

VIGOROUS WARRIOR 2024 (VW24) AND CLEAN CARE 2024 (CC24) LIVE EXERCISES – ACHIEVEMENTS AND LESSONS

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ABSTRACT *The tradition of Exercise Vigorous Warrior 2024 (VW24) started in 2011. This exercise is not a competitor to CBRN medical exercises (the Clean Care series), nor to casualty movement events. These education, training, exercise, and evaluation opportunities reinforce and complement each other. In this article, the international team of authors aims to summarize the planning process of Exercise VW24, its preparation, coordination with Exercise Clean Care, its achievements, and challenges. The authors trust that those who participated in this event, colleagues who wish to challenge themselves and their unit in the next VW iterations, and who see an opportunity to host a VW event in the future, will read the pages of this article not only with interest, but also with benefit.*

BRIEF HISTORY OF THE VW EXERCISES

The Vigorous Warrior (VW) exercise series was established by the NATO

Centre of Excellence for Military Medicine (NATO MILMED COE) in 2011

(see Figure 1). This is a series of live military and disaster medicine exercises that engage both civilian and military actors from all health sectors, with a focus on health security, to identify lessons to prepare the Alliance for current and future threats in the area of military medicine.¹ This is the NATO MILMED COE's biennial medical exercise in NATO to enhance interoper-

ability within the medical community, focusing on the SACEUR's² Guidance on ETEE (SGE)³ and LL/LI⁴ of previous iterations.⁵

The first VW exercise was organized by the NATO MILMED COE in 2011 with the participation of 13 nations. A summary of the VW exercise series is highlighted in the article of Honvédorvos (article year: LXIX. 2017/1–2).⁶

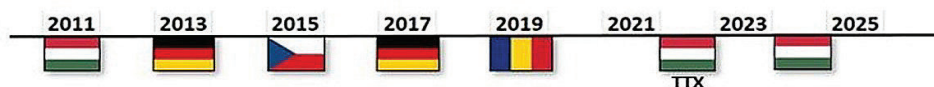


Figure 1: *The Vigorous Warrior exercise series is organized biennially* (source: developed by NATO MILMED COE)

EXERCISE VIGOROUS WARRIOR – THE 2-YEAR PLANNING PROCESS

Finding a host

The planning cycle for VW exercises lasts two years. It is not an exaggeration to state that the most important part of the planning process is to find a host nation for the exercise, which is ready, able, and willing to provide the venue for the exercise, as well as HNS⁷ to the exercise units and personnel. There is a lesson identified in this regard. The NATO MILMED COE used to coordinate the issue of hosting the exercise with the help of the Surgeon General of the potential host nation. This proved to be an inappropriate approach. Hosting an ex-

ercise of such scale and complexity falls far beyond the responsibility and capacities of the Medical Service. Hosting a VW exercise requires support from the whole Armed Forces. Consequently, a commitment is required at the level of the Minister of Defence or the Chief of Defence.

Despite full commitment by the medical personnel and the Surgeon General, the nation that originally volunteered to host VW24 was unable to get approval and support from the Minister of Defence or the Chief of Defence. One year

1 QUINN, J. M. et al.: *NATO and Evidence-Based Military and Disaster Medicine: Case for Vigorous Warrior Live Exercise Series*.

2 Supreme Allied Commander Europe.

3 Education, Training, Exercises, and Evaluation (SACEUR's Guidance for ETEE).

4 Lessons Learned/Lessons Identified.

5 *Exercise Specification LIVEX Vigorous Warrior 2024 (VW24 EXSPEC)*.

6 FAZEKAS, László: *Vigorous Warrior (Életerős Harcos) 2017. hadgyakorlat*.

7 Host Nation Support.

before the exercise, the Director of the NATO MILMED COE was forced to find another host for the VW exercise. We have approached the Chief of Defence of the Hungarian Defence Forces (HDF), who accepted our request and declared readiness by the HDF to host the VW exercise in 2024. The limitation was set by the HDF to a maximum of 1500 exercise participants. Within this limit, it turned out that even the CC exercise can take place at the same time and location. This provided a unique opportunity for nations to test their medical units both

in a conventional warfare scenario and in a CBRN one.

The lesson identified turned into a lesson learned in 2024, when we approached Estonia (EST) with the request to host the next iteration of VW in 2026. We requested the EST Surgeon General to forward our request to the Chief of Defence to get approval for hosting the exercise in EST in 2026. We have received a positive response, and the Exercise Scheduling Conference for VW26 took place back-to-back with the VW24-CC24 Post-Exercise Discussion conference.

Key outcomes of the ESC,⁸ IPC,⁹ MPC,¹⁰ and FCC¹¹

The two-year planning period requires continuous coordination between the participating units/nations, the host nation, and the NATO MILMED COE. During this time period, smaller exercise group meetings and larger exercise planning conferences are conducted.

Exercise Specification Conference (ESC)

The key outcomes of the ESC were to finalize the Exercise Specifications (EXSPEC) document, which included determining the overall exercise requirements and establishing the exercise aim and objectives. Furthermore, during the ESC, a viable exercise concept for their achievement was developed, and the TA¹² was also determined.

The Core Planning Team (CPT) members, with the participants, created the EXORG¹³ and identified the key personnel.

Initial Planning Conference (IPC)

The VW24–CC24 IPC was conducted in Budapest, Hungary, on 13 December 2022 to confirm requirements, with a particular emphasis on participation and manning, to develop commitments and capture pertinent information required to develop and coordinate a draft EXPLAN¹⁴ and further develop the scenario.

During the IPC, the EXSPEC document was confirmed, the draft OSE¹⁵ planning guidance, the concept, structure, and organization of VW24, the

⁸ Exercise Specification Conference.

⁹ Initial Planning Conference.

¹⁰ Main Planning Conference.

¹¹ Final Coordination Conference.

¹² Training Audience.

¹³ Exercise Organisation.

¹⁴ Exercise Plan.

¹⁵ Officer Scheduling the Exercise (the Director of NATO MILMED COE).

training area, and host nation support were reviewed. The CJSOR,¹⁶ with all TA and national contributions by Sending Nations (SN), and the manning of the EXORG were updated.

NATO MILMED COE created an on-line SharePoint site,¹⁷ called VW24 Portal, where all information and essential documents concerning the exercise were available.

Main Planning Conference (MPC)

The MPC was conducted to collect final inputs for the EXPLAN documents, to gain endorsement from the OCEs,¹⁸ and to enable the development of the scenario modules. The key outcomes of the MPC were the following:

- Introduce the draft EXPLAN's main body and some annexes;
- Finalize exercise manning documents for TA and EXORG;
- Present Exercise Scenario, Geopolitical & Military settings;
- Discuss Communication and Information System (CIS) implementation;
- Present the LL/LI process;
- Finalize national TOs;¹⁹
- Provide Exercise Evaluation (EXEVAL) requirements, objectives, and structure;
- Construct Medical Evaluation (MED-EVAL) planning;
- Finalize EXORG structure and manning;

- Present HNS/RLS²⁰/Force Protection (FP) and Technical Arrangements information;
- Provide a virtual Site Survey of the training area.

Final Coordination Conference (FCC)

The FCC was conducted in Budapest, Hungary, from 6 to 8 February 2024. The key outcomes of the event were:

- to confirm the manning lists, finalize and coordinate the procedures of the exercise;
- to complete the detailed program of the exercise;
- to facilitate and achieve final coordination regarding the TA and EXORG issues.

The FCC allowed final coordination among all planners, including exercise, operational, and functional experts. Participants were in a position to discuss and decide about the following FCC-related topics:

- Scenario;
- TA and EXORG;
- EXPLAN, including Annexes;
- Civilian contribution;
- Concept Development & Experimentation;
- EXEVAL;
- Observers & Trainers;
- Real Life Support/Force Protection/HNS/TA's Legal and CIS issues;
- Financial aspects;
- Distinguished Visitors Day program;

¹⁶ Combined Joint Statement of Requirements.

¹⁷ <https://coemed.sharepoint.com/sites/MILMEDCOEExtranet/vw/SitePages/Vigorous-Warrior-Portal.aspx>

¹⁸ Officer Conducting the Exercise.

¹⁹ Training Objectives.

²⁰ Real Life Support.

- Media/Strategic communication;
- Simulation of casualties/Mouflage procedures;
- ADL;²¹
- MEDEVAL.

Combining VW24 with CC24

In making a combined effort, the NATO MILMED COE and CLEAN CARE community prepared and executed the exercise VW24–CC24 together. The objectives of this cooperation were to exercise the military medical support system in a complex operating environment to enhance its effectiveness and interoperability during a NATO MJO.²²

Furthermore, the aim was to exercise NATO interoperability with CBRN and medical defence at a tactical level to provide management of any casualty in a CBRN environment from point of exposure to a Role 2 Medical Treatment Facility in the land and air environment.

ADL

Multinational military exercises bring together participants with diverse backgrounds, experiences, and knowledge bases, creating challenges in achieving uniform preparedness. The pre-training phase plays a critical role in equipping participants for effective engagement in these exercises. Preparatory resources must be intuitive, accessible, and easy to navigate to address these challenges. Furthermore, the evolving nature of military operations – characterized by increasing multinational collaboration and operational complexity – necessitates innovative training approaches, rapid skill acquisition, and adaptability.²³ Integrating ADL into multinational exercises represents a critical step in meeting these demands.²⁴

For the first time, the NATO MILMED COE introduced e-learning courses as part of the pre-exercise academic training for VW24–CC24. Using an ADL package, the pre-training phase was designed to orient exercise participants flexibly, effectively, and cost-efficiently. The primary goal was to ensure that both the TA and EXCON²⁵ staff shared a common operational understanding before the exercise began. Additionally, the ADL package aimed to reduce time spent on in-person academic instruction during the exercise, enabling more time to focus on other critical elements of the event.

The ADL implementation timeline for VW24–CC24 was synchronized with the EXPLAN, execution, and evaluation

21 Advanced Distributed Learning.

22 Major Joint Operation.

23 PRESNALL, B., BAKER, R.: *Mapping eLearning Preparation to Training Objectives in a Multinational Exercise: A Q-Matrix Approach*.

24 SALKUTSAN, S. et al.: *Enhancing Military Exercise Team Performance with Diversified xAPI Instrumented eLearning*.

25 Exercise Control.

phases, following the guidelines outlined in the ADL in Exercises Annex to the NATO ADL Handbook.²⁶

The core concept behind the ADL Pre-Exercise Training Package was to adapt topics traditionally presented in person by SMEs²⁷ during the Academic Phase of the exercise to an online format. All courses were delivered in English, with no translations provided, and the package was divided into two categories: “Need to Know” Courses and “Enabling” ones.

The JADL²⁸ platform, NATO’s official LMS,²⁹ was chosen for delivering the ADL Pre-Exercise Training Pack-

age. This platform facilitated seamless content delivery and user engagement, ensuring that participants could access the training materials efficiently and effectively.

The educational material was made available on JADL starting six weeks prior to the exercise, giving participants ample time to complete the required courses. The availability of the ADL package was extended until three months after the exercise, allowing participants to revisit the content for review, after-action analysis, or refresher purposes.

ORGANIZING VW24-CC24

Exercise Objectives (EOs)

In line with VW24 EXSPEC, EOs describe to what extent TAs are exercised in each MCA.³⁰ EOs focus on exercise preparation, conduct, and analysis to ensure that specific operational requirements are met within available resources. EOs are defined by the OSE based on the overall strategic/operational vision, aim, and intent for the exercise. Basically, EOs describe the “What” function.

The VW24-CC24 EOs were the following:

EO1: To plan and manage the *continuity of medical care* in a NATO Article V scenario, to exercise a complex medical structure able to handle large numbers of casualties,

and to test patient tracking procedures in a multinational joint environment.

EO2: To develop and implement a *recognized medical picture* to include the medical situational awareness and force health protection in an MJO.

EO3: To plan, coordinate, and test the *CIMIC*³¹ in a multinational joint environment during a NATO Article V military operation.

EO4: To plan and manage (multi)national *medical logistics* and test the interoperability of medical logistics equipment and procedures.

²⁶ *Advanced Distributed Learning in Exercises.*

²⁷ Subject Matter Experts.

²⁸ Joint Advanced Distributed Learning.

²⁹ Learning Management System.

³⁰ Main Capability Area.

³¹ Civil-military cooperation.

EXORG/EXCON structure and functions

The EXORG is the bigger set, which basically includes all units, groups, and their subordinates that provide any kind of support to the exercise. Organizational and real-life support, security, evaluation, lessons learned, etc., are part of this element.

One of the main components of the EXORG is the EXCON. EXCON includes all the participants during the conduct of CT&E³⁶ activities who are not in the TA and are thus under the control of the EXDIR.³⁷ EXCON usually involves the EXDIR support staff, the exercise support elements (including RLS, CIS, vis-

itor's bureau, and public information), the training teams and mentors, the EXCEN,³⁸ composed of situation control elements (scenario, RFI³⁹ – MEL/MIL⁴⁰ management), and the response cells (higher, neighbouring, and lower situational forces and non-NATO entities). EXDIR directs EXCON on behalf of the OCE. The main tool of the EXCON to control the exercise is the MEL/MIL.

Table 1 shows the VW24-CC24 LIVEX regarding the EXORG/EXCON structure by lead nations and by the number of members with responsible areas.

LEAD NATION	SECTION	VW24	CC24	IN TOTAL
ROU	EXCON	8 PAX	6 PAX	14 PAX
ROU	HICON/LOCON	12 PAX	8 PAX	20 PAX
CAN	MEDSIM ⁴¹ Moulage SIMCAS ⁴² CASE MANAGERS	MEDSIM 3 PAX	MEDSIM 3 PAX	MEDSIM 6 PAX
		Moulage 14 PAX SIMCAS 40 PAX		Moulage 14 PAX SIMCAS 40 PAX
		Case managers 20 PAX	Case managers 10 PAX	30 PAX
NLD	O&T ⁴³	17 PAX	8 PAX	25 PAX
NOR	EXEVAL	15 PAX	3 PAX	18 PAX
USA	LL	4 PAX	3 PAX	7 PAX
SVK	CD&E	12 PAX	4 PAX	16 PAX
NLD	MEDEVAL	18 PAX	–	18 PAX
ROU	WHITE CELL	5 PAX		5 PAX
HUN	PAO ⁴⁴ social/media	3 PAX	1 PAX	4 PAX
HUN	DVD ⁴⁵ Officer	1 PAX	1 PAX	2 PAX

Table 1: *EXORG/EXCON structure and functions*
(source: developed by NATO MILMED COE)

36 Collective Training and Exercise.

37 Exercise Director.

38 Exercise Centre.

39 Request for Information.

40 Main Events List/Main Incidents List.

41 Medical Simulation.

42 Simulated Casualties.

43 Observers and Trainers.

44 Public Affairs Officer.

45 Distinguished Visitors Day.

Command and Control

The C2 structure in military exercises is a critical framework that ensures effective coordination, communication, and decision-making among various military units and commands. At its core, the C2 structure is designed to provide a clear hierarchy and streamline the flow of information, enabling commanders to make informed decisions rapidly and effectively. This structure typically includes a central command post, subordinate command centers, and various communication nodes that facilitate real-time data exchange and operational control.

In a typical military exercise, the C2 structure is tested and refined through various scenarios that simulate real-world operations. These exercises often involve joint and combined forces, including land, air, sea, and cyber units working together under a unified command. The goal is to enhance interoperability and ensure that all units can operate seamlessly together, regardless of their branch

or nationality. This is particularly important in multinational exercises like VW24–CC24, where different countries’ forces must integrate their C2 systems to achieve common objectives.

The effectiveness of the C2 structure in military exercises is evaluated on the basis of several criteria, including the speed and accuracy of decision-making, the efficiency of communication channels, and the ability to adapt to changing situations. Lessons learned from these exercises are used to improve C2 doctrines, procedures, and technologies. By continuously refining the C2 structure, military forces can enhance their readiness and capability to respond to various threats and challenges in a coordinated and effective manner.

The VW24–CC24 C2 element consisted of 2 parts: the Exercise Control C2 element and the TA C2 element.

1. The Exercise Control C2 element played a crucial role in planning, executing, and evaluating the activities.

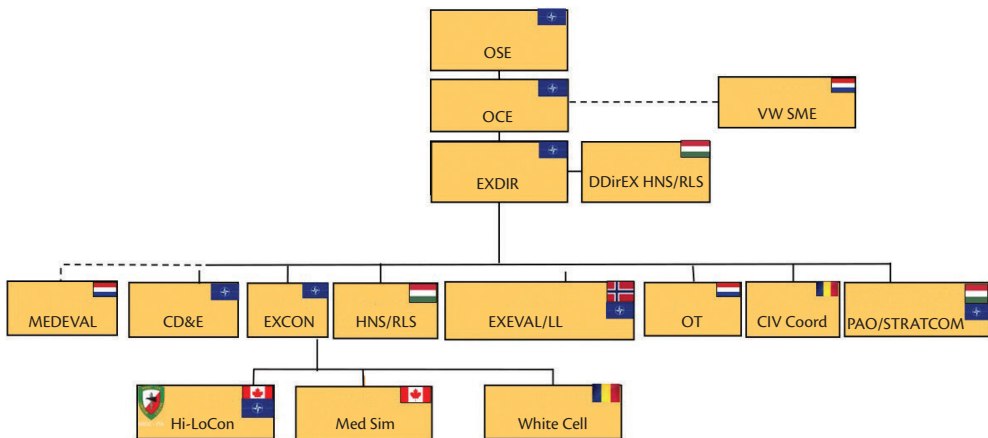


Figure 3: *The structure of the EXORG for the LIVEX VW24 exercise (source: developed by NATO MILMED COE)*

The C2 element within EXORG was responsible for directing and managing forces during the exercise (see Figure 3). This involved the use of systems and processes to ensure effective decision-making and coordination. The C2 element included personnel, equipment, communications, facilities, and procedures that enabled commanders to plan, direct, coordinate, and control operations. These elements were essential for simulating real-world scenarios and training tasks, helping military forces to prepare for actual missions.

- The TA C2 element consisted of 2 parts. The first part originated from the EXCON structure (see Figure 4), and the second part was the TA C2 element embedded into each of the TA manning tables.

a. The C2 element within the EXCON structure was crucial for managing and directing this exercise effectively. The functions of the TA C2 EXCON element were:

Planning: Developing detailed plans for the exercise, including objectives, scenarios, and timelines.

Execution: Implementing the plans and managing the activities during the exercise.

Coordination: Ensuring all units and personnel work together effectively.

Control: Monitoring the progress of the exercise and making adjustments as needed.

Evaluation: Assessing the outcomes of the exercise to identify strengths and areas for improvement.

b. The C2 element within the TA involved systems and processes that enable commanders to plan, direct,

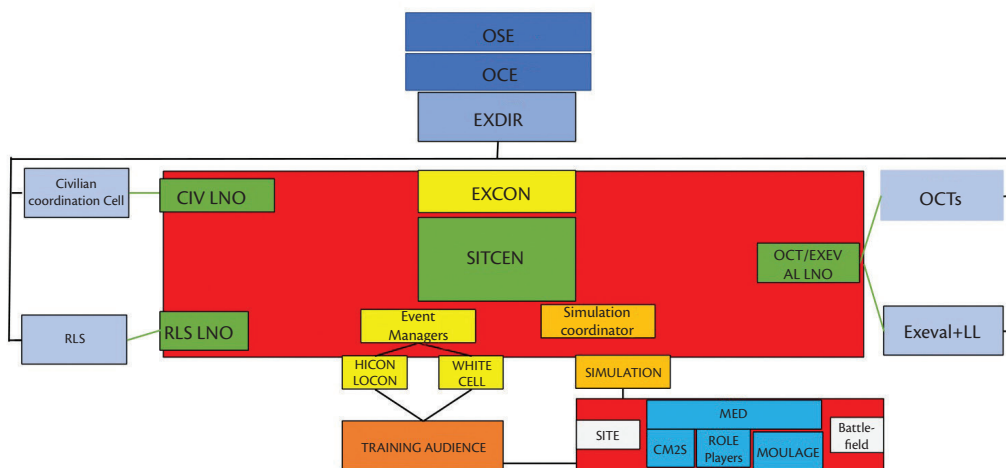


Figure 4: The structure of the EXCON for the LIVEX VW24 exercise⁴⁶ (source: developed by NATO MILMED COE)

⁴⁶ LNO: Liaison Officer; OCT: Observers, Controllers, Trainers; SITCEN: Situational Centre; CM2S: Case Managers for Medical Simulation.

coordinate, and control operations. This includes:

Personnel: Commanders, staff, and other key personnel who make decisions and manage operations.

Equipment: Communication devices, computers, and other tools that facilitate command and control.

Communications: Networks and protocols that ensure information flows smoothly among different parts of the exercise.

Facilities: Command centres and other infrastructure that support the exercise.

Procedures: Standard operating procedures and protocols that guide the conduct of the exercise.

LIVEX EXPERIENCE

Timetable of the exercise

Date	Event	Location	Attendance
6 July 2022	Core Planning Team Meeting (CPTM) 1	Budapest	CPT
13 September 2022	Exercise Specification Conference (ESC)	Budapest	CPT, HUN HN, Potential TA
27 September 2022	Core Planning Team Meeting (CPTM) 2	Budapest	CPT
13 December 2022	Initial Planning Conference (IPC)	Budapest	CPT, HUN HN, potential TA
14 December 2022	Scenario Working Group (SWG) 1	Budapest	SWG
Feb/Mar 2023	Core Planning Team Meeting (CPTM) 3	Budapest	CPT
9, 10, and 11 May 2023	Main Planning Conference (MPC) and Site Survey	Budapest	CPT, HUN HN, potential TA
May/June 2023	SWG MEL-MIL writing session 2	Budapest	MEL-MIL WG
Sep/Oct 2023	SWG MEL-MIL writing session 3	Budapest	MEL-MIL WG
November 2023	Core Planning Team Meeting (CPTM) 4	Budapest	CPT
November 2023	CIS workshop	Budapest	HUN HN
7–8 February 2024	Final Coordination Conference (FCC)	Budapest	CPT, HUN HN, TA
April 2024	Deployment to training areas	Bakony Combat Training Centre (HUN)	All participants
24 April–9 May 2024	LIVEX VW24	Bakony Combat Training Centre (HUN)	All participants
26 June 2024	Post Exercise Discussion (PXD), including Final Exercise Report (FER)	Budapest	CPT, HUN HN, TA

Table 2: *Timetable of VW24-CC24 live exercise (source: developed by NATO MILMED COE)*

The exercise objectives within the allocated timeframe of the LIVEX could be

accomplished using the following timetable (Table 2).

Scenario management

Main Events List/Main Incidents List (MEL/MIL)

Medical military exercises are designed to enhance the readiness and interoperability of military medical services. These exercises simulate real-world scenarios to train military medical personnel in providing care under various warfare scenarios.

VW24-CC24 involved multinational medical experts and simulated realistic warfare scenarios to train participants in a multinational environment. The exercise focused on enhancing interoperability, readiness, and the ability to provide medical care in various operational settings. These VW exercises are crucial for ensuring that military med-

ical personnel are prepared to respond effectively to a wide range of situations, from humanitarian missions to combat operations.

The VW24-CC24 scenario working cycle consisted of 5 live workshops and more than 100 online meetings, during which the core team determined the direction for the exercise based on inputs (objectives) coming from the TA.

Finally, the scenario working team developed a consistent document that served as a basis for the exercise load MEL (see Figure 5).

Based on the MEL load and the TA objectives, the SWG started to develop incidents for all exercise days. The final version of the MIL was consistent with the following schedule:

Day 0 MiniEx (Dry Run)	Day 1	Day 2	Day 3	Day 4	Day 5
	ARTY increased TIC increased IDP Increase terrorist attacks behind the lines ROE Conflict MTF Shell Strike (a rocket falls down) CHEM/RAD	ARTY increased TIC increased POW Enemy with Drones STRATEVAC CIV Outbreak evolve CIV-MIL coop CHEM/RAD Outbreak	ARTY increased TIC increased Nuclear contamination Enemy in the Area STRATEVAC IDP Movement CHEM/RAD	ARTY heavy fire TIC CIV activity CHEM/RAD Outbreak	ARTY decreased TIC decreased CHEM/RAD Outbreak

Figure 5: Main Events List schedule for the LIVEX VW24-CC24 exercises⁴⁷
(source: developed by NATO MILMED COE)

⁴⁷ ARTY: artillery; TIC: Troops in Contact; IDP: Internally Displaced Persons; ROE: Rules of Engagement; CHEM/RAD: Chemical/Radiological; POW: Prisoner of War; STRATEVAC: Strategic Evacuation.

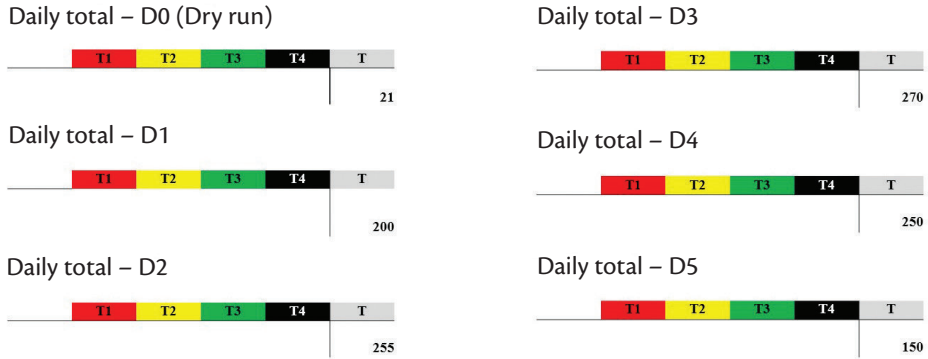


Figure 6: MEL-MIL summary, day by day of VW24-CC24 live exercise⁴⁸ (source: developed by NATO MILMED COE)

All the injectables for the TA were based on the MEL and also on the level of continuity of care, as indicated below (see Figure 7).

Concept Development and Experimentation (CD&E)

Concept Development and Experimentation (CD&E) represents a temporary approach within NATO,

encompassing various interconnected activities vital to NATO’s transformational activities. These initiatives aim to steer capability development in a well-informed direction, backed by evidence, and to proactively address emerging threats.

CD&E allows us to rigorously test and refine innovative ideas, ensuring only

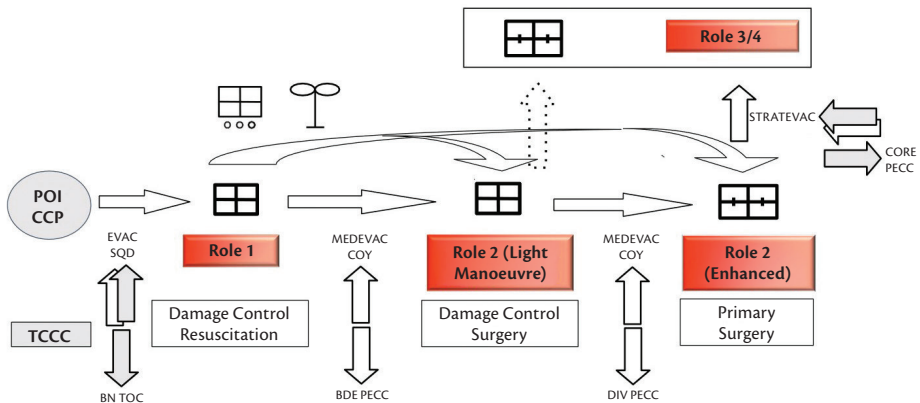


Figure 7: Continuity of care in VW24-CC24 live exercise⁴⁹ (source: developed by NATO MILMED COE)

48 T1–4: Triage categories and their colour codes.

49 POI: Point of Injury; CCP: Casualty Collection Point; TCCC: Tactical Combat Casualty Care; EVAC SQD: Evacuation Squad; BN TOC: Battalion Tactical Operations Centre; MEDEVAC COY: Medical Evacuation Company; BDE PECC: Brigade Patient Evacuation Coordination Centre; DIV PECC: Division Patient Evacuation Coordination Centre.

the most effective solutions are implemented. This continuous process fosters a culture of improvement and adaptability, helping us stay ahead of emerging threats. By anticipating and responding proactively to changes in warfare, we ensure our forces' constant preparedness. Ultimately, this approach enhances our strategic capabilities and readiness.

The objectives of the various experiments conducted during VW24–CC24 were centred around enhancing medical training and operations through the integration of innovative technologies and methodologies. Specifically, the experiments aimed at evaluating the effectiveness of VR⁵⁰ and AR⁵¹ systems in medical training, the utility of a Near Real Time Surveillance (NRTS) tool for capturing patient data, the interoperability of civil-military medical teams, and the impact of capturing Patient Evacuation Timelines and recreating the Casualty flow with the help of a Computer Simulator. These experiments sought to im-

prove preparedness, response times, and overall medical readiness in complex, multinational military settings, with a particular focus on combat casualty care, mass casualty management, and handling of CBRN scenarios.

The experiments yielded several key findings and recommendations aimed at enhancing military medical operations. AR was found to be a more effective training tool due to its immersive and interactive capabilities. It is recommended to integrate AR into military medical training programs and provide comprehensive training on its use. The NRTS tool effectively captured relevant medical data and facilitated timely decisions and responses. Recommendations include refining the alert system to avoid redundancy, improving connectivity for better usability, and integrating NRTS with other reporting systems like EpiNATO⁵² to streamline medical reporting and enhance response times.

Achievements, challenges, and lessons

During the exercise, the NATO MILMED COE used electronic and paper-based methods to collect inputs. The online ODCR⁵³ form was available in 12 different languages. A dedicated group was set up for the units via a social media application to solve and monitor the daily problems and collect further observations and best practices, with the possibility of uploading media content. Observation

collection boxes were also available at all the units for the paper-based ODCR forms. National TOs were considered, and questionnaires were prepared according to the most common 50 TOs.

The added value of the VW24–CC24 exercises can be judged through the following statistical figures:

- 35 NATO and partner nations with 1600 participants;

50 Virtual Reality.

51 Augmented Reality.

52 NATO Epidemiological Report.

53 Observation, Discussion, Conclusion, Recommendation.

- Civilian Participants included units from the following nations:
- HUN, ITA, ROU, USA;
- General inputs (electronic and paper-based ODCRs, social media app): 107;
- Inputs from EXEVAL: 103;
- Inputs targeted to TOs: 274;
- Total inputs: 484.

As a result of the qualification process, the following key takeaways were highlighted:

Enhanced Multinational Coordination and Medical Integration:

The exercise demonstrated improvements in multinational cooperation among NATO member states, partner nations, and international organizations. Successful integration of different medical units, including international entities like the EU and civilian organizations, marked a significant step towards seamless CIMIC and medical flow management in NATO Article 5 operations. However, continued efforts are necessary to enhance rear-end medical logistics coordination and the interoperability of medical equipment and procedures.

Patient Flow Management and Digital Integration:

A major success was observed in patient tracking systems, although interoperability between digital platforms and analogue tracking methods still presents challenges. The importance of developing integrated systems to ensure real-time patient information sharing across multinational borders was underscored. This requires further work on streamlining patient flow tracking in coordination with CIMIC.

Medical Logistics Challenges:

The exercise highlighted the critical role of advanced medical logistics planning, particularly in relation to the blood supply chain. It also brought to light gaps in pre-exercise logistics coordination, such as ensuring timely and effective transportation of supplies and equipment to Medical Treatment Facilities. Early collaborative planning across participating nations is key to overcoming future logistical hurdles.

Cultural Sensitivity and Diplomacy:

There was a clear need to promote cultural sensitivity and ensure that medical personnel from different nations could effectively communicate and collaborate. This would minimize misunderstandings and foster a more cooperative working environment during multinational operations.

Training and Familiarization:

The importance of pre-exercise training in operating procedures, tactics, and equipment was evident. Training personnel on the procedures and capabilities of different participating nations is crucial for effective integration during future exercises and operations. Additionally, an emphasis on language proficiency and ensuring standardized procedures across the coalition would significantly enhance overall coordination.

CD&E and Transformational Capability Development:

CD&E activities were well integrated into the exercise and played a pivotal role in testing new concepts, procedures, and capabilities. However, the early involvement of CD&E in both the planning and scripting phases would further facilitate successful experimentation and ensure smoother execution during the exercise.

Logistic and communication support aspects of HNS

The logistical support for the VW24–CC24 exercises was executed under the auspices of the Hungarian Defence Forces Host Nation Support in accordance with the prevailing NATO doctrines, regulations, and relevant national laws and policies.

Planning of the exercise support was characterized by a continuous change and expansion of the requirements from both the participating nations and the principal exercise organizer (NATO MILMED COE). As the planning progressed, the needs of the participants became increasingly clear, which led to an expansion of the resources allocated by the HDF – the organization responsible for conducting the exercise – to ensure its successful execution. The planning sessions provided an adequate framework for clarifying requirements and expectations from both the sending and hosting nations; however, in several instances, it was not possible to resolve all uncertainties regarding the operational details before the start of the exercise. This environment helped simulate a real-time warfare scenario and assisted the TA in understanding the complex challenges of medical support to MJO.

From a logistical perspective, planning and execution of the exercise were rendered more challenging by several factors. In particular, the necessity to conduct parallel coordination among the numerous participants and the geographical dispersion of the TA posed significant obstacles.

The involvement of over 30 participating nations and more than 30 sub-units (considering the TA alone) required an equivalent number of communication and coordination channels, often re-

sulting in the reiteration of information already disseminated during planning events. NATO's HNS procedural protocols were largely unfamiliar to the exercise participants – owing partly to the involvement of the TA from non-logistical sectors and partly to the participation of non-NATO member states. Integrating national and international non-military organizations into the logistical supply chain also presented a particular challenge, given the different logistical and financial procedural frameworks.

During the actual conduct of the exercise, the TA was distributed over an approximate expanse of 50 km², within which forces were dispersed into small sub-units of 3–100 personnel. Although the decision regarding the dispersal of forces was operationally justifiable, it substantially increased the overall costs. A further complication arose from the fact that some of the participating forces possessed limited or no independent logistical capabilities; consequently, all necessary support was requested within the HNS framework.

Without claiming to be exhaustive, the HDF provided food and fuel supply, transportation, material handling and traffic coordination, infrastructure support, security services, technical support and site preparation, comprehensive medical care, and aircraft maintenance as part of the HNS. In addition, throughout the execution of the exercise, the HDF guaranteed the prompt resolution of any logistical issues and the continuity of support by deploying HNS coordination elements to each exercise site.

In contrast to the TA, the logistical support for the staff of the EXORG was

rendered on an entirely different basis. Given the severely limited logistical and supply capabilities of the NATO MILMED COE, the support provided to the EXORG was comprehensive. Every essential requirement of the EXORG was duly met, thereby ensuring adequate living and working conditions for the representatives of the many nations involved.

To facilitate the overall support for the exercise – in line with NATO MILMED COE requirements –, the HDF also ensured the availability of a ‘simulated

casualty’ (i.e., casualty players) contingent of approximately 200 personnel. The daily provisioning and transportation of these casualties, in parallel with the execution of the exercise’s other tasks, presented an additional significant challenge during both the planning and execution phases.

In summary, despite the numerous complicating factors, the logistical support for the exercise was successfully delivered, enabling the exercise to achieve its objectives.

Media day

The Vigorous Warrior exercise series has become NATO’s largest dedicated medical exercise event, which attracts a great number of nations at each iteration to practice their processes and learn how to work in a multinational environment. The media day of the exercise served the purpose to reinforce this simple, but powerful message and provided a showcase of units and notable activities for visiting media teams. The COE’s own Public Affairs (PA) team worked during the entire exercise to collect footage and

materials for the press, and so the visiting media teams were greeted with a package containing digital materials, background information, and a catalogized collection of B-roll and pictures. The team organized interviews and specific visits after the common programme and provided escort and background interviews for the journalists. This resulted in more than 60 articles in local and international media, which reached 2 million people on Facebook alone, and multiple longer spots in military-themed programmes on TV.

Distinguished Visitors Day

The VW24–CC24 Distinguished Visitors Day (DV day), organized on the 8th of May 2024, was part of the exercises. The event aimed at strengthening military medical support and enhancing cooperation among member states. During the DV day, various medical simulations were conducted, and the participants faced different challenges.

The event highlighted the importance of international cooperation in the military medical sector. The DV day also showcased various technological inno-

ventions that improved the efficiency of medical support.

DV day participants included representatives from NATO member states, as well as partner nations, including high-level attendance by ambassadors, Surgeons General, and other professionals.

In addition to following the coordinated work of approximately 1600 soldiers and civilian medical staff from 35 nations participating in the exercise through static display and dynamic

demonstrations during the DV day, they had the opportunity to interact with other nations and discuss several military-medical topics of their interest. When such a large number of experts are present at the same event, there is a real opportunity to build relationships and exchange views on versatile professional issues.

The organization and running of the DV day were considerably assisted and supported by the host nation.

Communication and coordination during the exercise played a major role in its successful implementation. The DV day of VW24–CC24 exercises thus created new opportunities for the military medical community to address future challenges.

CONCLUSIONS

The Vigorous Warrior Exercise series is the single multinational live-field medical exercise of NATO, and it is the medical realization of the widely used military adage of “train as you fight, fight as you train”, associated with U.S. Army General George S. Patton.

The VW24–CC24 iteration was again a great success, due to the commitment of the participating 35 NATO and partner nations, which deployed a huge number of field military medical and civilian assets. The host nation, Hungary, provided great field support and constant and never-ending development of the original idea of the exercise series, reaching new achievements again. This iteration successfully served multiple purposes: primarily, the medical training of the deployed multinational field medical support system manned by more than 1600 civilian and military medical servicemembers from 35 nations; secondly, it exercised civilian military collaboration in a challenging environment; thirdly, it was a platform of ten field experiments within the CD&E pillar, it could provide big number of valuable observations and lessons, and last but not least, it offered opportunities for medical evaluations of civilian and military medical assets.

The key to the success of the exercise is the provision of value to all the participants and their sending nations and organizations. This value is based on a realistic medical simulation of the entire battlefield, including the full spectrum of its civilian-military medical systems through which highly realistic simulated cases are injected in large numbers (200–300 cases/day), together with “case managers” who can challenge the clinical personnel with real-time development of cases depending on the trainee’s interventions. The simulation even included professionally prepared microbiological samples and simulated chemical agents for the numerous biological and chemical defence units. In addition, the exercises were performed and controlled by a robust and capable multinational exercise organization.

The ability to provide value to the participants, sending nations, and organizations will also remain the key factor of success in the future.

Besides successfully achieving exercise objectives, the OSE always paid attention to the safety and security of the exercise during all phases of the deployment-exercise-redeployment. During the VW24–CC24, only minor accidents happened, and nobody was severely injured due to the

right regulations followed by disciplined multinational personnel and the use of well-trained observer-trainers, ensuring safety throughout the entire scenario.

The VW24–CC24 exercises again demonstrated the will and ability of

NATO and partner nations to deploy a robust medical support system capable of treating patients at the highest standards and served as a deterrence tool among other NATO exercise activities.

APPRECIATIONS

The Officer Scheduling the Exercise, COL Dr. László Fazekas, hereby wishes to express his personal appreciation to all the exercise participants, members of exercise organizations, every civilian organization and mili-

tary unit, all the sending nations, and special appreciation to the host nation for forming a fantastic multinational civilian-military medical support system capable of achieving all the exercise objectives.

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VIGOROUS WARRIOR (VW24) ÉS CLEAN CARE (CC24) GYAKORLAT – EREDMÉNYEK ÉS TAPASZTALATOK

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KULCSSZAVAK

Vigorous Warrior gyakorlat, Clean Care gyakorlat, civil-katonai egészségügyi együttműködés, interoperabilitás, tapasztalatfeldolgozás, távoktatás, NATO 5. cikkely szerinti műveletek

ABSZTRAKT

A VW24 gyakorlat hagyománya 2011-re vezethető vissza. Ez a gyakorlat nem versenytársa a CBRN egészségügyi gyakorlatoknak (Clean Care), sem a sérültkiürítési folyamatot szimuláló (casualty move) gyakorlatoknak. Ezek a lehetőségek erősítik és kiegészítik egymást. A nemzetközi szerzői gárda azt a célt tűzte ki maga elé, hogy összegezze a VW24 gyakorlat tervezési folyamatát, a gyakorlatra történő felkészülést, a Clean Care gyakorlattal való összehangolását, a végrehajtás eredményeit és kihívásait. A szerzők bíznak benne, hogy mind azok, akik részt vettek ezen az eseményen, mind pedig azon kollégák, akik a következő ilyen gyakorlaton kívánják megméretetni magukat és egységüket, illetve lehetőséget látnak a jövőben otthont adni egy VW gyakorlatnak, nem csupán érdeklődéssel, de haszonnal is olvassák majd a cikket.