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Facing the next public health emergency: How do we know how (un)prepared we are?

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Summary:

In the realm of political preparedness, numerous benchmarks, metrics, and best practice models have emerged as integral sites in the ongoing debate. Taking the Global Health Security Index as a specific example, this paper delves into the advantages and disadvantages of such global security rankings. This analysis aims to explore the potential uses and drawbacks of employing metrics to evaluate and modify (inter-)national preparedness plans. Situating this discussion within the broader context of the escalating significance of crisis preparedness and management, particularly in the face of acute disruptions to vital infrastructures and the immense costs they entail, as well as their adverse impact on public health and societal safety.

However, the findings of this analysis reveal a notable political and strategic risk associated with an excessive reliance on these metrics. It is important to recognize that these metrics not only rely on robust scientific methodologies but also rest upon selective assumptions about the world and the definition of threats. The case of the Global Health Security Index serves as an example, as the assumptions underpinning these metrics have proven inaccurate in the face of an actual pandemic. Consequently, overconfidence and misguided approaches to crisis preparedness have ensued.

Additionally, this work offers a concise historical overview of preparedness thinking, outlines the field of Global Health Security, presents the existing metrics employed, and critically reflects on these tools. While metrics provide valuable insights, they should be approached with caution and an awareness of their limitations. By adopting a critical lens and recognizing the political dimensions inherent in these metrics, policymakers can make more informed decisions and develop more effective preparedness plans in an ever-evolving world of crises.

Keywords: global governance; security governance; governance metrics; global health security; pandemic preparedness;

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1 Introduction

The devastating outbreak and global spread of COVID-19 in 2019 serves as a recent, vivid example of the ongoing concerns, shared by experts and policymakers, regarding the occurrence of unforeseen infectious diseases. The pandemic demonstrated the profound impact such crises can have on societies and their critical infrastructure, underscoring the vulnerability and fragility of those infrastructures. Unanticipated outbreaks disrupt supply chains, inflict immense costs, and profoundly affect the well-being of individuals and communities. Beyond physical symptoms, these crises also give rise to political and economic instability, fostering fears for the future that fuel extremist and anti-government ideologies. They erode the collective sense of safety and security, while also challenging democratic and scientific institutions. Consequently, they present significant security risks that necessitate proactive strategies for prevention, preparedness, and response to emerging threats.

In view of this, public health emergency preparedness and response has become increasingly important in recent years. Especially after events such as the nuclear incident in Fukushima or the COVID-19 pandemic, debates over preparedness have spilled over the boundaries of circles of technical experts and have entered broader public debates. However, the question of how societies can design meaningful preparedness infrastructures is ultimately hard to answer on a general level, not least because the crises differ significantly in their nature as well as in the socio-political contexts in which they unfold. Because it is expensive to build and maintain preparedness infrastructures, which — even in the best case — will only rarely be put to use, preparedness infrastructure has become a matter of negotiation and contestation over policy priorities. Yet, precisely because preparedness plans are geared towards events that may or may not happen in the future, and because public health emergencies may assume strikingly different shapes, it is very difficult to assess what is needed for an effective preparedness plan. Hence, the overarching interest of policy makers is to know what expertise and data to build upon when it comes to strengthening (inter-)national emergency preparedness. But to decide that, an upstream and altogether more elusive question must first be dealt with: how do we know how (un)prepared we are, where are the strengths, weaknesses and deficits of (inter-) national preparedness, and what kinds of reforms are needed to overcome them?

In an effort to tackle these questions, numerous benchmarks, metrics and best practices models have become an essential part of the emergency preparedness policy. In line with common governance approaches, various security metrics have been developed that assess, evaluate and compare national preparedness structures and their shortcomings. Broadly speaking, metrics are measuring devices — such as indices or benchmarks — that attempt to capture phenomena using quantitative means. Their importance for governance is that they render visible phenomena that cannot be directly observed or witnessed — such as a country's level of pandemic preparedness. Therefore, these metrics are supposed to work as indicators to provide important knowledge and thus guidance for various governmental and non-governmental actors involved in planning and implementing preparedness and response infrastructures.

Despite the undisputed relevance of metrics in global governance, their practical relevance has been questioned, especially in light of the recent pandemic. As COVID-19 demonstrated, the main metrics used to predict countries preparedness and offer recommendations for general and concrete

improvements to health infrastructure were not predictive of the actual performance of a country (Mahajan 2021; Abbey et al. 2020; Baskin 2020). The question then is not only what these metrics actually measure (and how to improve their validity), but also what their political role is beyond their declared objective of neutral assessment of preparedness deficits. Further, there is a major political and strategic risk in taking the results of these metrics too naively and at face value.

In this short analysis, we will examine a relatively new metric — the Global Health Security Index — to discuss and analyze the benefits and drawbacks of such global security rankings. Our tasks are three-fold:

- i.) highlight and sensitize for the political and policy-relevance of metrics
- ii.) examining the potential utility as well as limitations and disadvantages of such metrics, by taking the global health security index as a recent example
- iii.) open up the discussion of how to use such global metrics in a way that they are locally situated and democratically designed.

2 Political and historical background of preparedness governance

Multiple studies have shown that rankings of the three main metrics of health security, the JEE, e-SPAR and GSH Index, were not predictive of individual countries' responses to the COVID-19 pandemic (Abbey et al., 2020; Haider et al. 2020). But in order to understand why, we first must understand how our current system of preparing for global health emergencies came to be and why it is not necessarily the best fit. Therefore, we will first briefly trace both the history of preparedness practices and the change in dominant paradigm from international health to global health security.

2.1 Preparedness planning: tracing the policy paradigm

The history of measuring preparedness can be traced to the cold war and concerns about the aftermath of a nuclear conflict (Lakoff 2021). Specifically, the government of the United States began to worry about what would happen as a result of a nuclear war with the Soviet Union and how to rebuild in the aftermath. This led to the creation of the 'preparedness kit' in the 1950s and '60s, which consisted of three parts: a list of emergency actions, a scenario-based exercise, and an assessment of available resources. This last step became particularly important and expanded upon, through cataloging and ranking available resources and capacities. The kit sought to evaluate and prepare for a scenario without precedent and whose effect could not be predicted beforehand and became the core of evaluating preparedness for future, unpredictable catastrophic events.

In tandem with this, the notion of 'security' has undergone significant changes. Whereas until the 1990s the fear of a nuclear confrontation between the West and the East has dominated security debates, these military dangers have been supplemented and partly overlaid by a multitude of diffuse biological threat scenarios (Collier and Lakoff 2015; Elbe 2010). Although initially designed for

preparing for nuclear war, this kit slowly became the basis for emergency preparedness throughout the US government and then throughout the broader West, through the US government's influence (Lakoff 2021). Even as the imagined threat evolved over time, from nuclear war to biological or chemical weapon releases (accidental or intentional) to fears about first terrorism and, finally, to emerging infectious diseases, the notion of how to prepare for such threats remained relatively stable (Lakoff 2021). This idea of preparedness has also become firmly entrenched in the metrics of how to evaluate preparedness for these events, like the GHS Index. This is relevant because it shows that our current understanding and method of preparing for catastrophic health emergencies is rooted in a specific place and time (i.e., the United States during the Cold War) that may not serve as the best blueprint for health security in the 21st century globalized and multipolar world. This has downsides, which we will discuss more fully in the conclusion.

2.2 Preparedness through the lens of Global Health Security

Since the turn of the 21st century, global health security (GHS) has become a new policy paradigm in international relations that focus on the intersection of health-related hazards and (inter-)national security concerns (Rushton 2011). There is no single definition of health security. As a starting point, the World Health Organization offers a relatively broad definition:

Global public health security is defined as the activities required to minimize the danger and impact of acute public health events that endanger the collective health of populations living across geographical regions and international boundaries. (WHO 2007)

This definition is, however, rather idealistic because it suggests a globally shared vulnerability and risk that constitutes a common awareness and common interest to tackle global health threats together on the basis of international solidarity. Yet, rather than humanitarian concerns for world health, the political and strategic calculus of GHS has been national security in a world understood as rapidly 'globalizing' (Elbe 2010; Rushton 2011). This places GHS in the meshwork of global power relations significantly shaped by the Global North.

Three main phenomena have driven the political salience of global health security regimes: the increasing threat of naturally emerging pandemics due to global interconnectedness; the threat of intentional release of pathogens (bioweapons, bioterrorism); and the unintentional release of pathogens due to (laboratory) accidents (Elbe 2010).

From an overarching perspective, global health security has become the most dominant way of guiding preparedness, and it places a great deal of emphasis on using metrics to account for and improve the generally difficult-to-define idea of "preparedness."

In a nutshell, the global health security governance paradigm involves three significant shifts that alter the ways in which security is conceptualized and acted on. These include, (1) a shift from a concern with specific threats (ie, individual diseases) to a more general concern with all possible threats (in which emerging infectious diseases are 'just' a model case); (2) a shift from present danger

to future threats, focusing on preparing for and anticipating threats that have not yet occurred; and (3) a shift towards a focus on threats that are hard (if not impossible) to predict precisely but the consequences of which are deemed to be catastrophic (Lakoff 2017). This has put an emphasis on security practices of anticipation and real-time evaluation of potential threats that have the potential to cause a massive fallout if not promptly intercepted or contained. Therefore, GHS governance is underpinned by an 'all hazards' approach, which sees all sources of danger as both equally serious and equally likely to affect every region. As a result, the paradigm of global health security is no longer limited to medical crises (in the narrow sense of infectious diseases and epidemiology). Emerging infectious diseases, as well as power outages or volcanic eruptions, all represent health-related emergencies that require a comprehensive all-hazards approach. All in all, these developments have also increased the relevance of indicators and other assessment tools that promise to make the level of preparedness against generic but fatal hazards measurable and objectifiable, and at the same time to identify the major deficits in national preparedness infrastructures.

The rise of global health security has also engendered difficult questions of governance. These emerging governance challenges can be captured by the shift from international public health to global health governance, which also entailed a significant remaking of the field and its actors. Particularly, this reconfiguration has decentered the role of the World Health Organization (WHO) (Brown et al 2006). GHS became a fully-fledged regime with the revisions to the International Health Regulations (IHR) in 2005. In particular, the 2005 IHR shows the codification of the concept of GHS into legally binding international law. The International Health Regulations (IHR) were initially adopted by the World Health Assembly in 1951 and were revised in 1969 and 2005; they are legally binding on all WHO member-states and provide the framework and unified code for responding to infectious diseases (Ruger 2008; Gostin and Katz 2016). The 2005 revision is critical to understanding the shift to global health security. They drastically expanded the scope of the IHR from three explicitly named communicable diseases (cholera, plague, and yellow fever) to a broad, all-hazards mandate that covers all naturally occurring infectious diseases, as well as the results of the release of biological, chemical or radiological elements. The IHR require that states develop 'core capacities' to identify threats within their borders, monitor and contain them, and promptly notify the WHO of these international health threats. It also empowered the WHO to make its own declarations of a public health emergency of international concern (PHEIC) and further, to consider information from outside official government sources, as long as it is verified by the state in question (Ruger 2008; Gostin and Sridhar 2014).

Yet, the new IHR have not solved the governance problem of/in global health but instead created new ones. Under the IHR, every member is required to send an annual report to the WHO with key statistics about its health capacity and outbreaks of specific diseases within its territory, as well as the core capacities to respond to such an outbreak but the WHO lacks a clear enforcement mechanism for these provisions (Ruger 2008; Gostin and Sridhar, 2014). While these policy instruments are legally binding; they also lack clear enforcement mechanisms and rely on other means to ensure their efficacy. Moreover, and important for our discussion of metrics, from the perspective of the driving forces behind the IHR 2005 and the GHS governance paradigm, a problem for governance now was that there was no data on the extent to which countries and their governments were actually meeting their international obligations. The solution to this problem was the development of various metrics and indicators which seek to quantify them.

3 Unpacking metrics in security governance

3.1 Indicators in global governance: what they are and what they do

Global indicators play a prominent role in global governance across various fields such as development, innovation, rule of law, and health (Plehwe 2021; Krever 2013; Reubi 2018; Adams 2016). The reliance on metrics to inform global governance presupposes the availability of accurate data and suitable indicators. These, in turn, often require comprehensive research infrastructures for data collection, preparation, and exchange (Elbe 2021; Madsen et al 2016).

Before analyzing the politics and the performance of indicators in preparedness governance, it is important to establish what an indicator is: a device that can point to and render knowable an abstract entity that cannot be directly observed or measured. Instead of measuring the entity itself, indicators assess objects that consistently relate to the abstract entity (Porter 2015). Clearly, there are ongoing scientific debates over the appropriate design of indicators and metrics, which are not free from contestation.

Moreover, there are long-standing critiques of metrics that need to be considered. Metrics suggest technical neutrality and objectivity, yet — as social science research can indicate — metrics are also political tools designed for a specific strategic purpose and compiled at a considerable financial and human cost (Turnhout et al 2014; Adams 2016). Preparedness metrics are not just built on robust scientific methodology but also rest in considerable parts on selective presuppositions about the world, how it can be known, and what counts as evidence. But moreover, these metrics ‘have politics’ to the extent that they actively construct a particular version of the world, create frames that suggest what counts as a threat (and to whom), and what solutions appear to be effective, legitimate, and acceptable.

3.2 Metrics in global health (security) governance

To be sure, there are multiple indicators and metrics that form the foundation of global health policy (Adams 2016; Kenny 2015; Wahlberg and Rose 2015; Pichelstorfer and Paul 2022). These measures are crucial in assessing population health, identifying healthcare priorities, and guiding policy decisions. Key indicators include life expectancy, which reflects the average lifespan and is influenced by healthcare access, disease burden, and socioeconomic factors. The infant mortality rate serves as an important indicator of maternal and child healthcare quality, while the maternal mortality ratio provides insights into the effectiveness of managing pregnancy and childbirth complications. Additionally, disease-specific mortality rates enable the evaluation of disease burden, disability-adjusted life years capture the overall impact of diseases and injuries, and vaccination coverage indicates the level of protection against preventable diseases. Other metrics, such as health expenditure as a percentage of GDP, health workforce density, and access to essential healthcare services, further contribute to shaping global health policies by offering insights into resource allocation, healthcare provider availability, and healthcare access gaps. These indicators and metrics

are employed by policymakers and global health organizations to monitor progress, address health inequalities, and inform the development and implementation of effective health policies and interventions.

In the case of health security, there are various indicators that differ significantly in their design (and therefore in what they measure), which we will discuss later. Suffice it to say here, that global health security indicators are tools that employ both qualitative and quantitative metrics to evaluate the preparedness and response capacities of individual countries. These core capacities are defined by the World Health Organization (WHO) as ‘those required to detect, assess, notify and report events, and respond to public health risks and emergencies of national and international concern, as stipulated in Articles 5 and 13, and Annex 1, of the Regulations’ (World Health Organization n.d.). These indicators, to varying degrees, draw upon institutionally-generated or publicly-available data, combined with expert assessments, to score various factors deemed critical to developing and supporting core capacities. These factors encompass concrete elements such as the number of doctors relative to the population and surveillance mechanisms for zoonotic diseases, as well as more abstract factors, such as ‘government effectiveness’ and ‘socio-economic resilience’. Through qualitative and quantitative assessments, experts assign a weight to the collected data, converting it into numerical scores. Consequently, countries are ranked against one another based on those scores.

It is essential to recognize that these indexes, while striving for universal and objective knowledge, are shaped by the values, priorities, and expertise of specific groups, which may differ from those who use these tools. The use of metrics in governance, particularly in global health governance, has faced criticism from scholars who view it as a soft form of governance. Instead of relying solely on hard power, such as laws and treaties, metrics play a governing role by influencing the very foundation of debates and the perception of reality. This allows metrics to exert influence without overtly governing, evading some of the scrutiny applied to more traditional forms of power and governance (Turnhout et al 2014; Adams 2016; Rose and Miller 2010). The primary concern is that metrics often substitute political debate and democratic negotiation with expert authority grounded in technical calculations. This raises the risk that an increasing reliance on such metrics in governance may transform political questions into technical ones, resulting in less or unaccountable technocratic actors making decisions that should be subject to democratic processes.

3.3 Mapping existing health emergency preparedness tools: what metrics are used, and how do they differ?

While these are general health metrics, we here focus particularly on the global health security index as a metric decidedly measuring international/global health security and biological *preparedness* levels (Lakoff 2022; Baskin 2020; Mahajan 2021; Razavi et al 2020; Kentikelenis and Seabrooke 2021). Before we attend to the GHS index, we need to shortly discuss the other preparedness metrics in use by the WHO.

To begin, the Electronic State Parties Self-Assessment Annual Reporting Tool (e-SPAR) is a tool that resulted from the 2005 IHR revisions that required governments to annually submit an assessment of

their health systems and their compliance with the IHR to the World Health Assembly (WHA). According to the WHO, the tool is made up of '35 indicators for the 15 IHR capacities needed to detect, assess, notify, report and respond to public health risk and acute events of domestic and international concern' (e-SPAR Website). Countries score themselves on each category on a 1 to 5 scale, from having no capacity (score of 1) to having capacity at the national, sub-national, and local levels (score of 5). These are then converted into a 1 to 100 scale. The reports are prepared by the health authorities in each individual country that is a party to the IHR and the WHO does not review or adjust them in any way (Kentikelenis and Seabrooke 2021).

Like the e-SPAR, the Joint External Evaluation (JEE) is also a tool overseen by the WHO. A JEE is a two-part voluntary process where external evaluators chosen by the WHO visit a selected country and collaborate with the local health authority to review its health preparedness and identify gaps according to a multi-sectoral analysis developed by the WHO (Joint external evaluation tool 2005; Kentkelenis and Seabrooke 2021). According to the WHO:

A Joint External Evaluation (JEE) is a voluntary, collaborative, multisectoral process to assess country capacities to prevent, detect and rapidly respond to public health risks whether occurring naturally or due to deliberate or accidental events. The JEE helps countries identify the most critical gaps within their human and animal health systems in order to prioritize opportunities for enhanced preparedness and response. (Joint external evaluation tool 2005)

The analysis is conducted in two parts. First, the country itself conducts an analysis based on 19 categories with a total of 56 indicators. Second, that analysis is reviewed by a group of *external specialists and experts* who help identify both strengths and gaps that need to be addressed. Finally, a publicly-available report is prepared that summarizes the findings (Kentkelenis and Seabrooke 2021).

While both these indicators have their strengths and weaknesses (both conceptually and practically), the main point worth mentioning here is that they both depend on the cooperation of national (local) health authorities. Whereas e-SPAR is entirely a self-assessment tool, a JEE triangulates the self-assessment of governments with an international panel of evaluators. From the perspective of global health security, this involvement of governments remains a source of insecurity – will they cooperate? Will they provide accurate and complete data? Should we rely on these assessments? Etc.

Here, as we shall see, the GHS index offers a 'solution' to this perceived problem, as it circumvents, by design, the reliance on national authorities — and hence the diplomatic challenges involved that pertain to the sharing of health data. In doing so, the GHS further pushes world health from the international to the global dimension.

4 Case study: the Global Health Security Index

Building on this, the following section examines the GHS Index as a useful example because it is both the most recently created metric and thus the most ‘up-to-date’, which lends it increased weight and is also the most visible at the present moment.

The Global Health Security Index (GHS Index) is a privately-funded project¹ that seeks to measure and compare all countries’ preparedness for catastrophic health emergencies using only publicly available data. Its first edition was published in 2019 with a revised edition being published in 2021. It is explicitly designed to encourage countries to comply with the IHR (Bell and Nuzzo 2021). Compared to JEE and e-SPAR, the GHS index is striking because of the massive scope of measuring instruments. It is divided into 6 categories, 37 indicators, 96 subindicators, and 171 questions. The six key categories that the GSH index is built around are Prevention, Detection, Response, Health systems, Compliance with international health regulations, and Risk environment. Under these categories are 37 sub-indicators, like “bio-security” for the category of prevention, with sub-indicators like “Whole-of-government biosecurity systems” with questions about having legislation on proper bio-safety procedures or requiring training on proper bio-safety procedures. An indicator from the Detection category is “Real-time surveillance and reporting”, with questions like “Is there evidence that the country is conducting ongoing event-based surveillance and analysis for infectious disease?” or “Does the government operate an electronic reporting surveillance system at both the national and sub-national level?” (Economist Impact 2021).

Beyond its technical design, the index project is guided by a set of fundamental principles that represent its normative basis: Rewarding transparency; recognizing that many factors contribute to preparedness; and expanding accountability and responsibility. Rather than focus on data reported by governments through the WHO (e-SPAR, JEE), the GHSI only uses *publicly available data* to assess countries’ level of preparedness.

We now zero in on the literature around the GHS Index to show the different ways it has become debated and problematized by different actors that engaged with it. Broadly the debates fall into two camps: narrow criticisms directed towards how the concept of global health security is executed in practice on the one hand, and broader criticisms of how the concept itself needs to be reimaged and how other concepts could or should be deployed instead on the other.

4.1 Narrow, Technical Criticism: questions of internal validity and practical utility of the index

As mentioned earlier, research on how these metrics performed relative to the real world found a disparity. The first set of criticisms of the ways that the concept of global health security functions is based on the ways that GHS narrowly creates knowledge about preparedness. They focus on the ways

¹ The 2021 version of the Global Health Security Index was funded by Open Philanthropy, the Bill & Melinda Gates Foundation, and The Rockefeller Foundation (Bell and Nuzzo 2021).

that the different metrics rank data and on which kinds of questions are included in the methodology. These kinds of critiques focus on how specific rankings (failed to) accurately predict how countries would respond to the COVID-19 crisis, for instance, and suggest technical adjustments or new criteria that should be included.

Many focus on the GHS Index, since it has the highest visibility of the three methods available. There are questions about the methodology of the index and how its rankings did (or did not) correspond to the real-world results of COVID-19. In 2020, Abbey et al. (2020) examined how the COVID response of countries in the OECD compared to their rankings on the 2019 GSH index. Specifically, they looked at the total number of COVID-19 cases, deaths, tests performed, and recoveries as of May 15, 2020, and used that data to order OECD countries from 1 to 36. They found that there was a lack of correlation between the score on the Index and how well a country responded to COVID. They theorized that both political leadership and previous experience with infectious diseases played a role in a successful COVID-19 response and suggested that future versions of the index consider such measurements. Another study (Haider et al. 2020) looked at both the GSHI and the Joint External Evaluation (JEE) from the WHO and compared their rankings to countries' first detected case and overall mortality rate as of 1 July 2020. They found that rankings in neither the GSHI nor the JEE were predictive of a country's performance during COVID-19, and instead, they suggest adding metrics around general population health and overhauling the metric system. These studies question the way the index was designed and weighted and called for technical fixes and improvements to the index. While taking these criticisms of the index and the mismatch between its rankings and real-world outcomes, others want to question the assumptions the index makes on a more fundamental level and offer more than technical solutions.

4.2 Broader Criticism: questions of underlying politics of the Index

Simply creating a fortress does nothing to stop diseases from incubating and evolving outside that fortress. While this may slow down transmission during early stages to give more time to develop therapeutic and pharmaceutical interventions, once a disease runs unchecked through any part of the world, it can mutate and lessen or undermine successful interventions that have already been developed and deployed.

Writing in 2010, Andrew Lakoff compares two different regimes of global health: global health security and humanitarian biomedicine. He sees global health security as primarily designed to counter infectious diseases that emerge in developing countries and that come to threaten wealthy countries, that require management by technocratic experts and international bodies, that focus on building global disease surveillance capacities and the rapid development of pharmaceutical countermeasures for novel infectious diseases and that are primarily concerned with protecting the health of citizens in more developed countries. In contrast, he discusses an alternative, humanitarian biomedicine, which is focused on building up core healthcare capacities in every country, but particularly developing countries, in order to ensure that everyone has adequate access to healthcare and that essential medicines and vaccines are provided to especially the poorest individuals who need them. For him, there is a clear distinction between global health security's focus on protecting developed nations from

hypothetical infectious diseases and humanitarian biomedicine's focus on treating diseases that are affecting primarily citizens of developing countries right now.

Kentikelenis and Seabrooke (2022) question the value and priorities of these GHS indicators from a broad perspective. They identify three sets of trade-offs in these types of indices that seem complimentary but, in fact, present stark choices: 1) resource allocation for reducing national risk versus reducing global harm, 2) whether data for indicators should favor transparency, veracity, or accountability, and 3) whether a vision for global health should favor a security frame or a human rights frame. They argue that even high-income countries struggle to balance the first point and that the second and third points shape how the index reaches its conclusions and how those conclusions are used (or misused) by third-party actors. In a pre-print, Jeremy Baskin (2020) also questions some of the fundamental assumptions of the GHS policy while also examining what these types of framings do in practice. Rather than critique individual indices or suggest changes, Baskin sees global health security as part of a governance strategy where the priorities of the global North are inscribed into 'neutral' indices and then used as a benchmark to which countries of the global South are expected to measure themselves against, whether or not it makes sense for them to do so. He questions whether the one-size fits all model of these metrics is helpful in improving health security around the world. Similarly, Manjari Mahajan (2021) offers criticism of the fundamental design of specifically the GHS Index and its framing of health security. She argues that, by using a narrow conception of global health security that focuses only on technical infrastructure for detecting and containing emerging infectious diseases, it fails to seriously consider social and political features that affect how countries do (and do not) respond to health crises, which seriously limits the GHS index's usefulness. She argues that far more complex (and locally specific) traditions and particularities need to be considered when trying to improve the health security of the global population.

5 Conclusions: potential uses and disadvantages of global preparedness indicators

Given the inaccuracies and criticism that these metrics have received, it is still important to recognize their value and how they can still be useful tools for policymakers and planners. Encouraging countries to build up the capacity to rapidly respond to emerging diseases is critical to managing pandemic threats in the future, as well as other kinds of health emergencies. So too is adequately assessing what qualities make for a successful response and creating metrics to measure and encourage their development. For instance, in the aftermath of COVID-19, the role of local and sub-national governments in health response is being considered, as is the role that government competence and ability plays. The Global Health Security Index itself admits that metrics that assess the reliability and competence of government institutions at all levels of any given society are very hard to create and measure and that this kind of analysis is currently missing from their reports (Bell and Nuzzo 2021).

Considering the history of global health security, the nature of international health law and the metrics that can assist in assessing preparedness, this analysis underscores the relevance of situating preparedness indicators (and the debates on their potential utility and risks) in the specific political and social contexts. Policymakers, experts and planners are well advised to consider three broader considerations when they engage, debate, draw on or make sense of various metrics and indicators to recalibrate or improve their national preparedness plans:

1. First, policymakers should be aware of the selectivity of the knowledge of such metrics produce. While metrics aspire to objectivity, they are nevertheless also created based on certain assumptions, using certain data and filtered through specific values that serve specific political, economic and security interests. It is important to remember that metrics and indicators do not simply 'represent' reality but instead construct a version of it in their image. In particular, it is worth critically scrutinizing the values and interests that metrics bring with them and evaluating whether they match the needs and priorities of those policy communities that draw on them. This is particularly relevant given the observation and contention, that 'global' health security is driven by the national security interests of countries of the Global North in general, and the US in particular (Rushton 2011).
2. Second, policy-makers should (also) acknowledge the performative dimension of metrics, and rankings and indicators more specifically. Indicators may incite certain dynamics in which those actors that are being ranked — in our case, countries and their governments — seek to improve their ranking. While 'climbing the table' might be the response to such indices that their creators intend and hope for, it is worth carefully considering how they might best be applied in a local context and within the local field of action. Climbing up the rankings should not be considered an end in itself, but metrics should (at best) be used as a certain, situated heuristic to start debates and reflection processes on the best and most meaningful ways how to improve crisis preparedness and response. Moving beyond the broad categories and focusing on the sub-indicators or the individual questions might best serve to enhance local preparedness. It is best to see them as a tool to assist where and when necessary, rather than a totalizing mandate to overhaul preparedness completely.
3. Third, it is worth considering that despite the fact that global metrics seek to measure the (inter)national world, their findings might not be universally applicable. They demand careful sense-making and 'translation' into national and local contexts. Therefore, policy makers are well advised to draw on expertise situated within existing national borders, rather than simply turning to international metrics and frameworks. For instance, social scientists that employ a range of different methods and approaches have valuable contributions to make based on their local and regional expertise. All kinds of professionals and civil society organizations likewise possess knowledge and understanding of local conditions that, while not generalizable, contains useful ideas for the specific conditions within individual countries. The broader public can also have valuable and insightful contributions to preparedness and prevention in their specific and hyper-local areas. We are certainly not suggesting that such metrics are not useful or that we should return to older systems that only focused on national preparedness. Rather, we argue that global metrics should be used to help local preparedness

in ways that make sense at the local level and be combined with local knowledge. We also argue that global metrics should re-evaluate how they conceptualize threats so that they better serve the global population as a whole, but that is a much thornier issue than can be addressed here.

Drawing on these three points, we offer a general recommendation that local, regional and national health authorities should reach out to wider circles and diverse sets of experts when considering preparedness. This is to create inclusive, participatory but also multidisciplinary decision-making processes and make them inclusive by drawing from different kinds of experts, including social scientists. This is critical in order to start a conversation about the meaning of the index, its relevance for each local context and how it can be helpful to improve preparedness there. This is important because COVID-19 is unlikely to be the last major health crisis that stretches across the globe. It is critical to start a process now to evaluate these tools and as well as consider how to conceptualize preparedness so that we can be more able to quickly respond to future events. While we don't know when the next crisis will occur, we should act now to prepare for it.

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