

NO - FEAR

Network Of practitioners For
Emergency medical systems
and cRitical care



**NO-FEAR's summary of main
findings, gaps and lessons
learned from M7 to M12**

Project title:	Network Of practitioners For Emergency medicAl systems and cRitical care				
Project short name:	NO-FEAR	Grant agreement number:	786670		
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Work Package					
Dissemination level:	Public	Contractual due date	July 31st, 2019	Actual Submission Date	

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1. Executive Summary

NO-FEAR project is bringing together a pan-European network of practitioners, decision and policy makers in the medical and security fields. They are collaborating to achieve a common understanding of needs, as well as - in collaboration with academia and industries – increase the EU innovation potential that could better fill the operational gaps and recommend areas for future innovations.

NO-FEAR main objectives are to:

- create a long-lasting community of practitioners, interacting with a network of suppliers and academia,
- elaborate an innovation roadmap, with practical recommendations for uptake,
- advise relevant Research and Innovation projects,
- support market uptake of EU research results,
- issue policy and regulatory recommendations enabling collective procurement,
- indicate priorities for standardisation,
- support quick wins and practical short-term results,
- implement a transactional dynamic portal providing fora, a catalogue, marketplace and flexibility to address new threats.

The findings detailed below can be found in the NO-FEAR portal, categorized in the specific sections and linked with the respective pillars.

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2. Abbreviations

CA = Consortium Agreement

DoA = Description of the Action

EC = European Commission

GA = General Assembly

PC = Project Coordinator

PM = Project Manager

PO = Project Officer

NMB = NO-FEAR Management Board

WP = Work Package

3. Summary of the findings in project's lines of action from M7 to M12

Work Package 1 – Ethics Requirements, Human, Social and Legal Issues

Research and Innovation Monitoring

A survey is in the making on how scene safety is presumed by first responders on the decision makers level. Research is monitored accordingly. Results will be communicated in future documents.

Best Practices and Lessons Learned

Regarding psychosocial issues in/after Mass Casualty Incidents

- Very close coordination between rescue services, psychosocial support and legal/administrative/investigative authorities is needed;
- Need to consider the exhaustion of all involved personnel in the days following the incident and create shifts to allow for rest periods during exceptional and prolonged incidents;
- Need to recast plans from the perspective of the people involved: 'lack of consideration of individuals caught up in major or catastrophic incidents', the focus being on incidents rather than individuals, process rather than people. It was suggested that plans should be recast from the perspective of the people involved rather than the emergency services;
- An orchestrated communication and media-strategy is crucial. Important elements include:
 - One official, trustworthy voice; focus on rescue and support activities; relevant information for those affected; honest information which is not alarming;
 - Set up a media centre and encourage foreign media to use it to not gather at hospitals.
- Pre plan cascade-routes, so that specific information can be targeted towards different sections of the public ;
- Training and exercising disaster plans regularly, clarify roles of different organizations;
- specifically concerning CBRN incidents: training and exercise in the use of protective gear needs to be offered on a regular basis;
- Creating a Family Assistance Centre after the incident. The purpose of the FAC is to provide a:

- 'one stop shop' to enable those affected to gain information about family members or friends
 - offer a range of facilities to enable families or survivors to make informed choices
 - ensure a seamless multi-agency approach to providing support
 - and help responders ensure that bereaved families, survivors and communities received coordinated, clear, compassionate and professional advice and assistance.
- Creating a temporary mortuary;
 - Urge officials to prepare an official disaster fund plan to avoid a situation of several competing funds being established;
 - Keep in mind the sudden need for supplies and infrastructures;
 - Try to ensure that disaster plans get circulated, especially in middle management of key organizations such as the police and local authorities;
 - Personnel control – some volunteer groups or individual volunteers may join the operation based on their own initiative. Volunteers must be aware of all command lines and must report to management on site in order to avoid confusion and security risks;
 - Divide between different categories of affected people;
 - Acknowledge the need for an integrated approach in the aftercare and organize regular (monthly) meetings with the involved healthcare organisations, following an incident.

Regarding data protection and ethical monitoring of the NO-FEAR-Network

- Following the introduction of GDPR, experience suggests the necessity of strengthening interaction between DPOs, Privacy staff and researchers in order to optimize and simplify compliance processes;
- Ethics monitoring supported (without replacing the direct contact approach) by compliance checklists and surveys has proved a precious instrument with multiple outcomes: it sensibly contributes to simplifying monitoring procedures, without any loss in quality, and also represent a knowledge tool for beneficiaries;

Research and Innovation Monitoring

Quick Wins:

A serious game already identified as Quick Win on alert in case of a CBRNE event was designed for the French hospitals by APHP. The WP3 core group translated it into English, Spanish and Italian in order to ensure its usability.

Stop The Bleed campaign was proposed to medical and non-medical staff. It was also taught to two deaf instructors, investigating possible adaptations of the course in order to enhance an inclusive approach of the campaign.

Areas of Main R&D Gaps

The research conducted by the WP3 led to the identification of these areas of main R&D gaps:

- Need of security and safety training for EMS (outside and inside hospitals);
- Challenges focused on flexibility, polyvalence of medical teams at scene;
- Levels to be defined of implication of medical teams in the warm zone in case of CBRN events;
- Creation of a reporting form to be disseminated among hospitals, that should be used in the post-event evaluation of exercises and real events;
- Application that can exchange data with other information systems (EMS, hospital, HQ, ...) in which patient's files (triage, medications, data from instruments) can be shared from the site to the ICU or operating theater. This was revised and updated from the first reporting period.

Common Requirements to Fill Capability Gaps

WP3 found these Common Requirements to fill capability Gaps:

- Multidisciplinary core team sharing scientific gaps;
- Description of decision-making process through a medical dispatch center;
- Protection of healthcare providers along the medical chain with user friendly PPE;
- Simple and effective airway management maneuvers that can be taught to non-medical staff/volunteers.

Priorities with Regards to Standardization

It is necessary to identify the requirements for the PPE to be used in CBRN environment by civilians. Civilians need to have PPEs easy-to-use and suited for their needs in order to work safely. WP3 has already identified stakeholders (Prof. Trosz, SAMUR) and Projects (IFREACT, PROACTIVE, STAIR4SECURITY) to be in contact with for this issue that regards standardization.

Best Practices and Lessons Learned

Harmonization of SOP's procedures (damage control, use of antidotes, decontamination of traumas, content of mobile and exportable medical and surgical equipment) within different organization and within similar organization from different countries.

Work Package 4 - Acute Care Operations in the Security-Related Incidents

Research and Innovation Monitoring

- The use of drones (both as a weapon as well as a tool in disaster response) has been identified as a main issue dealt with by both researchers as well the industry. WP4 will look into the use of drones during year 2;
- The needs of public safety user in the "post tetra era" are dealt with by the BROADWAY project. WP4 is in close contact with BROADWAY in order to learn more about this issue, as lessons learned from operations, indicated issues of communications in the operations (overload on communications systems, collapse of cellular communications among others).

Areas of Main R&D Gaps

- The need to develop an updated concept for "scene safety management" as the current concepts (EMS personnel do not enter the scene as long as it is not declared "safe" by police) proved not to meet the needs on the field;
- Environmental conditions, specifically noise and light, greatly interfere with the use of communications devices used by EMS personnel (specifically smartphones);
- Communications are impaired during emergency operations - mainly the cellular network that is overwhelmed. This will be of critical importance in the "post tetra era" where emergency communications will be incorporated into the G5 commercial network;

- A methodology to develop "reference scenarios" for EMS personnel is needed, as at the moment, risk assessment and risk modeling tools, commonly used by security agencies, are not part of the landscape of EMS organizations;
- Tools and methodologies to prepare responders to the emotional impact of security related incidents, increasing the probability of the responder performing well and decreasing the chances of long-term emotional impact on the responder are needed;
- Tools and methodologies to retain the skills of responders needed for a response to a security related incident should be developed. These tools must take into consideration the availability of responders (including volunteers) for training, cost effectiveness and the fact that security related incidents are just a fragment of EMS work, for most of them, the very low probability, high impact incident;
- The role of the bystanders in response to security related incidents requires more attention. Training of the citizens and the support post incident require development of tools and methodologies;
- There is no agreed upon methodology for the risk assessment coupled with the appropriate equipment;
- The equipment used by EMS is military / police type, which in many cases does not meet the needs of EMS personnel (mainly as it greatly hinders vision and movement, critical for EMS procedures);
- The capacities of hospitals to deal with the aftermath of a major security related incidents vary greatly. Issues like hospital security, dealing with relatives and public seeking information, providing timely information, are just some of the issues that need validated tools.

Priorities with Regards to Standardization

- Analyzing reports from incidents was difficult, as there is no agreed upon standard for reporting lessons identified from incidents. WP4 will look into a "Utstein style" reporting format prepared in the past, will suggest modifications if needed and will attempt using it in future "lessons learned" exercises conducted in the project;
- EMS organizations are entering into "risk assessment" related to security incidents. As there is no agreed methodology for this process, different organizations use different

methodologies and reach very different results, which are difficult to compare. A risk assessment methodology for EMS organizations would be a useful tool.

Best Practices and Lessons Learned

- The lessons reported by the different response organizations, related to their "security related incidents" are the foundations of the work performed by WP4 during this semester. The openness and cooperation of the response organizations have been greatly appreciated.
- Technical workshops with the respective representatives from the organizations provided WP4 with very good results (Nice and Madrid workshops). WP4 will continue with this approach during year 2.
- More and more EMS organizations are purchasing ballistics Personal Protective Equipment (PPE) for their personnel;
- The UK JESIP program - Joint Emergency Services Interoperability Principles <https://www.jesip.org.uk/jesip-the-programme>
Is a highly appreciated tool to facilitate – inter organizational cooperation, before, during and after an incident;
- Berlin Police has developed a methodology to be more specific in the "scene security assessment", this together with the concepts developed by the UK HART (Hazardous Area Response Team) will be the basis for the suggested methodology to be developed by WP4;
- The methodology used by SAMUR P.C Madrid to determine the needs for Ballistics PPE will be incorporated into the discussion paper – considerations for PPE being developed by WP4.

Work Package 5 - Education and Training of Personnel and Volunteers

WP5 conducted various researches and took into account also the experience of the European Master in Disaster Medicine (EMDM) which is organized by UPO and VUB. Most of the findings of this reporting period strongly confirmed, completed or slightly redefine the ones identified during the first period (M1-M6).

Research and Innovation Monitoring

Some of the innovative solutions proposed in the first reporting period¹ were tested on 30 students of EMDM residential course held by UPO and VUB in May. The analysis of the feedback revealed that the students appreciated the simulations, especially the ISEE tool. For the ISEE tool and for all the other simulation applications, the students underlined that the validation is necessary to use and propose it as a teaching tool. The virtual reality simulation was esteemed and the students asked more lectures based on it, changing the "plot" according to the lecture item.

Areas of Main R&D Gaps

From the analysis conducted during the second reporting period areas of main R&D gaps were identified as follows:

- There are very few training courses that take into account needs of vulnerable people (disables, elderly, children) during terroristic attacks but also during natural disasters especially considering the emerging threats caused by climate change (heat waves, floods, drought);
- Computerized training tools rarely have a post-exercise phase where objective feedback using data, statistics and other useful information regarding the trainees' performance are shown;
- For the tools already identified during the first reporting period, the pre-exercise phase (testing environment) should be better implemented inside the tools.

Common Requirements to Fill Capability Gaps

In order to fill capability gaps, the WP5 identified these common requirements:

- Exercises should be organized in collaboration with other institutions from the same country but also from abroad;
- Training tools and courses should be adaptable to the specific regulation that each country has on the health care system.

Indicate Priorities with Regards to Standardization

¹ ISEE Hospital, XVR, DSS, High-fidelity mannequins,

As already mentioned in the first reporting period a standard training curriculum is needed. A set of standard objectives and lectures should be in place in order to avoid the current fragmented courses scenario.

Nowadays we have different standardized and recognized courses all over the world, among others: ATLS, BLS-D, ACLS, AHLS. A standardized course for the medical issues linked to disasters is needed.

Best Practices and Lessons Learned

WP5 identified one Lessons Learned as follows:

- Debriefing sessions should be always carefully defined for the timeframe and the issues; learners can underestimate the importance of it and also feel accused by the facilitators.

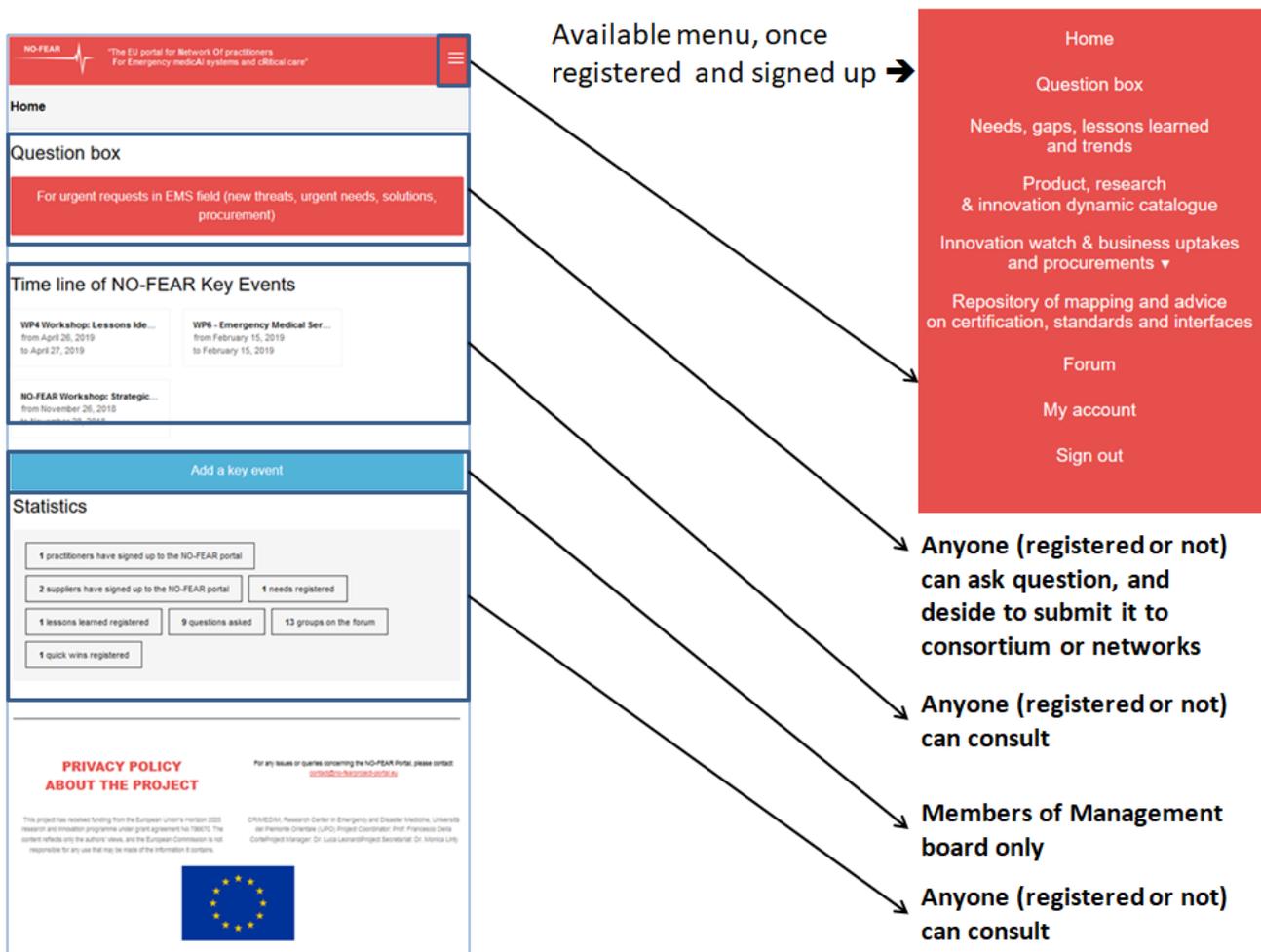
WP5 identified two Best Practices as follows:

- A standardized debriefing that takes into account learning objectives, key performance indicators and their monitoring/measurement and the way forward after exercise makes the learners and the facilitators more comfortable as well as the debriefing more effective.
- An Italian Facebook page where an expert in disaster management informs the population on how to behave in case of natural or man-made disasters. The structure of the videos (short and clear, using different communication channels: Italian sign language, lip-reading, voice, subtitles and short summaries) make them understandable from people with different disabilities. These videos are an example of just-in-time training for empowering disabled.

Work Package 6 – Innovation Monitoring and Uptake

Research and Innovation Monitoring

Since the 12th of April 2019, the NO-FEAR Portal is online and available for the consortium at <http://www.no-fearproject-portal.eu> (see overview of the home page in the figure below). The portal is expected to be opened to the NO-FEAR stakeholders in the first week of August. Specific sections are dedicated to monitoring and reporting research and innovation, presenting projects in relevant fields and showcasing innovative tools.



The action plan has been internally developed for Research and Innovation projects monitoring,.
The process mainly relies on output produced by:

1. Foresight exercise for general technological trends screening identifications;
2. Consortium and networks contributions through: workshops - with WP3 to WP5 screening, monitoring between the workshops and warping up analysis at workshops; (ii) NO-FEAR portal - with specific entries for the networks through: (A) trends, (B) projects, (C) Tools, (D) Technological Challenges, (iii) Quick wins;
3. Monitoring - through - (i) portal repository of the above-mentioned items where consortium and networks will provide inputs (ii) workshop six months cycles under WP3 to WP5 watches. Cross search tool in the portal support monitoring, filtering by (i) phasing with NO-FEAR pillar (ii) Trends, (ii) Related Need, Gap and Lessons learned portal entries (see below);

Product, research & innovation dynamic catalogue

Consult or add for the network in this dynamic repository: (i) EMS related technological tools, (ii) research or technological projects impacting EMS or (iii) Quick wins to answer to an identified need or trend.

Cross search in tools, projects & quick wins

Tools Add tool Projects Add project Quick wins Add quick win

Main phasing with NO-FEAR pillar activities

Acute care of the patient Acute care operations in security related incidents Training and education of personnel and volunteers

Trends

Does this fit with one or several identified trends ?

ACCESS TO MEDICAL DATA: REMOTE MONITORING AND E-HEALTH SERVICES ARTIFICIAL INTELLIGENCE (AI) APPLICATIONS

BIG DATA CBRN MANAGEMENT OF THREAT AND PATIENTS CYBER SECURITY DEMOGRAPHY AGING

DIGITAL TRANSFORMATION FOCUSED ON HUMAN AND OPERATORS ENVIRONMENTAL ISSUES: GLOBAL CLIMATE CHANGE

IMMERSIVE WEARABLE INCREASED NEED AND DEMAND FOR PSYCHOSOCIAL SUPPORT

INDIVIDUAL INITIATIVE ATTACKS (VS. CENTRALLY COORDINATED ATTACKS) INSTABILITIES OF GOVERNMENTS

LESS QUALIFIED ASSISTANCE MILLENNIAL GENERATION MORE FREQUENT LARGE SCALE INCIDENTS

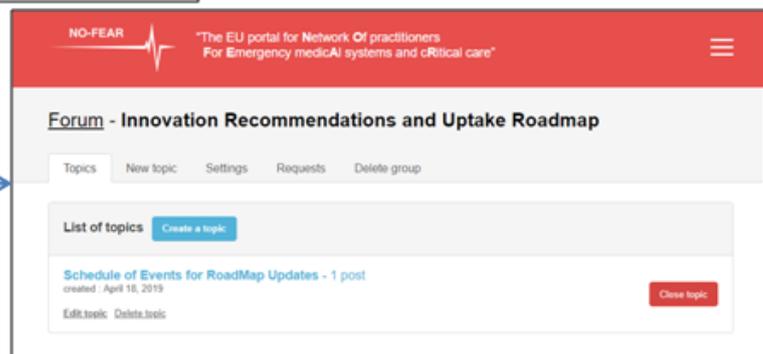
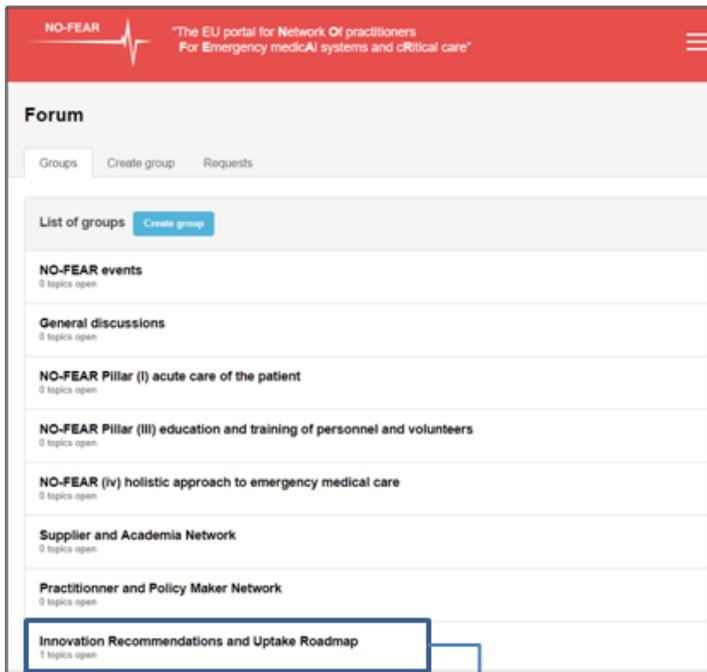
It involves innovation monitoring and technological trends of R&I activities

(i) in a specific section of the portal

(ii) through the NO-FEAR portal Forum (see below).

Analysis for recommendation providing and duplication identification is done through a set of activities on NO-FEAR portal survey which encompasses:

1. Forum for recommendation & KET (see picture below);
2. Cross analysis of technological tools, trends, quick wins through the innovation watch section of the portal.



Market Analysis

At high level identified market fields marked by the projects are related to:

- Natural and man-made disasters;
- Age related illnesses;
- MCI preparedness;
- Cardiovascular problems with aim on cardiac arrest and cerebrovascular accidents;
- Bleeding control;
- Population movement.

The update is ongoing on the NO-FEAR Portal. A webinar that will deal with hemorrhage control device market and future developments in that field is the first one to be conducted.

On the portal, three components support the action of NO-FEAR to contribute to the market uptake of the project results:

- Marketplace function of the portal and business uptake (as part of the Innovation watch & business uptake and procurement function of the portal);
- Business uptake and procurement group in the forum;
- Projects visibility & tracking. This part will be reassessed before next workshop when Networks will have entered their projects information on the portal.

Indicate Priorities with Regards to Standardization

The NO-FEAR portal encompasses a section called "Repository of mapping and advices on certification, standards and interface".

This section includes a listing of the relevant standards for the field, a repository of standardization events and documents (e.g. WP6 - EMERGENCY Medical services virtual workshop on researcher perspective on European Standardization which involved NO-FEAR, i-Lead, e-Notice, DRIVER+ and FORSEE projects).

A Standardization Priority Plan has been produced and is summarized as follow.

The Standardization Priority Plan report is based on the research conducted into standardization related to emergency medical services. It is the output of the initial part of an adopted four-phased methodological approach, which is being led by TFC Research and Innovation Limited supported by The Netherlands Normalisatie Instituut (NEN). Treated as a living document, the report has eight chapters and includes a roadmap and a summarized standardization action plan. The completed initial phase, months 1 – 12, focused on a number of foundational areas into standardization and commenced with the capture of an understanding into the standardization community and the European standardization landscape. This included engagements with key organizations and influencers, which might impact the standardization work being undertaken in NO-FEAR and viceversa as we move NO-FEAR forward. Concerns were raised. It also involved research that focused on the obtainment of perspectives from the security scientific research community towards standardization and on emergency medical service. More concerns were raised. The research at the initial phase enabled a review of European project outcomes to be undertaken related to standardization and the undertaken identified deliverables that were deemed relevant to emergency medical services. Through the completed initial phase, collaborations and means of engagement with other related projects were established including the ENCIRCLE and eNOTICE projects. The initial phase enabled our research to focus into the area of Interoperability given its significance to the three pillars of NO-FEAR and the Network of

Practitioners as the project moves forward. Through close engagement with relevant European projects, our research will be conducted with greater collaboration to the foreground delivering indicated priority reports that are not produced in silo mode.

Foresight and Trends

The foresight exercise helped the NO-FEAR EMS networks to reflect on immediate, mid-to-long term paradigms and tendency shifts related to dilemmas of new emerging threats, security issues, society changes in the EU emergency medical care. Foreseeing and weighting these changes and their impact on EMS will help the inside and outside project networks from directly and indirectly related fields of expertise to prepare and anticipate changes.

In order to improve the robustness of cold analysis of the rich material gathered through this exercise, during M7-M12 work on perspective/prioritization of the identified trends has been performed in order to better assess these possible tendencies for EMS network. These trends are included in the NO-FEAR portal and can be reviewed (ongoing: periodic every year), enriched (continuous, data recollected through a questionnaire) and are used as key search/classification elements on the NO-FEAR portal for others relevant entries (e.g. technological tools, projects, etc) to maximise the capitalisation for the networks on these firsts finding.

The Consortium

