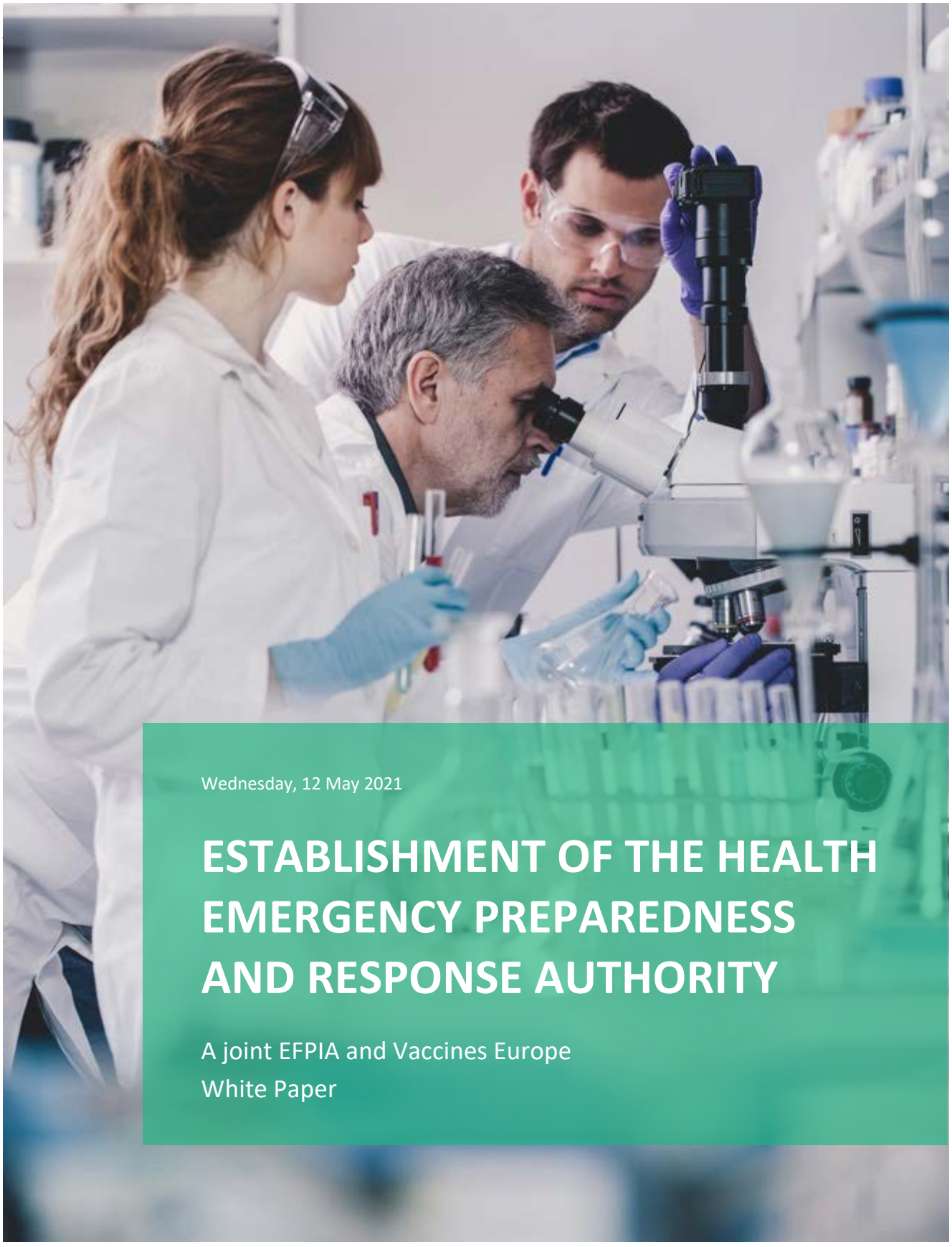

Wednesday, 12 May 2021

ESTABLISHMENT OF THE HEALTH EMERGENCY PREPAREDNESS AND RESPONSE AUTHORITY

A joint EFPIA and Vaccines Europe
White Paper

efpia

Vaccines Europe
An industry for healthy lives

Contents

EXECUTIVE SUMMARY

The COVID-19 pandemic has shown that Europe needs a robust preparedness system to face current and future health emergencies. The announcement of the creation of a European Health Emergency and Preparedness Response Authority (HERA) is a step in the right direction. For it to be successful, EFPIA and Vaccines Europe believe that its scope, mandate, and operational structure should be set up in a way that is ambitious and, at the same time, sustainable.

With regards to its scope, EFPIA and Vaccines Europe believe that this new authority should be both reactive (current pandemics) and proactive (future threats) by aligning its focus with the European Commission's Serious Cross-Border Health Threats Regulation proposal. HERA should start by focusing on the most pressing challenges in addressing cross-border health threats, and expand its scope and focus areas depending on capacity and budget. Additionally, HERA should act only where market and other existing incentives cannot ensure better results and base its actions on trust and shared expectations between industry and HERA. HERA's priorities should be set by assessing the likelihood of outbreaks, the best approach and technology to deal with them, and determining if HERA is the most appropriate instrument.

In terms of its mandate, EFPIA and Vaccines Europe believe that HERA plays a coordinating role, linking all the activity stages in the research and development process: risk assessment, early development, late development, regulatory pathways, manufacturing, purchasing, and stockpiling. In addition to this coordinating capacity, the new authority should also provide funds to bridge the existing gaps between early stage research and bringing a drug, vaccine, or therapeutic solution to market.

Finally, with regards to its operational structure, EFPIA and Vaccines Europe believe that the success of the new authority will be based on its leadership and independence, capabilities, strong partnership with industry, and fit for purpose instruments. Therefore, HERA will need differentiated instruments, appropriate funding, and an adequate intellectual property framework based on license variety, flexibility, industry ownership, and a predictable process in case of failure to commercialise a biopharmaceutical product. Instruments such as liability safeguards for emergency authorisations and measures should be set to ensure timely and flexible response to health threats. Moreover, No-Fault Compensation (NFC) systems to compensate adverse effects should be implemented in all Member States, backed by an EU-funded compensation mechanism.

With this White Paper, EFPIA and Vaccines Europe are looking forward to contributing to the European Commission's process to set up a flexible, collaborative, and agile HERA, which is able to deliver on the European Union's ambitions.

INTRODUCTION

The COVID-19[1] pandemic has shown the impact that emerging infectious diseases with epidemic and pandemic potential can have as well as the importance of strengthening the resilience of global cooperation[2]. Drawing from this experience, the European Union (EU) has an important opportunity to step-up the fight against the ongoing pandemic and future health emergencies by ensuring that a robust preparedness system is in place. The European Federation of Pharmaceutical Industries (EFPIA) and Vaccines Europe (VE) applaud the initiative taken by the European Commission to address this challenge.

To help strengthen the European pandemic preparedness ecosystem, European Commission President Ursula von der Leyen announced that the EU will set up a European Health Emergency and Preparedness Response Authority (HERA). This initiative, together with the subsequent launch of a pilot project called the HERA Incubator to tackle COVID-19 variants, are critical first steps in the right direction to further develop the EU's preparedness capacity.

HERA would not be the first institution of its kind. Fifteen years ago, the United States (U.S.) set up the Biomedical Advanced Research and Development Authority (BARDA). Since then, the pharmaceutical industry has been the main partner of BARDA and has gathered unique expertise and knowledge through the various projects initiated and funded by the agency. EFPIA, VE, and their members believe that these learnings can be beneficial to the EU in supporting a quick and efficient set up of an effective HERA organisation.

The success of HERA will depend on several factors, which are detailed in this White paper. These include a clear definition of HERA's scope, mandate/tasks, operational success factors, and a supportive legal ecosystem. Establishing robust parameters for each of these factors will help create a true partnership between the future authority, industry, and other partners – one that is based on trust and a mutual understanding of set expectations. These elements, further discussed in this White Paper, will help enable HERA to stimulate innovation in areas of health security threats by having a flexible, collaborative, and agile organisational structure.

EFPIA and VE welcome the opportunity to contribute to the European Commission's process in setting up HERA.

[1] COVID-19 is referred to throughout the document to refer to SARS-CoV-2 and its variants
[2] https://www.liebertpub.com/doi/full/10.1089/hs.2020.0043

1. SCOPE

EFPIA and VE believe that HERA should be solution and product-oriented, focusing on advanced stage research and clinical development through to product manufacturing and procurement in areas of *health security threats*. HERA should focus on both preparedness and response. This dual approach will help ensure its readiness for rapid mobilisation and acceleration of R&D activities, and its ability to respond to current and future health emergencies as well as anticipated *health security threats (pandemics, bioterrorism, etc.)*. Accordingly, we recommend that the EU should aim to set HERA up in a sustainable way by focusing on responding to ongoing pandemics (i.e. reactive) as well as preparedness and continuous investment beyond times of crisis (i.e. proactive). More specifically, HERA's scope should encompass the following:

- HERA's focus should be aligned with the European Commission's Serious Cross-border Health Threats (CBHT) Regulation proposal[3] (Article 2.1).
- HERA should not try to tackle all the areas identified in the CBHT Proposal at once. In line with its budget, HERA should focus first on the most pressing cross-border health threats and then gradually expand its scope in line with the One Health approach.
- HERA should support all types of countermeasures including prevention, diagnostics, therapeutics, and vaccines. Crucially, HERA's focus should include a multi-disciplinary approach in these areas including prophylaxis to achieve preparedness.
- HERA should complement, not substitute, other incentives mentioned in the context of the EU Pharmaceutical Strategy. This is especially the case for antimicrobials which require specific new pull incentives in addition to push mechanisms and reform of reimbursement and HTA systems. These pull incentives include transferable exclusivity extensions to sustainably address their unique scientific, regulatory, and economic challenges.
- HERA should not operate in areas where the market works or where other incentives would yield better results. For example, common vaccine challenges for communicable diseases should be excluded.
- HERA's priorities should be aligned with existing recommendations, such as the WHO R&D blueprint[4]. Additionally, these should be identified through a multi-stage yet integrated approach. EFPIA and VE would like to suggest the following steps:

  Step 1: Assess a given health threat's seriousness by measuring the likelihood of a disease outbreak over the lack of current effective countermeasures.

  Step 2: Define the anticipated approach to dealing with the disease outbreak, should it occur (i.e. vaccine, therapeutic, diagnostic etc.).

  Step 3: Identify the best technologies to support the planned approach.

  Step 4: Assess the pre-clinical proof of concept or phase 1 study to understand the potential promise of a therapeutic, vaccine or diagnostic.

  Step 5: Identify whether HERA, or another instrument, such as ACT, COVAX or CEPI, are best placed to address the problem.

Overall, this prioritisation and selection process must be transparent to all partners involved.

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[3] Draft regulation on serious cross-border health threats

[4] https://www.who.int/teams/blueprint/about

2. MANDATE AND TASKS

2.1 One-stop-shop approach

Bringing therapeutics, diagnostics, and vaccines from discovery to the patient is a complex process. To facilitate this process, HERA will need to have a 'one-stop-shop approach'. However, such a broad focus does not mean that HERA will need to work on every stage of development. Instead, HERA should offer different degrees of support throughout the whole process (see Table 2) – from coordination to funding, depending on the situational requirement at each stage. Having a single organisation, such as HERA, support and drive projects through to product approval and ultimately procurement will provide certainty and clarity, which is critical to companies who are involved in the development of medical countermeasures.

2.2 Gap analysis

Table 1 depicts the current landscape in the EU for biopreparedness, detailing competent authorities, funding, and existing legislation. This analysis was based on expert group discussions in EFPIA and VE, targeted interviews, and desk research. Although the EU has several tools in place, there remain significant gaps which should be addressed by HERA. In particular:

- ***Existing but insufficient early development support:*** While the EU invests in early stage research, the current actions are not extensive enough. There is a 4-fold difference between the combined EU (Horizon Europe) and Member State annual funding for health research compared with that of the U.S. The EU currently invests approximately 10 billion EUR in early stage development (1 billion from Horizon Europe and 9 billion from the Member States).

- ***Lack of funding for early research for biopreparedness:*** Biopreparedness is currently not covered within Horizon Europe (e.g. HERA Incubator and WP2021-2022 of Cluster Health). This lack of coverage creates a risk of disconnect between early preclinical research and clinical development, as well as gaps in the overall biopreparedness portfolio.

- ***Scarce late stage development funding:*** Existing small-scale grants and loans are not suitable to achieve outcomes in late-stage development as this requires significant capital (> EUR 1 billion for phase 3 trials). This is complicated by high risks of failure (<25% success rate).

- ***No manufacturing programmes***: There are no manufacturing programmes in the EU except for the recently set up HERA Incubator.

- ***Pandemic supply chain instruments:*** Purchasing and stockpiling processes have been under focus through the pandemic and successes and challenges have been observed. Both instruments will require significant revision, considering the learnings from their first roll out to ensure resiliency for the future.

- ***Liability framework (non-fault compensation system):*** There is no liability immunity legislation in the EU to provide a safety net in a pandemic situation. While product development is being fast tracked by the private sector, support for unforeseen events is needed.

Some of these gaps are currently being addressed through various EU legislative revisions and the launch of new programmes such as EU4Health. As these new tools and legislation are being developed, it is important to ensure that they are fit for purpose. In addition to the framework that governs HERA, it will be critical that the surrounding ecosystem is addressed as HERA's success will also rely on existing agencies, EU legislation, and national programmes.

	Not applicable
	Gap
	Addressed
	Partially addressed or under review

Table 1: *Overview of the current landscape at EU and national level*

	Risk Assessment	Early Development	Late Development	Regulatory Pathways	Manufacturing	Purchasing and Stockpiling	Liability
Competent Authority	ECDC National Agencies WHO	Commission: DG RTD, Executive Agencies Member States: R&I Ministries, National/ Regional research agencies, foundations and charities, 'national HERA's' EMA and NCAs (National Competent Authorities)	EMA and NCAs (National Competent Authorities) scientific advice	EMA and NCAs (National Competent Authorities) Notified bodies	Commission: DG GROW – HERA Incubator EMA and NCAs (Manufacturing authorisations and inspections) EDQM and OMCLs (batch release)	Purchasing: Advance Purchase Agreement (APA) Stockpiling: Commission: DG ECHO, RescEU National authorities	Commission: DG GROW DG SANTE
Funding		EU – Horizon Europe: ERC, EU collaborative projects – Represents 10% of publicly available R&I funding in health in EU-27 EU/ Member State Joint Programmes: ERA4Health, proposed joint programme on Biopreparedness Member State national programmes: Represents 90% of publicly available R&I funding in health in EU-27	Loans: InnovFin MidCap Guarantee InnovFin Infectious Disease EIB loans Grants: EIC (up to 3m EUR) EDCTP (focus on Africa)		Loans: EIB loans InnovFin MidCap Guarantee Grants: HERA Incubator	EU Emergency Support Instrument	
Legislation	Serious CBHT	Horizon Europe	Horizon Europe EU4Health	Rolling review, CMA, PRIME	Horizon Europe EU4Health	ESI Regulation	

2.3 HERA responsibilities

Once robust and clear parameters with regards to HERA's scope have been defined, it will be imperative to identify which areas should be prioritised and what the specific tasks of HERA will entail within the various stages of research and development. Building on Table 1, Table 2 outlines what EFPIA and VE believe HERA's role should be across the various activity stages. Additionally, the sub-sections below look at each of these areas in more detail. In essence, this approach describes a '2.2+' option based on the inception impact-assessment, which sees HERA taking a full coordination role but not taking every activity stage in-house.

Table 2: *HERA suggested role per activity*

Stages	Only Monitoring / coordination with relevant agencies and industry	Monitoring, coordination, funding / support
Risk assessment	x	
Early development		x
Late development		x
Regulatory pathways	x	
Manufacturing		x
Purchasing		x
Stockpiling		x

Risk assessment: HERA should operate in close collaboration with the European Centre for Disease Control (ECDC) to identify threats and update its priority areas accordingly. Agreed priorities and subsequent changes should be clearly communicated to all stakeholders in a transparent and timely manner (supported by data which motivated the change).

Early development: Early translational research is not well catered for in the existing portfolio:

- Existing funding instruments are not necessarily deployed for preparedness once outbreaks are identified and declared.
- Valuable assets may not move to the next stage of development, because of EU instruments' inception approach to funding (initial support with an expectation of sustainability after an initial funding period). This ruling is problematic in areas of high uncertainty where developed assets are at risk of never being used.

Therefore, HERA should partially fund, coordinate, and prioritise early research where there are gaps to ensure a smooth transition to later-stage development.

HERA should operate in close collaboration with agencies and industry funding early development research to ensure continuity and a smooth transition from programmes focusing on early development to meet an emergency disease. This includes information within work programmes to secure the launch of adapted calls under the relevant instruments (i.e. Horizon Europe and the European Innovation Council), as well as proactive mining of programmes to identify and support further development of relevant assets.

Late development: Late-stage development, which is where the EU has a critical gap, should be a core focus of HERA. Addressing this gap will require HERA to be pro-active and spend a significant amount of funding. Additionally, the European Medicines Agency (EMA) could play a harmonization role with other regulators to help ensure that regulatory pathways are streamlined and align with the demands of innovative medicines and candidate vaccines.

Regulatory pathways: Europe has a well-established regulatory framework featuring the EMA, national competent authorities (NCAs), and Notified bodies. HERA should ensure strong coordination with EU regulators. Additionally, the

EMA should drive harmonisation with national regulators to help ensure that regulatory pathways keep up with innovative medicines.

Manufacturing: The challenges brought by health emergencies such as a pandemic require that production of countermeasures can:

- Be produced in a timely manner with high flexibility and agility.
- Be scaled up rapidly and at sufficient volume to meet the needs of Europe and beyond.
- Cover different types of technologies, depending on the required manufacturing steps (e.g. monoclonal antibodies, recombinant protein, viral vectors, mRNA, formulation/ encapsulation, medical devices, diagnostic systems) in alignment with the chosen countermeasure strategy.
- Cover the full range of production steps, including, for example, fill and finish steps as well as supply chain considerations in the case of vaccines and therapeutics.
- Support regulatory licensure.

To meet these significant manufacturing needs for Medical Counter Measures (MCMs) during future pandemics, HERA will need to coordinate networks of 'pandemic production partners' as well as help support and address supply chain resilience using existing networks within the European Commission, the EMA, and Member States.

First, HERA should seek to facilitate networks of partners in manufacturing including Pharma, Biotech, and CMOs with the applicable technologies, capabilities, and capacity to respond rapidly when needed. These networks of 'pandemic production partners' should be supported to ensure a *warm-base* approach is deployed – i.e. they have the experience and know-how to produce MCMs of a similar nature to those likely to be needed for a pandemic response, and this manufacturing and supply capability is being maintained through regular production campaigns. More specifically, these networks should have sufficient capacity in the value chain (drug substance, drug product, packaging, and supply) to be able to respond in a timeframe that meets Europe's needs. HERA should help coordinate the establishment of these networks through agreements that predefine the terms for accessing the opportunities for manufacturing capacity once a pandemic or health crisis is anticipated or declared. To maintain this capacity in a sustainable manner, any excess or reserve capacity that is not required for commercial purposes but is required for meeting a pandemic response should be funded by HERA.

It is by working with, and gaining access to, fully operational commercial manufacturing facilities that cover all steps towards the final packed medicinal product and medical device that Europe can meet its pandemic response needs. In this sense, bespoke standalone 'pandemic plants' could only be sustainable if they operate outside of pandemic periods, with a minimum occupancy rate which keeps them active and always ready to produce at full scale. However, such plants would be inefficient in terms of their response capability, expensive to maintain, and have a lack of trained operators, ultimately meaning that they would not have the operational readiness to be able to respond quickly. However, smaller manufacturing and development facilities such as Small and Medium Size Enterprises (SMEs) or academic partner locations can play an important role. While SMEs or academic partner locations would be limited in terms of the absolute numbers of doses that they could deliver in a pandemic setting, these facilities could for example produce clinical trial materials according to the respective GMPs to accelerate clinical testing, help in the manufacturing of well-established products, and develop new manufacturing processes or analytical testing techniques that could be deployed to the wider network of 'pandemic production partners'. In this sense, having these players included in the pandemic production partner networks would help increase overall pandemic preparedness within Europe.

Second, in addition to creating networks of 'pandemic production partners', supply chain resilience will also need to be addressed. With this in mind, provisions should be made either through contracts or other instruments to ensure the continued flow of critical raw materials needed for all elements of the manufacturing process for vaccines, therapeutics, diagnostics, and medical devices. As a starting point, HERA could use the ongoing mapping by the Commission Vaccine

Taskforce and DG GROW on manufacturing capacity in Europe to identify where agreements may be needed, and which manufacturers could qualify based on their skilled personnel and facility certifications (see EUDRA-GMDP database by the EMA) and overall capacity. The outcomes of the European Commission's ongoing structured dialogue on the security of medicines supply could further inform HERA's future work in this area alongside other EU agencies and Member States.

Overall, the suggested types of networks and agreements would enable HERA to move quickly, allowing for regulatory flexibility and acceleration of registration processes, while companies free up capacity in the specific areas that are needed based on the specific pandemic response strategies.

Joint procurement: Any procurement practices, including joint procurement, should foster fair competition, timely access, and reliable supply. Joint procurement should only be used where it can improve access to products and should be limited to situations where the purchase and supply of countermeasures cannot be ensured by other means. Such measures should be proportionate to the situation and clearly limited in time. Member States, EFTA countries and Union candidate countries participating in a joint procurement shall procure the concerned products through that procedure and not through other channels and shall not run parallel negotiations for the concerned products (the same principle also applies to stockpiling). Further details are available in the Vaccine Europe's position paper from June 2020.[5]

Stockpiling: EFPIA and VE acknowledge that stockpiling, if implemented in a sustainable manner, may help to reduce the risk and impact of vaccine shortages by absorbing short-term fluctuations of medical products' demand and supply. However, there are multiple inter-related factors leading to shortages that cannot be solved through stockpiling. *Stockpiling should not be seen as the primary solution,* and targeted stockpiling limited to emergency situations can only be considered in very specific cases as one element of a broad strategy, which should also include better mechanisms for demand forecasting, mechanisms to facilitate the transfer between Member States, and improved procurement practices. Creating vaccine and medicines stockpiles raises important challenges and requires the following principles to be implemented:

- Time to build – especially for products requiring long lead production time – such as vaccines.
- Establishment and maintenance costs – not only for creating stockpiles but also for maintaining storage facilities and rotation services, all have significant financial implications.
- The on- and off-loading mechanism – if not done in a careful manner – could aggravate short-term shortages (beyond demand emanating from patient need) when on-loading or create excess supplies depressing the market at the moment of off-loading.
- Options for flexible deployment – must take account of shelf-life but also of packaging and patient information that would allow movements of stocks between countries as needed.
- Rules and communication between stakeholders – clear and transparent rules combined with ongoing dialogue between authorities and manufacturers should be put in place to assess the need for continued stockpiling (obsolescence or changing market conditions) of finished or semi-finished products at manufacturers' sites.

[5] https://www.vaccineseurope.eu/news/position-papers/vaccines-europes-position-on-joint-procurement-of-vaccines-in-europe

2.4 Relationships with national and international agencies

While HERA should be fully empowered to carry out its role, it should also be embedded in a broader global ecosystem to ensure there is no duplication or unnecessary competition with other foundations and national agencies. HERA's relationship with global institutions such as the WHO and global initiatives like COVAX and CEPI will be critical if Europe wants to continue playing a global role in public health crisis response. Additionally, HERA should have clear relationships with national EU agencies, BARDA, the United Kingdom's Vaccine Task Force, and countries where manufacturing is occurring (e.g. Switzerland and the United Kingdom for COVID-19) to ensure activities are complementary.

EFPIA and VE welcome the call for more collaborative action and a more robust international health architecture from President of the European Council, Charles Michel, WHO Director Dr Tedros Adhanom Ghebreyesus, and more than twenty other world leaders in an op-ed published on March 30, 2021.[6] Indeed, the recently launched UK-led global pandemic preparedness plan echoed these sentiments.[7]

[6] https://www.consilium.europa.eu/en/press/press-releases/2021/03/30/pandemic-treaty-op-ed/
[7] https://www.gov.uk/government/publications/uk-pandemic-preparedness/uk-pandemic-preparedness

3. OPERATIONAL SUCCESS FACTORS

Based on several interviews with industry and BARDA leaders, four operational success factors have been identified that would help ensure HERA's success: leadership and political independence, capability and skills, engagement with industry, and fit-for-purpose instruments for contracting scientific, clinical, and pharma expertise. The sub-sections below go into more detail on each.

3.1 Leadership and political independence

In order to succeed, HERA must be independent of political influence. A pre-defined code of conduct for effective work with all its partners should be adopted. The process and rationale for defining priorities should be multi-dimensional and consider a range of stakeholders, in particular healthcare and life sciences industries as well as thought leaders. Once priorities are agreed upon, they should be communicated widely. Visibility of scientific agendas is important. At the same time, the authority should have the capability and agility to address unexpected threats as they arise.

3.2 Capability, skills, and processes

To succeed, HERA needs to have highly skilled staff, flexibility, and a risk-tolerant culture. HERA will require staff with a high level of subject matter and industry expertise. The authority should be staffed with professionals that bring strong expertise and experience of working with or for health industries, especially from within the research and development, quality, production, and manufacturing functions. These professionals should have the ability to effectively select, negotiate, mentor (as required), and oversee projects funded by HERA.

HERA's success will be significantly enhanced by adopting a flexible and pragmatic approach to its activities, similar to BARDA's Broad Agency Announcement[8]. Key features and differentiators of HERA's approach compared to other EU public health programmes and instruments should include:

- Open-ended calls for proposals (which exist to some extent in Horizon Europe).
- Flexible approach to project selection allowing for dialogue between industry and the authority during negotiations (starting with informal discussions before entering into formal acquisition processes).
- Contract awarding following a competitive application process, choosing awards to single entities (with subcontractors where necessary) over multi-partner consortia, to ensure maximum accountability.
- A clear scope of work for each contract with flexibility to revise priorities and repurpose activities in times of public health crisis.
- Flexible contract durations with the ability to advance (upfront payment) and shift funding in emergencies.
- Ability to adapt budgets at times of crisis or increased public health needs.
- Ability to make decisions and facilitate implementation in a speedy manner with minimal bureaucracy.
- Open to innovative approaches.
- Fund training on advanced production technologies to expand the available workforce.

Finally, considering that investments and long-term financial commitments to activities with uncertain commercial success will be vital to ensure preparedness in the context of health emergencies, a culture of measured risk tolerance will be required.

[8] https://www.phe.gov/about/amcg/BARDA-BAA/Pages/default.aspx

3.3 A partnership with industry

While not every party has to be part of the governance structure (as political and scientific independence of the future authority is key), it is important that there are adequate mechanisms to engage with the private sector.

The private sector's relevance and commitment have been unequivocally demonstrated in the response to the COVID-19 crisis, where vaccines, diagnostics, and therapeutics were developed at unprecedented speed. The voluntary collaboration model where each stakeholder operates in an autonomous but highly coordinated fashion has proved to be effective in delivering vaccines, therapeutics, and diagnostics. The HERA concept should build upon the positive experiences of public-private partnerships throughout COVID -19.

While there are several pre-competitive public-private partnerships ongoing, including the upcoming Innovative Health Initiatives (IHI), the existence of these partnerships should only be a point of departure. HERA will require a much stronger collaboration culture underpinned by mutual understanding, trust, and shared goals.

3.4 Fit for purpose instruments

With regards to contracting tools, there are four areas that EFPIA and VE believe are important to consider: funding, contracts, and intellectual property.

Funding: There is no clear budget line in the EU budget for the activities and investments needed for HERA. However, securing adequate funding by 2023 is crucial for the successful launch and sustainability of HERA. The creation of such an authority will require sizeable investments in the range of several billions of EUR per year to effectively achieve the ambitions set out in the Inception Impact Assessment. More specifically, using the BARDA budget as a base, and adjusting per capita, we estimate that HERA will need 2 billion EUR a year in non-pandemic times, and up to 28 billion EUR a year in pandemic years[9]. Additionally, HERA should be able to combine its own resources, and to mobilise resources from other funding instruments (e.g. EU4Health, Horizon Europe, ERDF). Leveraging additional funding to manage unexpected crises is critical. This is similar to what was done in the United States with Operation Warp Speed[10], which very quickly multiplied the budget for biopreparedness by ten. One of the learnings from BARDA is the ability to have fixed funding as well as the speed and flexibility to mobilise additional funding when needed. In that respect, projects under HERA should be permitted to receive funding from multiple sources at the same time, with long funding cycles preferable to short ones.

Contracts: HERA should be based on awarding contracts with single entities. This 'principal' awardee or 'lead 'contractor' would involve specialised subcontractors on an as-need basis. Unlike traditional EU-level multi-party contracts, which are very rigid, HERA contracts should be flexible to adapt to each context, the type of project, its risk-level, as well as the requirements by companies to successfully achieve the necessary outcome. Contracts should be agnostic to geographical location, ensuring that all companies, regardless of where their legal entity is based, can apply. As companies may be simultaneously contracting with other governmental and non-governmental organisations (like BARDA), HERA should ensure that there are no exclusion criteria, territorial, or other protection clauses that would impede a company to pursue several projects through different agencies at the same time. Some contracting models could for example include:

[9] Exchange rate 29/04/2021 1€=1.21$

[10] https://www.defense.gov/Explore/Spotlight/Coronavirus/Operation-Warp-Speed/

- Fixed price: The services or products are provided by the contractor at a set price.
- Cost-sharing: Both parties contribute to the project. For the contractor, the contribution can be services, materials, or facilities.

To enable agile responses during times of crisis, HERA should have a 'start-up' contracting option. This type of contract could be drawn up and enacted in a quick time frame, be limited in scope and value, and apply to a specific time frame. Such contracts should have well defined terms, whereby a larger scale contract can be negotiated for further in-depth collaboration to continue after performance of the work under the Start-Up Contract. To ensure legal certainty, the signature of contracts prior to the initiation of activities is an important requirement for EFPIA and VE.

Intellectual Property: During the COVID-19 pandemic, the Intellectual Property (IP) system enabled collaboration between companies and governments, universities, and other research partners to speed up progress on finding, developing, and manufacturing COVID-19 treatments and vaccines. One of the primary reasons we have vaccines and therapeutics to tackle COVID-19 is because of the IP protection that has fostered innovation in recent years.

With that in mind, HERA should adopt an IP framework that is flexible, protects privately funded IP, and incentivises industry to develop and commercialise biopharmaceuticals in a manner that promotes public health objectives. This means that the parties should have the freedom to negotiate sensible business IP terms that meet both industry and government needs but more importantly deliver effective medicines to the patients that need them. A rigid and overly bureaucratic approach will not only discourage industry support and participation, but it also will frustrate HERA's mission.

There is also a need for basic IP terms to provide a framework for the parties' contractual relationship. In light of BARDA's substantial and successful experience, HERA's IP framework should generally be clear, predictable and attractive to the private sector and integrate the following key principles:

- Parties should retain sufficient flexibility to negotiate the terms of the agreement to take due account of business and technical realities critical to a workable arrangement that supports public health needs. Flexibility is also important to allow for development of consortia/public-private partnerships (including with universities and non-profit research firms) tailored to the specific situation and needs of participants.

- Industry should retain ownership of background IP and for the new IP rights generated with a HERA funded project. Additionally, industry should be assigned ownership of resulting IP, and, as needed have the ability to license IP rights to third parties. Not only is IP ownership or control needed for industry support and participation, but it advances commercialisation and distribution objectives critical to addressing public health needs.

- In the event that the contractor fails to take reasonable steps to commercialise a particular biopharmaceutical, HERA should have a predictable and well-defined process under which it can take steps to exercise certain additional IP rights only to meet defined public health needs. As in the US, this should not include a pricing element. This process could be comparable to BARDA's "march in" rules that are triggered when, for example, the contractor fails to commercialise an invention and there is a particular health or safety need.

- More generally, HERA would receive license rights that vary with the type of IP at issue, as reflected in the following chart. While BARDA's rules and U.S. regulations use a variety of technical terms addressing this subject (such as limited rights, restricted rights, government purpose rights, and unlimited rights), the following chart seeks to reflect the central license terms based on the IP type.

Table 3: *Government License Rights in Contractor Intellectual Property (under BARDA)*

GOVERNMENT LICENSE RIGHTS IN CONTRACTOR INTELLECTUAL PROPERTY

IP Type	Scope	Government License Rights
Background IP and Other IP Developed at Private Expense	Pre-existing IP and IP developed outside of a HERA Project	Limited rights to use only for purposes of performing the HERA project and for other particular limited purposes, always specifically negotiated by the parties and set forth in the agreement
Results which are "Subject Inventions" Made in Performance of the Government Agreement Using Government Funds	Patentable inventions developed under the HERA Project, with use of HERA funding	A nonexclusive, non-transferable, irrevocable, paid-up (royalty-free) license to practice the subject invention for government purposes, specific for the field of the HERA project.
Results which are Technical Data, Trade Secrets, or Software Developed in Performance of Government Agreement Using Government Funds	Data and secret know-how, as well as software, developed under the HERA Project, with use of HERA funding	A nonexclusive, non-transferable, irrevocable, paid-up (royalty-free) license to practice the technical data, trade secrets or software for government purposes specific to the Field of the HERA project.

Government purpose: The approach taken by the United States has seen that licenses do not include:

- Authorising a commercial company to practice a patent to provide a product to the public.
- Authorising use of a patent to create competition or reduce prices.
- Providing the government a right to purchase royalty-free (i.e. discounted) products that incorporate a government-funded invention.
- Practicing or authorising a designee to practice an invention that was not itself created through government funding because it builds on a prior government funded invention.
- Allowing the government to provide technical date, trade secrets, or proprietary information to the public or to a competitor.
- Permission for any use of the license for "commercial purposes''.

4. LEGAL ECOSYSTEM

As demonstrated above, HERA is one component of the preparedness and response ecosystem. The other element is having a supportive legal framework which secures appropriate liability and regulatory instruments or enables their effective use.

4.1 Liability

The establishment of HERA and its ability to deploy medical measures in the event of a health emergency, notably by utilising regulatory flexibilities to introduce an emergency authorisation procedure for vaccines and other medicinal products, will inevitably lead to conversations related to liability which cannot be overlooked. With the application of emergency procedures, safeguards and liability protections must be put in place to ensure that the costly, lengthy, and uncertain litigation procedure foreseen by the current liability legislation is minimised in the case of adverse effects.

In its Communication on the HERA Incubator, the Commission has indicated its readiness to propose an amendment to the pharmaceutical legislation to introduce emergency authorisation of COVID-19 vaccines with shared liability among Member States. This is a welcome initiative and should be extended to all measures taken by HERA in the event of a health emergency. Indeed, protecting manufacturers and healthcare professionals from liability will be of paramount importance to adequately deal with a health emergency.

We would recommend limiting the scope of litigation in relation to health emergencies in a similar way to existing legislation relating to off-label use medicines in response to the spread of pathogenic agents, toxins, chemical agents, or nuclear radiation. Such a solution is highly relevant in the longer term, and certainly by the next global health crisis, ensuring that all parties involved in the development, manufacturing, and deployment of medicinal products approved under emergency measures are not exposed to unreasonable risks as a result of exceptional measures to help address public health crises. This would make the HERA framework consistent with the approach in the United States, which was able to move much faster in its procurement of COVID-19 vaccines in 2020 as the issue of liability was comprehensively addressed in legislation (PREP Act[11]).

For the effective functioning of such liability protections, several elements need to be clear and precisely worded. The safeguards must apply to all products, measures, and countermeasures resulting from any procedure launched by HERA and the HERA Incubator following a declaration of emergency. They must protect all relevant actors in the manufacturing, distribution, deployment, and administration of the product approved under the emergency procedure, including manufacturers, government officials and agencies, healthcare providers, researchers, non-governmental organisations, etc. The safeguards must apply to all claims related to damages allegedly suffered as a result of the administration of a measure taken under an emergency procedure. This would include death, physical or mental injury, illness or disability, and economic loss. The safeguards should not, however, extend to cases where any wilful misconduct on the part of the responsible party can be found.

No-fault compensation (NFC) systems:

To complement the liability protection afforded under emergency procedures launched by HERA, it is also vital to ensure that people who suffer adverse events as a result of the vaccine or therapeutics are appropriately compensated, in an effective and timely manner, without needing to resort to litigation. Since it became apparent that vaccines or therapeutics would be the only route out of the COVID-19 global pandemic, EU Member States have been setting up national no-fault compensation systems, or adding COVID-19 vaccines or therapeutics to their existing NFC systems, in

[11] https://www.phe.gov/Preparedness/legal/prepact/Pages/default.aspx

order to achieve this. Such systems provide for a non-adversarial procedure where, after expert panel review of causality by independent (usually public) bodies, adequate compensation is provided swiftly without the need to prove any product defect and liability, and without the need of lengthy, costly and uncertain litigation.

We believe that NFC systems serve European citizens – and the world – best, and they should be available to all Europeans who suffer adverse events as a result of a measure taken during a health emergency. We therefore further suggest that the Commission:

- Requires Member States to set up consistent NFC systems, at the national level, to provide adequate swift compensation for serious adverse events as a result of measures taken in an EU health emergency (including temporary or conditional authorisations).
- Establishes an EU compensation fund to financially support the NFC systems in all Member States and to ensure that all EU citizens who suffer serious adverse events as a result of measures taken in an EU emergency (including temporary or conditional authorisations) are adequately compensated.

4.2 Regulatory flexibilities

The COVID-19 crisis has highlighted the need for regulatory flexibilities and better global harmonisation of regulatory requirements and processes related to pharmacovigilance, Chemical Manufacturing Control (CMC), GMP, pharmaceutical life cycle management, labelling/packaging, and genetically modified organisms.

The crisis confirms the importance of collaboration between manufacturers and academics for the rapid development of vaccines and therapeutics. Appropriate regulatory mechanisms should be put in place to preserve commercially sensitive information and technical know-how when two (or more) partners contribute to the development and/or manufacturing of the same vaccine or therapeutic, while allowing regulatory authorities to assess the quality, safety, and efficacy of the products.

Appropriate regulatory pathways should be established to allow regulatory approval of vaccines and therapeutics as soon as possible after the declaration of an emergency. The concept of a mock-up dossier has shown its value for pandemic flu vaccines. The same approach could be considered for other infectious agents (e.g. coronaviruses). Regulatory pathways should also be considered for the review and approval of technological platforms in anticipation of emergencies, e.g. via master files.

In line with WHO MEURI[12] guidance, emergency use authorization (EUA) should be based on an appropriate assessment of benefits and risk by a scientific body.

In the EU, the rules for emergency use are a National Member State responsibility and an EU wide process is missing to date. In this context, the EU Temporary Use Directive (Art 5 83/2001) provides public health perspective, i.e. “in response to the suspected or confirmed spread of pathogenic agents, toxins, chemical agents or nuclear radiation any of which could cause harm”. Article 5 has a liability waiver provision (when Member States decide on use, companies are not liable for any defect or consequences). An EU wide alignment procedure on such temporary use is missing. To bridge this gap, Art 5(3) procedures for scientific opinions by the EMA’s Committee for Medicinal Products for Human Use (CHMP) have been used during the COVID-19 crisis to support national EUA in the past. While resources remain an issue, the EMA is procedurally the appropriate body to coordinate an EU wide EUA by Member States. HERA could coordinate the triggering for such a request and support the collaboration on liabilities derived from those Member states making use of this EU wide authorisation as outlined above. In this context, a clear definition and EU wide process for EUA and how to

[12] https://www.who.int/ebola/drc-2018/notes-for-the-record-meuri-ebola.pdf

transfer EUA approval into a fully approved licenses (MAA or BLA) would be helpful. Additionally, having a better sense of which decision takes precedence in case of disagreements, that of CHMP or Member States, would be helpful in times of crisis.

Regulatory flexibilities should be considered in partnership with other regulators in affected jurisdictions and globally in the case of a pandemic. The role played by the International Coalition of Medicines Regulatory Authorities in defining evidentiary requirements as well as alignment around flexibilities has been an important factor for the success of the development of COVID-19 vaccines and treatments as well as the sustained development, production, and delivery of other medicines and vaccines during the pandemic. The WHO has also facilitated information sharing and procedures to encourage rapid alignment and reliance to support coordinated delivery of needed vaccines and treatments around the world.

4.3 Nagoya Protocol

As demonstrated with COVID-19, the open and timely sharing of pathogen samples and genetic sequence information is essential in enabling a rapid response to a pandemic as well as guarding against potential national epidemics. As the number of countries implementing national Nagoya Protocol[13] or other access and benefit sharing (ABS) legislation increases, significant delays and disruptions are being experienced due to the additional administrative burdens being placed on pathogen sharing which impacts the ability to respond quickly to public health emergencies. The EU has an opportunity to play a leading role in seeking an effective and coherent international approach to ensure the quick and predictable sharing of pathogens and associated information.

5. CONCLUSION

The initiative taken by the European Commission to set up HERA should be lauded. This future authority will help bridge the gap between the surveillance and early-stage research mechanisms already in place to help bring products to market and ultimately make Europe more pandemic proof. To achieve its goal, a clear definition of HERA's scope, mandate, and tools is critical. EFPIA and Vaccines Europe are ready to support the European Commission in helping to ensure that new public-private partnerships set up under HERA will be based on trust and shared expectations.

[13] https://www.cbd.int/abs/