

Flight Bans and the Ebola Crisis: Policy Recommendations for Future Global Health Epidemics

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Abstract

Commercial airlines are positioned to be the most effective means to address global infectious disease epidemics. However, during the Ebola epidemic in 2014, many countries responded by shutting down borders and banning flights to Sierra Leone, Guinea and Liberia in attempts to “quarantine” the outbreak. Later studies demonstrated that these flight bans were not only ineffective in controlling the spread of disease but, at times, kept vital humanitarian assistance from reaching the epidemic, effectively providing conditions for the outbreak to grow. This paper examines lessons learned from commercial airline and nation-state behaviors during the Ebola outbreak to recommend how airlines can navigate between the constraints of their for-profit model and responses from nations during the next infectious disease crisis. To address these issues, we propose that before the next global epidemic, the WHO establish an Essential Air Corridor Policy (EAC) centered on global recognition of the need to keep commercial airlines running to affected countries. This policy would have the WHO organize an auction for airlines to bid on

service to epidemic-affected areas while also providing a system of incentives to staff members and other airlines employees. The policy would also mandate that leaders from the airline join talks by global experts on the disease and establish mechanisms to ensure airlines have the latest safety protocols for cleaning equipment and surveillance and quarantine of passengers according to the nature of the disease.

Introduction

During recent decades, technological advancement and surging population growth have triggered international alarm because of the coinciding trends they have produced: increased emergence of new strains of infectious diseases alongside drastically increased use of air travel (Kahn et

al., 2013; Smith et al., 2014).¹ This dangerous combination has resulted in the potential for an infectious disease outbreak to spread from one geographically distinct population to another in mere hours. With the possibility of a disease epidemic facing the world, officials and experts have become increasingly committed to finding a solution for delaying the spread of an outbreak and containing it specifically at borders. In order to treat an infectious disease outbreak as efficaciously as possible, air travel must be regulated and passengers traveling by air must be targeted for surveillance and quarantine. Examining international regulations and commercial airline policies alongside past events that have occurred will help us to understand the flaws in the current system and develop policies that improve the efficacy of current procedures.

The Need to Focus on Commercial Airlines as Entry Points for Infectious Disease

During an infectious disease outbreak, some of the most crucial actors are commercial airlines. While there are a multitude of options for transport in the modern-day world, commercial airlines represent the best option for instantaneous, efficient transport. In a global epidemic, airlines become the gatekeepers — the easiest means of shuttling aid workers, specialists, doctors and other response teams quickly and efficiently to needed zones. Commercial airlines have the largest scale of immediate reach and the lowest cost of implementation since they are already operational in every country across the world. They also represent the lowest

costs of set-up since they already have appropriate gear and staff trained for travel to that particular area of the world. Finally, they have the greatest political ease of travel since they are not necessarily directly associated with any particular regime's behavior. Thus, they are the most consistent and reliable non-governmental means of transport across national lines. Other options such as charter or military flights present countless geopolitical hurdles and problematic issues of which international or national actors will assume funding costs. Similarly, relying solely on an alternate industry for means of transport such as shipping would entail substantial geographic restrictions regarding proximity to water.

While airlines present the best possibility of instantly addressing a crisis, they also come with their own unique set of issues. Airline companies are businesses that are either nationally or independently-owned and specialize in business activities like marketing and profit as well as aviation and transport. They are not naturally aligned with the health industry and require explicit guidance and regulation from health professionals in order to function well and safely during infectious disease epidemics. As companies primarily interested in profit, they also have no moral or ethical stake in continuing to operate in countries while they are undergoing epidemics unless it's explicitly in their business interest. It has been acknowledged by a number of researchers that banning all flights to countries suffering an epidemic and essentially limiting the number and ability of rescue workers to access the area would only

¹ Annually “more than 700 airlines transport over 2.5 billion (i.e. 2500 million) travellers between 4000 airports.” (Kahn et al., 2013)

allow the epidemic to continue unchecked and grow in size. However, because airline companies do not have international moral incentives as their primary motivators, they may institute flight bans (Chamary, 2014). Thus, there is a need for regulations in the aviation sector to guide them on when flight bans may be an option given the nature and reach of the epidemic and when, if a flight ban has been issued, the epidemic has been controlled to the extent that flights can be safely re-instituted.

Existing Rules and Regulations Governing Airline Behavior During a Disease Outbreak

The International Civil Aviation Organization (ICAO), a specialized agency of the United Nations (UN) for the aviation sector with 191 states as members, is the principal body whose mission is to coordinate “global efforts to ensure that all Contracting States have a preparedness plan to mitigate the risks from a communicable disease with the potential to cause a public health emergency, by reducing the risk of dissemination of disease through air transport” (ICAO, 2016). Article 14 of the 1944 Chicago Convention obliges Contracting States “to take effective measures to prevent the spread by means of air navigation of cholera, typhus (epidemic), smallpox, yellow fever, plague, and such other communicable diseases as the Contracting States shall from time to time decide to designate” (Ibid). A contracting state means a state which has consented to be bound by the treaty, whether or not the treaty has entered into force.²

The ICAO partners with the World Health Organization (WHO) to devise an effective strategy to prepare and mitigate health risks emanating from disease outbreaks. The WHO is the primary body responsible for devising and implementing the International Health Regulations, 2005 (IHR, 2005). The stated purpose and scope of the IHR are “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” (IHR, 2005). The two specialized UN bodies share knowledge on aviation and health respectively. The ICAO has developed technical guidance and operational procedures for countries, airports and airlines, which have been written in alignment with the WHO’s IHR 2005. This enables the aviation sector to be “better prepared to respond to potential health risks which could spread through air transport and adversely affect the population health and aviation interests of different countries” (ICAO, 2016). Some of the general ICAO provisions for countries include: communication procedures and protocol, sharing technical expertise and knowledge, national aviation preparedness plan, airport screening, airport closure, flight restrictions, aircraft maintenance and cleaning, baggage handling, and protocols about the pilot in command notifying the air traffic control (ATC) of any suspected case on board.

The WHO has a central role to play during a disease outbreak. It must first determine the level of international risk the epidemic

consented to be bound by the treaty, whether or not the treaty has entered into force.

² The Vienna Convention on the Law of Treaties of 23 May 1969 gives the followings descriptions: ‘contracting State’ means a State which has

presents and subsequently disseminate vital information on response to national public health authorities and the travel and tourism industry in the country where the outbreak occurred. In cases where the WHO judges an epidemic to be particularly severe, it can declare a public health emergency of international concern (PHEIC). Once a PHEIC has been declared, signatory countries are obligated to abide by the WHO's recommendations and guidance regarding travel to and trade with outbreak-affected countries. Apart from this, the WHO also suggests precautionary measures for the prevention of the spread of the disease and communicates with different parties.

The ICAO and the WHO have also initiated the CAPSCA (Collaborative Arrangement for the Prevention and management of public health events in Civil Aviation). This initiative aims to “ensure better health safety practices in accordance with the WHO regulations and ICAO's standards through coordination among vested parties” (Glaser, 2013). The objectives of CAPSCA include: “cooperation amongst civil aviation authorities, public health authorities, airports, air traffic services, and airlines; regional cooperation amongst States and Territories – a mechanism for pooling and sharing expertise and resources; training of airport evaluators, evaluation of airports, development of core capacities, and provision of advice to States and Territories” (CAPSCA, 2016).

In Nigeria, during the 2014 Ebola crisis, under the umbrella of CASPCA initiative, the ICAO and the WHO-led a coordinated national public health emergency preparedness and response strategy involving all the important stakeholders including the

Nigerian Civil Aviation Authority (NCAA), Federal Ministry of Health, Federal Airports Authority of Nigeria (FAAN), Nigerian Airspace Management Agency, (NAMA) and Airline operators (foreign and domestic). Others included: ground handling agencies, security agencies like the Nigerian Air Force, Nigeria Police, and Directorate of State Security Services. Nigeria Immigration Service and Nigeria Customs and Excise and tourism agencies like the Nigerian Tourism Development Corporation (NTDC) and other private tourism companies (Uwaleke, 2016). The process helped Nigeria in the analysis of existing gaps, mock exercises, and in implementation of relevant ICAO public health emergency standard and recommended practices (Haggai, 2015).

Several different actors play critical roles in responding to a PHEIC and coordination and communication between these stakeholders is of critical importance for preparedness, prevention and response during a public health emergency. While national or domestic public health authorities in the country of the outbreak have the most prominent role in implementing WHO guidance, other important stakeholders include the airport and airline operators and the national aviation authority. At the time an infectious disease outbreak is identified, it is necessary to scale up the international response – by coordinating on mobilizing financial resources, technical expertise, healthcare professionals, logisticians, and other essential services to the affected area (Poletto et al., 2014). The media can play an important role in information dissemination.

There are some challenges in the implementation of this ICAO-WHO framework. Firstly, there is a greater need for

harmonization of the guidelines in the aviation sector globally, especially concerning managing health risks triggered by communicable diseases. While the ICAO provides these guidelines, it does not specify how to execute and achieve these objectives.

At the national level, coordination and communication between the public health and aviation authorities are necessary to formulate a national strategy and preparedness plan against the spread of communicable disease through air travel and transportation. While the WHO is central in assessing the level of risk from a disease outbreak and disseminating information and guidelines to nations, it still has a long way to go in ensuring effective implementation of policies and compliance by member states. To that effect, there are concrete challenges in aligning and coordinating the objectives of different stakeholders including the ICAO, the WHO, the national public health authorities, the national aviation authorities, airports and airline operators, customs and excise officials, etc. There are also challenges when communicating relevant information to the public. This includes managing public anxiety, both within the countries affected and internationally, to avoid the spread of rumors leading to unnecessary social disruption and economic losses. The challenge is also to respond quickly to alleviate growing public concerns and provide useful information to all partners (US GAO, 2015).

One of the major challenges to achieving a global and robust regulatory framework is regional disparity; resource-rich nations, airports, and airlines are simply better prepared and equipped to handle disease outbreaks than resource-constrained nations.

In the United States, the Centers for Disease Control and Prevention (CDC) implemented a set of protocols to prevent the spread of an infectious disease, in case an infected traveler visited a country experiencing an outbreak. These protocols include the crew notifying CDC of sick travelers on a plane before arrival, evaluation of sick travelers, and isolation and transport to a medical facility if needed. CDC also works with other federal agencies, state and local health departments, and the travel industry to take public health actions to prevent the spread of communicable diseases (CDC, 2014). But there are issues with regions and countries that have weaker regulatory authority and more corrupt national structures. Some countries with limited resources may have both fewer regulations and less ability to regulate.

Challenges for Commercial Airlines: Case Studies During Disease Outbreaks

While international regulations theoretically guide airlines in the event of an outbreak, health emergencies demonstrate that, in practice, a multitude of shortcomings prevail between the text of regulations and real-world implementation. While resource-rich countries have the infrastructure to be able to enforce regulations and pre-departure protocols to ensure ill passengers do not board flights, resource-constrained countries are often simply unable to enforce regulations or equip their countries with appropriate screening and surveillance measures. Over the past decade and a half, the major infectious diseases including SARS, H1N1, Ebola, and most recently, Zika, show how national infrastructure can come into play and cause airlines to bear an

additional burden in resource-constrained contexts. The most extreme example of this was Ebola when, because of some competing factors including the limited resources of the region and the severity of the disease, airlines began closing down operations to the region altogether. Even though the guidance via the IHR is standard for all countries, in the context of air borders at resource-poor countries, duties often fall to individual airlines to implement and comply.

The 2003 SARS epidemic demonstrates the success that can occur when countries with efficient airport structures and robust public health systems implement national measures to control the spread of the disease. SARS was detected in China in 2003 and successfully contained by several surrounding countries. Rapid reactions on the part of Singapore and Vietnam served to prevent further spread of the illness even when travelers entered these countries. (CDC, 2016). Singapore and Vietnam leveraged their centralized governments, accountability of the public service sector and the aid of additional funding resources and advanced technology to stem the tide of the disease before or as soon as it had entered the country. Rather than merely relying on recognition and self-disclosure from a passenger as is the case with resource-impooverished areas of the world, these countries had extremely advanced technology available and operational at airports on border screenings including surveillance cameras, infrared scanners to take passenger's temperatures and other technology (Singapore MOH, 2015). With this integrated and streamlined approach to universal border control procedures, airlines are less likely to have to deal with ill passengers boarding their planes.

In contrast to the rapid-response mechanisms available in SARS-affected countries, Ebola took much longer to be detected. Ebola was first passed to a young boy on December 26, 2013. It took until early March before MSF workers in the countries "noticed that something was strange" (WHOa, 2015). The West African countries (Liberia, Guinea, and Sierra Leone) where Ebola hit the hardest already had weak infrastructure and limited abilities to enforce policies of surveillance or quarantine. For example, in a graph from 2015 provided by the WHO on surveillance mechanisms, most of West Africa including Liberia and Sierra Leone showed up unpopulated with "no data." The same is true of a 2015 survey about implementation of IHR infrastructure. The same resource-poor countries who are most in need of the IHR are the ones who have so few surveillance mechanisms in place, they cannot even gather and report data sufficient for the WHO's data collection. (WHO b, 2015).

However, Liberia had implemented measures. According to the Liberian Civil Aviation Authority (LCAA), however, the country had "put in place all of the necessary procedures to prevent anyone leaving Liberia's Roberts International Airport (RIA) from carrying the virus to another country" (Ballah, 2015). Liberia went even farther and "was also able to introduce the sophisticated state of the art thermometer and form filling system declaring travelers' status [and an indication of] whether or not they had interacted with anybody showing signs and symptoms of the Ebola Virus Disease" (Ibid).

Once commercial airlines are given additional duties of policing the IHR themselves, systemic issues begin to present themselves. As for-profit businesses,

commercial airlines do not subscribe to the same moral and ethical mandates that are the mission of global humanitarian organizations such as the WHO and the ICAO. They do not host committees of health experts and do not employ epidemiologists or teams of clinicians who have the latest information on infectious disease protocols. Instead, airline responses to these public health emergencies are dictated by a multitude of competing interests such as the business and economic climate, pressure from employees and unions and national interests and government mandates of the country in which the company is based.

Epidemics often have devastating effects on airlines that operate in the region. During the SARS epidemic, airlines lost billions in revenue because of decreased air traffic to affected countries. Experts estimate the “cost in 2003 of SARS for the world economy as a whole are close to \$US 40 billion in the case where SARS is expected to be a single event, versus costs of close to \$US 54 billion in 2003 if SARS is expected to recur” (Lee & McKibbin, 2004). Part of this was due to canceled flights in countries who were less successful in containing the diseases such as China and Taiwan. For example, between March and May 2003, Taiwan had a 24% cancellation rate for international airlines (Wong & Zheng, 2004).

Cancellation of flights during the Ebola crisis served as a prime example of the clash between airlines’ for-profit policies and national interests — and a need stated by experts at the CDC and other health agencies to keep air corridors open to epidemic zones to deliver relief. Airlines’ drastically divergent responses to Ebola raised questions about airlines’ moral or ethical obligations to

keep running flights, particularly when consumer demand to an epidemic zone is decreasing but aid workers still need avenues to access the epidemic to provide care.

During the Ebola epidemic, every large commercial airline stopped flying to West Africa except for two: Royal Air Maroc and Brussels Airline. These two not only continued flight service but incorporated moral messaging into their Public Relations campaigns. At one point during the epidemic, the Vice President of Marketing at Royal Air Maroc, Saida Najjioullah, was quoted saying, “It’s our African identity, it’s not a matter of profitability” (Yousef, 2014). Air Brussels went even further than that, initiating and running an “Africa is not Ebola” campaign to dispel misunderstandings about the reach of the epidemic and to attempt to revitalize the tourism industry. When asked why Brussels Airlines had continued to operate despite the competitors who had closed their flights, Geert Sciot, a vice president of the airlines said, “it is our humanitarian duty to operate there...Without our flights, it would become almost impossible for medical staff to reach the country” (Wortland, 2014). Sciot also cited the humanitarian history of Brussels Airlines, which continued service to Uganda throughout Idi Amin’s regime even after other airlines had terminated service (Walker, 2015).

Airlines are subject to the laws imposed by their national aviation administration as well as mandates from the governments in their home country — an issue even more complicated by the fact that many European airlines franchises are partially owned by their national government. For example, Air France is 17.6% owned by the French government and thus highly subject to the

State's goals and orders (Air France KLM, 2016). Conversely, part of what allowed Brussels Airlines to continue service during the crisis was how their national government was supportive of that continued service. Brussels Airlines could continue to function because they had strong support from the Belgian government who had a top-notch action response plan in place that had been developed, in part, with Brussels Airlines (ECDC, 2015).

Most countries imposed restrictions on service to affected areas either due to political pressures, lost revenue or protesting staff. The French government pressured Air France to stop flying to Guinea and Sierra Leone after Air France staff released a petition of over 700 signatures to stop flights (RT, 2015). Kenya mandated that Air Kenya "freeze service" to affected areas of West Africa (Anderson, 2015). Meanwhile, the US was ambivalent about what additional measures it should take, but the head of the CDC, Dr. Tom Frieden, did announce that flight bans were impractical (Berensen, 2015). In the end, at least six major international air carriers imposed travel bans on flights into affected countries (and some to countries as distant from the crisis as Kenya!) (Catholic Business Journal, 2016). If not for Brussels Airlines and Royal Air Maroc's moral mandates and continued service, these bans could have turned Ebola into a worldwide pandemic.

Policy Recommendations

While there are international-scale plans to coordinate airline behavior during a communicable disease outbreak, there are noteworthy challenges. The ICAO and the WHO – principal bodies responsible for the coordination of action of vested stakeholders

– need to constantly improve compliance. Although the guidelines and standards cannot be legally binding, nations signing voluntarily should be obligated to their commitments. They should build core capacities in disease surveillance risk assessment, knowledge sharing, preparedness and response strategy, communication and collaboration between all the different stakeholders. Although, the ICAO has provided with guidelines, it does not specify how to achieve them. One way in which the ICAO is already working on achieving global harmonization of guidelines is to "work in regions of the world that have common characteristics and established communication networks" (ICAO, 2016).

Secondly, with the idea that these guidelines may fail to be enforced in resource-poor states, airlines should be targeted as nongovernmental actors who can provide alternate methods of enforcing policy in situations where national government cannot or will not affect change. We suggest a worldwide recognition for the need to maintain air corridors to these nations. Instead of having each nation decide themselves if they want to impose travel and trade restrictions and restraining airline operations, we propose flight bans be solely based on recommendations of the WHO. There is an immediate need for this since there are moral and ethical obligations and airlines' commercial interests are incompatible with the role they play in a global health pandemic. If airlines are shut down, depending on geographical feasibility, the shipping industry and drones may play an alternative role in providing logistical and operational support to the affected areas.

Thirdly, there should be a team of specialists across industries including epidemiologists, doctors, airline workers, public relations specialists, logisticians who can audit and assess airlines' overall policies and ability to deal with an epidemic. When an epidemic occurs, other measures must be instituted on airlines to ensure passenger safety; additional training and compensation for flight crews. The team will be responsible for ranking airports according to mechanisms in place for surveillance and assistance to airlines. A lower airport ranking would imply weaker governmental enforcement, fewer resources, less preparedness capability to apply ICAO-WHO guidelines. The airlines who service lower ranked airports must have additional measures in place (take temperatures of passengers before flights, etc.; fly with a doctor and extra first aid kits, ensure that passengers go through advanced exit screening at point of destination). We also propose additional cleaning protocols for equipment and planes and additional training for support staff. For the latter, we suggest creating a certification program via the ICAO-WHO framework that gives air staff evidence of additional training, as well as additional pay and incentives for these staff members.

Essential Air Corridor Policy

We have already proposed that before the next global epidemic strikes, the ICAO declare the vital need for air corridors during epidemics. During the Ebola crisis, the global community got lucky. Brussels Airlines and Air Maroc believed continuing their service was in their greater global mandate as citizens. However, during the next infectious disease epidemic, if no airline voluntarily articulates this role either because of a lack of moral imperative or because it is not in their

economic interest, the region would suffer immensely. In order to ensure this does not happen and routine flights continue to regions affected by crises, the ICAO – WHO could institute the Essential Air Corridor Policy (EAC). During an epidemic, this policy would have airlines place bids and be subsidized to continue to fly through an epidemic to transport aid workers and supplies to an affected area. To do this, when a PHEIC is declared, the ICAO – WHO would initiate an auction for commercial airlines who would bid to keep flights running to epidemic-struck areas. Interested parties would submit their bids and the ICAO – WHO would use specific criteria to judge the one or two airlines most capable of fulfilling that need throughout the epidemic. At that point, the airline(s) would contract with the ICAO – WHO which would stipulate the terms of agreement, providing subsidies to ensure that the airline would remain competitive and be incentivized to continue service. This policy would be modeled on the United States' policy for Essential Air Service (EAS), taking the US policy and applying it to a regional scale in the region contiguous to the epidemic.

The EAS began in 1978 when the U.S. deregulated flights (US DOT, 2009). With no more regulation, many commercial providers would find continuing service to be unprofitable and would terminate service to these communities. (US DOT, 1997). The U.S. Congress recognized the necessity of continuing service in these areas, not only as a public good but for safety and geopolitical

reasons.³ For the period of time that commercial airlines have existed, U.S. Congress has recognized the need for air travel to continue linking transport to rural, isolated communities who would otherwise lose service. Unsurprisingly, the declaration and enforcement of the EAS policy was essential for states that faced challenges of isolated populations should their air service terminate. This has been true particularly in states that either had particularly challenging terrain to navigate, such as Hawaii or Alaska, or rural, isolated towns with large distances between settlements such as Montana and Wyoming.

The 1978 regulations did not stipulate that, once successful with their bid, airlines continue to fly to the EAS location indefinitely, but that every few years, a new bid and contract be initiated. If it no longer became feasible for them to continue their operations in the middle of their contract, the airlines that had won the bid and was being provided subsidies could bring this to the U.S. government and petition 90 days ahead of time to cancel service. At that point, the U.S. Congress has a responsibility to check with the local community and see if the community is being serviced by alternate transport means and or agrees to have the service terminate. In 1999, when Haines Airlines petitioned to stop operations to Kake, Alaska, Haines contacted the Congress, and the US Congress checked with the town. The Congress then disclosed the following to the US public:

³ Many of these communities are near geographic borders. Several of the locations are along cities close to the northern border with Canada, including but not limited to cities near the border in Alaska, Montana, New York, Maine. An interesting study

We have contacted the community regarding their position on the matter and have been informally advised that the community is opposed to the termination of air service by Haines, but we have not received a written reply. Our longstanding program practice has been to grant carriers an exemption to suspend service on less than the full 90-days notice period only with community concurrence, or at the very least in the absence of objection. Thus, based on the community's informal objection, we will not grant the carrier's request to terminate its service before May 29 (US DOT, 1999).

While the airline was able to terminate service later on that year based on positive community response once a different service carrier was identified, the US Congress recognized the needs of that community above the commercial interests of that carrier.

We would recommend an EAC policy that prized the priorities of communities in epidemic-affected zones. The WHO would provide guidance but communicate with and take into account the needs, preferences, and response of regional and local community leaders, consulting them in regards to determinations of continuation of service. Furthermore, because one airline has contracted and is subsidized to continue service, this does not mean that other airlines could not also continue to run service or pick up service if it becomes in their economic interest. This would allow for the capacity for other airlines to operate concurrently with the subsidized airline, proving that if the

would be to look at how well these communities developed alongside rural, isolated Native American communities who, while also in rural areas, did not fall under EAS law.

demand for passengers grew, so could airline service.

Under the EAC policy, the ICAO – WHO would determine the number of flights needed in the area, based on the need for aid workers and local residents to come in and out of the country and ensure that the bidding airline has enough service capacity to provide this. In the U.S. program, specifications are determined by the federal government via the Department of Transportation: “Under this program, the Department determines the minimum level of service required at each eligible community by specifying a hub through which the community is linked to the national network, a minimum number of round trips and available seats that must be provided to that hub, certain characteristics of the aircraft to be used, and the maximum permissible number of intermediate stops to the hub.” The contiguous U.S. states have different criteria, however than Alaska and Hawaii due to different topography and need for flights. Alaska, for example, has “peak season” and “nonpeak season” specifications (US DOT, 1998). Before the bidding process opens, the WHO can make similar adjustments to the criteria for specific sectors of the region.

Conclusion

Commercial airlines play a critical role during epidemics. While there is currently much regulation from international organizations, there are not nearly enough mechanisms in place for enforcement, particularly in resource-poor countries. One example is with flight bans which are not recommended by health organizations but often occur with infectious disease outbreaks and accompanying public panic. Flight bans may delay epidemics, but there is no

evidence and much expert opinion that specifies they will not stop them from spreading (Chamary, 2014). As seen during the Ebola epidemic as well as SARS and H1N1, there is currently an unmet need to incentivize commercial airlines to continue service during epidemics. The EAC policy could meet this need by offering airlines options to continue service to these areas but in a way that would not be at the expense of their profits.

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