assess the available skills and jointly seek ways of optimising them. The largest of these projects was a Table Top Exercise in December 2018, in which we assessed the management of a large number of patients in the event of a NATO Article 5 operation. We were able to show here that at the level of strategic management there is a lack of a controlling element and corresponding coordination procedures between a deployment area and the nations participating in the operation. Furthermore, we have conducted several command post exercises with partner nations, which on the one hand were intended to improve internal processes, and on the other hand provided us with further indications concerning the development of skills.

EMMS: You have just referred to patient management in times of crisis and war. Where do you see the MMCC/EMC in the case of defence action by the alliance?

Dir MMCC: Initially, the basic principles of the two initiatives only describe the coordination task in order to make better use of capabilities or develop new capabilities on the basis of a common overview of the situation. At the same time, however, the above-mentioned Table Top Exercise and the statement adopted by the inspectors of the NATO medical services in Prague showed that there is an urgent need for a strategic control element for patient management and medical services care in the so-called rear area and that this gap should be closed. This is precisely the possible task of the MMCC/EMC in times of crisis and war. We are offering our services for this task and creating corresponding food for thought. The decisive factor here is the corresponding concepts and instructions on the part of NATO which assign this task to us.

EMMS: Are there any operational areas other than NATO Article 5 Deployment Planning that the MMCC/EMC deals with?

Dir MMCC: Definitely. There are quite a few of our member nations whose focus remains unchanged on current deployments, especially in Africa. Here too, we want to improve the difficult personnel situation of many of our partners by determining and coordinating multinational solutions. This is how we are currently considering the provision of medical services for the European Training Mission (EUTM) in Mali from 2020 on. Here we are trying to offer a platform to a potential lead nation, with which several nations can come together to form a joint medical services deployment association. In addition, we are currently in the process of bringing together the medical service information available to our partners on current crisis operations in order to form a joint overview of the situation.

EMMS: General Dr. Most, thank you for this interview.

GENERAL DYNAMICS
European Land Systems

EAGLE
Family of Vehicles

Best Protection and Mobility for a broad Mission Spectrum

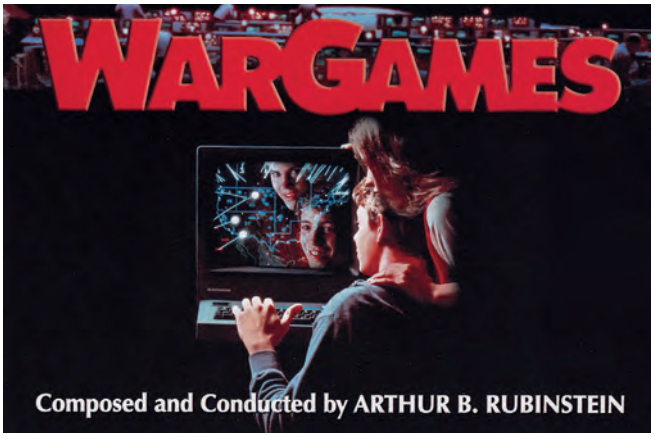
gdels.com

The Transatlantic Partner for Land Defense in Europe

Medical Table Top Exercises – Improving Healthcare trough (War)Gaming

J. Muntenaar

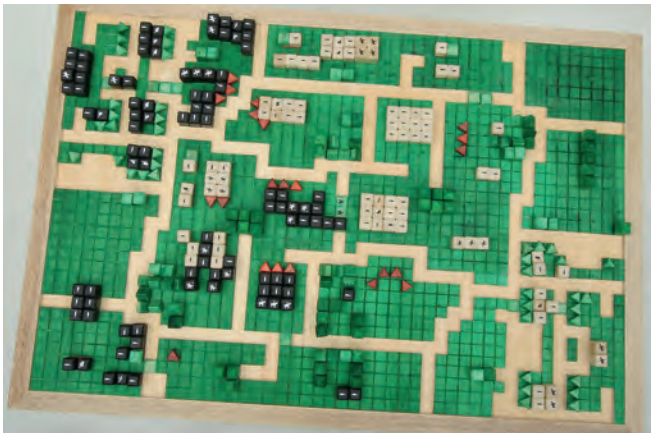
WOPR: Shall we play a game?
David: How about Global Thermonuclear War.
WOPR: Wouldn't you prefer a good game of chess?
David: Later. Let's play Global Thermonuclear War.
WOPR: Fine.
David: What is the primary goal?
WOPR: You should know that, Professor. You programmed me.
David: Oh, c'mon. What is the primary goal?
WOPR: To win the game.
David: Is this a game or is it real?
WOPR: What's the difference?
David: Oh, wow.



Movie Poster Wargame

The text above is a scene from the 1983 movie "WARGAMES". The film about a young hacker David Lightman who unwittingly accesses a US military supercomputer WOPR (War Operation Plan Response) programmed to predict possible outcomes of nuclear war. David gets WOPR to run a nuclear wargaming simulation, believing it to be a computer game. WOPR now tied into the nuclear weapons control system, unable to tell the difference between wargaming and reality, attempts to start World War III.

Wargaming a technique as old as war itself is seeing a revival in recent years in all fields of military including healthcare. During the past year, the Multinational Medical Coordination Centre (MMCC) organised several wargames to assist military medical units from different nations in achieving their goals. The simple (war)gaming techniques are a very efficient and cost-effective way to train units, build and test concepts or rehearse an operation or exercise. The MMCC sees wargaming as a tool/technique for exploring human decision-making."



Hellwig's Board Game

This article will discuss various techniques of wargaming and how these are used to improve military healthcare. I will first provide some historical background on wargaming, followed by a short review of the six essential elements the MMCC uses for a wargame. Then I will discuss three different types of wargaming based on their purpose, level of play and outcome.

A SHORT HISTORY OF WARGAMING

Wargaming is as old as armies fight, assessing the best strategy against their opponents. In its modern form it originated from the game invented in 1870 by Johann Hellwig a college professor in Braunschweig (Prussia). Many of his students where young noblemen destined for military service as an officer. Hellwig designed a game based on chess by which he could teach the basic principles of warfare to his students. The game played on a grid of color-coded squares representing different types of terrain. Players could set up the layout of the battlefield by moving the colour coded terrain grids prior to a game. Others followed Hellwig with their version of a wargame.

A criticism of these wargames was that the pieces moved in chess-like fashion, which of course, does not reflect how real troops move. This led in 1812 to the presentation by the Prussian noblemen and Officer George von Reisswitz of a new board game for the representation of tactical manoeuvres under the guise of a "KRIEGSSPIEL" - Wargame. After a demonstration in 1824 by von Reisswitz son

Lithuanian R2 Table Top Exercise Overview gameroom

to the Prussian King and the Chief of the Prussian General Staff the improved version became the Prussian Army "Kriegsspiel". Other nations followed when Prussia defeated France in the Franco-Prussian War, credited by many to the Prussian wargaming tradition. Over the next two centuries, the national armed forces employed various forms of wargaming for training and planning purposes.

All through the First and Second World War, campaigns were supported by wargaming efforts. A famous quote on this is by Fleet Admiral Chester Nimitz (USN) who explained after WW2: *"The war with Japan had been re-enacted in the game rooms here by so many people and in so many different ways that nothing that happened during the war was a surprise — absolutely nothing except the kamikaze tactics towards the end of the war; we had not visualized those."*

SIX ESSENTIAL ELEMENTS

At the core of a good (medical) wargame there are six essential elements:

1. Purpose: why are we doing this?
2. Objectives: what is it we want to achieve?
3. The Wargame: written in terms of Scenario, Scene and Setting;
4. Game rules: explicit or understood regulations/principles to conduct the Wargame;
5. Players / Participants: sometimes known as the Training Audience (TA);
6. Facilitator(s): to guide exercise play making sure rules are followed and issues are explored as thoroughly as possible.

The purpose and objective of a wargame.

When requested to support a unit with a wargame the first question that comes to mind is "what is the aim of the game?" Take a couple of minutes to discuss with the unit and define the reason they want to execute the wargame (purpose), what they expect to accomplish (objectives), and the limitations of the wargame (scope). These parameters need to be established to keep the wargame focused.

Purpose – the reason. During conversations with the requesting unit the purpose is refined. The tree examples below for a similar level Table Top Exercise (TTX) for a Role 2 Basic (R2B) hospital from tree different organisations (Norway, Balkan Medical Task Force and Lithuania) show a different purpose and therefore lead to a different type of TTX.

1. The purpose for the Norwegian R2B TTX was *"To test, evaluate and improve the internal operational procedures as preparation for NATO Medical Evaluation."*
2. The purpose for the Balkan Medical Taskforce (BALKAN MEDTF) was *"To refine and improve the internal MASCAL response procedures as preparation for the execution of the NATO medical exercise VW19."*
3. The purpose for the Lithuanian R2B TTX was *"To improve the R2B internal operational procedures and the interface with the Civilian - Medical world."*

Objective – outcome to achieve.

The main objective to achieve can be derived from the stated purpose. In the case of the Norwegian R2B, the outcome is the "Improved internal operational procedures with a focus on passing a NATO Medical Evaluation."

MEDICAL COUNTERMEASURES FOR

BIOLOGICAL AGENTS CHEMICAL WARFARE AGENTS INFECTIOUS DISEASES EMERGENCY PUBLIC HEALTH THREATS

emergent biosolutions®

For 20 years, one thing has remained unchanged at Emergent BioSolutions Inc.: our mission to protect and enhance life. We provide medical countermeasures for civilian and military populations that address accidental, intentional, and naturally occurring public health threats. We are the industry leader you can rely on to safeguard the health and well-being of communities around the world.

emergentbiosolutions.com

With the main objective stated during analysis and discussion with the unit a number of subordinate training objectives can be defined. In the case of a R2B Table Top Exercise with an internal focus these usually focus on the Command and Control of the R2, the internal R2B patient care pathway with interface management between the different modules or departments and internal resource management.

The Game and its Game rules.

After the purpose and the objectives are agreed the Game manager needs to find the most suitable Wargame method to fulfil the objectives. In the examples for the R2 TTX, this is achieved by a simple scenario. Bringing people into a scenario, will improve participation (involvement). In the case of a wargame where the Medical Branches from an Army Division and the Medical Branches of the subordinate Brigades are exercised within a tactical concept, a proper "content rich" scenario is the basis for a good wargame, and intense discussion during the After Action Review.

The MMCC divides gamerules into general rules, focussing on behaviour of Facilitators and Participants. A second group of game rules focuses on military / operational factors, which define the use of military resources. The third group of game rules define military medical details like medical staff in the system, casualty rates, capacity calculations for hospitals and medical evacuation rules etc.

Participants and Facilitators.

The participants of the game are defined during the discussion with the unit requesting the wargame support based on the goals and objectives to achieve. As for the Facilitators, always a Lead Facilitator oversees the game and the direct action. A number of facilitators that assist / control part of the participants during the wargame supports the lead Facilitator. If the wargame has specific technical goals a subject matter expert is a must. In the case of a Role 2 Medical Facility internal training, which is focussed on (surgical) patient treatment, at least 1 SME clinician, usually a Trauma physician / surgeon, is present. The role of Lead Facilitator requires some experience of performing wargames.

Being present as a facilitator with several games over the time of one or two years normally is sufficient to build up experience. Personally, I benefit much from the time spent as an Observer/Trainer/Evaluator (OTE) at our national medical education and training centre where I received my OTE training. The OTE skill set covers much of the Lead Facilitator skill set for wargames. The OTE role provides good experience in managing Training Audiences / participants and group dynamics.

1st (DEU) Armoured Division STARTEX BRIEF MEDICAL WARGAME

PLAYING THE GAME

In December 2018 MMCC organised a Strategic Evacuation Wargame on request of the NATO PECC STANAG writing team. The aim was to conceptualise the NATO medical evacuation system during an Article 5 operation from the rear area of land brigade Role 2 hospitals embedded in Multinational divisions & army corps back to their national Role 4 hospitals. For this wargame, some 25 participants from 14 NATO nations were present for 4 days of wargaming to detail out all the issues modern warfare will have on the patient care pathway. During this Wargame, a joint approach with a maritime and air force contribution was executed. The scenario used was NATO's SKOLKAN scenario as build by the JWC in Stavanger. The MMCC team functionally enriched it with the sufficient medical detail and a Daily Casualty Rate to generate sufficient workload throughout SACEUR's AOR. The insights gained during this wargame are used to develop the Art 5 concept of "PATIENT FLOW MANAGEMENT" that will enable us to organise patient movement from the Division / Corps rear area's to the National R4 hospitals.

With a request in February 2019 from the 1st (DEU) Armoured Division the MMCC was able to fullfil one of its core tasks, " To enable larger formations operations". The wargame in May 2019 for the 1st AD was focussed on the internal procedures between Division and subordinate Brigades medical branches during NATO Art 5 operations. As with the December strategic wargame NATO's SKOLKAN scenario was used but now with a more detailed content including maps with 1:50.000 detail level. During the game four phases were executed, familiarisation of the participants with the combat organisation of the division. Followed by planning and familiarisation with the combat medical support organisation of the Division. In

the next phase a low intensity casualty flow was generated to establish procedures, followed by a high intensitity (war-level) casualty flow to test concepts and procedures.

Due to the greater level of detail and the size of the participants four (4) facilitators / Subject Matter Experts (SME) from BEL, DEU, EST and NOR were assisting the Lead Facilitator. These facilitators fulfil several tasks, they manage one of the Brigade Medical staff and are in some cases subject matter expert on detailed issues. In the case of the Estonian colleague his presence was, given the Estonian Area of Operations, a must. His presence enabled us to detail out the Estonian physical, social and human terrain, to play the Estonian military liaison and provide in dept knowledge of the Estonian healthcare system. The outcome of the exercise is a better understanding by all, this includes the Facilitators (they learn to) on Divisional level operations and the possibility to adapt and improve the internal procedures.

The final example is a Wargame at technical level, on a request from Lithuania to test the internal procedures for a Role 2 Basic Medical Treatment Facility (R2BMTF). This exercise lasted for a whole week in March 2019 at the Lithuanian Military Medical facility in Kaunas. Given the high technical level of this game the choice was a Table Top Exercise (TTX) were the participants would be provided clinical cases and feed back while moving the patient through the R2 departments. Doing this requires prepared medical cases with all clinical detail (Lab & X-ray) and a competent clinician who is able to act as clinical facilitator. Through cooperation with the MILMEDCOE we normally team with The chief of Training Branch Col Dr Peter Vekszler who is an excellent clinical facilitator / trainer. A similar TTX was also performed in January 2019 for the Norwegian Joint Medical Service R2B at the Dutch Training facility in Hilversum and in February in Skopje (Macedonia) with the Balkan Medical Task Force using a Mobile Team.

Other than most people think, these technical R2 TTX's are not focussed on clinical treatment performed by individual clinicians. The clinical part is an essential scenario part performed by the participants to produce information flow and generate diverse activities within the Treatment Facility. The focus of these TTX's is on Decision making, Internal Communication and information management, division of labour, sustainability of operations, Interface management of the core modules within the facility and patient safety. In other words how do the different departments inside the facility work together under good leadership to create proper patient care outcome.
One of the major advantages of a technical TTX is its simplicity in design and resources and the power to create understanding by involvement, as the wise Confucius said "Tell me and I will forget, show me and I may remember, involve me and I will understand."

To generate understanding, in the planning of the game sufficient time to reflect on the game play must me scheduled in. Without reflection, there is no learning and understanding. The role of the Lead Facilitator is to lead the game reflection by an After Action Review (AAR). Preparation usually involves taking a couple of minutes to discuss with his facilitators / SME´s there observations and then formulating some lead questions to start the AAR (AAR). Questions focus on "what was to be achieved?" or "did we achieve our goals?". Where did we achieve them, where not and how to improve?

During the discussion the Lead Facilitator, with the help of the other facilitators guides the participants through their issues towards a solution of their choosing. The chosen solution will be incorporated into their procedures and tested during the next phase of gameplay.

The MMCC, in the last seven months, has performed seven different wargames on request of different nations/ organisations at "Strategic-, Operational and Tactical/ Technical level and achieved very satisfying results. The effect achieved is that participants achieve a better understanding of the role of their own department and the interwoven dependency with other departments in the same organisation.

This article expresses my personal experience and vision on how to use the wargame tool for medical purposes. The simple yet effective tool of wargaming does not require advanced, expensive complex resources. It requires creativity, courage and an experienced facilitating team. As MMCC one of our main goals is to support the military medical society with the development of (Larger) formation medical support. The tool of wargaming is one of these tools to achieve this goal.

"Just as warfare has often served as inspiration for wargames, so wargames can be, and often have been, played not just by amateurs (from the Latin amatores, lovers) for their own sake but by the military for training, planning, and preparation too. To the extent that they allow and force players to strategize, indeed, they are not merely the best form of training but the only available one."

– *M. van Creveld, Wargames: From Gladiators to Gigabytes, Cambridge University Press 2013*

By LTC Jürgen Muntenaar Royal Netherlands Army Medical Service.

emergency | disaster | hospital

german ercelliance

German Ercelliance Portable Oxygen System – GEPOS

Enhance Tactical Possibilities. World's First Ultra-mobile O_2 System incl. Touchpad Display

Medical Oxygen is often simply not available in crisis regions. Deploying the compact GE-POS gives you a simple Plug and Play Portab-le Oxygen System, which can be connected directly to medical devices, providing O2 for several ICU patients. Enhancing your tactical possibilities by accelerating the provision of essential medical infrastructure thus saves more lives. The MIL Standard casing is airtight, watertight, sandtight, has integrated wheels and is stackable. An O2 cylinder filling System (GEPOF) is available as an option.

Please contact us for more information.

german ercelliance GmbH
Hans-Henny-Jahnn-Weg 53
22085 Hamburg / GERMANY

T: +49 (0)40/88 1 55 848
F: +49 (0)40/88 1 55 747
E: sales@ercelliance.com

www.ercelliance.com

iSimulate / Mobile Simulation – Robust, Realistic and Cost Effective

Dr. Josef Eigenstuhler, Manager Europe, iSimulate Pty. Ltd.

iSimulate provides smart simulation solutions that are used by armed forces across the world. Our mantra is simple – we use the best of current mobile technology to create products that are more realistic, cost effective and simpler to use than traditional simulation solutions. The company offers robust, mobile and cost-effective products for all areas of medical simulation including military emergency- and intensive care medicine. The Italian armed forces used our new product "REALITi" to train their staff at Vigorous Warriors this year.

HEMS Training: REALITi is an ultra-portable Training device for emergency medicine.

Our Approach:
Medical simulation is traditionally very strongly associated with CPR manikins. The increasing demands on reality and functionality led into an increase in costs, service and vulnerability of those simulators. At the same time, the operability worsened due to the rising complexity. iSimulate decided to take a different path and completely separated the simulation technique from the manikins. Through the use of two iPad devices linked via WiFi, a facilitator and a student can interact over a simulated scenarios. The facilitator is able to alter the clinical parameters and the student witnesses the changes real time. Its simple setup makes it great for in-situ training and provides a super realistic simulation experience, enabling high-fidelity simulation even in low fidelity situations.
Our new product "REALITi 360" is a modular simulation ecosystem incorporating a patient simulator, CPR feedback and video in a single system. Starting with 2 iPads, REALITi is a highly advanced patient monitor simulator which mimics proprietary monitors and defibrillators such as Zoll Propaq, Corpuls C3 and many others. By adding more modules, a complete in-situ simulator with live video streaming, CPR feedback and simulated patient records can be created.

Why iSimulate products are particularly suitable for training in military medicine:

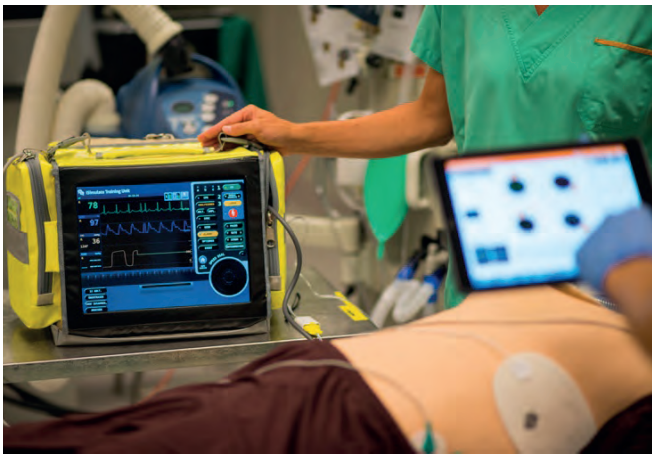
Portable:
We enhanced the simulation even further with version 7 of our well known, yellow bag and are releasing a hard case this year as well. This custom designed case secures the iPad and the Wi-Fi router inside its own compartment, giving it the look and feel of a real monitor/defibrillator. There are side bags to store all your leads and power supplies, camera-studio etc. to make the unit ultra-portable. Train in the OR container, helicopter, or other mobile MedEvac vehicles and take your training to a new level.

Realistic:
Working with many defibrillator and monitor manufacturers, we have created hyper-realistic interfaces which look and work like the real thing. Defibrillator screens from Zoll, Corpuls, Philips and many more are included, and we are continually updating REALITi.

Intuitive:
If you own or use a smartphone or tablet, you already know how to use REALITi. Our gesture-based control panel is built to provide advanced functionality without the complexity of traditional systems, providing a seamless user experience from start to finish. We are able to do this by utilizing current technology, enabling you to have access to highly advanced simulation technology without having to worry about the costs that are usually associated with this level of simulation.

Cost effective:
Use REALITi with every type of manikin available on the market enabling high-fidelity simulation even with low fidelity manikins. Use it with standardized patients and you will gain the most realistic scenario you´ve ever had.

Comprehensive:
REALITi allows some additional nifty features like being able to flash up an X-ray or CT Scan, ECG, lab results or a clinical photograph to the additional electronic patient chart can help prompt the participants.



Different Skins: REALITi mimics your defibrillator.

iPads: Technology you already use in your daily routine.

Additional Modules:

CPR Module:
The CPR module generates real time waveforms and real time feedback on rate and depth device specific CPR dashboards. The module activates CPR features on proprietary screens such a Zoll and Corpuls.

Video Module:
Live stream your video wirelessly by just adding another iPad to your system. Clear head-up display of all vital signs and waveforms and easy review of the recorded time marks will complete the system.

Summary:
The features listed above clearly demonstrate the benefits of the iSimulate patient-simulator "REALITi". Flexibility and mobility make the system a reliable companion in every emergency situation training. iSimulate offers solutions that help to ensure the highest quality of medical education and training for users in military medicine.

Additional information via our website:
www.isimulate.com or info@isimulate.com

Multinational Exercise „Vigorous Warrior 2019“

N. Seumenicht

In April 2019 the multinational medical exercise Vigorous Warrior 2019 was held in Romania. 26 NATO nations, 13 partner nations and 12 aid organisations practised for an emergency in Cincu – at the national training centre, in Câmpia Turzii, in Bucharest and in Constanta at the Black Sea. This resulted in the largest NATO exercise so far with a total of 2,500 participants.

Colonel Dr. Salvatore Schmidt, Deputy Director of NATO's Military Medicine Competence Centre of Excellence in Budapest, Hungary.

The „Vigorous Warrior“ series of exercises has been held every two years since 2011. The exercise is organised by the NATO Centre of Excellence for Military Medicine (MilMed COE), which is located in Budapest, the capital of Hungary, in close cooperation with the host nation in each case. This year's exercise focused on realistic scenarios such as outbreaks of hostilities immediately after NATO invokes its mutual defence clause under Article 5 of the North Atlantic Treaty.

Soldiers and civilians working together

Colonel Dr. Salvatore Schmidt, Deputy Director of NATO's Military Medicine Centre of Excellence and Deputy Commander of the Vigorous Warrior 2019 exercise, explains: *„For the first time, not only soldiers, but also civilians are taking part in this exercise. We have developed a corresponding scenario. There are various treatment facilities, the so-called role 1, role 2 and role 3 – various field hospitals. In addition, we have set up a refugee camp. In the case of the invocation of an Article 5 scenario or another military conflict, it can be assumed that not only soldiers will be injured, but that civilians will also be affected and, for example, will have to leave the area where they live. These will be looked*

Lieutenant General Dr. Ulrich Baumgärtner, Surgeon General of the Bundeswehr, took time to speak to his soldiers.

Captain Jochen Schäfer, Company platoon leader of the 9th Company, Medical Regiment 1 in Berlin and the local commander of the Medical Regiment 1.

The German participants from Medical Regiment 1 in Berlin at the exercise in Romania.

after at the refugee camp and, if necessary, also provided with medical care.“ The civil forces play different roles in the exercise as well: the Romanian rescue service SMURD, HUNOR (Hungarian National Organization for Rescue Services), Malteser International and others. They then work closely together at the camp for Internally Displaced Persons (IDP).

Colonel Dr. Schmidt adds: *„During the exercise, various roles are performed, which are acted out by us and to which all participants in the exercise have to react. This requires good actors who simulate corresponding injuries in order to provide the most realistic picture possible for the medical services“.*

OR containers from Berlin

Captain Jochen Schäfer, Company platoon leader of the 9th Company, Medical Regiment 1 in Berlin and the local commander of the Medical Regiment 1, explains that Medical Regiment 1 had set up the OR containers for multinational role 3 prior to the exercise. This means that Medical Regiment 1 provides the surgical care in the exercise scenario. During the exercise the aim was to keep this fully functional and operational. There were 14 soldiers on site: technicians for electricity, air conditioning and water, nurse/anaesthesia assistant and personnel for „Organise and Fetch“. With their technology and expertise, they showed the other nations how to operate the German devices. „For example, due to our different tent systems, it was a challenge to connect our sluices to the air-supported tent of the Romanians. We worked on a solution together. We supported each other,“ Schäfer adds, emphasising the good cooperation with the nations on the ground.

Remaining healthy is the top priority

As in many other southern and eastern European countries, there are thousands of homeless dogs living on the streets in Romania. Many of them are sick and undernourished, and some of them also came into the camp. U. S. Army Veterinarian Captain Stephanie Tower was responsible for food safety and animal care in Cincu, among other things: „With the permission of the Romanians we also sterilised stray dogs in the camp. I point out that no one should touch or feed stray dogs, as they might transmit diseases.“ In order to be able to provide medical care for dogs that are specifically deployed in the military, Tower and her team practise real patterns of injuries on a so-called Dog Simulator, which weighs a whole 40 kg: from intubation to the simulation of bleeding wounds, many things are possible.

Dentist during the exercise

The Belgians worked together with the Norwegians, Danes and Americans. At the request of the Norwegians, a dental treatment container was integrated into a Role 2 facility of the Belgians – this is not standard practice. Captain Eric Dewaelheyns is the Commander of the Belgian Role 2: „We work closely together and simply try out things that are not usual elsewhere. This helps us to make progress in our work.“

Closing words

The Surgeon General of the Bundeswehr, Lieutenant General Dr. Ulrich Baumgärtner, sums up his visit to Cincu as an official inspector with a nod of approval. *„I am impres-*

Running smoothly - the cooperation between the different nations within the framework of the Vigorous Warrior 2019 exercise.

The Norwegian dentist treating a Belgian patient.

sed by how well the different nations work together and the curiosity with which they approach one other and present and explain their devices to each other."

The next Vigorous Warrior exercise will be held in 2021.

First Lieutenant Dr. Nadine Seumenicht
Kommando Sanitätsdienstliche Einsatzunterstützung
(Operational Medical Support Command)
Sachsen-Anhalt-Kaserne
Zeitzer Str. 112 | 06667 Weißenfels

All Images: Sergeant Minh Vu,
First Lieutenant Dr. Nadine Seumenicht

French Republic

Capital: ..... Paris
Area: ..... 643 801 km²
Population: 66 607 602
Official Language: ..... French
Armed Forces Personnel: 278 715
Medical Officers: 1.827
Military Hospitals/Institutes: 8/3
Missions: ..... multiple

Service de santé des armées
Votre vie, notre combat

Surgeon General
Maryline Gygax Généro
Lieutenant General

Ministère de la Défense
Direction Centrale de Service de Santé des Armées
60 Boulevard du Général Martial Valin
CS 21623
75 509 Paris cedex 15

Basic Task of the Military Medical Service

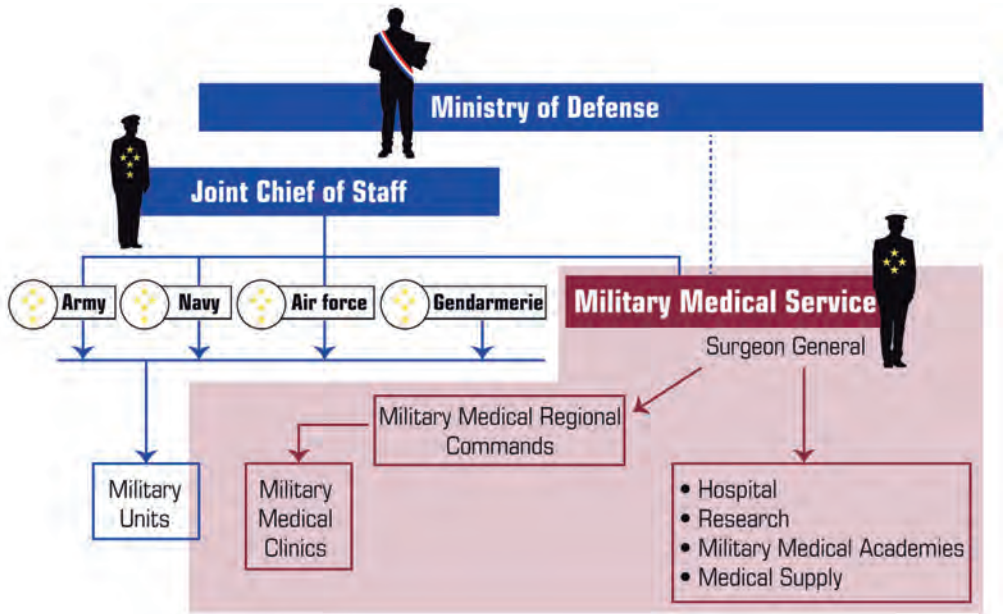
The main mission of the French Military Medical Service (Service de santé des armées) is to provide a medical support of the Armed Forces everywhere, in any time and any operational circumstances.

Structure

The French Military Medical Service (FMMS) is placed under the authority of the Joint Chief of Staff and its headquarters are located in Paris, since 2015: Balard (south-west area) and historically in Vincennes (east of the Capital)

The Military Hospitals

The component of the FMMS is going through a major reorganization (SSA 2020 Project). The new hospital model principles are focused on operational tasks and an opening to the civilian and public health system. Within this framework, 2 platforms with 2 military training hospitals each and close to an air force base: Paris and Toulon-Marseille areas which activities are focused on trauma, surgery and infectious diseases. Additionally, the FMMS still incorporates 4 other military non-platform hospitals (Bordeaux, Brest, Metz and Lyon) which activities are based on several principles such as intensive care and surgery integrated in civilian hospitals, the rehabilitation of physical and mental injuries, the response to a



sanitary crisis, several armed forces medical clinics linked with emergency military hospitals units or a common civil-military management as well. Since 2015, several major events lead the FMMS to improve significantly its cooperation with the Ministry of public health establishing specific trainings (war surgery in national territory, military medical support to civilian population) and the military hospitals became a main actor in this context.

The Armed Forces Medical Clinics

The medical support to operations, and on the national territory, is provided by military healthcare personnel who work through Armed Forces Medical Clinics (CMA). Covering the whole country, these ones are active overseas, onboard Navy ships as well as beside the French troops abroad. Since 2014, the primary healthcare provided to armed forces is on a complete evolution to provide an adapted medical support to each branch (Army, Navy, Air Force and Gendarmerie). Armed forces medical support has to be considered more through a specific organization than from a territorial approach as today. By 2018, these Armed Forces Medical Clinics will be led by a medical command facility called "medical armed forces new generation clinics" (CMA NG) through a priority given to the type of support. Offering the most dapted medical support to different types of military units (flying personnel, paratroopers, divers …), their goals remain healthcare, expertise, pre-deployment training and deployment. These CMA NG will be responsible for Command and Control the Armed Forces Medical Clinics and will draw up all administrative, financial and management tools.

Military medical supply chain

The mission of the FMMS Military Medical Supply Chain (MMSC) is to provide medical supplies and replenishments to its units whenever and wherever a medical support is needed. This means that MMSC delivers and sustains support to the continental units as well as to the overseas units and to the deployed operational units.
The structure of the MMSC relies on a directorate and 5 specialized centres:
1. The Armed Forces Drugs and Material Directorate settled in Orléans (DAPSA) heads the MMSC.
2. The Armed Forces Drugs and Material centres settled in Vitry-le-François and in Marseille (ERSA).
3. The Armed Forces Pharmaceutical centre settled in Orléans (PCA) is both a pharmaceutical R&D laboratory and a factory.
4. The Armed Forces Medical Material Development and Main tenance centre settled in Orléans (ECMSSA) is the engineering centre for biomedical equipment.
5. The Armed Forces Blood Transfusion Centre settled in Clamart (CTSA) deals with blood products such as plasma, platelets and blood cells.

Armed forces Centre for epidemiology and public health

The Armed forces centre for epidemiology and public health (CESPA) main mission is to implement public health policy within the French Defense community.
To achieve this goal, the CESPA is divided ito 4 departments with specific missions:
1) The Military Health Intelligence Department whose mission is to identify potential health risks for Armed forces.
2) The Health Surveillance and epidemiology Department that monitor the health of the Armed forces and perform investigations of health events.
3) The Epidemiology and Clinical Research Department that is responsible for clinical and epidemiological research methodology support and education.
4) The Health Promotion, Prevention and Programs Department whose mission is to develop health education and evaluation of projects.
A fifth department is to be created to implement Pest and Vector Control policy for French armed forces. Public health is a large field, at crossroads between several medical specialties and social sciences. Hence, CESPA works on several topics, on communicable diseases such as malaria, arboviruses, diarrhea or sexual transmitted infections; but also on non-communicable diseases like post-traumatic stress disorders, addictions or physical injuries due to military/ sports training. To complete its activities, CESPA takes part or organizes several training courses for civilian and military students in relation with national universities and international bodies like NATO Military medicine centre of excellence. It also takes part to several expert committees to produce guidelines in its areas of expertise. Finally, CESPA has developed international collaboration with several organizations notably with NATO.

Medical Education/Training

Three schools ensure the initial and general training of the personnel of the FMHS: the "Ecole du Val-de-Grâce (EVDG)" in Paris, the Military Medical School (ESA) in Lyon, and the paramedical Personnel School (EPPA) in Toulon. In collaboration with the University and the nurses education institutes, this education give to all students state diplomas for medical and paramedical in all the variety of medical and paramedical specialties. The basic military education, and specific courses given in parallel, prepare them for operational missions in military contexts. Ne-

vertheless, the structural changes of the French Health Service induce a gradual transfer of the EPPA from Toulon through the ESA site in Lyon. The training of nurses and nursing assistants will be outsourced to civilian education institutes in Lyon.

Ecole de santé des armées (ESA)

The French Military Medical Service academy in Lyon-Bron was inaugurated on 1st of July 2011 after the two medical schools based in Bordeaux and Lyon closed their doors. The global mission of the military medical corps comprises four main steps regarding (academic) education and (professional) training for physicians. We help our cadets to become great practitioners throughout their time at university by providing them with all the logistics and scientific means they need. They follow military training to acquire the skills and abilities that officers should possess. They are also trained to provide medical and urgent care in a challenging environment and in combat under fire. This represents an 1800-hours course delivered during the six years spent in the academy. Once the course is completed, they are awarded a professional master in addition to their medicine doctorate.

Ecole du Val-de-Grâce (EVDG)

Born on 1st October 2005, the Ecole du Val-de-Grâce (Military Medical Academy) is the heir to the Ecole d'Application du Service de Santé des Armées. Its aim is firstly to bring together all the teaching and training of the various military medical personnels. To this end, it relies on the Military Medical Academy of Lyon, the paramedical personnel School of Toulon, the military hospitals and any military medical facility that provides training. Moreover, it organizes further education for physicians, pharmacists, veterinarians, dentists and administrative officers, adapted to their missions for different armies. It also provides ongoing training of officers in active duty or reservists, nurses and specialized paramedical technicians, as well as foreign students.

Defense Biomedical Research Institute (IRBA)

IRBA is in charge of conducting the research program the French Military Medical Service requires to support the French armed forces in the biomedical domain. The aim is to improve human protection considering the environmental and human factors constraints of operations, to develop up-to-date medical countermeasures against CBRN threats and to identify new therapies and care procedures for battlefield injury and disease. Born in 2009 from merging the various SSA research institutes in a unique structure, IRBA is now settled in recently inaugurated facilities (south of Paris). Together with state-of the art scientific equipment, this location close to headquarters and military hospitals as well as to major universities and research centres, puts IRBA in a key network to perform the mission. A large set of interactions is built with military/civilian, scientific/operational partners that leverages IRBA own resources and provides a vivid community to address Defense and Security biomedical challenges both for military and national purpose.

The Military radiation protection service (SPRA)

The French military radiation protection service (SPRA) was established in 1973. It provides technical support of military units in the area of radiation protection. It is located at Percy Military Hospital, which specializes in the management of military or civilian emergencies. The SPRA has 75 military and civilian employees. Since 2005, it is charged to provide occupational medicine, especially the medical and radiobiological supervision of people exposed to ionizing radiation in the French Ministry of Defense; hygiene and safety (technical controls at installations); regulation; education (conducting more than 800 hours of training courses per year) and intervention in the case of a radiological incident. On behalf of the French Military Medical Service, the SPRA has initiated conventions with institutions like the French Atomic Energy Commission (CEA), EDF Group (Electricité de France), AREVA group, and the French Radiation Protection and Nuclear Safety Institute (IRSN) in order to provide the best medical care for radiation related victims.

Italian Republic

Capital: ..... Rome
Area: ..... 301 336 km²
Population: 60 918 000
Official Language: ..... Italian
Armed Forces Personnel: 181 450
Medical Officers: 1.566
Military Hospitals/Institutes: 3/2
Missions: ..... multiple

Surgeon General
Nicola Sebastiani
Major General

Italian Defense General Staff
General Inspectorate of the Military Health
Via di Santo Stefano Rotondo
00184 Rome
ITALY

Basic Task of the Military Medical Service

The Military Medical Service shall:
- Check the suitability of citizens for military service.
- Check the suitability of military personnel for un - conditional military service.
- Take care of the health status of the military personnel.
- Ensure for the supply and fitting of technical materials and general service required in time of peace, war or serious international crisis.
- Any other legal requirement under the provisions of the present Military Code, regulations or by law.

Structure

Surgeon General

The Italian Military Medical Service is built on top of a joint body, formed by the General Inspectorate of the Military Health Services, framed within the Defence General Staff organization and it is the health policy-making body of the Chief of Defence.
Each service – Army, Navy, Air Force and Carabinieri – has its own medical service that depends on the respective commands.

The main assets of the Italian Military Medical Service consist of the facilities for:
- Health care and Preventive Medicine (some 300 Unit clinics deployed at Regiment/Battalion level to provide basis level of care).
- Diagnosis, hospitalization and treatment (3 Armed Forces military hospitals).
- Forensic Medicine (13 Military Departments of Forensic Medicine).
- Selection (13 centres/ bodies for medical selec - tion of personnel).
- Training (own Armed Forces have training Centres).
- Research (Research Centre of the Army, Department of Aviation Medicine).
- Medical Airworthiness of personnel (2 Air Force Forensic Medicine Institutes).

Regional Medical Facilities

Role 1 medical facilities in each military unit (Battalion/ Regiment level, Airports, Naval Bases, ships, etc…)

Military Hospitals

Roma (Army) Role 4
Milan (Army)
Taranto (Navy)

Institutes

2 Air Force Institutes for Flight Fitness Evaluation.

Romania, Republic of

Capital: ..... Bucharest
Area: ..... 238 397 km²
Population: 19 638 000
Official Language: ..... Romanian
Armed Forces Personnel: 71 400
Medical Officers: ..... n/a
Military Hospitals/Institutes: 11/1
Missions: ..... n/a

Surgeon General
Dragoş-Marian Popescu MD PhD
Colonel

Ministry of National Defense
Medical Directorate
Str. Institutul Medico-Militar Nr. 3-5.
010919 Bucharest
ROMANIA

Basic Task of the Military Medical Service

The Military Medical Service provides medical assistance and preventive medicine, trains health care providers and develops medical research programmes, with the primary goal of having healthy service personnel that can accomplish operational duties. Also, their families and the civilian population receive healthcare through the military medical facilities:

- Primary medical assistance;
- Specialty ambulatory medical assistance;
- Dental medical assistance;
- Hospital care;
- Rehabilitation medicine.

Structure

The Medical Directorate is the central specialized structure that elaborates the unitary concept for organizing, endowing and functioning of the medical and veterinary assistance in the Armed Forces, in peace time, in crisis and war time, continuously improving and modernizing the military medical system.
Cooperation is a core value and the Medical Directorate provides support for military commanding structures communicating with Ministry of Health, Ministry of Internal Affairs, healthcare insurance institutions and other healthcare structures.
The medical assistance is provided through primary care physicians at the unit level. Specialty care is available through ambulatory facilities, 11 emergency military hospitals and the National Institute of Aeronautic and Space Medicine "Gen.Dr.Av. Victor Atanasiu".
Medical recovery assistance aims to reinforce the state of health of the military and civilian personnel provided by the MoND specialized medical units.

Medico-Military Scientific Research Centre develops medical countermeasures against CBRN threats and aims to increase the protection and performance of personnel exposed to physical and psychological stress.
The Institute for Military Medicine is the higher-education institution specialized in training medical students for becoming medical officers in Ministry of Defence, Ministry of Internal Affaires and Ministry of Justice. Training for health care providers at university and post university level is provided through partnerships with civilian medical universities.

Field Deployments

Operational medical assistance represents all the medical assistance activities, soldiers' medical evacuation and medical logistic support, according to the operational needs, during force generation, deployment and regeneration.

Multinational Exercise Vigorous Warrior 17Romania has participated in the multinational medical exercise Vigorous Warrior 17 organized by The NATO Centre of Excellence MILMED COE in Lehnin, Germany, 4-22 September 2017, with about 100 military personnel.

Spain, Kingdom of

Capital: ..... Madrid
Area: ..... 504 987 km²
Population: 46 218 000
Official Language: ..... Spanish
Armed Forces Personnel: 135 500
Medical Officers: 1.050
Military Hospitals/Institutes: 2/4
Missions: ..... multiple

Surgeon General
José Maria Alonso de Vega
Major General MC

Inspector General de Sanidad de la Defensa
Hospital Central de la Defensa Gomez Ulla
Glorieta del Ejército S/N
Madrid 28047
SPAIN

Basic Task of the Military Medical Service

Support, protect and maintain the health of the Spanish Armed Forces personnel.

Structure

The INSPECCION GENERAL DE SANIDAD (General Inspection of Health) is the supreme authority in Spanish Military Medical Service.
The Inspector General de Sanidad (Surgeon General) is under the authority of Undersecretary of Defence. A Military Medical Directorate in the Army, Navy and Air Force, with functional dependence of the Armed Forces Surgeon General.

- Medical Directorate, with 2 Military Hospitals and 6 Military Clinics
- Preventive Medicine Institute
- Blood Centre
- Aerospatial Military Medical Centre
- Pharmaceutical Directorate with a Military Pharmaceutical Centre
- Veterinary Directorate with a Military Veterinary Centre

All hospitals are fully equipped with all means of diagnostic equipments.
Additional Military Clinics in Ceuta, Melilla, Valencia, Cartagena, Ferrol, Cadiz

Institutes

- Aviation Medicine Centre, Madrid
- Diving Medicine, Cartagena
- Military Centre of Pharmacy
- Military Centre of Veterinary

Field Deployments

- One Medical Brigade
- One deployable Role 3
- Two Air MEDEVAC units

Current active deployment of the Military Medical Service:

- Afghanistan: one Role 2
- Lebanon: one Role 1
- Atalanta, Indian Ocean: one Role 2 afloat
- Irak: one Role 1
- Central African Republic: one Role 1
- Djibouti: one Role 1
- Dakar (Senegal) one Role 1
- Libreville (Gabon): one Role 1

Sweden, Kingdom of

Capital: ..... Stockholm
Area: ..... 450 295 km²
Population: 9 900 000
Official Language: ..... Swedish
Armed Forces Personnel: 20 500
Military Hospitals/Institutes: 0/2
Missions: ..... multiple

Surgeon General
Claes Ivgren DVM
Colonel

Director General of Medical Services
Swedish Armed Forces
Str. Institutul Medico-Militar Nr. 3-5.
107 85 Stockolm
SWEDEN

Basic Task of the Military Medical Service

The main task for the Military Medical Service is to protect, maintain and restore the health of the Swedish soldiers. Wherever they are on mission in the world, soldiers are to receive at least the same level of treatment they would get in Sweden.

Military Surgeon General and the Chief Medical Doctor main tasks are:

- Medical intelligence, Preventive Medicine and Medical Care and Rehabilitation.
- Issuing of Regulations and Instructions for the different services.
- Development of the Medical branch in Swedish Armed Forces.

Chief Medical Doctor
Markus Karumo MD

Structure

Regional Medical Facilities

SWAF has only a small number of full time qualified medical personnel employed. Most of the qualified personnel are contracted civilians engaged only part time.

Sweden has no military hospitals Role 3–4. The military medical service Role 3–4 is fully integrated in the civilian health care system and university hospitals.

Institutes and Training

Education and training of qualified Medical personnel is conducted at the Centre for Defense Medicine in Gothenburg which is also responsible for recruitment and development. Aviation Medicine including Dynamic Flight Simulator and pilot survival training is conducted in Linköping. Centre for Diving Medicine is situated in Karlskrona. The Logistic Regiment in Skövde is a joint armed forces unit that supports other military units in the SAF with ammunition, fuel, supplies and medical care.

Field Deployments

Sweden has been engaged in a number of international missions and exercises. The Swedish military health care system is compatible with NATO standards and has proved itself to be well functioning in an international context. Level 1+ deployed in Mali (MINUSMA) since 2015 based on container system.
Sweden has a small number of RW MEDEVAC units manned by anesthetists and anesthetic nurse. Sweden has two Field Hospitals Role 2

	Belgium, Kingdom of	**Surgeon General** *Geert Laire MD* Major General
	Czech Republic	**Surgeon General** *Zoltan Bubenik MD,* Brigadier General
	Estonia	**Surgeon General** *Targo Lusti* Lieutenant Colonel
Service de santé des armées *Votre vie, notre combat*	**French Republic**	**Surgeon General** *Maryline Gygax Généro* Lieutenant General
	Germany, Federal Republic of	**Surgeon General** *Dr Ulrich Baumgärtner* Lieutenant General
	Hungary, Republic of	**Surgeon General** *Dr István Kopcsó* Brigadier General
	Italian Republic	**Surgeon General** *Nicola Sebastiani* Major General
	Luxembourg, Grand Douchy of	**Surgeon General** *Cyrille Dupont MD* Lieutenant Colonel
	Netherlands, Kingdom of the	**Surgeon General** *Remco Willem Blom* Commandeur (Rear Admiral)
	Norway, Kingdom of	**Surgeon General** *Jon Gerhard Reichelt* Major General MC
	Romania, Republic of	**Surgeon General** *Dragoş-Marian Popescu MD PhD* Colonel
	Spain, Kingdom of	**Surgeon General** *José Maria ALONSO DE VEGA* Major General MC
	Sweden, Kingdom of	**Surgeon General** *Claes Ivgren DVM* Colonel

AN 62 1.0 04/2019/A-E

The Best Choice for Tough Missions – C-MAC® PM Video Laryngoscope

- High-contrast images, even in bright daylight
- Completely watertight (IPX8)
- Display with 160° wide-view angle

STORZ
KARL STORZ — ENDOSKOPE
THE DIAMOND STANDARD

KARL STORZ SE & Co. KG, Dr.-Karl-Storz-Straße 34, 78532 Tuttlingen/Germany, **www.karlstorz.com**