

The Unintended Consequences of Information Provision: The World Health Organization and Border Restrictions during COVID-19

CATHERINE Z. WORSNOP 
University of Maryland, USA

KAREN A. GRÉPIN 
University of Hong Kong, Hong Kong

KELLEY LEE 
Simon Fraser University, Canada

AND

SUMMER MARION 
Bentley University, USA

Abstract: Why do some international agreements fail to achieve their goals? Rather than states' engaging in cheap talk, evasion, or shallow commitments, the World Health Organization's (WHO) International Health Regulations (IHR)—the agreement governing states' and WHO's response to global health emergencies—point to the unintended consequences of information provision. The IHR have a dual goal of providing public health protection from health threats while minimizing unnecessary interference in international traffic. As such, during major outbreaks WHO provides information about spread and severity, as well as guidance about how states should respond, primarily regarding border policies. During COVID-19, border restrictions such as entry restrictions, flight suspensions, and border closures have been commonplace even though WHO recommended against such policies when it declared the outbreak a public health emergency in January 2020. Building on findings from the 2014 Ebola outbreak, we argue that without raising the cost of disregarding (or the benefits of following) recommendations against border restrictions, information from WHO about outbreak spread and severity leads states to impose border restrictions inconsistent with WHO's guidance. Using new data from COVID-19, we show that WHO's public health emergency declaration and pandemic announcement are associated with increases in the number of states imposing border restrictions.

Resumen: ¿Por qué motivo algunos acuerdos internacionales no logran alcanzar sus objetivos? El Reglamento Sanitario Internacional (RSI) de la Organización Mundial de la Salud (OMS)—el acuerdo que rige la respuesta de los Estados y la OMS a las emergencias sanitarias mundiales—señala como motivo las consecuencias imprevistas del suministro de información, en lugar del discurso trivial, la evasión o los compromisos superficiales por parte de los Estados. El RSI tiene como doble objetivo proteger la salud pública de las amenazas sanitarias y minimizar las interferencias innecesarias en el tráfico internacional. Como tal, durante brotes

importantes, la OMS proporciona información sobre la propagación y la gravedad, así como orientación sobre cómo deben responder los Estados, principalmente en lo que respecta a las políticas fronterizas. Sin embargo, durante la COVID-19, las restricciones fronterizas, tales como las restricciones de entrada, las suspensiones de vuelos y los cierres de fronteras, han sido habituales, a pesar de que la OMS recomendó no aplicar estas políticas cuando declaró el brote epidémico como emergencia de salud pública en enero de 2020. Basándonos en los resultados del brote de ébola de 2014, argumentamos que, sin aumentar el coste de ignorar (o los beneficios de seguir) las recomendaciones contra las restricciones fronterizas, la información de la OMS sobre la propagación y la gravedad del brote lleva a los Estados a imponer restricciones fronterizas que no son coherentes con las orientaciones de la OMS. Utilizando nuevos datos de la COVID-19, mostramos que la declaración de emergencia de salud pública de la OMS y el anuncio de pandemia están asociados con el aumento del número de estados que imponen restricciones fronterizas.

Résumé: Pourquoi certains accords internationaux n'atteignent-ils pas leurs objectifs? À l'inverse d'États se perdant dans des discussions superficielles, des pirouettes ou des engagements insignifiants, le Règlement sanitaire international (RSI) de l'Organisation mondiale de la santé (OMS), à savoir l'accord encadrant la réponse des États et de l'OMS aux situations d'urgence sanitaire internationales, évoque les conséquences imprévues de la transmission d'informations. Le RSI a un objectif double : protéger les populations contre les menaces pour la santé publique, tout en minimisant les interactions non nécessaires dans le trafic international. Par conséquent, lors des grandes épidémies, l'OMS fournit des informations relatives à la transmission et à la gravité des maladies, ainsi que des conseils quant aux mesures que les États doivent mettre en œuvre, principalement en ce qui concerne les politiques aux frontières. Pourtant, durant la pandémie de COVID-19, les restrictions aux frontières, telles que les limitations des entrées, les suspensions de vols et les fermetures, ont été monnaie courante, et ce bien que l'OMS ait déconseillé de telles pratiques lorsqu'elle a déclaré que l'épidémie constituait une urgence sanitaire, en janvier 2020. S'appuyant sur des travaux portant sur l'épidémie d'Ebola en 2014, nous soutenons, sans exagérer l'impact d'une non-conformité (ou les avantages d'une conformité) aux recommandations de l'OMS en matière de restrictions aux frontières, que les informations transmises par l'organisation en matière de transmission et de gravité de la maladie ont conduit les États à imposer des restrictions aux frontières non conformes auxdites recommandations. Grâce à de nouvelles données relatives au COVID-19, nous montrons que la déclaration d'urgence sanitaire et l'annonce de la pandémie par l'OMS se sont accompagnées d'une augmentation du nombre d'États imposant des restrictions aux frontières.

Keywords: international organizations, World Health Organization, compliance, institutional effectiveness, disease outbreaks, global health

Palabras clave: organizaciones internacionales, organización mundial de la salud, cumplimiento, eficacia institucional, brotes de enfermedades, salud mundial

Mots clés: organisations internationales, organisation mondiale de la santé, conformité, efficacité institutionnelle, épidémies, santé mondiale

Introduction

Why do some international agreements fail to achieve their goals? Scholarship points to several explanations: states may commit but not comply with agreements due to lack of capacity or time-inconsistent preferences (Chayes and Chayes 1993; Dai 2006; Hafner-Burton, Tsutsui, and Meyer 2008), states often make shallow commitments that require little change in behavior (Downs, Rocke, and Barsoom 1996; Abbott and Snidal 2000), or states may purposefully exploit norm-law gaps to remain legally compliant while still violating underlying norms (Búzás 2018). The operation of the World Health Organization's (WHO) International Health Regulations (IHR [2005])—the binding agreement coordinating states' and WHO's response to global health emergencies—during COVID-19 point to a different perspective on the (in)effectiveness of international agreements.¹ In this article, we focus on the unintended consequences of information provision by international organizations (IOs). We argue that information from WHO about outbreak spread and severity unintentionally contributed to widespread state adoption of border restrictions inconsistent with WHO guidance under the IHR.

The purpose of the IHR is to “prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade” (World Health Organization 2005, 1). A longstanding challenge to international cooperation during outbreaks is the relationship between an outbreak being made public and states “overreacting” by imposing costly border restrictions. Disrupting this pattern is a central aim of the IHR (Carvalho and Zacher 2001). When the IHR were last revised in 2005, states committed (with some exceptions) to follow WHO's recommendations about whether (and which) border measures would help to manage a given outbreak.

Throughout COVID-19, border measures such as entry restrictions and flight suspensions in the name of mitigating virus spread have been commonplace. Yet, when WHO declared COVID-19 a public health emergency of international concern (PHEIC) on January 30, 2020, it also recommended against travel restrictions, as it has always done during major outbreaks, because of the belief that they cause more harm than public health benefit. Although states agreed to follow such guidance in signing on to the IHR, by the end of March 2020, all IHR States Parties had disregarded WHO's recommendations—many more than the 25 percent of states that had done so during major outbreaks of the recent past such as H1N1 (2009) and Ebola (2014) (Rhymer and Speare 2017; Worsnop 2017a, 2017b). Universal state adoption of measures inconsistent with WHO's recommendations cast doubt on WHO's authority and the viability of the IHR as a tool for coordinating the international response to major disease outbreaks (Habibi et al. 2020; Lee et al. 2020; von Tigerstrom and Wilson 2020; Worsnop et al. 2021). Indeed, the IHR certainly did not achieve their dual purpose: COVID-19 spread and inflicted harm globally and international traffic was severely disrupted.

Yet, what now looks like universal disregard of WHO's recommendations, and a largely ineffectual IHR, obscures a more interesting story. Most states' first border measures during COVID-19 were travel advice/warnings and entry or exit screening—measures considered consistent with WHO's recommendations because they generally do not “significantly interfere” with international traffic. Universal disregard of WHO guidance through the imposition of measures that we will refer to in this article as “border restrictions,” which include quarantines, visa and other entry restrictions, suspensions of flights and other means of

¹We refer to the IHR (2005) throughout as simply “the IHR” unless distinguishing from previous versions of the regulations.

conveyance, and closure of land/sea/air borders, did not occur until the end of March 2020.²

Interestingly, the number of states imposing border restrictions looks to cluster around WHO's January 30 PHEIC declaration and March 11 labeling of COVID-19 as a pandemic. Further, several states including Argentina, Antigua and Barbuda, El Salvador, Jamaica, Japan, Paraguay, and The United States, among others, attributed the introduction of border restrictions during COVID-19 to either WHO's PHEIC declaration or the pandemic announcement. Did information from WHO about outbreak spread and severity lead states to impose border restrictions at odds with WHO guidance? Past research on the 2014 Ebola outbreak demonstrates that states were most likely to adopt border restrictions soon after WHO declared that outbreak a public health emergency (Worsnop 2017a). This association between the PHEIC declaration and border restrictions is of course not the intended outcome: a key aim of the IHR is to limit unnecessary interference in international traffic, which is why the IHR require WHO to make recommendations aimed at limiting border restrictions when it declares a PHEIC. Were similar dynamics at work during COVID-19? Can the timing of these signals from WHO help to explain patterns of border restrictions?

In this article, we build on Worsnop (2017a) and argue that WHO's role as an information provider during major outbreaks has unintended consequences that contribute to states' disregard of WHO's recommendations against border restrictions. The IHR require WHO to provide different types of information during an outbreak, including information about outbreak severity and guidance about how states should respond, primarily regarding border policies. However, WHO's responsibility to alert states to the spread and severity of health threats can clash with the goal of getting states to follow its concurrent advice to not impose border restrictions. Providing guidance and reasoning that border restrictions are more harmful than beneficial might be enough for some states to follow WHO's advice. However, analyses of border restrictions during H1N1 (2009) and Ebola (2014) show that many states disregard WHO's advice and impose border restrictions because of political pressures. Without threatening any real cost for disregarding (or providing a benefit for following) its recommendations against border restrictions, WHO's warning of a major outbreak may thus unintentionally lead some states to go ahead and impose border restrictions. Put another way, in only providing guidance about border restrictions without an enforcement mechanism, the IHR are designed and implemented to solve a coordination problem when it comes to border restrictions when many states actually face a cooperation problem.³

Using new data on states' border restrictions from January 2020 through the end of March 2020 (when all states had imposed a border restriction), we find evidence to support our argument in the case of COVID-19. The days following WHO's PHEIC declaration on January 30, and its labeling of the outbreak a pandemic on March 11, were associated with the largest number of states imposing border restrictions for the first time during the outbreak, even accounting for alternative explanations such as the spread of COVID-19, media coverage of the outbreak, and other key events between January and March 2020.

This article makes a number of contributions. Importantly, the IHR are a particularly useful case for examining questions of international cooperation because of their universal state membership. This helps to overcome the selection problem that arises if an agreement only includes states most likely to follow through with

²We follow WHO's language and use the term "restrictions" to describe these policies. It is worth noting that some of these measures that could be seen as restricting or facilitating safe travel depends on one's perspective. Particularly in later stages of the COVID-19 pandemic, states introduced vaccination or testing requirements in order to facilitate travel.

³WHO faces this issue across its areas of work. For example, see Benvenisti (2020).

their commitments (Von Stein 2005). And, during a global health crisis, states face a test of their commitments at the same time. With this in mind, the article adds empirical support to an alternative perspective on the (in)effectiveness of international agreements. With new data on international cooperation during COVID-19, we provide additional evidence that an agreement designed and implemented to solve a coordination problem when the issue at hand is a cooperation problem for many states can sometimes exacerbate that cooperation problem. In the case of the IHR, when WHO fulfills its role as an information provider and alerts states to a global health emergency, it can undermine the goal of limiting unnecessary interference in international traffic. As such, this research also aligns with work by Carnegie and Carson (2020) on the surprising downsides of information and transparency in some areas of global governance. While hiding or downplaying outbreaks is not the answer to the problem highlighted in this article, we show that relying on more information alone will not solve global governance challenges during health emergencies.

Relatedly, our findings are also policy relevant for the IHR, for any future pandemic treaty, and for improving the global response to future disease outbreaks. Unfortunately, COVID-19 will not be the last major outbreak (Smith et al. 2014). Our analysis suggests that WHO's provision of information on outbreak severity must be paired with strategies for shifting states' cost-benefit analysis in favor of following WHO guidelines regarding border restrictions, which we discuss further in the article's conclusion. Support from states is critical to equipping WHO with the tools it needs to disrupt the relationship between information about outbreak severity and states' disregard of its advice on border measures.

The article proceeds as follows. The next section provides background on state commitments to the IHR and WHO's recommendations against border restrictions at the outset of COVID-19. Then, we present the framework that WHO's role as an information provider can have unintended consequences that undermine state cooperation on border policies and apply it to COVID-19. This section also contrasts expectations for our argument with existing explanations for the (in)effectiveness of IOs. Then, after describing the data and methodology, we present our analysis of states' border restrictions and find patterns consistent with our argument. After discussing robustness checks and unanswered questions, the final section concludes with a discussion of implications for the IHR and WHO's role as an information provider during outbreaks.

The IHR, Border Measures, and COVID-19

State Commitments to the IHR

Adopted in 2005 (and entering into force in 2007), the IHR are the most recent iteration of agreements aiming to coordinate the response to major disease outbreaks that have existed in some form since the mid-1850s. WHO member states formally adopted these as the International Sanitary Regulations in 1951, which were subsequently renamed the International Health Regulations in 1969. The IHR have always had a dual purpose to "provide a public health response to the international spread of disease" while avoiding "unnecessary interference with international traffic and trade" (World Health Organization 2005, 1). In 2005, in the wake of the 2003 outbreak of Severe Acute Respiratory Syndrome, states revised the IHR to address enduring challenges in outbreak response including delayed outbreak reporting by states to WHO, uncoordinated policy responses at the border that were often based on little evidence, and a focus on stopping disease at the border with overly restrictive trade and travel barriers rather than putting in place sufficient domestic infrastructure for outbreak preparedness and response to stop an outbreak at the source (Carvalho and Zacher 2001).

A central component of the IHR (2005) empowers the WHO Director-General (DG) to declare a PHEIC. When a DG declares a PHEIC, they also make temporary recommendations for how governments should (and should not) respond with a focus on whether (and which) border measures are warranted. In signing on to the IHR, countries agreed to follow this guidance, with the exceptions outlined below.

Specifically, Article 43 of the IHR notes that states can impose what are called “additional health measures,” including international travel and trade restrictions, which differ from WHO’s recommendations if (1) the measures are not “more restrictive of international traffic and not more invasive or intrusive to persons than reasonably available alternatives that would achieve the appropriate level of health protection”; (2) policies are based on science and WHO guidance; (3) states provide their rationale within forty-eight hours to WHO for adopting measures that significantly interfere with international traffic and/or trade (significant interference is defined as refusal or delay of entry/departure of people or goods for more than twenty-four hours); and (4) policies are reviewed within three months ([World Health Organization 2005](#), Article 43). Other sections of the IHR also commit states to uphold human rights standards in implementing measures at the border.⁴

The hope was to encourage states to follow WHO guidance by delegating to WHO the authority to decide which border measures are justified at a given time, and to monitor and publicize state behavior ([von Tigerstrom 2005](#)). Although WHO’s temporary recommendations are not binding and states can impose measures not endorsed by WHO, they are bound to satisfy the above-described process when doing so. Most importantly, states are obligated to provide a justification if they impose measures not recommended by WHO that significantly interfere with international traffic.

As such, state obligations to Article 43 are similar to obligations in other issue areas involving international agreements that build in flexibility ([Abbott and Snidal 2000](#), 429). The World Trade Organization’s antidumping protection or the ability to derogate from commitments to human rights treaties are two other examples of flexible treaty arrangements ([Kucik and Reinhardt 2008](#); [Hafner-Burton, Helfer, and Fariss 2011](#)). These are formal escape mechanisms from binding treaty commitments, whereas the IHR build in flexibility differently by not binding states to follow WHO’s recommendations but instead requiring them to meet certain conditions and abide by a process when not following WHO guidance. Regardless, the objective is the same: to allow flexibility for special circumstances that encourages states to sign on to the agreement in the first place and to ensure that the agreement is not completely undermined when states do not comply. In the case of the IHR, there is some evidence from the 2005 negotiation that at least some states did not want to be bound without exception to WHO’s recommendations and may not have signed on otherwise ([Davies, Kamradt-Scott, and Rushton 2015](#); [Kamradt-Scott 2015](#)).

One implication of the structure and wording of IHR Article 43 is that simply adopting border measures inconsistent with WHO’s advice is not necessarily legally “noncompliant.” Compliance and noncompliance depend not only on the measures adopted, but also on whether the state follows the process outlined in Article 43 for imposing measures beyond WHO’s recommendations. Most importantly, did the state provide sufficient justification to WHO? Communications between states and WHO regarding notification of additional measures and associated justifications—as well as WHO’s responses—are not publicly available and so it is difficult to assess whether states are technically compliant or not. Therefore, in line with other research on this topic, we do not use compliance language. Instead, we use “border restrictions” to refer to border measures that are inconsistent with WHO’s recommendations (see the data section below for an in-depth description).

⁴ See, for example, Articles 31 and 32.

In the case of COVID-19, though, many of these measures were likely also legally noncompliant, since as of February 7, WHO reported that two-thirds of countries had *not* officially notified WHO of these measures as required under Article 43 ([World Health Organization 2020d](#)). However, information on which countries, whether they provided justifications, or whether those justifications were deemed sufficient is not publicly available. It is not possible, therefore, for our research to determine (non)compliance on this basis.

WHO's Recommendations during Public Health Emergencies

In addition to placing requirements on states, the IHR obligate WHO to issue temporary recommendations about how states should respond at the border to PHEICs. The IHR leave the substance of these temporary recommendations up to WHO (with advisement from the IHR Emergency Committee); although WHO *could* recommend that states adopt a range of border measures, the organization tends not to recommend measures aside from exit screening for individuals traveling from affected countries. Since gaining the authority to make temporary recommendations regarding border measures through the IHR in 2005, WHO has only recommended a border measure other than exit screening once: during the ongoing PHEIC declared for poliovirus in 2014, WHO recommended that states exporting cases restrict exit of travelers lacking documentation of polio vaccination ([World Health Organization 2015](#)). Throughout its history, WHO has advocated for containing outbreaks at the source rather than trying to stop them at international borders.

Precursors to the IHR dating back to the 1850s also focused on minimizing unnecessary interference in international traffic ([Carvalho and Zacher 2001](#)). Indeed, “it’s part of the religion of global health: travel and trade restrictions are bad” ([Gebrekidan et al. 2020](#)). The logic is that governments have often imposed border measures in response to outbreaks in other countries that are “overreactions”—in many instances, such measures provided little public health benefit while distracting governments from more effective interventions, and inflicting economic, social, and political harms on targeted countries already dealing with an outbreak. For instance, during a 1965 cholera outbreak in Afghanistan, Iran, Iraq, and Uzbekistan, many states adopted travel and trade restrictions including requiring vaccination certificates for entry, import bans on foodstuffs, and other entry restrictions—measures that would provide little protection from cholera according to the latest scientific evidence at the time ([World Health Organization 1967](#)). A number of states adopted similar measures during outbreaks of plague in India and cholera in Peru in the 1990s that were, again, expressly prohibited under the IHR at the time due to their limited public health utility ([Cash and Narasimhan 2000](#)). In 2009, around 25 percent of countries imposed import bans on pork products from H1N1-affected states despite WHO’s recommendations against such policies given the virus could not spread through pork. During the 2014 Ebola outbreak in West Africa, again close to 25 percent of countries restricted visas or flights from the affected area even though characteristics of the virus and evidence from past outbreaks of SARS and influenza showed the limited utility of such restrictions for stopping spread ([Cooper et al. 2006](#); [Ferguson et al. 2006](#); [Colizza et al. 2007](#); [Vincent et al. 2009](#); [World Health Organization 2009](#); [Cowling et al. 2010](#); [Poletto et al. 2014](#); [Selvey, Antão, and Hall 2015](#); [Worsnop 2019](#)). In 2014, at the height of the West Africa Ebola outbreak, the then DG Margaret Chan explained WHO’s perspective:

We have learned from past experience managing many, many outbreaks that travel bans will not stop cases coming to your borders...The best option is heightened surveillance, heightened vigilance, as well as heightened preparedness so that you’re ready should an imported case arrive at your doorstep. ([Gale 2014](#))

Given the seemingly limited public health benefit of most border measures, their potential harms loom large and are wide ranging. It has been argued that many border measures have potential to cost the global economy, disrupt supply chains, restrict movement of necessary human and material resources during an outbreak, promote stigma and discrimination, provide a false sense of security to governments that should be further investing in domestic public health capacities rather than focusing at the border, harm economies trying to deal with a public health emergency, disrupt families and communities, and politically weaken governments that need the trust of populations to effectively respond to an outbreak (Cash and Narasimhan 2000; Giesecke 2000; Carvalho and Zacher 2001; Belluz 2014; Worsnop 2019). Importantly, the continued imposition of costly border measures also contributes to a collective action problem that undermines security for all states: governments have incentives to conceal or downplay outbreaks since other states cannot credibly commit to refrain from imposing costly travel and/or trade restrictions once an outbreak is made public (Worsnop 2017b). This is a problem given that timely and accurate outbreak reporting is essential for an effective response.

The minimal public health benefit and potentially large costs, in conjunction with states' repeated imposition of what WHO deemed overly restrictive border measures during past outbreaks, explain why limiting the use of unnecessarily restrictive border measures was central to the 2005 IHR revision. Yet, familiar challenges related to state compliance and IO politics have emerged in implementing this part of the IHR.

First, even after signing on to the new IHR in 2005, many states still adopt border measures against WHO guidance. The 2009 H1N1 pandemic and the 2014 Ebola outbreak mentioned above are key examples. Second and relatedly, WHO has little enforcement authority and has not exercised the power it does have to publicly name countries that disregard its guidance regarding border measures (Kamradt-Scott 2016). This decision could be partly a result of difficulties in interpreting "compliance" and "noncompliance." At first glance, it seems possible to use the language of the IHR described above to identify legal compliance and noncompliance. However, ambiguity in the text leaves ample space for different interpretations (Taylor et al. 2020; von Tigerstrom and Wilson 2020). In practice, the meaning of adherence to phrases such as "appropriate level of health protection," "more restrictive. . . than reasonably available alternatives," or even "scientific principles" and "evidence" is subject to debate. Furthermore, the IHR do not specify criteria to determine when a state's justification is sufficient to qualify as compliant.

While WHO's hesitance to "name and shame" is understandable, given the difficulties in assessing legal noncompliance and dependence on member state financing and cooperation, governments that disregard WHO guidance have generally suffered few consequences for doing so. States themselves have also been unwilling to punish each other—even during the H1N1 pandemic, when many countries targeted the United States with pork import bans, there is little evidence that the United States did much more than warn countries to remove the bans (see, e.g., US Department of State 2009). Therefore, while the logic of limiting governments' use of unnecessary border measures is sound, implementation has proven difficult.

It was in this context that WHO tried to send a strong signal against border measures when it declared COVID-19 a PHEIC on January 30, 2020. WHO's position on border measures at the outset of COVID-19 reflected its longstanding view that most border measures offer little immediate public health benefit and have the potential to cause a range of wider harms. In its statement advising the DG to declare a PHEIC and to adopt a set of temporary recommendations (both of which he did), the IHR Emergency Committee stated that "The Committee does not recommend any travel or trade restriction based on the current information available" and reminded states of their obligations under the IHR, noting that

States Parties implementing additional health measures that significantly interfere with international traffic (refusal of entry or departure of international travelers, baggage, cargo, containers, conveyances, goods, and the like, or their delay, for more than 24 hours) are obliged to send to WHO the public health rationale and justification within 48 hours of their implementation. WHO will review the justification and may request countries to reconsider their measures. WHO is required to share with other States Parties the information about measures and the justification received. ([World Health Organization 2020c](#))

The statement also cautioned countries against “actions that promote stigma or discrimination, in line with the principles of Article 3 of the IHR” ([World Health Organization 2020c](#)). WHO’s DG then reiterated on Twitter that “WHO doesn’t recommend limiting trade & movement. Travel restrictions can cause more harm than good by hindering info-sharing & medical supply chains & harming economies. We urge countries & companies to make evidence-based, consistent decisions” ([Ghebreyesus 2020](#)). This message resonated initially. However, within a short period of time, the number of states imposing border policies inconsistent with WHO’s recommendations grew, surging at key points, until all states had done so by the end of March 2020. The next section discusses what accounts for this outcome.

Explaining the (In)Effectiveness of International Agreements

In this section, we review existing explanations that leave unanswered questions about patterns of states’ border policies in the early months of COVID-19. Then, we present our argument that focuses on the unintended consequences of WHO’s role as an information provider.

There are several reasons why states might not follow-through with international commitments and, relatedly, why international agreements sometimes fail to achieve their goals. First, state commitments could be *cheap talk*. Perhaps states commit knowing that they will easily be able to shirk those commitments later. Why do states make insincere commitments? States may see commitment itself as beneficial, a sort of “window dressing” for domestic or international audiences, even though they do not actually plan to comply with obligations later (see, e.g., [Vreeland 2008](#)).

Insincere commitments may be especially likely where there is no credible external enforcement mechanism ([Simmons 2010](#)). This lack of external enforcement can sometimes be overcome—in particular, agreements in issue areas with frequent repeated interaction such as trade can become “self-enforcing” due to the dynamics of reciprocity ([Goldstein, Rivers, and Tomz 2007](#)). The IHR have neither strong enforcement mechanisms nor frequent repeated interactions. Instead, possible enforcement relies on rhetoric, norms, and states’ reputational concerns. While WHO has declared six PHEICs and so states do repeatedly interact, this interaction is infrequent since the PHEICs have occurred over a twelve-year period ([Mullen et al. 2020](#)). And, although the IHR do rest on reciprocity—states agree to report notifiable public health events quickly with tacit agreement that other states refrain from reacting by imposing overly restrictive trade and travel restrictions—the dynamic is weak due to time inconsistency and difficulties identifying when an outbreak has been reported “quickly enough.” Also, when states do impose border restrictions even when an outbreak has been reported appropriately, levers for punishment are unclear. As such, the IHR are a likely case for insincere commitments.

Yet, several factors suggest that this dynamic is not driving the behavior of most states. First, during past public health emergencies, the majority of states followed WHO guidance. For example, during H1N1 (2009) and Ebola (2014), the two

outbreaks that saw the highest number of states ignore WHO guidance prior to COVID-19, still only about 25 percent of states imposed border restrictions against WHO's advice. If most states had made insincere commitments to the IHR, which entered into force in 2007, the high rate of cooperation during major outbreaks of the recent past is puzzling.

Second, during COVID-19, the first border measures applied by states included screening and/or travel advice and warnings, measures consistent with WHO's advice because they tend not to significantly interfere with international traffic. Even by the end of February 2020, well after WHO had declared COVID-19 a PHEIC, over 40 percent of states had not imposed border measures inconsistent with WHO's advice. It took until the end of March 2020 for all states to go against WHO's initial recommendation against border restrictions. If most states had made insincere commitments to the IHR, it is puzzling that it took at least two months to see universal use of border policies inconsistent with WHO's recommendations. As such, the cheap talk perspective is not a convincing explanation for the pattern of state behavior evident during COVID-19.

Rather than states making insincere commitments, a second potential explanation is what Búzás calls *evasion*. Búzás (2018) argues that under certain conditions, states purposefully exploit norm-law gaps to remain legally compliant while still violating underlying norms. States that face competing pressures to comply (normally from international actors) and to not comply (normally from domestic actors) try to satisfy both constituencies. There is some evidence that during the H1N1 (2009) outbreak, some states may have engaged in evasion. Kamradt-Scott and Rushton (2012) show, for example, that although a number of states adopted border measures at odds with WHO's advice, many made public statements claiming that their actions were acceptable exceptions to the rule. These states did not want to be seen as undermining the commitment to follow WHO's advice even though policies were inconsistent with that advice. Yet, during COVID-19, there is little evidence that most states tried to justify their actions as "exceptional" in light of WHO guidance or in relation to commitments to follow WHO's advice. Our review of government announcements of border restrictions found no official statements to this effect. Furthermore, as noted above, as of February 7, 2020, when almost 50 percent of states had imposed a measure inconsistent with WHO's recommendations, only a minority had submitted formal justifications to WHO to explain their border policies, even though they are required to do so under the IHR. That states did not seek to justify their actions as exceptions, or otherwise argue that their policies were actually consistent with WHO's advice or the IHR, does not support the evasion perspective.

A third potential explanation is that states merely made shallow commitments in signing on to the IHR. Of course, states do sometimes make shallow international agreements that require little change in behavior (Abbott et al. 2000). In the IHR, states did include flexibility in their commitment to follow WHO guidance regarding border restrictions. As noted above, states can impose measures not recommended by WHO, but they must provide an evidence-based justification for doing so. While state commitments to the IHR could therefore be called "shallow," this perspective offers little insight into patterns of border restrictions over time during COVID-19. Why were there particular increases in the number of states imposing restrictions over time?

Unintended Consequences of Information Provision

We present an alternative account of decreasing cooperation over time during COVID-19 that focuses on WHO's role as an information provider. Given its lack of formal enforcement power, WHO's authority relies on its role as a credible provider of information, what Sending (2015) calls "expert authority." Information is the

primary lever to encourage states to cooperate. The legitimacy of its role as information provider is contested given, as [Patterson and Clark \(2020, 430\)](#) note, “chronic budget shortfalls, the rise of other health-focused bodies like the Gates Foundation, financial dependence on wealthy countries, and what are often perceived to be non-inclusive decision-making processes.” Even though it is contested, WHO’s authority depends on its ability to provide information and guidance backed by biomedical science supported by the scientific and public health communities. Without formal enforcement mechanisms, the IHR thus rely on WHO’s role as a source of trusted information.

The 2005 revision contains two innovations to WHO’s expert authority. First, rather than applying only to a specific list of diseases, the revised IHR gave WHO authority to determine, with guidance from a committee of experts, whether a disease event constitutes a PHEIC, defined as “an extraordinary event which is determined. . .to constitute a public health risk to other States through the international spread of disease” and that potentially requires a coordinated international response (Article 12). If such an event is underway, WHO must alert states and populations. This change widened the scope of the IHR to a broader array of public health risks. The declaration power was meant to serve as a signal to the international community to facilitate a coordinated response to events with potential for cross-border spread.

A second change in the revised IHR required WHO, when a PHEIC is declared, to issue temporary recommendations about how countries should respond at their border, if at all.⁵ Such recommendations can include health measures “regarding persons, baggage, cargo, containers, conveyances, goods and/or postal parcels to prevent or reduce the international spread of disease and avoid unnecessary interference with international traffic” ([World Health Organization 2005](#), Article 15). This change ensured that (1) WHO could issue guidance relevant to the range of risks that could be declared a PHEIC and (2) such guidance could be issued and updated in real time. As described above, the temporary recommendations are not themselves binding on states, but states must follow an agreed process if they do not follow the recommendations.

We argue that these two information provision roles are not compatible as the IHR are currently designed and implemented. Specifically, information from WHO on the severity of the outbreak—in the absence of real costs for disregarding (or benefits for following) WHO temporary recommendations—prompted many states to impose border restrictions inconsistent with WHO’s recommendations. In this case, information provision is not enough and may even exacerbate a longstanding collective action problem.

Information without Enforcement

As described in [Worsnop \(2017a\)](#), the IHR are primarily designed to address coordination problems, but getting states to follow WHO’s recommendations against border restrictions actually requires overcoming a cooperation problem for many states. Coordination problems can exist when all states share a strong interest in collective action but lack information about what to do to achieve a common end ([Schelling 1960](#); [Abbott and Snidal 2000](#)). A credible information source can help to solve these information deficits. The IHR have always been designed to solve coordination problems by providing guidance endorsed by WHO—an organization with the relevant technical expertise to provide credible information about what countries should do in the face of a major disease event.

Before the 2005 revision, the IHR included text specifying the border measures that states could impose in response to outbreaks of three diseases then covered

⁵ See articles 15, 18, and 49.

under the regulations. The 2005 revision made changes to WHO's role as an information provider by giving the organization the authority to determine when a "public health emergency of international concern" is underway and then requiring WHO to issue temporary recommendations in real time about what states should do at the border (if anything) to "reduce the international spread of disease and avoid unnecessary interference with international traffic" ([World Health Organization 2005](#), Article 15). The revision enabled WHO to provide timely guidance to states that could be updated as a public health threat evolves.

For some governments, receiving this guidance alone is enough to follow WHO's advice. During outbreaks of the recent past, most countries have adhered to WHO's recommendations against border restrictions. There are good reasons to follow WHO's advice. Through the 2005 IHR revision, states agreed that WHO had the expertise to give them guidance about border measures and, as described above, WHO's assessment has been that restrictions cause more harm than good.

Even so, up to 25 percent of countries have disregarded WHO's recommendations in the past. Research suggests that some governments face strong shorter-term domestic and/or international pressures to impose border restrictions that outweigh reasons to follow WHO guidance ([Worsnop 2017b](#)). While all states might agree on the general principle of limiting disruption to international traffic, especially given the risk of disincentivizing timely outbreak reporting, when an outbreak occurs, conditions change for some states, leading them to forgo this longer-term collective good in favor of short-term incentives. These time-inconsistent preferences mean that this is a cooperation problem for some states ([Abbott and Snidal 1998, 2000](#)).

Addressing these kinds of cooperation problems requires not only sound guidance from WHO but also shifting governments' cost-benefit analysis in favor of following that guidance. However, WHO has limited tools at its disposal to increase either the costs of disregarding its advice or the benefits of following it. There is no longer a formal dispute-resolution mechanism in the IHR, WHO has the authority to name and shame countries, but tends not to do so, and states tend not to retaliate when they are targets of others' unjustified border restrictions during outbreaks. As such, while the IHR revision in 2005 was in part meant to address the longstanding tendency of governments to impose unjustified border measures when an outbreak is made public, the incentives driving that cooperation problem in the first place persist.

In this context, with little ability to enforce its recommendations, WHO's enhanced authority to determine when a health threat constitutes a PHEIC can actually exacerbate the cooperation problem by sending an authoritative signal of outbreak severity and scope and thus triggering state imposition of border measures right when WHO has recommended against them and when a coordinated response is most needed. If this *information without enforcement* logic is operating and WHO's fulfillment of its information provision role regarding outbreak severity undermines another key goal of the IHR to limit unnecessary interference in international traffic, then we should see the following observable implications.

First, few states should impose border measures inconsistent with WHO's recommendations before the first signal from WHO about increasing severity and scope of the outbreak. WHO declared the outbreak of the then-called novel coronavirus (2019-nCoV) a PHEIC (and recommended against border restrictions) on January 30, 2020, after the second meeting of the IHR Emergency Committee. The DG first convened the Emergency Committee on January 22, 2020, but the Committee and the DG determined that the outbreak did not then constitute a PHEIC. If WHO's message about increasing spread and severity through the PHEIC declaration is triggering state imposition of border restrictions, it would be expected that most states would not have imposed restrictions until after that declaration.

Second, the number of states newly imposing border restrictions—measures inconsistent with WHO's recommendations—should be highest soon after WHO's

PHEIC declaration and other signals from WHO about the increasing severity and scope of the outbreak. During the early months of COVID-19, WHO sent two such signals. The first was the January 30, 2020, PHEIC declaration. The second was the March 11, 2020, characterization of COVID-19 as a pandemic. While a “pandemic declaration” is not an action derived from formal authority under the IHR, it was a second clear signal from WHO about the emerging event. Thus, it provides another opportunity to evaluate the article’s core argument. If information from WHO about increasing spread and severity of the outbreak is triggering the above-described cooperation problem and intensifying pressures on states, both the PHEIC and pandemic declarations should be associated with an increase in the number of states imposing measures inconsistent with WHO’s recommendations.

Data

To evaluate the above arguments, we construct a dataset of when each IHR State Party imposed their first border measure that was inconsistent with WHO’s recommendations, which we refer to as “border restrictions.” The following describes the data we use in our analysis.

Border Measures Inconsistent with WHO’s Recommendations

We use WHO’s Public Health and Social Measures (PHSM) data as a starting point ([World Health Organization 2021](#)). This dataset compiles and standardizes several trackers of policy responses to COVID-19, including international travel measures. The dataset identifies nine types of international travel measures: providing travel advice or warning; entry screening and isolation or quarantine; exit screening and isolation or quarantine; restricting entry; restricting exit; restricting visas; suspending or restricting international flights; closing international land borders; and suspending or restricting international ferries or ships.⁶ For each measure, the dataset codes the imposing country or territory, the start date, and includes a description of the measure ([World Health Organization 2021](#)).

When WHO has not recommended any border measures aside from exit screening, past research treats most other border measures as “significantly interfering” with international traffic and thus inconsistent with WHO’s recommendations ([Rhymer and Speare 2017](#); [Worsnop 2017a, 2017b](#)). These include measures that prohibit, restrict, or delay international travel such as border closure, entry/exit or visa restriction, suspension of flights or other means of conveyance, and quarantine. Measures such as travel advice and warnings, or entry/exit screening, tend to be considered insignificant interference and thus consistent with WHO’s recommendations.⁷ Indeed, as it did in the case of COVID-19, WHO often recommends exit screening for affected countries. And, although WHO has questioned the utility of entry screening, it has acknowledged its potential in certain contexts, including during COVID-19 ([World Health Organization 2020b](#)). WHO itself notes that “Significant interference generally means refusal of entry or departure of international

⁶Note that PHSM includes only travel measures, not trade measures. During COVID-19, few trade restrictions covered by the IHR were imposed. Some restrictions were adopted during COVID-19, but they largely did not fall under the IHR. Common restrictions included export restrictions on personal protective equipment (PPE) and eventually vaccines. These are worth examining; they are not covered under the IHR (2005) since they do not count as a “health measure” according to the IHR, which is defined to include only “procedures applied to prevent the spread of disease or contamination” (see IHR, page 8). While export restrictions on PPE and vaccines are related to stopping spread, the restrictions themselves are not meant to keep out the virus. This points to a larger issue with the IHR in that they do cover many measures imposed by governments that significantly interfere with international trade and traffic. However, WHO recommendations do not apply to these restrictions which is why they are not included in our analysis.

⁷Note that although the IHR also apply to trade measures, we focus on travel measures because trade measures that fall under the IHR have been less common during COVID-19.

travellers, baggage, cargo, containers, conveyances, goods, and the like, or their delay, for more than 24 hours” (World Health Organization 2020e).

As such, for our dependent variable, we count measures that prohibit, restrict, or delay as border restrictions that significantly interfere with international traffic and that are inconsistent with WHO’s recommendations (coded as a binary variable where *prohibit_restrict_delay* = 1). For two reasons, we also use a second coding strategy. It could be argued that measures that delay a traveler upon entry such as quarantine are a gray area since they do not restrict or prohibit international travel but only delay *after* entry (Lee et al. 2021). In addition, it is difficult to confirm from available sources whether quarantines are mandatory or simply recommended—the latter case is not clearly significant interference. Therefore, as a robustness check we also use a more conservative coding strategy, counting only measures that prohibit or restrict travel as border restrictions and inconsistent with WHO’s recommendations (coded as a binary variable where *prohibit_restrict* = 1). *Prohibit_restrict* = 1 for states that suspended international flights, ferries, or ships; closed international land borders; restricted visas; or restricted entry/exit. *Prohibit_restrict* = 0 for states that did not impose any border measure, issued travel advice/warning, implemented exit/entry screening, or implemented quarantine for incoming travelers. *Prohibit_restrict_delay* = 1 for states that were coded as 1 for *prohibit_restrict* plus states that implemented quarantine. *Prohibit_restrict_delay* = 0 for states that did not impose any border measure, issued travel advice/warning, or implemented exit/entry screening.

We then code when each IHR State Party imposed its first border measure inconsistent with WHO’s recommendations according to each strategy. We look at the period between the day after the first reported case on December 31, 2019, and when all states had imposed border measures inconsistent with WHO’s recommendations. The observation period thus starts on January 1, 2020, and ends on March 24, 2020, according to our standard coding of border restrictions and March 23 according to the more conservative coding. Then, we create a count of the number of states imposing their first border measure inconsistent with WHO’s recommendations for each day of the observation period. Our final dataset includes eighty-five or eighty-nine observations, depending on the coding of the dependent variable, where the unit of analysis is the outbreak day.

To compile our final dataset, we disaggregated quarantine measures from entry/exit screening measures, which are coded together in the PHSM data, and manually double-checked each observation for measure type and start date. We were able to find an official government statement or a media source that quoted a government official for most states and used media sources for the minority of remaining states. Importantly, this process revealed discrepancies in the measure start dates in the PHSM data. The PHSM data sometimes code the announcement date and sometimes the date of implementation. Because we would ideally like to use the announcement date, we corrected discrepancies using the announcement date for the majority of observations and otherwise the implementation date when it was earlier or when we could not identify a different announcement date. We could not find a source for one state coded in the PHSM data—Nicaragua. We therefore do not include it in our analysis. Also, the Schengen states and European Union (EU) member states imposed restrictions in tandem. Schengen states suspended visa issuance in China on January 29. EU states restricted entry to travelers from outside of the EU on March 17 (Schengenvisainfo News 2020; Taylor 2021). Since these cannot be treated as independent observations, we do not include Schengen countries in our count of restrictions. We include non-Schengen EU states that imposed their first restriction prior to March 17, and Ireland that explicitly noted it was not coordinating its travel policies with the bloc (Stevis-Gridneff and Pérez-Peña 2020). See the online appendix for a full description of coding and our process of data cleaning.

Explanatory Variables

Our main explanatory variables are WHO's PHEIC declaration on January 30, 2020, and the characterization of COVID-19 as a pandemic on March 11, 2020. We create a binary variable for (1) the three days after the PHEIC declaration and (2) the three days after the pandemic characterization. We include the three days following both in order to remain as close to the announcements as possible and avoid picking up the effect of other events while also allowing for the fact that governments may take some amount of time to decide on and announce policy changes. As a robustness check, we also code for the two days following each announcement.

Alternative Explanations and Controls

There are other factors that may have led to increases in the number of states imposing border restrictions: the spread and severity of the outbreak over time, media coverage of the outbreak, and other key outbreak-related events between January and March 2020. To measure outbreak spread and severity, in the main analysis we include the number of new cases reported globally per day. As robustness checks, we include the number of new deaths reported globally per day and the number of countries newly reporting cases per day (Dong, Du, and Gardner 2020). Because of gaps in surveillance capacity as well as intentional downplaying by governments, reported cases and deaths are undercounts (Barber 2021; Wang 2021). However, this is not a problem for our analysis since the information available at the time—reported cases and deaths—is what would have been relevant to governments. Other than our key explanatory variables of the PHEIC declaration and pandemic announcement, we do not include a separate control for time in our main analysis because we do not expect time to affect the number of states imposing their first border restriction independent of outbreak spread. However, because states may be more likely to impose border restrictions over time, we do include time as an additional control as a robustness check and our findings are unchanged.

To account for media coverage of the outbreak, which could heighten the awareness of governments and populations about COVID-19 and thus increase pressures to impose border restrictions, we included the change in the number of articles published each day in major world publications with a headline including “pneumonia” or “coronavirus,” or “covid-19” or “2019-nCoV” (LexisNexis 2022). Controls are lagged by one day.

In the early days and months of COVID-19, the situation evolved rapidly and many key events occurred in a short period of time. These other events might also have led to increases in the number of states imposing border restrictions. Using timelines from WHO and media sources, we identify in table 1 other key events between January 1, 2020, and March 28, 2020, related to outbreak spread, new information about the virus, WHO travel advice and recommendations,⁸ and other events of global significance (Taylor 2021; World Health Organization 2022a, 2022b).

As we did for the PHEIC declaration and the characterization of the outbreak as a pandemic, we create binary variables for the three days after each of the above dates and for the two days after as a robustness check.

The most important potential alternative explanation to the argument in this paper is that other co-occurring events and developments around the PHEIC declaration and the pandemic announcement were the primary drivers of increases in the

⁸ Note that WHO can issue informal advice and guidance in addition to formal temporary recommendations about international traffic. For example, in the early weeks of COVID-19, WHO issued advice several times before the PHEIC was declared and afterward. The advice issued afterward did not change the substance of the top-line formal recommendations against restrictions on international traffic, but did offer advice on entry/exit screening, reasoning behind the recommendation against restrictions, and also included guidance on the conditions under which restrictions *could* serve a purpose, which was not a formal recommendation but did somewhat soften the top-line recommendation.

Table 1. Other key events during COVID-19, January 1–March 28, 2020

Date (2020)	Event
January 10	Chinese authorities confirmed that outbreak is caused by a novel coronavirus and WHO issues its first travel guidance: “WHO advises against the application of any travel or trade restrictions.”
January 11	Thailand reports the world’s first case outside of China and the first case in WHO’s Southeast Asia Region. China announces first death.
January 14	WHO says there is evidence of possible human-to-human transmission.
January 16	Japan reports the first case in WHO’s Western Pacific Region outside of China.
January 21	The United States reports the first case in WHO’s Americas Region.
January 22	WHO convenes the first meeting of the IHR Emergency Committee for the outbreak of novel coronavirus to assess whether it constitutes a PHEIC and WHO’s Western Pacific Regional Office tweets that there is clear evidence of some human-to-human transmission.
January 23	China locks down the city of Wuhan and WHO determines that the outbreak is not yet a PHEIC.
January 24	France reports the first cases in WHO’s European Region and WHO issues travel guidance: advises exit and possibly entry screening but “advises against the application of any restrictions of international traffic.”
January 27	WHO issues travel advice, reflecting its prior January 24 advice.
January 29	United Arab Emirates reports the first confirmed cases in WHO’s Eastern Mediterranean Region.
February 2	Philippines reports the first death outside of China.
February 4	WHO issues its first statement on possible asymptomatic transmission.
February 9	WHO deploys an advance team for the WHO–China Joint Mission.
February 11	WHO issues travel advice. It reiterates its recommendation against “any travel or trade restrictions” when it declared the PHEIC on January 30. However, it notes that “measures that significantly interfere with international traffic for more than 24 hours. . . may have a public health rationale at the beginning of the containment phase of an outbreak as they may allow affected countries to implement sustained response measures, and non-affected countries to gain time to initiate and implement effective preparedness measures.” It emphasizes that such measures should be short in duration and reviewed regularly.
February 23	Surge of cases in Italy and Iran.
February 25	Algeria reports the first case in WHO’s Africa region.
February 29	WHO issues updated travel recommendations emphasizing that “WHO continues to advise against the application of travel or trade restrictions to countries experiencing COVID-19 outbreaks” but providing more detail and reasoning behind the softened language issued on February 11.
March 7	100,000 cases reported globally.
March 13	Europe becomes the epicenter of the outbreak.
March 17	The EU votes to ban entry of non-EU travelers.
March 26	G20 Heads of State and Government hold an extraordinary summit on COVID-19

number of states imposing border restrictions—or that perhaps these other developments and events led to the PHEIC declaration, pandemic announcement, and the increases in countries imposing border restrictions. We have tried to account for the most significant of these possibilities by including in the below analysis measures of outbreak spread and severity, media coverage, and other key events during the time period. We discuss other alternative explanations and robustness checks following the presentation of the results below.

Analysis and Results

To evaluate our argument, we first create a figure that plots the dates of the PHEIC declaration and pandemic announcement, the number of states newly imposing

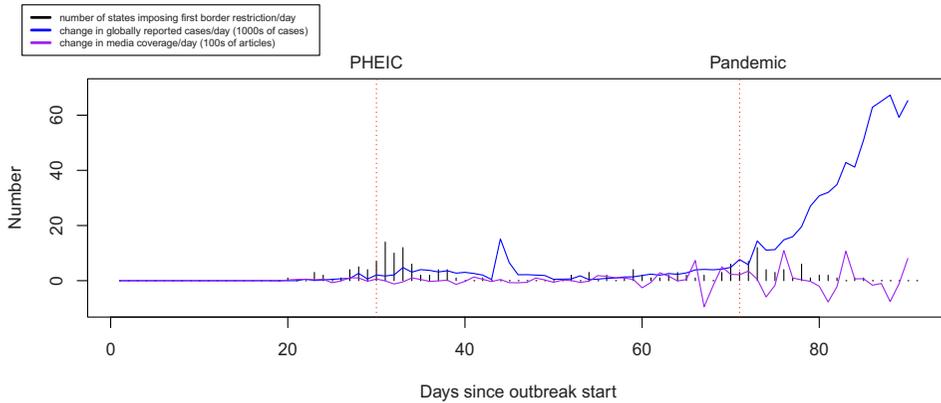


Figure 1. The number of states imposing their first border restriction plotted with cases and media coverage.

their first border restriction each day, the change in newly reported global cases each day, and the change in media coverage each day (see [figure 1](#)). These descriptive data provide initial support to the claim that information from WHO about the severity of the outbreak leads states to impose border restrictions. It is clear from the figure that a minority of states imposed border restrictions before the PHEIC declaration (twenty-seven states, or 14 percent) and border restrictions look to cluster around the PHEIC declaration and pandemic announcement.

Not surprisingly, [figure 1](#) shows that some states imposed restrictions before the PHEIC declaration. As noted, the situation rapidly evolved in the early weeks and some of the other events during those weeks also signaled that the outbreak was spreading and would not be easily contained—for example, growing evidence about human-to-human transmission, spread beyond China, and the first convening of the IHR Emergency Committee. Our argument is not that the PHEIC declaration and pandemic announcement are the *only* events that matter; however, the descriptive data in the figure show that the minority of states imposed before the PHEIC declaration and that border restrictions seem to spike around the PHEIC declaration and the pandemic announcement.

To further examine variation in the number of states newly imposing border restrictions each day while accounting for the alternative explanations noted above, we use negative binomial regression, which is appropriate for count variables that are overdispersed ([Long 1997](#); [Smithson and Merkle 2013](#)). Our argument expects the days following the PHEIC declaration and pandemic announcement to be associated with more states newly imposing border restrictions compared to other days in the observation period, even controlling for other factors. Our data are well suited for this analysis because we can observe all states from the beginning of the outbreak until all have imposed their first border restriction. We present this analysis below.

[Table 2](#) presents the results of four negative binomial models. Model 1 examines whether the three days following the PHEIC declaration are associated with a higher number of states imposing their first border restriction than other days in the observation period. Model 2 does the same for the pandemic announcement. Model 3 includes both the PHEIC declaration and the pandemic declaration in the same model. Model 4 uses the more conservative coding of border restrictions that includes only measures that restrict or prevent travel and excludes quarantine, which delays travel after entry. All models control for the change in the number of newly reported COVID-19 cases globally per day and the change in media coverage of the outbreak per day (neither are significant predictors). The results accord

Table 2. Negative binomial models of the number of states imposing border restrictions, coefficients presented as incidence rate ratios.⁹

	Standard ^a		Conservative ^b	
	(1)	(2)	(3)	(4)
The three days after PHEIC declaration	8.89** (6.05)		9.55*** (5.68)	10.26** (7.73)
The three days after pandemic announcement		4.04† (3.21)	4.85* (2.97)	6.13* (4.71)
Change in global daily cases	1.02 (0.02)	1.00 (0.02)	1.01 (0.01)	1.00 (0.01)
Change in global daily media coverage	1.12* (0.06)	1.04 (0.06)	1.06 (0.06)	1.03 (0.06)
Observations (days)	85	85	85	89
θ	0.82*** (0.24)	0.61*** (0.16)	1.10** (0.39)	0.66*** (0.20)

Note: Standard errors in parentheses.

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

^aStandard coding includes measures that prohibit, restrict, or delay international traffic.

^bConservative coding includes measures that prohibit or restrict international traffic.

with our expectations. In each of the models, the PHEIC declaration and the pandemic announcement are associated with more states imposing their first border restriction.

The associations are not only statistically significant but also substantively meaningful. The incidence rate ratios in table 2 demonstrate this, but we also calculate first differences in the simulated predicted number of states imposing their first border restriction on days following the PHEIC/pandemic announcement compared to other days (simulations based on model 3 from table 2 and computed using the Zelig package in R; see Imai, King, and Lau 2007). The days following the PHEIC declaration are associated with an increase in about fourteen states imposing restrictions ($p \leq 0.05$) compared to other days, all else equal. The days following the pandemic announcement are associated with an increase in about seven states imposing restrictions ($p \leq 0.05$) compared to other days, all else equal.

Interestingly, the change in daily reported cases is not significantly associated with the number of states imposing border restrictions and the change in media coverage of the outbreak is only statistically significant in model 1. We also investigate whether our results are affected by including in the model other key events between January and March 2020 that may have been associated with increases in the number of states imposing their first border restriction (models reported in the online appendix). We included a binary variable for the three days following each of the events noted above (and two days as a robustness check) in model 3, and their inclusion does not change the substantive results reported above. In fact, only one other date was significantly associated with the number of states imposing restrictions: the three days following WHO's January 27 travel advice, which reiterated earlier advice against restrictions to international traffic. When using the alternate coding of two days after January 27, the association is no longer significant.

Our findings suggest that the PHEIC declaration and the pandemic announcement are associated with increases in the number of states imposing their first border restriction, providing evidence for our argument that signals of outbreak

⁹The IRR is the change in the dependent variable in terms of a percentage increase or decrease; as such, values greater than one have a positive association with the dependent variable and those less than one have a negative association.

spread and severity from WHO are playing a role in the timing of states' disregard of WHO's recommendations regarding border restrictions. Anecdotal statements that border restrictions were imposed in response to these signals may therefore be reflective of a more general pattern. For example, in a January 31, 2020 statement, the Office of the Prime Minister of Antigua and Barbuda notes that it "has decided to close its borders... to travelers from the People's Republic of China. The decision has been taken in light of the declaration by the World Health Organization (WHO) that the fast-spreading coronavirus... is a global health emergency" ([Office of The Prime Minister Antigua and Barbuda 2020](#)). Similarly, in announcing its entry restriction on travelers from China, Japan notes: "As the declaration issued by the World Health Organization (WHO) illustrates, this is truly an emergency" ([Prime Minister of Japan and His Cabinet 2020](#)).

The United States too, in its January 31, 2020, declaration of a national public health emergency and announcement of an entry restriction for those traveling from China, notes that the decisions were made "Following the World Health Organization's decision to declare the novel coronavirus a public health emergency of international concern" ([Goh and Brice 2020](#)). Argentina mentioned WHO's pandemic announcement, and other states imposing restrictions following the two announcements note increased perceptions of risk from COVID-19, which our findings suggest could be due to signals from WHO ([Government of Argentina 2020](#)). While the PHEIC declaration and pandemic announcement were of course meant to get countries to respond to the spreading outbreak, states were not supposed to respond with border restrictions. WHO has long faced the challenge of informing states about a health threat while trying to get them to direct the resulting alarm toward evidence-based policies. Our analysis shows that this challenge is alive and well.

Alternative Explanations and Robustness Checks

The empirical results support our expectations and suggest that information from WHO about the spread and severity of the outbreak is associated with states imposing border restrictions inconsistent with WHO guidance. Here, we address several potential concerns with the analysis and unanswered questions.

First, we consider alternative measures for our dependent variable and key explanatory variables and controls. We include the change in the reported number of deaths per day and the number of new countries reporting cases each day as alternative measures of outbreak spread and severity. We also investigate whether findings change when the PHEIC declaration and pandemic announcement are coded as the two days following each rather than the three days following each. We then use the more conservative coding of states' first border restrictions, which includes only measures that restrict or prohibit travel. Our substantive results remain unchanged.

We also include additional controls that could affect the number of states imposing restrictions. First, we include time as the number of days since the start of the outbreak. Second, we include the number of states left to impose their first border restriction (lagged by one day). Perhaps more states are more likely to impose restrictions as others do so. Also, as more states impose their first border restriction over time, there are fewer left to do so, reducing the likelihood of seeing a spike in first border restrictions over time. Including the number of states that have not yet imposed their first border restriction, which is highly correlated with time, could bias against finding a significant association between events that happen later (the pandemic announcement) and the number of states imposing their first border restriction while favoring events that happen earlier (the PHEIC declaration), which is why we do not include in our main models above. However, we do control for this as a robustness check and our results are unchanged. We also include the

number of states left to impose restrictions as an offset variable and our results remain unchanged.

Second, we use a regression discontinuity design (RDD) as an alternative estimation strategy. As noted above, other co-occurring events around the PHEIC and pandemic announcements might be associated with increases in the number of states imposing border restrictions and account for some of our findings above. As such, with the RDD, we can examine the effect of the PHEIC declaration and the pandemic announcement separately and focus on shorter time periods in which we can hold constant unobserved time-varying factors. We discuss the setup and findings here and include the results in the online appendix.

The RDD allows us to take advantage of the fact that while the timing of the PHEIC declaration and pandemic announcement was of course related to the overall course of COVID-19, the specific date of each can be treated as quasi-random. In the case of the PHEIC declaration, the criteria that IHR Emergency Committee members are supposed to use to evaluate whether a PHEIC is underway—an extraordinary event that is a public health risk to other states and that requires a coordinated international response—are not an objective assessment of outbreak spread and severity. Analysis shows that these criteria have been unevenly and subjectively applied to potential PHEICs in the past (Mullen et al. 2020). The January 30, 2020, PHEIC declaration for COVID could easily have been declared a week earlier at the first Emergency Committee meeting held on January 22 and 23 where members of the committee were divided on whether to recommend WHO declare a PHEIC (Joseph 2020). The Emergency Committee could have also been reconvened a bit earlier or later than January 30. In its January 23 statement, the Emergency Committee noted that it “stands ready to be reconvened in approximately ten days’ time, or earlier should the Director-General deem it necessary” (World Health Organization 2020a). The DG decided to reconvene the committee seven days later because of “potential for further global spread” and a reference to “some person-to-person transmission in 3 countries outside of China” (Ghebreyesus 2020). Clearly, the reconvening and eventual PHEIC declaration on January 30 was generally related to the spread and severity of COVID; however, the DG could have reasonably reconvened the committee several days earlier or later, for instance, with evidence of human-to-human transmission in two countries or four countries. The decision to reconvene on January 30 and then the PHEIC declaration that day, then, can be considered quasi-random in terms of the particular day.

A similar case can be made about the March 11, 2020, pandemic announcement. Unlike the PHEIC declaration, WHO does not have formal authority to “declare” a pandemic and therefore there were no formal criteria guiding this announcement. In making the announcement, WHO’s DG noted that “the number of cases of COVID-19 outside China has increased 13-fold and the number of affected countries has tripled. There are now more than 118,000 cases in 114 countries and 4,291 people have lost their lives. . . we’re deeply concerned both by the alarming levels of spread and severity and by the alarming levels of inaction” (World Health Organization 2020f, 2). As with the PHEIC declaration, the pandemic announcement was generally related to the spread and severity of COVID-19 but could have been made several days earlier or later using those same subjective metrics. As such, the date of the pandemic announcement can also be treated as quasi-random in terms of the particular day.

Given the above, we examine whether the days following the PHEIC declaration and the pandemic announcement were associated with more states imposing their first border restriction compared to the days preceding both, while still controlling for newly reported cases and media coverage. We find that at cut points of five, four, three, and two days surrounding the PHEIC and pandemic announcements, the days following both are significantly associated with more states imposing their first border restriction than the preceding days.

In our negative binomial models above, we examine whether other key events during the observation period were similarly associated with increases in the number of states imposing border restrictions; only one of them was. To further examine the imposition of border restrictions over time, we also use the RDD to explore whether other days in the observation period are associated with an increase in the number of states imposing their first border restriction. To do so, we look at the days before and after each day in the observation period beginning with day 20 (January 20, 2020) when the first state imposed its first border restriction and ending with day 85 (March 25, 2020) when the last state imposed its first border restriction. While a few dates before the PHEIC declaration are also significantly associated with the number of states imposing their first border restriction in the days following, the day beforehand is the only other date that still had a significant association when reducing the cut point to two days before and after. And, the days after that date include the day immediately following the PHEIC so it is likely picking up the effect of that event. Overall, the RDD demonstrates that the association between the PHEIC/pandemic announcement and the number of states imposing their first border restriction is consistent across estimation strategies.

Finally, our analysis focuses on the association between signals from WHO and the number of states imposing restrictions over time; we do not address *which* states impose border restrictions at these moments. However, our findings complement a variety of potential explanations. We know from research on past outbreaks that at least some states impose for domestic political reasons and regional patterns have also played a role. Analysis of border restrictions during COVID-19 points to the influence of integration into the global trading system as well as characteristics of the domestic political system (Neumayer, Plümper, and Shaikh 2021). Signals from WHO about outbreak spread and severity could activate domestic pressures on governments (Dai 2006; Worsnop 2017b), first mover states that bring peer states along with them, regional policy diffusion (Simmons 2000), perhaps some governments use WHO signals as rhetorical excuses for policies they wanted to adopt for other reasons, or some governments might hear the signal from WHO and adopt border restrictions because of a belief that they are the right policy response.¹⁰ There is more work to be done analyzing variations in border management policies across states during COVID-19. Regardless of the central drivers of variation across states, our analysis suggests a weakness in WHO's role as an information provider without appropriate enforcement authority. WHO's recommendations regarding border restrictions, as a result, have not had the intended effect.

Conclusion: The Future of WHO as an Information Provider

In this article, we show that WHO's role as an information provider about outbreak spread and severity can have unanticipated consequences. In particular, these signals from WHO are associated with states imposing border restrictions at odds with WHO's recommendations during COVID-19. Previously, this association had only been demonstrated during the 2014 Ebola outbreak. That the same dynamics extend to COVID-19—an outbreak of a new virus that followed a distinct trajectory compared to the 2014 Ebola outbreak—suggests that this is and will be a persistent challenge.¹¹ Furthermore, while this article looks at states' first border restrictions,

¹⁰ Interestingly, unlike other international agreements (see, for instance, Stinnett et al. 2011), following WHO recommendations to not impose restrictions does not require any special capacity; rather, imposing restrictions actually requires more capacity. Weak capacity might still play a role in explaining variation across states, but in a different way. Weak domestic health capacity could lead some states to try to compensate with border restrictions. Research on H1N1 has shown that has been part of the story in the past, but future work on variation in border restrictions across states should further investigate.

it is also possible that subsequent restrictions followed similar patterns. WHO's labeling of variants of concern (VOC) later in the pandemic, for instance, could be another signal that leads to restrictions. States' entry restrictions on travelers from several African countries in response to WHO's labeling of Omicron as a VOC in November 2021 is one possible example (Schmerhorn et al. 2022).

As we have described, the imposition of border restrictions is not a perfect measure of state compliance with obligations to the IHR, but the widespread use of these measures demonstrates that the IHR have not achieved their dual goal of protecting public health while minimizing unnecessary interference in international traffic. And, our findings point to the role played by WHO's provision of information about outbreak spread and severity without the tools to enforce its recommendations about border measures. Simply providing guidance to states that they should not impose border restrictions is not enough to get many states to follow that guidance. As such, this case is an example of how an international agreement designed and implemented to solve a coordination problem when a cooperation problem is at work for many states can contribute to institutional ineffectiveness.

What are the implications for WHO's role as an information provider? WHO must provide information about outbreaks and guidance about border measures. However, to get more states to follow that guidance, WHO needs to pair that information provision with tools to increase the costs of ignoring its advice and/or increase the benefits of following that advice. These strategies could include WHO consistently exercising its formal authorities under the IHR to request information from states, track state border policies, and evaluate state justifications for those policies. WHO could also use informal tools that it has historically shied away from like publicly praising or criticizing states, nudging states to bilaterally reward or punish one another for following WHO's recommendations or not, or encouraging private organizations or an interested state to set up an independent monitoring system to track state border policies during outbreaks. These strategies are potentially politically risky and financially costly for WHO, which is already underfunded, understaffed, and, like many IOs, wary of provoking ire from states it relies on for cooperation and financial support. Critically, then, WHO requires material and rhetorical support from states. There are positive signs on increasing states' assessed contributions to WHO by 50 percent, but follow-through is far from guaranteed (Ravelo 2022).

On top of that, states and WHO must more fully embrace the central role of politics in outbreak response and use that as a chance to shape state behavior (Gruszczynski and Melillo 2022). Indeed, our findings point to an opportunity for WHO: many states are actually listening to WHO. The problem is that they are listening to WHO's warnings about outbreaks but not its guidance about how to respond. To address this, WHO must have and use tools such as the ones described above with support from states. And, doing so should be a priority for states and WHO because unnecessary border restrictions are associated with a range of harms that undermine outbreak response. These include incentivizing outbreak concealment, promoting stigma and xenophobia, movement restrictions with human rights implications, economic costs, and distraction from more proven public health measures at the border and domestically, among others.

¹¹ While our analysis shows that the argument travels across outbreaks of different diseases and different scopes, we do not always see a lot of states imposing border restrictions during global health emergencies. And, sometimes these restrictions are in the form of travel restrictions and other times trade restrictions. For example, during H1N1 (2009), most border restrictions came in the form of import bans on pork products. Yet, during the 2014 Ebola outbreak, there were far more travel bans than trade bans imposed. COVID-19 has also seen mostly travel restrictions. In contrast, during the Zika outbreak, declared a health emergency by WHO in 2016, few states imposed trade or travel restrictions. Similarly, during the 2019 Ebola outbreak, some but not many states imposed travel or trade restrictions. As such, our argument applies during outbreaks where states are imposing restrictions. Which outbreaks those are and the types of restrictions that will predominate in a given outbreak is driven by separate processes that should be examined but are outside the scope of this paper.

WHO may be facing another challenge to its role as an information provider, though. While the central contribution of this article is to demonstrate the association between signals from WHO and increases in the number of states imposing their first border restrictions, there is an additional question of why border restrictions became universal and seemingly uncoordinated? Of course, a key part of the explanation lies in the novelty of the COVID-19 pandemic and its increasing spread and severity over time. But also, WHO's expert authority in the area of border restrictions may have weakened over the course of the pandemic. Country experience and research in the initial months of COVID-19 raised doubts about WHO's recommendations against border restrictions (e.g., see [Chinazzi et al. 2020](#); [Lee et al. 2020](#); [Stanhope and Weinstein 2020](#); [Grépin et al. 2021](#)). While WHO maintained the top-line recommendation against border restrictions, it softened its language starting in mid-February 2020. WHO acknowledged on February 29 that "in certain circumstances, measures that restrict the movement of people may prove temporarily useful, such as in settings with few international connections and limited response capacities" ([World Health Organization 2020e](#)).

After WHO's February 29 recommendations, the IHR Emergency Committee that had initially advised WHO not to recommend any travel or trade restrictions suggested that WHO's recommendations be updated to better balance "benefits and unintended consequences" ([World Health Organization 2020g](#)). When WHO labeled the outbreak a pandemic on March 11, 2020, it did not reiterate its recommendations against border restrictions. And, WHO did not issue new guidance until July 2020, well after all states had already imposed border restrictions ([World Health Organization 2020i, 2020h](#)). While WHO did act quickly to update its guidance following Omicron-related travel restrictions in November 2021, in the critical early months of a novel health crisis, there was a void of clear, timely, and actionable guidance for states on what to do at the border. As a result, as early as March 2020, even likely cooperators had little reason to follow WHO's recommendations.

Why would WHO allow this guidance void to develop? There are several possible reasons. WHO faced a number of constraints. The IHR Secretariat is short staffed relative to its mandate and capacity for updating recommendations during a crisis is limited. Furthermore, although evidence had somewhat shifted away from the initial recommendation against border restrictions by late February 2020, considerable uncertainty continues to exist even now, making it difficult to specify new evidence-based recommendations to clearly guide states. Issuing new guidance under these circumstances was risky for WHO at a time when it most needed governments' trust (indeed, there is evidence that states may be shifting away from global mechanisms for health cooperation, leaving WHO increasingly insecure; see [Fazal 2020](#)). WHO depends on the goodwill of states and their cooperation during a crisis and thus tends to act cautiously ([Cortell and Peterson 2006](#)). Even by February 2020, WHO's use of praise as a strategy to garner state cooperation was clear ([Rauhala 2020](#)). Indeed, a multiplicity of reasonable explanations exist for the lack of updated actionable guidance from WHO ranging from lack of capacity to organizational insecurity.

In spite of these questions about WHO's recommendations regarding travel restrictions, it remains important to understand variation in the number of states that follow WHO's advice. WHO does need to reassess how it makes recommendations about border measures during outbreaks. Research that carefully traces and explains the limited guidance on border restrictions during COVID-19 and whether and how it played a role in state behavior will be a critical input to that process. However, the IHR's dual goal of protecting public health while minimizing unnecessary interference in international traffic is sound. A first-order problem may be for WHO to rebuild its authority to offer guidance in this area and for states to ensure that it has the resources, capacity, and political cover to update guidance and provide actionable advice to states during a crisis. This article shows, however, that

without shifting states' cost-benefit analysis in favor of following WHO's recommendations, information from WHO about outbreak spread and severity will continue to lead to suboptimal border restrictions.

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Conflict of interest

CZW was a member of a WHO guideline development group and technical consultation in 2019 and 2021. KL was a member of two donor-funded reviews of WHO in 1995 and 1997. She previously served as chair of a WHO Scientific Resource Group on Globalization, Trade and Health, and Co-Director of the WHO Collaborating Centre on Global Change and Health. She has received funding from WHO to conduct research on global health governance, global tobacco control, impacts of globalization and infectious diseases, and the commercial determinants of health and the COVID-19 pandemic. She is currently serving on the Editorial Board for the Global Report on the Commercial Determinants of Health. The International Health Regulations Secretariat is a knowledge user on the grant that supported this project (see Funding section below), but was not involved in the design or writing of this piece.

Supplementary Information

Supplementary information is available in the *International Studies Perspectives* data archive.

References

- ABBOTT, KENNETH W., AND DUNCAN SNIDAL. 1998. "Why States Act through Formal International Organizations." *Journal of Conflict Resolution* 42 (1): 3–32.
- . 2000. "Hard and Soft Law in International Governance." *International Organization* 54 (3): 421–56.
- ABBOTT, KENNETH W., ROBERT O. KEOHANE, ANDREW MORAVCSIK, ANNE-MARIE SLAUGHTER, AND DUNCAN SNIDAL. 2000. "The Concept of Legalization." *International Organization* 54 (3): 401–20.
- BARBER, RYAN. 2021. "COVID-19: Estimating the Historical Time Series of Infections." Institute for Health Metrics and Evaluation, April 21. Accessed November 19, 2021. <https://www.healthdata.org/special-analysis/covid-19-estimating-historical-infections-time-series>.
- BELLUZ, JULIA. 2014. "Why Travel Bans Will Only Make the Ebola Epidemic Worse." *Vox*, October 17. Accessed October 14, 2021. <http://www.vox.com/2014/10/13/6964633/travel-ban-airport-screening-ebola-outbreak-virus>.
- BENVENISTI, EYAL. 2020. "The WHO—Destined to Fail? Political Cooperation and the COVID-19 Pandemic." *American Journal of International Law* 114 (4): 588–97.
- BÚZÁS, ZOLTÁN I. 2018. "Is the Good News about Law Compliance Good News about Norm Compliance? The Case of Racial Equality." *International Organization* 72 (2): 351–85.
- CARNEGIE, ALLISON, AND AUSTIN CARSON. 2020. *Secrets in Global Governance: Disclosure Dilemmas and the Challenge of International Cooperation*, Cambridge Studies in International Relations. Cambridge: Cambridge University Press.

- CARVALHO, SIMON, AND MARK ZACHER. 2001. "The International Health Regulations in Historical Perspective." In *Plagues and Politics: Infectious Disease and International Policy*, edited by Andrew T. Price-Smith, 235–55. Wiltshire: Palgrave.
- CASH, RICHARD A., AND VASANT NARASIMHAN. 2000. "Impediments to Global Surveillance of Infectious Diseases: Consequences of Open Reporting in a Global Economy." *Bulletin of the World Health Organization* 78 (11): 1358–67.
- CHAYES, ABRAM, AND ANTONIA HANDLER CHAYES. 1993. "On Compliance." *International Organization* 47 (2): 175–205.
- CHINAZZI, MATTEO, JESSICA T. DAVIS, MARCO AJELLI, CORRADO GIOANNINI, MARIA LITVINOVA, STEFANO MERLER, AND ANA PASTORE Y PIONTTI et al. 2020. "The Effect of Travel Restrictions on the Spread of the 2019 Novel Coronavirus (COVID-19) Outbreak." *Science* 368 (6489): 395–400.
- COLIZZA, VITTORIA, ALAIN BARRAT, MARC BARTHELEMY, ALAIN-JACQUES VALLERON, AND ALESSANDRO VESPIGNANI. 2007. "Modeling the Worldwide Spread of Pandemic Influenza: Baseline Case and Containment Interventions." *PLoS Medicine* 4 (1): e13.
- COOPER, BEN, RICHARD J. PITMAN, W. JOHN EDMUNDS, AND NIGEL J. GAY. 2006. "Delaying the International Spread of Pandemic Influenza." *PLoS Medicine* 3 (6): e212.
- CORTELL, ANDREW P., AND SUSAN PETERSON. 2006. "Dutiful Agents, Rogue Actors, or Both? Staffing, Voting Rules, and Slack in the WHO and WTO." In *Delegation and Agency in International Organizations, Political Economy of Institutions and Decisions*, edited by Darren Hawkins, David A. Lake, Daniel L. Nielson and Michael J. Tierney. Cambridge: Cambridge University Press.
- COWLING, BENJAMIN J., LINCOLN L.H. LAU, PENG WU, HELEN W.C. WONG, VICKY J. FANG, STEVEN RILEY, AND HIROSHI NISHIURA. 2010. "Entry Screening to Delay Local Transmission of 2009 Pandemic Influenza A (H1N1)." *BMC Infectious Diseases* 10 (1): 82.
- DAI, XINYUAN. 2006. "The Conditional Nature of Democratic Compliance." *Journal of Conflict Resolution* 50 (5): 690–713.
- DAVIES, SARA E., ADAM KAMRADT-SCOTT, AND SIMON RUSHTON. 2015. *Disease Diplomacy: International Norms and Global Health*. Baltimore, MD: Johns Hopkins University Press.
- DONG, ENSHENG, HONGRU DU, AND LAUREN GARDNER. 2020. "An Interactive Web-Based Dashboard to Track COVID-19 in Real Time." *The Lancet Infectious Diseases* 20 (5): 533–34.
- DOWNES, GEORGE W., DAVID M. ROCKE, AND PETER N. BARSOOM. 1996. "Is the Good News about Compliance Good News about Cooperation?" *International Organization* 50 (3): 379–406.
- FAZAL, TANISHA M. 2020. "Health Diplomacy in Pandemical Times." *International Organization* 74 (S1): E78–97.
- FERGUSON, NEIL M., DEREK A.T. CUMMINGS, CHRISTOPHE FRASER, JAMES C. CAJKA, PHILIP C. COOLEY, AND DONALD S. BURKE. 2006. "Strategies for Mitigating an Influenza Pandemic." *Nature* 442: 448–52.
- GALE, JASON. 2014. "WHO's Chan Slams U.S., Australia Travel Curbs for Ebola." *Bloomberg.com*, October 29. Accessed September 8, 2021. <https://www.bloomberg.com/news/articles/2014-10-30/who-s-chan-slams-u-s-australia-travel-curbs-for-ebola>.
- GBREKIDAN, SELAM, KATRIN BENNHOLD, MATT APUZZO, AND DAVID D. KIRKPATRICK. 2020. "Ski, Party, Seed a Pandemic: The Travel Rules That Let Covid-19 Take Flight." *The New York Times*, September 30, Sec. World. Accessed August 15, 2021. <https://www.nytimes.com/2020/09/30/world/europe/ski-party-pandemic-travel-coronavirus.html>.
- GHEBREYESUS, TEDROS ADHANOM. 2020. Twitter, January 31. Accessed May 4, 2021. <https://twitter.com/DrTedros/status/1223288481159503873>.
- GIESECKE, JOHAN. 2000. "Prevention, Not Panic—Epidemics and Trade Sanctions." *The Lancet* 356 (9229): 588–89.
- GOH, BRENDA, AND MAKINI BRICE. 2020. "U.S. Ramps up Anti-Coronavirus Measures at Border as Impact Spreads." *Reuters*, January 30, Sec. World News. Accessed March 6, 2021. <https://www.reuters.com/article/uk-china-health-idUKKBN1ZT36W>.
- GOLDSTEIN, JUDITH L., DOUGLAS RIVERS, AND MICHAEL TOMZ. 2007. "Institutions in International Relations: Understanding the Effects of the GATT and the WTO on World Trade." *International Organization* 61 (1): 37–67.
- GOVERNMENT OF ARGENTINA. 2020. "Emergencia Sanitaria (Decreto 260/2020)." *Argentina.gob.ar*, March 12. Accessed November 14, 2021. <https://www.argentina.gob.ar/>.
- GRÉPIN, KAREN ANN, TSI-LOK HO, ZHIHAN LIU, SUMMER MARION, JULIANNE PIPER, CATHERINE Z. WORSNOP, AND KELLEY LEE. 2021. "Evidence of the Effectiveness of Travel-Related Measures during the Early Phase of the COVID-19 Pandemic: A Rapid Systematic Review." *BMJ Global Health* 6 (3): e004537.
- GRUSZCZYNSKI, LUKASZ, AND MARGHERITA MELILLO. 2022. "The Uneasy Coexistence of Expertise and Politics in the World Health Organization: Learning from the Experience of the Early Response to the COVID-19 Pandemic." *International Organizations Law Review* 1: 1–31.

- HABIBI, ROOJIN, GIAN LUCA BURCI, THANA C. DE CAMPOS, DANWOOD CHIRWA, MARGHERITA CINÀ, STÉPHANIE DAGRON, AND MARK ECCLESTON-TURNER et al. 2020. "Do Not Violate the International Health Regulations during the COVID-19 Outbreak." *The Lancet* 395 (10225): 664–66.
- HAFNER-BURTON, EMILIE M., KIYOTERU TSUTSUI, AND JOHN W. MEYER. 2008. "International Human Rights Law and the Politics of Legitimation Repressive States and Human Rights Treaties." *International Sociology* 23 (1): 115–41.
- HAFNER-BURTON, EMILIE M., LAWRENCE R. HELFER, AND CHRISTOPHER J. FARISS. 2011. "Emergency and Escape: Explaining Derogations from Human Rights Treaties." *International Organization* 65 (4): 673–707.
- IMAI, KOSUKE, GARY KING, AND OLIVIA LAU. 2007. "Zelig: Everyone's Statistical Software." Accessed December 4, 2020. <http://GKing.harvard.edu/zelig>.
- JOSEPH, ANDREW. 2020. "WHO Declines to Declare China Virus Outbreak a Global Health Emergency." STAT, January 23. Accessed April 4, 2020. <https://www.statnews.com/2020/01/23/who-declines-to-declare-china-virus-outbreak-a-global-health-emergency/>.
- KAMRADT-SCOTT, ADAM. 2015. *Managing Global Health Security: The World Health Organization and Disease Outbreak Control*. New York: Palgrave Macmillan.
- . 2016. "WHO's to Blame? The World Health Organization and the 2014 Ebola Outbreak in West Africa." *Third World Quarterly* 37 (3): 401–18.
- KAMRADT-SCOTT, ADAM, AND SIMON RUSHTON. 2012. "The Revised International Health Regulations: Socialization, Compliance and Changing Norms of Global Health Security." *Global Change, Peace & Security* 24 (1): 57–70.
- KUCIK, JEFFREY, AND ERIC REINHARDT. 2008. "Does Flexibility Promote Cooperation? An Application to the Global Trade Regime." *International Organization* 62 (3): 477–505.
- LEE, KELLEY, CATHERINE Z. WORSNOP, KAREN A. GRÉPIN, AND ADAM KAMRADT-SCOTT. 2020. "Global Coordination on Cross-Border Travel and Trade Measures Crucial to COVID-19 Response." *The Lancet* 395 (10237): 1593–95.
- LEE, KELLEY, KAREN A. GRÉPIN, CATHERINE WORSNOP, SUMMER MARION, JULIANNE PIPER, AND MINGQI SONG. 2021. "Managing Borders during Public Health Emergencies of International Concern: A Proposed Typology of Cross-Border Health Measures." *Globalization and Health* 17: 62.
- LEXISNEXIS. 2022. "Nexis Uni®." Accessed November 1, 2021. <https://www.lexisnexis.com/en-us/professional/academic/nexis-uni.page>.
- LONG, J. SCOTT. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: SAGE.
- MULLEN, LUCIA, CHRISTINA POTTER, LAWRENCE O. GOSTIN, ANITA CICERO, AND JENNIFER B. NUZZO. 2020. "An Analysis of International Health Regulations Emergency Committees and Public Health Emergency of International Concern Designations." *BMJ Global Health* 5 (6): e002502.
- NEUMAYER, ERIC, THOMAS PLÜMPER, AND MATTHEW SHAIKH. 2021. "The Logics of COVID-19 Travel Restrictions between European Countries." *Social Science Quarterly* 102 (5): 2134–54.
- OFFICE OF THE PRIME MINISTER ANTIGUA AND BARBUDA. 2020. "Antigua and Barbuda Closing Borders to Travellers from China." Accessed October 4, 2021. <https://www.facebook.com/OPMAntiguaBarbuda/photos/a.130456104419567/597015164430323/?type=3&theater>.
- PATTERSON, AMY, AND MARY A. CLARK. 2020. "COVID-19 and Power in Global Health." *International Journal of Health Policy and Management* 9 (10): 429–31.
- POLETTO, CHIARA, MARCELO F.C. GOMES, ANA PASTORE Y PIONTTI, LUCA ROSSI, LIVIO BIOGLIO, DENNIS L. CHAO, IRA M. LONGINI, M. ELIZABETH HALLORAN, VITTORIA COLIZZA, AND ALESSANDRO VESPIGNANI. 2014. "Assessing the Impact of Travel Restrictions on International Spread of the 2014 West African Ebola Epidemic." *Euro Surveillance* 19 (42): 20936.
- PRIME MINISTER OF JAPAN AND HIS CABINET. 2020. "Fourth Meeting of the Novel Coronavirus Response Headquarters (The Prime Minister in Action)." February 1. Accessed October 4, 2021. https://japan.kantei.go.jp/98_abe/actions/202002/_00001.html.
- RAUHALA, EMILY. 2020. "Chinese Officials Note Serious Problems in Coronavirus Response: The World Health Organization Keeps Praising Them." Washington Post, February 8.
- RAVELO, JENNY LEI. 2022. "Countries Agreed to Sustainable Financing for WHO. What's Next?" Devex, May 26. Accessed June 1, 2022. <https://www.devex.com/news/sponsored/countries-agreed-to-sustainable-financing-for-who-what-s-next-103324>.
- RHYMER, WENDY, AND RICK SPEARE. 2017. "Countries' Response to WHO's Travel Recommendations during the 2013–2016 Ebola Outbreak." *Bulletin of the World Health Organization* 95 (1): 10–17.
- SCHELLING, THOMAS C. 1960. *The Strategy of Conflict*. Cambridge, MA: Harvard University Press.
- SCHENGENVISAINFO NEWS. 2020. "Confirmed: All Schengen Countries, but France, Have Suspended Visa Issuance in China." SchengenVisaInfo.com, February 1. Accessed October 1, 2021. <https://www.schengenvisa.info.com/news/confirmed-all-schengen-countries-but-france-have-suspended-visa-issuance-in-china/>.

- SCHERMERHORN, JORDAN, ALAINA CASE, ELLIE GRAEDEN, JUSTIN KERR, MACKENZIE MOORE, SIOBHAN ROBINSON-MARSHALL, TRAE WALLACE, EMILY WOODROW, AND REBECCA KATZ. 2022. "Fifteen Days in December: Capture and Analysis of Omicron-Related Travel Restrictions." *BMJ Global Health* 7 (3): e008642.
- SELVEY, LINDA A., CATARINA ANTÃO, AND ROBERT HALL. 2015. "Evaluation of Border Entry Screening for Infectious Diseases in Humans." *Emerging Infectious Diseases* 21 (2): 197–201.
- SENDING, OLE JACOB. 2015. *The Politics of Expertise: Competing for Authority in Global Governance*. Ann Arbor, MI: University of Michigan Press.
- SIMMONS, BETH A. 2000. "International Law and State Behavior: Commitment and Compliance in International Monetary Affairs." *American Political Science Review* 94 (4): 819–35.
- . 2010. "Treaty Compliance and Violation." *Annual Review of Political Science* 13 (1): 273–96.
- SMITH, KATHERINE F., MICHAEL GOLDBERG, SAMANTHA ROSENTHAL, LYNN CARLSON, JANE CHEN, CICI CHEN, AND SOHINI RAMACHANDRAN. 2014. "Global Rise in Human Infectious Disease Outbreaks." *Journal of The Royal Society Interface* 11 (101): 20140950.
- SMITHSON, MICHAEL, AND EDGAR C. MERKLE. 2013. *Generalized Linear Models for Categorical and Continuous Limited Dependent Variables*. Boca Raton, FL: CRC Press.
- STANHOPE, JESSICA, AND PHILIP WEINSTEIN. 2020. "Travel Restrictions and Evidence-Based Decision Making for Novel Epidemics." *Medical Journal of Australia* 213 (9): 431–431.e1.
- STEVIS-GRIDNEFF, MATINA, AND RICHARD PÉREZ-PEÑA. 2020. "Europe Barricades Borders to Slow Coronavirus." *The New York Times*, March 17, Sec. World. Accessed October 1, 2021. <https://www.nytimes.com/2020/03/17/world/europe/EU-closes-borders-virus.html>.
- STINNETT, DOUGLAS M., BRYAN R. EARLY, CALE HORNE, AND JOHANNES KARRETH. 2011. "Complying by Denying: Explaining Why States Develop Nonproliferation Export Controls." *International Studies Perspectives* 12 (3): 308–26.
- TAYLOR, ALLYN L., ROOJIN HABIBI, GIAN LUCA BURCI, STEPHANIE DAGRON, MARK ECCLESTON-TURNER, LAWRENCE O. GOSTIN, AND BENJAMIN MASON MEIER et al. 2020. "Solidarity in the Wake of COVID-19: Reimagining the International Health Regulations." *The Lancet* 396 (10244): 82–83.
- TAYLOR, DERRICK BRYSON. 2021. "A Timeline of the Coronavirus Pandemic." *The New York Times*, March 17, Sec. World. Accessed October 1, 2021. <https://www.nytimes.com/article/coronavirus-timeline.html>.
- US DEPARTMENT OF STATE. 2009. "Demarche Request: Urge Posts to Remove Trade Bans on Pork due to H1N1 Fears." WikiLeaks. WikiLeaks cable: 09STATE44254_a. Accessed May 4, 2015. https://search.wikileaks.org/plusd/cables/09STATE44254_a.html.
- VINCENT, AMY L., KELLY M. LAGER, MICHELLE HARLAND, ALESSIO LORUSSO, ERALDO ZANELLA, JANICE R. CIACCI-ZANELLA, MARCUS E. KEHRLI, JR, AND ALEXANDER KLIMOV. 2009. "Absence of 2009 Pandemic H1N1 Influenza a Virus in Fresh Pork." *PLoS One* 4 (12): e8367.
- VON STEIN, JANA. 2005. "Do Treaties Constrain or Screen? Selection Bias and Treaty Compliance." *American Political Science Review* 99 (4): 611–22.
- VON TIGERSTROM, BARBARA. 2005. "The Revised International Health Regulations and Restraint of National Health Measures." *Health Law Journal* 13: 35.
- VON TIGERSTROM, BARBARA, AND KUMANAN WILSON. 2020. "COVID-19 Travel Restrictions and the International Health Regulations." *BMJ Global Health* 5 (5): e002629.
- VREELAND, JAMES RAYMOND. 2008. "Political Institutions and Human Rights: Why Dictatorships Enter into the United Nations Convention against Torture." *International Organization* 62 (1): 65.
- WANG, HAIDONG. 2021. "Estimation of Total and Excess Mortality due to COVID-19." Institute for Health Metrics and Evaluation, April 22. Accessed October 4, 2021. <https://www.healthdata.org/special-analysis/estimation-excess-mortality-due-covid-19-and-scalars-reported-covid-19-deaths>.
- WORLD HEALTH ORGANIZATION. 1967. "Fourteenth Report of the Committee on International Quarantine, Volume I: Functioning of the International Sanitary Regulations for the Period 1 July 1964–30 June 1967." WHO/IQ/67.147.
- . 2005. *International Health Regulations (2005)*. Geneva: World Health Organization.
- . 2009. "No Rationale for Travel Restrictions." Accessed October 1, 2021. http://www.who.int/csr/disease/swineflu/guidance/public_health/travel_advice/en/.
- . 2015. "Statement on the 6th IHR Emergency Committee Regarding the International Spread of Wild Poliovirus." WHO, August 17. Accessed September 3, 2021. <https://www.who.int/news/item/17-08-2015-statement-on-the-6th-ihc-emergency-committee-meeting-regarding-the-international-spread-of-wild-poliovirus>.
- . 2020a. "Statement on the First Meeting of the International Health Regulations (2005) Emergency Committee Regarding the Outbreak of Novel Coronavirus (2019-nCoV)." January 23. Accessed May 4, 2021. [https://www.who.int/news/item/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news/item/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)).
- . 2020b. "Updated WHO Advice for International Traffic in Relation to the Outbreak of the Novel Coronavirus 2019-nCoV." January 24. Accessed May 4, 2021.

- <https://www.who.int/news-room/articles-detail/updated-who-advice-for-international-traffic-in-relation-to-the-outbreak-of-the-novel-coronavirus-2019-ncov-24-jan>.
- . 2020c. “Statement on the Second Meeting of the International Health Regulations (2005) Emergency Committee Regarding the Outbreak of Novel Coronavirus (2019-NCoV).” January 30. Accessed May 4, 2021. [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)).
- . 2020d. “Novel Coronavirus (2019-NCoV) Situation Report –18.” Accessed May 4, 2021. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200207-sitrep-18-ncov.pdf?sfvrsn=fa644293_2.
- . 2020e. “Updated WHO Recommendations for International Traffic in Relation to COVID-19 Outbreak.” February 29. Accessed May 4, 2021. <https://www.who.int/news-room/articles-detail/updated-who-recommendations-for-international-traffic-in-relation-to-covid-19-outbreak>.
- . 2020f. “Virtual Press Conference on COVID-19.” Accessed May 4, 2021. <https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-full-and-final-11mar2020.pdf>.
- . 2020g. “Statement on the Third Meeting of the International Health Regulations (2005) Emergency Committee Regarding the Outbreak of Coronavirus Disease (COVID-19).” May 1. Accessed May 4, 2021. [https://www.who.int/news/item/01-05-2020-statement-on-the-third-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-coronavirus-disease-\(covid-19\)](https://www.who.int/news/item/01-05-2020-statement-on-the-third-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-coronavirus-disease-(covid-19)).
- . 2020h. “Public Health Considerations While Resuming International Travel.” July 30. Accessed May 1, 2021. <https://www.who.int/news-room/articles-detail/public-health-considerations-while-resuming-international-travel>.
- . 2020i. “Considerations for Implementing a Risk-Based Approach to International Travel in the Context of COVID-19.” Accessed May 1, 2021. <https://www.who.int/publications-detail-redirect/WHO-2019-nCoV-Risk-based-international-travel-2020.1>.
- . 2021. “Tracking Public Health and Social Measures: A Global Dataset.” Accessed April 29, 2021. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/phsm>.
- . 2022a. “Coronavirus Disease (COVID-19) Travel Advice.” Accessed May 5. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/travel-advice>.
- . 2022b. “Timeline: WHO’s COVID-19 Response.” Accessed May 5. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline>.
- WORSNOP, CATHERINE Z. 2017a. “Provoking Barriers: The 2014 Ebola Outbreak and Unintended Consequences of WHO’s Power to Declare a Public Health Emergency.” *Global Health Governance* 11 (1): 7–26.
- . 2017b. “Domestic Politics and the WHO’s International Health Regulations: Explaining the Use of Trade and Travel Barriers during Disease Outbreaks.” *The Review of International Organizations* 12 (3): 365–95.
- . 2019. “Concealing Disease: Trade and Travel Barriers and the Timeliness of Outbreak Reporting.” *International Studies Perspectives* 20 (4): 344–72.
- WORSNOP, CATHERINE Z., ADAM KAMRADT-SCOTT, KELLEY LEE, KAREN A. GREPIN, SUMMER MARION, JULIANNE PIPER, AND FELIX ROTHERY. 2021. “Legal Compliance Is Not Enough: Cross-Border Travel, Trade Measures, and COVID-19.” *International Studies Review* 23 (2): 308–12.