EU R&I and Health Policy to Tackle Global Challenges

Beyond borders: how HERA can unlock global health as a true public good through data and knowledge sharing

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SUMMARY

This paper examines how global health can be strengthened as a true global public good through improved international cooperation, exploring how the European Health Emergency Preparedness and Response Authority (HERA) can drive this effort. It argues that while many health outcomes, such as disease surveillance, pandemic preparedness, and scientific knowledge, possess characteristics of global public goods, the systems and resources needed to produce them remain unevenly distributed and increasingly shaped by geopolitical competition. The paper highlights how fragmented governance, protectionist policies, and unequal access to medical countermeasures undermined collective responses during the Covid-19 pandemic and continue to weaken global health resilience.

Against this backdrop, the authors identify three strategic areas where HERA can play a transformative role: surveillance and threat monitoring, health innovation, and supply chain data sharing. They propose measures to improve interoperability between surveillance systems, promote equitable access to research and innovation, strengthen technology transfer, and increase transparency in pharmaceutical supply chains. The paper further argues that HERA's unique institutional position enables it to coordinate actors across sectors and borders, helping the EU advance both global health resilience and its own international influence. Ultimately, the study calls for a more cooperative, inclusive, and system-oriented approach to health governance that treats health security as a shared global responsibility rather than a tool of national competition.

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1. INTRODUCTION

Health sits in a paradox. Some of its most powerful benefits meet the classical criteria of a global public good: non-rivalrous in consumption (e.g. one country's use of health-related standards or knowledge does not diminish another's) and non-excludable in reach (benefits cannot be withheld from countries that did not contribute to producing them). Typical areas of health that are considered global public goods include disease surveillance, herd immunity from mass vaccination, and international standards and guidelines. No country's use of a disease alert diminishes another's; no country can be excluded from the herd immunity its neighbours build. Yet, the inputs required to produce these shared benefits tell a very different story. Functioning health infrastructure, medicines, and trained workers are all rival and excludable. Their benefits are largely confined to those with the means or luck to access them.

Moreover, some health-related goods fall into the intermediate category between being a global public good and not. The scientific knowledge and findings from health research and development (R&D) are examples. While publicly funded research traditionally produces publicly accessible knowledge and thus a global public good[1], those findings resulting from R&D sponsored by private actors might not be fully accessible and thus constitute a private good. In addition, knowledge jointly funded by public and private actors may turn into a private good at a later stage of the R&D cycle, for instance, when private companies choose to protect it through intellectual property rights. Beyond this, greater transparency and sharing of medical supply chain data also follows a different logic, as it can enable more robust collective monitoring of vulnerabilities and strengthen global preparedness against shortages during health crises. A practical way forward would be to extend access to supply chain data to a defined group of actors who jointly contribute to and use a shared information pool, rather than keeping the data private or making it freely available to everyone.

In practice, delivering health as a global public good remains inherently challenging.

First, as is characteristic of public goods, there is a fundamental asymmetry between the universal benefits of health security and the inequitable provision of the inputs needed to achieve it. Findings from R&D to tackle global health challenges have many global public good aspects, but generating such knowledge is expensive, resulting in under-provision due to the risk of free-riding and lack of incentives. In addition to the cost of knowledge generation, the infrastructure required to translate scientific advances into

[1] Some scholars define research on the causes and treatment of disease as a global public good in general.

accessible health outcomes, for instance from cold chains and diagnostic laboratories to trained workforces and surveillance systems, remains deeply unequal across countries.

Second, fragmenting global health governance and emerging protectionist policies have fuelled the use of critical health inputs as instruments of geopolitical leverage. This is notably exemplified by the US decisions to withdraw from the WHO, terminate its Gavi commitments, and end bilateral deals with several low- and middle-income countries (LMICs), which condition health assistance on alignment with US political priorities rather than the public health needs in recipient countries. This shifting landscape risks undermining collective progress and the stated health sovereignty goals of historically aid-recipient countries. At the same time, EU and global priorities, notably in China and India, are shifting sharply towards sovereignty, strategic autonomy, and industrial competitiveness, with health increasingly framed through the lens of security rather than solidarity. For instance, the EU asserts an explicit link between EU competitiveness, strategic autonomy and global health resilience in its Global Health Resilience Initiative.

Third, even where health outputs meet the criteria of a global public good, structural gaps hinder their adequate provision. Namely, the suboptimal engagement of private and civil society actors in intergovernmental processes, and an incentive architecture still overly reliant on aid rather than mutually beneficial cooperation, weaken the collective action needed to sustain them . While traditional donors of official development assistance have pulled back, emerging actors such as philanthropic foundations have played a significant role in filling systemic financing gaps and coordinating demand across fragmented markets.

These factors largely explain why many health-related goods today are not universally accessible, and/or not sufficiently produced and provided. Instead, they are delivered as common goods or club goods (Table 1). An example of common goods from the health sector, featured by the non-excludable and rivalrous nature, is antimicrobial effectiveness: no country or individual can be excluded from using antimicrobials, yet each use can contributes to resistance and gradually erodes the effectiveness of antimicrobials for everyone. Meanwhile, club goods are non-rivalrous and excludable, their benefits are restricted to defined members of the club who contribute to their provision. Well-designed clubs can overcome the under-provision that afflicts pure public goods by making access contingent on contribution, but clubs built on power asymmetries may entrench inequality rather than correct it. Covid-19 showcased this, as rich nations halted vaccine exports, manufacturing and licensing concentrated in high-income countries, and technology transfer stalled despite foundational mRNA research having received substantial public funding. The absence of shared, real-time visibility into production

capacity, raw material stocks, and distribution bottlenecks left decision-makers navigating shortages reactively. The result was a prolonged crisis for everyone.

Table 1 Four types of goods and examples from the health sector

	Non-excludable	Excludable
Non-rivalrous	**Public goods** e.g. disease surveillance, herd immunity, international standards and guidelines	**Club goods** e.g. knowledge and formula behind a patented vaccine, proprietary clinical trial data
Rivalrous	**Common goods** e.g. antimicrobial effectiveness	**Private goods** e.g. medicines, diagnostic tests, trained workers, medical devices, hospital beds

Source: Adapted from Ostrom (2010)

The Pathogen Access and Benefit Sharing (PABS) system under the WHO Pandemic Agreement demonstrates another example of club good. Vaccine producers would have shared a portion of their production of medical countermeasures (MCMs) with LMICs in exchange for pathogen data and faster market access, thereby creating a reciprocal arrangement where all parties benefit. However, in the WHO Intergovernmental Working Group, the PABS system has already been rivalled by another 'club' created by the US Washington has reached bilateral deals with 31 countries across Africa, Latin America and Asia (and that figure is projected to rise), as part of the 'America First' global health strategy. These agreements provide public health aid to countries in exchange for their pathogen data, which is the same good exchanged under PABS. While the US deals do not require exclusive pathogen data sharing, they might still create structural tensions with multilateral sharing. For example, countries must permit the US to reshare their pathogen data with up to 10 entities for MCM development. This redistribution mechanism means that data shared bilaterally with the US may reach third parties outside the PABS system, potentially undermining PABS' benefit-sharing mechanisms. This situation reminds us that the club good model might not be optimal for global health, especially if bilateralism hampers multilateralism.

The road ahead calls for a bold reimagining of health as a global public good – one grounded in resilience, inclusiveness, and adaptability. Amidst this shifting global health architecture, the EU must actively co-construct the evolving norms, financing mechanisms, and data-sharing frameworks that make health a shared endeavour. Within

the EU galaxy of global health actors, the European Commission's Health Emergency Preparedness and Response Authority (HERA) plays a critical role. As the Union's dedicated health emergency authority, HERA bridges the EU's internal health security with an explicit external mandate, making it better placed than any other EU body to drive the Union's ambitions as a global health actor. Its ability to coordinate across the full MCM value chain, mobilise cross-sectoral expertise, and engage LMICs and multilateral partners gives it a structural foundation to drive the urgent collective effort to strengthen health as a global public good. With an integral role in the Global Health Resilience Initiative, the conditions for a more assertive HERA are falling into place. And in practice, through its global health action HERA has already proven to be able, at least to some extent, to pursue global health outcomes as public goods.

In this paper, we identify three areas where HERA can promote health as a global public good: surveillance and threat monitoring, health innovation, and supply chain data sharing (see Figure 1 below). These areas are tightly linked to HERA's mandate and tasks. We begin with surveillance, a classic area of global public good; then move to health innovation, a more contested area; and end with supply chain data, an area of growing importance. The paper examines HERA's possible actions across these three domains. We argue that by strengthening HERA's international dimension in these areas, the EU can take the lead by initiating frameworks, setting standards, and catalysing cooperation that others can follow. Through doing so, the EU can also demonstrate leadership and strengthen its global 'actorness,' a concept long advanced by CEPS, while contributing meaningfully to the provision of global public goods in health.

Figure 1 HERA's three global public good domains

Domain	global public good status	Key challenges	HERA's existing role	Recommended actions	Policy window
Surveillance and threat monitoring	Typical global public good Non-rivalrous but access fragmented across platforms	Governance fragmentation (HERA/ECDC/JRC overlap); interoperability gaps between EU and global systems; AI integration without clear bias safeguards	Coordinates wastewater surveillance (GLOWACON); develops health intelligence system (ATHINA); supports WHO's intelligence system (EIOS); funds genomic sequencing in LMICs via EDCTP3	Strengthen coordination and promote interoperability across surveillance initiatives; selected outputs in ATHINA; ensure equity and avoid bias when integrating AI in surveillance	MCM Strategy 2025; ATHINA roll-out; ECDC wastewater surveillance institutionalisation; Global Health Resilience Initiative, Team Europe Initiative on surveillance capacity for Africa
Health innovation	Club good Knowledge rivalrous in practice due to IP barriers	IP barriers prevent tech transfer; EU agenda shifts to security and competitiveness; funding fragmentation across EU instruments; LMICs lack capacity to deploy technologies	Coordinates EU joint procurement of critical MCMs; supports multi-stakeholder R&D partnerships; supports MAV+ for African vaccine manufacturing; supports the technology access platform (HTAP)	Adopt a whole-of-system approach to health R&I; align funding streams; promote access conditionalities under R&D funding and joint procurement; promote local R&I ownership	Global Health Resilience Initiative; Global Gateway; MFF 2028-34 notably FP10 and NDICI-Global Europe; MCM Accelerator; EU guidelines on crisis procurement of MCM
Supply chain data	Club good Excludable by design; benefits confined to actors within shared governance arrangements	No legal basis for data collection in preparedness phase; voluntary frameworks insufficient; EMA's monitoring platform (ESMP) and HERA's ATHINA risk duplication; geopolitical fragmentation undermines multilateral transparency	Serves as secretariat for Critical Medicines Alliance; establishes voluntary manufacturer network (RAMP UP); gathers information via the HERA Stakeholders Hub; serves a supply chain intelligence function	Extend ESMP reporting requirements to preparedness phase; ensure ESMP-ATHINA interoperability; align Critical Medicines Act's transparency provisions with WHO Global Supply Chain and Logistics Network; harmonise data standards with international partners	Critical Medicines Act trilogue; Pandemic Agreement; OECD supply chain forum; EU Stockpiling Strategy

2. SURVEILLANCE AND THREAT MONITORING

There is strong consensus in the literature that public health surveillance constitutes a global public good – and for good reason. One country's use of infectious diseases data does not leave less information for the others to use, featuring the public good characteristics and seeing their value maximised alongside their diffusion. Knowledge of public health threats generates benefits that ripple across countries by enabling preparedness, prevention, and response measures. Scholars conceptualise the control of infectious diseases itself as a global public good, with public health surveillance serving as a key instrument for achieving it. Public health surveillance data sharing can strengthen detection and response capacities, help pinpoint the source of outbreaks when national-level data alone are insufficient, and reduce both the likelihood and the impact of global health crises. Similarly, other authors argue that the absence of infectious diseases can be understood as a public good that depends on sustained, collective monitoring through high-quality surveillance systems.

In the EU, while the surveillance of infectious disease outbreaks falls under the remit of the European Centre for Disease Prevention and Control (ECDC), HERA's monitoring of public health threats serves a secondary purpose of safeguarding the availability of MCMs. And this work extends beyond the EU. HERA contributes to threat monitoring in the areas of wastewater surveillance, genomic sequencing, and epidemic intelligence at the global level. More specifically, HERA contributes to wastewater surveillance at the EU level through the EU-Wastewater Integrated Surveillance for Public Health (EU-WISH), aimed at supporting national capacities, and at the global level by coordinating the Global Consortium for Wastewater and Environmental Surveillance (GLOWACON). Additionally, HERA is involved with the European Commission's Joint Research Centre (JRC) in developing an EU-wide sentinel system to collect data on pathogen circulation from strategic locations such as airports. There is a plan to expand the initiative globally through GLOWACON in 2026. HERA also finances projects that aim to advance genomic sequencing of pathogens with pandemic potential in the EU as well as in LMICs through the Global Health EDCTP3[2], a European and African partnership focused on clinical research of infectious diseases in sub-Saharan Africa. In addition, HERA provides funding and technical support for the development of the Epidemic Intelligence from Open Sources (EIOS) system, a WHO initiative aimed at informing public health decision-making. HERA has also started developing ATHINA, the Advanced Technology for Health

[2] Four ongoing projects: MBOTE-SK, EpiGen Ethiopia, STOP2030, and NGS4PublicHealth.

Intelligence and Action IT system designed to connect health threats to MCM availability by integrating global public health and supply chains data.

At the international level, , HERA's surveillance initiatives have been regarded as one of its flagship areas. However, various challenges potentially hamper its ability to deliver surveillance as a global public good.

One of the key issues that may affect the effectiveness and long-term impact of HERA's surveillance efforts is the fragmented governance in wastewater surveillance activities. While the current allocation of roles among EU bodies appears to allow for complementarities (with HERA providing coordination and global engagement, ECDC scientific support, the JRC technical expertise), there is no clear centralised structure that governs and optimises inter-institutional cooperation, providing coordination and coherent external representation. HERA is well-positioned to fulfil this role internationally.

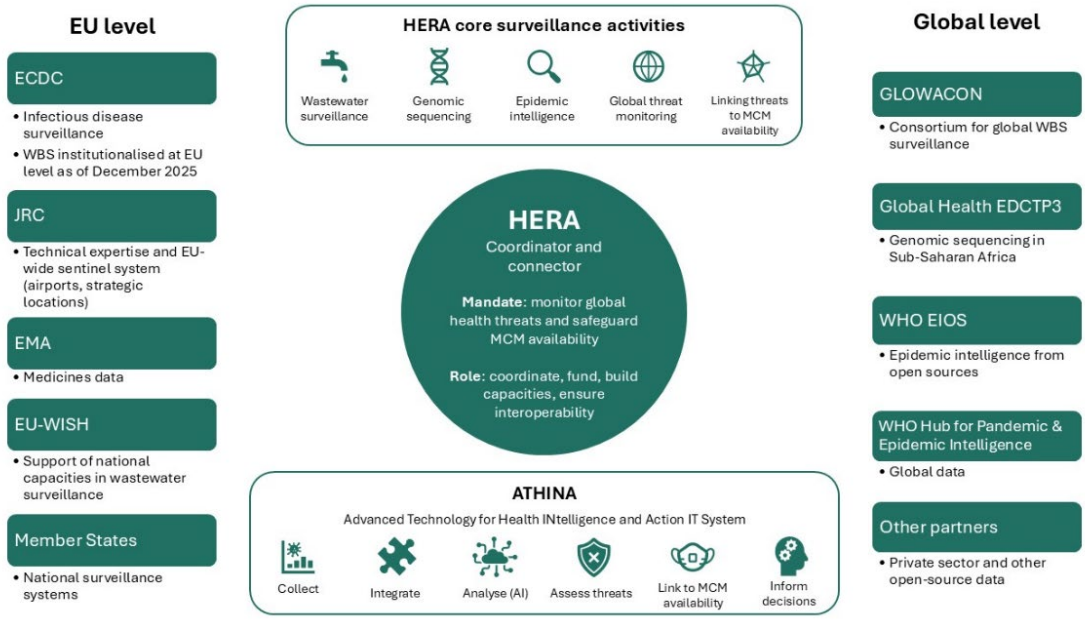
The lack of adequate coordination is evident if one looks at recent developments. In December 2025, the ECDC formally institutionalised its role in wastewater surveillance at EU level. While some coordination mechanisms are in place, the new institutional landscape may have two potential implications for HERA's ability to deliver surveillance as a global public good. First, there is a risk of erosion of HERA's strategic positioning and centrality in global wastewater surveillance. Over time, the ECDC institutionalisation of wastewater surveillance could create ambiguity regarding mandates, potentially reducing HERA's recognition as a global coordination actor, and eventually legitimising a shift in leadership away from HERA. Second, there is a risk of duplication and parallel infrastructures. The presence of multiple actors operating separate platforms may create unnecessary overlaps. One mechanism intended to mitigate such risk is the 2023 Memorandum of Understanding between HERA and the ECDC, which promotes mutual access and interoperability between systems. Such provision, however, does not eliminate the existence of parallel infrastructures. Duplication could impede the development of a coherent and functional global surveillance architecture at a time of shrinking resources for global health, ultimately weakening HERA's role in advancing surveillance as a global public good.

More broadly, the existence of multiple platforms highlights another structural challenge for global public health surveillance: interoperability. When different actors develop and operate their own systems, effective surveillance depends on their ability to communicate and exchange data seamlessly. This requirement applies both within the EU and in interactions between EU and global surveillance systems. Differences in reporting formats, along with variations in data interpretation and comparability, already pose challenges for the integration and harmonisation of wastewater surveillance data at the EU level. This issue only becomes more complex when considering a global scale. Given

its coordinating role in GLOWACON, HERA is uniquely positioned – and unarguably responsible – to promote interoperability with other surveillance systems, a key condition for generating shared benefits from global health surveillance.

Interoperability is also a central challenge for the development of ATHINA, HERA's new IT system to collect intelligence and assess threats. It aims to integrate data from a wide range of sources, including EU bodies such as the EMA, ECDC, JRC, and global actors such as the WHO Hub for Pandemic and Epidemic Intelligence. This platform also intends to draw on international open-source platforms like EIOS, and commercial services. This objective raises operational challenges not only within the EU institutional landscape but also in ensuring interoperability with other surveillance systems. Potential challenges include differences in data standards and formats, semantic inconsistencies, and data governance constraints that may affect the exchange and interpretation of information between ATHINA and EIOS or other platforms.

Figure 2 HERA within the EU and global surveillance ecosystem



Source: authors' elaboration. Note: WBS stands for wastewater surveillance.

Another issue relates to access to HERA's surveillance data. Once ATHINA's data sources are fully integrated with other EU and global surveillance platforms, it remains unclear who will have access to its generated intelligence. If access is limited to EU institutions and only activated in crisis mode, ATHINA risks functioning more as a club good than a true public good. While security considerations are of course important, if HERA aims to deliver threat assessment and intelligence gathering as a global public good, at least some of these data should be made open and accessible.

Building on this, another emerging challenge for HERA's surveillance efforts is the integration of artificial intelligence (AI) in threat monitoring and intelligence gathering. ATHINA plans to leverage AI, and other HERA initiatives indicate a growing interest in AI for public health surveillance[3]. The use of AI in surveillance offers potential for improving disease monitoring and outbreak detection. HERA's recent studies exploring potential applications of AI for pandemic preparedness suggest that AI could enhance surveillance, but concrete strategies and operational plans for its integration are still in the early stages of development. The Global Health Resilience Initiative also supports the use of AI in intelligence systems.

There are several limitations and challenges to using AI in infectious disease surveillance. For HERA, a key operational challenge in integrating AI into ATHINA is ensuring interoperability across diverse systems with different data formats and protocols. Ethical issues, particularly around privacy and the handling of sensitive health information, are also critical when using AI to support surveillance as a global public good. Additionally, evidence shows that AI systems may reinforce existing social inequities when trained on incomplete or biased datasets. In such cases, model outputs may be unreliable and ultimately disadvantage certain populations, an issue that must be considered if surveillance is to be delivered as a truly global public good.

Another relevant opportunity for HERA is to align with other EU initiatives with complementary objectives in the realm of surveillance. For instance, the Team Europe Initiative with Africa on Sustainable Health Security using a One Health Approach under Global Gateway aims to integrate human, animal and environmental surveillance systems under a One Health approach. It sets the objective of enabling the sharing of data across regional and global institutions to strengthen surveillance and preparedness, including for infectious diseases, in sub-Saharan Africa. For ATHINA, this represents an opportunity to benefit from and integrate surveillance data generated through such initiatives. At the same time, ensuring interoperability with these external systems would remain a key operational challenge.

Finally, financial constraints may represent an additional challenge for HERA's potential in surveillance, in particular regarding ATHINA's development. While its backbone and first modules became operational in 2025 and expansion is planned, the HERA 2025 work plan notes that limited budget resources will require a reassessment of both the development pace and the number of modules initially intended. These financial limitations could constrain HERA's ability to fully realise ATHINA's potential and, more broadly, its contribution to surveillance as a global public good.

[3] HERA has launched a series of Horizon Europe grants on AI for pandemic preparedness and response; these are currently being evaluated and it is expected they will be awarded by mid-2026.

3. HEALTH INNOVATION AS GLOBAL PUBLIC GOOD

Scientific knowledge on health is, at its core, a global public good: its consumption is non-rival and non-excludable. Under its Global Approach to Research and Innovation, the EU has recognised health, health resilience and pandemic preparedness as strategic areas where international R&I can deliver both global public goods and concrete gains for the EU. The sharing of science and knowledge is critical to ensuring global access to crisis-relevant MCMs. However, several conditions must be met to realise this potential.

First, generating global health knowledge requires resources and time. And knowledge alone is not enough. To be deployed, it must be embedded in some form of practical technology. For example, before Covid-19, vaccine development typically took on average no less than four years, and involved not only vaccine developers but also regulatory authorities, research institutes and clinical trial participants.

Second, the technology needs to be diffused to fulfil its global public good potential. The resource intensity of global health R&D largely explains why open science in this sector remains less feasible, and why many global health initiatives now focus on technology transfer including IP licensing. In practice, however, technology transfer during a crisis is easier to advocate than to deliver, especially when the technologies are sponsored by private players with legitimate commercial interests. The drawn-out conclusion of the TRIPS Waiver for Covid vaccines and know-how- initially opposed by several governments and major pharmaceutical companies- is an example of a failure of global public goods. The consequence was stark: at the peak of the pandemic in 2021, while half of the world's population had been vaccinated, fewer than 3% of people in low-income countries had received a single dose.

Third, fully benefiting from a technology requires the recipients to be able to effectively deploy it. This requires several elements, ranging from tacit knowledge (such as operational protocols for vaccine production) to manufacturing capacity and facilities (such as cold chain to preserve vaccines), and a skilled workforce. Many LMICs do not have these capacities today and hence face acute challenges in deployment. A CEPS paper found that even when LMICs participate in research partnerships, this rarely translates into meaningful technology transfer, capacity building, or the development of local innovation ecosystems. This gap is compounded by a structural disconnect between EU research policy and international partnership policy, which weakens the pathway from research outputs to real-world impact.

Together, the above challenges point to the need for a full investment lifecycle to global health – one that runs from knowledge generation through transfer of technologies to

enabling technology recipients to fully deploy what they receive. This is precisely the logic behind CEPS's proposal to establish a Council on Global Societal Challenges under the next EU Framework Programme for R&I (FP10)[4]. The objective of the Council would be to strengthen the interface between different EU instruments (e.g. between FP10 and Global Europe) and ensure a genuine 'lab-to-market-to-global-impact' pathway for health innovation. In a forthcoming paper, CEPS further calls for a 360-degree approach to EU investment in global health, which systematically integrates research and innovation with infrastructure investment, skills development, and institutional capacity building. The EU is not starting from scratch. It is, in fact, an innovation hub for public health: nearly half of global Covid-19 vaccine patent applications originated from the EU, which considers R&D as one of its key added value to global health.

Within the EU's constellation of public health actors, HERA stands out as particularly well placed to translate this innovation strength into genuine global public good delivery. The R&D and international dimensions are rooted in HERA's mandate from the outset. In practice, it has been supported WHO initiatives on antimicrobial resistance including the development of new antimicrobials through the GARDP-SECURE initiative. It has also provided support for a wide range of multi-stakeholder R&D partnerships, including CEPI, DNDi, GloPID-R, EDCTP3, Innovation Health Initiative, CARB-X and GARDP. DURABLE, a HERA-funded consortium of EU laboratories, has extended its research on health threats beyond EU borders, including characterisation and PCR assays for detecting emerging mpox in Burundi. Based on its results, the Commission plans to expand this network to global partners in 2027. HERA has also worked closely with Commission services on the Team Europe initiatives for African vaccine manufacturing and local production capacity in Africa and in other regions ('MAV+'). It particularly collaborated with Africa CDC to support the logistical operations for MCMs in the region, and with Latin America and Caribbean PAHO to support local production capacities.

This track record gives real grounds for confidence that HERA can be a strong actor in advancing global health through the sharing of knowledge and technology. And yet its full realisation of this role faces several serious challenges. The most pressing is that EU funding for global health is being increasingly squeezed by competing budgetary priorities. The shifting focus of the EU agenda to security and competitiveness heavily impacts the structure of EU funding programmes, especially if one looks at the post-2028 proposals. The EU's increasing emphasis on industrial competitiveness and strategic autonomy- evident in the Life Sciences Strategy, the wider Competitiveness Compass, and

[4] This proposal builds on earlier recommendations from the Heitor Group Report and the Ehler report, but expands their scope by linking FP10 with other EU instruments such as Global Europe in the next Multiannual Financial Framework.

the upcoming European Competitiveness Fund – may sideline global health as a funding priority.

The implications for HERA's ability to act as a global public good actor are significant[5]:

- **EU4Health** – the EU's largest health programme in monetary terms and a core funding source for HERA – **has already seen** budget reduction, affecting several of HERA's advanced R&D on MCMs. The proposed Competitiveness Fund under the next Multiannual Financial Framework (MFF) will regroup several EU funding instruments including EU4Health, risking a further retreat from international health collaboration. Current global health activities funded under EU4Health (such as building surveillance and diagnostic capacity, and supporting the establishment of a new WHO hub in Africa) might not be allocated the same resources they are granted today.

- The other important source of HERA's R&D funding is the Framework Programme for Research and Innovation (**Horizon Europe**). While the Commission proposal preserves the next Horizon Europe as a standalone instrument, the programme will be tightly connected to the Competitiveness Fund; this signals that the EU's R&D spending in the next MFF will be increasingly calibrated around European industrial returns while potentially derailing from global health challenges.

- The **Global Gateway**, which is supposed to translate the EU Global Health Strategy into action, tells a similar story. Although health is listed among the programme's five core pillars, its actual funding allocation shows that under 10 % of the consolidated budget is directed toward health-related flagship projects, which lags far behind allocations for climate and energy, transport, and digital initiatives. For a strategy that claims health as a priority, the numbers speak for themselves.

- While all the above funding programmes target global health, at least to some extent, **they are lacking synergies**. The alignment between Horizon Europe and Global Gateway is a rare bright spot: EDCTP3, the HERA-funded European and Developing Countries Clinical Trials Partnership, provides products suitable for local production. Its applicants are encouraged to align with MAV+ under Global Gateway. However, similar synergies **between Global Gateway, EU4Health, and the Global Europe** are largely absent, and this fragments EU investment and undermining its collective effectiveness.

[5] A fuller account of the funding landscape for HERA's global health activities is provided in a recent CEPS report on how HERA can rally R&D forces across Europe and the world.

Even where EU funding for global health R&D is maintained, technologies may still fail to reach LMICs due to **IP barriers**. While IP protection typically addresses the innovation incentive problem by preventing free-riding, the exclusivity needed to motivate private investment can prevent diffusion to the populations who need it most. Since its establishment, HERA has supported initiatives on the transfer of crisis-relevant technology, notably the COVID-19 Technology Access Pool (C-TAP), the WHO-hosted platform for sharing intellectual property, knowledge, and data for Covid-19 medical products. This platform later transformed into the Health Technology Access Programme (HTAP). While both platforms aim to support the transfer of technologies for global health, they share the same limitation: participation is entirely voluntary. More recently, Article 11 of the Pandemic Agreement- of which the EU is a negotiating party – promotes the transfer of pandemic-related technologies. Being one of the most contested articles in the Agreement, its weak language means that technology transfer stays non-binding for participating countries of the Agreement. The newly launched Global Health Resilience Initiative follows the same pattern, promoting the principle of voluntary technology transfer in EU support of partner countries.

Governments can, in principle, use public R&D funding and procurement to promote technology transfer during global health crises, but the EU did not leverage these tools to that end during Covid-19. This is a missed opportunity that HERA is well placed to help correct. HERA has been a central actor in the EU procurement of MCMs. After its establishment in 2021, HERA has presumed the EU's joint procurement of COVID-19 vaccines, building on the Commission's initial procurement framework. In the recent and upcoming EU legislation, HERA's role is further confirmed. Under the EU's Regulation on serious cross-border threats and the Emergency Framework for medical countermeasures, HERA plays a central role in the joint procurement of crisis-critical MCMs. It also plays a key role in setting up the secretariat for the G7 Development Finance Institutions' Medical Countermeasure Surge Financing Initiative – aimed to support rapid procurement and distribution of critical MCMs during health emergencies in LMICs. And under the upcoming Critical Medicines Act (CMA), HERA is expected to support the Directorate-General for Health & Food Safety (DG SANTE) of the European Commission in the collaborative procurement of critical medicines. Scaling that logic across funding and procurement frameworks would mark a meaningful shift toward health innovation as a true global public good.

Furthermore, moving beyond the traditional global health R&I model, in which knowledge is predominantly produced in high-income countries and subsequently transferred to LMICs, building genuine local R&I capacity must be seen as a strategic imperative. As highlighted by the EU Global Approach to Research and Innovation, equitable R&I partnerships can help foster trust and long-term engagement, anchoring EU investments

in local knowledge systems and turning scientific findings into practical solutions that work on the ground. In this regard, Horizon Europe has a growing role to play. By fostering equitable partnerships with LMICs and supporting local research ecosystems, the programme can help shift the centre of gravity of global health innovation, ensuring that scientific progress is not only generated collaboratively, but also owned and sustained locally. EDCTP3, a HERA-funded initiative, illustrates both the potential and the fragility of this model. Its support for local research capacity has been significant, but recent governance changes that restrict project coordination to EU and associated countries risk undermining the ability of low- and middle-income country partners to lead.

Finally, recipient health systems need certain capacities for the technologies to be deployed; these include cold chains, resources for operating vehicles, skilled personnel and regulatory capacity. Today, these conditions are largely absent. Many LMICs lack the necessary infrastructure, skills and know-how to adopt novel pandemic-related technologies. Africa, for example, produces very little of the medicines and vaccines its populations need: 99% of vaccines administered across the continent are imported, and pharmaceutical production capacity varies enormously from country to country. HERA's support for MAV+, which provides technical and scientific advice to the Directorate-General for International Partnerships (DG INTPA) and supports logistical operations for MCMs in partner countries, is a step in the right direction. While generally considered effective, the design and implementation of MAV+ still show shortcomings related to the lack of political will from African leaders to produce and procure locally, limited engagement of local governments and the private sector, and a short planning horizon that undermines sustainability. Delivering health innovation as a global public good ultimately requires that the people it is meant to benefit are not just recipients, but active participants in shaping it.

4. ENHANCING SHARING OF STOCKPILING AND SUPPLY CHAIN DATA

Supply chain data for MCMs, such as information on marketing authorisation aspects, active manufacturing sites, production capacities, and available stocks, has not traditionally been treated as a global public good. In fact data represents an atypical phenomenon, in that it is neither a regular product or service, nor a purely public good. Nevertheless, as a kind of club good, enhanced visibility into supply chain operations for relevant authorities and government actors through carefully designed data sharing mechanisms is increasingly recognised as essential for pandemic preparedness.

As the Covid-19 pandemic exposed, treating supply chain data as commercially confidential even between national regulators severely hindered the ability to spot shared vulnerabilities before shortages hit. Vaccine procurement contracts were withheld by governments and companies, and technology transfer to LMICs was blocked, delaying equitable access during the critical first year of roll-out. And while much attention focuses on private sector disclosure, government-held data, including national stockpile levels, procurement volumes, and strategic reserve capacities, constitute an equally critical layer of supply chain data visibility.

Decision-makers worldwide currently lack sufficient information to assess vulnerabilities in upstream supply chains, relying primarily on manufacturers to self-report shortages and potential risks. This reactive approach hinders robust crisis response, as effective central coordination demands transparency mechanisms capable of tracking materials, production capacity, and stockpiles across the entire supply chain. Globally interconnected supply chains require international cooperation, cross-sectoral coordination, and enhanced information-sharing between decision-makers to anticipate and avert shortages effectively. However, efforts to strengthen medical supply chain security have so far been limited to the national or regional level.

The OECD has been the most explicit institutional voice calling for multilateral cooperation on medical supply chains, arguing that the proliferation of national stockpiling policies during crises risks worsening supply gaps rather than closing them, and that internationally coordinated stockpiling could enable more equitable outcomes. The case for greater cross-border coordination on supply chain data stems from the systemic inefficiencies that fragmented national or regional approaches generate.

Recent developments signal growing recognition of supply chain transparency as a critical shared good, and as a prerequisite for global health security. The WHO Pandemic Agreement establishes a Global Supply Chain and Logistics Network, encouraging countries to avoid excessive stockpiling, publish procurement contract terms, and include access-promoting clauses. Article 11 of the Agreement also encourages manufacturers to

share production data during pandemic emergencies. The Medicon Conference on Securing Supply Chains for Medical Products, led by Switzerland and the OECD, concluded that a collaborative monitoring platform should prioritise upstream markets, notably for active pharmaceutical ingredients (APIs), and combine monitoring capabilities with rapid response efforts that bring together public and private stakeholders. These developments point to an emerging consensus on the need for information sharing between relevant decision-makers, but one that still lacks binding architecture.

Despite the growing awareness of the importance of supply chain transparency for global health security, the geopolitical environment is deteriorating for collective action on supply chain data sharing. Open data commitments are eroding and access to information is becoming increasingly fragmented and privatised[6]. US withdrawal from the WHO and its bilateral deal strategy with LMICs directly undercut the multilateral foundation on which rules-based supply chain transparency depends. Data security concerns add a further complication. Without agreed governance frameworks for access and use, transparency initiatives risk stalling over legitimate fears of commercial or strategic exposure. Emerging technologies, including blockchain and distributed ledger approaches, offer potential mechanisms for rules-based, tiered access to supply chain data, but require the kind of international standard-setting, and compliance, that current geopolitical trends make harder. Global health preparedness will remain structurally weak without a shift towards routine, rules-based transparency of medical supply chains and available stockpiles, ultimately undermining collective efforts and leaving everyone more exposed.

At the EU level, recent instruments including Regulation (EU) 2022/123 on a reinforced role for the EMA in crisis preparedness, Council Regulation (EU) 2022/2372 on a framework of measures for ensuring the supply of crisis-relevant MCMs, and the Critical Medicines Act, have strengthened supply chain transparency to a degree.

Regulation (EU) 2022/123 mandates routine information sharing between EMA and HERA on monitoring medicinal products and medical devices, including supply and demand data, which has been translated into practice, according to HERA's 2025 Work Plan. The Emergency Framework Regulation (EFR), formally Council Regulation (EU) 2022/2372, complements this by providing the legal foundation for HERA's supply chain monitoring activities, albeit only once a public health emergency at EU level is declared. Article 7 establishes mechanisms for monitoring crisis-relevant MCMs, authorising the Commission to draw up and regularly update lists of critical MCMs and raw materials,

[6] As argued in a forthcoming CEPS brief 'Realising the Potential of Non-Traditional Data for Research in Europe Advancing Access and Re-use for Improving Health and Wellbeing,' by Stefaan Verhulst.

along with templates for monitoring supply, demand, production capacity, stockpiles, and risks of supply chain disruption. Article 12 further empowers the Commission to reorganise supply chains during declared emergencies.

The Critical Medicines Act (CMA), currently being negotiated in trilogue between EU co-legislators, further aims to strengthen the security of supply and availability of critical medicines within the EU. Supply chain diversification and transparency between Member States were identified as key priorities for the Act by the Critical Medicines Alliance, for which HERA provides the secretariat. In its Strategic Report informing the CMA, the Alliance explicitly recommended that Member States transparently share data regarding stock requirements through a dedicated database, to allow for product reallocation based on solidarity principles during supply disruptions.

Among EU public health bodies, together with the EMA, HERA is placed to further information exchange on supply chains as a core pillar of pandemic preparedness, given its explicit coordination mandate across the MCM value chain during both preparedness and crisis response times. An independent review of HERA's 77 activities since its creation concluded that it has been especially effective at gathering intelligence on supply chains to face critical situations, representing one of its most clearly validated contributions to date.

In practice, HERA continues to promote supply chain transparency within the EU framework. As mentioned above, the ATHINA platform is envisioned to integrate data across public health and supply chain domains, drawing on Member States' reporting obligations. On the manufacturer side, the HERA Stakeholders Hub provides a direct communication channel between industry and HERA, with shared workspaces for the Critical Medicines Alliance and the Joint Industrial Cooperation Forum. However, participation is industry-initiated, illustrating the limits of voluntary data-sharing structures. The Medical Countermeasure Strategy also introduces RAMP UP, a voluntary network of EU-based manufacturers to collect production capacity data during preparedness, offering a pragmatic workaround to the absence of a legal basis for mandatory data collection outside emergencies, but the reach will depend on industry's willingness to participate. The EU Data Act offers a partial structural complement to the voluntary arrangements with industry. By enabling business-to-government data sharing at no cost during emergencies, and on negotiated terms outside emergency periods, it creates a legal pathway for accessing manufacturer-held supply chain data that does not rely solely on industry initiative.

Despite the progress above, a critical structural gap is the absence of a legal basis at EU level for data collection during the preparedness phase. The EFR activates supply chain monitoring only when a health emergency is declared at Union level; yet the most critical

window for intervention often falls weeks or months before any formal declaration. This gap is documented in HERA's 2024 supply chain vulnerability analysis, in which manufacturing disruptions and demand surges are highlighted as the dominant root causes of shortages, indicating that earlier, routine data collection would have significant anticipatory value.

The narrow crisis-oriented legal requirements of Regulation (EU) 2022/123 and Council Regulation (EU) 2022/2372 pose challenges not only in accessing data outside of emergencies, but also risk creating parallel, duplicative data collection systems. It remains unclear whether EMA's European Shortages Monitoring Platform (ESMP) and HERA's ATHINA will share information and be interoperable, or separately burden industry and EU Member States with overlapping reporting demands. This uncertainty may also further complicate information exchange defined by specific use cases with trusted regional partners, which HERA continues to formalise through administrative agreements.

Crucially, the legal gap during non-emergency times remains in the proposed CMA. The EU Stockpiling Strategy acknowledges the absence of a proper cross-EU overview of Member States' stockpiling efforts and the lack of secure tools to pool supply chain and stockpiling data across borders. The CMA only partially addresses this issue. While it incorporates some of the Alliance's transparency priorities, more structurally significant recommendations are not included, notably a dedicated stock database and any binding cross-border information exchange mechanism. Additionally, HERA's funding for its joint stockpiling work with Member States was depleted in 2025, undermining its ability to determine the quantities of MCMs needed for cross-border threats and eroding the real-time awareness of supply chain vulnerabilities at national level.

Full supply chain transparency is neither realistic nor necessarily desirable. Companies have legitimate interests in protecting commercially sensitive information, and some data involves strategic or security sensitivities that need careful governance. The question is rather what minimum level of visibility, in the collective interest, should be made available on a rules-based basis, before a crisis strikes. New Zealand's Medicines and Medical Devices Safety Authority demonstrates that carefully designed information sharing is possible, by publicly disclosing, amongst other details, the names and locations of active pharmaceutical ingredient producers and finished product manufacturers. The EU's regulatory landscape is more complex, but the principle holds: targeted upstream transparency, with the right governance guardrails, is both feasible and serves a clear public health purpose.

5. RECOMMENDATIONS

The following recommendations aim to address the challenges facing HERA in the areas of surveillance and threat monitoring, health innovation, and supply chain data, with a cross-cutting emphasis on strengthening coherence between the EU's internal health agenda and its external action. The latter is a prerequisite for credible and effective global health leadership.

5.1. ADVANCING GLOBAL SURVEILLANCE

Recommendation 1. Strengthen coordination and promote interoperability across surveillance initiatives. HERA should continue supporting the development of the EU sentinel system as a testing ground for the planned expansion towards a global sentinel surveillance through GLOWACON. This process should take place in close cooperation with the ECDC, particularly following the institutionalisation of its role in wastewater surveillance at the EU level. Ensuring early interoperability between the respective systems will be essential to avoid fragmentation and enable seamless data exchange between surveillance infrastructures. HERA should prioritise interoperability as a core design principle in the development of ATHINA. Given that the platform aims to integrate data from multiple EU and global sources, interoperability will be critical to ensure that ATHINA can effectively interact with other surveillance systems. In addition, HERA should also strengthen synergies with complementary EU initiatives in the field of surveillance implemented under the external action framework in LMICs, for instance the Team Europe Initiative on Sustainable Health Security. Enhancing links with such initiatives would advance global surveillance by enabling more integrated and timely data flows across regions and systems.

Recommendation 2. Reinforce HERA's leadership role and global recognition in flagship initiatives such as wastewater surveillance. In light of the evolving EU institutional landscape in wastewater surveillance, HERA should further clarify and communicate its added value vis-à-vis both EU and global actors. This would help prevent ambiguity on the mandate, while reinforcing HERA's position as a central coordination node within GLOWACON. Through this coordinating role, HERA should also promote the alignment of standards among participating partners, e.g. through GLOWACON's dedicated working group on this topic, encouraging harmonised methodologies that enable cross-country comparability and facilitate data integration across surveillance systems. Such efforts would support the broader objective of strengthening globally shared surveillance capacities.

Recommendation 3. Ensure ATHINA's openness, responsible AI use and financial viability. HERA should consider implementing differentiated access models for its

surveillance platform, ATHINA, allowing at least partial openness for selected outputs. Such an approach would strengthen ATHINA's contribution to shared global surveillance functions while balancing security and confidentiality considerations. In addition, as ATHINA integrates AI, HERA should define concrete operational use cases. This should include the development of governance frameworks addressing issues such as bias, transparency, validation, and ethical safeguards. In this regard, HERA should align its approach with the requirements under the AI Act, ensuring that its applications in surveillance systems comply with EU standards while maintaining reliability in global health surveillance contexts. Finally, the expansion of ATHINA should be aligned with realistic and long-term financial planning. The prioritisation of core modules would help ensure continuity and scalability in a context of budget constraints.

5.2. TRANSFORMING HEALTH INNOVATION AS GLOBAL PUBLIC GOOD

Recommendation 4. Apply a systemic and comprehensive approach to health innovation. HERA, in coordination with DG INTPA, DG RTD and DG SANTE and relevant EU services, can champion a comprehensive and health-systems-strengthening approach to health innovation, ensuring that critical technologies are not only developed, but effectively shared and deployed at the point of need. This 360 degree approach integrates global research and innovation with downstream investment in health system infrastructure, manufacturing capacity, workforce skills, and institutional capacity. Critically, this approach must be grounded in local ownership of research priorities and capacity-building processes. HERA and DG INTPA can promote the co-design of research agendas with partner institutions. By coupling innovation investment with systems-building, the EU can ensure that its global health partnerships generate durable capacity rather than dependency.

Recommendation 5. Ensure coherent and durable EU funding for global health innovation in the next Multiannual Financial Framework. The EU should align investment across its existing funding streams, including the NDICI-Global Europe, Horizon Europe, EU4Health, and Digital Europe. For instance, Global Gateway infrastructure investments in partner countries should be systematically linked to Horizon Europe-funded research collaborations and EU4Health workforce development programmes. The EU's upcoming Medical Countermeasures Accelerator is expected to provide the framework for streamlining funding for MCMs throughout the development cycle, from research to deployment. We recommend that this framework i) ensure real-time mapping of EU and national funding pipelines to avoid funding fragmentation and duplication, ii) feature an emergency funding mode and an at-risk investment approach to sustain R&D during times of crises, and iii) require access conditionalities (including affordability, licensing,

technology transfer) to R&D findings funded by EU and national governments. The EU has also been moving toward a whole-of-society approach to health resilience funding, for example, through promoting civil-military collaboration on health technologies under the Medical Countermeasure Strategy. To build on this, the EU should tap defence-earmarked funding for health innovation, notably by advocating dual-use investment within the NATO 5% of GDP for defence and resilience-related spending.

Recommendation 6. Promote shared norms of access conditionalities in R&D funding and joint procurement of MCMs to treat public health innovation as a global public good. Under its upcoming guidelines on crisis procurement of MCMs and the Commission's revision of the 2014 Joint Procurement Agreement for MCMs, HERA can promote terms in R&D funding agreements and advanced procurement contracts to promote the funding recipients to share intellectual property, knowledge and know-how through the HTAP, as well as ensure the affordability of MCMs. For example, the European Vaccines Hub demonstrates a good example of a HERA-funded research project that promotes technology transfer of pandemic vaccine candidates. For this recommendation to be more feasible, it should balance global health interests and the commercial goals of health R&D. For instance, in public R&D funding contracts with companies, HERA can consider introducing terms setting the milestone clauses defining the point at which R&D findings transition from public good to private IPs. HERA can also use joint and advanced procurement to enhance its negotiating power with private actors.

5.3. BOLSTERING SUPPLY CHAIN DATA SHARING

Recommendation 7. Extend the EU's reporting requirements on medicine shortages to the preparedness phase and ensure interoperability. The European Shortages Monitoring Platform (ESMP) currently collects data on supply, demand, and availability of critical medicines, but reporting obligations on upstream indicators are only triggered upon a declared emergency. The Commission, with HERA's active support, should push within the CMA trilogue to mandate that ESMP reporting include upstream supply chain indicators (production capacity, active pharmaceutical ingredient stocks, and manufacturing site concentration) as routine, preparedness-phase obligations rather than crisis-triggered ones. Simultaneously, full interoperability between the ESMP and ATHINA platforms must be introduced as a design requirement to avoid the parallel, duplicative reporting burden that the current framework risks creating. This should extend beyond EU platforms, with continued dedicated funding made available under EU4Health or Horizon Europe to support Member States in connecting their national systems, and to build the infrastructure for scaling interoperability with associated countries. The EU HIP project offers a model and foundation on which to build such efforts.

Recommendation 8. Shape transparency provisions under the Critical Medicines Act for global interoperability. Through its role as Secretariat of the Critical Medicines Alliance, HERA should actively use the ongoing CMA trilogue to push for transparency provisions

that are designed from the outset for global interoperability, not only internal EU coordination. HERA should advocate CMA transparency mechanisms to be aligned with the WHO's Global Supply Chain and Logistics Network and Article 11 of the Pandemic Agreement which encourages the sharing of production data at global level. This can help ensure that data collected on manufacturing sites, production capacities, and stock levels can be shared with trusted supranational partners under appropriate access and confidentiality safeguards. Global supply chain resilience requires shared visibility, and an EU framework designed in isolation will address only part of the problem.

Recommendation 9. Coordinate with international partners to enable supply chain data collection and stockpiling. HERA has established administrative arrangements with several regions and countries, including the Africa CDC, PAHO, Japan, Korea, the US, and Canada, with further agreements under development. These valuable partnerships establish the trust and operational familiarity needed to enable faster collaboration when crises emerge. HERA should use these arrangements to coordinate with international counterparts pursuing similar initiatives, working towards harmonised data standards and shared approaches that allow cross-jurisdictional comparability. This builds directly on the EU Stockpiling Strategy, which calls on the Commission to strengthen collaboration with like-minded partner countries and international organisations on crisis preparedness, and improve synergies between EU internal and external stockpiling efforts. HERA is well placed to operationalise these health-specific coordination calls, thereby helping to prevent the proliferation of incompatible national or regional systems that fragment collective preparedness.

6. Looking ahead

The world is not short of health crises; rather, it is falling short of the systems, trust, and shared infrastructure needed to manage them collectively. This paper has examined three domains where the gap is most acute and where HERA is uniquely positioned to help: surveillance and threat monitoring, health innovation, and supply chain data sharing. Across all three, a common diagnosis emerges. The architecture for treating health as a global public good exists in HERA's mandates, partnerships, platforms, and political commitments, but it remains fragmented, underfunded, and insufficiently binding to withstand the geopolitical pressures now bearing down on it.

In surveillance, the fragmentation of platforms across HERA and the ECDC risks diluting what should be a coherent, globally legible EU signal. ATHINA holds genuine promise as an integrating infrastructure, but only if interoperability is treated as a foundational design requirement rather than a downstream aspiration, and only if its outputs are opened, at least in part, to the global community it is meant to serve. HERA's stewardship of GLOWACON offers a working proof of concept: a global coordination model that can be consolidated and expanded, provided HERA actively reinforces its leadership role before the evolving institutional landscape narrows the space to do so.

In health innovation, the EU's structural strengths – its research base, funding instruments, and procurement leverage – remain under-deployed as tools for global public good. The shift towards competitiveness and strategic autonomy in EU policy must not become a pretext for retreating from the equitable sharing of health knowledge. Delivering innovation as a global public good demands a whole-of-system approach linking upstream R&D investment to downstream technology transfer, manufacturing capacity, and local ownership in partner countries. The Global Health Resilience Initiative, the MFF negotiations and the Medical Countermeasures Accelerator represent a narrow window to embed this logic before funding architectures are locked in for another decade.

In supply chain data sharing, the gap between what is politically recognised as necessary and what is legally required remains too wide. The absence of mandatory preparedness-phase reporting is not a technicality; it is a structural vulnerability that leaves decision-makers blind precisely when early intervention matters most. The CMA trilogue and the WHO Pandemic Agreement together offer a rare opening to raise the floor of global supply chain transparency, but only if the EU designs its internal frameworks with external interoperability in mind from the outset.

The proposed recommendations can be operationalised through a range of existing and emerging policy avenues. But instruments alone are insufficient. What is required is the

political will to use them in ways that explicitly connect EU internal health security to the global commons, and to resist the temptation to design each tool in isolation.

Equally importantly, not all of them are HERA's responsibility alone. The Authority operates within a broader institutional ecosystem alongside DG SANTE, DG INTPA, DG RTD, ECDC, EMA, and a growing network of bilateral and multilateral partners. Several of the proposed measures extend well beyond HERA's direct mandate and require coordination across multiple levels of EU governance and beyond. The point is precisely this: health as a global public good is a system-level challenge, not an agency-level one. HERA's value lies not in acting alone, but in its capacity to convene, coordinate, and catalyse action across that system. Through this paper, we contend that HERA can be the node that holds this architecture together when centrifugal forces would otherwise pull it apart.

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