NO - FEAR

Network Of practitioners For
Emergency medicAl systems
and cRitical care

**Preliminary lessons learned
around COVID-19 response**

Second issue

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1. Project Overview

NO-FEAR is a five-year project that responds to the Horizon 2020 Secure Societies 2017 call topic: Pan-European networks of practitioners and other participants in the field of security – Medical Emergency Teams.

The project brings together a pan-European network of practitioners, academia members, decision and policy makers in the field of emergency medicine, with the aim to share knowledge, experience and necessities, thus overcoming the current state of overwhelming fragmentation. The network collaborates to achieve a common understanding of needs and increase the EU innovation potential that could better fill the operational gaps and recommend areas for future innovations.

The consortium is led by CRIMEDIM (Research Center in Emergency and Disaster Medicine – Università del Piemonte Orientale) and composed of 18 partners from 10 Member States and 2 Associated Countries. It groups partners representing the different sectors involved in emergency response: practitioners, universities, research centres, governmental bodies, ONGs and SMEs.

2. NO-FEAR Role in the COVID-19 Response

The COVID-19 pandemics undoubtedly represents a global health threat, putting our citizens in danger and pushing many of our national health systems to a breaking point. All Europe is now directly involved in the response and practitioners find themselves operating in completely unknown and unpredictable situations. In this scenario, encouraging the transnational cooperation and the exchange of information, lessons learned, best practices and quickly available solutions is of paramount importance. The NO-FEAR project, through its network of practitioners, suppliers, policy makers and academicians, is doing its best to amplify the benefits of sharing experiences and solutions among its practitioners, academia members, suppliers and policy makers.

Through a series of webinars, interviews, group discussions and an online repository of documents, several lessons learned have been collected. Practitioners, suppliers, policy makers and researchers from Africa, Asia, Europe and the Americas were involved, and shared information based on their first-hand professional or academic activity.

A non-exhaustive list of preliminary lessons learned is provided below and will be updated with lessons learned and best practices collected in future webinars, interviews and online discussions.

3. Preliminary Lessons Learned Around COVID-19 Response

Lessons learned around EMS (what worked and should be retained):

- Public support (emotional and material) has been significant.
- Personnel have been exceptionally motivated and engaged.
- EMS personnel gained new experience and skills (such as taking PCR samples) by working with PPE.
- Inter-agency cooperation and coordination has been effective.
- Ongoing updates of treatment protocols (as data became available) are useful to address the new risks and increase personnel safety. Adjustment of "normal treatment protocols" to "COVID-19 reality" to increase teams' knowledge and response capacity.
- Triage of ALL incoming EMS calls for possible COVID-19 case definition is essential to reduce risks to responders. On-scene evaluation (and decisions for appropriate PPE levels) is also mandatory, as well as reducing the number of personnel in direct contact with the patient pre-evaluation. Minimum PPE (face masks) should be mandatory for all patient encounters – for EMS, patients, and anyone accompanying the patient.
- The medium matters. "Just in time" training is useful for personnel and daily briefings, delivered digitally/remotely (possibly by using the tablets used for patient records). Online trainings and webinars proved to be effective tools for updating knowledge and staying in touch with personnel. Personnel prefer "human interaction" (e.g., teleconferencing) to reading documents.
- "Unit spirit" is important. Team leaders play a crucial role and should take overall responsibility for technical issues and morale.
- International cooperation and information sharing help personnel to support each other and share lessons learned, such as the results of security research projects (including social media analysis and sterilization of used material with plasma).
- Many resources are publicly available, including tools for logistics planning.
- Volunteers, personnel from other services, and personnel from "less essential services" (such as training departments and administrative positions) were essential to sustain and augment EMS services during the peak of the crisis. Working to sustain those capacities for the next peak is a major challenge.
- The volunteers contributing to the system (including MDs and nurses) need to be managed well, to receive Psychosocial Support (PSS) and training on PPE use.
- The situation is stressful for responders and their loved ones. A comprehensive PSS plan is essential to reinforce a sense of belonging and being taken care of. Readily-available on-shift food and drinks (when shops were closed) and care provisions for responders quarantining at home were particularly essential to team members.
- Setting up a "health surveillance" protocol for personnel is key.

- PPE donning and doffing training, including for team members not usually involved in "PPE operations", is key to building confidence and competency. This includes Infection Prevention and Control (IPC) training, including getting to know risk and mitigation strategies along with technical aspects of donning/doffing. A "Buddy System" helps team members check and reassure each other.
- Implementation of a hotline / web chat / email for questions from EMS personnel provided both "technical assistance" as well as psychosocial support for team members.
- Patients have been effectively reallocated based on bed availability (especially ICU beds). Means of transport used include ambulances, trains, helicopters and fixed-wing airplanes.
- Use of buildings with large spaces to set up "emergency hospitals" proved beneficial. Emergency hospitals should be part on an "existing" hospital (an annex rather than a separate entity).
- Using hotels for "hospitalization" of mild cases or recovering patients proved efficient.

To be improved:
- Long Term Care (LTC) facilities are among the most vulnerable locations. Specific pre-hospital and acute care protocols are needed, as transporting LTC patients to a hospital is not always in their best interests.
- As the COVID-19 outbreak declines, social and economic welfare needs increase and new "vulnerable" groups emerge.
- The impact of the long-term scale-down in "regular health care activities", together with the long-term health effects of COVID-19, on the health needs of the population is still to be understood.
- It is critical to reassure the public that it is safe to call EMS or go to the ER.
- EMS are looking into incorporating "tele medicine" tools to 1) assess patients who in home isolation and 2) provide a physician assessment (for services that don't have a physician on board) to decrease the number of ER transports for patients who could be attended to outside of the hospitals. This requires proper regulatory and financial frameworks.
- In cases where health care systems were overwhelmed by the number and severity of cases, health care workers (HCW) had to make difficult decisions to minimize patient care. A clear ethical framework and psychosocial support are needed to ease the emotional burden on HCW.
- Emergency management plans (including infrastructure) should be revisited in light of lessons from the first outbreak. The need to have flexible structures (both physical as well as procedural) that allow for easy up and down-scaling are essential. The main challenge at this point in time is scaling up again, in the event of a new peak of patients.
- Health care personnel are not used to working in a "command structure". This resulted in delays in decision-making and conflicting instructions. "Incident Command" systems used by health care organizations should be adjusted.
- The shift from a "health care emergency" to a "national emergency" in many cases was not foreseen in the crisis management contingency plans, which created a lack of clarity on roles and responsibilities.

- As health care is not a "normal" participant in "crisis management structures", communication and coordination were sometimes challenging.
- Differences in dispatch protocols between different dispatch centers were a challenge to EMS.
- A 'hub and spoke' approach (providing different level of care to different categories of patients) was not always respected. New care paths for discharged patients should be considered to free hospital beds.
- Non-Invasive ventilation uses 4 times as much O_2 as intubation and can impact O_2 storage.
- Rescue services were still working even though organizations had around 25% staff in quarantine or sick. Having plans to reduce the risk is necessary, including seperating workers into "capsules" who do not meet each other, strict disinfection facilities for common work areas, prohibiting joint meals, mitigation plans for the eventuality of large absences and programs to care for sick / under quarantined workers are essential.
- Due to movement restrictions, there were fewer fire and rescue calls. EMS calls reduced in some cases and were normal or higher in others. This creates a major challenge for services whose budgets are based on "reimbursement per service". The cost of each EMS run increased dramatically (due to PPE costs and the need to pay "over time" to replace absent personnel). Compensation for EMS services, and a new budget model should be considered.
- Personnel in "high risk groups" required changes to their job assignments. This is especially critical with EMS services with large numbers of volunteers, many of them elderly. The long- term impact of career choices and personnel profiles is yet to be understood.
- Should HCW be asked if they would volunteer to work with COVID-19 patients? (In some cases physicians were asked, while nurses not).
- HCW's needs include COVID-19 testing, accommodation, travel requirements, and other needs during isolation.
- HCW, while very cautious with their IPC procedures on-duty, don't necessarily follow the same level of compliance off-duty.
- Many logistics aspects became "bottlenecks" for the operation – consumables supply and storage, "biohazard" waste management being two examples.
- Logistics self-sustainability of providers must be considered along with "critical items stockpiles" at the regional / national level, along with centralized procurement for items like PPE, Oxygen, certain medications, and ventilators.
- COVID-19 requires close monitoring of resources and capacities, and real time monitoring of availability. In a fragmented system like health care, service is often delivered on a voluntary basis with no "systems" to support this (especially as health care is not considered in many cases part of the "civil protection system").
- Support personnel (such as cleaning staff) often have their needs and concerns overlooked. It is key to look at the whole chain of those involved.
- Disinfection procedures are often harmful to the equipment (such as the use of Hypochlorite solution 5000 ppm).

- Live trainings have been suspended, as simulation is key in acute care and pre-hospital trainings. In a reality where COVID-19 is here to stay, training of new providers and scaling up their skills are essential, there is a need for new and safe training methodologies.
- To meet the needs of large numbers of critical care patients, physicians and nurses, who had not been on ICU teams, were trained. The level of their skills should be assessed, a working modality created along with a program to retain skills for a feature outbreak.
- HCW need to address emotional aspects to patients, their relatives and the community.
- Stigma and fear sometimes affected the acceptance of HCW by their communities.
- New path of care for patients (separated "COVID-19 ER") sometimes created delays in patient care and flow.
- Different response models in the EMS, with some services designating "dedicated COVID-19 units".
- It is possible that a peak in EMS calls for "respiratory syndrome" is a predictor of a rise in COVID-19 patients.
- Change and better coordination is needed in treatment protocols between health care facilities, with different outcomes for patients. This includes also the need to harmonize the pre-hospital care protocol with the intra –hospital care protocol (e.g. patients who are intubated in the pre-hospital setting, but were not to be intubated according to the hospital protocol).

Lessons learned about Personal Protective Equipment (PPE):
The following issues were identified in a webinar organized by the IFRC Psychosocial Support Reference Center and MDA on challenges and possible solutions for the PSS impact of wearing PPE:
- Clear guidelines on the rationale of use of PPE, form the very beginning, preferably for all HCW across sectors, is essential in creating trust and ensuring proper utilization of a scarce resource. Any change in the guidelines must be transparently communicated and explained to frontline responders.
- Current PPE is cumbersome, hot, and impairs communication and patient assessment. This PPE is based on other outbreaks with pathogens that are close to COVID-19. We need to a) better understand the spread of the virus and adjust the PPE accordingly, and b) design more "user-friendly" PPE that is c) also more environmentally friendly.
- Shortage in the supply of PPE resulted in competition between different organizations over the limited quantities available.
- Many instances of counterfeit PPE (items provided does not meet the claimed standards) were identified. Health care services, don't have the capacity to test equipment to verify if it meets the standard. Normally, standard institution-certified laboratories did not have the capacity to meet the demand to validate equipment.

Challenges/needs:
- To better understand the spread of the virus and adjust PPE and "normal treatment protocols" (e.g. aerosolizing procedures) accordingly.
- Better design of PPE better fit for purpose (specifically for COVID-19).
- To create a system for validation of PPE.

- To maintain the capacity to scale up and scale down the COVID-19 operation as needed.
- Methodologies for acquisition and reinforcement of skills and simulation, in an environment of "social distancing".
- More environmentally and "equipment friendly" disinfection procedures.
- Addressing HCW fatigue

Challenges and possible solutions for the PSS impact of wearing PPE – Main issues identified

- Health Care Workers (HCW) wearing PPE are going through a process of loss. They experience the sense of losing skills, in some cases skills they worked hard to gain – touching patients, showing empathy – which create barriers to communication. HCW should recognize this loss and the fact they need to process it, in order to come to terms with it and allow the acquisition of new skills needed for this situation. Anger associated with PPE use is sometimes transferred to the patient.
- The working environment of HCW has changed significantly due to COVID-19. Discussing with the HCW the new environment, risks and possible mitigation strategies (especially those helpful for their peers) is an essential step in supporting them in dealing with this new situation. This discussion should include our "new emotional state" (e.g. while wearing PPE) and reduced personnel challenges.
- COVID-19 poses unique challenges for training personnel for Infection Prevention Control (IPC) measures and the use of PPE (donning and especially doffing), to create trust in their capacities and support them. A special challenge is the "risk group" that requires adaptation.
- HCW often sense fear associated with PPE use of making a mistake, contracting the virus and transmitting it to their loved ones" This fear could be reduced by using a "buddy system" while donning and doffing the PPE. 'Buddy' pairs observe each other donning and doffing to ensure the proper processes are followed. In case of a larger operation, a dedicated IPC officer should be appointed to ensure the proper procedures are followed. This increases the sense of safety of the personnel involved.
- PPE gives a sense of "depersonalization" both for the HCW as well as to the beneficiaries. Strategies used and proposed included:
    a. "Personalization of the PPE" – writing your name and role on the PPE, attaching your picture to it.
    b. Requesting "colored PPE" by function "normally used" in Health Care (e.g. blue or green).
    c. Transparent facemasks could be made available (to be followed up). These masks are especially important while communicating with persons who have a hearing impairment (who assist themselves by lip reading).
- Dedicated "support lines" and systems for HCW responding to COVID-19 suspected patients have been created. These lines dealt with: a) "technical" questions on COVID-19-related issues (use of PPE, disinfection, etc.) and b) provided "peer support" to the team members.

The role of team leaders has been as critical to team members feeling safe and taken care of. A feeling of support engendered by leaders proved to be a key factor in the ability of team members to keep on providing service despite hardships.

The sense of "being taken care of" proved essential to the team morale and required a proactive approach (e.g. outreaching actively to all those at home quarantine, making sure those in quarantine have all their basic needs met).

Team leaders needed coaching and support in these roles.

COVID-19 operation is an opportunity to openly discuss the needs of HCW for psychosocial support (PSS), and the appropriate channels to provide it, as the PSS needs are more evident during this crisis where they otherwise may have gone neglected (in many cases by the HCW themselves).

- Clear instructions and training on PPE are key to the sense of safety. One of the challenges during the operation were changes (sometimes frequent) in the guidelines. Providing clear and transparent information on the reasons for changes was essential to maintain trust in the guidelines and to help fight rumors (such as "this change is not to increase safety, but reduce costs").

  Protocols on the use of PPE must include factors such as heat stress and recuperation after the use of PPE (hydration), to ensure a holistic safety approach - not just "donning / doffing".

- It is extremely important to understand the <u>beneficiary perception of the PPE</u>, and not to assume we know what the perceptions are. Cultural differences have been observed (in some countries not wearing PPE is considered an "anti-social behavior" while in other countries very few use PPE). At the same time, there are personal differences in perception of PPE among the public. These may include fear, not understanding why the HCW is threatened by me, or fully appreciating that the HCW is protecting her / himself and me and feeling safer in the interaction with a HCW in full PPE.

  The following mitigating strategies have been offered:

  a. It is extremely important to clearly communicate with the beneficiary why PPE is needed, why specific types of PPE are used, and allow time for questions (e.g. beneficiaries may not understand why on TV HCW's wear full suits, while the HCW providing them care is only wearing a mask, googles, gown and gloves – which might be inaccurately assumed to be reckless).

  b. Whenever possible, allowing both the HCW and the beneficiary to choose the type of intervention – virtual without PPE, or Face-to-Face using PPE (both by the HCW and beneficiary). The ability to choose has been greatly appreciated by both HCW and beneficiaries, and gives them a sense of control otherwise lost while using PPE. This also allows for recruiting more volunteers, as some will agree only to provide "remote services" (especially volunteers in "high risk groups").

  c. In longer-term health related interventions, beneficiaries have been offered with the opportunity to wear PPE so they can experience the hardships encountered by HCW. This created better understanding from the beneficiaries and increased trust.

- PPE use can be associated with sickness / being COVID-19 positive, along with the stigma associated to persons sick / positive. This is very important for Red Cross / Red Crescent National Societies who are providing services to persons who are "potential cases" (e.g. taking tests – "home sampling" for people under home quarantine), and their family / neighbors see the team arriving with PPE. This might end with refusal of service, with dire consequences. COVID-19 anti-stigma campaigns should address these issues.

Statement associated with the use of PPE by HCW

(Used as a "problem statement" for the beginning of the webinar, and possible discussion points later)

- The most frightening part of using PPE is knowing that even a small mistake might end in me being sick and contaminating my beloved ones. (more than 50% of the webinar participants voted for this statement as the most relevant for them)
- Not being able to use my assessment skills while using PPE is very frustrating for me.
- I'm trained to provide "human care", and while I'm dressed in the PPE I feel that I'm scaring my patients.
- I see everyday patients who need human contact and are deprived of that. Surrounded by people in space suits, often replaced by robots and cameras.
- How am I supposed to communicate with a patient with my mouth covered? This is very stressful for me.
- Mental health in front line workers- Identify and properly address mental health abnormalities in individuals who are at higher risk.
  Shortage of workers increase working and mental pressure in healthy workers.
- Mental health care for medical staff - Why and what to do when the staff is reluctant to receive psychological help? They say they don't need a psychologist but more rest and PPE
- Emotional distress among healthcare workers - Ethical obligations, Fear of personal safety and well-being of colleagues and family

Lessons learned around ventilation techniques in COVID-19 patients

- The principal feature of the COVID-19 is the viral pneumonia that often lead to Acute Respiratory Distress Syndrome (ARDS). In patient with ARDS the need for invasive ventilation is associated with high mortality.
- Continuous positive airway pressure (CPAP) has been showed to be a simple, affordable and effective method in mitigation of the reduction in functional residual capacity and improvement of respiratory mechanics and gas exchange.
- CPAP may cause a dispersion of viruses and contamination of the environment and personnel.
- Georges Boussignac invented a system that can be applied to CPAP. It has non-physical valve and permits the patient to inspirate and expirate along the same way where a filter can be added in the COVID times, protecting the environment and the medical staff from contamination. This "Filter Boussignac CPAP" adds also functionalities of heat and moisture

exchanger to the "microbiological barrier" between the oro-nasal mask and the Boussignac "valve". Advantages of this device includes:

- o use without electricity and during transportation,
- o very low risk of ventilatory leak and aerosolization,
- o allows the use of aerosolizers to deliver treatment directly (bronchodilators) into the lung.

More information on the application of this device during COVID-19 crisis can be found here: https://www.youtube.com/watch?v=xd1urg_mJ6M

- Intubation is a manoeuvre that poses HCW to infectious risk, clinicians should wear an FFP3 mask with eye protection or PAPR. An informative video on intubation of patient during COVID-19 can be found here: https://www.youtube.com/watch?v=iIGAmdyZr4Y

- Pandemic may request an important effort in terms of surge capacity, especially of Intensive Care Units: sometimes it is not applicable to have just few hospitals in a region dedicated to COVID. Examples of Surge capacity from Novara include:
    - o Private care rooms transformed in normal care rooms;
    - o Orthopedic ward dedicated to patients with NIV or CPAP;
    - o Infectious disease ward dedicated to non-intubated patients (including NIV beds dedicated to patients with low life expectancy);
    - o Few Operating Room reserved only for Oncological patients and emergencies;
    - o Use of most ORs as a buffer for ICU (consider that ORs may be distant from ICU so this can lead to staff issues.

- First patients admitted to hospitals (in Italy) presented with severe pneumonia, possibly due to a delay in appropriate treatment (they usually received paracetamol as first medications).

- Rapid and cost-effective changes in hospital buildings may enlarge the number of patients that can be hosted in ICU setting.

- Training and apprentice periods are of utmost importance especially for residents and for HCWs that are not usually working in ICU.

- 5 phenotypes of patients identified in Vercelli (from low to highly severe clinical conditions):
    1. Fever with no ARF (normal walking test) normal chest xRay – discharge with therapy
    2. Fever, mild ARF (pO2>60 mmHg ra) – O2 therapy
    3. Fever and moderate severe ARF, (pO2<60 mmHg ra)
    4. ARF with severe or complicated penumonia P/F <200
    5. ARDS, P/F < 150

- From the third phenotype on, is recommended to treat the patient with High Flow oxygen or CPAP.

- Patients may present in the ED with the so called "happy hypoxia": bad value of O2 and pO2 without complaining dyspnoea.

- COVID-19 patients ARDS may present with phenotype L (3/4 patients) or phenotype H (1/4 of patients) [1]
- High Flow Nasal Cannula may be used in patient that doesn't need immediate intubation. It provides heated and humified blend of oxygen and air, up to 60l/m with a maximum PEEP of 6 cm of water. This technique has the disadvantage of possible contamination of environment.
- CPAP and NIV are more used than High Flow Nasal Cannula. All of them have the maximum benefit if applied early, when the lung is light, soft and with good compliance.
- Helmet, due to high costs, may ran out due to high number of patients that required it. Scuba mask adapted for this purpose may be a temporary solution. With both of them, it is possible to prone the patient (it helps in reaching high saturation level).[2]
- When the response is not good (RR >34, no improvement in oxygenation, development of hypercapnia), intubation is indicated.
- Intubation of patient, in prehospital setting suspected to have COVID, should be done by personnel wearing PPE. During the intubation, the compressions should be stopped, the face of the patient should be covered after intubation and all the materials used should be disposed. Avoid use of valve mask. Ketamine dose during intubation should be increased by 1/3 to avoid aerosolization.
- If the patient is stable use nasal cannula when sufficient, if not: oxygen mask + surgical mask.
- During transport is recommended to maintain a PEEP that permits to protect lungs (8-10)

Lessons learned around nursing homes & COVID-19
- ECDC estimated deaths in care homes represent 30% to 60% of all COVID-19 deaths. COVID-19 mortality disproportionally affects nursing homes, creating enormous pressures to deliver high-quality end-of-life care. We recognize the importance of exchanging experiences and challenges of the nursing home setting.

Country-specific lessons learned:
Ireland
- During the crisis, the official health care system discovered the existence of unregistered nursing homes.
- Cause of death might appear after days, or COVID may represent one of the causes of death (dead with COVID vs. dead because of COVID)
- Nursing homes are usually privately-owned structures. Sometimes they are not compliant or only partially with government directives. Issues may be with infection control,

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[1] Gattinoni L et al COVID-19 pneumonia: different respiratory treatment for different phenotypes? (2020) Intensive Care Medicine; DOI: 10.1007/s00134-020-06033-2

[2] Ding, L., Wang, L., Ma, W. et al. Efficacy and safety of early prone positioning combined with HFNC or NIV in moderate to severe ARDS: a multi-center prospective cohort study. Crit Care 24, 28 (2020). https://doi.org/10.1186/s13054-020-2738-5

governance and management, risk management and staff training. This is particularly true in case of structures belonging to a single, stand-alone provider. Rules include also availability of PPE, however few Irish nursing homes had stocked up PPE for a pandemic.

- Nursing homes were precociously closed to visitors but also to new admissions. This caused a waiting list of elderly patients in hospitals that could not be discharged.
- Lessons Learned:
- Nursing Homes should have control over their own testing; personnel should be trained and briefed on infection control, PPE stockpile and supply chain should not go in competition with that of Hospital structures, (because of competition with the state to buy PPE), Specialist Clinical Support must be available if required, Staff from State-run structures should be available for step-in if necessary.
- Ireland has now in place a system for requesting and receiving PPE exclusively for nursing staff – Personnel from HSE has been sent to nursing homes to substitute staff [Best practice]

France
- The low intensity of medical care in nursing homes and namely the lack of medical resources and care (doctors are not present throughout the day and at night there are only few nurses) represented a major determinant of malfunction.
- The lack of timely communication from central government to nursing homes produced: lack of PPE, delayed isolation of COVID-positive patients from the COVID-negative, lack of tests that did not consent differential diagnosis between COVID-infection and respiratory distress. Difficulties in communication with relatives represented a main drawback.
- Nursing homes in which managers showed resourcefulness and efforts to train staff had better results – SAMU had a standby 24/7 unit for advice on geriatric and palliative care in an on-call mode. Some NH provided remote training in hygiene or psychological support via WhatsApp; some provided residents with access to day hospital; some participated in mobile geriatric teams sent to EHPADs with the objective of establishing an action plan [Best practice]
- Residents suffered from isolation with medical and psychological consequences such as depression, undernutrition, dehydration, all of which are identified also as side effects of COVID-19
- Lessons Learned:
    o Reinforce medical staff and facilitate the use of telemedicine;
    o Establish a plan for regular communication with residents and families;
    o Educate residents, staff and visitors on hand and respiratory hygiene;
    o Strengthen infection prevention measures;
    o Consider ethical impact and strategies for managing stress and anxiety among staff and personnel;
    o Anticipate the need of supplies and personal protective equipment.

Spain
- Interdisciplinary group for needs identification (e.g. Health needs, Staff and material, logistics, training on PPE and disinfection), health assessment, transport of patients to

hospitals and psychological support. Each member will than report the problems to the group for sharing decisions and prioritization [Best Practice]

- EMT adaptability (work in different settings from EMS) and interoperability (work with different actors: military, police, social services) are an important factor to strenghen.

Italy

- Establish isolation approach (from visitors to external suppliers): quarantine zone, PPE sor patients (masks), two temperatura surveys a day, closure of common areas.
- Unique assigment of the staff to a ward, different entry and exit routes, PPE for staff and measurement of temperature at entrance and exit.
- Do not allow visitors: contacts with relatives and doctors only permitted via web or phone (exception for advanced care and terminal guests).
- Suppliers should not enter the structure, they can leave the shipment at the entrance of the building, disinfection of incoming goods, use of stocks present inside the structure instead of incoming material.
- PPE purchase: a channel for NH should be identified. Difficulty in finding new suppliers, extra costs, risk of non-compliance of PPE and fraud.

The Consortium

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