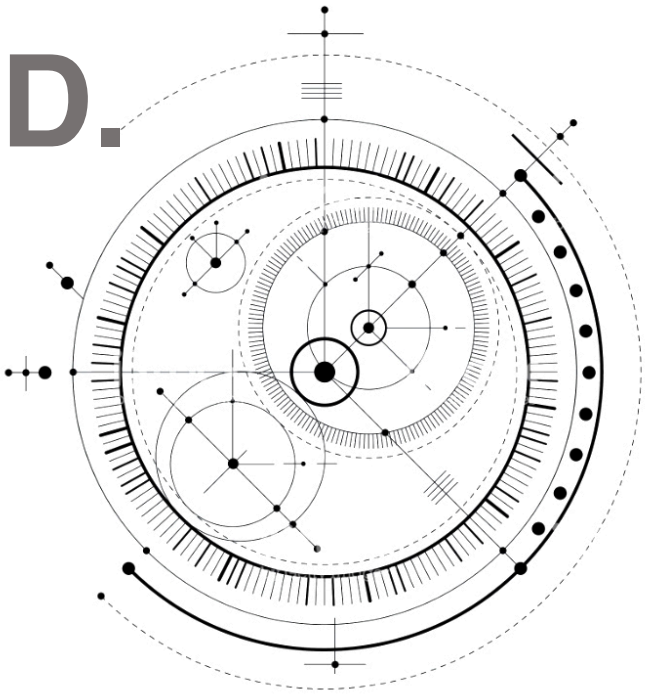
# PREVENT, DETECT, RESPOND.



## An Ethnography of Global Health Security

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## Abstract (EN/FR)

Beginning in the early 1990s, a new manner of articulating the threat posed by epidemics of infectious diseases took shape. ‘Global health security’ (GHS) emerged as a novel epistemic space as a response to the perceived threats posed by circulations and appearances of ‘global’ diseases. Marked throughout the 2000s by major events both political and pathogenic, GHS has undergone profound changes; from primarily a policy-legal framework to a forum for reconfiguring global health 'action'. This research examines how the problems that emerged in the 1990s are changing since the 2014 West African Ebola crisis and the announcement of new global health security projects and initiatives. How might these transformations constitute a new manner of thinking about, and acting on, epidemics as a ‘global’ problem?

Contrasting genealogical-archival research with a series of field-based episodes, this dissertation explores how public health experts and technicians worked to define new problems and design the interventions aimed at addressing them. It juxtaposes a historical account of the emergence and transformation of GHS across the 2000s and 2010s against field-based ethnography of GHS during 2016 and 2017. Based on over a year working with a global health non-profit, the text’s episodes attend to day-to-day work that translated diffuse concepts of ‘threat' and ‘risk' into discrete technical practices and projects to mitigate and minimize those threats. Working with experts through the early stages of project development, attention is paid to the relational processes that went into making global health security a workable concept. Together, the episodes illustrate the routines and technical artistry that made GHS into a space not only to reimagine a ‘safer’ or ‘healthier’ world, but to build the means to realize it.

The text also examines how communities of experts reworked their projects and programs during great destabilizations and disruptions, including both the 2016 US Presidential election as well as an Ebola outbreak in the Democratic Republic of Congo. It explores how global health organizations and experts attempted to better 'prevent, detect, and respond' to public health emergencies after Ebola in 2014. Unpacking various understandings of the ‘global’ in GHS, it examines how experts worked to build novel 'global assemblages’ and reposition ‘reciprocal obligations between nations'. The research looks at novel techniques and technologies designed to ensure a ‘global’ community of healthy nations—ones able to live up to their responsibilities to care for and protect their vulnerable populations.

In 2014, Ebola set the stage for dramatic changes to global health as new actors and organizations came to understand a pressing need for change. ‘GHS' emerged as a response to these calls for reform and improvement, an urgent effort to improve vulnerable health systems in developing countries. This research explores how GHS and some of its technicians became entangled with these emerging and evolving mix of policies, practices, and possibilities for global health practice.

Depuis le début des années 1990 est apparue une nouvelle façon d'envisager la menace que représente les maladies infectieuses. Le nouvel espace épistémique de la « sécurité sanitaire mondiale » (SSM) a pris forme en réponse aux menaces que semblent constituer la circulation et l'apparition de maladies « globales ». Pendant toutes les années 2000, la SSM a été marquée par des événements majeurs à la fois politiques et pathogènes qui l'ont bouleversée profondément. D'abord un cadre principalement politique-juridique, la SSM est devenue une scène où se voit réaménager « l'action sanitaire mondiale ». Ce projet de recherche doctoral examine comment les problèmes qui ont émergés dans les années 90 ont été transformés depuis l'épidémie d'Ebola de 2014 en Afrique de l'Ouest et l'annonce de nouveaux projets et initiatives de sécurité sanitaire mondiale dans la foulée. Comment ces transformations pourraient-elles constituer une nouvelle manière de penser et répondre aux épidémies en tant que problème « mondial» ?

Juxtaposant du travail d'archives afin de tracer des généalogies et une série de d'épisodes issus d'un travail de terrain, cette thèse explore comment les experts et techniciens de santé publique ont travaillé pour définir de nouveaux problèmes et concevoir les interventions destinées à les résoudre. Cette thèse présente à la fois un compte rendu historique de l'émergence et la transformation de la SSM au cours des années 2000 à 2010 ainsi qu'un récit ethnographique de la SSM au cours de 2016 et 2017. Fondés sur plus d'un an de travail avec un association de santé mondiale à but non lucratif, les épisodes de cette thèse témoignent du travail quotidien nécessaire pour transposer les concepts vagues de « menace » et « risque » en de spécifiques pratiques techniques et projets visant à atténuer ces menaces. Ayant travaillé aux côtés d'experts depuis les premières étapes de développement du projet, nous attirons l'attention sur les processus relationnels qui ont contribué à faire de la sécurité sanitaire mondiale un concept viable et réalisable. Ensemble, les épisodes illustrent les routines et le savoir-faire technique qui ont servi à établir la SSM comme un espace non seulement pour réimaginer un monde plus « sûr » ou plus « sain », mais aussi pour se donner les moyens de le mettre en place.

Cette thèse analyse également la manière dont les communautés d'experts ont retravaillé leurs projets et programmes au cours de grandes perturbations et déstabilisations, notamment l'élection présidentielle américaine de 2016 et l'épidémie d'Ebola en République Démocratique du Congo. Nous explorons comment les organisations et experts en santé mondiale ont tenté de mieux prévenir, détecter et répondre aux urgences de santé publique après l'épidémie d'Ebola de 2014. En décrivant différentes compréhensions du « mondial » dans la SSM, nous examinons comment les experts ont travaillé pour construire de nouveaux « agencements mondiaux » et pour repositionner les « obligations réciproques entre les nations ». Nous interrogeons les nouvelles techniques et les technologies conçues pour engendrer et soutenir une « communauté mondiale de pays sains », capables de prendre soin et protéger leurs populations vulnérables.

En 2014, le virus Ebola a préparé le terrain pour des changements radicaux dans la santé mondiale alors que des nouveaux acteurs et des nouvelles organisations réalisaient aussi le besoin urgent de changement. La « SSM » est apparue comme une

réponse à ces appels à la réforme et à l'amélioration, un effort urgent pour améliorer les systèmes de santé vulnérables dans les pays en développement. Cette thèse explore la façon dont la SSM et certains de ses techniciens se sont retrouvés impliqués dans ce mélange à la fois naissant et changeant de politiques publiques, de pratiques, et de possibilités pour la mise en place de la santé mondiale.

## Preface and Acknowledgements

On the sidelines of an international event for global health security in 2016, I sat down for lunch with a policymaker at the twilight of their illustrious career. The mood was both candid and reflective. In between bites of food, they suggested that the story of global health security (and, as we will see later, its related "Agenda") was a story of an "idea whose time had come".

Again and again, during this period of research, I was asked what I would write about in this text. The best answer I can give now is that this research has been a sustained reflection on what this statement meant. The following episodes are an examination of this 'idea' of global health security, on how its time came, and how its time almost went away again.

The best I can hope for is that this text provides an accurate reflection of a very specific time and a very specific space of expert practice in global health security. I avoid the expert reflex to provide recommendations on what *should* or *must* be done in general terms. My conclusions are not recommendations. There are issues, problems, and 'challenges' littered all throughout each of the following episodes—my aim is to present these to the reader with minimal commentary to allow them to draw out the conclusions they see fit. In that sense, the text tends toward the 'descriptive' rather than the 'prescriptive'. It is a 'hands-off' text written from a 'hands-on' time with a catalyzing issue in global health today. Of course, I fear that anthropologists may lament a lack of analysis, theorization, or critique; just as I fear that public health experts may lament a lack of rigor, advocacy, or prescriptive conclusions. Nevertheless, I revel in the complexity of this space and indulge in letting those knots unfold into the episodes and into the text itself.

Researching a domain with so much attention, activity, scrutiny, and so many stakeholders meant I was forced to run alongside a moving target. My analysis tries to move with the field – what my colleagues and I refer to as working with "movement in terms of movement". This means that established categories, theoretical tools, and background literature could only get me so far. In some instances, I appropriate language from the field (and other selective places) and redeploy the concepts in new ways. In other instances, I appropriate anthropological concepts and issues to grapple with implications of what I was seeing. In neither case did I assume that analyses or imaginative descriptions would fully exhaust this active and mutating space. Everything here remains provisional and provincial. The hope is that it gets us closer to seeing an outline of a set of possibilities as they were emerging.

There has been an increasing amount of social science literature engaged with global health security, but to date I have not read anything that has set out to do what I attempt in this text. I discuss this more at length in the introduction and the epilogue, but

the literature provides very little in the way of direct, participatory ethnographic engagement with project design, management, or implementation. There is a dearth of analysis that emerges from the perspective of organizations who work directly on these issues. Being 'close up' makes a big difference – although examining the field from afar is important to establish some important baseline questions; looking at it with granularity, through practically-engaged 'epistemic partnerships' raises different issues (Holmes and Marcus 2008). You can feel this difference in between the episodes themselves—the text reflects my own research trajectory that went from '30,000 feet up' to something we might approximate as 'the ground'.

During my research, I tried not to turn into a technocrat (although I worked with them and as one), nor fully to remain as an anthropologist (although I worked with them and as one), but to find something in-between; a position of 'expertise' that challenged my affiliations and loyalties on both sides. In that sense, this research was a transformative exercise as I both attempted to test my own limits and discover the limits of this field of global health security (see Deeb and Marcus 2011).

That liminal position means I am especially indebted: to the bodies of literature that situate the field of global health security as an important issue, to their authors and the incredible scholars who push the field forward, to my academic interlocutors and community of thinkers, and to the expert practitioners who let me into their world to poke around with questions and daydreams. Of course, there is a deep gratitude to my supervisor, Tobias Rees, who was not only formative for the ideas in much of this text, but established our "Thought Collective" and brought together an incredible group of thinkers. My partner and fellow scholar Kristin Flemons has been supportive beyond words, always. Dearest Julianne Yip, who has been a leader amongst leaders, a thinker and a doer and a most generous soul. Doerte Bemme, whose thoughtfulness is unparalleled and whose healthy skepticism is inspiring, admirable, and equally fearsome. Fiona Gideon Achi, whose benevolent curiosity, wanderlust, and joviality has been a source of stability and inspiration for all the rest of us. And Adam Fleischmann, whose close friendship, wily prose, and inimitable sense of humor has brought all of us together even when we've been so very far apart.

There is no bigger presence behind all this text than Dr. Linda Venczel from PATH, who took a chance and offered this persistent and curious researcher the ability to be a participant, not just an observer. Our personal and professional relationship was, and remains, deeply formative— both for developing my understanding of the issues and for my growth during this research period. Let the generations of Great Interns continue! Thanks also to Olivia Rao, Joshua Klett, Troy Leader, Loren Becker, and Jackie Allen from PATH and its Global Health Security Partnership for being fantastic co-workers and indulging my antics as both contributor and researcher.

Much appreciation to Dr. Rebecca Katz from Georgetown University's Center for Global Health Science and Security for being a consistent, tolerant, supportive informant and champion of young minds in global health security. I hope I do justice to the complex spaces you illuminate and all the great work you continue to do for the cause. Many thanks to former Ambassador Jimmy Kolker, a kindred spirit who gave unique insight into the heights of poise, professionalism, and benevolent thoughtfulness that often go into global health diplomacy and program management. It is an honor to call you a friend, and to have had your ear while I navigated this project.

Thank you to all of the leaders at the Next Generation Global Health Security Network for the opportunities you gave all of us to support and participate in such an important and relevant initiative. I was honored to serve as your Deputy Coordinator for the duration of this research project. Thanks also to Dr. Madhukar Pai and the McGill Global Health Programs for offering inspiring opportunities to students and researchers like myself to make waves and produce innovative research.

Thanks to Dr. Carlo Caduff for being a leading voice, a generous scholar, and for helping to shape this project from day one. Your continued support and engagement has been pivotal. Also to Dr. Sandra Hyde for her unrelenting positivity, analytic rigor, and her unique voice of support to all her students and the community at large.

I can't help but be especially thankful to my mother, not only for every wonderful thing you do for me and your relentless support, but for exceptionally helpful proofreading and guidance in making some tough choices in the text. You were pivotal in helping me finish this and let it see the light of day. Likewise, many thanks to my father, for all the moral support and for having confidence in me to persist.

As much as this text is an individual reflection on this time working in global health security, it has also been a collaboration with each and every person and group listed here. I hope throughout the reading, this gratitude comes through clearly.

From here… Onwards!

## List of Acronyms

| | |
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| AMR | Antimicrobial Resistance |
| APP | Advocacy and Public Policy (PATH) |
| BID | Better Immunization Data (PATH) |
| BMGF | Bill and Melinda Gates Foundation |
| CBEP | Cooperative Biological Engagement Program (US) |
| CDC | Centers for Disease Control and Prevention (US) |
| CEPI | Coalition for Epidemic Preparedness Innovations |
| CFP | Call for Proposals |
| CIDRAP | Center for Infectious Disease Research and Policy |
| CoAg | Cooperative Agreement |
| CSIS | Center for Strategic and International Studies |
| CSO | Central Statistics Officer |
| DFID | Department For International Development (UK) |
| DLM | Direction De Lutte Contre La Maladie (DRC) |
| DOD | Department of Defense (US) |
| DRC | Democratic Republic of the Congo |
| DTRA | Defense Threat Reduction Agency (US) |
| DUP | Data Use Partnership (PATH) |
| EO | Executive Order |
| EPR | Epidemic Preparedness and Response |
| FAO | Food and Agriculture Organization (UN) |
| GAVI | Global Alliance, Vaccine Initiative |
| GBD | Global Burden of Disease (IHME) |
| GCBR | Global Catastrophic Biological Risks |
| GCR | Global Catastrophic Risks |
| GHS | Global Health Security |
| GHSA | Global Health Security Agenda |
| GHSP | Global Health Security Partnership (PATH) |
| GIS | Geographic Information System |
| GPEI | Global Polio Eradication Initiative |
| GPP | Global Partnership Program (Canada) |
| HAT | Human African Trypanosomiasis |
| HHS | Department of Health and Human Services (US) |
| HIT | Health Impact Team (PATH) |
| HOT | Humanitarian OpenStreetMap Team |
| IHME | Institute for Health Metrics and Evaluation |
| IHR | International Health Regulations |

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|---|---|
| IHRMEF | International Health Regulations Monitoring and Evaluation Framework |
| INRB | National Institute of Biomedical Research in Kinshasa (DRC) |
| JEE | Joint External Evaluation |
| JHU | Johns Hopkins University |
| MERS | Middle East Respiratory Syndrome |
| MSF | Médicins Sans Frontières/Doctors Without Borders |
| MSR | Mountain Safety Research |
| NGO | Non-Governmental Organization |
| NIMR | National Institute of Medical Research (Tanzania) |
| NSC | National Security Council (US) |
| NSO | National Statistics Officer |
| NTI | Nuclear Threat Initiative |
| OIE | World Organization for Animal Health |
| OSM | OpenStreetMap |
| PHEIC | Public Health Emergency of International Concern |
| POI | Point of Interest |
| RFP | Request for Proposals |
| SARS | Severe Acute Respiratory Syndrome |
| UAV | Unmanned Aerial Vehicle |
| UCLA | University of California, Los Angeles |
| UN | United Nations |
| UNFPA | United Nations Population Fund |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| USD | United States Dollar |
| USG | United States Government |
| VSAT | Very Small Aperture Terminal (Internet Connectivity Device) |
| WASH | Water, Sanitation, and Hygiene |
| WHO | World Health Organization |

## Arriving In Amazonia

Seattle's South Lake Union neighborhood, aptly named, sits at the southern tip of Lake Union in the heart of the city. An old lumber district established by Seattle's early settlers, its more recent history as a collection of empty parking lots is now visibly eclipsed by towering construction cranes and the half-completed skeletons of skyscrapers. In 2007, Amazon.com decided to consolidate its headquarters in the neighborhood and by 2010 the conglomerate had undertaken its initial steps toward fundamentally rewriting the Seattle skyline. In late 2016, I arrived to begin my tenure at the global health non-profit organization PATH. By then, the headquarters office building stood as a very modest reminder of Seattle's 'second wave' tech boom in the late 2000s. It was a minor, but important voice in Seattle's burgeoning rise as a 'global city'.

After many prior months of desk research, and a tenacious hunt for an elusive field site, my arrival was like so many others — an intern stepping into an urban epicenter of commerce, industry, and non-profit international development. Nearly two years earlier, I had decided that epidemic preparedness and response— or "global health security"[1] – would be my topic of curiosity. Now, I stood on the street corner gazing up at office buildings, watching software engineers and developers scurry about. Struck by the delicate play of the autumn light off the glass and metal, I was immersed in an infectious, prevalent, and eager energy for what comes next; a hyperspeed of urban professionalism, and an assured confidence in a remaking of the world.

Amidst the dense urban jungle of Amazon employees and offices, the rhythms of an urban respiration, I found myself as an anthropologist who had arrived *in Amazonia*.

* * *

I never could provide a good answer when people asked me what exactly it was that I was researching. It was easier to fall into vagaries, to suggest I was just curious about 'global health security' (GHS) as new and active area in global health. Which wasn't a lie; by 2016, the topic was fueling a great deal of curiosity, attention, and

[1] This will regularly be abbreviated to "GHS".

criticism. GHS as a 'general idea' had become a feverish domain after the tragic Ebola outbreak in West Africa in 2014, right around the time I decided to begin my research. The core of the idea was to make the world a safer place by preventing outbreaks, detecting them early, and responding to them rapidly - through the strengthening of public health systems 'globally'. Later, in 2016 and 2017, GHS would become nearly interchangeable with the language of 'epidemic preparedness and response', appearing regularly in headlines and the news media.

By 2016, standing on that street corner, I had chased the general idea from a 'global' realm of abstraction to this specific Seattle office building. I hoped to figure out how GHS had been linked up to practices and projects, operations and attitudes. I wondered what a world-shaping idea looked like from the perspective of the technicians who had been tasked with implementing it. Taking the cliché "global is local" a little bit too literally – I thought I might find the 'global' in the humble offices of an NGO in the Pacific Northwest.

* * *

In anthropological circles, it is commonplace to push back against the idea of prefabricated, rigidly formulated research questions. Such questions are supposed to emerge from one's 'field' – from unexpected, minor surprises and detours. The discipline prides itself on this approach: not working to prove or test hypotheses, but to generate more research questions. That said, a year after entering the offices at PATH, I sat re-reading my original research questions and was struck just as much by what had remained intact as what had changed.

In 2014, I hoped to better understand and document how various officials, institutions, and policy-makers were defining, managing, and mitigating infectious disease threats. By the end of 2017, I had spent a year working with both the PATH Global Health Security Partnership and as a Deputy Coordinator for the Next Generation Global Health Security Network. Among other things, I had visited DC and participated in meetings with the Global Health Security Agenda (GHSA) NGO Consortium. I had also been to the Netherlands to listen and speak at a GHSA

Ministerial Meeting. Later, I had been brought on as a consultant to dive into specific technical areas across epidemic preparedness and response at PATH.

Even after all that time, I still felt like a blind man touching an elephant, but at least I had been able to use both hands to feel my way around.

* * *

GHS was not compelling because it was "new" –the idea had been articulated nearly 25 years before my fieldwork began. However, following the tragic Ebola outbreak in West Africa in 2014 the issue transformed. It took on a pressing imminence, importance, and sense of novelty, gaining significant attention and investment by a broad collection of both national and international (or "global") actors. If the fiasco of Ebola provided the rallying cry, the renewed relevance and importance of GHS was a rallying point. Dr. Peter Piot, the original "discoverer" of the Ebola virus in its first known outbreak in the 1970s, once went as far as to declare that GHS was "created" in 2014.[2] There are many reasons to disagree with Piot, but his statement illustrates the aura of newness and importance surrounding GHS when I started my research. Although I hadn't planned it as such, the moment provided fertile grounds for ethnographic exploration.

Running headlong into the PATH office, I began observing how a small team of technicians, managers, and other experts were working to both design and deploy an emerging 'global infrastructure' for GHS. What kind of work was being undertaken to support this grand plan – one unfolded upon a 'vulnerable' world to secure its well-being? How would pressing, but diffuse concerns about a shared vulnerability be operationalized into specific, concrete technical projects designed to mitigate and minimize those risks to outbreaks of diseases? How would such an idea - one that took up the 'globe' as a space of operation - change the 'art of the possible' in global health programming? What spaces had the broad domain of 'GHS' opened up in the process and wake of its emergence, both 25 years ago, but also now after the Ebola outbreak?

[2] I quote him directly here from a panel discussion at a 20th Anniversary of the Global Burden of Disease (GBD) event, held in Seattle, Washington.

How had the idea of GHS itself changed, and how had such a changed idea shaped and reshaped the world it sought to protect?

I am still wondering about all those things. As a dutiful anthropologist, I return not with answers; just more questions.

**A Tale of Two Desks (and Two Versions)**

I'm not sure if I ever went to "the field", at least not as it is traditionally described in anthropology. Instead, I cleave my research experience into two broad, distinct chunks – divided by their placement at two separate desks in North America.

At my First Desk, I began a preliminary research phase in Montréal, looking for an historical arc of GHS. In order for me to understand the debates and issues, I felt I needed to understand some of the idea's historical and conceptual foundations. I searched for mutation-points, moments of recognition of a 'problem'. Something that looked like beginnings, although could never really be named as such.[3]

This search sparked a series of brief conversations with 'thought-leaders' in the emerging spaces of global health security, conversations held both remotely with technicians/politicians, and with a series of texts (whose authors appear with a certain reverence throughout this document). Taken together, these discussions revealed the cobbling together of certain possibility of thinking and acting on the world, or the 'globe', across the late 1990s and through the 2000s. The next chapter focuses a little bit more on that 'cobbling together' – something we might call a 'history', except it is a history in service of trying to understand something of the trends and challenges in the present moment.

To give a very short version here: there was a recognition, starting in the mid-1990s, that infectious disease outbreaks were to be understood as 'biological threats' to both nation-states *and* individuals. These 'biothreats' – and the prophecy of inevitable and damaging outbreaks at a global scale – prompted a recognition that states and

[3] In addition to my own philosophical-methodological refusal to search for "origins", there was always a pushback from my interlocutors themselves against pointing to a "first instance" of GHS. "Maybe that was the first time it gained prominence," one interviewee noted when I pointed out their organization was the first to use the phrase. "But it certainly wasn't the first time that phrase was used." Maybe there are no 'first versions', only 'early instances'.

communities had to prepare for the inevitable—the epidemic. Expert intervention would be necessary to anticipate and pre-empt the devastating effects of such outbreaks—to communities, to states, and to the 'globe'. Over the late 90s and early 2000s, there was a crystallizing set of arguments that articulated a vulnerability at a global level from infectious diseases that public health had once thought at the verge of disappearance.

Andrew Lakoff, Nicholas King, and others have done much to closely document the emergence of the idea of this 'generic biothreat' in the 1990s – what is often referred to as an "emerging infectious disease" worldview, or the birth of biosecurity (Lakoff 2008; King 2002; Caduff 2015; Fidler and Gostin 2008; Collier and Lakoff 2008). I am piggybacking on this work, but elaborating it with an interest in tracing the conceptual and practical efforts across communities of experts—experts who were interested in translating these diffuse concepts of threat and risk into discrete technical practices and projects to mitigate and minimize those threats.

This community of experts assumed their mandate to both *define* these biothreats (e.g., articulate their dangers; emphasize their impacts; and understand their dynamics) and *design* the interventions needed to mitigate or minimize the risks and vulnerabilities they presented to a 'global population'. Throughout this text, this coupling of "define" and "design" helps to stabilize a focal point in the study of global health security. The last episode ("Define/Design") dives into this coupling in more detail, providing specific illustrative case-studies and examples.

This feeling of simultaneous 'novelty' and a *longue dureé* gave a paradoxical flavor to this field. As Lakoff (2008; 2017) and others' work has illustrated, GHS as a future-oriented, aspirational form of thinking and acting rests on the foundations of a very recently constructed conceptual scaffolding — a scaffolding that nevertheless often appears at once timeless and inevitable to those who adopt its presuppositions. Infectious disease outbreaks and the threats they pose are understood simultaneously as timeless problems (e.g., persisting throughout the 'history of humanity'), and as acute 'global problems' of late modernity (e.g., as vulnerabilities emanating from cumulative environmental and sociological changes resulting from urbanization, migration, and increasing conflict). In other words, there is a paradox at the center of the contemporary

problem of health insecurity: the threat of the outbreak is at once a perennial staple of 'humanity', but also uniquely an artifact of a contemporary post-industrial world marked by travel, by trade, and most importantly, by rampant interconnection.

This paradox felt like a side door left open for my curiosities. Here I could approach the domain, seen as both an unprecedented challenge and as part of a persisting history of 'humanity'. A number of erudite scholars had already been closely analyzing GHS' recent history—looking at how it been shaped over the past few decades, and how it was actively shaping the contemporary space of global health governance and policy-making (Rushton and Youde 2015; Fidler and Gostin 2008; Collier and Lakoff 2008; Davies, Kamradt-Scott, and Rushton 2015; Weir 2015). These writers depict GHS as molded gradually and through decentralized relations between ideas, networks, and conceptual architects at the World Health Organization (WHO) and elsewhere (Kamradt-Scott 2015). They were describing what I have glossed in this text as GHS "Version 1.0", roughly spanning the late 1990s to the middle 2000s. GHS 1.0 was marked by defining and articulating this idea of 'biological threat', and describes a broad set of responses that unfolded at the WHO as it grappled with the recognition of a new world threatened by infectious disease outbreaks.

As I argue here, "GHS 1.0" was almost exclusively confined to the efforts at the WHO to revise the International Health Regulations (IHRs) - the only legally-binding treaty that mandates countries to standards of disease control, prevention, and response. The IHRs, in the words of Rebecca Katz and Lawrence Gostin of Georgetown University, were – and still remain – the foundation and the "governing framework of global health security" (Gostin and Katz 2016). The revisions to the IHRs, a process that lasted from 1995-2005, marked a pivotal moment in the emergence of the GHS that is still visible today, albeit in changed form. The first chapter of this text dives deeper into this historical arc, and tries to parse how a "GHS 1.0" looks different from what I call GHS "Version 2.0".

"Version 2.0" is still something of a question, and is what Peter Piot was referring to when he said that "Ebola created GHS" in 2014. It was really "Version 2.0" that I was asking after at the Second Desk during my fieldwork with PATH. By 2016, I began to

push 'inside' of the loose expert formations of global health security, joining the PATH Global Health Security Partnership team in Seattle as an intern—then as an employee—to help shape a technical vision for GHS implementation. Alongside the GHS Partnership Project Director, Dr. Linda Venczel – who would become a close friend, mentor, and 'epistemic partner' – it was at PATH that I could sense the contours of an ever-evolving constellation of GHS. Version "2.0" was our motivating praxis, an object of deliberation, and an engine of project development through the (often) endless days of phone calls and meetings.

Like the 'Amazonian' skyline that sat as our office's backdrop, the view from PATH was of a conceptual space littered with half-completed monuments, architectural skeletons, visionary blueprints, and scaffoldings, holding up grand ideas that were always at risk of unraveling more quickly than could be knit back together. This was time marked by precarity, and by the endless juggling of alliances, of ideas, of permutations of the possible. It was a time of blueprints and of plans, of the technical and the operational, the administrative and the ad-hoc.

**The 'Third Space'**

During my time at PATH, I was neither exclusively a 'technocrat' (although I worked with them and as one), nor exclusively an anthropologist (although I worked with them and as one). Instead, I was forced to find something in-between; a position of 'expertise' that challenged my affiliations and loyalties on both sides. I was neither solely an agnostic anthropologist, nor a steadfast global health expert. From a third space, I was able to maintain commitments toward intellectual problems, attending to issues or moments that other 'experts' would find superfluous or irrelevant. In that sense, I was a curator of the off-hand, or the aleatory. But I was also beholden to maintain an orientation toward professional pragmatism. There was work to be done; action items to check-off; forms to be filled out. From this liminality, the work of expertise—at times, partially my work—became the focus of this text. The space from which I write might be called 'adjacent' (Rabinow 2009), but it was defined by its proximity rather than its distance.

Through my time in the field, I came to understand that global health security, especially GHS 2.0 after Ebola, was truly an invitation to imagine the world differently. In the words of the experts, an invitation to re-imagine the means to build a "safer", "better", and "healthier" world. But these imaginaries weren't simply abstract musings about a changed or improved world, they were composed of practical programs, discrete projects, and concrete deliberations designed to *realize it*. My research was thus focused on paying close attention to the negotiations and relational processes that go into making global health security a *workable concept*—how it was made into an 'actionable' imaginary. From my position first as intern, then as a supportive 'special projects' officer, I was able to form a novel space of engagement through multiple 'epistemic partnerships' (Deeb and Marcus 2011). Again, this diagonal research space was defined not by my disciplinary commitments to anthropology, nor by the aspirations of the public health experts with whom I worked. Rather, it invoked an ethos of *playfulness*—a commitment to technical artisanship, creative conceptual work, and learning the ropes of what others called the 'arts of the possible'. These are practices that I gloss as "technical daydreaming" in Episode Two below.

Much of this text is thus shaped by coming to terms not with untethered abstractions or lofty concepts, but with day-to-day routines, practical efforts, technical deliberations, and managerial routines that got cobbled together (and unraveled) in the name of global health security, and in the name of reshaping a vulnerable world.

Broadly then, for the purposes of this document, we can differentiate two major 'versions' of GHS as such:

| **Global Health Security "1.0" (~late 1990s to mid-2000s)** |
| --- |
| • understood and acted upon as policy and legal framework at the international level (mainly at WHO and between health ministers)<br>• focused on establishing new norms for 'responsible' state behavior<br>• assumed the WHO at apex as central agent/body<br>• focused on articulating the new risks and dangers posed by globalized risk of outbreaks and pathogen emergence<br>• did *not* have actionable mechanisms to coordinate international preparedness<br>• relied on self-reporting of countries on their adoption of legal preparedness requirements<br>• no explicit engagement of civil society, NGOs, or private sector |
| |
| **Global Health Security "2.0" (late 2000s to present)** |
| • composed primarily through dispersed collections of technical projects<br>• emphasizes turning regulations, policies, and frameworks into discrete, measurable activities and actions (from "commitments" to "actions")<br>• positions NGOs/non-state actors, and the private sector as key stewards of the issue<br>• heavy involvement from World Bank and philanthropies<br>• garners significant interest from countries to combine voluntary self-assessment with transparent external evaluations of preparedness<br>• broadened to include issues such as antimicrobial resistance, accelerated vaccine development, biosecurity, synthetic biology, and 'gain-of-function' research |

The continuities between versions 1.0 and 2.0 might be stronger than the disconnects. There are many experts who would probably push back against such a simple dichotomy. But the exaggeration of a discontinuity helps understand the unique position GHS occupied as a field of interest when I was conducting this research – and the unique sense of 'novelty' that GHS inspired during the fieldwork period.

## A PATH to GHS

PATH had its own trajectory as it entered the GHS space, a recent part of its 30 year history as a global health non-profit organization. Founded in 1977 by three reproductive health researchers, it started as a small and little-known NGO that focused on delivering innovative devices, tools, and products to low-income countries in Africa. With an initial focus on family planning and reproductive health, by the 1990s PATH had expanded its scope to leveraging innovations in products and devices for immunization, maternal and child health, and HIV diagnostics. Strategic partnerships and investments by the Bill and Melinda Gates Foundation, and major project partnerships with the US Centers for Disease Control and Prevention (CDC), the US Agency for International Development (USAID), and the World Health Organization (WHO) helped PATH to grow into one of the biggest global health NGOs in the world. By 2016, with nearly 1,300 employees in 70 countries, its global reach has become extensive, and its reputation had solidified as a major industry leader across its five focal platforms— vaccines, drugs, diagnostics, devices, and health-systems and services. PATH gained and retained a reputation for its efforts to rethink how public and global health actors and offices access, produce, and analyze health data. With the formation of its Digital Health Solutions program in 2008, PATH expanded its expertise in strengthening health information systems; eHealth; health data management; and public health surveillance technologies.

Although PATH's organizational strengths and experience in global health programming overlapped considerably with the objectives of global health security, it would take considerable effort for it to become one of the CDC's principal implementers of the Global Health Security Agenda (GHSA). Leaning on its global reach, and its extensive work assisting developing countries with surveillance, laboratories, and immunization, PATH won an early bid to implement a series of GHS projects under the first call-for-proposals issued by the CDC for the GHSA in 2015. As a response to the "wake up call" of the ongoing Ebola epidemic in West Africa, the CDC was searching for implementing organizations that would assist it in working with Ministries of Health to meet key International Health Regulations (IHR) requirements through implementation

of the GHSA. The CDC's funding opportunity had been a part of a larger volley of funding announcements related to then-President Obama's request – and Congress' approval – of a $5.4 billion Federal Emergency Ebola Appropriation in 2015. By winning this initial bid with the CDC, PATH was able to leverage its expertise to assemble partner country-based projects aimed at improving public health surveillance, data practices, immunization systems, and to begin setting up an emergency operations centers. Alongside its partner offices in Tanzania, Senegal, and Vietnam, (the Democratic Republic of the Congo and India were added in later years of work) PATH formed its Global Health Security Partnership (GHSP) – a small and talented team with Dr. Linda Venczel as its Director.

By the time I had arrived, the GHSP had secured a renewed agreement with the CDC to continue its GHS work for a second year. Having spent a year "learning by doing" as early CDC implementers, Linda and her team had gained the experience from which one could understand the recent trajectory of GHS as an actionable program, and perhaps more importantly, to make GHS's emerging challenges visible and palpable. It was the space by which I would make my own entry into GHS as a technical practice, and as a precarious endeavor.

**Turbulent Times**

"I've never been through a time like this," remarked Linda one summer afternoon, as we all assembled for a meeting. The political turbulence of the 2016 presidential election was on the horizon, a quick-approaching storm front. Together, our small team in Seattle faced sobering and prolonged waves of uncertainty, like rolling bouts of nausea at sea. The whole apparatus of GHS, at least from the perspective of an implementing NGO like PATH, seemed to be under existential threat, one that rippled across the field in 2016 and 2017. For a time, it saturated nearly all of our deliberations and discussions.

The arc of my understanding – partial as it may have been – has been shaped inevitably through that destabilizing experience, detailed at length in Episode Three. Readers that have been through similar times will recognize the unique feeling of

working in freefall. It demanded a certain kind of patience, a blind faith in detours through what seemed to be impenetrable fogbanks, with no horizons in sight, no stars by which to navigate. Uncertainty was a flashpoint of interest, not just as a momentary question mark, but as a sustained shudder. It changed the parameters of technical practice and negotiation within our team, and broadly across the community of experts that made up GHS during this period. Only in the shifts embedded in our day-to-day work did we come to understand that these uncertain futures asked for more than technical replies.

“I hope you realize how unique this time is for global health,” a visiting colleague once remarked to me, during a quiet moment after a meeting room emptied. "It never used to be like this,” she continued, trailing off into a remembered daydream, presumably of days where the ‘possible’ had some definite shape, even in the imaginary– when it was easier to pull something out of the ether and make it into the actual.

The retelling of this story of 'global health security’ as an epistemic space—as a space of possibility, of public health practice, as implementation science— is thus fundamentally marked by this kind of uncertainty. I dedicate an entire episode to the idea (Episode Three), but the sentiment resonates through each of the vignettes that follow. No story told about GHS at the cusp of 2016-17 would be complete without the kind of trembling that punctuated that time. By allowing it to inform the telling here, I hope to trace the tensions, the anxieties, but also the promises, the potentials, and the aspirations that held our team and our ‘mission’ together through that period of time.

Ironically, the very moment of greatest destabilization for GHS was also perhaps also the pinnacle of the concept's popularity. In the early 2000s, the concept had gained considerable momentum, but its niche was delimited. It was discussed largely in isolation –appearing mostly to describe a strategy within the WHO, and as a new area of interest linking academic researchers, health ministers, flu worriers, and biosecurity experts. By the 2010s, even before the West African Ebola outbreak, the concept had emerged as a cornerstone to inform US national public health policymaking, and was being discussed by President Obama and his advisory staff at major international fora.

While there was still no obvious centralized body responsible for global health security, the increasing convergence and contraction around the issue from international multilaterals (WHO, UN, G8, G20); NGOs; philanthropic organizations; and the private sector had quickly turned GHS into a pressing global issue. International health scholar David Fidler recognized in the mid-2000s that GHS would be a space "in which governments, intergovernmental organizations and non-State actors collaborate in a 'new way of working'" (Fidler 2005:392). His quote would turn out to be accurate, although not quite prescient. Fidler had imagined a reorganized global health field under the clear authority of the WHO and its revised legal instrument of the International Health Regulations (IHRs), precisely the opposite of what happened in the wake of Ebola in West Africa.

Popularity shouldn't imply stability, nor does it warrant an assumption that global health security might operate today as a new "regime" of global health, as some scholars have been want to describe it (see Lakoff 2010). Similar to other so-called global health "regimes" like humanitarianism, global health security (at least in its second version) lacks a central organizational locus, no bounded ethos, and no stable platform of funding or operations. By 2017, the field was an ever-shifting collection of interests and ideas, assembled across lines of alliances and antagonisms both new and old. It encapsulated a dizzying array of trends, efforts, and initiatives across a growing number of organizational entities. For some, this exemplified the promising growth and renewal of the idea into creative new directions. For others, it pointed to the dilution of an idea into a diffuse 'catch-all'.

Regardless of these polar arguments, the idea's breadth and reach by 2017 was undeniable. As mentioned earlier, understanding that trajectory of change and growth was an essential part of this research – it was its launch point. The explosion of interest and attention that the issue received as a result of both high-level US interest from President Barack Obama, as well as the West African Ebola outbreak in 2014, fundamentally changed the landscape of GHS. I explore those changes further in the first episode that follows.

**The Global**

Again, GHS was an attractive research area not for its growing popularity, nor for its stated successes—but for its explicit vision and aspiration to govern and shape the globe through a very specific collection of technical and political machinery. It posed itself as a 'global' problem, requiring 'global' solutions. As it was argued increasingly in the 2000s, biological threats and the consequences of pandemics or epidemics exceeded the bounds of any individual nation-state. As such, 'global' mechanisms that transcended the nation-state would be required to mitigate and manage them.

But here was another paradox: while this 'global' at once transcended the national, it also grounded its interventions at the scale of the national – particularly at the level of state-based public health system(s). The IHRs, for example, were an *inter-national* instrument of the WHO, par excellence. In other words, at the same time that GHS is argued to be "a global public good", it is also understood to be "first and foremost based on actions which take place at the national level".[4] GHS was at once a problem irreducible to any one state, but one that took the nation-state as its basic unit of intervention and operation.

Embedded in this conceptual formulation was a politics of scale - the *global* and the *national* - and a particular relationship between the two of both mutual interdependence, but not exclusion nor exhaustion. In both its articulation as *problem* (i.e., as increasing occurrence, risk, and spread of infectious disease outbreaks; the 'global biothreat') and *solution* (i.e., GHS as preparedness through health systems strengthening), the idea proffered glimpses into a uniquely compelling 'provisional' kind of global - a global that grounded itself in the national, but extended 'across' borders to a world imagined as both fragile and threatened.

This 'globalism' offered a juxtaposition to readings of the 'global' that assume its essential trait as a direct affront or erasure of the importance of the national or nation-state. This research takes up the 'global' differently: not declaring from outset that the 'global' erases or undermines nation-state, but instead, tracing the state's appearance

[4] Quoted from the JEE Alliance's draft leaflets in 2016, and published on their "About" page in 2017: https://www.jeealliance.org/about/ , accessed May 10, 2018.

in different contexts, problem environments, and conceptual spaces. In other words, the inquiry is repositioned: from the assumption of the withering of the “state” under the remit of the “global” – to an open-ended search that looked for *where and how the state appeared in this global formation*. If the ‘global’ in GHS implicates the nation-state as a fundamental unit, as noted above, I have been curious to see how it enrolls it differentially in its projects, its platforms, its interventions. Episode Six (“Seeing Vital Numbers”) looks at this more closely, with reference to a specific census-based satellite imagery project; Episode Eight (“Define/Design”) takes up the idea as it relates to categorical distinctions between ‘epidemic’ and ‘pandemic’, and what kinds of technical interventions arise as a response to those categories. The issue reappears regularly throughout each of the episodes.

Returning to legal scholar David Fidler’s publications on GHS in the mid-2000s, we see he was convinced that GHS (Version 1.0) would usher in a fundamental revolution in the way states related to each other over issues of public health. In his vision, the revisions to the International Health Regulations would be a tipping point, casting us into a true era of "Post-Westphalianism". That is, a “context in which both States and non-State actors shape responses to transnational health threats and opportunities” (Fidler 2007:2). Again, Fidler’s enthusiasm for discontinuity may have overstated the trends – global health security has not, in other words, fundamentally rewritten traditional notions of state stewardship, responsibility, and operations over its population.[5]

But he hit on a key moment following the outbreak of SARS that showcased something slightly new; not the mere "interconnection of states through disease" (which is certainly not a novel feature of the international space), but the manner by which they became related through a circulated biological threat, and the kinds of responsibilities to transparency and capacity-building they were pressured to maintain to a newly imagined 'global' commons. The reframing of health as an issue of security has had much more impact in re-defining the standards and responsibilities of 'global goods',

[5] And it certainly has not done so uniformly nor unilaterally.

state transparency, and multilateral health diplomacy than it has been an engine for any straightforward "militarization" of public health.

In other words, social science preoccupations about global health security (or 'biosecurity') assume it is most interesting because it showcases a securitization of public health (or the 'healthification of security', see Elbe 2010). I come at it differently: while not ignoring those issues, I want to position the importance and impact of global health security (especially Version 2.0) as its ability to enroll state and non-state actors in a common space of responsibility toward a 'global' issue, one which both exceeds the nation-state, but relies fundamentally on its participation to succeed.

As such, these problematics—the State, the global, and their interconnections—occupy my attention much more than various notions of "security" or "securitization". The 'State' (both capital and lowercase 'S') and the 'global' appear both as found objects throughout this document; always present but never fully un-blackboxed. The 'interconnections' are often build up through very specific, delimited technical projects—the ones we worked on explicitly at PATH under the label of health systems capacity-building. For that reason, I have foregrounded a focus on the granular detail of project development and negotiation as a way to inform and elaborate wider conceptual issues. Later episodes (especially the third) explicitly address why I did not continue to push general concepts or ideas as direct points-of-entry for my field-based inquiries. The general ethos was to always use the side doors.

**Biopolitical Interoperability**

The individuals with whom I worked both promoted and truly believed in the need and urgency to intervene. Again, the reminders were stark — Ebola in West Africa, Zika in the Americas, Yellow Fever in Brazil, MERS in the Middle East, cholera across Africa. The answers to the challenge of those diseases were not simply about improving care for individual patients, nor were they about rescuing 'abject' or 'suffering' subjects. Instead, it was a focus on the radical investment and improvement to health-enabling *systems.* Those 'systems' were *de jure* and *de facto* owned by and the responsibilities of a global community of nation-states. As we will see, over and over

again, 'global' work here was decidedly composed of working with, through, and amongst 'national' actors. In a sense, *caring* for systems was about *tending* to states and their infrastructural systems. The 'national' was, through and through, enrolled in this 'global' project of protection and threat mitigation. Unlike medical humanitarianism, none of the mechanisms or technical projects documented in this text sought to bypass or supplant a state's responsibility to foster or be accountable to the vitality of its populations (Ticktin 2011; Fassin 2012; Redfield 2013). In fact, much of the work at the 'global' level was *designed to bolster states to be able to achieve their biopolitical responsibilities to foster life* (Foucault 1978; Foucault 2003; Lemke 2010). The means to do so was often applied at the spaces *in-between* states, explicit mechanisms and programs that would reform and redesign "reciprocal obligation[s] between all nations".[6]

These were not 'minimal' forms of biological attention, but rather catalytic efforts to achieve what I would call *'biopolitical interoperability'*—the effort to secure a collective 'global' space made up of responsibilised nation-states capable of upholding their basic biopolitical mandates. This is what people mean when they say global health security is a "global good" (see Lee 2003:151-154). Although the impetus may be similar to humanitarianism — inspired by an altruistic "politics of precarious lives" (Fassin 2012:5) and the failures of states to foster (or protect) life, the responses are of markedly different sorts (Lakoff 2010; Redfield 2013).[7] Biopolitical interoperability is not about rescuing abandoned lives of the stateless, nor is it about working through the exceptions, but about ensuring an interlinked 'global' community of states who are able to 'live up' to their responsibilities to care for and protect their vulnerable populations.

In other words, the justification and rationale for GHS's technical programs was predicated on *helping* states care for their populations through improvements to build capacious health systems. It was about ensuring the functioning of the 'normal' (or changing the meaning of 'normal') to prevent the exceptional event of the outbreak or

[6] Quote pulled from the Statement In Support of Extending the GHSA Beyond 2019, available online at https://www.nti.org/documents/2202/In_Support_of_GHSA_Extension_GHC_GHSAC_PSRT_NextGen_July_18_2017.pdf

[7] For some very interesting overlaps in recent events, particularly in the emergence of global health emergency research, please see (Kelly 2018)

public health emergency. Only from a concert of capable and functional national health systems would 'global' vulnerabilities to infectious diseases and other public health emergencies be truly reduced. The concept of 'biopolitical interoperability' helps invoke classical problems of Foucauldian biopower while at the same time allowing space for the issues that exceed them.

Episode Six dives into this in more detail, with a look at the early designs behind a project to utilize satellite imagery and analysis to produce a census and model the population of the Democratic Republic of Congo. These encounters often require us to grapple with some strange juxtapositions. What appear to be classical modern biopolitical tropes— technologies of populations, state-based responsibilities to manage the vital character of their populations, and basic vital statistical enumeration— are contrasted against designs emerging from 'global' cadres of experts (i.e., heterogeneous collections of state and non-state based stakeholders). These stakeholders work to deploy new and inherited techniques, technologies, and methods by which these projects will be carried out.[8] This is more than an 'avalanche of numbers' – in some cases, it is a deluge of data (Hacking 1982). Global operators and projects negotiate to build out the apparatuses to visualize, enumerate, manage, and protect national populations. This might be a space 'beyond' the classical notions of biopolitics, but not necessarily as the 'reduction' of populations to bare life. Whether this is another site to witness the emergence of a 'global population' remains to be seen (see e.g. Bashford 2013; Weir 2012).

The vision embedded in GHS is thus not a 'minimal biopolitics' of care, nor an exceptional ethical attention to exceptional 'stateless' subjects — but a global exercise in ensuring a resilient chain of "staff, stuff, space, and systems" that is governed and stewarded by nation-states and global actors (Farmer and Mukherjee 2014; see also Redfield 2012). This ethos was what informed our own project designs and efforts. I

[8] Paraphrasing Collier (2011:3).

return to these issues and the concept of biopolitical interoperability in the conclusion to try and help elaborate it further.[9]

**Ethnographic Lenses**

This is a document situated at a very specific position in the space of GHS. It is an episodic account written from the headquarters office of a large implementing non-profit, global health non-governmental organization (NGO). This NGO—PATH—was tasked with actualizing the political and technical commitments of a large package of GHS aspirations that emerged – and were subsequently threatened – from other political avenues. The following episodes tell a story from the daily lives of middle technical management as they confronted the complexities and urgencies of implementing a public health program across multiple countries and regions, in multiple offices around the world. Like other institutional ethnographies it "crosse[s] the gate" (Niezen and Sapignoli 2017:5-6) by looking at an institution and its practices—but unlike institutional ethnographies, its primary intent is not simply to better understand the institution itself (Mosse 2005; Li 2007). It is a collection of observations that look at how shifting concepts and new ideas change technical practices, and how those practices and relationships between practitioners change the possibilities of global health project design, development, and execution. This is a study about the production of knowledge and the emergence of new possibilities of acting on and understanding the world.

This is not a space where we will lament how an otherwise "untainted" form of global public health is undergoing a transformation by and through the adoption or expansion of security or military "logics" (de Waal 2014). Nor is it where we will explicit seek to define exactly what 'securitization' means at a general level through specific examples. It is not an investigation that looks after any 'essential' characteristics of 'security' as a concept, or as a practice. In that sense, rather than an effort to extend

[9] Readers might notice that a few of these episodes examine issues that don't fit neatly into the nebulous space of 'global health security'—i.e., they are not obviously or immediately about 'preventing, detecting, or responding' to outbreaks. We were fairly omnivorous at PATH, and explored multiple spaces that we saw as potentially impactful to mitigating threats to health and improving basic health services, delivery, and systems functioning.

theory, this research has been an exercise in depicting surprises, unexpected detours, and shifting grounds for technical practice.

This project's scope did not involve looking at global health security "on the ground", i.e., with reference to country-level implementation efforts or field-related activities. I did not travel to Senegal, the Democratic Republic of the Congo, or Vietnam and document what GHS looked like "over there". The "field" for this project was PATH's Seattle headquarters office and the virtual spaces adjacent to it. In that sense, this is about people and an organization, insofar as these things shaped, molded, articulated the conceptual and practical commitments of GHS. It is also about how particular technical platforms were shaped and reshaped as they were made actionable by a dispersed collection of far-flung technical actors. It is about how expertise renewed itself when it could not plan, decide, or act in any obvious manner. And by extension, it is about the new ways of working that were negotiated out of the nexus of technical and political machinations, those both near and far.

At stake here are ethical and technical commitments to work that was sometimes referred to as "health systems landscaping". The experts detailed here were committed to designing and delivering new projects that would reduce vulnerabilities of large groups of people to the harms of infectious diseases and other public health emergencies. Their projects aimed to improve the conditions by which health products, services, and care might be delivered in the countries in question. These episodes look closely at the everyday practices of these technical artisans and experts who sought to improve the *conditions* and *capacities* of these health systems. Later, I call these moral commitments to "aspirational necessities"—a dedication to deliver the *not-yet* but that which *should be*. From these episodes, one can see how the assemblages that enabled this work were simultaneously pieced together, and how they were pulled or broken apart.

The technical programs and projects defined and designed by these experts have accomplished some of their stated aims, even in a limited capacity. Others have not. The goal of this text is not to judge these experts or their projects on their successes or their failures on their own terms—nor to illuminate their otherwise "hidden

agendas" or unintended 'effects' on other terms. Beyond simply detailing the specifics of the new assemblages and programs in global health security, this text is a reflection on broader sets of questions that they have provoked—questions about what it means to think, act, and work on a "global" problem like health security. The episodes, whether a historical analysis or fieldwork narrative, do not assume to simply show GHS "in action" (see e.g. Li 2007), but how "action" has become a continual engine of problematization—a recurring challenge for GHS practitioners and experts. These experts were, for many years, concerned with developing "meaningful" ways to act; these episodes are ethnographic lenses from which I explore their ongoing pursuits and difficulties in a search to find 'meaning in action'.

**Conceptual Lamplighting**

John Le Carré, the famous British spy novelist, described the hidden world of Cold War espionage with playful jargon. His depictions of the bureaucratic underbelly of the British intelligence agency MI6 are populated with the likes of "Mothers", "ferrets", and "pavement artists". In perhaps his most well-regarded work, 1974's *Tinker Tailor Soldier Spy*, Le Carré conjured up another metaphoric term - *lamplighters* - describing the elusive envoys that made the world of the spy trade possible.

'Lamplighters' were based on Britain's historical gas lamp operators, who often served as informal watchmen over the communities they illuminated under kerosene lamps that lined the cobblestone streets. These watchmen saw, heard, and acted as custodians for more than fuel and candles. Likewise, Carré's metaphoric operators illuminate the pathways otherwise shrouded in darkness, making the espionage trade possible for the intelligence agency's field operators. They connected things across distance, established ingress and egress routes, and built ephemeral 'knowledge infrastructures' where operations otherwise would not be possible or feasible. As critical functionaries within and between organizations, Carré's 'lamplighters' watched, listened, transported, and housed all manner of objects, documents, and items. They connected seemingly disparate things, moving knowledge and objects from central office to a

marginal periphery of the field, and back again. They were the ones who gave you the wake-up call, and left the chocolates on your pillow.

While there is (deliberate) folly in associating public health work with Cold War espionage, Carré's term is undeniably evocative — painting a picture of the importance of building relational communities of logisticians, watchers, listeners, and couriers. Lamplighters are figures who transform a policy or an abstract operational goal into something actionable, tangible, accessible. Doing so requires the rapid creation, extension, and reconstitution of both formal and informal 'knowledge' and 'infrastructures' – it requires managing mundane tasks, but also vision and artisanal technical work that shape the currents of those tasks. This is work that lets things travel: people, things, ideas – or, in other guises, metrics, targets, and measures. (More on that in episode seven.)

GHS survived and grew as an idea because it had a remarkable collection of 'lamplighters' who acted as trailblazers, lighting up and tending to avenues of knowledge and possibilities. Lining and lighting them with reports, conference panels, galvanizing email threads, and press conferences. They gave the concept the inroads and spaces it needed to travel, landing at the desks of administrators and technicians, policymakers and advocacy officers across the world. In other cases, lamplighters were project facilitators or managers, making sure that abstract ideas at headquarters were transformed into field-ready realities.

The multidisciplinary teams and projects depicted here are made up and sustained by these operators, demonstrating the importance of such 'lamplighters' that make GHS good to act with, not only think about. "Operationalizing" a global health concept like GHS is as much about establishing chains of people and ideas as it is about establishing chains of goods and supplies. The related initiatives that made up the diffuse space of GHS required its own cadre of lamplighters who quietly lit a path that did not precede its illumination, but instead was made at the same time it was revealed.

This text keeps a focus on these 'lamplighters' of global health security, those who watched over these new streets and brought substance to its efforts. As much as

targets, measures, process and outcome indicators might be the tools inherited for understanding action, building a network of technicians, visionaries, and operators is no small feat - one that required the continued attention of educators, policy makers, administrators, implementers, coordinators, diplomats, philanthropists, and others.

The mere fact that one can still walk most of those streets attests to the still-burning flames that light up the streets of GHS as a space of thought and as an 'art of the possible'.

**Dispatches from the Heart of 'Fear'?**

There is hardly a more fraught concept than "security" in the social sciences. Coupling security with health only exacerbates things. From the outset, there has been a surfeit of skepticism, critique, hesitation in both social science and public health circles about the concept of 'health security' and any associated political or technical agendas (see e.g. Aldis 2008; Masco 2014; Rushton 2011; Caduff 2014; Lachenal 2014; de Waal 2014). In my early interviews, when GHS "2.0" initiatives were young and largely aspirational, these concerns were echoed in the literature and in the voices of those with whom I was speaking. Global health security was a contested issue, from its inception.

Scholars and practitioners alike were assembling a damning checklist, suggesting that GHS was misdirected because it was:

- ✓ American-led
- ✓ An extension of "Empire" (Hardt and Negri 2000)
- ✓ Promoting the 'militarization' of public health and international development
- ✓ Driven by an ethic of nationalist self-protection
- ✓ Based in a politics of capital F – "Fear" (see e.g. Ingram 2008)
- ✓ Essentially technocratic, and "top-down"
- ✓ Based on priorities coming from the Global North, at the expense of the Global South's cooperation

Again, I heard these critiques not only in the preparatory literature I had been reading from the social sciences, but from the experts who were directly engaged with the early phases of these programs and projects. The entire constellation of global health practitioners whom one could "implicate" or situate within the sphere of GHS

were hyper-reflexively aware of these criticisms, and in many cases, articulated them in conversations without explicit critical prompts from my end. As one interlocutor noted, "GHS…[has been] primarily designed by—and for benefit to—the developed world…we have to work hard to ensure its relevance and buy-in from LMICs and developing countries". The hurdle for "buy-in" was high, as it was not only social scientists who were apprehensive about mixing "security" with public health: "Countries are very wary of 'security'," it was later argued to me, "which has a different connotation in other contexts". Indeed, as I asked public health officers abroad in early 2014, the notion of "security" felt incompatible to their aims and the division of labor assumed by their respective governmental ministries.

My approach was to keep these critiques in mind, but to unpack the idea, its practices, and its trajectories independently. Rather than take "security" or "securitization" as a given, *a priori* - I understood it would be important to trace its usage and its meaning within this particular space of experts and stakeholders. As expected, things were a bit more complicated than a simple "encroachment" of security logics into public health. The health-security nexus, while not new during my period of study, was still quite a fragile meeting place for communities of experts, who prioritized different issues and understood health security in different ways.

For instance, at the same time the hackles of the skeptics were raised, others were assuring me that 'security' was really just a rhetorical device to bolster what was otherwise a purely public health effort. "Nobody wants to fund [health] systems," one informant argued, "so the security language is really just there for the money." For some, there was great reason to celebrate the elevation of basic systems-building attention to the levels of that usually received by national or bio-security as priorities. 'Smuggling' in fundamental health systems capacity building was not met with universal praise, however. I heard prominent voices in 'security' communities expressing their frustrations with just how much "ownership" the public health experts had over health security. "This space is dominated in an unhelpful way by the health community," I was told by a senior security official. "This turns other sectors off - it makes it difficult to address security issues that transcend the IHRs [International Health Regulations]".

While it was true that security experts and organizations were—in the early days—peripheral to the GHS space, I quickly discovered that "security" was *not* simply a rhetorical device for funding. Expert 'security' communities were intimately involved in GHS, not only in funding projects, but in designing and supporting key initiatives like the GHS Agenda (GHSA).[10] The National Security Council under Obama took on a direct role in GHS stewardship as a political project (we will see how this impacted GHS 2.0 in the next two following episodes). The US Department of Defense (DOD) was intimately involved in the Agenda's design and its implementation, even if it wasn't directly funded to do any GHSA-branded work. Non-governmental organizations also increasingly emphasized the international security dimensions of GHS, especially under the Biological Weapons Convention (BWC), the preeminent international treaty focused on non-proliferation, prohibitions on bioweapons, and nuclear disarmament. Later, NGOs like the Nuclear Threat Initiative (NTI) took on a leadership role as implementers and champions of the issue, pushing a prioritization on biosecurity and biological weapon threat reduction – issues that implicated international security experts in a more direct capacity than technical areas more commonly associated with public and global health.

The involvement of security communities in GHS was not confined to the United States, either. Programming under the GHS Agenda in Canada, for instance, was placed exclusively under the stewardship of the government's "Global Partnership Program" (GPP). The GPP's mandate was to support the "Global Partnership Against the Spread of Weapons and Materials of Mass Destruction", a G8-sponsored network focused on biothreat reduction with a more "traditional" security slant – again with a focus on international disarmament and biological threat reduction. In an unexpected inversion of the US, where the Department of Defense received no initial GHSA-specific funding, the Canadians had placed *all* their GHSA appropriations under the auspices of their international security programming, in the offices of their Global Partnership Program.

[10] The Global Health Security Agenda will be in more detail discussed in the first episode below, and reappear frequently throughout the remainder of the text.

'Security' was thus never absent from the equation, but it was cited and implicated often in an irregular manner – and the fight to integrate 'security' issues into 'health' was never a settled issue. While GHS and biosecurity were meeting places for these communities, they were continually contested ones. "Biology as a weapon of mass destruction is a totally different question [than conventional nuclear weapons]," I was told by a Senior officer of a security organization, who detailed the process by which their NGO became involved in the GHSA. "We [were wondering] what systems or platforms we could engage with to support global biological security. This is why we sought a partnership at the health-security interface."

Closer to home, with the PATH GHS team, we were squarely affixed to the public health angle of GHS. Although we reached out and associated with Department of Defense-specific partners and divisions, my fieldwork was with a community of public health experts intent on building up basic health systems capacities in low and middle-income countries. In many cases, this meant translating "vertical" (i.e., disease-specific) health aid programs into "horizontal" (i.e., systems-based) ones.[11]

The health-security 'nexus' still feels more like a health-security *spectrum*, and most of my research took place squarely at the public health end of that spectrum, with a focus on population health, disease surveillance, service delivery, outbreak preparedness and response, and improved data practices. I couldn't tell you whether we had 'smuggled' a 'non-security' issue into a securitized space, or if we were 'dominating' the health security space to the exclusion of other interests.

* * *

Returning to the assumptions of the critical social science literature, if this was a place to witness and document the exercises of "Empire" (a la Hardt and Negri 2000), it was also a time of dramatic instability for the WHO and other institutions that were earmarked as figureheads in that arrangement (*ibid.*:9–10). If it was a place to unveil the "militarization" of health, it was equally a place to see the evolving and contested role of military actors and defense ministries in public health affairs (and the sometimes

[11] Including a prominent program in the GHS "Version 2.0" space: the Cooperative Biological Engagement Program (CBEP) under the Defense Threat Reduction Agency (DTRA).

creative manner in which they evaded their security or defense mandates). If it was a place to argue over "global biopolitics" it was also a place to witness the irregular interpellation of the "state" and its population, both in their responsibilities, their enumeration, and their implication in a space that was both defined by, and by definition, exceeded the individual nation-state (Weir 2002). The challenge, as I knew it from the beginning, would be how one could come to know a general idea like global health security through its projects, its technicians, and its advocates. It was only later that I fully understood how this idea would be given shape precisely as its shape was being threatened.

**The Core Four**

It should be made clear: I will not argue anywhere in this text what GHS definitively *is* or *should be*. I'm not interested in parsing the debates about where the boundaries are, or have been, for this nebulous conceptual category. I will also try and avoid a mistake that was more common, and perhaps more pernicious: of conflating a conceptual trend with any singular technical infrastructure or architecture. As an example—at certain moments during my research the overlap of major technical programs (i.e., the GHS Agenda) have presented the optical illusion of fully encompassing the coordinates and possibilities of global health security. While at their apex, it was easy to slip into interchangeable utterances ("GHS" vs "GHSA"), much like looking through two lenses that make one color. At other moments, when funding and political commitments faltered, the difference was made strikingly clear. We return to this issue in later sections—the important point is that it didn't matter if one was moving from academia to an NGO, or from the government to a philanthropic organization, at no point would GHS have appeared conceptually nor technically stabilized during this period of time. It was a space of constant motion, and perhaps even moreso at the moment of this writing.

With that said, our work at PATH was grounded by what some GHS architects considered the "core four" focal areas to improve global health security, generally encompassing the following: improving disease surveillance systems; improving the

capacities of public health laboratories; training and enabling epidemiological workforces; and improving rapid response infrastructures and capabilities, including outbreak investigation teams and emergency operations centers (EOCs).[12] The GHS Partnership at PATH, which during my research was led by Dr. Linda Venczel, was contracted directly by the US government to implement global health security with those four areas in mind. Our focus was primarily on building out systems for disease surveillance, public health laboratories and diagnostics, and setting up new EOCs. Although as later episodes document, our capacity-building portfolio was always pushing at the fuzzy boundaries of GHS, including a water, hygiene, and sanitation (WASH) intervention in Tanzania and a peripheral project in India on antimicrobial resistance and improving tuberculosis diagnosis and patient management.

My focus will not necessarily be to dive into the technical details of any single area, but to understand and document how these portfolios of projects made up the day-to-day life at our headquarters in Seattle. This document will not be a user-manual on how to improve disease surveillance in Tanzania—it will be an account of what one might go through trying to manage projects that address the 'core four' of global health security in various far-flung places across the world. It is a diary of what it was like to try and *make* global health security, at a unique time and from a very particular place.

**A Mosaic of Encounters**

The rest of this text is broken up into smaller chunks; not really chapters but more like 'episodes'. When taken together, these anecdotes and meditations - spread unevenly across time and place - offer a mosaic of encounters with a loose formation of GHS from 2014 until the early months of 2018. They depict moments and threads that aren't neatly wrapped up or comprehensive. Instead, this is a series of sketches, case studies that unfold and attempt to come to terms with what this concept looked like from our corners of practice; how it was managed, how it was produced, how it was contested.

[12] See e.g., the former CDC Director under Obama, and one of the pivotal figures in GHS 2.0, Tom Frieden, speaking about the core four here: https://www.statnews.com/2017/09/12/global-health-tom-frieden-resolve/

**Episode One ("The Jigsaw Puzzle of Global Health Security")** looks closer at the turbulent genealogy of 'global health security' as an idea as it was under construction through the late 90s and the 2000s, arguing that the 2014-2015 Ebola outbreak was a pivotal moment for a changed understanding of what GHS might have been and what it ultimately became. The episode also positions an ongoing question of what global health security "action" looked like in a technical and political sense, and how priorities shifted under various formations of GHS. It looks at both GHS 1.0 and 2.0, helping to historically position and contextualize later discussions of what kind of work the idea enabled through its mutations. This was GHS from 30,000 feet up; it was a view from the First Desk. This is the longest and most analytic episode, by far. This section will be most useful for those interested in the historical trajectory of GHS as a domain, and provides some background framing for the field-based episodes that follow.

Any writing of GHS or the GHSA during this time would be remiss without looking at the WHO's Joint External Evaluation (JEEs) Framework, which formed a technical cornerstone of global health security efforts during this period. While Episode One gives an overview of the JEEs, **Episode Two ("Technical Daydreaming")** examines this process through the lens of a proposed "global" initiative spearheaded with Linda and the PATH GHS Partnership. The episode looks at how "technical daydreaming" works to fashion new practical possibilities out of conceptual categories, and examines the risk of failure when proposing new solutions in a space of distributed expertise. This episode details how my co-workers and I fell into a 'gulch' between experts, a volatile space of struggle between GHS lamplighters.

**Episode Three ("An Upending")** fast forwards past the first episode to a new phase and a different kind of turbulence for GHS. This time, a destabilization that took place during my fieldwork at PATH, when GHS was once again under great strain during the political pivot precipitated by the 2016 US Presidential election. It offers a close-up view from 'the inside' of a conceptual dislocation, when a form of thinking and acting was fundamentally destabilized and brought into question. It looks at the

decoupling of GHS from GHSA, and the expert community's effort to build "GHSA 2.0" during a time of what I end up calling "climactic uncertainty".

**Episode Four ("Data's Decisions")** turns to the concept of "data" as it informed the work at PATH, trying to find a middle ground between critical perspectives of anthropologists and social scientists, and the global health practitioners approaches to evidentiary practices and health data. It focuses on how the concept of "data" informed and guided technical work, and how data interfaced with decision-making—not just in the countries where PATH's programs operated, but at its headquarters as well. It is an examination of how "data" was used as a part of our own technical daydreaming and project design, and how epistemological understandings of evidence worked to ground and 'substantiate' umbrella concepts and categories like global health security.

**Episodes Five ("Ebola: Redux")** and **Six ("Seeing Vital Numbers")** form connected interludes, retelling both the story of an Ebola outbreak in the Democratic Republic of Congo (DRC) in 2017, as well as related efforts to design and deploy a sophisticated, innovative satellite-based national census project in the country. While "Ebola: Redux" recounts the outbreak response, looking at the 'event' from an institutional perspective, "Seeing Vital Numbers" dives back into technical daydreaming and project development—looking at discussions on population enumeration, reconfigurations of 'biopolitics', and a discussion of "politics" as it informed project design and early development.

Concluding with the **seventh episode ("Define / Design: Reimagining Catastrophe")**, we then look at how an expert community sustained and extended its specialist practices and organizational reach by deploying a new category of global catastrophic biological risks. Through multiple case studies, I highlight how new technical initiatives are made possible through not just metrics, but through the 'invention' of new categories and through carefully crafted alliances. If Episode Three was an examination of an 'assemblage' threatening to pry apart, this episode is an account of how a new one is built-up. By looking at the triangulation of technical experts, donors, and implementers, I examine how new issues garner both attention and funding, and how built-in philosophies of scale can change how technical

programming is designed and deployed. This episode offers an account of how an expert-donor alliance crafted a new category of risk, and how this new category functioned as a strategic device to enroll new partners and design interventions and evidence needed to better understand and mitigate this risk. Finally, the episode concludes with a look at how semantic distinctions (between 'epidemics' and 'pandemics') can sometimes make 'enemies' out of 'allies'. It is a partial map of how global health security operates as an expanding horizon of expert negotiation, practice, and technical debate.

The **Epilogue ("An Ear to the Ground")** offers both an update on the field of GHS as it appeared in early 2018, and an attempt to consolidate some of the themes and conceptual issues that run through these episodes. It reflects again on some of the issues raised here in the introduction with the benefit of the empirical episodes behind it. If each episode is its own opening for a much larger discussion, the conclusion is an invitation that much more work can and should be done to analyze, assess, and reimagine global health security as a field and as a possible practice.

"If I ruled the world," an informant once joked to me, "it would look a lot different. As it is, I just work with the things I can get." In the episodes that follow, I take up this pragmatic experimentalism as an entry point; a place where technical projects work to make the world look a lot different. My hope is that readers and stakeholders both intimately involved and distantly peripheral to these fields can appreciate these accounts and find them useful in reflecting on the challenges, problems, and complexities introduced by these new spaces of thought and practice.

## 1— The Jigsaw Puzzle of Global Health Security

The sense of fragility that punctuated much of my time at PATH was a small part of a much longer, bigger story of global health security (GHS). It was a paragraph in the novel that might be written about GHS as a conceptual and programmatic space –a space that has still never quite stabilized. That sense of precarity and instability was partly a sustained effect of conceptual motion; frustrating and destabilizing from the standpoint of a practitioner, but captivating from the standpoint of a researcher.

Rather than simply portray GHS as a young technical program suddenly made precarious by politics–it is worth diving into the past to see this conceptual space and technical strategy as one that was continually in oscillation. This episode is my attempt to look across the uneven and recent conceptual history of 'global health security' (GHS), focusing in more detail on what in the introduction I have loosely glossed as a shift from GHS "Version 1.0" to "Version 2.0". It is my hope this will minimize any tendency to think that GHS simply "popped up" or emerged in the middle 2010s, as some scholars and practitioners seem want to argue. Instead, I hope to trace the emergence of a conceptual space for 'health security' in the 1990s, and outline its mutations through the early 2000s and 2010s. To follow this ephemeral trail of ideas helps position and grasp the transformations happening in GHS 'today' – after the 2014 West African Ebola crisis and a sustained mobilization of governmental and non-governmental organizations around the issue. It also will provide a juxtaposition: what a view from the First Desk looked like against the rest of the episodes—snapshots taken from what followed at the Second.

Of course, 'today' is an always moving spotlight; there is no stable 'contemporary' from which to write (especially with GHS, which is still a rapidly evolving space). However, by outlining a broad arc of conceptual debate surrounding GHS during its early articulations, this section looks both at enduring continuities and surprising ruptures in the way this idea appeared and was negotiated, both during its inception and its later deployments in what later became defined and visible as a space of 'health security'.

At its simplest, the shift from Version 1.0 to 2.0 was about a changed space of conversation, and the resultant change in programmatic priorities and possibilities. As argued in the introduction, in its earliest configuration, 'global health security' referred almost exclusively to revisions occurring to international public health norms. More specifically, the International Health Regulations (IHRs). GHS's "first version" was really a regulatory and normative question through and through; one almost entirely confined to the corridors of the World Health Organization (WHO). The issue was rarely discussed under this phrase, and when it was, it almost exclusively fell within the remit of *international* and *inter-ministerial* affairs. In its earliest and most delimited appearances, GHS named an issue—namely, the ongoing process to revise the IHRs within the WHO.[1]

Fast forward a decade later, and 'global health security' points to a complex arena where multiple actors debate and re-consider how to mitigate a global risk of infectious disease emergence. As the phrase gained traction after the Ebola outbreak of 2014, suddenly everyone was discussing how we *should have been* and *could be* better prepared. The questions shifted – now with a focus on what kinds of metrics could be used to measure preparedness, and how to juggle priorities to ensure strong and resilient public health systems. Non-governmental and civil society involvement, including from the private sector, were no longer seen only as supportive ancillaries to what was otherwise an *inter-national* project. Instead, "civil society" and the private sector both became critical stewards and catalysts for turning this general idea and collection of international regulations into 'meaningful' and 'measurable' actions.

In the simplest, crudest terms—a major shift took place. This shift meant that GHS transformed in character. In its earliest days, it was delimited to only a few emerging issues and initiatives—as we've seen, referencing the efforts to revise the IHRs, it also named an emerging intersection between biology and international security, and an innovative informal network formed between health ministers (see

[1] For a detailed inventory and analysis of exactly what those revisions were, see Fidler and Gostin (2006), *The New International Health Regulations: An Historic Development for International Law and Public Health*. Faculty Publications. Paper 370. http://www.repository.law.indiana.edu/facpub/370
For a detailed account of the process of those revisions, please see Kamradt-Scott (2015).

Fidler and Gostin 2008). It later came to name a heterogeneous assemblage of organizations and foundations working on various projects for epidemic preparedness, international security communities fighting biological threats, and private sector networks searching for novel ways to define and contribute to 'unpreparedness' as a problem. This shift has taken place over the last decade, and has had far-reaching effects on both global health policy and project development, introducing "actors not traditionally associated with the health sector to participate in planning" and managing 'GHS' issues and challenges (Kamradt-Scott 2015:3).

This transformation is explored here in three ways: (1) by focusing on some of the initial landmarks of conceptual change occurring to the idea of 'global health security' across the 2000s; (2) by evincing recent changes in the idea by using the Global Health Security Agenda (GHSA) as a case-study; and (3) by highlighting some of the effects that this change introduces in thinking about—and acting on behalf of—GHS. This short history of GHS provides a backdrop to the field experiences discussed in later episodes, by situating both shared and diverging challenges and issues both in past and present moments.

* * *

The initiatives, programs, and policies that adopt the language of 'global health security' today are too numerous to count—each sitting as a piece of a health-security 'jigsaw puzzle'.[2] Although it is widely recognized—and often critiqued—by experts working in the field that GHS is polysemic, defying stable definition or singular meaning, few authors have explored how the concept itself has recently undergone this transformation from a policy/legal framework into a platform for 'acting' in the name of global health. There is no big picture reveal that will happen once the 'smaller' puzzle pieces are juxtaposed or re-assembled. Instead, I hope to suggest that the new and shifting pieces that make up the GHS landscape present the possibility of drawing

[2] For an excellent overview of some of the major jigsaw pieces, with a focus on the United States, please see Banin (2017) *Healthier World, Safer America: A US Government Roadmap for International Action to Prevent the Next Pandemic.* A PATH report available online at: http://www.path.org/publications/detail.php?i=2804 . This document will be an explicit focus of interest later in the text.

altogether new pictures—fundamental shifts in the 'arts of the possible' as pieces are enjoined to compose GHS as a conceptual space.

Expert readers will no doubt take issue with some of the minor details in this portrait. Who said what; where there are elisions and glossing; who the *really important* players were; that 'GHS has always been about x, y, or z'. Regardless, I think all will agree that the coordinates for global health security have changed, with new pieces fitting together in ways unexpected or unimagined. It is this change which helps situate a starting point for a larger discussion, but also as a place to look back and see how this domain of possibility emerged, and how it has mutated to produce altogether different possibilities in the recent years. This is on the one hand, the first part of understanding "an idea whose time had come". But it is also the backdrop to the major unravelings and disruptions that happen to GHS beginning later in 2016, addressed in later episodes.

The detailed histories and the early formations of global health security have been explored in-depth, and at length by others (Weir 2015; Weir 2012; Rushton and Youde 2015; Davies, Kamradt-Scott, and Rushton 2015; Kamradt-Scott 2015; Fidler 2005). This section does not intend to supersede or replace these studies. But my focus is slightly different than these detailed analyses – I want to stress that the making and remaking of GHS changed the spectrum of possibilities that I confronted when working on the issue at PATH.[3] The fact that GHS was an 'implementable' program was only a recent event in the scope of epidemic preparedness and GHS. In other words, these histories made my fieldwork possible.

That possibility was largely due to the 'version shift' that I have been outlining. By 2016 what I call "GHS 2.0" became a large complex of high-level political urgencies, private sector initiatives, NGO implementation activities, governmental grants, international legal reforms, and public health emergencies. GHS was no longer *reducible* to the conversations happening at the WHO about the IHRs, nor did it remain a bounded "initiative" connecting a small contingent of health ministers in the Global

[3] The nomenclature I've chosen to describe these shifts is nothing new in the world of global health – one can see similar efforts to describe transformations in other areas in similar terms, e.g., with shifts from PEPFAR 1.0 to 2.0 and now even a 3.0. As we will see later, even the GHS domain has invoked version shift language to describe its own programs, such as the GHS Agenda.

North. The concept quickly evolved, capturing an imagined world resilient to the resurgence and increased spread of infectious diseases. It juxtaposed the global health blunders of Ebola, the 'politicization' of influenza or Zika, the neglect of public health systems, the role of the private sector in global health, the intersections of the public health and security communities, and ongoing debates over research and development. Although there is no doubt that an earlier legal/normative understanding of GHS persists, the idea today clearly envelops and evokes a much wider collection of problems and issues than simply referring to the major transformations happening in the world of global health governance at the end of the 1990s (see Fidler 2005).

A palpable stirring across domains labeled as "global health security" drives a continued influx of novel actors and stakeholders to support and engage with the idea across a broad array of technical, policy, and diplomatic domains. Again, these conceptual shifts were a critical part of what made my research possible, as it meant that GHS became something not only "*governable*" or a question or *governance* (i.e., with relevance primarily at the level of inter-ministerial or multilateral policy dialogues), but "*implementable*" and a question of *action* (i.e., amenable to programmatic activity by non-governmental organizations like the one where I did my research).

**A Brief History of GHS, Part I:**
**Global Threat : Global Response**

Beginning in the early 1990s, a new manner of articulating the threat posed by pathogens, infectious diseases, and epidemics took shape. A story now told many times over, 'global health security' (GHS) emerged at this moment as a novel problem-space and governance challenge in response to new 'global' circulations and intensifications of infectious disease (Elbe 2010; Fidler 1997). Further marked through the 2000s by major events both political and pathogenic, 'global health security' appeared both as a manner of identifying major reforms to global health priorities and regulations, and as a normative device orienting the expectations of nation-states to health governance problems (Davies et al. 2015).

Relying on the concept of 'emerging infectious diseases', in the early 1990s the World Health Organization (WHO) and public health experts argued there was a "global crisis…[looming] over humanity" (Nakajima 1997:321).[4] It was at this moment that the WHO and others positioned the "spread of communicable diseases [as] a transnational issue"—a new "global threat…[requiring] a coordinated, global response" (World Health Organization 1995:2). The form such a 'global response' took in this decade between 1995-2005 occurred primarily at the level of policy and regulatory norms, as the WHO overhauled its principal legal instrument: the International Health Regulations (IHRs). The tumultuous decade-long process of this revision has been analyzed carefully by many others (Katz and Fischer 2010; Fidler and Gostin 2006; Lakoff 2017).

These authors reveal that the revisions underwriting the new IHRs represented a distinct rupture at the level of international relations and global health governance. For some, this moment marked the "death of the traditional…approach to international infectious disease control" (Fidler 2005:327).[5] For others, it was the birthplace of a new 'regime' of global public health—what is commonly today called global health security (World Health Organization 2007; Weir 2012; Lakoff 2010). In either case, at the turn of the century 'health security' became a principal formation situating an 'emerging global agenda' for public health, one that would challenge "traditional conceptions of the citizen, the state, and international relations" (Fidler 1997:13). In doing so, the usage and understanding of GHS during this time became tightly coupled with the process of revising the IHRs—a platform to discuss and articulate new legal requirements and responsibilities of states to a 'global' space, brimming with infectious diseases that paid no mind to the political constraints of diplomatic agreements or national borders.

With the publication of these revised IHRs in 2005, GHS became formally attached to the burgeoning domain of 'global health' and surfaced as a conceptual problematic in its own right. Along with the SARS outbreak in 2003 and the avian

[4] For a thorough history and analysis of the idea of 'emerging infectious diseases', see King (2002) and Lakoff (2010; 2017).

[5] Namely, an internationally-recognized legal requirement for States to notify one another of outbreaks of a very specific list of diseases which had the ability to impact travel and trade. Fidler calls this the "classical regime" (see 2005: 327-333).

influenza anxieties of the following years, global health security – at least as it was embodied in the new IHRs – resonated with the WHO and its Member State representatives, who shared deep concerns in developing the means and technologies to control the global circulation of infectious diseases.[6] The coupling of prominent attention to these epidemic events, and the major changes underwriting the new IHRs, GHS became emblematic of the calls for a 'global response' to biological threats – be they from natural outbreaks of disease, or from intentional biological attacks from terrorists.[7] Becoming a nexus of bioterrorism concerns, pandemic preparedness, and health systems strengthening (or capacity building) meant that GHS emerged as a conceptual, legal, and governance space that was categorically different from the international frameworks that preceded it.

Nevertheless, despite both high-profile outbreak events and significant legislative attention at national and global levels, the new IHRs failed to transform into material and practical commitments to public health capacity building and preparedness, with a large majority of WHO Member States either asking for extensions to their deadlines for regulations compliance, or failing to report to the WHO on their intention to comply at all (see e.g. Davies, Kamradt-Scott, and Rushton 2015; Fischer and Katz 2013). In short, the revised IHRs – the regulations that were thought to usher in a 'new world' of global health governance – initially seemed to be a flop in terms of their measurable impact.

Although it is important to ask why these regulations failed to generate tangible commitments, as has been done elsewhere, it is equally important to recognize that the 'shortfalls' in compliance to these new norms were now articulated as issues or challenges under the label of 'global health security'.[8] In other words, it was only against this new backdrop of GHS that one could situate expectations of state behavior and responsibility, and recognize or identify a 'shortfall' in compliance to the norms set out in

[6] Davies et al. (2015) call this the period of "norm cascade" of the Regulations, utilizing the political theory of norm development and diffusion.
[7] During this period of time, and up to today, this is considered an 'all-hazards' approach to public health emergencies. This approach argues that many of the effects of health emergencies – regardless of cause or origin (bioterrorism, weather event, chemical agent, natural outbreak, or otherwise) – can be mitigated with similar preparedness and response mechanisms. For more information see, Adini et al. (2012): https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3494498/.
[8] See e.g., Fischer and Katz (2013), *Moving Forward to 2014: Global IHR (2005) Implementation.*

the IHRs. It was really in the latter part of the 2000s, when the deadlines for IHR compliance were coming to pass, that a certain legal/normative component of GHS became crystallized and recognizable.

This period of the early 2000s witnessed a great number of important convergences between these early GHS efforts: the WHO IHR revisions (1995-2005); the signing of the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (2002); and the related formation of the Global Health Security Initiative (2001). The Initiative offers a particularly important case study in the early moments of GHS as a diplomatic policy platform. It was one of the first mobilizations around the issue of "global health security", particularly at the ministerial level. Composed of health ministers from Canada, the European Union, France, Germany, Italy, Japan, Mexico, the United Kingdom and the United States, the Initiative was an informal network that aimed at addressing the emerging issues of epidemic events; public health preparedness; Chemical, Biological, Radiological and Nuclear (CBRN) threats; and pandemic influenza. Formed as a direct response to the September 2001 attacks, the group found its niche by gathering "likeminded" health ministers into the same room together once a year. More importantly, the Initiative provided them a diplomatic hotline directly to one another – in other words, it gave health ministers an excuse to pick up the phone and discuss these issues directly between themselves, rather than requiring a prime ministerial or presidential mandate.

"It was one of the most useful groups I've ever been involved in," one former participant told me during a chat about it. "It connected global leadership in health," functioning as an "honest platform for forthright diplomacy during the 2009 flu pandemic". Although it may not have been the first initiative to use the phrase "GHS", it was "the first occasion that it gained traction, that it made a difference". In any case, it pointed toward a gathering momentum that would see GHS as a diplomatic and policy nexus, a focal point that would catalyze new associative networks and conduits of negotiation. Suddenly, GHS was something more than simply a new international legal strategy at the WHO—it was an actionable space of connection between political actors

who understood it as a way to address novel challenges of infectious disease outbreaks.

* * *

Thus, partly as a result of these initiatives—as well as the epidemic events that flickered across the 2000s—SARS, MERS, the 2001 American anthrax attack, pandemic influenza—GHS quickly became something more than simply a call to revise and adhere to the IHRs. As Fidler and Gostin (2008) have detailed, GHS came to describe a broad set of programs aimed at prioritizing the strengthening of immediate alert, response, and preparedness for disease outbreaks, attacks from biological/chemical weapons, and other natural incidents. Intersecting with a post-Cold War commitment to 'threat reduction' and nuclear weapons non-proliferation, health security was later to be prioritized as a legitimate international security concern, able to bring concerns with bioterrorism into conversation with concerns about other public health emergencies and threats (see also Koblentz 2010).

Much has been written about this nexus of 'health' and 'security', although perhaps less attention has been paid to how the broader intersections of health-security and international norms like the IHRs have informed specific projects and programs across governmental and non-governmental organizations. In any case, as it became clear from the formative moments in the early 2000s, GHS as a conceptual and practical field would reshape possibilities for thinking and acting on global/public health, not only through its 'securitization', but by reframing the responsibilities and demands presented by the 'global' to States, their populations, and the form of 'humanity' that threatened by a circulating space of biological threat (see Collier and Lakoff 2008; Lakoff 2010; Rees 2014; Feldman and Ticktin 2010).

A number of scholars have treated 'global health security' today much as if it has remained a static issue since this first tumultuous period; as if the same problems, players, and projects that came together following 9/11 persist, unchanged. While there have been continuities in both thinking about and programming for health security issues in the United States and further abroad, this episode suggests that there has been a substantive conceptual discontinuity separating this early legal/normative

formation of global health security that originated the late 1990s/early 2000s and the global health security seen today following Ebola and later, Zika. These conceptual and practical discontinuities are non-trivial, changing both the kinds of projects made possible under the umbrella of GHS, but also enabling strategic and often surprising re-articulations of these issues across global health sectors.

Clearly the IHR revisions and the obligations they imparted to nation-states were only the beginning of a much larger project. Despite both high-profile outbreak events and significant legislative attention at national and global levels, the new IHRs had largely failed to transform into material and practical commitments to public health capacity building and preparedness. *Establishing* the international norms and regulations defining States' responsibilities to a world full of emergent biological threats were the early days of GHS 1.0. *Recognizing* international failures in compliance to the new IHRs was only possible against this backdrop of GHS "Version 1.0". Later, the demands and the efforts to *do something about it* formed the foundation for a changed GHS: "Version 2.0".

* * *

As has become acutely obvious in the year after the West African Ebola outbreak, beyond legally-binding Regulations in the form of the IHRs, global health security encompasses a great many debates, discussions, and projects that cross both political and diplomatic domains (Heymann et al. 2015). The idea has greatly expanded the reach of its policy communities, becoming a preeminent forum to discuss and debate the aspirations to a better state of global health and health system resilience. Since the later part of the 2000s, global health security has not only fundamentally re-situated the responsibilities for individual nation-states to address public health emergencies, but has significantly altered the possibilities of designing political and technical projects to tackle 'global' vulnerabilities to emerging infectious diseases. Regardless of its many meanings, GHS has changed how preparedness projects and international norms are constituted and connected with one another—but also what kinds of governance effects they will have, and what kinds of policies, projects, and possibilities they carry with them (Nading 2015; Hinchliffe et al. 2013; Mykhalovskiy and

Weir 2006; Rushton and Youde 2015).[9] As an extension of this, GHS has become a decisive site to debate and discuss the category of the 'global' both as a threat and as a mode of response.

If, as argued here, global health security originated primarily in an international legal space—i.e., as a project to establish and promote country adherence to new international norms—today it has transformed into a concept that far exceeds its legal or normative origins. Following worldwide attention to Ebola in 2014, and Zika in 2015-16, two major galvanizing Public Health Emergencies of International Concern (PHEIC) in as many years, global health security was thrust firmly in the spotlight as a priority issue (see Garrett 2015). What effects are then introduced when GHS as an idea or problematic expands beyond the space of international regulations and mutates into a multiplicity of global health projects, ranging from country assessments, service delivery, capacity-building, or resource distribution?

There is no doubt that the story of exactly what this transformation looks like—and what impacts it will have—is still being written.

## A Brief History of GHS, Part II: The Rise and Fall (and Rise, Again) of GHS

To tell the story of 'global health security' as the emergence of an inevitable or necessary idea is to betray its rather precarious recent history—one indeed rife with contestation and debate. Global health security did not arrive—nor does it persist—as a unified package of projects, imaginaries, or visions about the future of global health governance or project development. Nor was it clear to early GHS architects, such as the WHO's David Heymann, that the idea would endure as it has after the revised IHRs had been adopted in 2005. Epidemic events across the 2000s, the tragedy of Ebola and Zika, and recent GHS efforts such as the Global Health Security Agenda have, in many

[9] It is important to reiterate that the differences here made between the 'legal/normative' dimensions and the project-oriented understandings of GHS are neither incommensurable, nor are they absolute.

ways, smoothed over this rather uneven history of an idea, changing not only the terms of the debate over GHS, but the manner by which its history is remembered.[10]

In a comprehensive paper published in 2015 by The Lancet, a super-group of global health experts offered their reflections on the concept during the twilight of the Ebola epidemic, arguing that "out of [the] human calamity has come renewed attention to global health security—its definition, meaning, and the practical implications for programmes and policy" (Heymann et al. 2015:1884). Alongside deep criticisms of the WHO's leadership and performance record, they note that global health security has been renewed as a platform that encompasses issues as diverse as migrant health, pharmaceutical governance, international law, and universal healthcare. However, according to most of these analysts, the core of the idea — the 'protection of the health of people and societies worldwide' from infectious diseases and other health threats, has remained the same since the mid-1990s (Frieden and Weber 2014; Weir 2015). As the Lancet paper argued, "the moment for global public health systems development is now", a statement that suggested the concept of GHS would embrace a renewed initiative for recovery and repair following the havoc caused by Ebola (Heymann et al. 2015:1890).

Broadly speaking, global health security has become *the* "lesson learned" from the West African crisis, with health system strengthening, surveillance technologies, epidemic preparedness efforts, and now health sector recovery established as the preeminent means by which global and country health experts work to operationalize the tenets of the concept.[11] If the responsibilities to epidemic preparedness from individual Member States has largely remained intact from GHS 1.0, GHS post-Ebola has seen a dramatic mobilization of actors across civil society, the private sector, international development, and humanitarianism to commit to preventing such a tragedy

[10] To some, the very suggestion that the phrase "global health security" did not appear in any major publications before 2001, and very rarely before 2007, is hardly believable. Indeed, this article is an attempt to consolidate important accounts of the very recent history of this phrase and the ideas that underwrite it. Such accounts reveal that what falls under the aegis of GHS today is substantively different than the idea circulating at the turn of the century predominantly within the WHO and between Ministers of Health.

[11] For governance considerations of GHS after Ebola, see the Spring 2016 issue of *Global Health Governance*, available online at http://blogs.shu.edu/ghg/2016/04/25/ebola-implications-for-global-health-governance-toc/, accessed 18 July 2016.

from repeating. From the World Bank's Pandemic Emergency Financing Facility (PEF) to the Coalition for Epidemic Preparedness and Innovation (CEPI), a diffuse global health community of actors has contracted around the challenges issued by a world recognized as unprepared for inevitable outbreak. More on this in later sections.

* * *

As noted, there is no doubt GHS has greatly enlarged its catchment since the early 2000s, moving to encompass a large subset of global health initiatives. However, it has been—and is still—met with deep criticism and ambivalence from both academics and public health experts alike, seen as greatly "distorting" the global health agenda through its conflation of the politics of security with the activities of public health (Stevenson and Moran 2015; Rushton 2011; Lachenal 2014; Aldis 2008). Within this contested space, one could say the concept has taken on the life of a fable as much as a regime: "Once upon a time," writes the Lancet supergroup, "global health security was an innovative idea that produced a strategy resulting in historic changes in global health politics, governance, and law. After the Ebola outbreak, the novelty is gone, WHO is discredited, the changes have proved inadequate, and the strategy is in shambles" (Heymann et al. 2015:1889). Out of these "shambles", the authors imagined a transformation in the "political, institutional, and legal pillars" of the strategy. The precarity of GHS appears here as a call-to-action and a rallying cry, with the idea having "never been more uncertain" (ibid.). Whether the GHS initiatives underway today prove to be the means for these authors' imagined transformation remains to be seen.

Yet, while exposing the "shambles" of GHS as a strategy, Ebola would also prove to be one of its greatest windfalls. With the outbreak erupting only months after the United States launched its Global Health Security Agenda, global health security was no longer exclusively about the 'prophecy' of the inevitable next pandemic, but the one occurring under our noses (see Caduff 2015). The concept quickly re-emerged during the West African outbreak, appearing as a discussion point throughout global health, policy, and academic communities. The epidemic itself was absorbed into the broadest levels of policy discourse, placed neatly within a narrative timeline of 'emerging disease events' following after SARS, the influenza anxieties of the 2000s, and more recently

Middle East Respiratory Syndrome (MERS), yellow fever, Ebola (again), and Zika. With disease emergence now seen no longer as possibility but inevitability, Ebola changed the parameters of the conversation. There is no doubt the West African crisis brought both immense attention and financial resources to the table, highlighting the tragic stakes of fragile country, regional, and global health systems. 'Global health security' readily gave voice both to the frustrations of a world met unprepared, a world deeply interconnected, and the urgent demands to take action to prevent such crises from happening again.

Publishing a list of 'ten essential reforms before the next pandemic', a joint Harvard/London School of Hygiene and Tropical Medicine report argued that "the Ebola outbreak is a stark reminder of the fragility of health security in an interdependent world, and of the importance of building a more robust global system to protect all people from such risks" (Moon et al. 2015:2). In the post-Ebola scramble, major global health institutions and WHO Member States committed to setting actionable targets and aligning priorities to combat the ever-present, global emerging disease threat. Central in this effort was the recasting of public health emergencies as humanitarian events, requiring pooled funds, expanded public health workforces, and reformed response platforms.

Seen as 'health security' events, these epidemics—with Ebola proving to be the most momentous and corroboratory—have all been decisive in transforming the contested concept of GHS into a prominent arena by which key actors have articulated reforms for global health policies, initiatives, and governance. In the words of Davies et al. (2015), GHS has become "the most high-profile, and arguably the most successful, example of sustained political engagement along foreign, security, and health policy communities" (2). If we look back at Heymann's retelling of a checkered history of the strategy "in shambles", it does not seem to coincide with Davies' depiction. Regardless of which side of the argument one is on, there is no doubt that the idea has surged with interest, financing, and commitment since the tragic events in 2014 across West Africa and beyond.

Nobody felt this boon as strongly as Dr. Thomas Frieden, then-director of the US Centers for Disease Control and Prevention (CDC), an early advocate for GHS as a critical priority. As he argued in 2014 at a Public Health 'Grand Rounds' event held at the CDC Headquarters in Atlanta, "global health security is the next big thing in public health". With around $1.77 billion in funding given to his organization as a result of Ebola in 2015, his argument seemed valid.[12] Frieden's statement, however, gave the impression that GHS was a novel domain or issue at the time, which as we have seen is not quite correct. Quoted earlier, the former WHO Director General Hiroshi Nakajima was vocal back in the late 1990s in arguing that 'global disease threats' would fundamentally change foreign policy and 'global health issues' (Nakajima 1997). Almost eighteen years later, the policy language has not changed significantly. But I think Frieden was speaking about a different kind of global health security, a GHS that described a 'renewed strategy' that Heymann and others were imagining would arise in Ebola's wake. A "Version 2.0".

Frieden was most certainly speaking to a world changed and enraged by Ebola, unable to rely on the WHO's leadership or stewardship of global health security (Harman 2016). It is such a shift, a sudden spotlight, that gives GHS the feeling of something 'big', or of something both oddly 'new' and somehow timeless. It is a puzzle whose pieces rearrange themselves just as quickly as they seem to interlock.

**From 'Norms' to 'Forms': The GHSA**

In order to exaggerate and highlight some of these transformative effects, it will help to analyze a case-study in the changes happening to global health security. Just as Global Health Security *Initiative* was an index of the early moments of GHS "Version 1.0", the Global Health Security *Agenda* (GHSA) epitomizes "Version 2.0". The GHSA is exemplary, as it happens to be one of the most prominent and visible programs in the contemporary GHS landscape, putting into relief some of the broad conceptual

[12]Note that of this $1.77 billion, $567 million USD was dedicated to the domestic US response to Ebola cases. For a detailed breakdown of GHS funding in 2017, please see Boddie, Watson, and Sell (2016): http://online.liebertpub.com/doi/abs/10.1089/hs.2016.0063.

questions raised thus far. It appears in multiple guises throughout the rest of this text, and offers a critical case-study in health diplomacy and GHS politics. In addition, the GHSA brings forward some of these subtle shifts in GHS as an idea, illustrating that the concept today is just as important for the various formations of experts and programs it precipitates as the legal norms it attempts to strengthen.

* * *

In early 2014, partially as a response to the recognition of a 'shortfall' of IHR country compliance, the United States White House formally launched the Global Health Security Agenda (GHSA). Its stated vision was to "advance a world safe and secure from infectious disease threats, to bring together nations from all over the world to make new, concrete commitments, and to elevate global health security as a national leaders-level priority."[13] As a political-technical framework, it was designed to mobilize both 'political will' and resources for health emergency preparedness and response. The Agenda promoted a three-pronged strategic focus that has now nearly become mantra—'Prevent, Detect, Respond'—and offered a strong push to "elevate political attention…to IHR core capacities and other GHS frameworks" (US Government 2014a). Designed as a five-year multisectorial initiative, its intention was to bring together diverse technical and political platforms under a strategic framework for securing human and animal health at global scale.

It is worth pointing out, however, that the GHSA originated precisely as an initiative to combat stagnation in country preparedness and capacity building. In other words, GHS "Version 2.0" was, in some sense, a response to the 'failures' of "Version 1.0".

The deft hybridization of both pre-existing and novel targets and indicators has driven the GHSA's twin horses of multilateral global health diplomacy and international 'capacity-building'. At a summit event shortly after its launch in 2014, the Agenda's goal was put simply: to "turn commitments into concrete action, starting in West Africa" – to

[13] GHSAgenda.org (About Page): https://www.ghsagenda.org/about, accessed November 2, 2017.

ensure “we never see a tragedy like this again, that we don’t get caught flat-footed”.[14] The GHSA was, in short, an effort to both *renew* a global culture of accountability (to the revised IHRs) and to *build* a series of interoperable, capacious health systems—ones capable of preventing or mitigating the impact and spread of infectious diseases, dangerous pathogens, and attacks from biological weapons (see US Government 2014b). In the words of its architects—CDC Director Frieden chief among them—its vision of a “world safe and secure” from health emergencies would be achieved by strong individual country preparedness, bolstered by the interconnection of health systems at a ‘global’ level. As its advocates argued at its launch, it “gathers, elevates, and shines a bright light on a series of deeply important issues that do not necessarily receive the attention or the international collaborative effort they require” (Inglesby and Fischer 2014:63).

Although it was one of the few major initiatives launched during the Ebola outbreak rather than proffered as a response to it, the GHSA has become one of the highest-visibility programs aimed at translating global health security from a set of legal requirements into specific, actionable global health projects. At a launch event hosted by the DC-based Center for Strategic and International Studies (CSIS) in February 2014, Laura Holgate of the US National Security Council brought this changed approach to the foreground, noting that during the formulation of the GHSA: “we [the designers of the GHSA] really challenged ourselves to define in concrete terms - what does ‘global health security’ really mean…how will we know when we get there, and how do we measure our steps along the way?”[15]

Clearly the GHSA was, from the outset, just as interested in developing the steps and activities necessary to adhere to international norms as it was in articulating or ‘enforcing’ the norms themselves. In its design, it was understood not only as instrument, or policy, but *framework*, *instrument*, and *catalyst*. There is no doubt this was a departure from the former understandings or uses of ‘global health security’ as an

[14] These are actually President Obama’s words. For a transcript, see: https://obamawhitehouse.archives.gov/the-press-office/2014/09/26/remarks-president-global-health-security-agenda-summit
[15] https://www.youtube.com/watch?v=9pFjSDdRtDk, accessed 10 July 2016.

idea: no longer merely as an index of dramatic legal/normative changes at the level of international health politics, nor merely a curious meeting of public health and security worlds, but as a discrete package of programmatic efforts to build global health system capacities in stepwise fashion.

This shift exemplifies the major difference in older and more recent understandings of GHS. The GHSA—although born out of dissatisfaction with low rates of adherence to IHR requirements—does not leverage GHS primarily as censure—i.e., as citations of countries from deviations to these international norms. Instead, there has been a subtle shift to reconfigure such norms into intermediate, actionable mechanisms and targets by which countries might act both 'in their own interest' and for the 'global' commons. The mechanism of this translation has been the adoption of broad technical set-pieces, under an umbrella of 11 "Action Packages", that allow countries to voluntarily contribute expertise, programming, and specific commitments over the five-year duration of the initiative.[16] In this case, a technical 'development' platform has attempted to transform global health security into an opportunity for country and private sector contribution and 'action', rather than simply as a regulatory shift that frames a problem of 'inaction'. In the words of its proponents, it was the "first... international entity to convene government, civil society, and the private sector to elevate and accelerate pandemic preparedness as a national security priority and a global health imperative".[17]

* * *

Out of my early research conversations, I quickly came to understand that "there were really two GHSAs" - or at least two mutually-interlocking pieces to the Agenda itself: a domestically-focused component to orient US Governmental departments and agencies toward a collaborative politics of preparedness; and a separate multilateral effort to galvanize health security both as a basis for health diplomacy between states and as 'global' responsibility amongst them. The GHSA was at once a technical public health scaffolding, a catalyst for international legal norms (developed through the

[16] Details on the Action Packages can be found online at https://ghsagenda.org/packages.html, accessed 18 July 2016

[17] Pulled from a 2017 call-to-action advocacy document entitled "Statement in Support of Extending the Global Health Security Agenda Beyond 2019". More on this in later sections.

revisions to the IHRs), and a governmental blueprint intended to reorganize political possibilities around a technical-conceptual issue. Combined, these facets intended to make GHS into a global problem, and furthered the Agenda's design as a political lever for action and mobilization from multiple "partner countries" (of which there were 17 initially, and over 60 by the time of writing). The firestorm of the 2014 West African Ebola outbreak was the wind that lifted the wings of the GHSA on both of these accounts, bringing in the requisite financial resources (in the form of a $5.4 billion Ebola emergency appropriation from Obama and Congress) and political attention to US domestic agency urgencies.[18] It was also a bright spotlight on the 'pandemic prophecy' (Caduff 2015) confirmed, and the reaffirmation of 'global' responsibilities to prevent such tragedies that 'no single country could mitigate'. The GHSA, with its high-level political support both in the US and its partner countries, was another way for technocrats and politicians to voice together: "Never Again".[19]

* * *

As with almost any major Federal and international initiative, GHS under the Agenda has produced mixed results. There has been worry that these targets occlude as much as they reveal the bigger problems and challenges of global health security today—mistaking the puzzle pieces for its bigger picture. Back in 2015, one early GHS architect lamented that the Action Packages had become "technical blinders" that obscured the larger 'systems-level' focus of the effort. An initiative that was intended to break open "silos" has in many cases, replaced them with 'packages'—technical standards that shifted focus to discrete indicators rather than coordinated 'horizontal' systems strengthening efforts. Finding a balanced approach to shift GHS into the realm of the 'actionable' has been tricky: on the one hand, there has been a strong call for guidance on "what should be done" – on the other, a pushback against bureaucratization or "technicization" of an otherwise broadly imagined, 'context-specific' arena of health systems strengthening.

[18] For a breakdown, see Kaiser Family Foundation's policy brief on the issue from 2015: https://www.kff.org/global-health-policy/issue-brief/the-u-s-response-to-ebola-status-of-the-fy2015-emergency-ebola-appropriation/
[19] See e.g. https://www.oxfam.org/en/research/never-again-building-resilient-health-systems-and-learning-ebola-crisis.

As GHSA stakeholders continue to change the terms of debate and discussion, pushing to broaden and "unsilo" the initiative with new mechanisms or instigators of "meaningful action", it is worth pointing out that the very problem of designing and instigating action itself reveals something important: that along with the GHSA, certain forms of necessary GHS action have been put on the table, and that these actions are becoming largely constitutive of how global health experts understand GHS today. To understand and agree upon what exactly 'action' means in this regard has been a continued challenge—a leitmotif for this text.

The GHSA is thus a helpful case-study to illustrate how GHS has catalyzed changes at the level of international relations and health governance, but also assembled itself into a perpetually 'unfinished' project of preparedness. The Agenda situates how GHS has fundamentally changed and expanded its conceptual foundations, expanding into a platform to develop and elaborate technical programs and projects for countries and non-governmental partners engaged in health systems strengthening and capacity-building. Far beyond the earlier GHS Initiative which was restricted to a small pool of health ministers, from the outset the Agenda was designed to integrate a large number of stakeholders beyond the governmental sector. Branded as a 'multi-partner initiative', the GHSA—both as a policy set-piece and as a technical platform—sits as a reminder of the consequences of 'unpreparedness' and as a mechanism to finally do something about it. It has been perhaps the most concrete initiative integrating and extending these principles and commitments, transforming such engagements from policy-dialogues into policy-projects.

Arguing for the GHSA's impact during its period of jeopardy later in 2017 (which will be a topic for later sections), Beth Cameron made the case for the novelty and impact made by the GHSA in the space of GHS:

> Before the GHSA was launched in 2014, there was no consensus on metrics for pandemic preparedness, and there were no globally-agreed indicators for such measurement. At least 80% of countries had missed the 2012 deadline for compliance with the International Health Regulations (IHR), which are the pandemic preparedness standards that all 194 World Health Organization (WHO) Member States have signed on to achieve. A major reason for this historic misstep was the

> lack of agreed metrics for showing improvements. GHSA was created in large part to create these measurable steps, thereby paving the way for governments, donors, development banks, and the private sector to invest in biological threat reduction with confidence. Within one year of its creation, the GHSA developed 11 targets with indicators. These were then adopted by GHSA participating countries in 2015 and built into the WHO IHR monitoring and evaluation effort the following year.
>
> Furthermore, in 2014, no mechanism existed for independent, external assessment of country capacity to prevent, detect, and respond to public health emergencies of international concern. Countries were conducting varying self-assessments, which were not published, largely conducted by health ministries, and without the type of multi-sectoral, independent evaluation required to assure a realistic evaluation and a stepwise plan for measurable improvement.[20]

Most importantly, Cameron and her co-authors note that "the GHSA provides a vital *common agenda for action*", an additive so essential to the global space that "something would need to be rebuilt if it were lost".

The GHSA as a case-study showcases that there is much more at stake in GHS today than either the WHO's efforts to revise the IHRs or, after Ebola, to simply reform global responses to public health emergencies. It is with the GHSA and the myriad of other post-Ebola initiatives that GHS is becoming not only a new manner of articulating the possibilities and responsibilities of global health actors (e.g., WHO Member States), but an altogether different manner of acting upon and framing global health problems. GHS has become a 'collective action' problem for global health politics—and the form that global action takes continues to shift alongside the novel formations that compose the loose configurations of GHS. Here, the GHSA helps us mark a pivotal moment not only in the emergence of new conceptual debates about the position of public/global health norms and responsibilities, but further in a transformation of global health security from a primarily discursive security framework into a concrete problem-area

[20] Cameron (2017) *Biosecurity Imperative: An Urgent Case for Extending the Global Health Security Agenda*. Nuclear Threat Initiative (NTI) Atomic Pulse blog. Available online: http://www.nti.org/analysis/atomic-pulse/biosecurity-imperative-urgent-case-extending-global-health-security-agenda/

requiring the elaboration of material, technical, and human infrastructures and technologies.[21]

To summarize: where global health security once stipulated what *should be done* at the level of international legal and regulatory reforms, it later became a way to talk about what *had not been done* in the wake of the new country requirements of the IHRs. Today it predominately appears as a form of asking what *can be done* to craft a future better prepared for epidemic events and other public health emergencies.

None of these senses or uses of GHS are exclusive, and they do and will continue to coexist in all areas of discussing this critical issue. In fact, as we see below, each of these components forms a part of a newly imagined 'health security cycle'. But a conceptual shift has no doubt occurred; one subtle but significant, changing the manner which global health actors might imagine their roles in, and capacity to act on behalf of, this particular global project.[22]

**Joint External Evaluations, National Action Plans, and 'Commitments to Action'**

This preoccupation with 'action' reappears in a variety of GHS contexts, and continues to be a lingering concern amongst experts and stakeholders. What does GHS 'action' look like; what does it mean to act in or for the interests of health security? A 2016 WHO-sponsored high-level meeting on GHS, the second in a series of 'post-Ebola' health security gatherings, focused its energies on this question. It was explicitly aimed at moving GHS from "Commitment to Action".[23] To use the WHO's language, all were united at the meeting in the 'spirit' of GHS: "to enable countries to prevent, detect and respond to any health emergency risk". But more was at stake than shared spirits:

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[21] See Harman (2016) for a critical appraisal arguing that Ebola revealed that "norms alone are not enough to deliver global health security" (15). Her essay exemplifies this shift in understanding GHS as something much more than simply normative or legal reform.

[22] This does not mean to suggest that GHS is extra-legal or irrelevant to the law, per say. In fact, many lawyers working in this area would argue the law is applicable to all aspects of global health security, including the packages outlined by the GHSA. Instead, the argument that the *law should apply itself to GHS problems* suggests a subtle, but important change in perspective: that GHS itself is not *legal in essence*. That is, GHS itself does not describe purely the legal processes and components of international regulatory reforms or enforcement.

[23] See WHO SEAR/PR/1628, available online at http://www.searo.who.int/mediacentre/releases/2016/1628/en/, accessed 18 July 2016.

the WHO used the event as a springboard to 'advance' Member State participation in GHS.

It is important to recognize here that 'advancing' GHS, in this context meant transforming the platform from purely legal or political obligations (i.e., being formally bound to the core capacity requirements under the revised IHRs) into measurable, tangible improvements to health system preparedness. The meeting's organizers—including members of the GHSA Steering Committee—pointed to 'actions' consisting in a broad catalogue of "technical, financing, and evaluation" contributions: financing country-level IHR compliance activities, the acceleration of technical programs and packages under the GHSA, and most importantly, the development and deployment of WHO's new Joint External Evaluation (JEE) tool. The JEE and its related processes are the most prominent and perhaps the most important elements to understanding what "action" looks like in GHS today.

Published in 2016, the Joint External Evaluations (JEE) tool emerged out of the WHO, a result of transitioning approaches to monitoring and evaluation under the revised International Health Regulations (IHR). The tool has been, and continues to be, the fulcrum by which one can measure the transformations in the GHS space since 2014. In the words of the WHO, the "Joint External Evaluation (JEE) is a voluntary collaborative process to assess a country's capacity under the [IHRs] to prevent, detect, and rapidly respond to public health threats whether occurring naturally or not".[24] In short, the JEE tool (and its associated process) are one major mechanism by which the 'global' community has responded to the 'shortfalls' in IHR 2005 compliance. The tool is a new technology to establish countries' accountability to global health security.

A bit of background is required to establish the tool's context. In 2011, the WHO's IHR Review Committee recommended the establishment of a mechanism to help countries monitor their adherence to the IHR's core capacities. This was a call further emphasized following Ebola in 2014. In the wake of that outbreak in 2015, and following the launch of the GHSA, the WHO Committee specified their demand to develop new

[24] https://extranet.who.int/sph/ihr-monitoring-evaluation

'approaches that combine self-evaluation, peer review and voluntary external evaluations involving combination of domestic and independent experts.' The result of this focus was the development of a new WHO IHR Monitoring and Evaluation Framework (IHRMEF). The JEEs form the most important component of that new framework for country assessment. It was no coincidence that prototype country readiness assessment tools had already been deployed by the Global Health Security Agenda architects and experts.[25] These GHSA country assessment prototypes were leveraged and integrated, eventually transforming into the WHO's JEE Tool.

Broken up into 19 indicator areas scored on a scale ranging from 1 ('no capacity') to 5 ('sustainable capacity'), the Tool scores countries' readiness to 'prevent, detect, and respond' to health emergencies across technical areas. This device forms the backbone of a two-phase 'external assessment' process. First, the participating country completes a self-assessment with the tool, scoring their own core capacities across the 19 IHR technical areas. This self-assessment is then used as a baseline for a week-long visit from a WHO-selected group of 'independent' subject matter experts – the external evaluation team. The evaluation team members "then visit the country for facilitated in-depth discussion of the self-reported data as well as [conduct] structured site visits and meetings organized by the host country" (World Health Organization 2016:2). Working with the country leaders, the external evaluators modify the self-assessment scores based on their visit and other data sources, and consolidate this into a finalized JEE report. The JEE reports are then published on the WHO's website following approval of the country offices—a 'transparent' form of country accountability to the global problem of insecurity.

A growing number of countries have agreed to conduct the voluntary, phased assessment that combines an internal review with an external evaluation of IHR capabilities, gaps, and challenges using WHO's Joint External Evaluation (JEE) tool. As a snapshot of current capacities and gaps, the JEEs were seen as one part of a 'health security' cycle for countries, which would leverage the final reports to produce costed-

[25] The next episode details further what this process of fusion between the GHSA and JEEs looked like in more detail, including our own later involvement in the JEE space at PATH.

financed and legislated “National Action Plans” to fill those gaps and improve their JEE scores. “In using the JEE to develop its plan of action,” the WHO writes, “the country is able to highlight gaps and needs for both current and prospective donors and partners in an effort to fill gaps with resources.”[26] This cycle of ‘assess-plan-act’ is illustrated best by the below graphic:

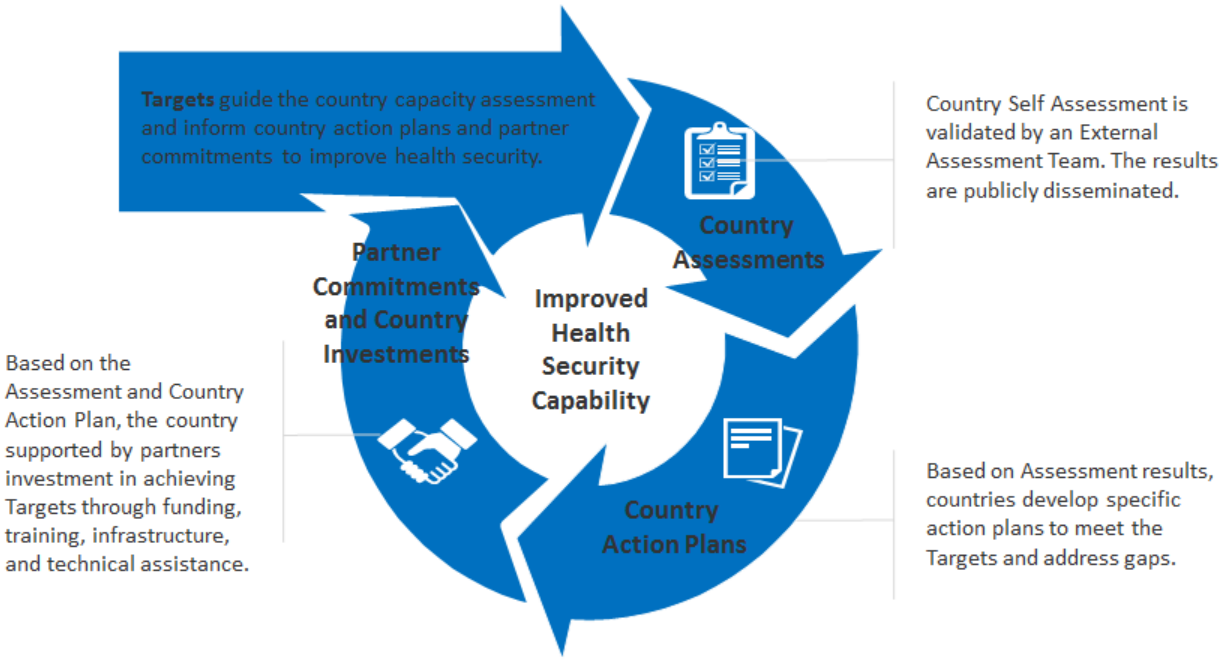


**Figure 1:** *Health security cycle using the new IHR Monitoring and Evaluation Framework, including the JEEs (“Country Assessments”). Adapted from the WHO and the Finnish Minister of Health, Paivi Sillanaukee via the JEE Alliance.*

From the start, it was apparent that simply *assessing* gaps wouldn’t be sufficient to *improve* health security. The assessment was designed as a ‘first step’ in the cycle, as a pathway to *action* that would be followed-up quickly with a country-owned, validated, and costed National Action Plan for Health Security. Simply getting countries interested and willing to conduct JEEs has taken over two years to gain momentum – it has been an even slower process getting countries to follow-up on those assessments and begin to develop the blueprints to take *action* on the findings of their JEEs. In short, seeing gaps is one thing – ‘filling them with resources’ is another. The problem is still one of *action*.

[26] https://extranet.who.int/sph/about-sph , accessed May 2, 2018.

For many in the GHS space, developing the JEE tool, the external evaluation protocol, and getting countries to 'voluntarily' agree to undertake a JEE was a "paradigm shift" in GHS. No doubt it has been a significant transition to move from country 'self-reports' of IHR compliance, to voluntary participation in external evaluations from 'independent' experts, writing and publishing publicly-available reports with these results. For our purposes here, the JEE works as *the* touchstone of what I'm calling GHS 2.0.

As interest and participation in the JEE process grows, continued efforts have been directed toward developing tools, platforms, and techniques that not only identify priorities for health security capacity building, but map (and *cost out*) the resources needed to reach these targets. As additional countries undergo external evaluation, it the JEE reports and recommendations are being used as the foundations for multisectoral *national* planning processes. It is clear that the JEEs are only one piece to a much larger effort to build out Member State IHR and health security core capacities. With the WHO's JEE Secretariat and the JEE Alliance, multiple organizations are assisting countries to develop the tools, standard operating procedures, platforms, and national-level policies to ensure that external country assessments facilitate and guide capacity building efforts. This cycle of evaluation and capacity building has been a fundamental part of the story of GHS 2.0, a space filled not only with WHO assessments of countries, but with emergent partnerships between governmental, non-governmental, and private sector organizations.

Supporting the WHO's leadership in the JEE and post-JEE processes, Finland's Ministry of Social Affairs and Health (STM) launched the JEE Alliance in May 2016. With expansive membership from WHO Member States as well as private and non-governmental organizations (OIE, FAO, World Bank), the Alliance facilitates collaboration to support the WHO-led country assessment processes and the ensuing work on capacity building among countries. In this supportive role, the Alliance helps to facilitate engagement and dialogues between countries, international organizations, donors and technical experts involved in the JEE assessment process, emerging as an important platform sustaining the rapid growth and interest from countries to participate

in and engage with the voluntary JEE process and its follow-up procedures. The Alliance, as we will see in the conclusion, have remained an active and prominent organizational body in the GHS space, meeting regularly and pushing the JEEs forward even during turbulent times through 2016 and 2017.

As important as the JEEs have been to GHS, "Version 2.0" is about much more than simply changing the parameters of assessment and country planning. It has been about deploying technical frameworks like the GHSA and turning them into operationalized programming and implementable projects. The United States Centers for Disease Control and Prevention (CDC), a leading technical coordinator under the United States' commitment to the GHSA, has been at the forefront of translating GHS from 'commitment to action'. During 2015, it was managing grants and contracts with over 36 implementation organizations in over 26 countries (including PATH). It still oversees a great number of GHS technical programs facilitating public health capacity building efforts under the Agenda. The CDC, along with USAID, has been at the forefront of the US push to transform GHS into an implemented technical program under the GHSA. Again, this has largely been done under the umbrella of the 11 Action Packages that organize its portfolios. Beginning in February 2016, the CDC began publishing GHSA "Action Stories" on its website, presenting short vignettes that "illustrate the day-to-day work being done by CDC and its country partners to implement the GHSA across the globe".[27] With stories emerging from Nigeria—showcasing a polio facility quickly repurposed to control its Ebola cases—and Vietnam—a new Emergency Operations Center using health data to respond to outbreaks – the CDC's GHSA Stories offer a snapshot into the curious mélange of infrastructures and technologies that represented 'global health security' in 2015 and 2016. Within these projects are

[27]http://www.cdc.gov/globalhealth/security/stories/default.htm, accessed 15 July 2016.

admixtures of various ongoing and novel programmatic efforts that have been reconfigured to control the urgencies of the present moment.[28-29]

* * *

As argued here, this elaboration of global health security as something more than purely a normative, legal "commitment" has put into question the basic parameters for thinking about, and *acting* upon the concept. Even before (or if) GHS "commitments" actually turn into measurable or quantifiable GHS "actions"—even if GHS programs are simply repackaged development or capacity-building projects—something significant has happened to the way that health-security problems are posed at a global level. The demands made for accelerated implementation, resource mobilization, and tangible outputs have produced changes to the conceptual frameworks for thinking about the intersections of risk, disease, vulnerability, and the global responsibilities to these categories. One consequence of these changes has been a recalibration of how the 'global' ought to be thought or legislated, as GHS debates once again re-situate who will be responsible for global disease issues, as well as what kinds of interventions, practices, and possibilities they demand from individual countries.

**Rethinking the 'Global' in GHS**

By changing the parameters of what constitutes and how one thinks about global health security, another shift has consequently taken place – a shift in how to act on behalf of the 'global' and the 'national' which these projects aim to at once protect and police. Thus, in addition to asking how these diverse technical and political initiatives are changing the principles of disease management and control, it should also be asked how the GHS constitutes the 'global' not only as a domain of public health protection, intervention, or governance, but also as a project-space—one that requires not only

[28] One might also wonder whether telling stories about global health security itself constitutes a form of 'action'. Certainly advocacy, here in the form of narrative publicity, has become a critical component in the work of a number of health security stakeholders. More on this in later sections.
[29] For the Nigerian polio facility repurposed during Ebola, please see http://www.cdc.gov/globalhealth/security/stories/nigeria-prepared-for-outbreaks.html; Vaz et al. 2016; and Shuaib et al. 2015.

"commitments" at a formal level, but concrete and coordinated forms of management and technical programming.

Organizations both governmental and non-governmental speak about the concept in many senses, yet woven into these visions is a new understanding of the 'global' in global health—as a distinct sphere to be protected by the collective work of GHS stakeholders acting in 'globalized concert'. As noted above, plenty of scholarship and commentary has focused on unpacking and critically examining 'health' and 'security' in GHS, but very few pieces have taken a close look at what kind of 'global' this concept invokes.[30] It has been long understood by both anthropologists and geographers that the 'global' can be analyzed not only as a pre-determined spatial or scalar domain, but additionally as a mode and method of knowledge production (see (Tsing 2000, 2005; Ong and Collier 2005; Inda and Rosaldo 2002). Taking this perspective of the 'global' as a concept, it becomes clear that analyzing the commitments and contestations surrounding it will be particularly helpful in "understanding projects imagining and making globality" (Tsing 2000:329).

Global health security has been and is still one of the preeminent sites to witness and document the processes and debates that reshape the possibilities for thinking and acting globally. Biological threats have posed a unique challenge to ideas of governance at least since the problem of 'emerging infectious diseases' took off in the 1990s (King 2002). Since at least this period, arguments have suggested that there is a "need to move beyond traditional national and international strategies and to globalize governance…[by developing] strategies tailored to the globalized nature of biosecurity threats" (Fidler and Gostin 2008:220–221). 'Global' threats; 'global' responses.

Such pressure to respond 'globally' to the 'global' has only increased after Ebola and its attendant fallout. A recently commissioned assessment of the WHO's response efforts during the Ebola crisis stressed the importance of such a 'new governance

[30] For an early discussion of these issues, see Kelley (2003), pp. 185-191. Kelley's analysis of 'globalization and health' positions the 'international' as simply anything that looks at "crossborder" issues between national domains. The 'global', conversely, is strictly reserved for "deterritorialized" issues that transcend or undermine the nation state. These are "transborder" issues, where "there is an erosion of…control [of] transborder flows that undermine, or even disregard territorial space" (and by extension, 'national governmental control') (2003:191). As we will see repeatedly, global health security is still preeminently a "global" problem, but one that does not easily fit into these definitions.

world', one that imparts new collective responsibilities — articulated under a novel concept of "shared sovereignty" (World Health Organization 2015:10). The report notes that while "health is considered the sovereign responsibility of countries, the means to fulfill this responsibility are increasingly global" (*ibid.*). As the editors of the Lancet likewise commented in a special issue devoted to the topic of GHS, "to reach a fuller and richer understanding of health security, governments [and others]…might also argue that each of us has an affiliation to the larger world we inhabit—a global identity that demands global solutions through cooperation between nations" (Horton and Das 2015:1806). Across these discussions, there is an obvious and tight coupling between health-security and the 'global'—presented as both a challenge to governance and the means for finding ways to presumed betterment.

It is clear that what is meant by 'global' in these contexts is fundamentally different than the 'global' imagined in the late 1990s and early 2000s when public health was first 'globalizing', and before 'global health' as a domain had fully emerged (see Fidler 1997; Weisz, Cambrosio, and Cointet 2017). Rather than simply marking a 'world-encompassing' or 'trans-boundary' space, the 'global' here appears both as a form of political identification (i.e., a "global identity") and as a domain of responsible state action (i.e., a "means to fulfill responsibilities" through "global solutions"). Further, where the WHO was once seen as a summative institution to coordinate, manage, and oversee 'global health security' through its process of revising the IHRs, today's GHS debates upset this dynamic. GHS has instead become a domain of global health action that is preeminently 'multisectoral'—involving multilateral, bilateral, national, non-governmental, and private sector 'players'—in terms of its scope, design, and responsibility. This was an explicit focus of the Global Health Security Agenda from its inception, which included a specific arm for NGO and civil society engagement under the US Department of State.[31] This commitment demonstrates a recognition from GHS architects that non-state actors should no longer be auxiliary actors in composing

[31] The GHSA Consortium, or GHSAC, was the body formed by the State Department, and is still active today as a major platform for non-governmental GHSA engagement. It was an important site in my field research, providing a bridge from my First Desk to the Second in the field. See: http://www.ghsacngs.org/

GHS—mere 'sources of information' for the WHO, for instance—but instead were explicitly positioned and assumed to be its principal stewards and executors.[32]

The discussion above, regarding the JEEs and their related National Action Plans, illustrates how the global and the national are implicitly related in health security spaces. In this arrangement, it is through the aggregation of *country* capacities that health security is understood or assessed, and only in the aggregation of '*National* Action Plans' that *global* health security can be an actionable problem. This nested relationship between the "National" and the "Global" in GHS is critical, and reappears throughout the rest of this text as a preoccupation, as a site of protracted meditation. In this way, GHS—and by extension, the GHSA—are not only a key sites to examine the debates and problematics introduced into the world of public health governance and policy, but a critical arena to examine the emergence of a specific understanding of the 'global' as an epistemic, infrastructural, and ethical challenge. GHS is a problem that exceeds the capacities of any individual, sovereign nation-state to address or manage, but it is a problem nevertheless reliant on *national actions* coordinated by *global organizational bodies and tools*.

This arrangement also helps us make sense of the historical arc we've outlined here. GHS 1.0 was almost exclusively about modifying the obligations of States between one another– through the IHR revisions and inter-ministerial platforms like the GHS Initiative. GHS 2.0 is decidedly *irreducible* to the nation-state, even if it directly and consistently implicates it in its vision of a safer world. Today's GHS is different precisely in that, to paraphrase the human rights scholar Samuel Moyn (2010), it introduces the "global" space as both a site and an instrument of intervention or reform, as a place of collective state/non-state action and problematization (see p. 39). This is why this text is not about '*international health security*'. The question of the "global" and its regular reappearance throughout the rest of the episodes should help to illustrate just how

[32] For more explicit language on the various roles and responsibilities of civil society, the private sector, and national governments in the spaces of health security, see Bollyky and Davis (2016), *Back to the Future of Global Health Security*. https://www.cfr.org/expert-brief/back-future-global-health-security Note that co-author Steve Davis is still, at the time of publishing, the CEO of PATH.

complex these understandings and challenges are and can be. But there are few better domains to examine them than through GHS, the GHSA, and the JEEs.

* * *

As Davies et al. (2015) argue, the legitimacy of the new norms and responsibilities imposed on states through the IHRs and GHS are, for the most part, no longer critically debated. Rather, state responsibilities have become primarily about developing the "material capacity to carry out the actions required of them, through having the surveillance, detection, and communication structures that are essential to fulfilling their obligations" (9). We have seen already that the question of addressing and overcoming "material challenges to compliance" has been central to the discussions happening as the GHSA has progressed, the JEEs are rolled out, National Action Plans are developed, and recovery efforts in Ebola-stricken countries continue. Precariously surviving a recent series of political transitions (see Episode Three), the GHSA has continued to enroll new stakeholders and projects into its orbit. But even aside from the expansion of GHSA engagement, one can see a "proliferation of global health security organizations, new instruments of foreign policy" alongside various "flexible partnerships" of private and public institutions (Calain and Sa'Da 2015:2). Although there are vastly different conversations happening at each of these junctures, the problem of 'global action' currently runs through each of them.

Thinking through the lens of global health security at this critical moment, it is important to ask how, and by what means, the 'global must be defended'—and what kinds of responsibilities, possibilities, and challenges are inspired by this particular vision of the 'globe' at the heart of global health security today.

**A "Jigsaw Puzzle" of Health Security Frameworks**

The persistence and endurance of GHS as an orienting device for public health attention has thus transformed this concept from a very specific legal-normative project within the WHO into an 'amorphous' collection of interests, projects, and visions for how best to prepare a world threatened by public health emergencies. While many lament this lack of singular definition, suggesting the concept finds "widespread but inconsistent

use" (Aldis 2008:370), for others, this interpretive flexibility has been a central reason for its longevity and expansion across private, public, and non-profit sectors.[33] In this way, GHS works as what sociologist of science Susan Leigh Star (Star and Griesemer 1989; Star 2010) once called 'boundary objects'—"arrangements that allow different groups to work together without consensus" (2010:602). Most importantly, 'boundary objects' provide various expert communities both interpretive flexibility and a common language of deliberation, giving rise to ideas like 'shared sovereignty', novel forms of 'globalism', and an elaborate manner of rethinking health security 'actions'. Whether expounding criticism for the imprecision of the concept, or celebrating its ability to solicit contributions from sectors normally left outside the negotiating table, many recognize 'global health security' as something to work "toward and with", to again use Star's words (*ibid.*). All this is to say that GHS clearly does not hover untethered to the world, an abstract concept debated in the airless halls of the WHO or the UN and inconsequential to the rest of those working in global health. As the concept continues to expand with a focus on tangible deliverables and outcomes, it remains to be seen exactly what GHS might do to the world it has been so intent on preparing and protecting.

Throughout my research, this has been a constantly evolving space of engagement between organizations, governments, and individuals in global health security. Such a heterogeneous space resists being rendered into a coherent, consistent collection of actors. That is why I have opted against providing the reader with an inventory of moving parts here – the list will be outdated and inaccurate before you finish reading this. Health-security as a nexus still invites an uneasy, tenuous convergence of experts, often working perpendicular to one another. Organizations and actors lose interest, while others remain uninterested in the idea, worrying about the connotations or consequences of 'security' remaining part of a global health project. And, of course for those who do take up the issue, the puzzle pieces multiply briskly. The WHO has been actively and rapidly reforming its mandate and organizational

[33] See also: Colin McInnes' (2015) "The Many Meanings of Health Security" and my own blog post for Health Security Partners about the polysemy of GHS: http://healthsecuritypartners.org/faces-global-health-security/

structure under its new Director-General, and as a response to criticisms leveled at it for its lackluster response to the Ebola crisis. The UN has produced a number of framework documents aimed at addressing global vulnerabilities to disasters, including biological threats (e.g. the Sendai Framework for Disaster Risk Reduction 2015-2030). The World Bank not long ago launched its Pandemic Emergency Financing Facility, and continues to push pandemic preparedness as a major priority of work. The U.S. National Academy of Medicine put together its "Global Health Risk Framework for the Future", an initiative providing recommendations for revising the architecture of global health in the wake of Ebola. The Coalition for Epidemic Preparedness Innovation (CEPI) has launched to accelerate basic research and development for vaccines for priority diseases. The Nuclear Threat Initiative and other civil society and non-governmental organizations are working to renew a "GHSA 2.0" beyond 2019, including developing a new 'GHS Index'.[34] The list multiplies; these represent just a few of many political initiatives—national, bilaterial, and multilaterial—that address biological risks as the target of global health policy and programming.

Once again, to look for a larger 'global health security' picture emerging from all of these puzzle pieces seems not only Sisyphean, but misguided. More important is the task of depicting a changing GHS topography; a new terrain of problems, challenges, and proposed solutions that change the way we think about the world and global public health's role in its safeguarding. It is for this reason that focus should remain not only on the emergent diseases and on the threats they pose, but on emergent institutions, partnerships, projects, policies, and potentials that make up the changing landscape of global health security today.

In order to do that, we need to 'land' – to plant our feet down in a field, and start looking at how some of those partnerships, policies, and projects get crafted. How actual GHS work gets done and undone, negotiated and renegotiated. This has been

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[34] For the Sendai Framework, see: http://www.who.int/hac/techguidance/preparedness/sendai_2015/en/; For the World Bank's Pandemic Emergency Financing Facility, see: http://www.worldbank.org/en/topic/pandemics/brief/pandemic-emergency-facility-frequently-asked-questions; For the Global Health Risk Framework for the Future, see: http://www.nap.edu/21891. For NTI's GHS Index, see http://www.nti.org/newsroom/news/nti-initiates-global-health-security-index-project-generous-funding-open-philanthropy-project-and-robertson-foundation/

the preamble – a *mise-en-scène* and a cast of important ideas and players. The remainder of the episodes cascade from here, taking us from this ‘First Desk’ analysis to one conducted at the ‘Second Desk’ with the PATH Global Health Security Partnership.

From there, a different understanding and a different possibility of retelling emerges.

## 2— Technical Daydreaming

### Bureaucratic Souvenirs

A writer compiling a biography on Bill Gates had come to the PATH offices to interview our GHS team leader, Dr. Linda Venczel, about her time at the Bill and Melinda Gates Foundation. Years ago, during her tenure at the Foundation, she had been a pivotal Senior Program Officer that had grounded Bill Gates' strategic commitment to eradicate polio. She had helped ensure that eradication became not only as a key priority for the Foundation, but Bill's personal mission. I suppose until that moment, I hadn't really understood quite *how* pivotal she had been for that effort.

"Help me find this report before the writer leaves the building!" she urged me in a now-familiar frenzy, shuffling through the molehills of paper on her desk. Before I could ask what exactly I was looking for, she had already found it: a small stack of stapled paper. It was too late for the biographer, who had vanished–he would have to see it another time. Like a sudden storm dissipated, quiet returned as we sat down to leaf through the report. A familiar rhythm of the office resumed as she casually checked her emails, explaining that this was the original proposal she wrote to pitch polio eradication to Bill Gates and his executive team, in 2008, at the Foundation.

"I had five days to put this together; just me and someone to help me with the budget," she explained with half of her attention turned toward the trickle of her inbox. "Imagine how nervous I was - to present a proposal to spend over $750 million to Bill Gates on an issue he hadn't yet committed to."

The report occupied a strange place in a desk full of otherwise timely bureaucratic papers; it rang of *historicity.* Unlike the other stacks of documents - all with content directly in relation to pending action items or follow-ups, this was a document whose primary purpose was to testify to a recent past. And it was not a *copy* of the original report - not a print-out made for the biographer's visit — "this is the original copy!" she exclaimed with a touch of affection, drawing my attention to nearly a decade of coffee stains and food smudges. A bureaucratic souvenir. I rifled through it, noting the futures passed, tinged with optimism: timelines with polio's eradication poised for Q4

2012 – assumed as almost a certainty with such a high level of investment.

The document held an aura of aspirational thinking; a way to not only *document* the possible, but to *create and articulate the conditions for* a changed world. The report held such a 'world' as a possible space of operation, as a space of action; and articulated the elements needed to achieve that which otherwise existed only in an imaginary. It was, in the words of Rees (2014), a document that brought the "fantastic and the feasible" into dialogue with one another—the imaginative ('fantastic') and the bureaucratic ('feasible') both housed within this minor textual artifact (see Riles 2006). It was a genre-piece, conforming neatly to the existent structures within the Foundation and citing a perceived 'global landscape' of actors (i.e., funding agencies like GAVI, WHO, CDC, etc.). But it was equally a radical document, breaking with convention through its proposal of a new 'global' possibility: a world recast without the menace of polio. A world recast through the necessary alliances, networks, and actions that would recompose it. In other words, the document provided the means by which Linda could construct and propose a world that did not yet exist, and the techniques that would be required in order to make it so.

It was an instruction manual for building the dream of a different world.

* * *

Linda's document was an artifact for a practice that I came to know well over the course of my time at PATH – what I like to think of as "technical daydreaming". Turning one's ideas of new projects into tangible possibilities means entangling the practical with the conceptual, ordering an imaginary, oscillating between planning and playing. It is a way of projecting one's expertise across a terrain of the known, the unknown, and the possible. It is a staple genre in any development or non-profit circles; relying on strategic or project proposals, grant shaping efforts, and the endless proliferation of "concept notes". As the next section reveals, through my own absorption into these technical genres and writing processes, I came to realize that often (but not always), these documents - concept notes; proposals; white papers - were avenues for such technical daydreams. They were a place to translate concepts from aspirational imaginaries to organizational opportunities (or, if done exceptionally well, institutional

*urgencies*). I also came to learn that, just as important as what one wrote in these concept notes was whom one shared the notes with, and *when*. And that in some cases, these daydreams could prove quite tenuous, even dangerous.

Turning back to my own workstation, I dropped the report back on her desk. "Well, I hope one day I will have a similar story to tell about global health security."

**Project, Interrupted**

The encounter with this report, an otherwise minor event during an unremarkable day in the office, actually provided me with a minor epiphany. Not because of what the report contained—this will not be a new history of polio eradication efforts—but because of what it told me about how to approach and understand the linkages between conceptual and technical work. Let me elaborate.

During the first stages of my research, there were only irregular openings for me to inject my pre-fabricated 'anthropological' curiosities into conversations. It came across as a forced exercise, with an unanticipated awkwardness. Nevertheless, whenever pressed at the table --either dinner or conference, as occasionally I was -- I felt obliged to ask the dusty questions that I had first brought into the field, from what I have been calling the “First Desk”: what is the nature of this “global”? Or of this “security”? How does 'humanity' appear in this work? Or the ‘State’?

These types of questions had been the grounds for vigorous, extended discussions and debates between my academic colleagues and me as the research had initially taken shape. But here in the field, they were suddenly met with silent bafflement. Like a pot at a rolling boil suddenly gone cold - driving concerns reached out into a void. Abstract ideas, or concepts, didn't have easy trails to find, nevertheless to follow. Traces were as vague as history was foggy.

How could one develop an ‘epistemic partnership’ under these conditions? What was there to say 'in general' about *the “State”*? Or of “*Security”*? Or of the “*Global”*? I felt at an impasse.

As I came to understand over time, I had been assuming a particular kind of relationship between conceptual connections and practical ones. After arriving at the

PATH offices, and handing out an early draft of the previous chapter to a number of experts there, I recognized that conceptual histories felt like 'just-so' stories. Through dead-ended dialogues, I found more and more that the only knowable way to explore general ideas was through reference to the people and projects that composed them.

In other words, I began to recognize that sitting behind all the conceptual dynamism and movement in global health security, were experts who worked on the questions that animated (and, more often, funded) them. And attached inextricably, both to these concepts and the people working on them, were *projects*. Some of them complete, some half-baked; some nascent; some forgotten. There was something about *projects* that seemed to cut through the Gordian Knot I had been trying to unravel at the linkage between concepts, general ideas, and practices.

Somewhat ironically, then, early dialogues in the field positioned me as anthropologist pushing back against answers composed primarily of *people*, not *ideas*. I had a hammer - *CONCEPTS!* - with no nails – *CONCEPTUAL LABOR!*- in sight. All I heard were minor parables and anecdotes—so-and-so thought such-and-such about environmental surveillance for polio eradication efforts. So-and-so did such-and-such to convene a committee on private sector contributions to global health security. So-and-so were working on a new index to measure national preparedness. So-and-so thought surveillance really meant such-and-such.

What would I do with a bunch of lines drawn mainly of people and their relations, especially when I wasn't interested in turning this into an embellished global health gossip column? How would looking at relationships help me describe the mutations, distributions, histories, and extensions of *ideas*?

It took me awhile to realize that these answers weren't diversions, but rather, ways of articulating the hold of ideas through the people who composed them. Even further, I began to see these ties between people and ideas as connected through a series of modern bureaucratic or technical practices that in turn made concepts both visible and palpable. This was a field full of technical daydreams. That silent gulf between my original research questions and concerns – and the minor anecdotes that I was hearing that seemed to occlude or elide them – was actually bridged by the

practices at the headquarters office of PATH, where I was settling into my routines. Nothing in the abstract; this was the reign of the concrete - the *actual*. Even if it was an 'actual' that was made up of fairly 'intangible' bureaucratic forms—be they concept notes, white papers, reports, meeting minutes, or informal emails (and, as we will see later, measures and metrics). Sticky notes and envelopes. A global architecture (e.g., one like the GHS Agenda) was imaginable only so much as it was manifested in recognizable bureaucratic forms. Running with the 'infrastructure' metaphor, we could say these were the pipes, nodes, or switchboards for a distributed space of expertise.

Of course, this notion seemed rather banal at the heart of it - as if I had simply circled back to a basic Latourian assumption about networks, or the "social life of things" (Appadurai 1988; Latour 2005). Would I have to return to the academy and say that everything was truly deep down, reducible to *people*—or, worse yet, *social relations* (that old anthropological sleight of hand)—or even worse, *networks* (that old sociological sleight of hand)? Or that ideas only existed inasmuch as they were materialized in everyday practices and forms of the mundane? Was it truly the tyranny of the 'Network' that I would have to write about?

Perhaps there was another way to describe the importance of this, as something like a unique form of relational knowledge production. How was it that people could compose projects and practices, make the 'imagined' actionable or accessible, or give ideas the ability to move and be moved? I began to consider that maybe it would be worth taking a closer look at the basic building blocks of that relational scaffolding, as a unique ensemble of managerial and technical practices.

More than simply arguing that 'truly' everything is *reducible* to something like 'social relations', I instead began to listen differently to the specific importance of alliances, of networks, of relationality. These relational networks, and the practices that sustained them, were ultimately what occupied most of our days in the office. Almost all of our team's work on 'global health security' as an idea was enabled (and equally impeded or disabled) through an ensemble of relational practices that were very deliberately managed and negotiated.

To make one's work resonate, be palpable, one had to not only administrate it

properly, but cultivate a kind of relational sensibility, a distinct mode of thinking through both the possible and the concrete, and how to build a bridge between the two. Once I understood this, I began to see the shape of new concepts and possibilities that would (occasionally) emerge out of this organizational praxis made up of meeting invites, teleconferences, email threads, ccs (and careful Bccs), Powerpoint slide decks, and office visits. Recognizing the subtle shades between alliances and associations, coalitions and partnerships, I also began to realize that relational organizational practices were really at the heart of re-imagining 'global health security' as an actionable project or program.

### Falling Into A Gulch Between Experts

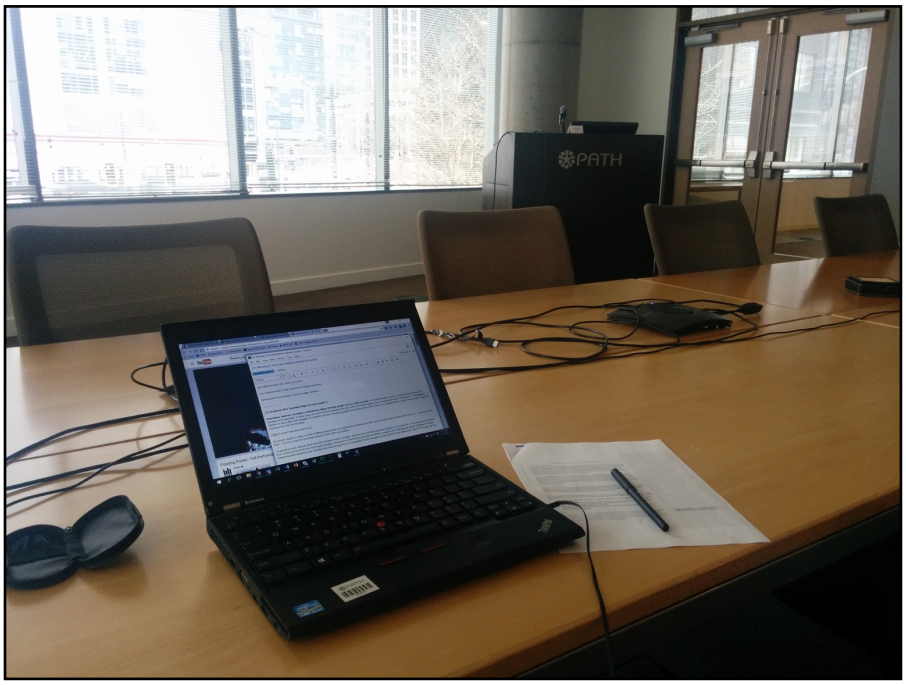


**Figure 2**: *Technical Daydreaming – alone in a meeting room with a volatile concept note.*

I don't mean to portray technical daydreaming as a care- or risk-free exercise. Sometimes, the relational exercise of knowing or articulating things through people was quite precarious. As I quickly learned, careful consideration was necessary to manage one's relational knowledge. It was not only a manner of distant rumination over epistemic categories or concepts - relational knowledge was the means by which one

had to establish and extend one's expertise; to situate and exercise one's place in a network of experts.

This delicate balancing act was not just about showboating or grandstanding. As part of my steep learning curve of working in spaces of technical expertise, it became apparent that the source(s) of one's knowledge were often safer when they remained veiled as part of anonymous flows of information—attributable to systems or trends rather than any discrete 'struggles' or sites. Nowhere did this precarity become clearer than when Linda and I suddenly fell into a gulch between experts working at the CDC and the WHO.

As noted in the previous episode, my fieldwork with PATH's GHS team began right before the Joint External Evaluation (JEE) process and tool was rolling out, in early 2016. The JEEs – a new instrument and country evaluation process intended to strengthen countries' adherence and commitments to the IHR requirements – were quickly gaining steam, becoming buzzworthy. GHS experts were seeing the Tool's publication and voluntary participation from countries in the assessment process as a major victory. The clamor to undergo a JEE assessment was seen as a tangible achievement for GHS, and even further as major new momentum for establishing IHR compliance. That said, in the year following the publication of the Tool— even after all the technical components had been battened up—the JEE's managerial, operational, and administrative components were slapdash and haphazard. There were no clear means by which the WHO was enrolling its teams of 'external evaluators' to visit the countries; the final JEE reports were posted irregularly and often not even on the WHO's own website; potential evaluators were given little notice to participate in country evaluations; it was not made clear whether the experts would be funded by the WHO; and no analysis was being done on the reports themselves. With only a small cadre of staff at the WHO working as the JEE Secretariat supporting this 'global' initiative, there was plenty of room to improve on the management of this immense undertaking—a major effort to 'transparently assess' and 'publicly' evaluate an increasing number of interested WHO Member States.

Linda saw these operational and analytic shortcomings as openings for

assistance, and was eager to help the managers of the JEE in developing a variety of supportive mechanisms. Linda's prior experience as an architect of the Independent Monitoring Board for the Global Polio Eradication Initiative (GPEI) gave her a strong template from which to work - and provided her a clarity and certainty in her vision of needs: independent accountability and transparency, a body of experts that would sit in 'truly' neutral space to monitor, direct, analyze, and account for this new 'global' process of monitoring and accounting.[1] We needed assessors of the assessments; Watchers of the Watchmen.

Seeing the reports offered by the Independent Monitoring Board for the GPEI, I was sold on her idea.[2] Working together, we began to draft a general unsolicited proposal to offer some tentative solutions to the emerging challenges seen with the JEE process. We refined the terms of our proposal deliberately and delicately - scheduling progressive and frequent check-ins with high-level stakeholders we felt were central players in this global assessment landscape. In this process, I witnessed both the building and unraveling professional and expert networks. We worked to 'enroll' new partners and tried to strategically understand how to connect old ones. A deliberate plan of relational engagement was thus built-up.

As we did this, our ideas took on new shape – and out of these relational building blocks, we began to see the expert scaffolding that composed this particular corner of GHS. Our sequencing of 'enrollment', as we were told early on by a collaborating colleague, would have to be done with utmost sensitivity, so as not to upset the fragile expert alliances that had already sprung up around the JEEs and the lamplighters of the GHSA from the US Government. If we wanted to join and play in the sandbox of global health system assessment and stewardship, we would have to be sure not to knock down any sandcastles that had already been built by others.

In each and every call, Linda made this a deliberate point of attention. "We don't want to step on anyone's toes," she reaffirmed to interlocutors during each

[1] For more on the GPEI, including an overview of its mandate and why it was formed, please see Rutter and Donaldson (2014): https://academic.oup.com/jid/article/210/suppl_1/S16/2194384
[2] For a list of recent reports, please see: http://polioeradication.org/tools-and-library/policy-reports/imb-resources/reports/

teleconference. In some cases, it was met with a resonant agreement - in other cases, one could feel a palpable teeter-totter of tension. The questioning was always relatively simple at the core: what would be needed to ensure that these assessments get completed accurately, on time, and are made 'meaningful' to the global community of health security stakeholders? How could the data that they produced be consistent in quality? How could the reports be analyzed, how could the JEEs be made *useful* to stakeholders both in-country and in the GHS space?

The calls were at once very familiar to me in their pairing of ethnographic probing (who does what? why? to what end?); and also quite foreign in the delicate linking of the descriptive to the normative (what needs to be done? how can we achieve this outcome? what next steps need to be taken to achieve desirable outcomes?). It was in this ever-mutating linkage between the *is* and *ought* that a project like this could be built, based on both 'use', 'need', and demand. Thus, the technical daydreaming was not just about abstractly generating new ideas, but surveying a landscape and building a scaffolding – a *plan* – on how one would change that landscape using those new ideas.

In likewise familiar ethnographic fashion, after each call - as if we had gone to "the field" - I would update our Concept Note with both background material, and proposed activities. It was the section labeled "Background" that had become the space to unfold our findings, to reveal our deliberations and discussions. The background had become the foreground.

And it was this inversion that would eventually unravel our entire effort.

* * *

It would take a few months for us to realize that we were barking up the wrong tree. And, not much to anyone's surprise, that there were too many others barking simultaneously.

The very rationale behind the need for independent assessment and coordination — too many actors, too much attention, too little organization —was also why, at this point, the prospect was doomed to fail. This was precisely the reason the proposal could not turn the possible into the actual. But the inversion of background and foreground work mentioned above was perhaps the less obvious gut-shot to the

concept; it had tried to open up a blackbox where much work had already been done to seal and stabilize it.

As noted before, the JEEs had been crafted with the help of many of the architects and experts who were instrumental in the formation of the GHS Agenda. Recall that the JEEs were ostensibly a WHO (and thus, multilateral) tool – the GHSA, although multilateral, was at that time largely US operated and owned. In order to 'harmonize' existing GHS instruments and tools, there had been a very delicate fusion of the technical framework of the GHSA and the JEEs. Only through a careful mix of technical and bureaucratic negotiation had the JEEs been able to absorb pieces of the GHSA's technical structure. US Government officials were directly assisting the WHO with this technical fusion, with experts seconded to WHO's Geneva headquarters to ensure smooth overlaps. One can still see the jagged edges of this process in the technical details—artifacts of forcing GHSA Action Packages to align with IHR Core Competencies that divide up the JEE Tool.[3] Sometimes these were only visible to detail-obsessed pendants like myself. But in any case, these bureaucratic ellipses attested to a very deliberate—if fairly obscured labor—that went into fusing the two technical platforms of the JEEs and the GHSA.

[3] For instance, GHSA Action Package 1 is actually equivalent with IHR Core Competency 3, which often caused misalignments in documents mentioned in later sections, like the GHSA Standardized Milestone Library.

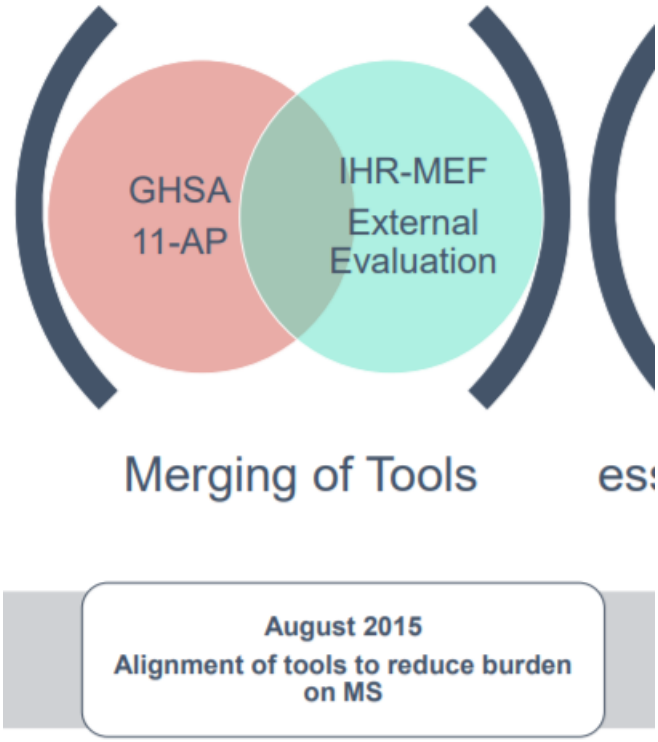


**Figure 3:** *From a report on the JEEs and IHR - the "merging of tools" as a blackboxing that we threatened to undo by inverting 'background' and 'foreground' work. Note, "MS" refers to "WHO Member States".*[4]

The development and elaboration of the JEE, in other words, came about through what was obviously a very precarious collaboration between offices in the US Government - a small team at the Office of Global Affairs in HHS, another team at the CDC, and a third small team working directly from the WHO on the redesigned IHR Monitoring and Evaluation Framework. The publication and deployment of the JEE as a tool was an achievement not (only) for the reasons repeated at multiple conferences and meetings—the advancement of health security measures and targets; a "paradigm shift" toward nation-state accountability and transparency—but as a monument of a successful technical collaboration between communities of experts in the health security domain.[5] The architects of this 'global' effort had temporarily stabilized their ideas into what remained as a living technical artifact, and a 'global' procedure of country

[4] From a WHO slideshow presentation looking at the GHSA and JEEs through 2016. Available online as an archived version at http://docplayer.net/48122066-Progress-update-who-on-jee-and-country-planning.html as of May 3, 2018.
[5] See e.g., https://www.cdc.gov/globalhealth/healthprotection/fieldupdates/winter-2017/joint-external-evaluation.html

evaluation.

Our concept note directly threatened this fragile stabilization by re-opening up all that background work and placing it directly into the foreground again (Kennedy 2016:8). My ‘background’ section in our concept note had detailed the actors and the processes involved in the “transition period to the WHO”, whereby a motley crew of technical actors from multiple agencies nurtured the JEE tool and its processes to maturity before handing it over to sustained WHO stewardship. In writing about this “transition period” as an explicit and deliberate effort, an effort that had been designed beyond the walls of the WHO, we had displaced the WHO as a central owner and curator of the JEE Tool and its related processes. Given the fragile image the WHO was attempting to maintain (and regain) following the 2014 Ebola fiasco, this was a markedly disruptive effort that pulled back the curtain on a struggling and disorganized institution that was ostensibly the “central coordinator” of global health efforts.

“Your [background section] reads like a description of the situation about one year ago,” a senior official at the WHO commented to us during a teleconference. He had read our concept note, and while explicitly remaining open to our supportive propositions, he stressed the need to refashion the narrative we had pieced together. “It is not what the situation is like now, with the WHO fully owning the process of the JEEs”. Too much movement to track; either we had misunderstood the story told by nearly a dozen before us, or it was simply more convenient to assume the WHO was in control, and the ‘landscape of needs' had ever-so-subtly shifted. Unfortunately for us, the ‘misunderstanding' had incidentally (but not intentionally) portrayed the WHO as an unprepared, if not incapable, institution to assume stewardship over the JEE process. The biggest mistake, however, had been to reference specific actors, experts, and offices that we had ‘passed through’ in order to piece together our story. In other words, we had left a trail of how our knowledge of the expert landscape had been relationally built, a map of our associative path through connected spaces of expertise.

* * *

We never received direct ire from this, but it was clear that this was the knife in the heart of our early efforts at forward momentum with the proposal. We felt the

murmurs from the CDC—suddenly some extra “room in the budget” for our team to work on the JEEs closed up and disappeared. Word was, we had ruffled some feathers, and this was relayed to the experts at the CDC whom we had referenced in our document. In short, we had perpetrated a form of *citational violence*.

It was clear that our narrative had blown dust where dust had only just settled—and that this came primarily from an inversion of background with foreground work, revealing associations that should have remained hidden. With our ‘outside-in’ position situated through a delicate balancing act, we operated in the "shadow of a rough consensus” that had emerged from a historical terrain of prior and ongoing struggle. We found our potential ideas defined, managed, and constrained by experts embedded in various institutional sites interpreting our mandates and ideas through the terms established by the resolution of prior arguments and deliberations.[6] By exposing the contours of this shadow, and who had cast it, we had brought their fragile stabilizations back into jeopardy.

That, and our proposed work perhaps just wasn’t the right sort, at the right time. Articulated needs were brought forth with too much latency to be relevant, and our voice was eventually drowned out by a cacophony of other actors, clamoring after the new “shiny toy” of the JEEs. The artifacts of fusion between the technical domains of the JEEs and the GHSA were not only monuments to the fragile terms of expert negotiation that had occurred back in 2015, but also a conduit to expanding control over major cornerstones of the emerging GHS space. Those who are able to consolidate otherwise disparate priorities and technical tools ultimately controlled the proliferation of health security instruments across technical offices, operators, and projects. Controlling – or attempting to control – how and where tools and frameworks flow formed an extended component of successful ‘technical daydreaming’.

* * *

In the end, the proposal withered, but Linda found her place within the world of Joint External Evaluations. She was eventually invited to assist as an external evaluator

[6] To paraphrase David Kennedy (2016), in *World of Struggle* (pp. 44).

for the JEE in the Democratic Republic of Congo in 2017. By then, the JEE process had expanded its reach and stabilized its stewardship within the WHO. But as we will see in later episodes and in the conclusion, where the JEEs were seen as one of the major accomplishments of the new era of GHS, they were also turning into a "first step" toward something much larger—developing meaningful actions toward filling 'gaps' in country capacities to prevent, detect, and respond. New technical daydreams were emerging that would position the JEEs and the WHO's IHR Monitoring and Evaluation Framework as a tools that informed only part of a much bigger cycle, a 'global health imperative' to prepare for the generic biological threat.

There was never a single moment when we realized that our daydream would remain just that; it just slipped lower and lower on meeting agendas and project updates. In the meantime, there was a slow trickle of JEE happenings elsewhere—images on Twitter of other people at other tables, white papers and discussions we had not been a part of, background chatter on which we hadn't been updated. In the end, the idiom of 'failure' doesn't sound quite right – it might have been productive enough for us to articulate the needs and dream up some potentials that would address those needs. Even if they didn't directly result in tangible programming, the daydreams ended up as an exercise in brainstorming new possibilities for politics, policies, and pragmatics—a reimagination of how one could work in the global health security space. As the saying goes, even failed experiments can often be important and interesting ones.

I still hold on to a folder full of drafts of that concept note, each version reflecting a new engagement, voice, or idea that passed our way. Call them bureaucratic souvenirs, iterative dreams for how we might have built a different world.

## 3— An Upending

Late in 2017, the PATH GHS team and I sat all-day in meetings working directly with visitors from the US Centers for Disease Control and Prevention (CDC). Over a few long days, we ironed out an application to extend our global health security funding for the following three years. The negotiations were part of a long effort to sustain our position as a leading implementer of the Global Health Security Agenda (GHSA) under the CDC. Passing long hours working collaboratively on spreadsheets and Word documents, we met with the CDC officers to summarize our year of work in each country, and develop timelines for the future. Our imagined health security horizons were transformed into lengthy technical narratives, work plans, and budgets for each country office.

During a lull in the meetings, I was probed about my own research project.

"But what are you writing about?" one of the officers asked me with genuine curiosity, if only to break the monotony of our administrative deliberations.

"Well...this," I replied with a wave of my arm. "Global health security—its recent history, how we are working with it today, and what its future might look like."

The CDC official guffawed, leaning in to look closer at me.

"The GHS of today…this," they said half-in-jest, "…has no future."[1]

* * *

"I guess this is a time for us to be okay with uncertainty," our Project Director Linda Venczel said with acquiescence during a morning team meeting, many months earlier. "Uncertainty" had come up on a regular basis since the 2016 Presidential election; no doubt beyond just our own PATH offices.[2] But here the word emerged as a flashpoint, a point of contention as an entire apparatus of global health had been

[1] It is very important to qualify the implied meaning of this comment. The 'GHS' that the CDC officer was gesturing toward was specifically the *GHS Agenda*, especially as an implementation program run and managed by the CDC and its technical partners. They were in no way commenting on the conceptual umbrella of GHS as an important part of global health programming or advocacy, but the contractual negotiations done under the administrative blanket of the GHSA.

[2] See Cheney (2016): https://www.devex.com/news/washington-state-on-navigating-uncertainty-in-washington-dc-89294 for shared uncertainty across the global health community in Washington state during this time.

suddenly cast into doubt by a major political rupture—a rupture that spread like a wildfire through the field. This uncertainty turned into a preoccupation as it infiltrated our daily routines, our conversations, and our daily meetings. The concept became a focal point not just because it offered a contradiction at face-value – 'experts who didn't know' – but because it occasioned a shift in the way we were forced to relate and negotiate our everyday work, our aspirations, our plans. For almost the entirety of 2017, it changed the way we thought, worked, and acted on behalf of global health security. But what exactly was 'uncertainty' a response *to*, and why did it infiltrate our daily routines and our work?

**Decisions at a Distance**

The 2016 US Presidential election disrupted many organizations and fields of expertise. But in order to understand the unique ripples felt in ours, a bit of background is needed. From the late 2000s until about 2014, a particular entanglement existed between the political and technical worlds that made up GHS. That relationship was completely reconfigured through the rupture that occurred in November 2016. While this is *not* be a definitive account of the "politics of GHS" or the GHS Agenda, understanding their entanglements and their subsequent reconfigurations is essential to understanding this unique moment of rupture. This rupture had effects beyond simply politicizing the 'technical' work of GHS or turning 'political' work into merely a 'technical' question.

Through a series of decisions at a distance – deliberations and discussions held in space and time far away from my vantage point at the PATH offices—GHS had become deeply imbricated with the Obama Administration. There is a vapor trail of how this happened, existing mostly in archived inboxes, in conference reports, and in conversations with those who were in DC at the table(s) when it was happening. Those historical vestiges have been hinted at earlier in this text (e.g., Episode One), particularly in the historical account of the assembling together and early momentum of the GHS Agenda starting in 2014. For our purposes here, it is important to recognize that by 2015, regardless of its contested status, the GHSA had undoubtedly become an exercise of 'high politics', not just for the developing nations it sought to enroll in its

multilateral efforts, but in the United States as well. It had become a particularly visible and useful tool to link apparatuses and offices both within and across the US Government and internationally, forming a solid foundation for the exercise of bi- and multi-lateral 'health diplomacy' efforts that followed in the wake of Ebola. As detailed earlier, what had started as an idea in the basement of the White House between a small group of like-minded technical artisans had, by 2016, transformed GHS into not just a technical platform, but a conceptual, policy, and diplomatic one as well. This was in no small part because of the major events of Ebola in 2014 and Zika in 2015-16, which brought international attention to epidemics as a 'global' issue, potentially affecting millions.

Through its formalization of both technical objectives, diplomatic momentum, and political funding, the GHSA had been the pre-eminent platform from which to absorb these discussions and calls-for-action. It was a major launching pad from which technical public health implementers and advocates for epidemic preparedness could set sail, boosted by the winds of $5.4 billion US of Congressionally-approved emergency supplemental funding following the Ebola outbreak.[3] The vector was one of acceleration. From a celebratory launch in 2014, to an actionable program in its second year of life by the end of 2016, the GHSA—even amidst all its criticisms—had transformed the 'idea' of GHS to a growing set of GHS 'activities'.

And at the very moment of my arrival at the PATH offices, the stitching that kept this together was being pried apart by the political upheaval that followed in the wake of the 2016 Presidential Election. An assemblage had formed, and now it threatened to pull apart. Again, this precarity came from the fact that Obama and his Administration had taken political custody of the technical-managerial architecture of global health security through the Agenda. While ostensibly a multilateral program of distributed ownership and participation at its core, the GHSA was decidedly a US-owned process all the way through 2016 and into 2017. Early stewardship of a technical-political

[3] See the Kaiser Family Foundation briefing on the FY2015 Emergency Ebola Appropriation here: https://www.kff.org/global-health-policy/issue-brief/the-u-s-response-to-ebola-status-of-the-fy2015-emergency-ebola-appropriation/ , accessed April 23, 2018.

program relied on key champions in the US Government to ensure its coordination and sustained momentum both for domestic (i.e., interagency) and multilateral (i.e., international) effect. It took deliberate, dedicated "global team building" efforts by the US National Security Council leadership to galvanize participation in the GHSA, both domestically within the US, and internationally between Ministries, the WHO, and Member States. The early days after the launch of the Agenda were made up of weekly conference calls between stakeholders in the CDC, USAID, HHS's Office of Global Affairs, and the Department of Defense—led by the National Security Council (NSC). Similarly, international meetings, such as the Ministerial Meetings held in Seoul, Rotterdam, and Kampala were organized largely by US officials in these groups.

The imbrication of the GHSA within the US Government was extensive, and in this way, relied on both formal and informal mechanisms of participation between expert communities at various agencies and departments. Again, "there were really two GHSAs", as I was told – one domestically-focused to improve *multiagency* and multisectoral epidemic preparedness, and one internationally-focused to assist countries to adhere to the IHR requirements and report on their readiness. But the interface between the domestic and *multilateral* components was substantial and deliberate. Agencies like USAID and CDC hired managers to integrate existing projects, and develop new ones, using 'Global Health Security' as a framework. They extended the GHSA into new areas through issuing new calls-for-proposals under various administrative funding mechanisms. In addition, diplomatic health officers at the Office of Global Affairs (OGA) in the Department of Health and Human Services (HHS) were seconded to the WHO to help build a technical scaffolding in the form of the Joint External Evaluation process (see earlier Episodes One and Two). Coordination groups were connected through teleconferences, asking to harmonize existing project efforts and funding streams under GHSA technical parameters. International conferences set aside sessions to gather experts like Laurie Garrett to speak of the pressing and urgent changes needed following Ebola. These were the oiled cogs of a strategic machine, spreading its influence across the diffuse spaces of global health both within and across the US Government. It was a deliberate effort to transform GHS not only into a general

problem of inaction, but an actionable problem with connected assemblages of experts behind them.

At that time, when the champions of the issue held the reigns and the gears were turning, a certain organizational momentum was palpable—the technical and the political were fused in a way that broadened and began to elevate GHS and the GHSA as a 'global' priority. Uncertainty was amenable to expert mitigation, it was indeed a *strategic* resource for the GHS community—it was a 'governable' resource for experts (see e.g. Samimian-Darash and Rabinow 2015). Outbreaks like Ebola could happen again at any time – there was no way to know where or when – but the steps to mitigate the vulnerability to them were visible and ready to be deployed. The promises of progress were backed up both by a strong, broad technical platform (i.e., the GHSA), and the funding to enact the objectives that had been built into that platform by its original architects, who were still in positions to ensure political commitments to them. These unique arrangements at the time made the GHSA into a politically 'neutral' and tangible means of 'acting' and 'building' a safer future.

* * *

Thus, from its launch through the latter half of 2016, the Agenda was a 'catalytic' device that – although still debated across the WHO and in other organizations – was widely accepted as both timely and necessary. It focused not *only* on an exclusively normative conception of IHR adherence, but additionally on developing a comprehensive platform for biological threat reduction across sectors, agencies, and international actors. After the IHRs had "stalled" (i.e., failed to inspire country compliance to its requirements), the GHSA was understood by its devotees to be the pre-eminent (and first) technical-political platform designed to transform GHS 'commitments' and regulations into concrete 'actions' and projects. Although high-profile, its visibility was sustained by a fairly small community of architects, champions, visionaries, and technical experts. That said, although the number of initial stakeholders was fairly small, the reach of them was not. The elevation of GHSA implicated and enrolled a large contingent of both the public health and security sectors, including the WHO, private sector champions (General Electric and Johnson and Johnson were

notable leaders here), 'civil society' (mostly international development organizations, think tanks, and ad-hoc networks of supporters), and academia. Its reach made it something nebulous, but nevertheless elicited a 'global community' of stakeholders—from veterinarians, epidemiologists, to lawyers, Ministers of Defense and heads of state. The GHSA took on strong and resilient health systems as an end, promoting 'capacity-building' as a means. It was a plan of attack against a broad collection of biological threats – 'agnostic' to specific diseases or select agents– through a blueprint for synchronized exercise of expertise. This expansive framework, one cobbled together from various technical domains, was an aspirational platform for health security as a pragmatic possibility; it was the drawing board to bring GHS into the 'art of the possible'.

* * *

But the political pivot in 2016-2017 brought all of this – the carefully nurtured expert communities, the political attention, the funding, the donor commitment – into question in a profound way. The Agenda, and its entanglement at the highest levels of USG policy-making had the consequence of placing it in jeopardy and under great strain at the Administrative shift in late 2016. And inasmuch as "GHS" had become synonymous with "GHSA" (depending on which circles one ran in, this slippage occurred often during 2015-2016), the political threat to GHSA was also, by association, a political threat to GHS as a conceptual, practical, and operational commitment. In many ways, the blurring lines between GHS and GHSA that kept both very much alive in the second decade of the 21st century were also their greatest source of vulnerability, made palpable as US politics took an unexpected turn.

Thus, at the cusp of 2017, one could see a significant crisis across a dispersed space of organizational expertise and programmatic possibility. As the chaos of the Presidential election brought the entire apparatus of 'global health' under threat, GHS was also cast into a space of the unknown. Would the GHSA fizzle as a result? Would Ebola funds dry up, causing many of these implementation projects to lapse? Would the US no longer participate in, or facilitate, GHS as a key diplomatic and global priority? These questions, which were never fully resolved, precipitated uncertainties that required not only a complete reorganization of GHS's policy and discursive fields, but a

reevaluation at the level of its ‘thinking’ and of expert practice. A clear conceptual and political trembling was felt as the idea faced an acute and deeply uncertain collective struggle for survival. Waves of unease struck the bow of our GHS ship, one caught in the strong gale force winds blowing in from the storm at the Capital.

The 'context' of this crisis was not precipitated from any specific "failure of knowledge” (Riles 2017), but through a disruption in the machinery of politics. Again, up to that pivotal moment, this machinery had been very deliberately conditioned to sustain the possibility for a continual operation of expert practices that made up GHS as an 'actionable' apparatus of international development and aid. This was made up not only of strategically managed alliances between individuals and organizations, but through infinitely complex administrative cogs that directed resources and programming from major US agencies and departments to the issue. There were not just ephemeral working groups, but formalized cooperative agreements, grants, managers, administrators, technicians, requests for proposals (RFPs), implementers, and broad agency announcements. These formal mechanisms were themselves supported by largely informal modes of community exchange mentioned above: email chains, teleconferences, mailing lists, calls for papers, conference panels, and white papers.

“Most of us never knew exactly how [the GHSA] all fit together,” once suggested a policymaker offhandedly, “except we knew that it did—in Beth’s head.” He was referring to Beth Cameron, a leading architect and technician of the GHSA, who worked at the National Security Council (NSC) from 2013 until the end of the Obama Administration in 2016. Picking up on the 'jigsaw puzzle' metaphor used in the earlier episode, GHS has been portrayed as a diffuse arena where many dispersed actors collectively held pieces, but only a few could see the bigger picture as it shifted and evolved when pieces were fitted together. The very possibility of this 'fitting' – through these formal and informal mechanisms – made the Agenda itself something actionable, palpable, and politically viable. And it was precisely this ‘fitting together’ that came under threat in the early months of 2017.

But as this wave retreated, a curious sight emerged. While the ‘bigger picture’ made up of the puzzle pieces became obscured, if you squinted hard enough, you could

see the great breadth of individual 'piece-holders' who composed this apparatus of expertise revealed. Not only the high-level operators and architects, but a broad cadre of technicians, thinkers, and policy-makers both visionaries and sycophants. The original architects were there, seconded to the WHO or persisting as expert voices in frequent reports issued by the likes of National Academies of Medicine, World Bank, or published in the Lancet. The managers, like Cameron, left the government and went to the non-governmental sector, still holding onto the reigns of the idea and the 'team building' work it required to move ahead. Other technical experts like Scott Dowell were floating around at the Gates Foundation, which would not commit to the issue of 'epidemic preparedness' until at least the middle-late part of 2017. Leaders at the WHO shifted, both under a new Director-General, but also as part of a deeply contested reform process under the new Emergencies Programme. Other early supporters moved from government to the philanthropic worlds, becoming influential parts of later developments in GHS (see Episode Seven, below).

However, with these major departures in leadership at the governmental level following the election, and widespread budgetary uncertainties across US agencies, the GHSA seemed to quietly wither. By 2016, there was a shift in the way one positioned the GHSA within the context of GHS: "…whether the Agenda survives or not," was not an uncommon addendum during this uncertain period. Internally, one of the organizations I was involved with made a very deliberate and explicit decision to rename, dropping the "Agenda" from our commitment to GHS. For many expecting the worst, the cleavage was now not only notional, but nominal.

It should be said that the GHSA was never intended to be a permanent mechanism – it was from the outset a program with a stated five-year timeline that ended in 2019. But it was always at risk of fiscal cuts and re-appropriations. Especially as it had largely been funded with the emergency Ebola supplemental appropriations—an emergency whose memory had largely disappeared from the spotlight.[4] With

[4] The short window of political attention to health emergencies and their subsequent deprioritization is a political cycle that the World Bank influentially called 'Panic and Neglect'. For the full report, see World Bank (2017): http://www.worldbank.org/en/topic/pandemics/publication/from-panic-neglect-to-investing-in-health-security-financing-pandemic-preparedness-at-a-national-level

widespread reductions expected, PATH's own position as a leading GHSA implementer under the CDC was placed into jeopardy. Our funding agreements were radically re-packaged; a process which took almost six months to fully negotiate. Those negotiations were done with varying levels of blindness on everyone's part – even our CDC administrative managers could not predict their budgetary constraints or portfolios in the upcoming fiscal years. In many cases, this required creative 'repackaging' of finances to disperse funds for multiple years' of work at once, before any political effects could trickle down and snip away at ongoing projects.

We were the lucky ones—most of CDC's partners in the GHSA were actually not renewed with new money to continue their implementation efforts. Everyone was adjusting to working through severe ripples of uncertainty. The community of implementers was reaching out horizontally to one another to understand what to expect, and to see if there were novel ways to collaborate with one another to access the limited pools of funding before the new politics hit the ground. It's hard to overstate how disruptive this was for most (if not all) of the health security community at the time, but especially for the program implementers like us at PATH.

* * *

The election pivot thus threatened and disrupted the political positioning and the technical leadership that situated GHS as part of 'high politics', particularly in the United States. But managers, administrators, and other GHS stakeholders at the CDC, USAID, Department of State, and HHS knew that regardless of the election outcome, they would likely be replaced. Turnover was inevitable – there would always be some measure of rupture during a political transition of this sort. The concern was with the persistence of ideas and the projects that carried these ideas forward, when the political torchbearers had departed or re-positioned themselves in the GHS community. Fortunately, there were political mechanisms that would help ground GHS (and more specifically, the Agenda) in law before the political storms passed.

In early November 2016, a few days before the Presidential election, many of these experts would convene for a landmark moment for the GHS Agenda: the issuing of a twilight Executive Order (EO) by President Obama — *Advancing the Global Health*

*Security Agenda to Achieve a World Safe and Secure from Infectious Disease Threats.*[5] I had heard rumblings of the effort to ensconce the GHSA as a political priority, but the email announcement of the EO that circulated through the PATH office still hit me with surprise. On my way home, I was called by then-Project Assistant, Olivia Rao, who urged me to come back to the office post-haste. "Linda thinks you should be here, the White House will be holding a teleconference soon to announce and discuss this," she said.

As I walked back to PATH, it was obvious to me that this would be a highly contested document, not only for the incoming Administration but for the outgoing one. While the Order was generally applauded for its attempt to codify and ensure some form of continuity against the potential for political dismantling of the GHSA, it accomplished this by defining a managerial structure for the Agenda. In other words, it delineated the "roles, responsibilities, and activities" of the GHSA across the US Government, broken down by departments and divisions.[6] In doing so, it legally formalized an assemblage of GHS actors that had, up until that point, largely been operating informally. While its intentions were met with widespread praise and applause; its substance provoked some mixed feelings.

As one looks back on it now, it was crafted with the assumption that politics would continue as usual; that the machinery could be restarted, or that a baton would be passed off to an awaiting hand. As we now know, that hand never quite materialized, at least not in the way it had been imagined. The EO, as a result, did not shape the continuity of politics in the way it originally intended. In the language of policy buffs, despite the Order's enactment with the full force of law, the approach to GHS and the GHSA after the Administrative turnover continued to 'operate without optimal coordination processes, progress evaluations, or accountability for long-term strategic

[5] Available online at *https://obamawhitehouse.archives.gov/the-press-office/2016/11/04/executive-order-advancing-global-health-security-agenda-achieve-world* , accessed April 19, 2018.
[6] For a breakdown of these roles and responsibilities by agency and office, please see the Annex of the 2018 GHSA report (a report mandated by the EO), *Implementing the Global Health Security Agenda: Progress and Impact from US Government Investments*. https://www.ghsagenda.org/docs/default-source/default-document-library/global-health-security-agenda-2017-progress-and-impact-from-u-s-investments.pdf , accessed April 17, 2018.

goals'.[7]

* * *

Back in the PATH office, I joined Linda and Olivia to listen in on the large conference call organized by the White House to announce the Order. All the major US Government players were on the phone, the senior governmental leaders and thinkers that had matured the GHSA throughout Obama's last years in office. This included Amy Pope (Homeland Security Advisor); Tom Frieden (then-CDC Director); Gale Smith (then-USAID Administrator); Beth Cameron (then still with the National Security Council); and Department of Defense representatives. The call gave the distinct impression of momentum, of validation, of perpetuity. Our shared work was underway, it was relevant, it was recognized, it was *law*. Indispensable; uninterruptible.

Knowing what I know now, I don't think I could give you an honest recounting of the mood in the room during that call. Could we see the storm on the horizon, or did we let that laudatory wave wash over us, resting at ease with our involvement in its measured and articulated successes? At the time, I seem to recall a sense of both reassurance and concern; this was a bet on a future that seemed 'most likely', but also a hedge against another future that was deeply threatening. And by the time the election had passed, it seemed like the memory of a forecast for sun while feeling the first drops of rain.

**Another Kind of Uncertainty**

'Uncertainty' as a concept is no stranger to the fields of preparedness. As it pertains to public health specifically, 'uncertainty' actually conditions the very need for GHS and epidemic preparedness. The demand to improve public health systems is predicated on the prophetic promise that outbreaks *will* happen but that we *cannot know* with certainty where, or of which disease (see Caduff 2015). This 'known unknown' – the tragic event whose "probability cannot be calculated, but whose consequences are possibly catastrophic" – establishes the basis of expert intervention to prevent, detect,

[7] This is paraphrased from an unpublished policy paper.

and respond to the threats (Lakoff 2008:403). The form of uncertainty that motivates expert action is what Theresa MacPhail (2010) once called "strategic uncertainty".

MacPhail's article looks at how public health experts responded to the 2009 H1N1 pandemic, illustrating how "strategic uncertainty" functioned as a critical resource for experts and scientists. In 2009, the "vague and flexible concept [of strategic uncertainty]," she argued, "provided scientific foundation for much of the rationale behind both national and international health responses to the global [flu] pandemic," (57). With 'strategic' uncertainty, the magnitude and the impact of what we cannot know provides the basis of what can and must be done, and who is authorized to do it.[8] It is a strategic and operational resource that produces the need and direction for both decision and 'action'. It sometimes can go as far as to precipitate Executive Orders, define the beneficiaries of Emergency Appropriations, or propose altogether new laws that reorganize governmental approaches to problems.[9]

But something else was at work in the PATH offices – something that permeated the air for months on end, something that defied this form of 'unknowing'. It ran in the face of the kind of uncertainty described by MacPhail, one that could be translated into expert resources for intervention. It was something more disruptive, more antagonistic to our work; belying expert thought, action, or decision. It was not just about missing denominators, incalculable risks, or unidentified epidemiological patterns, but about a future of practice suddenly cast into doubt.

When I later asked about how this uncertainty differed with respect to the usual instabilities and hiccups encountered in technical management of global health, Linda helped to clarify, drawing out a distinction:

[8] Note here that we're discussing the space *beyond* simple forms of 'risk', i.e., events with clearly defined or calculable statistical probabilities (see e.g. Beck, Giddens, and Lash 1994). Even though strategic uncertainty is predicated on events that exceed calculable or knowable likelihoods, the concept does not inspire paralytic inaction (see Samimian-Darash 2009; Caduff 2014; Lakoff 2017). Quite the opposite – much literature has shown just how much can and is done in the name of incalculable events (Fearnley 2005; Collier, Kelty, and Lakoff 2017). As an important additive, please see Ann Kelly's recent examination of global health emergency research (Kelly 2018).
[9] See e.g. the Pandemic and All-Hazards Preparedness Act, or "PAHPA" as it's known, which established roles, responsibilities, and procedures for various agencies related to health emergencies in the US, particularly the Department of Health and Human Services (HHS).

> It's like the difference between a minor storm and a climactic event that turns everything on its head. It's an upending.

There is no downplaying this difference – a difference that gave *climactic uncertainty* a distinct form and shape in our work and lives throughout this period. This was unlike 'strategic' uncertainty in that it arose as a response to direct threats to the very conditions and the continuity of our work. It was intransigent and intractable. *Climactic uncertainty* was the effect of an unwinding that put into jeopardy the extension of our knowledge and our technical practices – effacing the possibility to deliberate, decide, and *plan*.

In other words, this was a threat 'outside' or indigestible by the very form of expert knowledge that was predicated on managing an uncertain future. There was no possibility of "absorption" here – we couldn't fold this political shuddering into our technical daydreaming, our existing interventions, or our planned projects (see Luhmann 1998:89; citing March and Simon 1958:164). At least not at first.

It should be stressed that this sensibility was more than just a shared 'subjective feeling'—I'm not trying to put a name to an abstract mood in the office. Climactic uncertainty precipitated a fundamental shift in the manner of imagining, developing, negotiating, and relating to projects within the broad contours of 'global health security'. Thus, unlike others who write of "ignorance" as modern experts' "most important resource for action", or of scientific authority persisting precisely *because* of uncertainty, our confrontation with climactic uncertainty expressly impeded our most important technical resource for action: the ability to plan (Luhmann 1998:94).

"How can I plan in this environment?" I overheard lamented in a later meeting, discussing a lack of political commitment to global health security from the new US Administration. A dire and collective groan had emerged after the release of Trump's proposed FY2018 so-called 'skinny' budget, projecting major cuts across global health programs in departments and agencies across the government. But as the proposed budget was likely to be radically reformulated following Congressional debate, we just couldn't know how these proposed dramatic divestments would play out.

"We can't plan if we don't know what is going to happen."

When the future escaped the realm of planned decision-points, it became both unknowable and un-actionable. There was no conversation to be had 'until things had been decided', in other places, by other people. More decisions needed to be made at a distance before we could make our own. A technical loop of knowing ⟷ acting⟷ forecasting was broken open; there was no model to rely on, no estimation, no data to decide. It was guesswork; wait-and-see.

Uncertainty cut through our day-to-day technical work like an unwelcome knife. It at once held pieces together while it threatened to pull them apart. It precipitated novel institutional 'stress dynamics'; new fissures and fusions occurring under tension. Differentiating and depicting this uncertainty was a long process; and working with it was more than an intellectual exercise. It put the careers and lives of many who work on GHS as a technical assemblage into direct jeopardy.[10]

Ironically then, the very politicization that had made our work under the GHSA possible in the first place—the high-level endorsements and integration into US politics at a Presidential level—now not only threatened its viability, but produced deeply contested dynamics across variously positioned experts and policy actors. The political upheaval had forced our domain of expertise to face its biggest threat to survival: not of outright failure (the project activities themselves kept running in the background, at least until the Federal fiscal year lapsed and the new terms of Congressional budgeting got sorted), but of unmanageable uncertainty. Uncertainty to which our expertise or technical management procedures themselves could not apply or mitigate. This 'external', intractable uncertainty is what Linda was referring to as climactic uncertainty.

In marked divergence from other writings on future-oriented managerial technologies - this particular threat existed outside of our domain of applicable expertise (Mykhalovskiy and Weir 2006; Fearnley 2008; Barker 2012). Unlike the biothreats themselves - presumably amenable and governable via various

[10] In many ways, my own departure from PATH's GHS Partnership in late 2017 was a consequence of dramatic funding cuts happening to the CDC – especially their Division of Global Health Protection, under the Center of Global Health. As PATH's GHS funding stream was entirely reliant on the CDC at the time, the Trump Administration's proposed and actual budgetary cuts to global programs trickled down through the CDC to have significant impact on our project teams, both at headquarters and in our GHS countries.

constellations of risk management, multilateral health diplomacy, improved preparedness, systems landscaping, and event technologies - this political threat attacked the viability of a particular conceptual-technical orientation. Such a threat was precisely dangerous inasmuch as it could not be absorbed or mitigated through our projects or technologies; it was the potential erasure of the fount of an established way of exercising and applying expertise.

In essence, a collection of experts that I had come to view as "Technicians of General Ideas" could no longer rely on the certainty of their General Idea (Rabinow 1989). A general unraveling had occurred, not only individually of the technical or political domains, but of their interstices, where they had been entangled, each rendering the other possible. The entire expert assemblage of GHS, particularly under the GHSA, had been destabilized.

The vantage this offered was uniquely important, a view both from the inside an epicenter of a storm, but also decidedly at the periphery of something 'larger' and often inscrutable. It was a political tug-of-war over the conditions of expert technical intervention – often battles fought just over the visible horizon, where we could only hear the exchange of artillery. But the bullets whizzing by threatened to hit closer to home; not just by defining the legal responsibilities of agencies to the GHSA as in the 2016 Executive Order, but by appropriating what their fiscal bottom line would be for global health security as a US investment. Coming to terms with this period of climactic uncertainty prompted regular reflections on what kind of practices it informed, not only how many sleepless nights it provoked.

Those practices inform the stories that I tell throughout the text here – both below as we reconfigured our relationships *within* our organization, but also in our external relationship-building with GHS stakeholders and the expert community at large (see especially Chapter Seven on 'bootstrapping'). But the climactic only burns so long – like the emergency itself, its candle has a fairly short wick. Eventually, you find a way to move ahead. The question marks of GHS and GHSA still return; but where they were once an interruptive shock, they have today become a passable familiarity.

* * *

I've tried to schematically break down a conceptual difference between 'strategic' and 'climactic' uncertainty below. Although there is bleed between the two categories, this helps me understand a little bit more about the fundamental differences between these two types of uncertainty – one as a strategic resource for the practice of expertise, and the other as a direct threat to those practices and interventions.

| | **'Strategic' Uncertainty** | **'Climactic' Uncertainty** |
|---|---|---|
| Knowns | Outbreaks will occur and be negatively impactful. Technical interventions are needed to build capacities to better prevent, detect, and respond to these outbreaks before they spread. | Outbreaks will occur and be negatively impactful. Global health security is an unfinished project. Experts and technicians need continued support and financing to complete the work to mitigate these vulnerabilities. |
| Unknowns | Where will outbreaks occur exactly? Which diseases? Who is responsible for responding to these outbreaks? Who will pay for them? What mechanisms are needed to address these vulnerabilities? | Leadership; commitment to the idea; funding sources; donor interest levels; sustained efforts; expert conditions; budgeting language; advocacy avenues. Geography or sustainability of work. Technical resources and institutional responses. |
| Are unknowns resources for action? | **YES** – designated experts can and should model; plan; deliberate; intervene; and strengthen capacities globally and regionally. | **NO** – at least initially. Unknowns threaten very foundations of expert practices; new and ongoing projects threatened by rapid staffing and funding shifts mid-stream |
| Mode(s) of response | Calls to Action; Broad or disease-agnostic ('Horizontal') technical platforms and programs (e.g., GHSA); High-level Statements; Annual Meetings; Research collaborations; Interest & Working Groups | "Advocacy"; Messaging shifts; Strategic Memos; White Paper reports; Testimonies and hearings; Collaborative Recommendation letters; Project- or issue-based ('vertical') funding. Donor outreach and issue-championing. Repurposed and multi-year funding packages. |

Although these forms of uncertainty are essentially different concepts, the core of this story is in their interrelation. The stakes become clear once we can see that the very expert responses that were conditioned out of strategic uncertainty were largely those threatened by the climactic sort, when strategic resources were in jeopardy. Conversely, the practices that emerged as a response to climactic uncertainty attempted to *transform it back into a strategic resource*. But before we can see those two dynamics in action, we have to put things in a bit of perspective. Let's turn the background into the foreground yet again.

**Surviving the Storm**

Fast forward a couple of months; still in the offices of PATH. Our work at the headquarters had taken on a wholly different character, now quickened with the unknown. This meant that not only were our external relationships to other GHS stakeholders suddenly cast into doubt (particularly with our funders at the CDC), but our internal relationships within the company had radically changed as well. We had to associate across different channels, for different purposes. The wider process of political 'retreat' that followed the election's pivot had interpellated a whole cadre of discursive engineers at PATH ('advocacy and public policy' [APP] officers, almost all based in the DC office). Our advocacy team assumed their charge as stewards for preserving the future for global health security, taking the reigns to ensure political commitment to the technical vision. At recurring intervals, us 'technicians' faced the question of how (or whether) the advocates might help salvage this field of expertise. Suddenly the political and the technical had unraveled as separate battlefields. The victory conditions nevertheless remained a shared objective—to maintain the purse and the commitments to GHS (and the Agenda) as lynchpins of the global health and development-aid agenda in the US and abroad.

Our PATH advocacy team (APP) summarized this effort one afternoon on a call with a group of GHS stakeholders at the CDC. "We work with the technocrats to help them make the case," our APP colleague announced. Linda responded with a laugh, interjecting – "That's us! The technocrats!". With a new Administration that seemed reluctant to invest in anything with the label of 'global', our APP colleagues noted that "we will need the advocacy lens to move the technical work forward."[11] Where *politics* and *the technical* had once been fused and inseparable, condensed into the high-prioritization and momentum evident in the first few years of the Agenda, they were now distinctly different questions and problems.

[11] As I later was more sensitized, I came to understand that advocacy and public policy work was its own form of technical work, but the differentiation was always explicitly made between advocacy and technical teams, at least as it pertained to our institutional mandate as a 'large implementer' of global health projects. Obviously advocacy is different from applied epidemiology or public health, and has different methods, aims, and techniques. But to exclude it as a non-technical practice is to miss out on a lot of its complexity and nuance, and its entanglement often with very technical programs and issues.

The fight was now to ensure that the right ears were being whispered into; an exercise made even more difficult as US governmental leadership turnover rates mounted through 2017. And so the advocating began in earnest. Multiple permutations of discursive strategies ('political language') had been crafted behind closed doors, ready to be funneled into tiny apertures available for advocacy and lobbying—congressional hearings, letters of appeal, subcommittee meetings, etc. In some cases, the accepted policy language that had earlier built up around the GHSA was shaken. The core elements of how we imagined our technical work in GHS faced deep discursive scrutiny as phrases like "systems strengthening" and "capacity building" suddenly were put on the firing line.

Although this form of uncertainty could not to be eliminated or managed through the production or extension of additional technical expertise or management, it was instead presumed to be manageable through the careful seeding and stewardship of language, discursive flexibility, and rhetorical gymnastics—a technical exercise all its own. The political disruption had situated an entire discursive space as one of contestation; suddenly the taken-for-granted no longer possible, or at least not survivable. The wheels spun in DC with our advocacy teams while we pondered our survival in Seattle, setting aside specific time to pick at the sense of the ‘possible’ in the field of GHS, trying to formulate new technical daydreams. The work of the advocates was a systematic attempt to transform climactic uncertainty into the strategic sort, back into a resource for planning and action.

GHSAC
Global Health Security Agenda Consortium

Global Health Council
The Collective Voice of the Global Health Community

Global Health Security Agenda
Private Sector Roundtable

Next Generation Global Health Security Network

**Statement in Support of Extending the Global Health Security Agenda Beyond 2019**

The Global Health Council, Global Health Security Agenda Consortium, Global Health Security Agenda Private Sector Roundtable, and Next Generation Global Health Security Network represent an international membership of over 100 organizations and companies operating in over 150 countries dedicated to achieving a world safe and secure from threats posed by infectious diseases. We are organizations with wide-ranging and complementary missions, and we stand together in our heightened concern about the increasing potential for pandemics to emerge and spread.

**The Global Health Security Agenda (GHSA) is an irreplaceable and proven mechanism for promoting measurable change in international preparedness to prevent and combat biological threats. We urge all GHSA participating countries, permanent advisors, and supporting organizations to take a firm decision to extend the GHSA beyond its current endpoint of 2019 – at a minimum for another five years. We also urge all countries to make and implement specific commitments, with a focus on financing strategies to fill gaps identified by external evaluations.**

The next phase of the GHSA will be a timely and critical opportunity to garner support from additional countries and stakeholders as well as ensure all countries undergo and publish independent and external evaluations. "GHSA 2.0" must focus on meaningful action, political will, and financing strategies to enact national roadmaps and fill existing gaps. The next phase also offers an opportunity to further harmonize the GHSA with one health strategies; strengthen pandemic preparedness of and communities' access to the global health workforce; address emerging health and biosecurity threats of international concern; reduce systemic barriers; and maximize the role of all relevant stakeholders, including civil society and the private sector.

Infectious diseases – whether naturally occurring, deliberate, or accidental – kill millions, costs billions, and exacerbate political and economic instability. Over the last decade, global biological risk has been magnified by international travel; emerging disease threats in regions of instability; terrorist interest in weapons of mass destruction; regional conflict, migration, urbanization, and environmental degradation; and enhanced ability to manipulate pathogens with pandemic potential. When calculated in terms of lives lost, economic consequences, and global instability, infectious disease outbreaks pose an immeasurable cost when not stopped at the source.

Through its creative, commitment-driven, action-focused platform, the GHSA has served as a unique incubator to solve the toughest health security challenges. Specifically, the GHSA has succeeded in:

- Achieving sustained high-level attention on global health security;
- Developing and implementing the first agreed set of global metrics for national health security;
- Providing tangible support that has already improved response to disease threats, including the recent Ebola outbreak in the Democratic Republic of Congo, cholera outbreak in Cameroon, measles outbreak in Pakistan, and yellow fever outbreak in Uganda;

**Figure 4:** *First page excerpt of a statement of support drafted and signed by a broad selection of non-governmental advocates and supporters of the GHSA in Summer 2017. A response that became increasingly commonplace during the period of climactic uncertainty for the GHSA. Available in full online: https://www.nti.org/media/documents/In_Support_of_GHSA_Extension_GHC_GHSAC_PSRT_NextGen_July_18_2017.pdf , accessed April 23, 2018.*

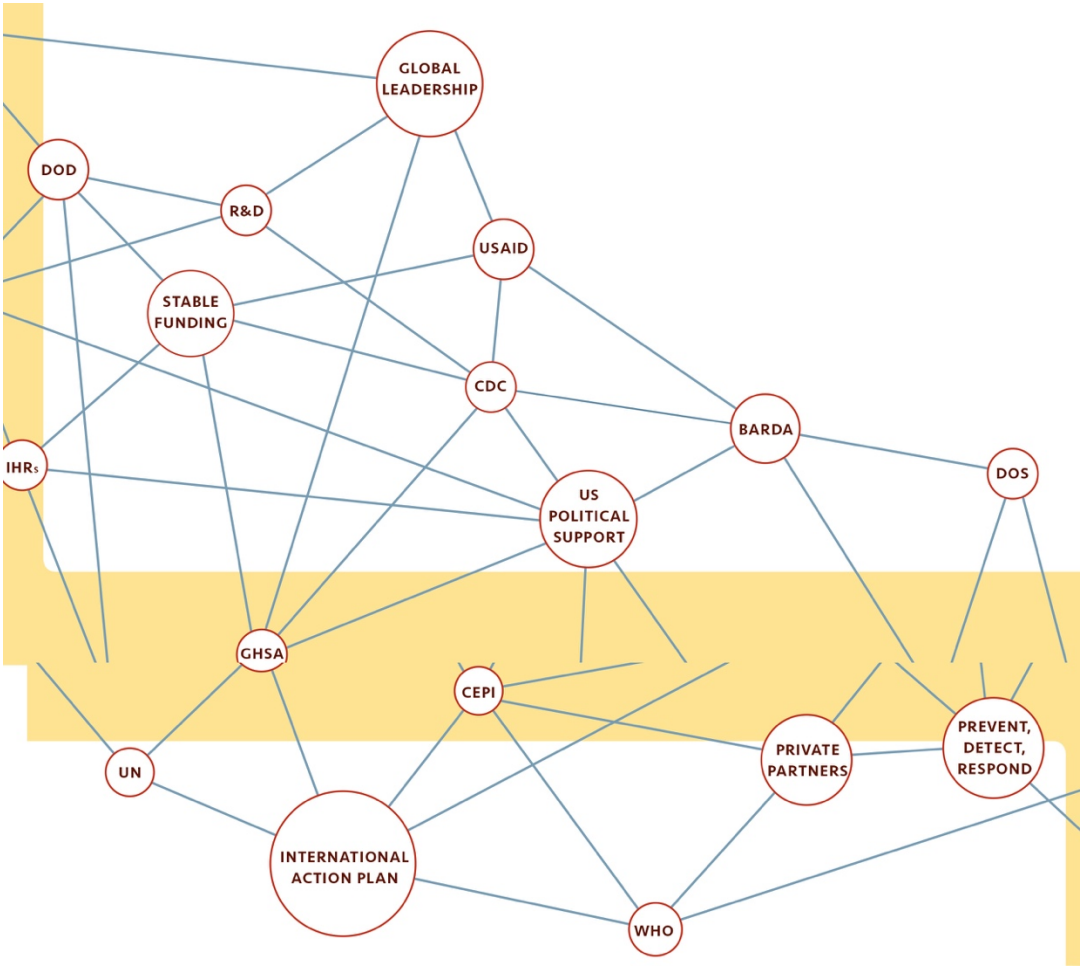


**Figure 5:** *A very partial (and stitched together) depiction of the assemblage of the GHS and GHSA space during the period of 'climactic uncertainty' when I was working. Note the inclusion of aspirations, organizations, and institutions as nodes. Climactic uncertainty threatens both the nodes and their connections. Courtesy of PATH (Banin 2017:6–7).Available at: http://www.path.org/publications/detail.php?i=2804*

* * *

As part of its response to climactic uncertainty, the PATH Advocacy team issued a report that painted one of the clearest portraits of all the moving parts placed into jeopardy in the pivot, at least at the level of US domestic politics and policy (Banin 2017). This report becomes a protagonist in a later episode in this text (Episode Seven), but in addition to its careful depiction of the assemblage of GHS during 2017, it also provided a stark warning of the health, security, and economic implications of "inaction" (i.e., pullback from GHS and the GHSA). In addition to providing a comprehensive

argument for GHS investment, the report also acts as a bit of a counterfactual or null hypothesis for an imagined world without the GHSA, or further, without US leadership in global health security. The world, predictably doesn't yet end, but some critical technical work winds down and disassembles: surveillance and laboratory activities for respiratory syndromes, foodborne illnesses, animal-borne diseases, no longer acting as the "first line of defense" for health threats. Frontline disease detectives would no longer be in place to investigate potential outbreaks and stop them before they spread nationally or internationally. Viruses would roam free, and direct-export economies to the US would be stricken down by crippling outbreaks. In addition, the lines that connect those nodes in the figure above would be at risk of eroding, placing the nodes themselves also at risk. The global architectures like the GHSA that had become fixtures of the multilateral spaces would have to be 'reinvented' and 'reassembled'.

**"The Art of Non-Attachment and Global Health Security"**

As this enabling conceptual framework was placed into political jeopardy, this unique and exceptional form of work was negotiated back in our offices. It was an impatient wait for light to shine through cracks— a craning of necks to see what was happening on the other side. A mix between technical repositioning and rhetorical reformulations, done through a delicate collaboration of advocacy and implementation teams. "I've never worked in an environment like this," my otherwise unshakable colleague confided to me one afternoon. Her tone was unusual for such a seasoned veteran of global/public health, but the parameters of 'how to act' had simply slipped through the sieve of the knowable. "What are we supposed to do now?" she wondered out-loud to nobody in particular. "I can't plan for anything in this environment." The blueprint, so carefully constructed by the GHS lamplighters, hadn't shown us what to do in this situation.[12]

In Foucauldian terms, in early 2017, global health security entered a "field of thought" (Foucault 1997). That's not to say that GHS wasn't a thoughtful field before this

[12] "Bootstrapping", a practice detailed later in Episode Seven, became even stronger in emphasis during this period as a response to climactic uncertainty.

period of uncertainty, but that the climactic moments meant that a number of factors meant the program had lost its “familiarity” or “taken-for-grantedness”. A certain form of *re-thinking* was necessary after the concept faced these “difficulties” that surrounded it. In Foucault’s language, “thought” is understood as part of the response of intervening on a difficult or problematized conceptual project. Attending to “thought” means looking at both problematized projects, but also at the unique forms of responses elicited by those challenges. In his words, “[thinking] doesn't assume a unique form that is the direct result or the necessary expression of these difficulties; it is an original or specific response — often taking many forms, sometimes even contradictory in its different aspects — to these difficulties, which are defined for it by a situation or a context, and which hold true as a possible question” (Foucault 1997:118).

In some sense, the 'climactic' moment was when GHS (once again) became something like what Foucault is calling a ‘possible question’. And at this very moment, the realms of the ‘political' and the ‘technical' –as they were understood to be operating in the world of global health security – were decoupled. At this time, ‘thinking’ about GHS meant approaching this form of uncertainty as a specific demand that introduced new forms of ‘action’ and navigation through a challenging conceptual terrain, one that was never guaranteed to survive its very sudden destabilization.

“Thought” became palpable often in unexpected ways. Suddenly at stake in the advocacy and policy documentation were the old truisms and clichés that had been slowly stabilized over years that made GHS a flexible rhetorical argument: was "a threat anywhere still a threat everywhere"?; did "diseases still know no borders"?; must these diseases still be stopped "at their source"? More than simply semantic debate over talking points, this debate focused on *what conceptually underpinned 'global health security' as a survivable idea in a new political environment*. A set of responses arose that held GHS no longer as a timeless truth, but as a ‘possible question’: was this concept somehow salvageable 'beyond politics', or could we craft the political conditions for its rescue? What were the salvageable technical foundations of this General Idea? How could that be re-written into our (PATH’s) institutional communications and targeted to a new audience of political decision-makers or stakeholders? What kind of

baton could we pass on to keep our work of implementation and global health development alive?

Reading the statement of support excerpted above (*Figure 4*), you can see that some of the thought-work actually precipitated familiar rhetorical arguments – a “version shift” to a “GHSA 2.0”, echoing the historical account provided earlier here for GHS in a broader sense. But rather than diagnose a historical shift, “GHSA 2.0” was a prescriptive call to rethink and re-commit to a framework that would reach into new directions, achieve new milestones, change what “meaningful action” would look like. Re-thinking GHS also meant toying with reframing it for political traction, in this case as an issue of national security that would emphasize the ‘national’ protection from ‘global’ threats. Now an exaggerated emphasis highlighted the protection of *America and Americans* through the protection of the *globe*. Suddenly, it was about making the stakes of the ‘global’ palpable to the average voter in Kansas.

As we begrudgingly reworked the rhetorical justifications for our technical projects and our advocacy strategies, we all recognized that just because something enters the realm of “thought” doesn’t necessarily mean it becomes any more thoughtful. But as the rest of the episodes show – there are complex, challenging dynamics that arise as a concept enters a field of thought, ones that test the limits and the possibilities of what ‘global health security’ meant both discursively, but pragmatically as well.

At one of the more memorable meetings during the early months of 2017, a large contingent of PATH experts sat around a table for an all-day work session on digital health and data science. A typical round of introductions was invoked, with a playful request for an icebreaker – a sharing of our favorite 'technical phrases' from the field. As the dozens of attendees introduced themselves, this phrase-game became a showcase of technical boilerplate and jargon from the data sciences. The round finally came near its end, and it was Linda’s turn. "My recent favorite phrase," she announced with a wry smile, "is 'the insecurity of security'.”

* * *

By the summer of 2017, things seemed to calm down a little bit - the US Government had filled many of the vacant positions in key areas where global health

security would remain relevant or important, and the conceptual language held fast.[13] The White House had decided to invest in a biosecurity strategy, tailoring its interests in GHS as a technical program to match new political airs. Although governmental investments in the GHSA were still largely uncertain, in other places GHS actually took on a heightened relevance. As an issue, it continued to expand its reach, becoming a "fashionable buzzword" and even seen "as a place where institutions believe there is a lot of money to be made," as one expert lamented to me during a working dinner. By July, senior security officials and advisors in the US Government were espousing the certainty of GHS and a 'comprehensive political commitment to GHSA'. But the stakes had changed, the world-making vision recalibrated: at a high-level event held by the GHSA Secretariat in July 2017, it was noted explicitly that "the global health security landscape has changed since GHSA's launch in 2014, and that the future work of GHSA should be considered in this context" (see CIDRAP 2017). The US Government and other GHS stakeholders' role in this shifted terrain was still up in the air—maybe it would look something like a "GHSA 2.0", or a "GHSA 2024".

In any case, the Trump Administration suddenly seemed to care; not only about a flexibly-interpreted 'global health security' that would put "America First", but about the "Global Health Security Agenda" itself. At the 70th annual World Health Assembly held in Geneva in May 2017, Tom Price, then-Secretary of Health and Human Services made an unequivocal claim for sustained support during the sessions, noting that "the United States affirms its support for the Global Health Security Agenda and is dedicated to building capacity to comply with the International Health Regulations, and to find and stop disease outbreaks around the world, whether they are naturally occurring, accidental, or deliberate in nature."[14] By the time the UN General Assembly in September rolled around, the language had been slipped into President Trump's speeches, with a casual mention of the GHSA appearing alongside other major US

[13] As we will partly see in the conclusion, the period in early 2018 would reintroduce instability and uncertainty, when Ebola emergency funds were threatened to be rescinded and more major US Administrative and public health leaders left their offices.
[14] https://geneva.usmission.gov/2017/05/22/hhs-secretary-tom-price-address-at-the-70th-world-health-assembly/

investments in global health programs like PEPFAR and President's Malaria Initiative.[15] Much of this leverage came because Secretary Price had a few aides who were whispering in his ear about the importance and relevance of this program. But with his departure right around when Trump was espousing the GHSA to the UN, the scab was scratched again. The same tensions reappeared when then-Secretary of State Rex Tillerson was also fired from the Administration just five months after going to great lengths to publicly endorse the Global Health Security Agenda as a priority issue.

Fortunately by that time, GHS was an issue with traction far beyond the US government's inability to substantively commit to it. The WHO's JEE processes, including the ongoing efforts to spur National Action Planning, and major new programs for epidemic preparedness were working their ways through other channels— championed by an increasing number of governmental and non-governmental organizations. The World Bank had launched numerous programs related to pandemic and epidemic preparedness, including their Pandemic Emergency Financing Facility. The Coalition for Epidemic Preparedness Innovations (CEPI) had launched multiple programs to spur research and development into a priority list of epidemic-prone diseases. In other words, by 2017 there were far more ways to tangibly engage with GHS than the GHSA. The GHSA became a contested but *provincialized* battleground in the wider scope of the evolving space of global health security. The General Idea had survived beyond the technical framework that had been build up to support it.

As I learned later, for others outside of the implementation space this crisis was *not* an all-consuming plague. While staff at implementing organizations like PATH had been holding their breath— latching on to every utterance of political support or prophetic announcement of funding— others were moving along with global health security as a longer-term project of expert practice and mobilization, one at least partially divorced from the political machinery noted above, including the GHSA. For many, GHS had never relied on 'high' politics to retain its relevance and importance as an expert practice, or as a salient global issue. IHR compliance and capacity building

[15] https://www.whitehouse.gov/briefings-statements/remarks-president-trump-72nd-session-united-nations-general-assembly/

had been priority areas of work for a long while, they didn't rely on US political endorsement of technical blueprints to proceed. The galvanization and infusion of interest from security communities, private sector, civil society, the WHO, and other heads of state gave GHS an independent momentum and urgency of its own. It was, and continued to be, the patient and deliberate work rooted in 'translating other areas of global health into systems strengthening for epidemic preparedness'.

A colleague candidly told me as much during a phone call when I shared my lament about working with climactic uncertainty. "For big implementing organizations like yours [*Ed—i.e. PATH*], this has indeed been a time of crisis for global health security. But these are 'self-imagined' crises," they continued, noting that the technicians and architects of GHS (and the GHSA) had "never made those assumptions that large chunks of money would materialize for GHS as an implementation program". The fact that these appropriations *did* in fact materialize in 2014 through the GHSA and the US Government's Ebola supplemental was unexpected, and brought many large institutions to the table that otherwise would not have been involved in GHS. In other words, I learned I had been participating as one of those institutions who had believed GHS to be a place where "a lot of money would appear", and had hedged its bets on the idea as a possible form of sustained and prominent practice.

After stabilizing around a series of key funding opportunities afforded through the mechanism of the GHSA, the political pivot and its threat to continued financing was indeed a crisis for implementing organizations that had come to rely on these large chunks of money to continue their GHSA-based projects. "Self-imagined" crisis was perhaps a bit dismissive, even if they might have been self-*imposed* ones. In any case, it was relieving to hear that these intractable crises that had assumed a character of totality were instead somewhat delimited. Where 'big implementers' like PATH had assumed that GHS might be the next aid staple like maternal and child health—lynchpins of the global health funding landscape - the prospect of rapid evaporation came as something of a shock.

For Linda and the rest of us at the PATH GHS, our lifeline had been tied to applying implementation expertise through the technical platform of GHS (namely one

tied to the Agenda and its administrative machinery vis-a-vis the CDC). Coupling the political with the technical was, from the outset of PATH's gamble on GHS, the very condition of our work. Now, a quick decoupling was a rip tide; one in which we had to fight for survival in the GHS space. "Politics" had been the means of extension (more pejoratively, "encroachment") into a technical space — its rapid retreat meant we were at risk of being washed back into the great big sea. Outside our GHS team at PATH, this was felt at a distance as a strategic question of sustainability, a questioning of whether the funding would dry up or proliferate, and where one could strategically engage GHS or epidemic preparedness as a platform. For technical GHS experts, it was a minor hiccup in an evolving space of the possible, simply a question of whether large implementation organizations would continue their 'encroachment' on a field they had otherwise prepared for 'the art of the possible'. Or whether they would be left to carry along a technical thread of what used to be an indissoluble political-technical assemblage.

"GHS is now, more than ever, a space of excitement, of new thinking with new people," I was told. The technical experts who had been there, steady all along, were going about their business-as-usual; not running after multimillion dollar RFPs, but identifying challenges and problems, proposing solutions to them, and then accepting support from the donors who were interested in those solutions (for more on these dynamics, see Episode Seven below). It was an alternative manner of exercising expertise, one no less precarious, but certainly more resilient to the extension and unraveling of the political from the 'technical'. It held GHS as a durable practice, as a stabilized exercise of technical work; as a project that would persist into the future it was designed to protect. One that would only rely on leveraging *strategic* forms of uncertainty.

The broad trembling that rippled throughout the field of GHS through 2017 was perhaps smaller than my experience had led me to believe it – but it was also much larger than a minor 'self-imposed' crisis for a few organizations. The climactic uncertainty was enough to prompt a major shift in the way GHS was discussed, negotiated, and acted upon throughout the year, and well into 2018. GHS and the

GHSA are and will no doubt remain larger than the perturbations ongoing with United States politics. And in any case, by 2018, a significant amount of new funding had been announced for the GHSA under the CDC and USAID (more on this in the conclusion). Yet even amidst moments of climactic uncertainty, there was an unshakable confidence in the importance of the work, in the *meaningfulness* of it. Using a phrase I once heard in some long-lost conversation, global health security persisted and still persists in the work of its advocates and supporters as an '*aspirational necessity*'.

"Don't worry - things are good," I was reassured at the end of a phone call. "The world is getting saved, we're making progress - you know, all that good stuff."

I couldn't help but catch a hint of jaded sincerity.

## 4— Data's Decisions

Nobody could figure out how to move forward with the project. The first pilot study protocol had already been drafted and circulated. The stakeholders list, while long, had mostly stabilized, made up of in-country public health experts, program leaders at CDC's headquarters in Atlanta, in-country CDC staff, a national research institute, and UNICEF. Expansive visions of work were embedded within the draft protocol — a water, sanitation, and hygiene [WASH] response to the cholera outbreak that swept across Tanzania in 2015. But vagueness about the project resonated like a low trickle in our offices, resurfacing a couple times a week in the form of calls, emails, and side meetings. How would we be involved? With whom would we work? On what, exactly? Where?

What knowledge, I kept wondering, was required before these questions could be answered? What would satisfy the requisite levels of certainty to move ahead? What kind of 'background work' was needed before a project could take shape?

As I found out, it would require a sustained exchange of emails, documents, and phone calls to determine what must be done – a seemingly endless collection of meetings and teleconferences to build the outlines of an intervention. Many of these meetings were invisible to us in Seattle; taking place between UNICEF, Tanzania's Ministry of Health, the Ministry of Water, and the CDC officers in the field. Our own field-based staff were present at these sessions, but their early reports to us over the series of calls were vague, leaving more holes than filling them. Decision-points were not being developed in the course of these early discussions. Even when 'levers' were present, many had already been pulled—others were stubbornly stuck in place.

This was the delicate dance of early project development, hiccupping in fits and starts as approvals, protocols, ethics reviews, and questionnaires moved from Seattle, to Atlanta, to Tanzania, and back again. In Episode Two, I bundled these practices and processes together under the labels of 'technical daydreaming' and 'relational knowledge management'. Turning technical daydreams into an intervention required us to hover together like a crowd of sculptors patiently circling a single stone, each

convinced of a project to be carved out from underneath an otherwise amorphous rock. Chip here (email and reply); cleave there (long teleconference and morning calls); collective shaping and re-shaping (the document gets revised; a pilot project report finished; accept all changes in Word). This was a technical artisanry; the dogged elusion of project elaboration. Returning to the stone at irregular intervals, you would find another artist had chipped away, revealing a shape you hadn't envisioned—forcing a reconsideration of angles, lines, geometry.

Mired as we so often were in the midst of 'decisions', and as often as I had heard the conceptual coupling of "*data*" with "*decisions*" around the office, I wondered if data might work as an engine for decision-making in our own project development. If "data" was supposed to inform "action" *over there* (i.e., in Tanzania and other LMICs), would it also help us decide on our own project parameters *over here* (i.e., in Seattle and Atlanta)?[1] Would *data* end up as a prime mover behind the ideas and discussions as we developed the possible contours of our work?

Over time, a rhythm emerged for the WASH project—a staccato of evolution with regular appearances of both "data", and even some actual numbers themselves. Our course was charted through a delicate and complex topography of professional associations, deliberate negotiations, moral and technical commitments, and a policy focus from the Tanzanian government on the issue of WASH in healthcare facilities.[2] "Data" (and numbers) were visible primarily as a *residue* at these multiple intersections—emerging as an index of when practical affairs ran into each other, sometimes through the overlapping of networks, political priorities, or donor interests.

Data would also be a discrete *output* of the pilot project itself, which was intended to be a proof-of-concept to build out a larger WASH effort in the country. We deliberated at length about our survey questionnaires, which would be administered at each of the

[1] See e.g., Nutley, T. (2012). *Improving Data Use in Decision Making: An Intervention to Strengthen Health Systems.* MeasureEvaluation.org: https://www.measureevaluation.org/resources/publications/sr-12-73. More directly for health security, see the CDC's post on decision-making during health emergencies, which was co-authored by PATH: https://blogs.cdc.gov/global/2016/09/06/how-better-data-means-better-decisions-in-emergencies/

[2] See e.g., https://www.washinhcf.org/documents/Hayter-Tanzania-keynote-Sep2017.pdf. As part of the policy focus, a large survey of WASH conditions in Tanzanian healthcare facilities was done, generating a large amount of data that supported the prioritization of WASH improvements across the country.

clinics where the hygienic improvements would take place. In this case, the survey data would be shaped to align to a 'global' model, adapting a standardized WASH tool and framework developed by the WHO for developing countries called WASH-FIT.[3] In this way, the messy realities of the 'field' (i.e., the endless variations in hygienic practices between 'local health facilities') could be put into dialogue with 'global' standards (i.e., standardized WHO survey datapoints). 'Data-as-residue' worked across scale in both directions, connecting "smaller" sites to global frameworks, and global/national policies to individual health outposts. Even if data hadn't yet helped us *decide* about our intervention, "data" had certainly helped us *design* it.

* * *

It would be during another early morning call with our Tanzania office when the explicit question of "data" returned – this time with a heightened sense of urgency. Could we transform our prolonged uncertainty regarding the geographic reach of the WASH work into discrete decisions through epidemiological data? We had the question of "*what*" mostly settled (i.e., health facility sanitation and hygienic improvements through water basins and handwashing facilities); as well as the "*why*" (i.e., water and sanitation quality improvements were seen as key prevention efforts against cholera and other hospital-acquired infections across Tanzania).[4] All that remained was the "*who"* and "*where*".[5]

Where would this nascent project land; what was its reach? What geographic areas across Tanzania would be best places to work? Where could we put the new WASH hire? Where were our staff and logistics? What districts should we work in?

A response arrived from the other end, from our external collaborator: "Well, let's get epidemiological data on where the [previous year's] cholera outbreak had the most impact, look at the diarrheal rates in these areas and then decide." My ears perked

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[3] http://www.who.int/water_sanitation_health/publications/water-and-sanitation-for-health-facility-improvement-tool/en/

[4] This doesn't fully explain all the "whys", which again send us into a labyrinth: why was the US CDC implementing a WASH project in Tanzania? Why was the Tanzanian government suddenly interested in the sanitary conditions of its healthcare facilities? Why was a Seattle-based NGO, ostensibly working on 'global health security' focusing on hygienic improvements to clinical settings? How was WASH to be 'written' as a global health security problem or issue?

[5] The *when* was always a shifting target as well – mostly dependent on funding, approval processes, and negotiated timelines. GANTT charts be damned!

up: *now* the numbers were being called upon to make a decision-point appear; to elaborate a project geography. But just how exactly would this data be deployed to help us make a decision?

Within hours, we had our hands on the numbers in question. The officer had sent us the epidemiological data that reported cholera case counts by district across the country. But only a few days later, the data ended up being explicitly swept aside as a determinant for our geographic areas of interest.

"By the time this project gets under way, who knows where cholera cases will be occurring?" our collaborator suggested later on the phone. "I think it is more important to decide on a location, get the local people on board, and do a good job implementing the intervention so it serves as a demonstration project."

Just as quickly as data had been called upon to arbitrate a technical decision, it had been deemed insufficient to settle it. What good was data from the past if we would be working on and preparing for an unpredictable future? The epidemiological data here were used like a step ladder – it got us into reach, perhaps gave us a better view, but it did not arbitrate anything, especially given the prospective nature of the work we were trying to design. In this instance, quantifiable risk (in this case, *retrospective* numbers that revealed differential geographic burden of disease) was not our grounding rationale for deciding the geography of our prospective project activities.

Numbers did, however, help populate a dense catalogue of possible interventions: some only pipe-dreams, others part of a tangle of existing initiatives, strategic project approaches ('social marketing' or 'population handouts'?), and budgetary constraints, which were arguably another numerical constraint—albeit of a vastly different sort. Data did in fact enable our deliberations, but it was also a recognizably limited device against a litany of other components in motion. In addition to 'residue', it was also lubricant.

My surprise here was *not* that certain forms of data were rendered irrelevant, but that the sculpted outline of an intervention was fashioned through a series of prolonged, iterative exchanges that irregularly relied on, dismissed, and produced "data" (and actual numbers), epidemiological or otherwise. And that decisions often negotiated the

kinds of data produced as much as the opposite. Numbers floated around us like fireflies, sometimes illuminating the many trails ahead but never deciding which one we might follow. Data spilled out as an index, as the residue or lubricant in these negotiations – sometimes as a hiccup, in other instances as a proxy for the work that went into them.

**'Version Control'**

The Tanzania WASH project eventually matured — blossoming into a robust 'demonstration project' through a merging of rain with river. Small choices accumulated into larger currents; our designs intersected with emerging Tanzanian governmental priorities to implement new guidelines for improved WASH conditions in healthcare facilities around the country. I returned to asking: where was the 'saturation' point that made the WASH project really take off? Where did small decisions 'spill over' into something viable? Was the crux of that process buried somewhere in the drafts of the study protocol, or the original concept note that came even before I joined the PATH GHS team? Maybe it was only fully realized in the finalized survey-questionnaire, emailed back and forth between Arusha, Kilimanjaro, Atlanta, and Seattle over many weeks.

More likely it came earlier, in the moments when the project was declared 'non-research', letting it bypass both the CDC and PATH ethics review boards. Or maybe it was when a new staff member was hired on to assist in its implementation, adding a professional 'lamplighter' with a physical presence in the geographic regions in Tanzania. Decisions that brought this project into shape were accretionary, building cumulatively over each call, each email, each discussion, each Word document. Perhaps it was only a matter of time before the sheer number of them built up into something that would resemble an 'intervention'.

In office lingo, managing draft documents and their edits is called "version control"; it describes the bureaucratic practices that temper the proliferation of files and documents produced through office routines that otherwise endlessly accumulate them. Transforming a project idea into an actual intervention required a sort of "version

control”—not just with documents, but with all aspects of the negotiations that were required to keep technical daydreams moving toward actual interventions. “Data” was one component of what helped to consolidate and reference those ‘versions’, as we transformed ideas in Seattle and Atlanta into new realities in Arusha.

* * *

As part of my initial internship application to the PATH GHS team, Linda and Olivia – then the team’s Project Assistant – requested that I look at a very early prototype version of the WASH work plan and protocol. Supplying me with a rough technical sketch of the project at that time, they asked me to write what my proposed ‘next steps’ would be to start organizing and supporting the WASH project as an intern. Now, almost a year and a half after writing this “approach blueprint”, I take a moment to review it. I see an artifact attesting to my own expectations of how project development and planning would proceed – *before* having encountered them. My ‘blueprint’ is partitioned neatly into three phases – ‘First Steps’, ‘Continuing Efforts’, and ‘Mid-Stream Activities’ – and reads as a logical stepwise engagement program, made up of a stabilized list of partners with bounded roles, responsibilities, and clearly defined work.

Many of the proposed steps actually came to pass, so I can’t critique myself for blind naiveté. I don’t think I ever had any expectation of a ‘linear’ pathway to project realization. My initial expectations of decision-making and project coordination, however, suggested that our team would act as a central hub and facilitator of a stabilized group of partners and processes – missing the reality of project “version control” that I encountered instead. The juxtaposition of expectation and ‘reality’ is perhaps most glaring in what ended up consisting of a nearly endless cycle of ‘First Steps’, which in my document laughably lasted a mere *two weeks*. (Try more like twelve months.)

In the end, it wasn’t *which* decision-points we passed through that differed from what I had imagined, but the *process* and *how* we passed through them—that slow accretionary effort that built into a viable project and intervention. The scattered method by which decisions, parameters, and partners were changed and rearranged.

* * *

Also looking back at some of the shared documents and notes that emerged from the entire year of early project development, I try to untangle how the progressive foundation of decision-making was actually built up. After the early dismissal of the epidemiological data as a geographic arbiter, we later planned to leverage results from a baseline assessment of water and sanitation conditions in health facilities that would be conducted by the Tanzanian National Institute of Medical Research (NIMR). Our focus would narrow in on three regions in the country, since our project was a limited pilot intervention and our offices (and officers) were located in or adjacent to those regions. Using this baseline data and our pre-existing organizational coverage, we would then be able to 'see' the lowest performing sites in those regions, and from there, we would apply a basic "inclusion/exclusion criteria" that would help us further narrow-in on specific health facilities. Our criteria's parameters were simple: "Don't work where they have everything" (i.e., where WASH conditions were acceptable, *or* where other WASH interventions were taking place with other NGOs or international development organizations), and conversely, "Don't work where they have nothing" (i.e., where no water supplies or infrastructure existed, as we "sadly" couldn't expect to improve that which "wasn't there to begin with").

There is no doubt that a threshold of viability was passed when the geography of this project was finally decided and agreed upon. Again, not through any definitive reliance on epidemiological statistics of cholera cases or disease burdens. Instead, our geography was largely determined by an exchange of GPS coordinates, data incidentally collected by a different PATH immunization program that had implemented project activities in the country. Their data helped identify the latitude and longitude of specific Tanzanian healthcare facilities within those selected regions, and gave us the ability to 'see' a geography of our own project's potential reach. That 'map' partly became our project's territory.

But how, exactly? How do you go from latitude-longitude numbers to a project geography? In as many words, I asked Linda these questions at a later date, after the dust had largely settled. I felt like perhaps I had missed something along the way.

"It was a really logical process, it made a lot of sense," she reassured. I didn't

push further, but when I looked back, all I saw was this tangled knot— a delicate process that overlaid pre-existing and novel arrangements of partners, organizational commitments, capacities, and resources. Overlays made possible only by the travel of ideas, documents, and sometimes even people between Seattle, Atlanta, Kilimanjaro, and Arusha.

In the end, the types of data that helped us to inform our progressive decisions were always in flux – crisscrossing in the sudden faith in epidemiological figures, and later their hasty dismissal; in tentative protocols and assessments and their careful extrapolations; in the serendipitous arrival of GPS coordinates and their overlap with organizational capability or reach. The parameters of the project had changed so dramatically that the original study protocol, drafted shortly before my internship started, was soon rendered largely irrelevant—composed of roles and responsibilities for organizations that would no longer be involved, detailing activities that would no longer take place.

The sudden appearance and disappearance of implementation partners and activities meant we were constantly learning the clumsy dance of "avoiding others' toes", including trying to figure out who our dancing partners actually were—non-governmental and parastatal organizations; multinational corporations; the Tanzanian government; academic institutions; et al. During Linda's visit to Tanzania—partly undertaken with the objective of moving the project planning forward—it was revealed that the Tanzania Ministry of Health had focal persons at each region and district, and that these officers would "need to be intimately involved in data collection and implementation". Understanding and negotiating our involvement with Tanzania's parastatal National Institute of Medical Research (NIMR) became a key choke point to understanding what kind of work we would be able to do in the country. Likewise, our shifting inclusion/exclusion criteria allowed for both "flexibility" and stringency in the selection and intervention at specific locations and facilities, rendering certain forms of data relevant and others irrelevant.

With the help of our in-country project officer in Tanzania, we had also collected a bibliography of relevant documents and data sources that would help keep us on top

of the project's "version control". It was an improvised spreadsheet, a mélange of existing and planned projects, governmental policies, epidemiological figures, academic research publications, and product information sheets. It was both a repository of data *and* an index of previous technical decisions. As with almost all our team efforts, taking and organizing notes was done (admirably well) by our Project Assistant, Olivia, who archived an ever-multiplying stack of blow-by-blow accounts of each teleconference and meeting held both internally at PATH and externally between our fluctuating roster of partners. In the digital notes archive, the various pages of notes – with their associated "action points" – appeared as a residue of decisions, negotiations, and associations made and unmade throughout that first year of the project's lifecycle.

Later, with the accordion (or 'tabs') collapsed, all of these processes and their respective decisions had a tendency to appear with a retrospective parsimony, a straightforward logic. An optical illusion that compressed the long, hard, complicated labor of project birth – the swarm of numbers, the dance of associations, a scramble of administration, endless calls, notes, and 'version control'. If you squinted hard enough, you might even call it a neat coupling of 'decisions' with 'data'.

**"Data ≠ Truth", or, How to Find the Truth in Your Data**

Like so many other mornings before and after this one, Olivia and I sat with Linda in a private work space—a 'focus room'— at the PATH headquarters. Linda was prepping a lecture on disease surveillance she would later be delivering to a public health class at the University of Washington, piggybacking on an older version of a slideshow from a colleague of hers. Flipping through the slides, she repeatedly turned her laptop around, letting us review the content. Her decades of experience and fluency in the topic let her drift through the Powerpoint with deftness and languor. The flow, however, was interrupted when a slide on "data" appears: "Data ≠ Truth" it read at the top.

"This seems obvious," she exclaimed, hesitating. "Do I even need to keep this one? What would you say here?" Her gaze darts between Olivia and me.

My head filled with a cacophony of anthropological voices — Vincanne Adams,

Susan Erikson, Claire Wendland. João Biehl, Anne Kelly – it seemed like everyone had something to say about metrics, measures, data, and their relationships to "power" (Adams 2016; Wendland 2016; Erikson 2012; Biehl 2016; Kelly and McGoey 2018).[6] 'What counts?' they demand. 'How do we measure?' The tyranny of data, evidence, and numbers; those dangerous integers. I could hear the klaxon bells ring out, an alarm raised at the appearance of these 'metrics of the global sovereign'; numbers and data that supposedly work to transform "social and political problems" into "apolitical technical challenges" (see e.g. Adams 2016).

But the silence in the room stretched. Just as quickly as I fell into this vortex, I got snapped back like a rubber band. Linda was still waiting for a reply.

"You…should definitely keep that slide," I replied rather ineptly. "I don't think this is obvious for many people." Under my breath, I muttered a contrite apology to the anthropologists.

* * *

Later, I mulled this over as I ambled through the halls with contrition. At the face of it, hadn't the essential part of the argument already been made—summarized neatly into the slide's title: "Data ≠ Truth"?

No, there was more to it, I thought, staring into the distance next to the malfunctioning office printer, angrily scrolling through the queue of documents waiting to print. There was more to it both in Linda's presentation, and in the anthropologists' arguments. The question of 'data', posed regularly both in the PATH offices and in the academy, is never *merely* about data's truthfulness or untruthfulness, but in what ways it interfaces with 'decision-making'. In other words, the thicker question is not just what kind of epistemological foundation 'data' provides, but in what ways it informs or enables 'action', planning, and the possibilities to intervene. Declaring that Data ≠ Truth was not (only) an argument that the numbers produced in public health didn't always align with 'reality', but that the procedures, practices, and policies that generated the data were just as relevant (and fallible) as the numbers themselves.

[6] See especially Adams (2016) and Kelly & McGoey (2018) for thorough reviews on the discussions related to evidence, metrics, and the politics of data in global health.

I found that both challenges to "data" – in the office and in the academy – posed similar (but not identical!) questions, in different terms: how is data made into evidence, and how is it then used as a tool, as an instrument of practice, as an arbiter? How does it (or it should it) negotiate policies, practices, or technical management? What does it make possible, or occlude, when it becomes a decision-instrument in the exercise of global health expertise?

* * *

The anthropological focus on data and the politics of metrics had taken off right around the time I began my fieldwork. "Data" and "evidence" had turned into topics *du jour*, written about both vehemently and exorbitantly. An academic colleague once abruptly ended our conversation over coffee as we turned to the concept of data and evidence. "Isn't this just flogging a dead horse?" she asked with frustration. Other colleagues of mine had taken the deep plunge, looking at the production of evidence-bases in global health and international development directly. Perhaps this was why 'data' was never an explicit focal point during my own fieldwork—the topic felt at once exhausting and exhausted.

If it was a door I was reluctant to open, it ended up being one I was shoved through. The concept of "data" (and data itself) was impossible to avoid at PATH, where "data" was seen as a critical component of the organization's capacity-building repertoire. As it was argued, the right information in the right hands would lead to "improved health systems, and ultimately, to healthier people" (Arenth et al. 2017:6). If health technologies, facilities, and innovative devices were the metaphorical organs of health systems, "data" was its blood.

In the office, I was perpetually surrounded by a rhetoric of "data". But was often much more than merely a rhetorical device – our labors were constantly working and re-working the *concept* of data. Working with "data" frequently brought it into view as a distinct problematic, equally curious because we rarely worked directly with numbers or 'datapoints' in our projects.[7] "Data" and our organizational efforts behind 'data' became

[7] This is not to say that numbers were absent from our work. Instead, we worked often with actual 'meta-data': monitoring and evaluation numbers, statistics about the timeliness or completeness of other data systems, data

proxies for talking about processes and possibilities of work, of circulations, of movement, of accountable activity. Our own efforts were 'meta-data' in a rather literal sense—we didn't work *with* data, we worked *on it* (or, even more accurately, on the systems and platforms that enabled it). Thus, data was never 'merely' technical or political *a priori*, but referenced the work that it informed, facilitated, or to which it was connected. Data was the circulatory fabric of the 'actual' and the 'possible' in project development and execution.

Some of the biggest collaborative projects happening at PATH during my research were centered around improving data use and policies in low- and middle-income countries. Perhaps the largest was the Data Use Partnership (DUP), a collaboration between the Government of Tanzania, PATH, and the Bill and Melinda Gates Foundation (BMGF).[8] Led by the Digital Health Solutions team, the project focused on assessing Tanzania's health information and data systems, and providing the government an investment blueprint to "improve health systems performance and health outcomes". During one lunchtime 'brown bag' lecture, a visiting Tanzanian governmental health official came to speak about the Partnership, "data", and data use in general terms.

"Without data," he argued, "we have no way to understand or see the needs on the ground". And without 'seeing' the ground, countless programs and projects would (continue to) falter or fail. "The ground is not the same in every place we work," he continued, "so our plans must adapt, and remain dynamic based on the specifics of those places." "Data" thus enabled a particular kind of 'seeing', and was an essential device to help understand the specificity of one's operational environments. In his words: "Data helps us [*the Tanzanian Government and its partners—Ed.*] customize *use* to *need*." So, while data might "not equal truth", it was nevertheless essential to understand the 'context' of one's project space, to 'see' something about the truths on

interoperability between public health systems, etc. In this section, I use "data" (vs data or 'data') to distinguish the rhetorical presence of data as a problematic, rather than actual collections or analysis of numbers, information, or 'datapoints'. Data quality and quantity was seen as an index of a health system's quality and service delivery, which our work sought to improve and enable.

[8] See e.g. http://www.path.org/publications/detail.php?i=2734

which one wanted, or needed, to work and, more importantly, *change*.[9] The use of data in the negotiations during the early parts of the Tanzanian WASH project illustrate how "data" not only facilitated certain forms of sculpting or 'version control', but how it enabled us to 'see' the space in which we were going to intervene – a string of health facilities in specific regions and districts in the country.

Likewise, while not all "data" was work, all work was potentially "data". Data had its own *physics*: the running joke was that it defied gravity by always "going up to policymakers but never coming back down to local actors". Data had its own *economy*: flows, exchanges, arbiters, values. It had its own *geography*: data "deserts", data "jungles". There was even data *culture*. No wonder the anthropologists had been so attracted to the concept.

* * *

With my ears perked for various appearances of "data", I found it appearing in a variety of discussions. Deep in the midst of our strategic deliberations on PATH's engagement with epidemic preparedness, I called up the senior manager of our Health Impact Team (HIT). We were debating how to extricate ourselves from the bottomless pit we had dug in the process of "landscaping" – surveying the environment of donors, partners, and potential competitors. The manager, like the rest of us, was eager to move the strategic analysis ahead. She called for us to pull the ripcord:

"How *right* do your data sources need to be?", she asked me directly over the phone, with insistence. "We don't have the time or resources to gather more…There will never be a point where it bottoms out."

I was in agreement with her, and had been feeling the same urgency to move ahead for some time. How much would our strategic analysis actually change based on the data gathered, when we had already gathered so much?

"We have *intuitions*," she continued. "Those are now what need to be transformed into strategies." Data had already let us 'see' our strategic space of work; gathering more would only turn our efforts into a prolonged stare.

[9] This focus on data as a form of 'seeing' partially explains why data visualization has been such a hot area of focus, both in the world of business and international development.

## A Critique From The Middle

Although anthropologists have remained critical of "data" and its hold on global health and international development, there is also plenty of criticism coming directly from experts working in these fields. To repeat: the basis of these criticisms overlap, but they aren't identical. Another one of PATH's large efforts to improve health data – the Better Immunization Data Initiative, or "BID"[10] – has produced a number of reports and literature reviews that outline some of the major challenges brought about by increasing demands for health data and information. Their focus, perhaps like the anthropologists', is largely targeted at the effects of data policies at a 'local' or 'field' level. In one of these reports, they note the

> increased demand for data and information from donors in an era of greatly expanded financing for disease…has resulted in a proliferation of vertical information systems for monitoring, evaluation, and program management. This fragmentation of health information systems diminishes a country's ability to manage [them] due to a lack of generalized support and harmonization of practices, indicators, reporting forms, etc. Health workers report data through several overlapping systems and spend much of their limited time collecting data, compiling indicators, and submitting reports, often duplicating efforts for different programs and funders (Boone et al. 2014:4).

The criticism reads almost as if it is coming out of a social scientist's analysis. But here is where the major difference lies: at all times, in all places, BID's own stated "principle hypothesis" remains unchallenged, namely that "better data will lead to better decisions, which will lead to better health outcomes" (BID Initiative 2014). Embedded in their working assumption is that data's value is predicated on how it can inform action and improve health outcomes. Radiating outward from this assumption is that health data should be improved (in its use, quality, and accuracy) in order to improve 'health'. If data is used, the Initiative argues, its quality will be improved, and vice versa. Better data use, better data quality, better health.

This is where the critical overlap ends. Unlike the anthropologists, who ask: are there other ways to know and work on 'health' than through "data"?—BID and other

[10] http://bidinitiative.org/ This is the program from which we pulled our GPS coordinates for the Tanzanian health centers for the WASH project.

data initiatives at PATH start from the assumption that data must be *made better* to know and work *with*. Where both see data practices as fallible, often causing significant burdens on health officials and clinical staff at the local level, the practitioners retain a commitment that *numbers and metrics—and their associated professional practices—are simply in need of improvement.* The goal remains the refinement of evidentiary and technical tools through the improvement of data quality, consistency, and sharing. Again, it all stems from the working assumption: better data, better decisions, better health.

Anthropologists like the ones mentioned in the office with Linda approach their critiques differently – instead taking up BID's working assumption itself as something to unpack. Instead of assuming that bad (or missing) data simply needs to be improved, they ask if "other kinds of evidence may be more reliable than numbers" (Adams 2016:8). Often they go much further, suggesting not only that data might not equal truth, but whether ascertaining the "empirical facts needed for metrics may entail a kind of violence to the empirical truths they aim to produce" (*ibid*.). In other words, rather than start with the assumption that data and its use must be made *better* to approach 'truth', or to base decisions, the anthropologists argue that data and numbers themselves might be obstructions to capturing 'real world complexities' (see also Biehl 2016).[11]

In that sense, these criticisms are largely incompatible with one another – from the global health programmatic angle, the question is: "can data and its associated practices be improved so that we can know, decide, and deliver *better*"? For anthropologists, the question is: "are there other ways to know (and decide) than data"? What does a hard commitment to "data" obscure, or render irrelevant? Both questions are again asking about the practices and procedures that surround quantification and how we might use data to 'see' something about health, living, or disease. Whether we're holding close to "data" as an *a priori* good, or launching a criticism to destabilize

[11] This is not intended to be reductive of the myriad of nuanced critiques of evidence, metrics, and data that have emerged from the social sciences in the last 3-5 years. Each author has taken up the issue differently, and approaches their critique from different angles. But as Adams (2016) notes in her conclusion to her edited volume on metrics, the general approach has been to "question the assumption that the use of global health metrics will invariably and inevitably lead us to better health outcomes" (225). Note how this is in direct contrast to BID's working assumptions.

or dispense with it outright – in both cases, 'data-as-residue' is a way to begin forming an understanding from somewhere in the middle. Seeing data (and looking at data's 'seeing') is a way to understand both how data can drive programming, how it inflects project design, and how decisions are made not only via metrics, but amongst a litany of other considerations, negotiations, and deliberations.[12] Like many other things in my experience at PATH, this was a view from the middle—where one could see both the continual work done *on* and *for* "data", as well as all the work that "data" was made to do.

That said, sometimes the critical perspectives overlapped further than one would expect. I once stumbled over a lone talking point in a PowerPoint presentation, looking at 'lessons learned' from our country experiences implementing GHS projects in Vietnam. Succinctly, it argued that "not everything that 'matters' can be measured".

* * *

"We have to look critically at numbers," emphasized the Tanzanian governmental health leader back at the lunch talk. "Numbers have to be seen *not* as figures, but instead as *humans*. Each and every number reflects a human, and every human is precious."

There are general murmurs of agreement in the crowd, in between the sounds of sandwich wrappers and chewing.

"And that's why it's the responsibility of the government to capture those numbers accurately."

Fewer murmurs.

**Building a Culture of Data Use**

Better Immunization Data's (BID) working assumption—that data usage is directly related to data quality—helps to understand the organization's broader

[12] A really important point I should emphasize: the "data" that we worked with at a capacity-building level is not equivalent – or is of a different sort of data – than that produced at a clinical level, i.e., surveillance data about patients and disease. There is an infinite variety of types of data—project data, monitoring and evaluation assessments, disease indicators, case counts, surveillance information, community health surveys, lab results, ad infinitum. That these differ in how they are understood, used, and negotiated shouldn't be overlooked, and should give anthropologists hesitation to dismiss them all unequivocally. But again, "data" was often as much a concept as it was a discrete set of numbers or a specific evidentiary base, at least from the position where I was working.

preoccupation with nurturing “enabling environments” for the production and utilization of health data. During one particularly long afternoon meeting, BID program leaders, alongside other organizational staff with the Digital Health Solutions and malaria teams, organized a session to discuss “data” and “data use”.

During this meeting, the program lead for BID asked an open-ended question, one that had been the center of their deliberative efforts throughout the duration of the program’s lifespan: “How do we build the demand for data? How do we build a culture of data use?”

The question of “building a culture” for data use has been one that PATH has been focused on for quite awhile now, going so far as to publish a whole report at the end of 2017 dedicated to the issue (Arenth et al. 2017). The report is fascinating both for its working definition of ‘data culture’ and for its commitment to provide stepwise recommendations to build data into every part of a health system. In their words, a data culture spans the “customs, dispositions, and behaviors of a particular group or organization to support and encourage the use of evidence, including facts, figures, and statistics, to inform their decision-making”. The language of the report is decidedly economic in tone: the healthcare sector made up of “data users and producers”, with data working through ‘supply and demand’. Individuals in the health system are understood as discrete “decision-makers”, as if simply awaiting good evidence to make properly informed choices. In the economy of decision-making, data appears as the dominant currency.

It’s almost too easy to read this as an example of Foucauldian ‘governmentality’: interventions which focus on producing, enabling, and “regulating a field of action (and decision-making) for others”—in this case, it is quite literally a handbook for how to produce *the conditions that in turn produce* good data-users and decision-makers. But I’m not as interested in reading this report primarily through a ‘hermeneutics of suspicion’ (Ricoeur 1981). Rather, I want to juxtapose the earlier assertion that “data ≠ truth” against this interest in building a culture entirely rooted in data *as a means to properly make decisions*. If not “truth”, then what foundation does data provide for better decision-making?

* * *

Later, during the BID meeting's breakout sessions, I listened in as we deliberate over what exactly "data use" might mean, and how to enable it in the places where we work. We were thinking through exactly how one might build a 'culture' for data.

"Once people start believing their data," mentioned another program leader, "once they find the *truth in it*; then this is where the excitement comes from."

This was getting at something a bit more nuanced. No longer was the question about whether data *is* truth, but whether there is *truth to be found in data*. The program leader here was referencing developing skills around data *literacy*, the ability of data 'users' to read, use, and produce data. In other words, to gain an understanding of how *work* might be transformed *into* data, and how data could then be further transformed into decisions—no matter their 'real-world' messiness. Could we make people 'see' a world, and their work, through and in data?

This breakout session proved pivotal to my understanding, if only because it offered an important, if subtle, distinction: data, numbers, figures, and evidence might not be *equivalent* with "truth", but there are truths to be found and produced *in* and *amongst* them. Those are then to be the basis of 'decisions'. Building a 'culture' of data use was thus about enabling the "customs, dispositions, and behaviors" that would produce the means to *find truths*—i.e., make workable, pragmatic choices—in the messy language of data itself. This was not a question of verifiable enumeration or quantifiable deviations from "reality", but about the pragmatics of decisions and of developing a language and a visibility of 'work'.

**Global Health Security and the 'Hallmark' of Metrics**

Moving back to into the world of global health security, earlier sections have detailed a shift in focus in these expert communities. Namely, there has been an emphasis on moving from 'formal' or 'political commitments' to "meaningful" and "measurable" actions. Statements of support published during the US political upheaval – when the Global Health Security Agenda (GHSA) remained in ambiguous suspension – frequently noted that one of the major successes of the GHSA was in "developing and

implementing the first agreed set of global metrics for national health security".[13] In this case, what was "measurable" was largely equated with "meaningful", especially in a technical vernacular of 'action'. It was a way for the nebulous domains of GHS to be made into discrete, operational categories that substantiated its conceptual principles. As detailed in earlier sections, this was done primarily in two ways – through the consolidation of country-level 'readiness' assessment devices like the Joint External Evaluations (JEEs)— and in the development of the GHSA's technical "Action Packages" which divided the Agenda into 11 distinct 'actionable' domains, complete with time-bound targets, progress indicators, impact metrics, and objectives.

In many ways then, the importance of metrics in the GHSA was about substantiating a concept like GHS, developing a framework for technical decisions and country coordination as international leadership converged onto the issue. It was for this reason that again in early 2018, prominent GHS spokespersons were declaring metrics to be the "hallmarks" of both the Agenda itself, and the US's leadership in health security more broadly.[14] From the outset, grounding a concept like GHS meant using metrics to "highlight targets, provide accountability, and achieve a measurable approach" to the otherwise intangible concept of epidemic preparedness and biological threat mitigation.[15] This was not just dumping a bunch of arbitrary numerical targets into technical packages, it was arranging and carefully organizing a curated selection of metrics that helped to both *design*, *plan* and *implement* projects, as well as *measure* those projects' 'impact'.

In some cases, this appeared in the form of 'targets' or aspirational 'milestones' to be achieved. The best example of this was a never-quite-stabilized document called the GHSA "Standardized Milestone Library". Formally authorless and circulated ad hoc by the CDC, the Library was a list of 'standardized', stepwise measures and targets that intended to provide a blueprint on how countries could strengthen their capacities in

[13] See the "Statement in Support of Extending the Global Health Security Agenda Beyond 2019", drafted and disseminated in August 2017. Available at http://globalhealth.org/statement-in-support-of-extending-the-global-health-security-agenda-beyond-2019/, accessed March 30, 2018.
[14] See e.g., https://twitter.com/NTI_WMD/status/973275533348925440
[15] See *Driving Outcomes Toward the Global Health Security Agenda: Action Package Commitments"*. Available online at https://www.cdc.gov/globalhealth/security/pdf/ghsa_ap_factsheet.pdf , accessed March 30, 2018.

particular technical areas, moving from scores of 1 ("No Capacity") to scores of 5 ("Sustainable Capacity"). Across each Action Package area, milestones would help both country leaders and GHS implementers like PATH design the steps that would be needed to improve along the way.

The Library was discrete, measurable, 'meaningful', and a total mess. Ostensibly providing "technical guidance on how to move to a higher capacity level[s] in the JEE", the tool was perpetually in a draft version, never properly aligned to the JEE's technical domains, and contained targets that were not only confusing but full of grammatical errors and linguistic confusions. Nevertheless, it was part of the GHSA's systematic approach to build an infrastructure of meaningful action through the language of metrics and measures – in this case, ones that could be "copied and pasted" into other settings with the caveat that they "can be modified and adapted to make them more country-specific" (or, failing adaptation, that altogether "alternative milestones can be developed").[16] Again, following the words of the aforementioned Tanzanian health official, these milestones were intended to help customize *use* to *need*. Inside the Library were both blueprints and targets, laying the groundwork for a larger substantiation of "global health security" at the same time they were meant to be shaped by users to fit existing 'contextual' use-cases.

Never as useful as it could have been, the Library's 2016 draft now sits online, as an echo of an earlier phase of technical blueprinting and design for the GHS Agenda. Now, as the early GHS and GHSA architects have now migrated into new positions and taken on new (or extended) projects and organizations in the GHS space, a pattern has appeared that suggests how metrics and measurements are embedded and understood as part of their technical work. In most cases, data is again in the position of allowing one to produce the 'substrate' for otherwise abstract concepts like 'global health security', 'epidemic preparedness', or 'capacity building'. Metrics and targets create a language to 'see' across three separate technical areas: *challenges* (or gaps, needs,

[16] For the September 2016 draft of the GHSA Milestone Library, see https://www.ghsagenda.org/docs/default-source/default-document-library/GHSA-Milestone-Library.pdf , accessed February 2018. (This is the public link provided to the document that we often referenced, but subsequent drafts from 2017 were sporadically provided to us by the CDC when asked.)

'insecurities'); *actions* (specific projects that build out capacity to prevent and mitigate biological events and threats); and *results* (impacts and improvements from said projects; actualized commitments and responsiveness to outbreak events).

In the end, the anthropological critiques that numbers can only obscure or distort 'truth' or 'reality' don't help decipher the way that data, numbers, assessments, and measures help to ground and substantiate a conceptual edifice like GHS. Or how they help translate technical daydreams into manageable public health interventions. Anthropologists seem too eager to decry the 'violence of numbers' and enumeration, a critique that makes sense only when (often implicitly) juxtaposed against what they presume are 'better' or 'truer' forms of data or evidence (often that are 'social' or 'cultural' at heart). The critical assumption is that data drives "technocrats to 'reduce the noise of context', deriving managerialist solutions from aggregations of abstracted information" (Kelly and McGoey 2018:3; paraphrasing Biehl 2016:129). But the problem of that critique is that it assumes that the proper 'context' should mean a 'socio-cultural' or 'experiential' one; a "messy" world of subjective day-to-day life that resists quantification or enumeration (see e.g. Biehl and Locke 2010). Why are we to presume that 'day-to-day lives' have to resist data and evidentiary forms? Could metrics actually, in some cases as with the Tanzanian WASH project, be the terms by which otherwise ephemeral issues, ideas, or projects become pragmatically accessible? As we've seen above, just because numbers are used doesn't mean that 'day-to-day' lives get obscured or obviated.

In our examples here, the 'noisy context' is embedded in the empirical negotiations themselves, the way solutions get devised in the gaps between 'data' and 'Truth'. Technical apparatuses and frameworks like the Milestone Library are often designed with "other contexts" in mind; as flexible devices to absorb the 'noisiness' of their applications (see also Bemme, forthcoming). Further, and perhaps most importantly, the metrics and numbers that attempt to ground global health security are meant to inform and substantiate possible 'action' out of a space that otherwise remains nothing but 'abstracted ideals'.

I am arguing for a middle ground as an approach to "data".[17] On the one hand, we should temper experts' often overzealous approaches to data that assume it is the *only* way to see "progress" or act "meaningfully". It seems equally misguided to automatically assume that improved health data will improve health outcomes, or that numbers and information are the only *real* things that can substantiate technical frameworks or projects. On the other hand, in global health security – where metrics, targets, and measures are used to inform the possibilities and parameters of what constitutes "meaningful action" – there is often no 'other' or 'more real' thing to see than what has been made and informed by these commitments, these articulated needs, or these aspirational milestones. They are the substrate by which the concept is made tangible, and their *a priori* dismissal because they are numerical seems equal parts brash and reactionary. The anthropological critique has essentially functioned to call out global health experts for neglecting their evidentiary doubts, but it often feels as if anthropologists could benefit from admitting a few more of our own.

In all these ways, the statement that "data does not equal truth" as a critical intervention misses the most interesting part of the equation. Just as important is the subtle and prolonged work that goes into how 'truths' can be made, or "found", through data and the practices that surround it. Or how concepts can be substantiated into 'action' through constellations of targets, objectives, indicators, and discrete milestones. Paying attention to this interplay means giving up the presupposition that data does 'violence' to Truth, just as much as it means giving up the notion that it uniquely accesses it.

[17] But I am resisting an urge to declare a 'new empiricism' or to diagnose a broad heterogeneous collection of trends of evidentiary practices or the "political contours of empiricism" (Kelly and McGoey 2018; Adkins and Lury 2011).

## 5 – Ebola: Redux

After a particularly long week in the office in May 2017, I lie half-asleep at home on my couch, daydreaming. The phone rings – it is Linda. Although not entirely unusual for her to call me in the off-hours, it means something urgent has come up.

"I just spoke with Annie," Linda says. She's referring to Dr. Annie Rimoin, our academic colleague and a public health researcher at UCLA, founder and lead of the Democratic Republic of the Congo (DRC) Health Research Program. "This is really important – are you lying down?" Linda asks.

Sitting halfway up, I reply with some honesty: "Actually I am, why?"

"You can't tell anyone this, but there's an Ebola outbreak happening in the country right now," she says.

I am no longer lying down.

"It has been going on for a short while now, and it will be reported in the next couple hours, or tomorrow at the latest."

And so begins a month of madness; a frantic response to an outbreak halfway across the world.

* * *

PATH's office in the DRC is quite small, led by two seasoned veterans of public health – Trad Hatton, an expatriate with over 15 years of work in the country, and his deputy, Dr. Leon Kapenga Mukonkole, a native Congolese and a public health veteran formerly with UNICEF. At this point, even amidst the turbulent political climate in the country, both Trad and Leon have established a very close relationship with the Minister of Health, and so are invited into the inner circle of immediate outbreak responders gathering at the Ministry. This is happening in 'real-time', which is a professional euphemism for whiplash speed.

By the next morning, the news has indeed broken – starting with a few minor reports on international news websites, and spreading quickly to major media outlets

and across Twitter.[1] Linda has been busy all night and the next morning mobilizing our colleagues and partners, and by 9 AM, I am rushed into a call with Dr. Rimoin of UCLA; our connections at DigitalGlobe – a commercial satellite imagery provider; and WeRobotics, an innovation startup focused on drones and robotics technologies. These were all partners we had been speaking to separately, now brought into a single phone call with less than 6 hours' notice. Somehow everyone has found time on their calendar; the usual churn of aligning time zones, of conflicting meetings, of reshuffling calendars evaporated—it is all hands on deck.

"This is a call to action," Linda says over the phone to the assembled group, "I'm asking what we can all put on the table to assist this response *NOW*."

* * *

Other conversations have clearly already been ongoing– the UCLA DRC Health Research group has liaised with Humanitarian OpenStreetMap (HOT) – a collaborative mapping initiative that crowdsources mapping for crisis relief efforts. The HOT staff in the DRC has discovered that the affected area where the cases emerged – Likati, a small health zone in the northeastern part of the country – has very poor-quality maps, and very low resolution satellite imagery. In order to initiate the crowdsourcing mapping efforts through the HOT-OSM platform, the area will need to be updated, so that online mapping contributors can see and identify roads, settlement areas, and other points of interest for the disease response.

"We can task our satellites to the area right away," the DigitalGlobe team offers, suggesting new images would be available within 24-48 hours for the HOT-OSM platform. The WeRobotics team likewise generously offers both staff and a few mid-range drones to fly in the affected area, for targeted mapping surveys and surveillance. The PATH DRC team has already mobilized with the DRC Ministry of Health's *Direction de lute contre la maladie* (DLM) to itemize, organize, and budget out the necessary logistical responses to begin investigating and containing the outbreak.

[1] http://news.sky.com/story/person-tests-positive-for-ebola-in-democratic-republic-of-congo-10874168

Shortly after the phone call, the international headlines start to appear. Ariana Cha and Lena Sun of the *Washington Post* break the story at large, suggesting that the WHO has been informed of a positive laboratory diagnosis of Ebola on May 11th, after receiving vague reports of unexplained illnesses and deaths in the northeastern part of the country earlier in the week.[2] The symptoms had been exhibited in a cluster of people in the region since April 22nd, but it has taken almost three weeks for the laboratory samples to arrive in Kinshasa and get tested for diagnostic confirmation—highlighting the challenges of transportation, infrastructure, and communication across the incredibly large and poorly-connected country. This diagnostic delay is a fact that we note and keep in our pocket, in order to highlight these issues later.

* * *

Nobody says it outright, but we were all holding our breath: was this going to be another Liberia? Another Sierra Leone? Another Guinea? Concerns were particularly high, as Likati is close to the northern border of the DRC with the Central African Republic. It was a border area that had seen a lot of violence and, as a consequence, both migration and displacement.

"Diseases know no borders," the cliché goes. If this outbreak spread, it would hardly notice that invisible line drawn across a densely forested jungle.

* * *

While I am furiously scrambling to type up my notes from the morning call with our partners, the email streams turn from a trickle to torrent. As the stories break, our involvement in the response increases both through coordination at HQ, and at the country level with logistical planning. Within a few hours, PATH's executive team is asking for a briefing. Quickly throwing together statements into a Google document, I work in 'real-time' with Annie and Linda to summarize both the scant information available from the DRC, and the progress of our scramble with partners we had spoken to earlier in the day. Statements are written and re-written to depict an assemblage of

[2] https://www.washingtonpost.com/news/to-your-health/wp/2017/05/12/new-ebola-outbreak-declared-in-democratic-republic-of-congo/, accessed May 12, 2017.

actors whose collaborative distances had suddenly contracted. It is sent out over the institutional email channels, and it reads something like this:

*The DRC is one of the countries in which PATH has been leading the Global Health Security initiative and working closely with the MOH to establish an Emergency Operations Center and geospatial mapping capabilities. Within the last 24 hours, PATH leveraged its strong partnership with UCLA's DRC Research Group to mobilize an initial response, working with in-country teams to ensure that relevant government officials were notified and engaged. Remaining tightly coordinated, the PATH and UCLA DRC teams have worked with the DRC Ministry of Health to establish rapid response data sharing procedures and deploy teams to the field to investigate the outbreak.*

*The rapid response and strong coordination spring from a foundation of a strong existing collaborative relationship between PATH and UCLA, starting with Trad Hatton, PATH's country director and Anne Rimoin, UCLA with Dr. Leon Kapenga (Deputy Director PATH, DRC), and growing with a longstanding history of collaboration with the global health security team and the Bill and Melinda Gates Foundation. It also underscores the importance of emerging collaborative networks that have developed between UCLA and PATH, all the way down to the country-level.*

*Because having high-quality and detailed maps and geospatial data of affected areas are crucial for properly responding to and containing outbreaks, the UCLA team immediately worked with the DRC Humanitarian OpenStreetMap Team (HOT) and found that the existing satellite imagery and maps for the area were of very low quality. The lack of high-resolution satellite imagery for this area meant that deploying Humanitarian Open Street Map (HOT) crowdsourcing for mapping settlements and roads (for optimal route navigation) in the affected region would be extremely difficult.*

*To address this problem, within 12 hours of notification, PATH GHSP organized a call between UCLA and a larger network of collaborative partners, including DigitalGlobe and drone experts at WeRobotics. As a call-to-action, the group has leveraged institutional capacities and services to help map and investigate the outbreak. Through the strength of this broader collaborative network, DigitalGlobe is repositioning its satellites as we speak, obtaining new high-resolution imagery of the area where the outbreaks are occurring. Updated imagery will be provided to real-time online platforms and help visualize, plan, and respond rapidly to the cases and contacts.*

*This rapid response demonstrates the exceptional capabilities that come from building strong collaborative relationships between multiple sectors, actors, and partners. This is the foundation of preparedness, and reveals the importance of building a community of trust, cooperation, and innovative collaboration for global health security.*

**Figure 6:** *The Situation Report (SitRep) assembled in 'real-time' with UCLA's Dr. Annie Rimoin and Linda Venczel in Google Docs during the early moments of the outbreak in the DRC.*

Broadly within PATH, an ad-hoc communications apparatus had sprung to life—moving messages across teams, across countries, and across desks. Our Senior Media Strategist, for example, was working to connect staff with major media outlets who were going to cover the story. She was deftly opening channels with reporters at NPR, the New York Times, and the Washington Post to integrate PATH into the early reporting on the response efforts. Internally, our talking points were being funneled up to the Executive Team's office. The message was getting out.

Back in the DRC, Trad and Dr. Leon, along with a few PATH DRC staff members were being woven into a tornado-like schedule of meetings at the Ministry. As the stakeholders arriving in the country multiplied rapidly, the coordination effort became simultaneously more frenzied and formalized. Epidemiological updates and situation reports began to filter into our inboxes, co-produced by the DRC's Health Ministry, its DLM, as well as MSF and the WHO. Outbreak investigation teams had mobilized to the Likati region, but it was incredibly hard to reach from the capital of Kinshasa, taking nearly three full days of travel for investigators to arrive and begin their work in earnest. I spent a good number of hours working with Linda to summarize and integrate these epidemiological reports into PATH-wide updates for the rest of the company to stay abreast of the fast-moving developments.

* * *

What about that odd fact that community members were reporting unusual deaths of pigs in the area?

I think that fact was lost into the periphery.

* * *

Instead, our focus was on the immediate responses that our country team felt we could facilitate. The emails that flooded in from Trad and the DRC country staff indicated pressing priority for a rapid dispersal of funds to support "logistics". In this case, "logistics" was a broad term that included mobilization of chartered flights, motorcycles, communications equipment, but also basic public health emergency response supplies – water purification tablets, chlorine, gloves, goggles, buckets, sprayers, masks, etcetera. A more concrete list of immediate needs emerged over the

next couple of days, as the team expanded their conversations with the DLM/MOH and other responding partners.

The list was subsequently sent to us in Seattle, including the following items and activities:

1) *More Ebola diagnostics.*
2) *Support for mass communication in local language through radio, churches, etc at community level. National level communication [is] also needed to address growing panic in Kinshasa and elsewhere.*
3) *Helicopter service. More $ would mean more frequent trips carrying more cargo faster to the remote area.*
4) *Locally-made handwashing station[s].*
5) *Chartered flights to airports closer to the epicenter.*
6) *Motorcycles for local health facility staff to facilitate movement in area for case follow up.*
7) *Strengthened lab capacity in Buta and Kisangani to diagnose Ebola.*
8) *Strengthened internet and or cell phone access for the area.*

The email signed off with a single sentence, at once pithy and persuasive: *"We can do more."*

* * *

The itemized list was deployed as part of an effort to nudge our donors at the CDC to permit project funds to be used and redirected for the immediate response efforts. However, it was a request which was summarily rejected both by the CDC DRC office and at CDC Atlanta headquarters. Our CDC funding at PATH under the Global Health Security Agenda was provided under the administrative mechanism of a 'cooperative agreement', or 'CoAg' for short.[3] The CoAg did not allow the redistribution of funds in this manner; it was not designed as a 'first-response' financial instrument. Our remit was instead focused on building long-term *capacity* to respond to public health emergencies. Under the CDC's funding structure, we had to take our GHS mandate very literally: we were tasked to *build the capacity needed to prevent, detect, and respond* to outbreaks, *not to directly detect and respond to them once they had*

[3] For a breakdown of different mechanisms of US Federal Funding, including comparisons between grants, cooperative agreements, and contracts, see: https://www.purdue.edu/business/sps/pdf/Grant_vs_Contract.pdf

*occurred.* This was not just a semantic distinction, it was a contractually- and legally-binding one.

There's a bottomless pit of administrative and legal mechanisms in the CoAg that constrained (and enabled) our ad-hoc response efforts. But here, just like in the moment of the emergency, we will not dwell on them. The bottom line is that we were forced to 'maneuver' through a landscape of bureaucratic tracks that politicized our decisions, no matter if they favored our country team or the guidance we were receiving from CDC. It should suffice to say that across the next couple of weeks, our headquarters team had to spend some time working 'back' through the multiple lines in the sand that had been drawn and re-drawn by the CDC and project administrators over during the course of the emergency response.

These bureaucratic binds present a bit of an optical illusion: look at them one way, and you can make an argument that funding structures for global outbreak responses are maladapted—evinced by the fact that surge funds that might immediately assist in international outbreak responses are often tied up in red tape, administrative binds, or formalities. But look at them another way, and you'll ask yourself why PATH was responding to an outbreak in the first place; why an ostensibly development-focused NGO was positioned as a first-line 'humanitarian' actor. There is nothing obvious about whether 'capacity building' funds *should* be used for emergency outbreak responses. Plenty of commentators have already discussed how 'stove-piped' donor funding structures are problematic in the way they address global health security challenges.[4] But if we are to play fair, it is not unreasonable that a capacity-building CoAg would keep restrictions on immediate relief and outbreak responses.

In both cases, you'll see that *who responds* and *how* are questions that often go beyond who *should* respond and *why*. Institutions and experts often arrive at the table because they are *simply there, at that place, at that time*. Even further, in this case, so much of our positioning and our responses to incoming requests were wrapped up in initiatives that pre-dated or extended beyond the Ebola emergency itself. Drawing clear

[4] See especially Glassman and Silverman (2015): https://www.cgdev.org/publication/ft/restructuring-us-global-health-programs-respond-new-challenges-and-missed-opportunities

lines to declare which efforts were for the emergency and which were tied to longer-term capacity-building projects was hard, if not impossible.

And anyway, the DRC was also responding to both a measles and a vaccine-derived polio virus (VDPV) outbreak at the same time, so the emergencies had stacked on top of one another, bleeding into each other's situation reports and response meetings. Before long, cholera was also rearing its head, as the early signs of a country-wide outbreak began to emerge. It was hard to keep all these urgencies into tidy boxes that conformed to administrative categories.

That urgent cry that '*we must do more*' was met with an enthusiastic ethical and resource mobilization, but also with the vexing question: '*yes, but how?*'.

**Defining Scope**

PATH as an organization had deliberated over its role as a first responder to outbreaks or public health emergencies well before this DRC Ebola episode. It was an issue that had been explicitly discussed from the very earliest moments when deciding to chart institutional involvement in GHS as a domain. Along with colleagues Loren Becker and David Kaslow in PATH's Center for Vaccine Innovation and Access (CVIA), Linda, Olivia, and I had been working as a small core management group of a 'Health Impact Team'—a "HIT"—focused on Epidemic Preparedness and Response (we called this the "EPR-HIT").

The organization had developed these "HITs" as internal strategic efforts, designed to help "*select and pursue high-priority opportunities; connect technical staff; share learnings across projects and locations; and create and implement a work plan to turn ideas into impact."* In organizational speak, they were "internal collaboration infrastructures", pulling together PATH staff and programs around thematic or strategic issues or areas of engagement.

From the earliest draft of the strategic framework for the EPR-HIT, first response to epidemics was considered "out of scope". We were not outbreak 'first responders', nor would we want to become one. In Linda's words, we would not benefit from (or benefit others) by "chasing all the outbreaks" around the world and trying to mobilize for

them. That was for well-established and well-positioned institutions with long track records of response: WHO, MSF, UNICEF, for International Rescue Committee, the International Medical Corps, etcetera.

But again, in DRC –we were there, at *that* place – at *that* time. We were already at the table. And we were taking part in building *new* tables; projects and efforts blending into and out of an emergency modality, both with Trad and Dr. Leon in the country, but as part of our work closer to home in the Seattle offices.

The EPR-HIT became a different kind of 'communications infrastructure' for PATH during the outbreak, beyond its stated intention as a long-term strategic positioning device. Linda 'hijacked' the HIT as a convening conduit, facilitating regular meetings with the team members to share outbreak updates and establish cross-programmatic coordination between offices and groups, both at HQ and in-country. Like she had done with her mobilization of external partners immediately following the notification of the outbreak, she was able to leverage existing networks and lines of communication to connect groups internally at PATH as well. I recognized the familiar deftness in designing and rallying associative networks, pulling groups into spontaneous architectures to respond to urgencies and emergencies.[5]

* * *

Communication efforts during this period were polarizing, presenting the entire organization with a brief, but revealing 'stress test' of its ability to move in unison. As the outbreak stabilized–with the coals still burning, and not quite embers–our media strategy began to expand. News pieces were beginning to see the light of day, both locally on our PATH website, as an 'update blog', as well as in a collection of wider news media publications.[6,7]

Emergent internal organizational networks would flare up – with circulating drafts seeking rapid review from multiple contributors dispersed around different desks in the organization. Paratextual comment panels would fill up in Word docs and just as quickly

[5] This is not to say the effort to repurpose the HIT for the outbreak was uniformly lauded or applauded. In some cases, there was pushback against the HIT being repurposed for outbreak communications within the institution.
[6] See https://blog.path.org/2017/06/path-at-the-shifting-front-lines-of-ebola/, accessed Oct 31, 2017.
[7] See https://www.wired.com/2017/05/ebola-returns-central-africas-virus-hunters-ready/, accessed Oct 31, 2017.

empty out as changes were rejected and accepted. These ephemeral associations, embodied in the comment lines and the email chains, would evaporate once pieces were forwarded or published.

* * *

Internal office politics and frustrations momentarily flared, mostly in response to being 'skipped over' for communications reviews. But this was easily buried under a general sentiment of internal comradery—the urgency of institutional response and the glimmer of a spotlight.

Not everyone was so ready to bury their feelings, however. We soon began to receive notice from external partners that they had been written out of some of our communiqués, much to their chagrin. In particular, our DRC team received a very firm email from the Humanitarian OpenStreetMap team that lamented their exclusion from media coverage to date. As they had spent "evenings, nights, and days to prepare, publish, validate, and coordinate a total of 17 crowdsourced mapping projects," the HOT team lead felt that the OpenStreetMap community had been taken-for-granted and overlooked in the 'cloud of partners' assisting in the outbreak.

These oversights were rectified immediately with a mollifying revision to our blog, and an apologetic reply both by Trad and our communications teams. But in her complaint, the DRC-HOT team leader also revealed a curious fact that was never specifically addressed or discussed at length:

> Regarding the satellite imagery, the strips [i.e., image segments. –Ed.] that we actually used were not "new" despite the reprogramming of DigitalGlobe's satellite[s]. Those images were their most recent usable archives (2014-2016) and had variable quality. We are still very thankful for their contribution. But that was again people from the Humanitarian OpenStreetMap Team community that actually took care of the DigitalGlobe images treatment, in order to make them accessible to the OSM worldwide contributors.

Like in so many other cases, the emergency had not only eclipsed specific contributions and communities, but flows and sources of data – data that was produced but never used. In this case, even though satellites were 'tasked', and new satellite imagery was acquired around Likati –it never ended up in the hands of HOT-OSM

community. Instead, existing archival images from recent scans of the area passed through a multiplicity of hands, sent over to the UCLA team and HOT-OSM group to crowdsource the mapping efforts.

This was an emergency modality, confounding timelines and temporalities—simultaneously eclipsing and revealing both the existing and the novel: people, data, things, relations, reasons.

**Sleight-of-Machine**

New connections outside of the organization were being made during the outbreak, as part of a general mobilization of partners, resources, and ideas. As the regular epidemiological reports coming out of the DRC's MOH and WHO indicated, there was an acute and pressing shortage of chlorine. Chlorine and chlorination are critical needs during epidemics, helping front-line responders sterilize medical supplies, equipment, water, bedding, and surfaces. This was especially critical for a deadly viral pathogen like Ebola.

Linda had made a connection with a local Seattle company – Mountain Safety Research (MSR) – through PATH's water and sanitation team members. You might know MSR as producers of high-quality outdoor gear like tents, camping stoves, and Thermarest sleeping pads. They also manufacture a well-known line of water filters for the backcountry, and as a result of their water filtration and treatment expertise, they decided to create a philanthropic division for Global Health, focused on providing water sanitation technologies to the developing world.[8] One of the division's most prominent products, launched in 2015, is the "Community Chlorinator". It was created in partnership with PATH, and uses electrochlorination techniques to create concentrated chlorine solutions using water, salt, and a small power source.[9]

As it was "all hands on deck" for Ebola, Linda and I hopped into a company car and made our way over to MSR's offices and warehouse, a fieldtrip that took us to the

[8] https://www.msrglobalhealth.com/our-story/

[9] https://sites.path.org/water/water/technology-se200/ Unlike personal backcountry filters, which rely on a "flow" of water through pumping, the SE200 rapidly creates a concentrated chlorine solution that can be diluted for treatment of up to 200 liters, or 55 gallons of water at a time.

industrial south end of Seattle. Spending a few hours with the MSR Global Health team, we were able to demo not only the SE200, but other prototype devices for medium-scale water filtration. Our objective, however, was to secure a donation of a number of the SE200 units for use in the immediate emergency situation in Likati. To their credit, the MSR staff were warm, welcoming, and very eager to send us on our way with a few of the donated units.

The only problem: how would we get the chlorinators from Seattle to Kinshasa, and then from Kinshasa to Likati?

Fortunately, one of our Digital Health leads was scheduled to make a trip out to the DRC in a couple of weeks' time. The devices ended up packed away in her luggage, flown with her over to our Kinshasa office for direct delivery. At the same time, Annie Rimoin and her UCLA group were making regular flights out to Kinshasa to participate in their ongoing project efforts in the DRC, as well as expanding their contributions to the immediate outbreak response. Recognizing the urgent need for rapid diagnostics for the epidemic, Rimoin likewise packed away a multiplex diagnostic machine, known as the "GeneXpert" in her suitcase. The machine is an automated, 'plug-and-play' device that uses these kits to diagnose infectious diseases like Ebola, HIV, STIs and Schistosomiasis. She hand-delivered it to the National Institute of Biomedical Research in Kinshasa (INRB), along with 150 donated multiplex testing kits.

The WHO actually posted a picture of what I believe is the very machine that Annie sent over during the height of the outbreak. They provide a write-up that details the diagnostic efforts during the outbreak, one that notably does not mention UCLA or Rimoin's delivery of the device(s) to Kinshasa and the INRB.[10] Likewise, soon after their delivery, I lost track of both the GeneXperts as well as our SE200 chlorinators.

I'm not sure if they ever made it to Likati, or if they were ever used during the outbreak.

During the outbreak, PATH and UCLA had also been working with the Ministry of Health (MOH) to deploy GPS-enabled smartphones to the field to assist in geospatial

[10] http://www.who.int/emergencies/ebola-DRC-2017/articles/rapid-diagnosis/en/. The GeneXpert machine is pictured in use by INRB staff here: http://www.who.int/entity/emergencies/ebola-DRC-2017/articles/Ebola-testing-3-630px.jpg

data collection and case management. But all three offices recognized that cellular-based data efforts were not long-term solutions for communications or network improvements in the DRC. As it turned out, the Minister and the Ministry of Health had been dealing with a backlog of devices that had found their way into the country—devices that were intended to improve data connectivity at a national scale.

In 2013, GAVI had decided to donate a large collection of "VSAT" satellite internet connection kits to the DRC.[11] VSATs are essentially satellite-based internet terminals that link together and handle small amounts of bandwidth, providing remote connectivity in areas where terrestrial land-lines or connections are otherwise not available. When I refer to a "large" donation, I mean somewhere in the order of 580 kits were handed over to the MOH, which included terminals, satellite dishes, and modems. By 2017, when the outbreak was ongoing, about 370 sites were installed across the country, with about 200 remaining to be brought online. At PATH, we had been brought—mid-stream—into deliberations about what to do with these devices. We were quickly discovering that not only had there been no catalogue of the current condition of the stockpiled donated VSAT units (many were apparently in significant states of disrepair, and *all* of them were outside of any kind of manufacturer's warranty), many of those that had already been installed were already non-functional.[12]

Here's another lost fact: there had been a VSAT unit already installed in the epicenter of the outbreak, the Likati health zone, sometime between 2014 and 2015. It was one of those which was no longer functioning, due to a lack of electricity and "user errors" at the health outpost.

This was all revealed as part of our Digital Health officer's visit to Kinshasa, in which she participated in a 'fact-finding' mission to assist the Ministry of Health in forming a needs assessment and investment strategy to deal with the immense logistical efforts required for installing, maintaining, and operationalizing the VSATs over the next few years.

[11] GAVI, the Vaccine Alliance is a private-public partnership organization focused on increasing availability and access to vaccines in poor countries.
[12] 63 out of the 370, to be exact.

It was only during writing that the full irony of this struck me: the same officer who was handing over our donated devices was there to help the Ministry deal with the immense burden of donated devices. A strange, unreciprocated relationship; the endless gifting of global health.

**The Fade**

The intensity of our own mobilizations began to fade as it became clear that the outbreak was likely going to be contained. By July 2, 2017, all of the active cases in the country had been tracked, and the mandatory 21-day follow-up period had lapsed – allowing the WHO to formally declare an end to the outbreak. The internal 'stress-test' for our own organization had faded into a regular routine, an extended discussion of longer-term organizational reforms. The HIT meetings that had been repurposed for the outbreak were summarily canceled, as the hunger for updates lapsed. Projects took on a different urgency; focused again on building up generalized 'capacity' rather than putting out the fire of an ongoing emergency.

Just as soon as the fire was dimming, the emergency became *about* something other than itself: both "a tragic reminder of how dangerous microbes thrive in places with poor health systems"; about global 'vulnerabilities'; and about a need to not only *do* more, but to *learn* more. Months later, it was the vaccine-derived poliovirus outbreak that was dominating attention, as well as the surge of cholera cases in Kinshasa.

"We have learned well," the newly-elected WHO Director General commented to Wall Street Journal reporters, reflecting on the fact that this Ebola outbreak did not turn into a repeat of the 2014 West African tragedy.

"But it's not enough."[13-14]

[13] https://www.wsj.com/articles/are-we-now-ready-for-ebola-1495812444

[14] An important postscript: during the final phases of editing this text, another outbreak of Ebola happened in the DRC – almost exactly a year later. At the same time, the US Presidential Administration had moved to rescind the remaining contingency funds (~$250 million USD) for Ebola responses overseas. For a critical response, see Laurie Garrett's (2018) blog post in *Foreign Policy*: http://foreignpolicy.com/2018/05/09/ebola-is-back-and-trump-is-trying-to-kill-funding-for-it/

## 6 – Seeing Vital Numbers

"I like to reserve these corner offices," the senior officer at the Bill and Melinda Gates Foundation (BMGF) tells us, holding the door open. We file into a room almost identical to where we held our last meeting almost three weeks ago. "You get a nice view - you can see a lot outside." The view is indeed impressive: a 'green' roof basks under a rare sunny sky of early spring in Seattle at the BMGF headquarters. Up here one has a line of sight to the city's rapidly changing skyline; an unobstructed vista.

Linda and I had returned to BMGF to 'thread the needle' of an ongoing project proposal, an effort which had now merged with a larger 'quilt' of offices and institutions around the world. London was calling (late); Johannesburg on the line; Kinshasa with its usual disconnections and telecommunications mishaps. This would be shared, but tightly-held time with a strict agenda. Introductions, overviews, next steps, discussion points, action items. A panoramic conference camera revealed the whole room assembled with focus and intent - a tableau with the city skyline as a backdrop. I note a palpable 'globality' to the proceedings; all the staple technologies and formalities in play that try to transcend the strictures of distance and geography.

We had assembled to discuss how to grow and enact a nascent geospatial project – one that would utilize satellite imagery to improve digital mapping data in the Democratic Republic of the Congo (DRC). The project had a deceptively simple two-part objective – first and foremost, it aimed to improve available maps for the vast territory of the DRC. Second, it wanted to enhance population estimates for the country, which has not had an official census completed since the early 1970s. Unpacking and developing these interrelated issues belied those two simple objectives, and revealed a boundless complexity. This complexity was particularly acute as the partners convened and aligned their efforts with other pre-existing initiatives led by the BMGF and a host of other actors — UN offices, NGOs, and development agencies.

In the meeting room, the senior Foundation officer elicits a narrative exercise from the group, asking each partner to provide an overview and brief history of the project proposed to date. The idea was that this would help the group members

explicitly articulate how the project idea was furnished, and what exactly it was we all wanted to do. Perhaps by re-tracing our individual tributaries, we could converge into a single river of effort. Pushing always forward toward the sea, trying to make sense of this landscape.

* * *

The project was—according to one narrative reconstruction—about "missing denominators". The need for the intervention was predicated on a shared recognition that population figures for bounded geographic areas (e.g., states, administrative areas, sub-national provinces, and health zones) are often sparse, incomplete, or missing entirely. This is especially the case in 'fragile' states like the DRC, which are often without the resources or capacities to conduct full-country censuses. Population figures were, for everyone assembled, inarguably "foundational data"—measures essential to any and all programmatic efforts, no matter their sector or objective.

To know the population, in other words, is not only a matter of central importance to the State—capital or lowercase 'S'—it was critical for NGOs as well. "In order for us to declare 'elimination' [of Human African Trypanosomiasis] from a region," noted another senior officer in the meeting, "we have to have a threshold of one case per 10,000 individuals".[1] Without accurate population figures, there were no regional indicators of elimination. In other words: no denominators, no elimination. Everyone was missing 'vital' statistics.

To rectify such absences, we came together to deploy and expand the early adoption of advanced geospatial and modeling techniques and technologies. This project's innovation relied on how it intended to link up geospatial imagery with population modeling. The idea was to first source up-to-date, high-resolution imagery of delimited, but 'representative' geographic areas across the DRC – 'from the most rural to the most urban'. High-resolution satellite imagery would be obtained for these regions, as well as the rest of the country's land areas. Simple enough.

From these images, advanced machine-learning algorithms could be applied,

[1] See Franco et al. (2017), https://doi.org/10.1371/journal.pntd.0005585

which could be automated to “extract” features and points-of-interest onto separate data layers. This technique—known as ‘feature-extraction’—generally focuses on houses, settlements, or roads, but other points of interest are discussed for this project, including health facilities and immunization sites. These layers, once ‘extracted’ from the raw imagery, could then be overlaid back onto new digital maps – or mined for analytics.

As circulating concept notes outlined, the project aimed to piggyback on larger efforts that engaged host governments as they collect basic geospatial reference layers (settlement names/locations, POIs, administrative boundaries, and road networks), which would then be shared on a ‘global’ geospatial analytics platform. As a supportive background to the feature-extraction work, efforts would be targeted to build capacity within governments to manage, use, and sustain the geospatial data across all sectors. It would be part of a targeted, stepwise approach to improve fundamental geographic information system (GIS) capacities in the African region, something the Foundation and WHO had been focused on for a few years now.[2]

* * *

Doing this kind of work at the scale of an entire country was only made possible by the recent advances in machine learning, as analyzing the imagery covering the entire land masses of these countries by “hand” (i.e., by human eye) was simply too large a task. Scaling up these feature extractions has been popularized through techniques like ‘crowdsourcing’, which solicit contributions from public Internet users to update or populate maps with features like roads and businesses. It has been employed most prominently by organizations like OpenStreetMap (OSM), which invites anyone to sign up for an account and ‘map the world’.[3] In the context of this project, however, crowdsourcing as a methodology was questioned both for its rigor, its comprehensiveness, and its reliability. Soliciting anonymous Internet volunteers to contribute to maps, it was argued, will lead to inconsistencies in data quality and completeness. And anyway, the online mapping community could only ‘see’ and ‘do’ so

[2] Always a nebulous term, in this case, ‘capacity building’ meant a combination of activities, such as trainings, initiating and building fundamental systems for data collection and management, and providing ‘roving’ technical experts to lend support and assistance.
[3] http://openstreetmap.org

much on the scale of an entire country – even across those representative geographic samples. Perhaps most importantly, any data used in crowdsourcing must be first made *public*, including both the satellite imagery itself, as well as any outputs of extracted features – something that *no* state, donor, or satellite imagery provider would be willing to do for such broad territorial coverage.[4]

But it was not as if employing machines to do this work would be unproblematic, either. As previous pilot efforts had demonstrated, even when leveraging the world's third largest supercomputer—housed at Oak Ridge National Laboratories– doing a first pass of feature extraction still took about 9 months to process and analyze the large amounts of imagery data.[5] Models take a long time to 'train', and need to be 'localized' to the specific imagery they are analyzing. The results, however, were considered more accurate and consistent than features extracted by an Internet public or 'crowd'.

In either case, the final aim was to translate 'raw' images from space into 'processed' layers of data. These extracted data layers—which could be overlaid onto any digital mapping software, such as Google Earth or ArcGIS—could then feed into further algorithms, which would begin to estimate population densities and demographic numbers based on these models. In short, using automated machine-learning technologies, satellite images could begin to provide representative estimates of area population, which could then be further extrapolated to provide a "best guess" census for the entirety of a state territory.[6] It was the shortest way around to producing a workable state-wide census estimate. This combination of techniques was consequently referred to as remote or satellite 'microcensusing'. It was a complex agglomeration of methods to address a simple need for a best-guess population denominator, overlaid on a collection of updated maps of the state.

* * *

As noted, this cluster of novel demographic techniques had been targeted at so-

[4] I couldn't even get informal access to previously collected health zone or administrative boundaries from our close partners, who had conducted some preliminary geospatial work in the country.
[5] Yes, the same Oak Ridge Laboratories where the Manhattan Project research was undertaken.
[6] For much more information on the complex techniques used here, please see WorldPop's website: http://www.worldpop.org.uk/about_our_work/case_studies/

called “problem” or “fragile” states — ones that did not have the capability, or the interest, in conducting a national census: Somalia, the DRC, South Sudan, et al. A new technology of population enumeration, it was argued, would be needed for these places; traditional ‘house-to-house’ census techniques would be unfeasible not only due to the challenge of access, but because in many cases, the resulting data would have nowhere to ‘live’. The sheer scale of replicating state-based census procedures - especially in places often mired with civil war, population resettlement, famine, among other challenges – was fiscally and logistically near-impossible. One could not go ‘knock on all the doors’, even if there was all the money and time to do so.

Perhaps more importantly, even if accurate data was collected, it would remain tied to the state that produced it. To the ‘global’ (i.e., non- or para-state) actors assembled at this table, this data would be of little use unless it was housed and made accessible in an interoperable ‘global’ platform. In other words, the working assumption at the table was that data about a single state should not be ‘owned’ by a single state. ‘Globality’ demanded both the enumeration of the national population figures, but also the emancipation of this data into a ‘global’ platform that transcended it.[7] In this sense, the global was here less of a question of *territoriality* than it was an emphasis on *interoperability*.

* * *

The proposed satellite-based microcensusing project being discussed at our table addressed two major challenges in tandem. First, the challenge of *access* would be overcome by the panoptics of global satellite imagery. “The sky is no longer the limit,” once joked a representative of a satellite imagery provider when discussing the use-cases of their satellite fleet. But, as noted above, sheer imagery was not sufficient; one had to make these *images* into *layers*, and *layers* into *estimates* through algorithms and models. Thus, the second challenge: *making vital data viable*. For this, the global platform was proposed to house the final population estimates, maps, and data layers. Interoperability was the criterion for utility and impact of this project – *data about living*

[7] See “WorldPop”: http://www.worldpop.org.uk/

*had to be made into living data.*

While many of the technologies and techniques that were being discussed were rather bleeding-edge, none of them were entirely new or untested. Microcensuses had been conducted before, with the most recent demonstration project sponsored by BMGF to model the population of Nigeria.[8] The effort was led across 2013-4, and facilitated by some of the same partners again at our table in 2017: Oak Ridge National Laboratories, FlowMinder, WorldPop, and eHealth Africa. The earlier work in Nigeria created detailed geo-referenced basemaps for 10 states in the north of the country, which were then expanded to the remaining 27 states to create a comprehensive population model estimate.[9] The data was utilized by the Global Polio Eradication Initiative for both vaccinator tracking and for 'microplanning' – a term referring to hyper-localized service delivery routines for vaccine campaigns in health districts. The data proved critical for (temporarily) eliminating wild polio from Nigeria, and it was quickly recognized that the "rich" geospatial dataset could have

> many additional uses…including serving as a base layer for specialized datasets, facilitating measurement and evaluation efforts, and providing an ideal matrix for the development of a bottom-up population model based on settlement feature extraction and local microcensus data (Weaver et al. 2016).

The technique of microcensusing was thus not entirely novel; and the State's responsibility to enumerate its population remained intact as well - at least in the ideal. But the pragmatic compromise was to recognize that some states ultimately *could not* live up to that task, and that other 'global' actors needed to step in. The trade-off was that in doing so, the ownership and management of these numbers could simply not remain in the hands of countries themselves.

This position of distributed responsibility for vital numbers is also not entirely novel: non-state actors have conducted national censuses in other contexts, using other methods. The University of Washington's Institute of Health Metrics and Evaluation (IHME), for instance, conducted the entirety of Saudi Arabia's 2016 census and - as

[8] http://www.humanitariantechnology.org/HumTech2016/georeferenced-settlement-mapping/
[9] http://rsif.royalsocietypublishing.org/content/12/105/20150073

noted - the same set of actors I was engaged with for this DRC project had already completed a modeled microcensus of a majority of the Nigerian and Cameroonian states.[10]

But this was proposing georeferenced census modeling *without widespread field-validation and ground-truthing* – both techniques that were seen as essential in the case of Nigeria and Cameroon. Now *this* was substantially a different project, one that relied on a unique combination of cutting-edge geospatial imagery, machine learning algorithms, supercomputing, and population estimation. In short, the Nigerian and Cameroonian microcensuses required teams out in the field to go knock on selected doors to help generate estimates and validations. Satellite sensing and settlement extraction offered the promise to remotely sense and model an entire population, without ever stepping foot in the country itself. This is a radical break with the very idea of what was needed to conduct a census, and what kind of data would come out of population estimations or enumeration.

In addition, the demand for 'global' stewardship and interoperability of this information across a not-yet existent globalized data platform was unique. Its stated assertion was that the data is simultaneously the (often failed) responsibility of the state to produce, but also obliged to transcend the confines of its borders, administrative stewards, or nationalized technical systems. We were not just talking about 'avalanches' of vital statistics anymore, nor was this just about numbers (Hacking 1982). This was a new terrain of the census, of enumerating the state, of a national population, and their territorial expanses.[11]

[10] http://www.healthdata.org/ksa/projects/saudi-health-interview-census

[11] For one of these proposed 'global' platforms, see Tatum (2017) and WorldPop: http://www.worldpop.org.uk/

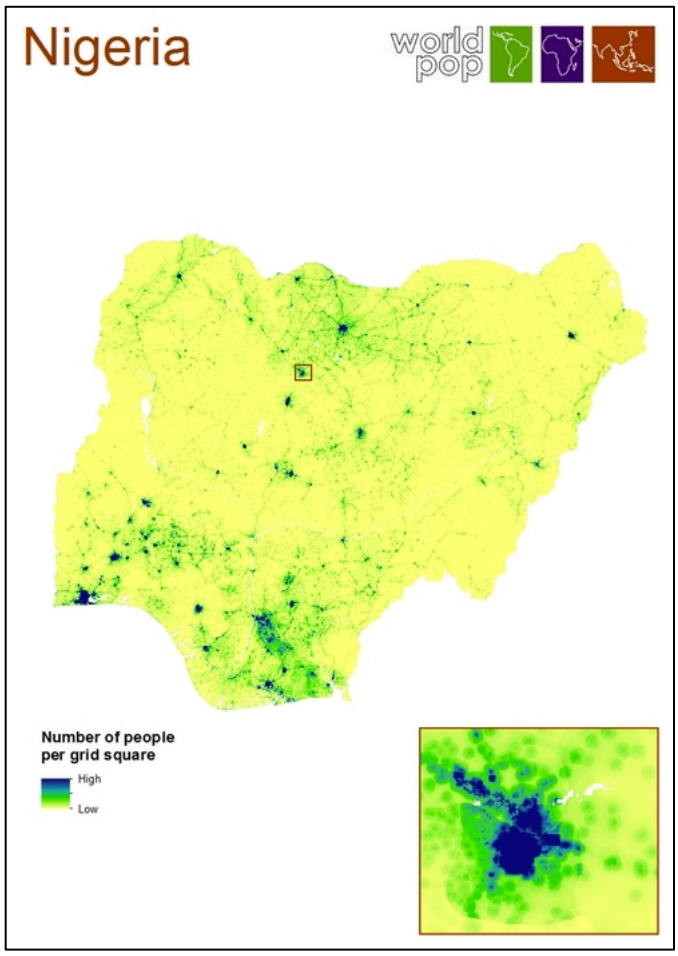



**Figure 7**: *A snapshot of the raw population data created via microcensusing and population modeling in Nigeria. Image and raw data provided by WorldPop (2013)and available online at [http://www.worldpop.org.uk/data/summary/?doi=10.5258/SOTON/WP00196](http://www.worldpop.org.uk/data/summary/?doi=10.5258/SOTON/WP00196)*

If all of this sounds terribly complicated or abstract, it's because it was. Walking away from that meeting at the Foundation, Linda and I let out a heavy sigh. While we were both eager to push ahead and participate in the larger effort, Linda rather straightforwardly declared that it was "one of the most information-dense meetings I've ever been a part of". Too many voices, too many angles, too many competing priorities.

This much was shared across the handful of in-person meetings at the BMGF, as well as through a flurry of emails and regular teleconferences to initiate the planning stages of the project's expansion to the DRC. From this churn, we learned that the earlier pilot microcensus conducted in Nigeria had successfully modeled the national population (Alegana et al. 2015). But we also learned that this 'vital' data could not survive, so to speak, since the data had not been produced with the full 'buy-in' or

participation of Nigerian state authorities. While the details provided were scarce, it was clear that the national population estimates were repudiated or outright dismissed by the national government—largely because the data was not validated by any state officials, not housed in the national registries, and not stewarded by national statistics officers.

That mistake was forefront on the mind of the senior officer leading the new initiative at the BMGF. From the very first meeting, everyone was informed that governmental buy-in was a priority concern; it would be step one in the stepwise building of the project. Central and National Statistics Offices and Officers (CSOs/NSOs) were considered as 'obligatory' allies—stewards of data that would not only validate numbers, but render the resulting data potent and relevant within the states in question. Producing data alone was not enough—no matter its accuracy, its utility, or what cutting-edge techniques had been deployed to gather it. The data instead had to be legible, intelligible, and authorized by the apparatuses of the State itself. And, of course, *interoperable*.

**This Will Be The Place That Data Lives**

As emphatically argued by DRC project liaisons, the Foundation officers, and the UN representatives, this 'satellite census' would have to be implemented through the National Statistics Office (NSO). Having the NSO lead the process would ensure that the results of the census would form part of the national statistical system. Enrolling the National Statistics Office in the satellite census seemed simple enough, but this was where things got complicated in a slightly different manner.

Back in the teleconference session, I could feel our UCLA DRC colleagues squirming in their seats. They had just returned from the country, after conducting a series of mapping exercises and geospatial workshops with national stakeholders. Following these geospatial meetings, which placed the Ministry of Health at the helm, the Minister himself had intimated that geospatial data, maps, and GIS capacity would ultimately be part of his political 'legacy'. At the teleconference table, and later in candid follow-up discussions, the UCLA colleagues stressed how important it was that the new Minister of Health had decided to champion geospatial data. They stressed how critical

it was that this political traction be turned into an opportunity to build out foundational GIS data capacity in the country.

"The geographic information officer," they note, almost as an aside, "is the [Health] Minister's relative."

* * *

The fuzzy avatars of the UNFPA officers came into view as they spoke on the teleconference line.

"We appreciate that the Ministry of Health has taken such an interest in the data and the project, but we want to ensure that multiple sectors and ministries are involved all the way through the process," they argued. The tension was palpable and carried through the meeting, even as we discussed the other stages of planning. Debates flared up in subsequent email chains.

Days after the in-person meeting, a stern, but formal declaration was fired over to the large group by the UNFPA representatives. They emphasized their strong stance that the project would need to proceed with leadership from the National Statistics Office, *not* the Ministry of Health (MOH). The country office staff and advisors expressed major reservations about approaching the project through the MOH, which "cannot be [the] lead ministry for the population census or any other micro-census activity," including the satellite census proposed. However, from their perspective, the MOH would be "like other ministries" in the country, in that they would be considered part of the broader task force propelling the microcensus along.

Our UCLA colleague's response to this was both tense and terse: "*This does not sound good*."

* * *

As the project development whirlwind continued, we were pushed to the periphery of the planning efforts. A well-known academic professor was brought in and called out during calls and emails as a point-person and a mediator. There were general murmurs of perplexity as to why he had suddenly entered into the fray.

Seeing that he was brokering differences between the partners, I interjected. "I think he's been brought in just to manage the relationships between all of us and make

the project feasible." It seemed to explain enough to make the questions go away.

As part of that management—the project's early arc—we became one of the partners who fell off the map, later to be re-connected with it after I had left the team.

**Modeling Like A State**

Moving through the suspended animation of project development and design, I realized that at its core, this project involved a curious juxtaposition of problems. On the one hand, we had assembled a very classical set of modern problematics; one could call these problems of 'classical biopolitics' (i.e., biopolitics as Foucault originally described it in his lectures at the *Collège de France* in the 1970s, and as Ian Hacking later expanded in his history of state statistics [Foucault 2003; Foucault 1978; Foucault 2007; Hacking 1982]). These were problems of the enumeration and calculation of the 'population' as a vital element of the State.

And yet, mixed with this 'classic' biopolitics was a constellation of technologies and problematics that were irreducible to these traditional notions: a 'global' collection of non- or para-state actors who assembled to deploy novel population estimation techniques; estimations that would only be relevant insofar as they could exist on a platform that was imagined as global, non-state based, and ultimately 'non-territorial'. The output from this project, if it moved ahead, would be *'social'* data that *would not exist if it was delimited to the nation-state*.

In other words, assembling these techniques and demands for national population figures interpolated the State as an entity—but a State enrolled in a project that was decidedly 'global', i.e., non-reducible to the state itself. The 'global' as an idea here was not conditioned by its abstraction; it was not "above" or "aside" the state or nation. It instead indexed a set of concrete actors and specific technical platforms that were made up of outputs, deliverables, and collaborative groups that worked within, on behalf of, or adjacent to specific collections of states. The State was itself enrolled into a project much larger than itself, but entirely dependent on its participation.

The 'global' was palpable here as a demand for dispropriated (or, 'open') population figures; the techniques for acquiring it (including those in the project

assembly); and in the technical platform(s) that would house it. At the level of data — the global appeared as a platform to house national statistics, but a 'national' articulated through novel assemblages of technologies of automated imaging, analysis, and estimation. A national that would be disaggregated from *terra firma*—from field validated surveys and cartographic techniques—and instead seen through automated sensing. Not quite a de-territorialized state, but a novel methodology that posed the questions of territory and population differently. Maps off the grid and into the cloud; population figures off the registry and into the modeled estimates. Data out of the proprietary and into the *open* and *interoperable*. The 'global' is where we find these interoperable, modeled vital statistics— data tied to, but decidedly 'untethered', from the nation-states that they referenced.

The Global State is also one that gets tinkered with differentially in this environment—rather than appearing as a monolithic formation monopolizing data, violence, or authority, it instead is a negotiated communal structure of relationships between 'global' organizations, new remote sensing methodologies, political legacies, and territorial enumerations. It is a question of "buy-in" and stepwise "build-out", of fitting together component pieces to create a harmonized steward of a project that is both embedded, and transcends, the confines of the State.

Traditional Foucauldian biopolitics of the late 18th and early 19th Centuries described a pivot within state exercises of power over a new concept of a numerical aggregate of the national 'population'. In that historical configuration, the State remained the apex and locus of its stewardship, its management, its reification. The 'social' was ultimately a question of the 'vital' character of the state, and its management was to be maintained by the apparatuses and technologies of the nation-state, be they based in censusing, vital statistics, or otherwise.

I couldn't help but wonder—what disruptions might be introduced by generating 'social' statistics and vital data that were "extra-national" in multiple senses? I mean "extra-national" in a number of ways: (a) their need was predicated on demands arising from outside of the States in question, as "globally-relevant" figures; (b) the techniques and technologies that were designed and deployed to collect them were developed

outside of State or parastatal organizations; (c) the stewards of the resultant datasets would not be confined to State-based organizations, but instead be the NGOs that designed and deployed the surveillance efforts; (d) the methodology used to collect the data would not rely on any field-presence or 'ground-truthing' in the country itself; (e) the basis of this stewardship relied on a 'globally' interoperable platform, housed outside of the auspices of any single national database or actor. Taken together, the combination of these five unique elements rendered this project outside of traditional notions of biopolitical enumeration.

In other words, this presented a curious juxtaposition: a social project that both worked *outside the State*, but was also forced to run right *through* it. It is this paradox that sits at the heart of a concept like 'biopolitical interoperability' employed in earlier sections.[12] Just like with global health security more broadly, the nation-state—and its capacities, its population—appears as a fundamental *but not sufficient* basis of intervention for these 'global' projects. Novel techniques, technologies, and expert negotiations enroll these states in a project larger than themselves, re-configuring them in both intention and effect.

* * *

While I'm arguing that these 'global' formations were not reducible to the nation-state, the State was an indispensable, essential component of this global assemblage. That's why I say the project worked *through* the nation-state: these novel institutional and project configurations — ones that 'rewrote' classical biopolitical assumptions— absolutely had to be routed through those classical institutions of modernity. As noted, from the outset and stressed at every meeting without fail, "ownership" and "buy-in" had to be housed within the National Statistics Office, with Central Statistics Officers, and championed by Ministry offices. It is not as if this global project dispensed with the

[12] It also recalls some of the initiatives outlined by Peter Redfield (2012) in his article on "bioexpectations". There, he discusses innovative programs and projects that each "respond to a common general problem: how to care for populations beyond the reach of state infrastructures for living" (178). The problem is slightly different in our case— instead, it could be reframed as how to enable state infrastructures able to care for (and have knowledge about) their populations, i.e., how to 'extend' the reach of infrastructures for life. This is not about providing "small-scale, self-contained" solutions (178), but reconfiguring and installing innovative state infrastructures to be both functional/legitimized internally, and interoperable with global platforms externally.

nation-state; it simply interpolated it differentially. Perhaps in that sense, it worked *on* the State as much as it worked *through* it.

The State, in other words, became not only a basic unit of consideration, or a vestigial wrench thrown into the global engine, but a specific site of deliberation–a unique problematic to be managed as part of the elaboration of a technical project. The State, with all of its authoritative institutions and offices, its informal and confounding relationships between officials, its unpredictable politicization of enumeration and denominators—forced a deliberate style of management by these global technical operators. They were still required to design their interventions with reference to the level of the State itself. Not around, or in between, or aside the state, but *right through it*; a *milieu* to work through as it became enrolled into a larger programmatic effort to count the world's populations.[13]

## *Interlude*: Confessions of an 'Anti-Politics' Machine

I had been impatiently waiting for the concept note to arrive from our offices in the DRC. Our Korean and Nepalese partners were eager for us to come to terms, in quite the literal sense, over the work we had been discussing in an abstract manner for the past month regarding the potential use of unmanned aerial vehicles (UAVs, or "drones") in the country.

Linda had met a young Korean CEO of an aerial drone mapping company during an earlier visit to a conference in Seoul - a conference focused on 'appropriate technologies'. Whether or not they were appropriate, drones were a hot new technology—better than *appropriate*, they were *innovative.* Drones embodied the

[13] I don't mean *milieu* as a replacement for 'context', as much as I mean it as a "medium of action", as a material that produces effects (Foucault 2007).

liberatory promises of innovation quite aptly, floating insect-like over both land and people alike. And much like drones themselves, our project remained suspended aloft - hovering in wait. Our own machinery of project development hadn't quite clicked into gear yet; ideas were generative but vague, in an increasingly familiar play between promise and pitfall, between folly and flight.

After a lot of shoulder shrugging, I suggested Linda put fire under our colleagues to provide the initial sketches of the project. And the engine churned shortly afterward, in the arrival of a familiar package: the tripartite document - *context/problem; needs; proposed solution*. That delightful genre-piece of global health and international development: the Concept Note.

With the immediacy of habit, I reviewed the document looking for loose ends, argumentation lost in clouds—and began tidying.[14] My first move was to delete almost the entire section our colleague had written about "political context".

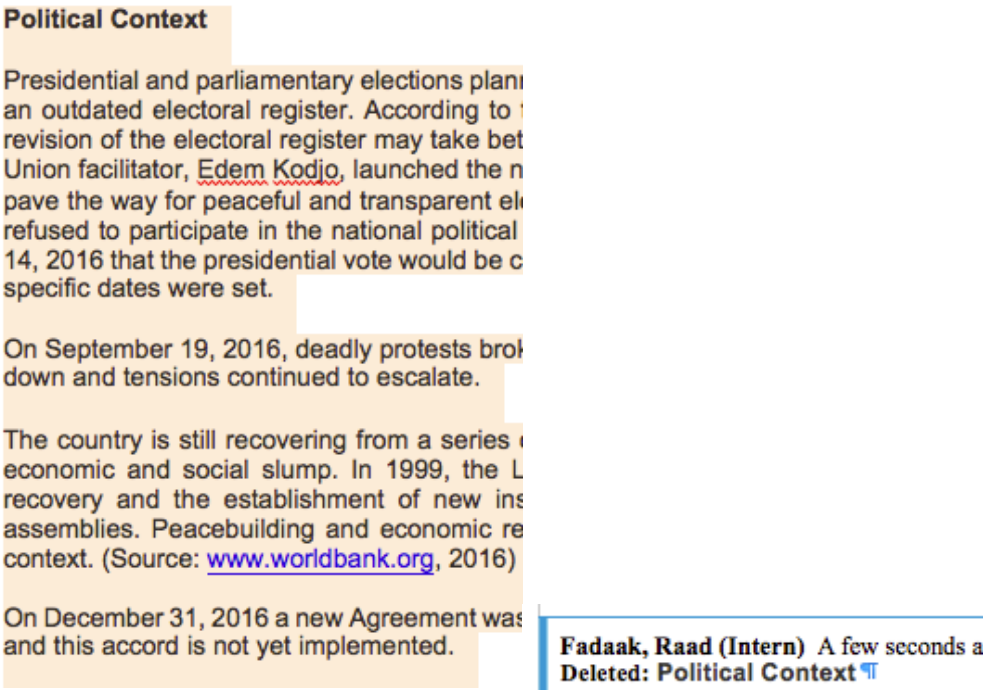


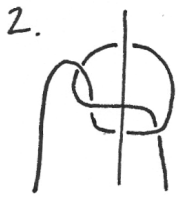

**Figure 8***: Political context had to go.*

[14]I eventually came to think about my role in doing so not so much as a 'technician of general ideas', but as a 'custodian' of a collection of quite minor, specific ones.

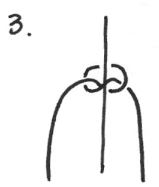
This was an alarming reflexive moment of erasure, especially for a (sometimes self-declared) anthropologist. A small, ironic act that made me pause—a rather unexpected inversion: here was the 'social scientist' running around obscuring 'social' and 'political' loose ends. The anthropologist busying himself with erasing politics, thinking them as tangential to the technical work we were envisioning. On the other side, there was the well-qualified development expert contradicting what one might come to expect from tight readings of earlier literature on development—namely, the assumption that technical solutions were categorically set apart from, and absorbed, any trappings of 'politics' (Ferguson 1990). The country officer wanted to make it clear, front and center, absolutely no assumptions could be made about "a neutral, unitary and effective national government" on which we could overlay our proposed interventions (Ferguson 1990:226).

The notion that "politics" should be a central consideration for working in the DRC will not be news to anyone, especially for those with any experience in the country. It was no coincidence that politics were the officer's very *first* order of business, with leading intent to inform his audience (both us at HQ, and presumably donors and other development/global health actors) about tumultuous national elections, political parties and leaders, and legislative stumbles. He had used the technical concept note to send us a short political communiqué.

In short, everything that the good "anti-politics machine" ought to have digested and absorbed, or rendered invisible was placed as a prefigurative contextual feature, not only for general consideration, but as a frame that actually *conditioned the very need for our intervention in the first place*. In other words, 'politics' as 'context' fundamentally structured the very necessity of technical intervention.




“The DRC is dominated by an accumulation of informal politics," I overheard repeated at various meetings and phone calls. Interventions like these, always-already ‘political’ at heart, were like “minefields with gold at the end of them”. Reflecting on the political minefields, another DRC expert once opined that the country was a “study in human variation juxtaposed against standard operating procedures or interventions”. The challenge for these technocrats, as they themselves argued, was as much about managing relationships as it was about anything else.




In late March, Linda traveled to the DRC to work face-to-face with DRC Ministry of Health officials, our country officers, and other local partners. An undercurrent of the country’s electoral disquiet foregrounded her trip. With national elections originally scheduled for November of the previous year, there had been persistent delays and deferrals as then-President Joseph Kabila aggressively extended his 15-year term. Buried under headlines, international news organizations were reporting on a series of transitional bodies, interim officers, deliberative sessions and debates, regular protests, and the contested formation of a Transitional Government.

Linda’s visit to Kinshasa ended up being coincidental with the eruption of popular demonstrations across the capital city, as protestors rallied against Kabila’s refusal to step aside and schedule an election date. Tempering our concerns for her security back at our Seattle office, Linda emailed the team regularly to assure us that everything was all right, even though our Kinshasa PATH offices had temporarily closed in response to the incendiary protests and political atmosphere.

But the disruption would do more than simply close our country offices for a day or two - just as much as it conditioned the need for our technical work, the political tumult also directly threatened it. It did so by bringing the DRC 'State' apparatus into question. That is, the very State (and its ancillary Ministerial bodies) whose operations our projects would support was suddenly cast into doubt. State offices became both symbolically and literally vacant; fleeting appointments made to interim Ministers and ephemeral working groups. The tumult backlogged both the prospect of 'innovation' - and belied my own notion to highlight and delete 'politics' from our concept note.

The disrupted reshuffling of interim ministers had brought our country officers into contact with Oly Ilunga Kalenga, who in early 2017 occupied a temporary position as interim Minister of Health. Beyond UAVs, Kalenga became quite enthusiastic about the promises offered by improving geospatial and mapping data across DRC. This enthusiasm stoked the fires of our nascent ideas, eventually merging this project with the larger effort happening at the BMGF to expand foundational geospatial mapping and population enumeration across the territory of the DRC.

As detailed in that earlier section, other development institutions in addition to PATH were disrupted by these national politics, flying in "holding patterns" until things settled down. "We want this [mapping] to be a durable good," argued one program officer over the phone, suggesting that the envisioned gains in geospatial mapping capabilities should be designed as a long-term capacity building effort, rather than a one-off pilot or demonstration project. While Linda remained optimistic about the new interim Health Minister's enthusiasm and close relationship with our program officers, others at the BMGF and elsewhere remained downbeat about the political environment's suitability for extended timelines. As everyone agreed, sustained political ownership at the national level would be essential to make any of these projects viable.

For that reason, having the Minister of Health, even if he was at the time simply 'interim', jump on as a champion of geospatial innovation was seen as a 'huge victory', both 'promoting and protecting' the project's planned activities. But 'politics' meant that this was at best, and for the time-being, uncertain. "Kalenga might just be a lame duck," argued one participant at a meeting.

We remained circling aloft, horizons obscured.


Only a few weeks after this, Interim Minister Kalenga was quietly confirmed to be 'permanent'. And so our projects felt a gust of wind at their backs. But there were other hiccups in the works. As it turned out, it wasn't only 'politics' in the DRC that were keeping us in suspension. In mid-April 2017, nearly 5000 miles away from the DRC in the United Kingdom, then-Prime Minister Theresa May called for a surprising June 'snap election'. Like the US Presidential election in November of the previous year, the election in the UK presented the potential to fundamentally disrupt the UK political environment. Here it would have been entirely tangential, but for the fact that the Department For International Development (DFID) was a key (potential) funder to the BMGF for the geospatial project work in the DRC. The political strings were pulled taught against the scope of the project's work; for nearly a month, we were told to sit tight.

As it was made clear during these exchanges, the project would not entirely be contingent on funding from DFID, but DFID's investments would largely determine its scale, scope, and its timeline. Because this geospatial initiative was not owned by any singular program within BMGF—it awkwardly straddled disease and program areas as a cross-cutting effort–a bit of an orphan. That meant the contributions of outside donors would dictate much of the project's size and remit. It also meant that a lot of the early days of project elaboration were spent by the lead program officers as they tried to grab loose ends (and loose coins) from other programs in the Foundation. At first, it was a lateral pass from the Human African Trypanosomiasis (HAT) project to the Data and Analytics desk. The BMGF Polio group had been involved with earlier mapping commitments in Nigeria and Cameroon (alongside the WHO, Rotary International, the

CDC, and UNICEF), and so were pulled into the meetings as well.[15]

Further tendrils spanned outwards to a nascent epidemic preparedness group at the Foundation, as well as a DRC-specific coordinator both in Seattle and in-country. While largely invisible to us over at PATH, this internal push-and-pull at the BMGF was invariantly a "political" exercise, as it was described to me on multiple occasions. The wrangling deciding who might champion a project and contribute extra resources to loosen the slack, all in an effort to produce data that would be relevant for multiple disease and development efforts. The problem was a project with no owners; the solution was data with no ownership. The common denominator was not just a problem of "population", but also one of "politics".

[15] http://www.giscorps.org/index.php?option=com_content&task=view&id=205&Itemid=63

## 7—Define / Design: Reimagining Catastrophe

In this final episode, we turn to the 'churn'—looking at how a professional community sustains its specialist practices and organizational work. Through multiple case studies, we glance 'behind-the-scenes' of a global health non-profit, highlighting how new technical projects are made possible, and how they garner both attention and funding. We then turn to a story of how an expert-donor alliance crafted a new category of risk, how this new category functioned as a strategic device to enroll new partners, and finally, we look at how semantic distinctions can sometimes make 'enemies' out of 'allies'.

**"Just Those Bootstrappin' Blues"**

As noted in earlier sections, even if funding structures and opportunities were still precarious for 'global health security' (GHS) after the political upheaval of 2016, momentum had continued to build for the topic as a critical investment area. Experts in global health had committed to the issue as both a political priority and a technical obligation for governments, civil society institutions, and NGOs. A sustained push meant that experts kept the topic on the radar, driving toward translating expert consensus and commitments into "meaningful actions" and programmatic follow-through. In and across global health circles, GHS had become a prominent strategic priority, even if it sometimes appeared by other names—"epidemic preparedness", "health emergencies", etcetera.

By mid-2017, academic groups, NGOs, and DC think-tanks were firing on all cylinders, advocating to keep the issue alive beyond the US Government's sudden fiscal and political languor. Recurring 'calls-to-action' appeared in inboxes, drafted with a presumed audience of policymakers and political leadership in the capital; the list of civil society organizations and private sector cosignatories growing larger each time. The newly elected Director-General of the WHO, Dr. Tedros Ghebreyesus, had adopted GHS as part of a general rhetoric of achieving universal healthcare, ostensibly a critical

part of the agenda to protect vulnerable populations from 'health emergencies'. These were the lingering vestiges of the reforms demanded by the 2014 Ebola outbreak.

Just down the street from the WHO in Geneva, new global platforms like the Coalition for Epidemic Preparedness Innovations (CEPI)—a vaccine R&D accelerator—were finding their footing and their prominence, issuing grants and contracts to new implementers to catalyze vaccines for diseases of outbreak concern. In DC, the World Bank was selectively funding one-off projects and platforms related to health security and pandemic preparedness, which had suddenly become major problems not only of 'public health', but of public health *systems* and *infrastructure*. The Australian Government joined the Joint External Evaluation (JEE) Alliance, working alongside the co-chair and (by now) 'old-guard' Finnish Health Ministry, who were still championing transparent evaluations of country readiness for outbreaks.

In many ways the US's political crisis had actually heightened international technical consensus, with widespread agreement that it was (still) critical to 'prevent, detect, and respond' to epidemic or biological events *before* they escalated into regional or global events. The need to prioritize this was felt even more acutely, argued with renewed vigor given the sudden retreat of US political leadership on this issue. The commitments and technical ideas baked into the Global Health Security Agenda (GHSA) still resonated widely, even if the US-led program itself now appeared in deep jeopardy.[1] Out of this consensus had emerged a fairly stabilized roster of professionals and champions, who kept the issue alive and active. These 'lamplighters' busied themselves by maintaining GHS as a regularly discussed issue in the international conference circuits, keeping political and global health leadership engaged with the issue—not only within the reforming WHO (and the ever-turbulent US Government), but further afield at the intersections of civil society organizations and governmental offices.[2] Just as soon as US Governmental commitments seemed certain, they were withdrawn as resignations and controversies embattled senior US offices and officials.

[1] More on this in the conclusion. See also Inglesby (2018).
[2] See e.g. the PMAC 2018 Conference in Thailand, held at the start of the year, and dedicated entirely to "Making the World Safe from Emerging Infectious Diseases": http://pmac2018.com/site

GHS experts were regularly reminded that technical commitments and priorities only went so far without stable political backing. The challenge was no longer to make the case for the technical need for GHS, but galvanizing sustained political commitments to it, particularly at leadership levels.[3]

What was really needed was to build new bridges to reach new donors, new sources of funding, new champions to bring financial sustainability to the issue.

At the PATH headquarters, these fiscal uncertainties were translated into a more familiar response – a pursuit of new partners, a window-shopping of new project ideas, a search for new funders. 'Pursuing new business opportunities' is a big part of what one actually *does* in global health, especially as a middling staff member at the headquarters of a non-profit NGO or an academic center. The importance of this pursuit is only exaggerated in times of funding uncertainty, and when speaking about a relatively new priority technical area—both true for GHS when I was at PATH.

In insider lingo, this labor sometimes goes by a more evocative name: "*bootstrapping*".[4] When a storm hits like the one did in 2016, bootstrapping becomes often a question of not only project sustainability, but program and organizational survival. It is, in other words, another mechanism of responding to 'climactic uncertainty'.

I first heard the term when a senior manager was asked to share program updates at a meeting in late 2017. With a long pause in their reply, they sighed and sat back, reflecting on the scramble and churn of a tumultuous year.

"Oh, you know, it's just been those bootstrappin' blues."

* * *

Bootstrapping is not simply knocking on doors or cold-calling; it is a delicate art. (And a laborious one at that.) It involves a strategic mix of what I've earlier called "technical daydreaming"—the artisanry of project development—coupled with a refined

[3] As a great example, see http://www.nti.org/analysis/articles/congress-act-now-protect-us-investments-global-health-security/

[4] This is actually an ironic inversion of the original sense of the term, and its metaphorical use in everyday speech. "Pulling oneself up by the bootstraps" generally refers to better oneself by one's own unaided efforts, a renegade individualism. Here, it is used to refer to how one sustains a body of non-profit work through the courting of external donors and funders.

awareness for opportunities (grant offerings, co-agreement solicitations, government contracts, etc.), donor engagement, and keen business acumen. PATH for instance has not only a “corporate engagement” department, but “philanthropic” and “business development” divisions as well. Successful bootstrappers know how to engage all of these working parts to ideally—“attract an ever-increasing level of support from individuals, donors, corporations and foundations around the world”.[5] One cannot overstate the amount of ‘churn’ this involves—endless emails; conference calls; document creation, sharing, and revision. Both internally across departments and externally with technical partners, strategic relationship-building is the bread and butter of this part of non-profit fiscal survival. In the case of sudden political upheavals, a survival that is made even more precarious given uncertain monetary environments.

That said, even the savviest of the bootstrappers often downplay the relational work involved in this art, instead focusing on proposal management practices and bid success rates rather than deliberating over the tactical relationships behind donor engagement. To be fair, this declaration needs more nuance and precision. Let me expand. There tend to be two philosophies to bootstrapping, two extremes on a spectrum of approaches. On the one hand, there is a prioritization of good administrative and proposal management, focusing primarily on formal bureaucratic practices that both rely on and sustain organizational reputation and attract the right donors. The idea here is to get the right bids, execute good projects, manage administrative procedures, expand, rinse and repeat. On the other end of the spectrum is a looser approach that prioritizes connecting the right issues with the right champions and the right purse strings. The emphasis here is to find the people you want to work with, make the opportunities appear, and work to give technical form or shape to broad donor or philanthropic interests. This is very loosely called “grant-shaping”, and also involves a very deliberate set of administrative procedures.

The reality is that ‘administrative proposal management’ and ‘grant-shaping’ are both essential parts to good program development and are often two sides of the same

[5] I pulled this from a public job announcement from PATH, looking for a new Director of Philanthropic Development.

coin. But in practice, one develops a certain philosophy of bootstrapping, a certain sense of priorities, of what *really* matters. Is it about finding and making the right proposal bids, or finding and connecting with the right people? Follow the money, or make it appear? I'm sure you can guess which approach I prefer.

My own preferences didn't matter much given my position, but different approaches from leadership can inform organizational philosophy, and fundamentally change the way an institution approaches its bootstrapping. As an executive once wrote to us about our strategic efforts in global health security, "I believe the money follows vision, rather than programs just following the money."

In the end, most of us took that as wishful thinking rather than practical advice. But let's unpack this by looking closer at one example of how the linkage between "vision", technical implementation, and donor funding actually worked.

**The 'Global' is to the 'National' as 'Pandemic' is to 'Epidemic'**

The capacity-building programs that had emerged out of GHS and by association, the GHSA, had assumed at which *scale* these programs could be operating, about which vulnerabilities these interventions could tackle. Preparedness meant preventing, detecting, and responding to epidemics at their "source"—at the local, national and perhaps even regional scales. Staying ahead of the curve meant you could try to control 'localized' *epidemics* before they turned into 'globalized' *pandemics* that crossed international or intercontinental borders. "If your desire is to keep disease out of your country," argued Dr. Rebecca Katz of Georgetown University in a quote from *The Atlantic*, "the best way to do that is to contain it at the source."[6] It was an assumption baked into the very name of the issue at PATH—'*epidemic* preparedness and response'. This was GHS as we've seen it thus far: a global project of preparedness made tangible through public health 'capacity-building' in localized (or nationalized) terms.

[6] https://www.theatlantic.com/science/archive/2017/10/panic-neglect-pandemic-funding/543696/

While subtle, this distinction between 'national' and 'global' – or, between '*epidemic'* and '*pandemic'* – gave tractability to the problems of GHS. Where the 'global' felt ephemeral, abstract, or often untouchable, the local, national, and regional were workable. They were *places* where implementers had *offices* and *people*, and where *people* had *governments*, *policies*, *systems,* and *projects*. Where projects had impact, where milestones could be met and measured. Even this late in the game, few GHS platforms had been set up with an explicit focus on mitigating 'global' (here roughly meaning 'cross-continental') biological vulnerabilities and risks. In general, the working hypothesis was that organizations and implementers could temper global risk as a *secondary outcome* of improving local and national health systems. Biological risk, like the interventions to mitigate it, were easiest to divide up at the level of the nation-state. "We are only as prepared as our weakest link," the policy cliché went. The 'links' referred to here were individual nation-states, *nationalized* health systems—systems with regional or local clinics, with health ministers, with policies, with public health laws, laboratories, and surveillance platforms. Only the 'chain' of these systems, *taken in their aggregation*, approached something that could be called the 'global'. In other words, in this approach, the 'global is local'.

We've seen how this works on a technical level – the GHSA divided up responsibilities for its technical "Action Packages" by country; the Agenda's summit events were *Ministerial*, with 'multilateralism' as the cornerstone of this manner of health diplomacy. In other words, the GHSA fully embraced a country-level approach, even in its expansive vision of engagement with non-state actors. This is not said as a critique – it is a sheer matter of pragmatism as to where, how, and with whom one could work to implement these kinds of public health programs. As we've seen, the Joint External Evaluations (JEEs) also took the nation-state as their basic unit of engagement, with an explicit vision that "health security begins at the country level" (Sillanaukee 2017). But it should be asked: if the national is linked up into "chains" that form the 'global', how is the global then conversely related to the 'national'? In the words of the experts – "[c]ooperation at the global level facilitates capacity building at the national level, where the health system strengthening takes place" (*ibid.*).

Like in other sections in this text, this kind of language highlights how the national is elicited, or enrolled, in a larger 'global' project that simultaneously transcends and relies on the nation-state to be realized (see also Gideon Achi, forthcoming). This nested relationship between 'global' and the 'state' *was not just a rhetorical abstraction*—it informed a great number of technical decisions and styles of collaboration in GHS. Most important here, it (arguably) placed the GHSA and JEEs squarely in the domain of 'epidemic preparedness' –*not* preparedness for 'pandemics'. Again, these are scalar philosophies that reflect not only presuppositions about how the global and the national should or can be linked, and what kind of risks the world faced, but also what kinds of possibilities were available in the sphere of global health diplomacy and delivery. Again, the national ('epidemic') was enrolled in the global because it was a tangible concept to work with and on—full of Ministers, systems, staff, funding, laboratories, clinics, and national policies. Different mechanisms and devices would be required to work on the 'global' ('pandemic').

**Ideas Following Money Following Ideas**

Somewhere along the way, in between the rest of the cacophony of presidential elections, politics, funding cuts, and bootstrapping, *risk* had assumed a new shape. Experts at the Johns Hopkins University Center for Health Security (CHS) saw *global risks* and *catastrophe* as unique issues, ones whose subtle shades of red needed a more definite shape. They asked the health security community to think about controlling risks and vulnerabilities at a new scale—not just by mitigating localized epidemics, i.e., national or regional outbreaks, but by preventing truly *global* catastrophes.

Working against the backdrop of the decidedly 'national' scalar philosophies baked into GHS, they needed to invent a new category: "Global Catastrophic Biological Risks", or GCBRs.[7] GCBRs were risks differentiated by both their *reach*—potentially

[7] The category of 'global catastrophic risks' (GCRs) had been around for quite some time, and included microbes, diseases, and viruses in their scope (see e.g. Bostrom and Cirkovic 2011). In fact, Hopkins' GCBR publication was targeted at contributing to this body of work and aimed at the security/risk community more than it was at the traditional public health or health security sectors.

global in scope—and by their *impact*—not only tragic, but 'catastrophic'. If we turn to their "working definition", we can see how their use of the 'global' cleaved fundamentally from the nested 'national-global' linkage assumed elsewhere in health security domains. The "working definition" of GCBRs ended up looking something like this—

> [They are] events in which biological agents—whether naturally emerging or reemerging, deliberately created and released, or laboratory engineered and escaped—could lead to sudden, extraordinary, widespread disaster beyond the collective capability of national and international governments and the private sector to control. If unchecked, GCBRs would lead to great suffering, loss of life, and sustained damage to national governments, international relationships, economies, societal stability, or global security (Schoch-Spana et al. 2017:323).

We're squarely in apocalyptic territory here, but it's not just your everyday apocalypse—it's an apocalypse that poses a *categorically different kind of risk than the vulnerabilities* that global health security work had been targeting. Not just localized outbreaks—epidemics at their "sources"—but globally catastrophic outbreaks. In simpler terms: not 'epidemics', but 'pandemics'. These were risks that were global in that they by definition exceeded the capacities of not only national actors, but international and non-governmental ones as well. GCBRs align quite nicely with what anthropologist Andrew Lakoff originally labeled the "generic biothreats": 'low-probability but high-consequence' events "whose probability cannot be calculated, but whose consequences are potentially catastrophic" (Lakoff 2008:403).[8]

The Center's experts elaborated: "We see GCBRs as a special category of [global catastrophic risks and] biological threats that deserve careful study and action to counter them, because of the extraordinary consequences they would have for humanity and because they are potentially tractable" (Schoch-Spana et al. 2017:323). The work of categorization then follows their definition, with a litany of illustrative examples and a rationale for whether these scenarios fit or elude the new parameters. Was the 2009 H1N1 flu pandemic a GCBR?: well, no – the consequences weren't severe enough. How about 2005 H5N1 Avian flu? Well, no, but if the virus had mutated

[8] We can substitute "cannot" for "is often difficult or impossible to calculate", and remove "potentially" from that sentence to make it more accurate to the kind of risks assumed here. GCBRs make an intervention by declaring that they, by definition, *must* be catastrophic to fit into the label.

and killed millions, then yes. HIV/AIDS? That's a matter of perspective. What about a 'wide-area anthrax attack on a major city'? No, not really – "it is not clear that it would have lasting impact on humanity…It warrants further examination" (*ibid.*:326).

Note that with GCBRs, historical events (i.e., "past epidemics") and imagined ones (i.e., "future scenarios") come together in no particular order and under the same heading, coexisting *as if they were equals.* The category helped the experts not only name the present, but the past and the future, as if it were all on equal footing. It leveled the existential playing field of risk at the same time that it compartmentalized it. As argued by Bostrom and Cirkovic (2011)—scholars who focus on the broader category of 'global catastrophic risks'—whether such risks are "scientific" or "speculative" makes ultimately no difference, as "there is a continuum of analytic tractability" between the real and the imagined (6). The actual and the possible collapse in this logic of catastrophe.

GCBRs are thus a kind of 'invented category', bringing the world of biological risks into a larger discussion on global catastrophe and vulnerability. To call it "invented" is not to say it is *merely* semantic, arbitrary, or artificial—or that even if it were all of these things, that the category would be any less important. *It was conjured up for a very specific set of reasons.* In that sense, this was much more than just a thought or rhetorical exercise. The category was just as important for *when* and *how* it was proposed as for the parameters of its definition. Here again we return to the mark of expertise with a two-step process of taking ownership over a technical issue. First, stake out new territory of risk by *defining* it and second, through this definition, take ownership over *designing* the interventions for its mitigation. In the words of the publication's experts, the category was developed explicitly to "refine collective thinking…focus collective efforts, [and] direct resources where needed… [to] prevent and respond to them" (Schoch-Spana et al. 2017:323).

The creation of the category is a great illustrative example of how 'define-and-design' works, mobilizing a community of experts, galvanizing funders, and attracting policymakers to a new set of risks. As a commentator noted in response to the original publication on GCBRs, aside from whether the reader fully endorsed the definition's

parameters, “the authors have accomplished their objective in writing their essay: encouraging collective thinking about global catastrophic biological risks”.[9]

This is how their publication worked to ‘define’. Now we turn to “design”. Inventing GCBRs was a background to a larger effort spearheaded by the Open Philanthropy Project (OPP, or “Open Phil”, as the staff prefer), which had been actively engaged with the global catastrophic risk space since at least 2013-2014.[10] By partnering with the experts at Johns Hopkins Center for Health Security, OPP was able to elaborate on the biological component of a growing inventory of other ‘global catastrophic risks’ (GCRs)—nuclear war, climate change, cyberwarfare, even artificial intelligence. The partnership between the academic center at Hopkins and the philanthropic foundation had been a measured one, and the definition of GCBRs opened up a space to ‘invite’ biosecurity and *pandemic* preparedness into the broader expert worlds of catastrophic risk mitigation.

In other words, the invention of GCBRs (or, put gentler – the extension of global catastrophic risks into biological terms) was more than just the creation of a new label—it created a bridge between philanthropic and donor spheres and the expert technical worlds of global health security.[11] If one pulled back the curtains further, you could see the back-end of these alliances forming; not only nominal connections between “GCRs” (global catastrophic risks) and the new subcategory of “GCBRs”, but in the building of expert-donor alliances through professional staffing and grant-making. To wit—after deciding that biosecurity and pandemic preparedness would be major priorities in their broader portfolio of GCRs, Open Philanthropy hired a program manager who had previously worked directly with the US Government on the initial architecture of the Global Health Security Agenda (GHSA). This program manager was essential in

[9] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5576210/

[10] Open Philanthropy is the sister organization to Good Ventures, the philanthropic vehicle of Facebook co-founder Dustin Moskovitz and his wife Cari Tuna. Ms. Tuna runs the Open Philanthropy Project, which according to their website, sets the strategic “basis for Good Ventures’ grant decisions”. See also: https://www.vox.com/2015/4/24/8457895/givewell-open-philanthropy-charity

[11] For a very detailed overview of some of the philanthropic engagements with global health security at this time, see: https://www.insidephilanthropy.com/home/2016/11/30/good-ventures-gives-big-to-back-biosecurity-efforts. By their own calculations, OPP had given about $25 million USD in grants and gifts to support biosecurity and pandemic preparedness between the middle of 2016 to the middle of 2017.

connecting OPP's permeable purse to organizations like Johns Hopkins' Center for Health Security, which had received a $16 million USD grant from them a few months before the publication on the 'working definition' of GCBRs.[12] Leveraging the right technicians, experts, and policymakers from academia and the governmental spheres, OPP was linking their executive-level donor interests to new conceptual categories, and subsequently turning these new categories of risk into technical challenges for expert communities. Define-and-design.[13]

Shortly after the publication of the Hopkins GCBR paper, a joint call-for-proposals (CFP) was issued by Open Philanthropy and Hopkins that focused on funding innovative projects that would help calculate, articulate, model, or predict global catastrophic biological risks. "We are particularly concerned about low probability, high consequence events caused by pandemic pathogens that could be catastrophic on a global scale," their announcement read. "We define global catastrophic risks as scenarios that exceed tens of millions of fatalities or pose existential risks to civilization." But their interest in catastrophe, was, again – limited to the *very* catastrophic, the *risks to 'humanity', to 'civilization*'– terms that, as we've seen in their working definition, meant beyond the national and international. "We're interested in making grants to support a range of activities that could reduce the threat of a major global disruption," they concluded.[14]

Their effort was to turn unresolved expert debates about generalized *fears* (assumptions about the inevitability of global catastrophe and pandemics) into quantifiable *risks* (numerically quantifiable and differentially calculable assessments of vulnerabilities). "This type of information could help us with our own resource allocation decisions," they reasoned, "and we think it could be generally valuable to the community". The call from OpenPhil and Hopkins was simultaneously an exercise in extension—of GCRs into biological terms—but also a solicitation to "fill up" a gap in

[12] https://hub.jhu.edu/2017/02/09/center-for-health-security-open-philanthropy-grant/
[13] For a commentary that expands on definitional work in relation to GCBRs, please see Saskia Popescu's short blog post over at http://www.contagionlive.com/contributor/saskia-v-popescu/2017/08/a-global-catastrophic-biologic-risk-by-any-other-name-would-smell-as-sweet
[14] Even though this CFP had lapsed as of this writing, it was still buried in the Open Philanthropy web archive, available at: https://www.openphil-rfp.org/about-this-rfp.html (accessed February 20, 2018).

evidentiary terms, to generate a "rigorous and transparent evidence base to support" the most likely causes and quantifiable risks of pandemic events.

In short, this call-for-proposals was a second volley in transforming a new conceptual category into a workable space of expert technical operation, by generating new evidentiary bases, new sites of consensus, and a new policy instrument. GCBRs both defied the traditional scalar philosophies of GHS (not all 'pandemics' were GCBRs), and simultaneously reaffirmed them (the 'global' was categorically distinct from the aggregate of nationals). It sought to create bridges between abstract conceptual discussions, philanthropic donor funding flows, new evidentiary foundations, and practical technical possibilities.

* * *

This 'call for pre-proposals' reappeared frequently in our bootstrapping discussions back at PATH. Donors like Open Philanthropy – contributing $25 million or more to GHS during times of fiscal peril – were rare. Establishing a relationship with philanthropies like this, whose grant conditions were often much less administratively cumbersome or restrictive than government contracts, was thus a coveted achievement. As we had been engaging directly with many of the partners on the list of OpenPhil's direct grantees, it was certainly an avenue we wanted to explore in our eternal pursuit for 'new business opportunities'.[15]

But the fact remained: we didn't work on these particular problems – neither in the areas of risk assessment, nor with *global catastrophe* in mind. Our efforts in GHS—public health systems strengthening *at a national level*—were squarely in what the Open Philanthropy CFP had glossed as "the standard pandemic prevention work that is necessary to address smaller scale events".[16] But this call for proposals was explicitly interested in risk assessments that went "beyond" these smaller scale events, looking to assess the risks of events that would lead to 'major global disruptions'.

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[15] During this time, philanthropies like OPP or Skoll Global Threats were financially supporting nearly every partner PATH had been engaging across global health security. Their lists of grantees read like our external GHS contacts list. But our unique position as a GHSA implementing organization, with a large CDC contract, made us perhaps less likely to get smaller funding packages to support one-off projects, even though we were continually bootstrapping for them during my time at HQ.

[16] Note the slippage here in OpenPhil's use of 'pandemic' and 'epidemic'. This will come into play in the next section.

It was for this reason that I expressed my apprehension about the bid whenever Linda would bring it up in our review of 'new business opportunities'. "We're not working on the problems they are interested in," I would argue, trying to summarize the specific and careful *define-and-design* formula crafted by the experts both at Hopkins and OpenPhil, which I was then only starting to piece together. At the time, our Joint External Evaluation (JEE) proposal (detailed in Episode Two) was still half-alive, and the ideas seemed pressing and viable—as well as ostensibly "global" in focus.[17] "Why don't we just repurpose and frame our JEE proposal in these terms?" Linda asked off-handedly. This act of 'reframing' was commonplace for responding to proposals, part of a general approach of 'saturated opportunity shopping'.

But her suggestion, even though never pursued beyond the tentative, was particularly interesting when juxtaposed against the machinations between Hopkins and Open Philanthropy. Against a backdrop of define-and-design, our own 'repurposing' meant a re-articulation of our ideas and our programming into the language of GCBRs and catastrophic risk. Like a cascading 'feedback loop', we entertained the notion of molding our work to fit into this new categorical frame, which itself was an attempt to build a bridge between the worlds of catastrophic and biological risks.[18] All of this kneading and stretching, adding new dimensions to the bodies of work that made up what we might understand as global health security and the technical possibilities of work and 'action' which composed it.

On the one hand the donors and the academic experts were defining new categories of risk and asking for new evidence to help substantiate and ground those categories. On the other hand, there were technical implementers trying to articulate their work and their capabilities in those new terms, trying to shape their projects (and their nascent ideas) within the confines of the new categories and priorities. This is the feedback loop, where at once newly named categories help to define new technical

[17] This proposal was the 'protagonist' of the earlier episode entitled "Technical Daydreaming". It proposed a 'global' mechanism that was embedded with the same scalar philosophy of the JEEs—namely that nation-states are the basic unit of operation, and in their aggregation, help define 'global' challenges as well as their proposed solutions.
[18] I'm thinking of Ian Hacking's "Making Up People", and its embrace of what he calls a 'feedback loop' of categories and the things that those categories name. In other words, a kind of 'dynamic nominalism', or, better yet, a 'historical ontology' (Hacking 2006; Hacking 2004).

spaces—spaces then made substantial by technicians, who are asked to at once generate evidence, to create actionable mechanisms, and strategically extend or redefine their ideas, methods, and techniques.[19]

So, I think it's worth looking back, now with a question instead of a declaration: does "money follow vision", or vice versa? Or is there a complex interplay of donor priorities, expert thought, and strategic maneuvering that makes up both the extension of categories—be it GCRs or GHS—and the movement of money?

* * *

It is worth re-emphasizing that we never seriously considered submitting a bid for OpenPhil's pre-proposal offer from our PATH team. Our engagement with this bid was always only in passing, as part of a larger rhythm and review involved in the endless search for new sources of funds and donors. In other words, it was a minor part of our bootstrapping. If one were to boil down the mismatch into a single difference, it was again a difference of scale: we worked on preventing 'epidemics', they were interested in understanding *global catastrophe* and '*pandemics*'. But nevertheless, I think the case study is illustrative of the mechanics and intersections between the spaces of expertise and philanthropic donors; scattering and growing the seeds in bidding and proposal development; and establishing new categories of risk, of vulnerability, of health security. All of these categories were negotiated into existence and, through very deliberate means, substantiated with new methods and forms of evidence.

An argument could be made that analyzing this politicized triangulation between philanthropic donors, academic think-tanks, and technical implementers might obscure what is 'truly important'—i.e., the 'real' successes of health security work, the pressing need to shore up global risks from diseases, the urgency of health systems capacity building, 'real fieldwork', etcetera. But with the current global health fiscal environment, and the way things are set up now, bootstrapping and the 'churn' are just as consuming for many NGOs as actual management of ongoing implementation activities, and the work that happens in 'the field'. If bootstrapping and this kind of maneuvering were not

[19] Again, Ian Hacking's feedback loop cannot but be seen as pertinent to this categorical work, although it is not naming *people*, but rather *risks* and *technical problems and solutions* (Hacking 2006; Hacking 2004).

as important, it would be puzzling as to why global health organizations spend well over half their work-hours dedicated to it.

I don't write this with outright cynicism, either. Much of this is trying to make sense of how donor flows, priorities, and technical categories are negotiated and substantiated—a theme for much of this dissertation. For whatever reason, these machinations often go unspoken, turning into 'background work' or 'corridor talk'. They are maneuvers you learn about only by sitting around tables and listening—not because they are hidden (quite the contrary, they are in fact often discussed at length), but because they don't fit well into global health's public narrative of "saving lives" or of triumphant "innovation". I hope to meet this issue halfway: just as a new language is needed to temper global health discourse that otherwise remains utopian and self-congratulatory, a new analytic language is needed to discuss the politics of donor-organization relations and financial maneuvering without reverting to the tropes of "exposé". Bootstrapping and define-and-design are just part and parcel of these efforts, for better or worse.

And with all this said, the way I've presented the scenario here–as a mutual tail-chasing between technical categories, money, and 'vision'—shouldn't obscure other important effects of 'define-and-design'. New technical categories can instigate new research directions, new alliances, and shift avenues of understanding. Define-and-design, and the actual projects that these proposals fund can produce new forms of evidence that help to articulate – and perhaps even mitigate – new kinds of risk (see e.g. Adalja et al. 2018). In many ways, this is actually how GHS has and will continue to survive through new iterations, new configurations, new categories, and evidentiary practices. The "feedback loop" involved in the donor-expert alliance is thus a double-edged sword. At worst, it feeds the ever-hungry bureaucratic and administrative proposal machines. At best, it brings together diverse ideas, expert teams, novel understandings, and expanded horizons for thinking about contemporary problems, helping to define new categories and asking for new approaches to technical challenges.

A real risk then, as we've seen in earlier sections, is when your expert efforts falter—when your own efforts to 'define-and-design' aren't linked seamlessly, or when they are contested directly, as we see happen in the example below.

**Semantics Made Us Our "Own Worst Enemy"**

As detailed in an earlier episode, PATH's DC-based Advocacy and Public Policy team had been busy working to sustain US leadership in global health security following the surprise and subsequent fallout from the 2016 presidential election. In addition to lobbying and policy engagements, the team set out to produce a comprehensive report that would recommend GHS priorities, collate evidence of impact, document the landscape of US government actors, and analyze shifts in GHS funding. The report was crafted with the explicit intention to present and analyze the 'evidence for creating a US Government end-to-end strategy'; to 'provide a call to action to the new Administration'; and to 'increase PATH's visibility as a key thought-leader in the global health security policy and advocacy space'.

The report—titled *'Healthier World, Safer America: A US Government Roadmap for International Action to Prevent the Next Pandemic'* was written through the middle of 2017 and published in October of that year.[20] True to its aims, it provided one of the most comprehensive and systematic analyses of global health security across the United States, including detailed summaries of GHS funding and programming. It was a robust look at the US's engagement with GHS spanning roughly 2014 through late 2017, and a decisive argument for the issue's sustained political support. For those readers who were wondering about what the GHS 'jigsaw pieces' mentioned earlier (Episode Two) looked like—this report offers an exemplary snapshot from that moment in time. It offers a close look at the assumed and assigned roles and responsibilities of various governmental offices and departments for GHS, alongside a robust analysis of funding, fiscal, and policies related to GHS across the years. Combining both analytic rigor with strong argumentation, is a strong polemic, a stepwise argument made for why

[20] *Healthier World, Safer America: A US Government Roadmap for International Action to Prevent the Next Pandemic* (Banin 2017): https://www.path.org/publications/detail.php?i=2804. For purposes of full disclosure, at the time of the drafting of this report, I was employed with PATH, acting as both a peripheral reviewer of the report with the primary author, Elana Banin, and the rest of the Advocacy and Public Policy team. I am listed as a supporting author.

GHS should and can remain a priority even in an "America First" political climate. In short, it was a report-*du-force* for anyone in the US interested in GHS—academic, policy-maker, or public health expert alike.

Its public release was timed with a major global health security event: the Fourth Annual GHSA Summit Meeting. Held at the end of October 2017, the meeting gathered GHS experts and champions from over 50 countries in Kampala, Uganda, offering a strong representation of the GHS community, including a surprisingly large US Government contingent.[21] After release, the PATH report was well-received, woven into press releases, referenced in numerous blogs, Tweets, and other newsletters related to global health security and the Ministerial event. It went so far as to be featured prominently in a news article in *The Atlantic*, authored by a well-respected health correspondent.[22] As a polemic and as a catalyst for attention to the issue, the report was both laudable and successful.

That made it even more surprising when it reappeared again in headlines and newsletters just over a week later, in a very different light.

In a lengthy blog post, Michael Osterholm, the well-known director of the University of Minnesota's *Center for Infectious Disease Research and Policy* (or CIDRAP for short) decried the report, citing it as a "classic example of misunderstanding [between]…preparing and responding to pandemics versus preparing and responding to epidemics" (Osterholm 2017).[23] Osterholm applauded the report's overall message and intent, namely to shore up GHS funding and prioritize public health preparedness, arguing that "if [the report] commented only on epidemic preparedness, it would be a home run" (*ibid.*). But the semantic slippage between *epidemic* and *pandemic* had prickled Osterholm, turning the home run into a foul ball.

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[21] This included Linda and others from my Next Generation GHS Network. While I did attend the Third Annual Meeting in Rotterdam in 2016, I did not attend this one in Kampala. For more information, see http://www.cvent.com/events/the-4th-global-health-security-agenda-high-level-ministerial-meeting/event-summary-e562c0693f7644cd8a834cbbb1250bad.aspx

[22] https://www.theatlantic.com/science/archive/2017/10/panic-neglect-pandemic-funding/543696

[23] http://www.cidrap.umn.edu/news-perspective/2017/10/commentary-pandemic-preparedness-and-missed-opportunities

"It seems we've lost an understanding of the difference between a pandemic and an epidemic and what is required to prepare and respond to each," he wrote. With the semantic slippage, he lamented, "the report ends up contributing to the ongoing mischaracterization about what pandemic preparedness truly means and what is needed to reduce any impact of a future pandemic".

Osterholm then clarified the distinction, providing scattered citations of 'pandemic' from the WHO and Oxford's *Dictionary of Epidemiology*. More relevant, however, are his own words: for him, the difference is in the *scale* of the events: "A pandemic puts the entire world at risk of a markedly increased occurrence of severe morbidity and mortality." Contrast this to the epidemic, which is delimited to the 'national' or 'regional'—ostensibly what the PATH report was *really* about:

> It's the diseases of critical regional importance that the PATH report is addressing in terms of the urgent need for additional preparedness and response capability [*i.e., the report is about 'epidemics', not 'pandemics'—Ed.*]. These diseases have the potential to cause rapidly increasing morbidity and mortality, as well as economic and sociopolitical disruption, but *only at the national or regional level*. (ibid., emphasis added.)

While the difference, for some, might seem pedantic or rhetorical, for Osterholm and others in the health security space, it was absolutely foundational. Obviating this difference was not only missing an important semantic distinction, it was a "clear reminder" for the whole field of public health to understand those points and 'respond' accordingly. In other words, if you can't correctly 'define', there was no hope for your 'designs'.

Risk mitigation for epidemics—which was our technical focus at PATH—according to Osterholm, "will not begin to touch the most minimal of required preparedness activities for a pandemic." He concluded his op-ed with a stern reminder of the importance of these conceptual categories: "Confusing these two requirements—preparedness for a pandemic versus an epidemic—is a costly mistake for public health."

What went unsaid in this rebuttal, of course, was that the semantic slippage was not only a technical-pragmatic issue, but an encroachment on a particular domain of expertise—one that the scholars and experts at CIDRAP were very protective over.

Pandemic preparedness was CIDRAP's space, from long back when biosecurity and pandemic influenza preparedness issues were just rising to the foreground.[24] If the difference between epidemic and pandemic was a literal, scalar question of geography, these semantics were about a *figurative* one of expertise.

The lead paragraph of Osterholm's blog post, which was recirculated as a quote in prominent newsletters across the GHS community was perhaps the most damaging. In it, he argued that "sometimes the public health community is its own worst enemy in explaining the critical need for pandemic planning and preparedness and the price the world will pay for not preparing". In this way, Osterholm's op-ed attempted to transform this comprehensive expert report into another kind of reminder—rather than of the need for global health security financing and sustained political commitments, he argued that the report was instead a reminder of the consequences of "misunderstanding and misrepresenting" the need and means to be better prepared for the *global* catastrophe. The report's impact upon released was shifted from potentially offering a space of expert 'contraction'—its stated aim to provide a consolidation of GHS messaging, recommendations for health security priorities, or financial-policy analysis—instead to a space of contention and a site of struggle between experts.

* * *

This minor feud happened just as I was transitioning my role at PATH away from the Global Health Security Partnership. That meant I saw Osterholm's op-ed response, and its inflammatory quote about "worst enemies" while the curtain was still up, so to speak. I knew my own hackles had been raised by it, but I wasn't sure if others were paying attention—not because they didn't care, but because these op-eds and articles often get buried under other emails, other project management and implementation responsibilities. In some ways, I had hoped that Osterholm's opinion piece, while not entirely baseless, would work as an echo chamber—resonating with those who saw and already understood the distinctions between 'pandemic' and 'epidemic' preparedness, and vanishing as pedantry for those who need not be troubled by semantic battles.

[24] See e.g. Osterholm (2005), "*Preparing for the Next Pandemic*": http://www.nejm.org/doi/full/10.1056/NEJMp058068

I underestimated how much conflict this would create.

After returning to the offices, I immediately became aware that the APP team in DC been keenly aware of Osterholm's public op-ed. To make a long story short, there were extended and protracted discussions and debates about how best to respond to the op-ed, and how to engage with Osterholm's direct criticism. As I was two steps removed from these events, I was not privy to the intricacies of how this played out. In that sense, I can only say that these kinds of struggles produce real friction. Just like 'scale' matters when discussing whether risk or impact is local, national, or global—categories matter when discussing how expert communities conduct their work (or 'struggle' over it, in the language of David Kennedy [2016]). The 'define-and-design' equation has its own set of risks that come with it—the risk of this kind of friction, struggle, and tension when not only categories, but territory is at stake.

* * *

Again, none of this should dismiss what are often 'real' (or 'prescribed') technical differences that emanate outward from categorical differences—be they between the 'global' or the 'national', 'epidemic' or 'pandemic'. Thinking about 'global' threats or catastrophe, like pandemics, practically involves different considerations than those for 'standard epidemic preparedness': things like stockpiling medical countermeasures, medicine or vaccine research and development, supply chain mobilization and resilience, and surge capacity for public infrastructure.[25] Epidemic preparedness, on the other hand, relies on national and regional capacity-building, issues outlined in other parts of this text, and a central focal point for our work at PATH: laboratory strengthening, public health workforce training, improved disease surveillance systems, and emergency operations. Domains with tangibility at the level of the nation-state, and visible as 'global' only in their aggregation. The overlap between pandemic and epidemic preparedness is probably larger than Osterholm makes it out to be—but it is

[25] In addition to differing preparedness and response mechanisms, Osterholm's 'pandemic'/'epidemic' distinction relies on a difference in relevant infectious disease agents as well. In contrast to "diseases of critical regional importance", i.e., 'epidemic diseases' which invoke agents like Ebola, Zika, SARS/MERS, Yellow Fever, and others – according to Osterholm, "there are only two infectious disease situations that can be considered inevitable, serious pandemic threats: influenza and antimicrobial resistance". Again, it is a question of scale—real or potential—of geography, morbidity, and mortality.

the conflation of the two that is his point of contention. With categories and controversies, we see how distinctions can both change how one bootstraps, the kinds of feedback loops that donors-experts engage in, and how territorial battles unfold over expert issues related to 'defining-and-designing' projects and their interventions.

Our technical work at PATH, regardless of specific donor interest or commitment, reaffirmed that although improving 'country' readiness for outbreaks might not be *sufficient* to prepare for a pandemic event, it was certainly a *necessary* part of it. Experts seem to be in agreement that strengthening "international collective action", "public health capacity building", and "global and regional outbreak preparedness and response system[s]" are critical components of *both* epidemic and pandemic preparedness (Yamey et al. 2017). The point here is not to 'come down' on one side of the issue or another—nor to add to a puddle of spilled milk—but instead to showcase how semantics, categories, and subtle distinctions carry great import along with them. Their creation (or 'invention') requires a delicate and calculated arrangement of partnerships that align technical considerations, flows of finances, and publicity. Their extension requires a careful set of pragmatics and rhetorics—peer-reviewed publication, public-facing communications on the web, calls-for-proposals, and presentations at conference events. Their contractions often occur through controversy, debate, or tensions—political upheavals, technical feuds, or otherwise.

In and among those tensions, in between those bridges, and amongst the categories, a new way to think and act on the world is made and re-made, done and un-done. 'Bootstrapping' and 'define-and-design' are not the only stories of global health security, but they are important ones to tell and re-tell. Through these activities, issues like global health security undergo mutations, transforming not only their own conceptual parameters, but the kinds of possibilities and expert communities that can act on these problems and challenges.

## Epilogue – An Ear To The Ground

"I had a nightmare last night," Linda said to the team as we huddled in the morning around our corner desk area. "I dreamt that we lost all of our funding and that you all didn't believe in global health security anymore." Each of us laughed, reassuring her that of course we hadn't lost faith. We were there together, ready to continue our work to try and make the world safer from outbreaks. We were there to fight through the climactic uncertainty, to bootstrap our way through the fogbanks of funding, to fashion projects and expand our existing ones through new technical daydreams. The work of GHS would go on.

And so it did—the work continuing through 2017, with a growing number of organizations, institutions, and individuals expressing interest in epidemic preparedness and response as a field. Stretching out with a proliferation of working groups, interorganizational panels, and committees. Linda spoke regularly on the topic to audiences both local around Seattle and at conferences abroad. Her travels to the PATH country offices continued, with technical projects maturing and morphing in their endless cycles and recalibrations. The search for new business partners remained just as fervent as before. Amidst all the advocacy and warnings of funding cutbacks, I later heard that Congress had indeed approved new money for the GHSA ($100 million), specifically to the CDC and USAID under the FY2018 Omnibus bill.[1] Everyone further downstream from that budget was still holding their breath—unsure of how that money would eventually manifest into specifically-funded implementation projects. If a "GHSA 2.0" wasn't fully visible by early 2018, at least it seemed that "GHSA 1.0" would persist through its original end-date of 2019.

Countries continued to conduct Joint External Evaluations (JEEs), now fully managed and stewarded by the WHO and the JEE Alliance, still led by the Finns—with a new co-leader from Australia.[2] The momentum had built, and targets were being

[1] See the Kaiser Family Foundation post detailing the amounts and the allocations here, including a link to the full text of the spending package bill: https://www.kff.org/news-summary/congress-releases-fy18-omnibus/
[2] See https://www.jeealliance.org/news/australia-co-chairing-the-jee-alliance/

reached. When I first began my field research, 17 countries had conducted JEEs. By early 2018, 69 JEE missions had been completed, with 32 scheduled in the pipeline. Countries (via their designated representatives) were gathering around tables, agreeing that the Evaluations were only the first step in a "health security capacity building *cycle*". After Evaluations would come the arduous task of producing costed, implementable, and legislated National Action Plans that would bolster technical capabilities to mitigate public health emergencies. There had been less momentum in developing these plans—they were much bigger hurdles to leap. It was one thing to evaluate the current state of a health system, another thing entirely to make formal and financed plans to improve it. By March 2018, only 18 of the Plans had been completed as a follow-up to the JEEs. Global health security still maintained 'action' as one of its major challenges and problems—in this case, domestic mobilization proving to be the next challenge after evaluation. Even if the successes of external country evaluations had precipitated a "paradigm shift" in GHS, these evaluations wouldn't be seen as "meaningful" until they were *actionable* in and through these National Action Plans.

Old allies and operators were holding together the visions and frameworks of GHS, including the GHSA. Beth Cameron, former champion of the GHSA from her seat at Obama's National Security Council, joined the Nuclear Threat Initiative (NTI) and continued her efforts at 'global team building' to catalyze participation and tangible outcomes with GHS. NTI became a prominently visible NGO in the GHS space, working to develop a "GHS Index" and pushing for a new commitment to the GHSA in its guise as "Version 2.0". Drs. Rebecca Katz and Julie Fischer had moved to Georgetown in 2016 to start a Center for Global Health Science and Security, finally releasing a "costing tool" based on the IHRs (and JEEs), to help countries finance their National Plans. In the US Government, leadership continued to turn over, but the reigns were held by important political-technical stewards: Rear Admiral Tim Ziemer took over at the National Security Council as Senior Director for Global Health Security and Biothreats.[3]

[3] This has unfortunately changed during final edits. Once touted as unquestionably "the right man for the job" by senior US Administration advisors, Adm. Ziemer was ousted from his National Security Council position in the shakeup under John Bolton that occurred May 2018. This followed the departure of another major champion of GHS at the NSC, Homeland Security Advisor Tom Bossert. For more on this, see:

Jose Fernandez remained active in the Office of Global Affairs at Health and Human Services, part of a new sub-working group calling itself "GHSA 2024". As part of the US's continued work with health diplomacy, experts were still showing up to JEE Alliance meetings and discussing how the JEEs, the new IHR Monitoring and Evaluation Framework, National Action Plans, and the Global Health Security Agenda should be harmonized as prominent technical platforms for GHS.[4] There were more technical fusions to be done; there was more health diplomacy to take place.

By the time I left PATH, the Bill and Melinda Gates Foundation still couldn't decide how or whether they wanted to commit to the issue. While Bill Gates had been prominently discussing how scared he was of bioterrorism, and how important it was to invest in epidemic and pandemic preparedness, the Foundation remained at arm's length from any specific or strategic commitments to GHS issues. Although they continued to convene GHS experts, and brought in seasoned public health veterans to lead an epidemic preparedness group (spearheaded by Scott Dowell, a disease surveillance veteran, early GHS expert, and GHSA architect – and David Blazes, also a long-time surveillance veteran of the CDC), their investments in GHS had been tentative and sparing. By early 2018, the Foundation had exclusively attached themselves to *pandemic* and *bioterrorism* issues, rather than routine country-level capacity-building for *epidemic* preparedness. The focus from the Foundation seemed to remain on innovative "tools", such as "vaccines, drugs, and diagnostics".[5]

Although some had questioned the utility and the impact of the JEE Alliance during its early days, it remained one of the most active, consistent, and resonant 'global' fora to discuss and commit to new global health security initiatives and projects

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https://www.huffingtonpost.com/entry/tim-ziemer-global-health-security-leaves_us_5af37dfbe4b0859d11d02290# , accessed May 10, 2018.

[4] https://www.jeealliance.org/advisory-group/meeting-of-the-alliance-advisory-group-on-27-february-2018/

[5] See e.g. Gates' comments at the Massachusetts Medical Society's "Epidemics Going Viral" event, held on April 27, 2018: https://www.gatesnotes.com/Health/Shattuck-Lecture. Gates' concern was obviously with traditional areas of 'pandemic preparedness' and technical innovation rather than routine systems-building for epidemic preparedness. His comment that "the world needs to prepare for pandemics the way the military prepares for war" was particularly resonant to health security audiences, and perhaps reveals Gates' understanding of GHS as truly a 'security' issue rather than primarily a systems-building one. Notably absent was any mention of the GHS Agenda in his remarks. Lena Sun of the Washington Post reported on Gates' $12 million investment into a Universal Flu Vaccine program that coincided with this lecture: https://www.washingtonpost.com/news/to-your-health/wp/2018/04/27/bill-gates-calls-on-u-s-to-lead-fight-against-a-pandemic-that-could-kill-millions/

through 2018. Where the GHSA remained tenuous and contested in the United States, rattled by the Administrative turnover, the Alliance continued to develop its vision for an integrated health security capacity building cycle, engaging prominent GHS actors such as the World Bank, the World Organization for Animal Health (OIE), WHO, the US Government, the African Development Bank, and the Food and Agriculture Organization of the United Nations (FAO).[6] If one wanted to study further how 'global' projects are enlisting and negotiating with 'national', 'para-statal' and 'non-governmental' organizations, the JEE Alliance would be an exceptional place to do so. Or further, if we continue the story of GHS (do we need to declare a Version 3.0?), the Alliance would have to feature prominently as a major character.

The World Bank continued its prominent support for GHS, both publicly and behind the scenes. Its President, Jim Kim, spoke regularly about the important need to help countries prepare for the next pandemic or epidemic like Ebola. Forming a "Pandemics Preparedness and Health Systems Strengthening" focal area, the Bank rapidly expanded its investments into technical programs for disease surveillance, antimicrobial resistance monitoring, and laboratory networking initiatives.[7] As regular participants in JEE Alliance meetings, the Bank was decidedly involved in the discussions on how to move beyond evaluations to financed and implementable plans based on the external assessments. Their most visible investment was the Pandemic Emergency Financing Facility, discussed earlier in this text and detailed elsewhere (see e.g. Stein and Sridhar 2017; Moon et al. 2017). In April 2018, the WHO joined the World Bank to launch a new initiative, the Global Preparedness Monitoring Board, yet another body to coordinate 'systematic' and 'rigorous' oversight of a community of nations held accountable to preparing for the next public health emergency.[8]

The tables multiply, the discussions expand, the projects grow.

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[6] https://www.jeealliance.org/members/

[7] http://www.worldbank.org/en/topic/pandemics , accessed April 25, 2018.

[8] If one looks at the proliferation of health security assessment instruments and evaluation mechanisms, by 2018 a single country could undertake a JEE, commit to drafting a National Action Plan, conduct IHR preparedness exercises, be rated on NTI's Global Health Security Index, and later, assessed by the Global Preparedness Monitoring Board. That list isn't exhaustive, even if it looks exhausting.

**A Third Way, Revisited**

Where did this research sit with regard to all this? How does one approach such a rapidly evolving domain; a research object in motion? As we've seen, my entry point for most of the episodes in this text has been the experiences in the day-to-day life of the headquarters of a large global health non-governmental organization. The episodes are, by nature, anecdotal – they don't presume to tell the whole story of global health security. They are partial by design—designed to be reflections on the work in which I participated and observed. I attempt to transduce my experiences with GHS into another kind of language, with a different kind of energy (see Helmreich 2007). Sometimes anthropological concepts help in that process of transduction—at other times, the tools and existing debates didn't help make sense of I saw or heard. When that was the case, I tried to come up with new language and concepts to help. As with the episode on 'data', sometimes I tried to find a 'middle ground' to help understand critiques, concepts, and problematics that I encountered in the field. This 'middle ground'—what I earlier called a 'third space'—means I write neither as strictly 'anthropologist' nor as 'expert'. As such, I try and avoid forcing field anecdotes into theoretical categories. Likewise, I avoid the expert reflex to end this document by offering precise recommendations for what 'should' or 'must' be done for GHS or epidemic preparedness as fields. My stance of non-normativity does not stem from a deluded quest for 'neutrality', but from a commitment to finding the right language to reflect on these concepts, these episodes, and these experiences.

If I refuse the reflex to theorize as anthropologist, or to recommend as expert, what is left? Here is where "technical daydreaming", detailed in Episode Two, helps paint a possibility for a 'third way'. The practice combines the strict economies of attention demanded by the technocratic—tasked with 'defining' new problems and 'designing' the interventions that address them—with the playfulness and flexibility of ethnography that prizes the aleatory and anecdotal. This space of *play*, fusing technical details with textual craftsmanship, is perhaps a glimpse into how a figure of the hybrid anthropologist-expert might produce or access knowledge and reflect on its production.

At best, we might send ideas into new directions, test their limits, and in the process, help redefine the 'art of the possible'.

**'Neoliberal Globalism'?**

To paint the picture of GHS as a stable 'consolidated' domain is not only impossible, it is misleading. That's why this text has no illusions of being 'comprehensive'. Like the 'jigsaw' puzzle pieces of GHS alluded to in the first episode, fitting pieces together produces different pictures, at different times. New alliances form, old ones break apart—expert communities' commitments shift and new organizations negotiate their positions in a crowded space of dialogue. By the time you read this, new developments will have taken the field into new directions. But most importantly, it is a field that *puts other ideas into motion*, pulling them along and changing their meaning and their import: *sovereignty, the national, global, security, humanity, threat*. Trying to fit new issues and problems into the boxes of the old is unsatisfactory. A field in motion demands categorical and conceptual motion to describe and understand it.

That's why phrases like '*biopolitical interoperability*'—while cumbersome—might be necessary to try and give suggestive form to some of these new dynamics introduced by GHS. This concept gives a shorthand to start (and continue) debates and discussions about how collections of states become "operable" (or possible sites of intervention) in service of ensuring that their basic biopolitical mandates are maintained. It is about looking at the *way* the 'state' is enrolled in a 'global' project that relies on the nation-state, but is *irreducible* to it. My colleagues and I have been working together in a concerted effort to develop the language to describe this new space, as we've seen various projects that implicate the 'local', 'national', 'regional', and 'global' in novel configurations. Even my informants are seeing the connections: during a call with a data platform engineer helping to design a tool to support the JEEs, we were told of the remarkable similarities in health security assessments and ongoing climate initiatives, such as the Intergovernmental Panel on Climate Change (IPCC) (see e.g. Fleischmann forthcoming).

There are spaces here to start talking about the 'global' that are not just about neglect, encroachment, Empire, neo-colonialism or neo-imperialism. The 'global' in GHS doesn't simply obviate or encroach on an otherwise well-intentioned welfare state. To look at this as simple 'neoliberal globalism' would be misguided, if not only because the projects don't aim to *roll back the state* to make way for new markets, but to *roll the state forward* and fix broken ones. As one analyst recently opined:

> In the short and medium term, the implementation of global health security processes will still be donor-reliant. But at the same time, we need to ensure that plans align with national budgets in order to facilitate the eventual transition to domestic funding. We also must ensure that all strategies support governments: enabling them to manage health security more effectively and giving them the opportunities to work closely with civil society. Ultimately, it is the government which is accountable for success or failure (Pedroso 2018).

If anything, GHS is made up of global projects that invoke, but slightly transform the 'social protections' that ground classical concepts of the Keynesian or biopolitical welfare state. Like recent trends in international development, the stress has been on domestic resource mobilization and country-ownership of new initiatives and projects. In the meantime, donors will be busy 'fixing broken markets' (shorthand used to describe imbalances in supply, demand, and investment for devices, tools, drugs, and systems) and generating new contact points between governmental responsibilities and "civil society". In that sense, GHS often invokes a new kind of 'social' protectionism. We might say this resembles a "neoliberal social", in that it does *not* seek to eliminate the state and its responsibilities to protect, but rather to selectively reconfigure inherited technical systems, demographic protections, and 'social' programs to protect vulnerable citizens (paraphrased from Collier 2011:3). It routes social protections through global assemblages (see Ong and Collier 2005). This includes things like routine immunization programs; mandatory disease reporting and registries; water and sanitation systems; emergency vaccine campaigns; and even basic censusing. At stake is not only the reconfiguration of elements of the state itself, but an explicit effort to reconfigure the "reciprocal obligations between all nations" that global health security 'depends' on. That reconfiguration will only happen through "practical shifts" and "actualized

commitments", offering not just new ways of programming government through the state, but actively changing the relationships *between* states through novel global "architectures" that aim to prevent, detect, and respond to epidemic events (see Collier 2011:3; Ferguson 2015:68–69; also Redfield 2012).[9]

To be fair, critical analyses are important, and there is still room for those critiques—both in global health security and in global health more generally (see e.g. Biehl and Petryna 2013; Crane 2013; Erikson 2012). That critical checklist that I received early on from my informants (back in the Introduction) is not entirely off-base, and would be an appropriate place to begin a dialogue between critical social scientists and critical global health practitioners. But, echoing James Ferguson (2015), I think it equally important to ask what comes *after* critique. I have taken a different approach in this text, trying to avoid normative certainties. Instead, I have attempted a sustained reflection on some novel and curious arrangements and developments. Using Ferguson's (2015) words, my goal has been "less to explain these developments than to reflect on what they might mean and how they may be transforming…limits and possibilities" (2).[10]

* * *

Some of those reflections have been—for better or worse—fairly straightforward accounts of institutional dynamics, as with the Ebola outbreak episode. As sparse as that episode is (there was a lot more going on than I saw or can retell), it still provides a different perspective than often seen from the social science literature on epidemic responses. Anthropologists have been pulled into the spotlight as potential first- (or second-) line responders to outbreaks following Ebola, but their role in those responses has never been quite stabilized (see e.g. Abramowitz 2014; Marcis and Nguyen 2015). In almost all cases, the anthropologist or social scientist is cast as the 'broker' of

[9] Quotes pulled from the Statement In Support of Extending the GHSA Beyond 2019, available online at https://www.nti.org/documents/2202/In_Support_of_GHSA_Extension_GHC_GHSAC_PSRT_NextGen_July_18_2017.pdf

[10] Ferguson calls them "the field of political limits and possibilities", but I'm not constraining these reflections to be about politics or holding fast onto a singular meaning of what the 'political' might consist in. For that reason, I use his language only loosely, indebted to Foucault's approach to 'critique', and as a shared approach and ethos on reflection and narration.

cultures, norms, or social groups—brought in to ensure that responders' interventions don't clash with 'local' customs or communities (Stellmach et al. 2018; Hewlett and Hewlett 2008). Only in a very few instances have anthropologists been integrated into institutional responses from a very early stage, working directly with epidemic responders beyond their role as 'interpreters of local cultures'.[11] In my case, I was fortunate enough to be on the sidelines, helping an institution and its communications apparatus mitigate the furious pace of information that emerged on an hourly basis from an emergency situation. In that capacity, I saw glimpses of the immense need not only of 'cultural interpreters', but of skilled textual workers, analysts, information managers, and *data communicators* across all levels of response.

By tending to the day-to-day life of "technocrats", I hope I have shown some of the oscillating negotiations and relational processes that go into making global health security *workable*. This is an approach that again differs in many respects from other ethnographic attentions paid to GHS, as I have been less interested in picking apart a generalized 'imaginary' or a 'rationality' behind a broad conceptual shift (Lakoff 2017; Caduff 2015; Masco 2014; Lachenal 2014; Samimian-Darash 2016). It has not (only) been about looking 'behind' "serious speech acts", or analyzing sites of contestation from afar in order to see the outlines of new "objects of existence" (Lakoff 2017:8; Hacking 2004). This has not been a dissection of 'preparedness' as a general technical or operational modality, nor a focus on a singular 'event technology' like syndromic disease surveillance (Fearnley 2008; Samimian-Darash 2009).

Some take up the issue of global health security as a "regime", a "style of reasoning", as a "social imaginary", or as the broad "government of global health emergencies according to the rationality of preparedness" (Lakoff 2017:167; Masco 2014). None of these approaches have been what I've deployed here. The 'imaginaries'

[11] For a robust analysis of anthropologists' actual and potential roles in epidemic responses, please see Stellmach et al. (2018). In addition, there is a helpful interview with Sharon Abramowitz talking to the Wellcome Trust on this topic: https://blog.wellcome.ac.uk/2016/02/29/zika-qa-with-the-medical-anthropologist/ I would further agree that anthropologists are not the only practitioners working in the humanities and social sciences who should be brought into the dialogue in global health security and epidemic response—sociologists, historians, political scientists, and lawyers have made critical contributions across the board (see: https://twitter.com/adamkams/status/982955377460416512?s=19).

I have been interested in elaborating have been ones that are keenly attached to specific technical actions and projects—a WASH project and disease surveillance management in Tanzania, a satellite census in Democratic Republic of Congo, an institutional mobilization to fight off an unexpected Ebola outbreak. (Some wouldn't even call some of those projects 'health security' related, but that's another debate.) This text has been as much about moments of collective agreement and collaboration as it has been about debate and controversy; about how a team has worked with and reshaped GHS as a concept, as a specific practice of relational knowledge and negotiated alliances. It has been a partial account of one novice practitioner's journey with GHS through a very challenging space and time—a time marked by precarity and 'climactic uncertainty'.

Other accounts do the deep archival work better than I do - depicting how GHS as a specific possible form of thinking and rationality emerged (Lakoff 2008; Weir 2015; Davies, Kamradt-Scott, and Rushton 2015; Kamradt-Scott 2015; Rushton and Youde 2015; Elbe 2010; Collier and Lakoff 2008). This is laudable and critical to understanding the field's historical specificities and the heterogeneity of the domain. There is no doubt the emergence of emerging infectious diseases as a problematic in the 1990s was a pivotal event; and that the constitution of the "generic biological threat" in the 2000s as a *governable issue* has been equally decisive. But there has been no singular set of responses to those issues as they have taken on prominence and relevance. Almost all ethnographic accounts look at GHS as if it were simply the collection of stabilized rhetorical "speech acts" that emerge out of the WHO, the World Bank, biosecurity experts, or the US Government. There is no doubt much of this has emerged from the Global North, and been spread through the Global South and other developing countries as an important priority. But as we've seen, there are far more mechanics in the shop.

Ebola set the stage for dramatic changes to GHS; new actors and problems have come to the table. The technical imaginary in GHS might still be preoccupied with mitigating vulnerable systems in developing countries, but the means and mechanisms by which this is done have shifted dramatically in the last five years. When it comes

down to it, picking through highly groomed white papers, legal documents, and press releases only gets you so far with analysis—there is a different kind of understanding that emerges from *working with the problems of 'action' first-hand.* Seeing your own technical daydreams, your own efforts to collaborate, get reworked, stuck together, or outright fail entirely. This is why it was not sufficient for me to remain at my First Desk, but to move to the Second at PATH—to participate in technical daydreaming (even with all the risks of failure it brought along with it), to help negotiate new alliances, to try and help fit all the prismatic pieces together (and learn when to let them drift apart).

It's not just the "imaginaries" in the domain of GHS that have changed. As we've seen, the way one can "act" on behalf of GHS has also dramatically shifted following Ebola and the launch of the GHSA. If 'action' remains the persistent problematic for GHS time and time again, then we need to start unpacking what 'acting' means, what it looks like, and how it unfolds. The motto for the GHSA from the earliest days was to "learn by doing"—which for some seemed a euphemism for a lack of good management and direction. But the phrase showcases just how much of an 'experiment' this program has been. GHS has been a fascinating case-study to examine how a utopian vision has been elaborated into discrete sets of actionable principles, global mechanisms, and projects. Again – the concept of "*project*" actually helped me bridge that analytic gap between abstract imaginaries and concrete activities by technicians and lamplighters, who were busy "learning by doing". Just as we've seen how GHS hasn't been able to *legislate* itself a safer world—the "shortfalls" of IHR compliance were the result of GHS 1.0—we've also seen how 'acting' and implementation are not obvious challenges either. Most of the labors of GHS 2.0 have gone into developing concrete and tangible means of engagement with GHS as a problem, and the problem has been in how to develop and nurture specific *projects* into being. There aren't a lot of 'public-facing' documents that look at that process—I hope that is a space that my episodes start to fill up.

Episodes Four and Five, for example, look at the 2017 Ebola outbreak in the DRC and the early stages of a satellite census project with the Bill and Melinda Gates Foundation. They should give you an idea of how permeable and nebulous the

categories of “emergency” can be. In the same breath as we were designing and implementing projects to build out long-term country capacities—an Emergency Operations Center, a geographic information systems group, surveillance and data management infrastructures—we were responding to the urgencies of an international mobilization to fight off one of the world’s most dreaded viruses. I don’t point this out as a form of hagiography; it is critical to understand that our dialogues *in the midst of emergency* were also preoccupied with mechanisms to build the long-term infrastructural capability of the DRC’s health system—geospatial data stewardship, internet connectivity at remote health facilities, standing up emergency operations centers, repurposing polio investments for routine services. It was as much about galvanizing donor commitments to infrastructural solutions (or workarounds) as it was about the momentary need to ship off chlorinators and get rapid response teams out to the field on SUVs. Navigating the ‘emergency’ as an ethical demand and an administrative-political category required some tricky maneuvering, precisely because efforts to blend these urgencies with longer-term preparedness initiatives ran into various forms of red tape. What happens when a logic of preparedness and a commitment to long-term capacity-building are both *embedded* and *part of* a reactive response? You can either decry that the ‘state of exception’—the emergency—becomes never-ending and infinite; or you can argue that emergencies sometimes overlap with longer-term capacity-building projects, where temporal, administrative, and formal categories get blurry and experts get creative.

* * *

I think we are on the cusp of seeing a new space emerge, new mobilizations by stakeholders that continue to shift the dialogues and debates. There is nothing to say the problems that will compose any future versions of GHS will be any easier, simpler, or less conflicted—neither from a pragmatic standpoint, nor an analytic one. New assemblages that work on behalf of ‘global health security’—an increasingly diffuse and broad field—continue to expand, mutating the relationships between operational possibilities, technical daydreams, and the utopian vision of a world free from the threat of infectious diseases. Going from a historically very delimited field—composed largely

of biosecurity advocates, national security experts, national health ministers, and WHO officials revising regulations—to a major domain in global health today, GHS has reshaped the landscape of what is conceptually possible to think, as well as programmatically possible to do. Today's meetings are about developing *de novo* technical frameworks, updating milestone libraries, writing and costing out national plans, applying and aligning assessment tools. Global health security continues to shift the terms of debate, of dialogue, of *how* and *what* one can do to act on behalf of populations both 'nationally' and 'globally', as well as how those categories are conceptualized and reproduced.

**The Preparedness Ouroboros**

In the middle of December 2016 - nearly three years after the Global Health Security Agenda was formally launched at the White House - a series of "high-level" advocacy meetings were held in Washington DC, across Congress and the US Department of State. These "Hill Events", spanning two days, intended to showcase the 'successes' of US leadership in global health security - efforts to consolidate the Agenda both as a conceptual-policy piece and as a 'legacy' that would transcend the specificity of the Obama Administration. Like many other 'optics' events that month happening across the Capital, the meetings were an effort to stabilize fragile political priorities amidst a deeply uncertain future at the cusp of 2017.

There were a number of notable comments made during the panel discussions, but it was one high-level attendee that provided the most striking comment on the importance of sustained efforts in the area:

"[Global health security] is not the kind of thing you can do for a little while and then take a break," they noted. "*You have to do this until its done*".

Reading over the notes of this session, I was struck by this comment. Before I had even finished reading over the rest of the statement, a co-worker piped up behind the cubicle walls.

“What do they mean, ‘until its done’?” they exclaimed, incredulous. “This work is never finished; there is no ‘done’! It’s not like one day we will wipe our hands and say - ‘okay everyone, the diseases are gone’.”

Our work of preparedness, in other words, was an eternal, timeless work. Yet often it was only our momentary pursuits that remained palpable. A cyclical battle waged between emerging diseases and emerging projects.

Not weeks later, I heard an echo in a series of think-tank memorandums written by Johns Hopkins University’s Center for Health Security to the incoming Presidential Administration. They were emphasizing the permanent posture of readiness that accompanies global health security:

> In the past, prominent government leaders have asked, ‘‘Isn’t the work of preparing for large-scale health emergencies completed yet?’’ The answer is that health security is not something that gets completed. Just like national security is not something that is ever fully completed. Longstanding threats continue to persist and new challenges emerge, so it is crucial to remain prepared and keep looking ahead. Talent must be recruited, and new systems have to be built and evolve. And if we don’t continue to support these efforts, the infrastructure behind them will degrade and preparedness will suffer (Inglesby and Cicero 2017:2).

Imagined here is a perennial renewal of GHS as a bureaucratic task of matching talent, systems, and infrastructures to risks and threats. Global threats: global responses. In some sense, this fight — as experts, technocrats, as middling Modernists — relies on the sustained maintenance of iterative cycles of define-design (and measure) into a future with no end. At least, an end deferred just as long as the work (and its funding) itself continues. As one expert argued in her attempt to assuage an impatient audience— an audience concerned about the future of the idea of GHS amidst deep budget cutbacks: “this work won't really end, as we know. Public health work like this never stops; it will always continue in some form or another.”

Just as this work will never be finished, the vision of a world ‘safe and secure’ will never be fully realized. Renewal is the name of the game; global health security works in a cyclical space of preparedness. As I imagine it, there will be biweekly phone conferences forever, until the lines burn up.

I had a heart-to-heart one afternoon with Linda, sharing my concerns that many of the projects we dreamt about seemed to float indeterminately in mid-air. All these technical daydreams half-birthed and stuck in a myriad of bureaucratic pipelines, regulatory hiccups, or arrested in the purgatory of unread inboxes.

"That's just how these things go," she said with consolation. "These things never really get done, we just keep going and nurse them along the best we can."

With a deft touch, the best we could hope for was to turn our visions into realities, to change the world that we sought to protect.

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