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The organisation of resilient health and social care following the COVID-19 pandemic

This Opinion:

1. identifies the building blocks of resilient health and social care organisation,
2. explores the elements and conditions for capacity building to strengthen health system resilience;
3. addresses healthcare provision for vulnerable patient groups and how to sustain such provision in a system under stress, and
4. defines an approach to develop and implement "resilience tests" of Member State health systems.

Recommendations target several areas (most relevant areas for HOSPEEM marked in red):

1. enhancing local workforce training and resilience,
2. fostering inter-professional and inter-sectoral collaboration with community health workers,
3. developing and deploying online training for frontline health and social care professionals regarding care provision to vulnerable groups, and

4. investing from the European Commission in the development and implementation of
   (a) comprehensive resilience testing of health systems that use qualitative and quantitative data collection methodologies to generate meaningful, actionable results for health system transformation, and
   (b) corresponding learning communities within and across the Member States to share lessons learned through this process.

Common challenges related to care delivery and organisation:

- Primary care providers reportedly struggled to ensure continuity of care and found **it challenging to switch swiftly to new methods of service delivery** (e.g. telemedicine, telemonitoring and other e-health solutions);
- Hospitals faced great strain due to insufficient capacity, **unavailability of adequately trained health workers, and lack of experience in managing an unprecedented emergency**;
- Weak integration between primary care, outpatient specialist and hospital care and social care resulted in overburdened hospitals in some Member States, while many elderly homes became incubators in the spread of the pandemic;
- The pandemic and the confinement measures created a p**sychosocial burden** for the population and, especially**, the well-being of the health workforce.**

→ N**eed** to develop a **conceptual framework that guides healthcare reform**, with particular attention to the organisation of and connections among primary, outpatient specialist, and hospital care and social care. It will be essential to reflect on the necessary elements and conditions for capacity-building both at national and EU level.

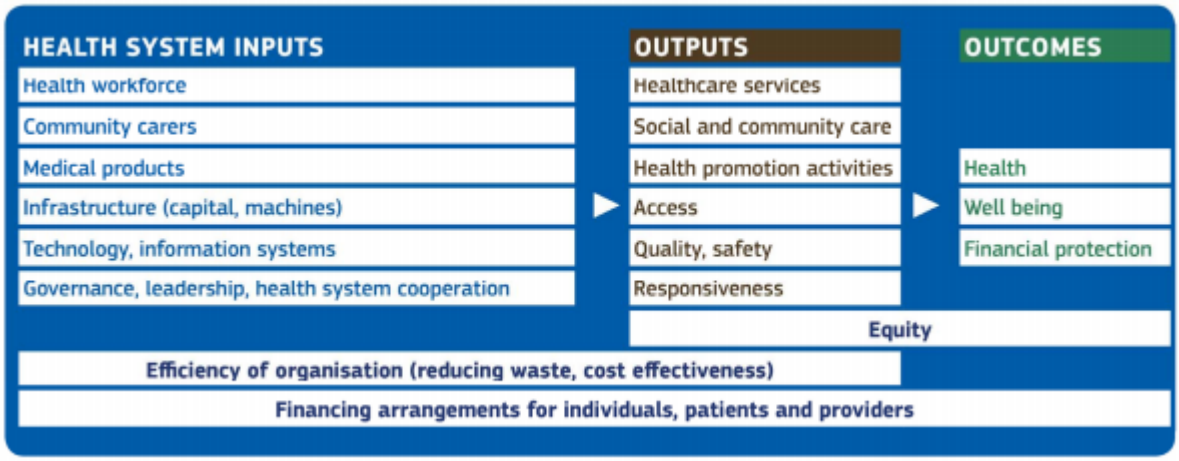

Figure 1 Health systems building blocks

Definition of health system resilience: "the capacity of a health system to (a) proactively foresee, (b) absorb, and (c) adapt to shocks and structural changes in a way that allows it to (i) sustain required operations, (ii) resume optimal performance as quickly as possible, (iii) transform its structure and functions to strengthen the system, and (possibly) (iv) reduce its vulnerability to similar shocks and structural changes in the future".

Protecting mental health (of health workers)

Those who are not on the frontline have also faced psychological pressures associated with remote working and the resultant isolation. Those affected are **at significant risk of long-term mental illness**, especially if they are unable to obtain appropriate support. One particular concern in the current pandemic is the phenomenon known as **moral injury** (Greenberg, Docherty et al. 2020). This is more often seen in combat situations, where an individual feels a sense of guilt or shame because they are unable to provide the care or security, they would typically deliver to another, for example, because of a shortage of resources. This can be managed by the provision of individualised support, avoiding false reassurance but examining the challenges involved, coupled with the creation of a supportive environment, with a particular focus on individuals who risk falling between the gaps and who failed to engage with support systems.

Recovery plan for staff mental health well-being:

1. individuals are given thanks, both written and verbally, which recognises the situations that they have confronted and provides information on opportunities for psychological support;
2. the use of return to normal interviews by supervisors who are confident in speaking about mental health;
3. active monitoring of those exposed to potentially traumatic effects, and particularly those who, for other reasons, might be at particular risk of mental illness;
4. group discussions can offer a mechanism for mutual support.

Ability to retain, prepare, distribute, and flexibly increase staff capacity

An adequate (level and distribution), trained, motivated and well-supported health and care workforce within the context of a robust primary care system working alongside family carers, community partners and local networks of support are the greatest assets for a resilient health system. **Countries should invest in sufficient high-quality staff, locally trained and well inserted in the broader health and social care system. There should be more training opportunities at the community–level and policies should merit leadership of health professionals at the local level.**

Staff shortages and brain drain: Maintaining adequate levels of staff particularly for small countries, can be challenging, where professionals often rely on the training of specialists abroad, which may

result in a depletion of human resources if staff decide not to return to their home country upon completion of training. **The development of in-country specialist training programmes, the accreditation of these, and agreements with institutions on training in various countries could be measures to retain health professionals and simultaneously offer a wide variety of training options to guarantee adequate care of the population**. The EU is in the position to engage in a process with member states to create strong **cross-border solidarity** and capacity assessment avoiding inequitable brain-drain. Structural under-appreciation and insufficient support of health and care professionals contribute to a lack of sufficiently skilled staff or absenteeism due to low motivation.

Table 1 Short-term and long-term strategies to increase workforce capacity that require a supporting legal framework.

Short-term	**Long-term**
Extra hours, including moving from part-time to full-time work, modifying work schedules and cancelling leaves of absence, which often needs to be **underpinned by emergency legislation**.	Increase staff capacity could involve changing the skill-mix of health workers, moving for instance care away from the hospital, shifting primary care tasks to nurses and making greater use of health technology assessment to inform care delivery and changes
• Medical and nursing students can be called upon to work in clinical practice; • retired, inactive or foreign-trained but unregistered health professionals could be brought into the workforce; or • have redeployed private-sector workers into the public sector and ask volunteers to support the response.	
➔ **Need**: standardised training for the social, emotional, clinical and technical challenges of caring for particular patient groups and protection against risks (e.g. infection) and burnout. ➔ **Need**: support system (e.g. through staff support mechanisms, helplines), ➔ **Need**: ensured safety; ➔ Need: monitoring of their well-being, job satisfaction and absenteeism; ➔ **Need**: identification of vulnerable health professionals such as those with long-term medical problems may be considered to be moved to non-patient-facing roles in times of unexpected events	➔ **Need**: health workforce to be prepared through training to deliver health care in disrupted; ➔ **Need**: incorporation of critical thinking into education and more focus on generalism (at least in undergraduate training) to stimulate the workforce to be creative and avid lifelong learners, to learn and creatively adapt from the situations around them. ➔ **Need**: paradigm shift among educators and professionals to acknowledge that the health workforce is responsible both for individual health and population health.
Solution: Teleconsultations in primary care may also work	

Prerequisites for the efficinet integration of Telemedicine
- Willingness of general population, patients and healthcare workers. - Robust infrastructure and networks for connectivity and communication - Standardisation of solutions and interoperability with the electronic health record of the health system. - Strategy and operational plan guiding health care providers to switch to outpatient teleconsultations and increase tele-expertise and remote patient monitoring. - Staff and patients training on the recommended use of telemedicine - Observation of prevailing institutional norms, protocols, and quality assurance mechanisms in place, including prompt reporting of adverse events, proper documentation, and follow-up. - Equivalent level of quality of care - Data-sharing mechanism to integrate telemedicine data with epidemiological surveillance. - Interconnection between telemedicine services operating at hospitals and those deployed in primary care. - Appropriate regulation and financing models

Identifying vulnerable groups: Which specific groups warrant special attention?
Following the outbreak of COVID-19, there is evidence that healthcare workers may suffer from various conditions related to their frontline involvement, such as significant levels of anxiety, depression or insomnia. The imperative of caring for patients is contradicted by the immediate presence of a virus with human-human transmission and no specific lifesaving treatment. Being forced to handle life-threatening conditions while simultaneously putting one's own life at risk provokes a palpable sense of danger. Other workplace stressors for physicians and nurses during COVID-19 resulted from extended shifts with increased volume and severity of patients**. It must be a priority to monitor the physical and mental health issues of the frontline workforce to safeguard their well-being and ability to perform under stressful conditions, beyond the provision of protective equipment and sufficient testing**.

The impact on healthcare services and receipt of health care
Shortages of hospital beds and **lack of availability of healthcare** workforce were among the consequences of the lockdown. Diagnosis and treatment of many diseases had been postponed. Many countries have reported a substantial drop in the number of patients attending the hospitals due to fears of becoming infected, among other reasons.

The impact on professional development and training
The responses to COVID-19 may represent an opportunity for innovation and transformation of medical school curricula to promote the advancement of telehealth, adaptive research protocols, and clinical trials. There is a need for the development of curricula oriented at team-based work with a focus on health promotion and disease prevention, facilitating health behaviour adoption to reduce or counteract vulnerability. Medical curricula must be more focused on the management of multimorbidity, since increasing multimorbidity, especially cardiometabolic multimorbidity, and polypharmacy are associated with a higher risk of developing COVID19. Transformation of the existing training and professional development courses must occur within a framework of patients' rights and safety.

Resilience test for health systems – Banking sector as a model
A resilience test is **not** a performance assessment of the health system and does not serve to rank member states in terms of resilience. Instead, the resilience test **addresses the perceived impact of adverse scenarios on the functioning of the health system and assesses the perceived extent to which the health system will be able to maintain its functions and objectives** (e.g., inputs/outputs/outcomes). Thus, a resilience test implies a forward-looking exercise of coping with plausible and severe adverse events. It works as a "*what-if*" analysis.

A resilience test on a health system implies that the interest is in system-wide effects, not on the impact on specific healthcare institutions and how they individually cope in adverse scenarios. In other words, **it tests the health system as a whole**, with its interconnected parts, which is often more than

the sum of the impacts on individual entities. Following from a health systems approach framework, a resilience test looks to capabilities of the population, for instance, concerning health literacy and social cohesion, to contribute a positive response should a stressor appear. At the same time, the **resilience test should produce actionable results**. The modifiable risks identified need to be linked with strategies for improvement by those involved in carrying out the test. This corresponds to the transformative capacity of the health system. **Policy levers or other change mechanisms become clearer via the resilience test to facilitate this improvement**. Moreover, key stakeholders with the capacity for creating change and implementing improvement are involved in carrying out the resilience test. Tests occur under external peer review, authorities and experts from other member states (or regions) can participate in the resilience test process. In this way, an international learning community is formed to support health system strengthening and responsiveness to shock(s) and structural change(s). In this opinion, the **Expert Panel aims to establish the approach and the necessary components that could be used in viable resilience tests.** As stressed earlier, such a test must involve both standardised and individualised assessment so that the results can be valuable to both the Member State being assessed and the other Member State health systems. Therefore, **implementation requires**:

1. a toolkit of **standardised materials**, and
2. **detailed implementation plan** describing the practicalities involved in using the toolkit and carrying out a resilience test in a similar fashion across the Member States. In this section, a toolkit is outlined that provides
   (a) example **adverse scenario** with supporting references for more detailed development,
   (b) **table of dimensions of shock characterisation** to assist the health authorities in selecting the adverse scenarios to use in the resilience test, and (c) a list of **potential structural and process indicators** to be assessed.

Then, an **innovative roadmap for resilience test implementation** in various phases is described.

The resilience test occurs via a collaborative process that is led by either Member State health authorities and an international support team explicitly established to provide oversight through the resilience test process. In a preparatory phase, the test owners in a given Member State (e.g. national or regional health authorities) adapt the adverse "what if" scenarios in the toolkit to their context. They select **which scenarios represent the most appropriate stressors for their health system**. Then, different groups of key stakeholders meet in groups with a trained facilitator. In these groups, they discuss various indicators of system function. The indicators measure relevant aspects that contribute to resilience, not only from a theoretical perspective but also a practical one (e.g., stocks of PPE, **number of adequately skilled staff**, mechanisms to enhance testing capacity in the short term, capacity to mobilise assistance from neighbouring countries). They **assess the indicators under "normal" conditions**, without the presence of any stressor, to offer a baseline reading. They then re-assess the indicators, and additional indicators, during the "what if" analysis of adverse stressor scenarios in order to determine the extent to which each would be impacted or activated. Although the indicators are eventually quantified, the qualitative data generated in the focus groups is the basis for quantification of the indicators. Both quantitative and qualitative data is gathered throughout the resilience test implementation process, and high value is placed on the process of qualitative data collection throughout the process. Indicators are scored and, using weights that are customised to each Member State health system, an assessment of the functioning of each input and output building block is produced under different scenarios. **One of the products of the resilience test is a quantitative scorecard that visually displays resilience test results in the form of stoplights (red, yellow, and green) for each key area**.
The purpose of the scorecard is to offer a snapshot view of the health system building block functioning under stress. Green indicates that the building block is functioning well in the given condition and is likely to weather the stressor. Yellow suggests some deficiencies in that building block and caution is warranted. Red indicates that the building block is not functioning adequately and is not expected to weather the stressor. The bottom row of the scorecard uses radar plots to show how specific lower-level indicators within a building block change across scenarios. The scorecard could be provided in the form of a dashboard. **The scorecard is not an end product of the resilience test.**

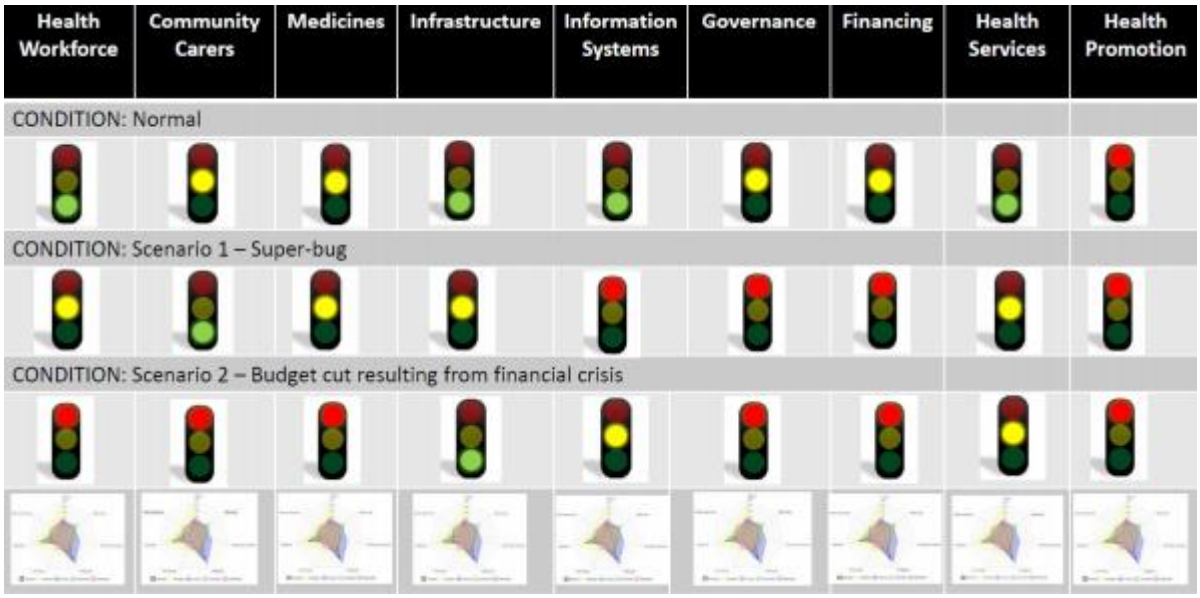

Figure 2 One outcome of the resilience test: A sample scorecard

The key indicators for toolkit materials – Health workforce:

The particular building blocks affected may vary across the Member States, but are likely to include health workforce, information systems, and infrastructure. Governance becomes especially critical in times of stress. Therefore, it would be critical to discuss those building blocks and related indicators in each focus group. The indicators would need to be assessed both in normal conditions (without the stressor) and under stress, as well as the extent to which appropriate financial resources can be mobilised to address the need.

The discussion group questions concerning the health workforce building centres on the extent to which the health system adequately:	Also, quantitative data at baseline would be collected on:	Discussion questions general questions may include
Trains qualified professionals;	# professionals per population;	What is the impact of the adverse scenario?
Integrates different specialities and disciplines;	# patients per doctor;	Where does it impact in the health system?
Provides sufficient coverage of health needs;	Satisfaction ratings	What tools and resources are available to be exploited (e.g., databases, protocols, human resources)?
Potentiates primary care services;		How will the adverse scenario be managed from an organisational perspective (e.g., organisational models, capacities of staff, organisational change)?
Addresses mental health of professionals;		What aspects of the eco-system (e.g., mental health, psychosocial impact, equity, human rights, social cohesion) will be monitored and how?
Re-assigns health professionals;		How will decisions be made and implemented?
Engages in task shifting;		How will different levels of care communicate and integrate?
Offers continuity of non-essential services;		

Supports primary care services; Expands the responsibilities of health professionals		

Inputs/Outputs Building Blocks	**Functions (Capacities)**		
	Example Potential Indicators of Essential Functions - ***Use of Existing and Consistent Development of New Knowledge and Resources***	**Example Potential Indicators of Critical Functions Under Stress –** ***Effective, Timely Use of Available Knowledge and Resources; Rapid Development of New Knowledge and Resources***	**Example Quantitative Measures**
Health workforce	Trains qualified professionals Integrates different specialties and disciplines Addresses mental health of professionals	Re-assigns health professionals Engages in task shifting Offers continuity of non-essential services Expands responsibilities of health professionals	# different types of professionals per population # patients per medical professional
Infrastructure	Has spare capacity of physical resources Has ability to adapt existing infrastructure Has telehealth infrastructure	Re-deploys physical resources Adapts physical resources	# hospital beds/population # ICU beds/population
Health services	Potentiates primary care services Provides sufficient coverage of health needs Provides sufficient mental health care coverage Integrates mental health care into other services	Supports primary care services Maintains access in line with health needs Ensures access to care for vulnerable groups Maintains access to mental health care	Waiting times for services Satisfaction ratings % of population without coverage

Phase 0: Preparatory phase	Phase 1: Qualitative data collection		Phase 2: Quantitative data collection	Phase 3: Summarizing	Phase 4: Reporting and action planning for transformative change	
	Step 1A – Assessment of baseline functioning and relevance of indicators	**Step 1B – Assessment of functioning under adverse scenarios**	The results of Phase 1 guide this phase.		**Step 4A – Reporting**	**Step 4B – Action planning and implementation**
The test owners in the Member States adapt the toolkit materials to their health system and context.	The facilitator uses the discussion questions from the toolkit and leads the focus groups of key informants to examine the normal and natural evolution of health system functioning in the absence of any particular stressor.	The facilitator presents the "what if" adverse scenario to the group from the toolkit. This sequence is repeated for each scenario.	Health authorities identify and obtain available supplemental quantitative data on the indicators under "normal" conditions and are asked to simulate changes to these values in response to each adverse scenario.		Results are shared with key informants and other stakeholders who did not participate in the process.	The owner of the test identifies, based on the results, an owner of the process of action planning and implementation.
Quantitative data to support the realistic development of the adverse scenarios is gathered	The informants (1) discuss meaningful indicators of each building block, and (2) describe the extent to which each indicator is aligned with health system values and context.	Each scenario describes a stressor(s) that is relevant and plausible for that health system to experience in the future. The adverse scenario simulates a severe shock to the health system with supporting information that is as realistic as possible			All collaborators engage in critical reflection on the results, identify key areas where improvements are needed, and offer recommendations in the form of summative as well as formative evaluation	Based on the scorecard and recommendations, a collaborative process is led by the owner of this phase to act on core building blocks, identifying relevant facilitators and barriers to implementation.
Appropriate indicators and discussion questions are selected from		The facilitator then elicits responses from the group as to the impact on the health system and how the group members themselves would react or respond.				Qualitative assessments are reviewed for potential solutions.

Phase 0: Preparatory phase	Phase 1: Qualitative data collection		Phase 2: Quantitative data collection	Phase 3: Summarizing	Phase 4: Reporting and action planning for transformative change	
	Step 1A – Assessment of baseline functioning and relevance of indicators	**Step 1B – Assessment of functioning under adverse scenarios**	The results of Phase 1 guide this phase.		**Step 4A – Reporting**	**Step 4B – Action planning and implementation**
a menu of options		The group discusses the changes in the relevant indicators that the health system would experience relative to baseline capacities and any second-round effects				
		At least two adverse scenarios should be presented and assessed separately to show varying responses.				

Recommendations:

- Adaptive surge capacity is essential in preparing for and dealing with unexpected events effectively and sustainably, taking into account solidarity mechanisms within and across borders. Preventative overcapacity should be avoided. All countries will need to invest in the training and resilience of their local health workforce.
- The COVID-19 pandemic affects the old and frail, the poor, and members of minority ethnic groups disproportionally. In order to reduce vulnerability, primary care services should be supported, and healthcare professionals, community health workers as well as informal caregivers are motivated to focus more on health promotion, lifestyle programs and inter-sectoral collaborative actions to increase health equity and resilience in the community. The exploitation of existing European health promotion projects could strengthen this effort.
- Specific (inter-professional) training courses that aim at appropriately dealing with and reducing the vulnerability of socially deprived and minority groups should be standard in the undergraduate curricula of institutions for health professional education. Provision of specific online training (CPD) to frontline staff working in both health and social care settings with vulnerable groups should be encouraged.

- Research and development, such as for innovative medicines (e.g. vaccines), and stock-keeping for existing therapies and personal protective equipment should be more grounded in strategic preparedness for new challenges, including pandemics, in order to increase resilience. This requires new systems for R&D, on the one hand, and production and sales, on the other.
- Health resilience is a multi-system and multi-sector challenge requiring intersectoral and inter-system collaboration for health. Linkability of databases across systems and sectors (not limited to epidemiological data and including relevant quantitative and qualitative data from the public and patients) is necessary for effective measurement, monitoring and decision-making based on an integrated whole-of-society approach. This requires a consolidated measurement system from primary care and public health to secondary care and long-term care based on person-centred electronic records in conformity with the GDPR, where the patient and all providers have access. International efforts are needed to facilitate standardised information, for instance through standardised methods of registration and classification (e.g., building on the Family of International Classifications of WHO).
- Strong primary care and mental health systems form the foundation of any emergency response. All Member States should re-assess their investments in primary care and mental health and strengthen the integration of these systems with public health at the population level. Aggregated levels of psychological distress should be recognised as a public health priority that requires a rapid adoption of clear behavioural strategies to reduce the burden of disease and the mental health consequences of an unexpected event.
- Reducing social and ethnic disparities in health is a significant strategy to address inequity in health, well-being, and related domains, especially relevant in the context of pandemics. To ensure equity-driven decision-making, it is essential that data can meaningfully be disaggregated, for instance, by sex, age, ethnicity, race, socioeconomic status (SES), comorbidities and long-term care facility residence. We recommend that the Member States improve their capabilities to allow for such data disaggregation. The Expert Panel recommends that a debate be initiated on ways in which health data on ethnicity and SES can be collected in all Member States, recognising the complex issues involved.

Regarding resilience testing, there is a need for financing mechanisms to fully develop and pilot the resilience test toolkit and implementation methodology.

- The EC should allocate funds and create calls for tenders or Research and Innovative Action(s) in which teams of inter-sectoral partners from various Member State can comprehensively document resilience testing methodologies. **A manual for resilience testing of health systems is warranted**.
- The EC should allocate funds and devise mechanisms through which evidence on the effectiveness of these innovative and participatory resilience tests can be collected. Piloting schemes that allow data on the real-life implementation of resilience tests are warranted.

Regarding the creation of learning communities, an international mechanism is required to build a European scientific community to bring together, synthesise and share evidence to support harmonisation and solidarity in international approaches when dealing with unexpected events.

- The EC should invest money and human resources to develop a team, including representatives from the Member States and specialised staff, to support sustainable resilience testing across the Member States.
- The EC should sponsor a network of learning communities regarding lessons learnt from responses COVID-19 and subsequent actions to facilitate more resilient health and social care organisation.