ZIKA

David R. Kotok

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Cumberland Advisors ®
2 N. Tamiami Trail, Suite 303
Sarasota, Florida 34236
www.Cumber.com

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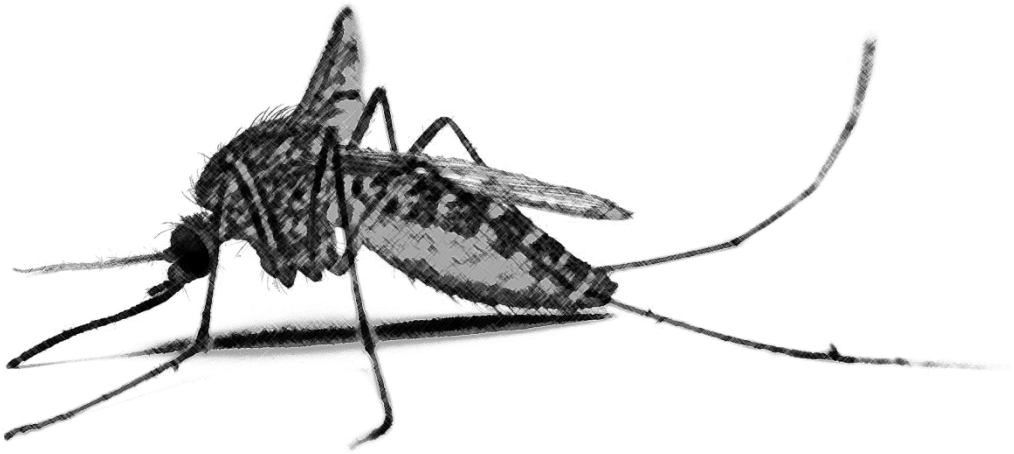


About the Author

David R. Kotok co-founded Cumberland Advisors in 1973 and has been its Chief Investment Officer since inception. He holds a B.S. in economics from The Wharton School of the University of Pennsylvania, an M.S. in organizational dynamics from The School of Arts and Sciences at the University of Pennsylvania, and an M.A. in philosophy from the University of Pennsylvania.

Mr. Kotok's articles and financial market commentaries have appeared in The New York Times, The Wall Street Journal, Barron's, and other publications. He is a frequent contributor to Bloomberg TV and Bloomberg Radio, Fox Business, and other media.

David has authored or co-authored four books, including the 2nd editions of *From Bear to Bull with ETFs*, & *Adventures in Muniland.* David has also written the monograph pamphlets, "Lessons From Thucydides", & "Zika"

Mr. Kotok has served as Program Chairman and currently serves as a Director of the Global Interdependence Center (GIC), www.interdependence.org, whose mission is to encourage the expansion of global dialogue and free trade in order to improve cooperation and understanding among nation states, with the goal of reducing international conflicts and improving worldwide living standards. Mr. Kotok chaired its Central Banking Series and organized a five-continent dialogue held in Cape Town, Chile, Hong Kong, Hanoi, Milan, Paris, Philadelphia, Prague, Rome, Santiago, Shanghai, Singapore, Tallinn, and Zambia (Livingstone). He has received the Global Citizen Award from GIC for his efforts.

Mr. Kotok is a member of the National Business Economics Issues Council (NBEIC), the National Association for Business Economics (NABE) and served on the Research Advisory Board of BCA Research. Mr. Kotok has served as a Commissioner of the Delaware River Port Authority (DRPA) and on the Treasury Transition Teams for New Jersey Governors Kean and Whitman. He has also served as a board member of the New Jersey Economic Development Authority and as Chairman of the New Jersey Casino Reinvestment Development Authority.

An Introduction

This is my second pamphlet. The first one, "Lessons from Thucydides", continues to be read and cited from time to time. It is available through the Cumberland site in either PDF or Kindle eBook format, at this location: https://www.cumber.com/thucydides/ or by scanning the QR Code below,

Pamphlets provide a writer with a wide range of options to tell a story or offer a viewpoint. We are seizing that opportunity for a second time and focusing on Zika. The Zika pamphlet is also available through the Cumberland site in PDF or Kindle eBook formats, at this location: http://www.cumber.com/zika/ or by scanning the QR Code below,

For our readers' reference we want to start this discussion by recalling that it has been one century since a virus mutated and became a mass killer. That was a strain of H1N1 influenza A, nicknamed the Spanish flu. An estimated 50 million died worldwide as that pandemic swept around the world, and many more millions were sickened by this virus. Here is a reference from the Centers for Disease Control (CDC) that tells the story of this influenza pandemic: https://www.cdc.gov/features/1918-flu-pandemic/index.html.

For more information about the 1918 pandemic, read *The Great Influenza,* by John M. Barry (https://www.amazon.com/Great-Influenza-Deadliest-Pandemic-History/dp/0143036491).

If you have 22 minutes to spare, watch Laurie Garrett's TED talk, "What Can We Learn from the 1918 Flu?" (https://www.youtube.com/watch?v=2lJvr5UL2pQ).

Though Garrett delivered this talk in 2009, as a less virulent flu pandemic unfolded, her assessment of global preparedness for the next flu pandemic remains relevant and sobering. She updated and expanded her discussion in November of last year at a DC event sponsored by the National Academy of Medicine, "A Century After the 1918 Flu Pandemic: Why Are We Still Concerned Today?" (A webinar recording of that event is available at this link: https://nam.edu/event/a-century-after-the-1918-flu-pandemic-why-are-we-still-concerned-today/.

Garrett's keynote is the third segment.) Garrett is the Pulitzer Prize-winning author of *The Coming Pandemic: New and Emerging Diseases in a World Out of Balance* (https://www.amazon.com/Coming-Plague-Emerging-Diseases-Balance-ebook-dp-B005FGR6RO/dp/B005FGR6RO/).

A century ago, we didn't have the technology to deploy effective defenses against pandemic diseases, nor did we have the ability to deliver accurate information rapidly. A century ago, widespread deaths from diseases of one type or another were common and had been a prominent thread through history. In our Thucydides series we documented how a plague in Athens changed the course of the Peloponnesian War.

A century ago, the prospects of prevention and intervention were dreams in the minds of the medical community. In the present era, though, we expect our technological improvements to

make fighting disease a universally accepted and high priority task. We do not expect politics and partisanship to trump our common purpose when it comes to saving human lives. Sad to say, the Zika virus and the last four years of history have belied our idealistic expectations. Zika victims have been at the mercy of political infighting and failure of government to act. It is that issue that has triggered my writings about Zika over the last four years and that now calls for this pamphlet.

The Zika virus is mosquito-borne. The virus mutates frequently, just as all viruses do. And it can do serious damage to people. It is especially threatening to the fetus of a pregnant mother. It causes conditions, including microcephaly, which spell tragedy for the infant and the family. When it deals such damage to children, Zika imposes huge societal costs measured in the many millions of dollars. All this is documented in the writings that now constitute the chapters of this pamphlet.

In the United States, Zika could have been contained sooner and could have been addressed more robustly. Both Democrats and Republicans have Zika blood on their hands. Both President Obama and President Trump contributed to the poor policy response. Both the US Senate and the House of Representatives are guilty of political infighting instead of bipartisan efforts for the national good. All of that is documented here as well.

As of this writing, there is still no Zika vaccine. The virus is still active in many countries, and the mosquito vector is still very robust and threatening. That vector is advantaged by climate change in many places, and the outlook for more mosquito-borne disease is worsening as the planet gets hotter. That is documented here, too.

There is some work being done on a vaccine:

See https://www.nih.gov/news-events/news-releases/nih-begins-clinical-trial-live-attenuated-zika-vaccine.

There are further novel approaches that may yield promising results. A recent study in Science Advances has found a compound derived from bacteria to be three times more potent than DEET in repelling mosquitoes. More research needs to be done, but this could play a role in future fights against mosquito-borne illness. [42]

The government is involved now when it is not being shut down by a political fight or when federal agencies are not victimized with funding cuts. Note that mosquitoes don't respect borders or walls. The CDC has an ongoing Zika program that is part of its effort to deploy its limited resources to various campaigns for better public health. In this pamphlet you will find an interview with Dr. Judy Monroe, president of the CDC Foundation. I have discussed Zika in detail with her.

In my Zika research over the last four years, I traveled in the United States and visited Cuba. I also visited Argentina and the three-country border region of Argentina, Brazil, and Paraguay. There are Zika-defense education efforts in Argentina and Brazil. Paraguay is poor, and I could not see any visible efforts to control Zika risk there.

When I went to Cuba, I interviewed doctors and watched mosquito control being applied. I walked with mosquito-spraying teams that were using cypermethrin, a low-toxicity insecticide. The stories about Cuba using DDT are not true, as far as I could determine. Americans have been skeptical about why there were so few reported Zika cases in Cuba while there were thousands in Puerto Rico. Many detractors have blamed a purposeful campaign in Cuba to lie about the facts, but what I encountered was an extensive, broad-based program to combat Zika. The reason that Cuba is so committed in this effort to fight mosquito-borne diseases is rather simple. The health professionals I interviewed in Cuba explained that, while Cuba is a poor country, it has promised its citizens lifetime free national healthcare. Their approach is to focus on preventive medicine because it is an approach they can execute with ample workers and limited money. Note that Cuba exports healthcare worker services and has a large population of trained doctors and nurses.

We would like to end this introduction on a lighter note, with an optimistic outlook. Sadly, we cannot do that. The political impasse in the United States continues as this is written. There is a fierce, corrosive divide between the two major political parties. There is no easy mechanism for this situation to change in a system that is heavily gerrymandered and intensely funded by large contributors who wield outsized influence over policies. Self-interest seems to prevail over common good.

For the ordinary citizen that means there is a greater need for self-reliance and less dependence on help from government. That includes issues focused on health and specifically threats like mosquito-borne diseases.

Zika will be around for a while longer. And it will mutate. Whether it, or some other virus, will again threaten millions of people remains to be seen. We must be vigilant while also respecting the history lesson of the Spanish flu a hundred years after it arrived with a vengeance.

We hope readers find this Zika pamphlet worthwhile and helpful. It is our gift, and we are reproducing it at our cost. Thank you for taking the time to read it.

ZIKA

ZIKA, & CLIMATE CHANGE.

ORIGINALLY PUBLISHED: JAN. 09, 2019

On December 30, as 2018 drew to an end, NBC's Meet the Press aired an entire program on the climate change crisis, well worth watching.
https://www.nbc.com/meet-the-press/video/meet-the-press-1230/3850857
Host Chuck Todd gave no air time to climate change denialism. Instead, the episode plunged into analyzing the crisis at hand, what might be done, what impediments slow our time-critical response, and how to overcome those impediments. Florida Republican Representative Carlos Curbelo, among other program guests, called for constructive action. "We need to stop covering the debate and start covering the story, so that people see that this is real, and so that politicians take a more-pragmatic approach and find solutions that are actually achievable," Curbelo said. The day after Thanksgiving, despite Mr. Trump's personal dismissal of climate change, the Trump administration released Volume II of the Fourth National Climate Assessment (https://www.globalchange.gov/nca4), and we've been digesting its deeply concerning contents in the week since. The impacts of climate change are myriad, affecting our world, our communities, our health, our food supply, and our investments.

In today's commentary, however, I would like to zero in on the impact of climate change on vector-borne diseases, including Zika. Chapter 14 of the Fourth National Climate Assessment [24] addresses the adverse effects of climate change on human health, noting that "Climate

change affects human health by altering exposures to heat waves, floods, droughts, and other extreme events; vector-, food- and waterborne infectious diseases; changes in the quality and safety of air, food, and water; and stresses to mental health and well-being" (p. 545 in the full report PDF)[24]. We have no trouble grasping the threats posed by heat waves, fires, floods, and storms that claim lives as well as property, along with droughts that parch crops and threaten water supplies, but we should not miss the implications of climate change for increased vector-borne disease risks. As the report points out, "Climate change is expected to alter the geographic range, seasonal distribution, and abundance of disease vectors, exposing more people in North America to ticks that carry Lyme disease or other bacterial and viral agents, and to mosquitoes that transmit West Nile, chikungunya, dengue, and Zika viruses" [24] (p. 545).

The range of the Aedes aegypti mosquito, for example, a primary vector for dengue, chikungunya, Zika, and yellow fever, is expected to expand considerably worldwide, exposing far larger populations, particularly in Australia, Europe, and North America, to those viruses. According to one recent study, well before the end of the 21st century, 68%–80% of human populations may share their environments with Aedes aegypti and thus be vulnerable to the diseases that mosquito can carry, with the percentages depending on the climate change scenario that actually unfolds, [50]. In general, lower greenhouse gas emissions translate to less risk for human health.

Risk of mosquito-borne diseases in general is to be understood not just in terms of the range of a particular mosquito species but also in terms of mosquito "disease danger days." As an August 2018 report published at Climate Central points out, "there's an elevated risk of disease transmission [assuming disease is present] when temperatures are between 61 degrees and 93 degrees Fahrenheit." The report notes the circumstances required for disease transmission: "In addition to needing the proper climatological factors for the mosquito to survive and transmit disease, there needs to be the establishment of the disease in the first place — having the proper climatic conditions, a critical density of mosquitoes, and the conditions for the sustained cycle of disease transmission itself. And, in order to transmit disease, a mosquito must bite twice — once to acquire the disease [itself], and a second time to pass it on. The largest number of these twice-biting mosquitoes were produced at 75 degrees Fahrenheit." [11]

Climate Central analyzed weather data for 244 US cities to determine the number of disease danger days each city faces now as the climate warms. They found that 94%, or 229, of the cities they studied are already seeing an increase in the number of days when average temperatures fall within the optimal range for mosquito-borne disease transmission. Some areas, however, may become too hot for the mosquitoes themselves. Phoenix, for example, actually has fewer disease transmission danger days than it did previously because of the number of extremely hot days the city must contend with. All in all, only 12 cities are experiencing a decrease in disease danger days. As the climate warms, the report concludes, Americans face heightened risks for dengue, Zika, chikungunya, and West Nile. [11]

The 2015–2016 Zika outbreak drove home the hazards of mosquito-borne diseases, as Zika took a terrible toll on the development of one in seven unborn children whose mothers were exposed to the otherwise generally mild virus. [63] Babies were born with microcephaly and/or other birth defects such as vision problems, deafness, and epilepsy. Their lives and their family's lives were forever changed from what might have been.

In 2018, Zika has not made many headlines in the US, and the case count is down. As of December 4, 2018, the provisional case count for US States is 58 for the year, all travelers returning from affected areas. US territories have reported 116 Zika cases, with the virus presumably transmitted through local populations of infected mosquitoes. [77] Case counts aside, the virus remains a threat – nothing has changed about its intrinsic potential to wreak havoc. It is still active throughout the South and Southeast Asia region, and some districts in India saw worrisome outbreaks in 2018. [66]

While some experts hypothesize that "herd immunity" has been achieved in areas hardest hit in 2016, Carmen Zorilla, professor of obstetrics and gynecology at the University of Puerto Rico School of Medicine in San Juan, disagrees. She estimates that about 10.5% of pregnant women in Puerto Rico tested positive for Zika during the outbreak – an infection rate not nearly high enough to confer herd immunity. She observes that such viral outbreaks tend to happen in 3–5-year cycles. [63]

Problematically, some 60–80% of Zika cases are asymptomatic, so Zika can readily go undetected and gain a foothold before it is identified in a particular area. Fewer than half of those infected actually seek medical care. [63] Most of the time, symptoms, when people do have them, are relatively mild and somewhat flu-like: fever, rash, headache, achy joints and muscles, and conjunctivitis, though in rare instances a Zika infection can lead to Guillain-Barré syndrome. Currently, the CDC recommends Zika testing for pregnant women with possible Zika exposure and for those who experience Zika symptoms after traveling to areas where they might have been exposed to the virus. [78]

Is there room in that surveillance net for a Zika outbreak to fire up before it is detected? Definitely so. In 2016, a research team led by Northeastern University professor Alessandro Vespignani and overseen by the Center for Inference and Dynamics of Infectious Diseases, projected the discrepancy between the number of reported Zika cases and the likely number of actual cases. The team's models projected that the actual number of infections in July 2016 was likely 25 times the number of confirmed cases. [74]

Dr. Vespignani notes that major outbreaks are associated not only with the right air temperature but also with areas of standing water. In many instances, people educated to understand the risks can manage those, emptying the birdbath or flower pot saucers and the like at least once a week; but after major precipitation events magnified by climate change, when there is standing water everywhere, mosquito populations can spike. The sopping US Southeast, where rainfall records were handily broken in 2018, can testify that there is sometimes "water, water everywhere," to borrow a phrase from Samuel Taylor Coleridge. [51]

Furthermore, densely populated areas face elevated risk. Juanita Constible, a climate expert at the Natural Resources Defense Council, explains that, for mosquitoes, "extension of habitat is a combination of climate change and human behavior. Urbanization can expand habitats for some species of mosquito that prefer cities [Aedes egypti among them], so as people expand into natural areas, those species will go with them. Not only do urban settings have plenty of habitat and food, but in cities, mosquitoes lack natural predators." [56]

Kate Fowlie, spokesperson for the US CDC, warns, "Mosquito-borne disease outbreaks are difficult to predict. There will be future outbreaks, including large ones, as well as years with reduced transmission, but it is impossible to know when or where these transmission patterns will occur." [63]

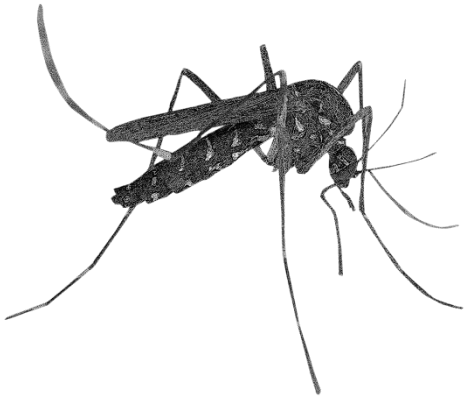
It seems obvious that surveillance is key to preventing outbreaks both in the present and in a warming future, but the CDC's funding for expanded infectious disease surveillance is due to run out in 2019. The CDC is already planning to scale back its participation in the Global Health Security Agenda (GHSA), an early-warning system for infectious disease outbreaks, in 39 of 49 countries. [27]

While the US will be assisting with infectious disease surveillance in 10 countries, the map of Zika-affected areas around the globe, courtesy of the CDC, is expansive (https://wwwnc.cdc.gov/travel/files/zika-areas-of-risk.pdf).

There is a lot of purple on this map, but these are not all the places Zika can go; they are merely places where infection is already a risk. Infected travelers can fly all over the world, and disease-bearing mosquitoes know no borders other than inhospitable habitats. Climate change, as we have seen, will widen the range of vector-borne diseases, sharply increasing the percentage of the global population at risk. Viruses themselves, of course, are moving targets, as they mutate regularly – Zika posed no known risk to the unborn until this century, when a mutation changed what had been a mild pathogen. [75] Scientists also warn us that we may soon be contending with disease-causing bacteria and viruses that have lain dormant for centuries or even millennia, frozen in permafrost that is now melting as the Arctic warms. [26]

As we look ahead, addressing climate change will clearly entail grappling with expanded threats to human health, and one of those threats will be elevated vector-borne disease risks, perhaps coupled with diseases modern medicine has yet to encounter. Climate change mitigation and adaptation, combined with vigilant surveillance, vaccine development, and mosquito population control strategies will all be keys to managing vector-borne disease risks posed by certain species of mosquitoes and ticks.

This commentary has been a deepish dive into just one of the secondary challenges climate change will pose to nations, states, cities, municipalities, and the well-being of Americans. In the instance of Zika, we know that the lifetime cost of caring for one child whose life is profoundly impacted by prenatal exposure to the Zika virus, beyond heartbreak, is likely to reach one to ten million dollars. [6] Human health is just one area in which proactively addressing climate change and adaptation makes both imminent sense and dollars and cents.



CDC FOUNDATION PRESIDENT DR. JUDY MONROE

ORIGINALLY PUBLISHED: AUG. 18, 2018

"Is there a vaccine now for Zika?" I asked Dr. Judy Monroe, president-CEO of the CDC Foundation. "Not yet, but we're working on it," she answered. For a YouTube of my interview with Judy when she visited Camp Kotok, see:

https://youtu.be/rge2tC74kSc

Judy was a special guest this year when we gathered in Maine. She told the assembled 50 folks about the CDC Foundation, a congressionally authorized 501c3 that operates in close cooperation with the Centers for Disease Control. The foundation's efforts are entirely supported by philanthropy, while the CDC is, of course, a federal organization funded by taxpayers.

Judy explained that the foundation has a well-defined global healthcare role and can be reactive in crisis. The foundation has programs in 130 countries. The Ebola effort was an example of rapid foundation response. Early this month, the foundation was honored by the Puerto Rico Department of Health for emergency response support in the wake of Hurricane Maria.

We discussed Zika and the Caribbean and specifically Puerto Rico. Our group at Camp Kotok probably has over a billion dollars invested in PR debt, property, hotels, etc. Judy shared her findings and the foundation's and CDC's ongoing efforts for Zika prevention, treatment, and research.

Judy's presentation was enlightening, as many in our group did not know about this philanthropic ally of the CDC. Now they better appreciate how many lives are saved globally and how 300 million Americans gain health safety through the work of the CDC and CDC Foundation. We thank Judy for making the trip to Maine to share her information with us.

Another attendee at Camp Kotok, Katie Darden, also spoke one-on-one with Dr. Monroe and you can find the link to her interview here:

https://platform.mi.spglobal.com/web/client?auth=inherit#news/article?id=45832920&cdid=A-45832920-12079

CHILDREN OF ZIKA

ORIGINALLY PUBLISHED: JUL. 13, 2018

With the summer mosquito season underway, Zika wings its way back into the news.

For the children of Zika and their parents, Zika's impact will never abate. Journalist Mauricio Savarese reports for the AP from Brazil: "Today, some of the children born during the outbreak are trying school for the first time — in very limited capacities — while others have died or are struggling to survive, hindered by health and developmental problems." He details some of their stories. Joaquim, who has microcephaly, can scribble with a pencil but cannot speak. He is fed through a tube, and his mother has to attend school with him to meet his nursing needs. In Brazil and elsewhere, including here in the US, schools face a steep learning curve as they begin to serve the special needs children whose lives have been forever altered by Zika. [65]

New research on nonhuman primates indicates that fully 26% of monkeys exposed to Zika early in their pregnancies miscarried. The findings suggest that human pregnancy losses resulting from Zika may in fact be higher than the data suggests. After all, Zika infections in adults may produce only mild symptoms or no symptoms at all and go undetected. [57]
But there is good news, too, on the Zika front. The number of Zika cases has fallen off dramatically in the past year. In areas hardest hit by Zika early on, the drop-off in cases seems to indicate that affected populations are developing "herd immunity."

A recent piece from PBS News Hour summarizes the numbers:

"Last summer, the virus declined sharply in its hotspots and all but disappeared in the U.S. In 2016, Puerto Rico, the U.S. Virgin Islands and American Samoa saw more than 36,000 cases of locally transmitted Zika virus. By 2017, the number had dropped to 665. In 2017, the continental U.S. saw only seven cases of local mosquito-borne Zika, down from 224 the previous year". [29]

The CDC's pregnancy outcomes page reports totals that have grown more slowly in the past year, though there is always a lag time before updated numbers appear. Totals listed below are for December 1, 2015, to March 31, 2018.

Outcomes for US States and the District of Columbia

Completed pregnancies with or without Zika-associated birth defects	Liveborn infants with Zika-associated birth defects	Pregnancy losses with Zika-associated birth defects
2,363	116	9

As of **June 19, 2018**, a total of **3** additional completed pregnancies with or without Zika-associated birth defects in the US States and the District of Columbia have been included since the last reporting date, May 15, 2018.

Outcomes for US Territories and Freely Associated States

Completed pregnancies with or without Zika-associated birth defects	Liveborn infants with Zika-associated birth defects	Pregnancy losses with Zika-associated birth defects
4,418	167	8

As of **June 19, 2018**, a total of **64** additional completed pregnancies with or without Zika-associated birth defects in the US territories and freely associated states have been included since the last reporting date, May 15, 2018.

(https://www.cdc.gov/pregnancy/zika/data/pregnancy-outcomes.html)

At this point, there are no reports of local Zika transmission in the continental US, though surveillance will continue to be key because travel-related cases crop up now and then – most recently, in Williamson County, Texas. [23] Any travel-related case can, of course, lead to local transmission if a local mosquito bites the infected traveler and then bites someone else. The

CDC maintains its Zika Risk Map for Travelers (https://wwwnc.cdc.gov/travel/page/zika-information), detailing precautions that help reduce the chance of infection.
In the meantime, researchers have gotten a clearer, closer look at the virus itself, indeed the best image we have of any virus. Zika's structure is intriguing (and rather beautiful), but getting a mugshot of the virus has practical utility. Michael Rossmann, a structural biologist at Purdue University, explains, "With the higher resolution, it is now possible to efficiently design vaccines and engineer anti-viral compounds that inhibit the virus." [19] That's good news indeed.

Work on a Zika vaccine continues, of course, [22] and other control measures are being explored. A new study finds that flea and tick meds some of us use on our pets (think NexGard and Bravecto) might protect populations from outbreaks of a number of mosquito-borne diseases, including Zika. [4] The effects that those drugs have had on some small percentage of pets, however, may raise safety concerns about their use on human beings. More promising, perhaps, than dosing humans with flea meds is fighting nature with nature. In Australia, scientists have successfully deployed a bacteria called Wolbachia to dramatically reduce Aedes aegypti mosquito populations.

CSIRO research director Paul De Barro explains, "What we were doing is releasing only males that had this wolbachia, and they would cross with mosquitoes in the field, the wild mosquitoes that didn't have that same strain of wolbachia; and as a result the wild females would only lay sterile eggs, and so the population would crash." Mosquito populations were reduced by 80% during the course of the experiment, sharply reducing risks of chikungunya, yellow fever, and, of course, Zika, all diseases carried by the Aedes aegypti mosquito. [37]

The good news about falling case counts aside, Zika still poses a threat and remains a concern as mosquito season enters full swing. Nothing about the virus has changed to make an outbreak less potentially disastrous for infants whose mothers are infected early in their pregnancies. Nothing has changed to reduce the financial and personal costs of dealing with Zika-related disabilities for a lifetime. Vigilance is still the order of the day. Surveillance is still critical. Remarkably, smartphones may be deployed to get the job done

(https://mhealthintelligence.com/news/mhealth-researchers-eye-the-smartphone-as-a-zika-detection-device).
Screening blood donations has turned out to be extraordinarily expensive, some $5.3 million per instance of Zika-infected blood found, [9] so the FDA's screening policy has recently changed so that pooled donations are tested rather than each individual donation.
Given the small number of infected samples found, the idea is to continue ensuring that Zika will not be passed on in blood transfusions, while easing the testing burden and associated costs. [52]

Despite the good news about case counts and other progress, lifetime costs for Zika-impacted children and their education still loom. Zika has reinforced invaluable lessons about the crucial importance of both global and local disease surveillance and reporting. And it has made its own rock solid case for timely and adequate funding for effective prevention and research, particularly when the costs, in both human and monetary terms, of inaction are so high. Where infectious disease outbreaks are concerned, we can celebrate incremental victories and larger ones, but we can never let our guard down or be slow to detect and respond.

BRACE FOR RESURGENCE

ORIGINALLY PUBLISHED: NOV. 01, 2017

Back in 2013 a mild virus nobody paid much attention to underwent one small mutation: A single amino acid (serine) was replaced by another (asparagine), according to Chinese scientists who recently published their research in the journal Science. [75] With that one change, Zika began to deal horrific damage to developing human brains. Zika became the public health threat we know today, one that lurks everywhere that infected mosquitoes range.

Through the summer of 2017, we had gained an edge in the fight against Zika. As of October 11, US states have counted only 291 cases in 2017. Florida saw a 71% drop in the number of cases for the first half of the year; New York saw a 56% drop. Other states likewise saw a reduction. [53] But the Zika threat hasn't disappeared; in fact, it is now poised to make a comeback, along with other mosquito-borne diseases such as dengue and chikungunya. While a single recent case of mosquito-borne transmission in Florida is cause for concern, [43] a greater concern is the ultimate impact of devastating hurricanes Harvey in Texas and Maria in Puerto Rico and Florida.

When a powerful hurricane wreaks devastation, it very nearly wipes out mosquito populations. That's good news that lasts for about a week – until mosquito eggs hatch and survive in much higher numbers than usual in areas impacted by flooding. In Texas, for

example, surveillance teams are finding thousands of mosquitoes in traps where they'd normally see only 10 or 20. [62]

The situation is similar and worse in Puerto Rico: Reports indicate uncontrolled spikes in mosquito populations on an island that has endured the hardest Zika hit among any US state or territory, with 34,963 confirmed cases of Zika last year and 486 so far this year – until Maria (CDC). We can be sure that no accurate counting is possible now, given dire living conditions on the island and a healthcare system in shambles. Food, water, and shelter are more urgent concerns. It's inevitable, then, that Puerto Rico will see a surge in mosquito-borne diseases, including Zika, just as areas impacted by Katrina in 2008 saw a doubling in the number of cases of West Nile virus. [41]

Puerto Rico's mosquito-borne disease surveillance system used to be one of the world's best, according to network science professor Samuel Scarpino of Northeastern University. Now, however, the island is in survival mode. Mosquitoes breed unchecked in pools and storm debris; people live and sleep exposed to open air where they will be often bitten; and Puerto Rico's model programs for mosquito control and capture, disease testing, and reporting have fallen apart with the infrastructure that supported them, destroyed by the storm. [41]
We know, then, that cases of Zika (along with chikungunya and dengue) in Puerto Rico are destined to spike unchecked and uncounted for a time, and with them the number of Zika's smallest victims, infants whose lifetime care will cost millions. Worse yet, Puerto Rico's looming Zika woes are not Puerto Rico's alone.

Zika is now much more likely to gain a significant foothold in the US mainland as tens of thousand of Puerto Rican–American citizens flee for the continental US. [32] Life was hard in Puerto Rico before Maria swept through – the island faced dire financial straits. The population had already dropped from 3.8 million to 3.4 million over the last decade as some 400,000 Puerto Rican Americans sought a better life in the US mainland. Now, given the lack of power, adequate shelter, food, and clean water, leaving seems the only rational option in the minds of many. [5] And so they come. NPR reports, "Thousands of Puerto Ricans have poured into Florida after Hurricane Maria. More than 27,000 have arrived through Port Everglades and the Miami and Orlando airports alone since Oct. 3, according to the governor's

office. Some will stay temporarily, until power and water are largely restored across the island; but many … are coming to the sunshine state to rebuild their lives". [18] The influx of people will bring with it an influx of Zika, upping the chances that the virus will make it into local mosquito populations in the continental US, and incidents of mosquito-borne transmission will rise. In short, this is no time to be complacent about Zika; instead, it is time to double down on surveillance, mosquito control, and prevention, and to budget for that challenge. There is no room for congressional incompetence and political gridlock on the funding front, where Zika and other matters are concerned. There is no time for the nonsense of voting no, as some have unwisely done in the past. Timely action against Zika in hurricane-impacted areas and beyond is critical to save children's futures, billions of dollars in healthcare costs, and productivity hits later on.

Funding to address the Zika emergency – at last approved by Congress in early 2016 after lengthy delays – ended on September 29, 2017, and the CDC consequently had to deactivate its Zika Emergeny Operations Center. [10] The 2018 budget proposed by Donald Trump includes a 17% decrease in funding for the CDC overall, while the CDC has requested an additional $12.5 million to address vector-borne diseases. The CDC explains that request: "In FY 2018, the U.S. will remain vulnerable to existing and new vector-borne disease threats, like Zika. With increased funding, CDC will provide enhanced support to up to 9 states at the greatest risk for vector-borne disease outbreaks. These resources would allow for enhanced capacity in laboratory, case and outbreak investigation, and vector control.
"Funds will also support the development of cutting edge diagnostic tools and new vector control technologies."
(https://www.cdc.gov/budget/documents/fy2018/fy-2018-cdc-budget-overview.pdf)

With congressional budget battles for fiscal year 2018 looming, it's critical to note how vital the functions of government are when it comes to time-sensitive threats like Zika. We cannot afford dysfunction in Washington. Also key is an aid package designed to help areas impacted by this year's hurricanes and devastating wildfires. Rebuilding infrastructure in Puerto Rico and elsewhere is a vital component in the fight against Zika, too, as surveillance and control measures depend on functional infrastructure. The House overwhelmingly approved – minus the support of 69 Republicans – a sorely needed $36.5 billion aid package on October 12. If the

Senate and the president approve the bill, that aid package will follow $15.3 billion relief measure passed in September. [35] It will not ultimately be enough, but it will help immensely. Despite the heightened threat Zika poses in the months ahead, however, there is good news in the fight against the virus; and that news says that this health crisis will ultimately be more manageable if we play our aces now. Some bullets follow:

- Scientists are releasing male mosquitoes infected with the bacterium Wolbachia in order to interfere with reproduction in mosquito populations that carry Zika. Their goal is to reduce populations by 90%. [73]
- A team from the University of Miami's Miller School of Medicine used antibodies cloned from the blood of a person infected with Zika to innoculate a group of macaque monkeys against Zika. [12]
- The FDA has approved a test designed to detect the presence of Zika in donated blood. [58]
- Researchers in the field of nanobiotechnology are experimenting with engineered molecules that "act like microscopic Venus flytraps," according to biotech writer Patrick Cox . "They trap viruses in polymer nanovesicles that pass harmlessly from the body." (Patrick Cox's Tech Digest, September 25, 2017).
- In an interesting twist, it turns out that the Zika virus, which targets the brain's stem cells with disastrous results in developing brains, can be used to shrink aggressive glioblastoma tumors by targeting glioblastoma stem cells. [61] The adult human brain doesn't have many stem cells otherwise, so the rest of the brain is unaffected. Hat tip to Patrick Watson, Mauldin Economics.

As is the case with most battles, timing, strategy, effective weapons, and the will to win will prove decisive. The battle with Zika is no exception. If we ignore the threat, if the enemy moves unchecked, we embrace disaster. Thus we cannot fail to fund, develop, and deploy measures and weapons that work.

ZIKA & AMERICA

ORIGINALLY PUBLISHED: JUL. 01, 2017

For two years, we have been following the Zika virus outbreak and the failure of the US government to protect its own citizens, let alone demonstrate world leadership. In total, by the time Congress managed to pass a stopgap spending bill for the fight against Zika in September 2016, more than 23,000 individuals in the US and its territories had been infected with the virus. That stopgap funding ends on June 30.

In the 50 states and DC, from January 2016 through June 13, 2017, we have had 80 infants with birth defects born to Zika-infected mothers. [2] In roughly the same time frame, Puerto Rico and other US territories have seen thousands of new Zika infections and 122 infants born with birth defects. Remember that a lifetime cost of care for each victim of Zika-caused birth defects is estimated to be about $10 million. The total lifetime cost of Zika to Americans is now estimated to be in the billions and growing.

Remember, too, that Zika is nearly always transmitted by mosquitoes (though it can also be sexually transmitted) and is mostly preventable. Mosquito control and health education and prevention are partially funded by states and local governments but mostly by the federal government.

We have watched both political parties derail Zika funding by tying it to other issues, holding up funding for the fight against the virus for some eight months while health agencies shuffled funds to do what they could until there were no more dollars to be found. No clean Zika prevention bill has been permitted to get to a floor vote. Instead, Zika funding has always been tied to other agendas and other money.

Guilty are Trump and Republicans, who now can alter their previously scandalous behavior and pass a clean bill. Guilty were Obama and Democratic legislators who can now alter their previous behavior and join a bipartisan bill that Trump will likely sign if presented with it. The stopgap Zika funding bill signed into law in September of 2016 is now history; another funding battle must now be fought in the halls of Congress in order for the war against Zika to be waged effectively on the ground.

The Trump administration's own proposed budget calls for a new federal emergency fund that can be deployed to address infectious disease threats. (No dollar amount has been attached to that proposed line item.) That's smart policy and a step the public health community has long advocated; however, other, less-wise legislation can easily sabotage the effort. For example, if the ACA were to be repealed, funding for the Epidemiology and Laboratory Capacity (ELC) program will be halved unless that funding is replaced in new healthcare legislation. The ELC program provides flexible funding for equipment and training for staff at the public health laboratories that conduct critical surveillance services nationwide. Effective Zika surveillance to date could not have been accomplished without those dollars. After all, we have to know where the enemy is before we can engage it, even if the enemy is so tiny that it travels on mosquitoes' wings. [76]

Public health experts worry about the impact drastic cuts will have on the nation's healthcare infrastructure as a whole and by extension on our ability to fight Zika and other emerging infectious diseases. If Congress ultimately cuts funding to the National Institutes of Health by $5.8 billion, as proposed in Trump's budget, what will have they done to undermine vaccine research and development funded by the NIH? The NIH is, after all, the chief funding source for Zika and Ebola vaccine research. Dr. David Freedman, professor of medicine and epidemiology at the University of Alabama at Birmingham, points out, "If you defund the

scientific infrastructure in general, all aspects are going to have to suffer, and that includes preparedness for new diseases as well as research and therapy for existing diseases". [33]
With Zika's highest-risk season at hand, we are served today by a CDC short nearly 700 employees as a result of the Trump administration's hiring freeze. [69] Further, the CDC faces possible budget cuts of 17%, as outlined in the Trump administration's proposed budget. [59] Former CDC Director Tom Frieden recently catalogued the far-reaching and varied impacts that the proposed $1.2 billion in budget cuts would have on public health, foreseeing that the cuts "would increase illness, death, risks to Americans, and health care costs". [59] A slashed CDC budget further impairs the CDC's ability to protect Americans against Zika.
And now the Senate's controversial health bill proposes to cut the critically important Prevention and Public Health Fund entirely, effective 2019. According to the CDC, "Losing this funding would cripple CDC's ability to detect, prevent, and respond to vaccine-preventable respiratory and related infectious disease threats." That fund accounts for 12% of the CDC's budget (about $9 billion), and includes its vaccine program. [30]

Will political leaders connect all these dots between policies and consequences and make wise decisions that protect lives and control costs, including costs incurred through lost productivity? Or will they just sling mud at each other or pass legislation without fully considering its impacts while Zika spreads during the summer mosquito season? Will the CDC get the funding it needs, and will the Zika-prone Southern United States and Puerto Rico get federally coordinated help?

Or will our politics again fail us as they did when the threat of Zika first emerged? The US government's stumbling response to Zika to date is a well-defined litmus test of how poorly our government serves us. I write here about Zika, but Zika is hardly our only infectious disease concern. In an era when infectious diseases spread at the speed of air travel, our failure to maintain a resilient and responsive public health and to equip ourselves to respond effectively to Zika or Ebola or the next flu pandemic comes down not to the limitations of science, but to government. As journalist Ezra Klein observes, "Diseases move much faster than governments". [40] We can do better than this. Zika-infected mosquitoes have now been detected in Brownsville, TX, as well as Miami, FL. Models indicate that the entire Gulf Coast is a prime breeding ground for Zika. As the number of cases mounts and infants are born to infected

mothers, we learn more about the toll Zika exacts on its youngest victims, increasing the risk of birth defects by twenty-fold. According to the CDC, "Among the women with confirmed Zika infection during the first trimester, 8 percent or nearly one in 12 had a baby or fetus with Zika virus-associated birth defects. "Another 5 percent infected in the second trimester of pregnancy had a baby with a birth defect and 4 percent of women who tested positive in the third trimester of pregnancy." [25] When government fails to serve and protect, suffering compounds, along with frustration and disillusionment. Zika spreads; children are damaged for a lifetime; families must shoulder heavy care burdens and heartache; and productivity losses and care-related costs soar. (See a recent study published in PLOS, "The potential economic burden of Zika in the continental United States," for detailed set of estimates as to what Zika's economic costs might turn out to be: (journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0005531 – pntd-0005531-t002.)

Dear readers, let me add a personal note. Precautions and good luck kept a recent grandchild from exposure to Zika, so I'm very grateful and very motivated to help others who may be less fortunate. I've personally visited Zika-stricken areas in South and North America and in Africa, and now cases have shown up in Asia as well. Ignoring this threat is dangerous. Dealing with it is possible, and many lives may be saved.

I live in Florida, where Zika is known to be a risk. As a Floridian and as an American I invite readers to freely forward this commentary or redistribute it as each of you sees fit.

YOU CAN'T BOMB ZIKA

ORIGINALLY PUBLISHED: MAR. 08, 2017

We open this commentary with a link to a column by Nicholas Kristof entitled, "However Much Trump Spends on Arms, We Can't Bomb Ebola": https://www.nytimes.com/2017/03/02/opinion/however-much-trump-spends-on-arms-we-cant-bomb-ebola.html.

We can't bomb Zika, either.

We continue to track all types of shock risks, including Zika. Right now I am traveling to three places in South America. All meetings are private.

As budget priorities are realigned by the Trump administration, we continue to track non-military shock risks. Years ago I chaired a worldwide dialogue on food, water, and health that took two years to complete and involved five continents. The Global Interdependence Center was the convening organization, and its policy position is simply to convene a neutral forum for dialogue.

Lessons learned during that multiyear study suggest that Kristof's warnings have validity.

Now here is an update on Zika. I'll be back in the US on March 12. Between meetings I will try to say hello to a friendly Patagonian rainbow trout.

We last reported on the Zika situation back in early October 2016. In the US and its territories at that point, the number of pregnant women who had been positively diagnosed as carriers of the Zika virus was 2298. Now – in spite of the fact that we have been in the "off" season for mosquitoes that carry the virus – the number stands at 4759, a 107% increase. And the total number of US citizens infected with Zika has grown from 25,694 to 43,380, an increase of 69%. (All current figures are as of Feb. 21; data from the Centers for Disease Control [CDC].)
Most critically, the number of babies born with microcephaly and/or other birth defects in the continental US has climbed from 21 last September to 47 now (counting only live births). (Data on Zika-related birth defects in Puerto Rico was hard to come by last October and remains so. All we could turn up was an August 2016 estimate by US health experts that as many as 270 babies in Puerto Rico might be born with microcephaly. That estimate was developed at the point when the number of Zika cases in pregnant Puerto Rico women was only about 60% of what it is today.)

But along with the alarming increases in Zika statistics in the past half year, there have been important advances in our understanding of Zika.

First, researchers have learned that babies born with Zika often suffer not only microcephaly but a whole range of devastating birth defects, including decreased brain tissue; damage to the back of the eye; joints with limited range of motion, such as clubfoot, and excessive muscle tone, restricting movement soon after birth. This pattern is now referred to as congenital Zika syndrome. [70] More is now known about pregnancy outcomes, too. It had previously been estimated that between 1% and 13% of pregnant women infected with Zika in the first trimester would have babies with birth defects. In January, a report published in the *Journal of the American Medical Association* (JAMA) brought that number into better focus. [31] Of 442 Zika-infected women who completed their pregnancies between January and September, 2016, 6% delivered babies with one or more Zika-related birth defects. But among women infected during the first trimester, 11% had fetuses or infants with birth defects. CDC officials said the findings show that the rate of fetal abnormalities related to Zika among these babies born in the United States is similar to the rate in Brazil, the epicenter of the Zika outbreak.

"This basically puts to rest speculation that Brazil was different in some way," CDC Director Tom Frieden said in a January interview.

There is also new evidence that Zika can be transmitted not just by two species of mosquitoes, as had been thought, but rather by as many as 35 species, including 7 found in the continental US. [13] We are approaching mosquito season again. How prepared are we? If the Trump administration shifts its budgetary focus from babies to bombs, how many more families will suffer the unnecessary trauma and expense of bearing, raising, and supporting Zika-damaged children for their entire lives? In a January 18, 2017 report in *Scientific American* "Trump's CDC May Face Serious Hurdles", [47] outgoing CDC director Tom Frieden stated, "There's a need to establish a rapid-response fund for emergencies that has both dollars and emergency authority. It's a big problem that when there is an emerging threat, we are not able to surge as rapidly or work as rapidly as we should, because of lack of money and legislative authority."

Specifically, a repeal of the Affordable Care Act appears likely to eliminate the CDC's Prevention and Public Health Fund and cost the agency nearly $1 billion a year, or about 12 percent of its annual budget. "Zika is the first predictable problem," Frieden explained. "Zika is not over. It is likely to spread in Latin America and the Caribbean for months and years to come, and we still don't fully understand the range of birth defects it causes."

Our military, however armed to the teeth, can't bomb Ebola. Homeland Security can't deport it. Effective disease control requires funding, extensive data gathering by a well-equipped and staffed CDC, and a timely, nimble, far-reaching response. These hard facts have held predictably true for Zika and remain unforgivingly true whenever and wherever a health threat jeopardizes the wellbeing of American families and ultimately the economic health of the nation.

ZIKA & CUBA

ORIGINALLY PUBLISHED: OCT. 16, 2016

I'm in Cuba and have been meeting with doctors and others to learn what the situation is here with regard to Zika. I've visited a daycare center and a rural community and been briefed on mosquito control.

What I'm learning is eye-opening.

Cuba has 3.5 times the population of Puerto Rico. While Puerto Rico has 25,955 confirmed Zika cases, Cuba has only 14, 13 of which were contracted off the island.

(Note: Keep in mind that all Cuban statistics reported here are official government numbers. That is the only data we have. People here are very cautious about contradicting the government, and the government knows every person I met with.)

But on the face of it, Cuba is doing a better job with Zika defense and related health issues than we are doing in America and certainly better than we are doing in the nearby American territory. Cuba and Puerto Rico have the same climate. The same rainfall. The same species of mosquito. Yet the outcome in one place is so vastly different than in the other. How is Cuba doing it?

The Cubans learned some hard, valuable lessons from epidemics of dengue fever that hit them in 1977, 1981, and 1997. These outbreaks killed hundreds of people, and hundreds of thousands were infected. In the wake of the 1997 epidemic, an epidemiological alert system was established; and mosquito control was reinforced in the entire country.

What that means on the ground is that mosquito control teams visit every house in the country at least weekly, and schools and other community facilities receive daily visits. They fumigate weekly. Standing water elimination is a constant. People attribute the lack of Zika cases to this preventative effort that they learned from combatting dengue. I'm getting this story from villagers, teachers, and others – it's not just a government propaganda story; it's real.

Cuba has a national healthcare system with about 80,000 physicians and 80,000 nurses. The doctor-nurse teams cover the entire country and attempt to fully know every household. The healthcare system is very community-focused, so there is a lot of personal visiting by the doctors and nurses, hence a strong emphasis on prevention. Medical care in Cuba is a constitutional right and a national cultural tradition. Say what you want about communism and universal healthcare – and there is plenty to criticize – but when it comes to Zika prevention efforts, Cuba is hugely ahead of the US.

In sad contrast – and you may not have seen this reported in the news – the number of locally acquired cases of Zika in Florida can no longer be counted on one hand. In fact, they now number 164 and have spread beyond Miami to at least five Florida counties. [14]
The total number of confirmed Zika cases in the 50 US states is now 3,936, and Alaska is the only state where Zika has not appeared. [79] Is this vast difference in the management of Zika between the US and Cuba due to lack of Zika defense funding by our government? Are there other reasons for the difference? I still have many unanswered questions as I continue on this trip.

I asked if there were any Zika birth-defect cases. The official answer is that there Is none. (There have now been at least 28 in the US and Puerto Rico, and 2,684 pregnant women have Zika.)

I asked about the treatment of cases where the fetus shows abnormal indicators. Answer: Abortion is fully legal in Cuba. There is no debate about that. Also, the medical system allows doctors to advise couples of possible risks or indicators of deformed or abnormal babies. The final decision on an abortion is up to the parents.

I asked for abortion statistics. I Could not obtain them. Births yes, but abortions no. I asked who had those statistics. Answer: the health ministry. I asked how to get a meeting to discuss Zika details and infant mortality and abortion. Answer: It takes an official inquiry that must be presented in writing and must receive advance approval by the health ministry. I asked if the abortion policy contributed to the low infant mortality rate. Answer: You have to ask the health ministry.

But I am impressed by how good a job the nation of Cuba seems to have done with Zika – and depressed by how poorly we have done in my own country. It is about time we woke up to the growing reality of Zika damage to our families and economy.

ZIKA, CUBA, AMERICAN POLITICS

ORIGINALLY PUBLISHED: OCT. 04, 2016

"Why is Zika so important that you write about it often?" I have gotten that question many times.

An update on the Zika situation follows. But first let me offer an explanation as to why I write about it.

I believe that health issues and disease threats offer us the chance to assess the functioning of a political system. SARS, Ebola, bird flu, and now Zika show whether or not the political system can be proactive. The quality of governance of a country is revealed, and its functionality or lack of same becomes measurable in statistics of suffering, illness, and death. Such is the case now in America as we clearly see that our elected political leaders utterly failed, at a critical juncture, to grasp the magnitude of this threat. Our elected Democrats and Republicans are at fault. They own the outcomes.

Health issues allow for demonstrations of leadership success or leadership failure. Success requires the government and the private sector to engage in a proactive joint effort. Consider the polio vaccine or measles or tuberculosis treatment. Think about pneumonia shots or the shingles vaccine. How did these things happen? How are they funded? Why are they now

ubiquitous? Why are we older folks healthier and more protected against illness than we have ever been?

Then ask why we abandoned the Zika-impacted infant yet to be born.

We can also make comparisons with other governments, and I will be trying to do that in a few days. If all comes together, I will visit Cuba next week. Part of the trip will involve meetings and discussion in the healthcare arena. I will be trying to discuss Zika treatment, defense, and financial issues in Cuba with government officials and healthcare professionals there. I do not know how much will be revealed in confidence and how much I will be able to write about. I will share what I can on my return. Takeaways will be discussed where I can. And confidentiality of my sources will be fully protected as this visit to Cuba proceeds.

When we last updated you on Zika the Senate had just failed, once again, to achieve cloture on the Zika bill. Finally, on Wednesday of last week, the Congress approved $1.1 billion to combat Zika, as part of a stopgap spending bill that keeps the government up and running through Dec. 9 (so our elected representatives can go home and focus on campaigning).
We would like to report that we are happy with that outcome, but consider the following. Zika funding and action would have passed quickly in a clean piece of Zika-only legislation. It never had that chance. The far right in the Republican House tried to use Zika to undermine Planned Parenthood. The Democrats tried to use Zika to fund a water project. The president used Zika to defend his legacy of Obamacare from a single little chink in the armor because the few dollars in Puerto Rico that will never be used for Obamacare were being reallocated. So the Senate and House and the White House succeeded in going nowhere, and the penalty will fall on many Americans who are our friends or and neighbors.

This month's belated approval of funding comes only after the 2016 mosquito season has largely passed. Since Congress adjourned on July 15 without acting on Zika, the number of pregnant women with any laboratory evidence of Zika infection in the US and its territories has swollen from 649 to 2298, a 254% increase. (Figures here and below are as of Sept. 28.)

Researchers estimate that between 1% and 13 % of pregnant women infected with Zika in the first trimester will have microcephalic babies, but more could have children with other, more subtle problems.

The number of Zika-infected babies who have already been born with microcephaly or other deformities in the continental US has now climbed to 21. There is still just one such reported birth in Puerto Rico, even though the total number of cases in the Commonwealth stands at 22,069, six times more than the US total of 3625. If the numbers were proportional, we would have expected more than 120 births of deformed babies by now in Puerto Rico. Is there faulty reporting from Puerto Rico? We do know that this month the first large of wave of Puerto Rican babies known to have been exposed to Zika in the first trimester will be born, and doctors there do not know what to expect. [39] In addition to birth deformities, the Zika virus causes Guillain–Barré syndrome (GBS), a rapid-onset muscle weakness problem caused by the immune system damaging the peripheral nervous system. There are 8 reported Zika-associated cases of Guillain–Barré in the continental US and 37 in Puerto Rico. Note that with all these figures we're just talking about confirmed cases. Health officials fear that actual cases may be more than 50 times greater than the reported numbers, since the virus causes only a mild illness in most people, with few if any symptoms. In addition, most people must undergo a series of tests to determine whether they actually have the virus. So far, there is no one simple diagnostic test for Zika – the development of one has been delayed by a dearth of funding. Pregnant women may currently wait more than a month to learn whether they have been infected.

How many women in the early months of pregnancy have been bitten by Zika-carrying mosquitoes or infected by sexual partners? Due to the nine-month gap between conception and birth, and since summer is the peak season for mosquitoes, many cases won't be confirmed until this fall or winter. And fetal abnormalities are generally not detected until six months after the initial Zika infection, according to WHO.

There are other unknowns. Researchers do yet know how long the virus persists in the body or whether patients develop immunity after initial exposure. The possible modes of transmission are not fully understood, either. Just last week there was a report in the New England Journal of Medicine of a Utah man who was apparently infected via sweat or tears exchanged with his

father, who was subsequently killed by the virus. [8] Adequate Zika funding needed to be provided a year ago, not just last week. A year of progress toward rapid detection and an effective Zika vaccine has been lost through political game playing. In that year, the number of American families whose lives have been irremediably damaged through inaction on Zika has likely grown from a handful to hundreds and maybe thousands.

Dear readers, each Zika-induced case of microcephaly stands to impose an estimated lifetime cost of $10 million on the United States, the state or states of residence, and the locale. The family support system faces a huge stress. Those that succumb to the stresses and lose family cohesion become the stories of the secondary impacts.

In my opinion, those Zika cases are a wake-up call to the American people, courtesy of partisan Democrats and Republicans. Those two political parties have become diseased themselves. They have combined to squander American lives and impose high costs. In my opinion the system is broken. The folks who lead the Democrats and Republicans care only about their own political ends. They are dangerous. Six months from now the national news will begin reporting the births of Zika babies who were infected on American soil. Think about these statistics as they are revealed over the next year. We have only begun to see the results of this failure in American governance.

We cannot know how many Zika cases there would have been if the funding had been approved a year ago. That is a counterfactual. But we can surmise that there would be far fewer.

Let's think about that when we have to consider voting for Johnson-Weld or Clinton-Kaine or Trump-Pence. I haven't heard a Johnson-Weld comment on Zika. Kaine voted with Harry Reid to block cloture on Zika only a few days before he became Hillary Clinton's choice as her running mate. Clinton blames the Republicans for holding up the funding. Trump and his team haven't mentioned this developing national tragedy and what they think could be done about it.

Meanwhile, the numbers of Zika cases and Zika pregnancies continue to grow. The recent news from Thailand adds to the evidence favoring political seriousness.

ZIKA, CONGRESS, AND DAMAGED LIVES

ORIGINALLY PUBLISHED: SEPT. 07, 2016

Dear readers, here is what a microcephaly case looks like: http://www.cnn.com/2016/06/06/americas/brazil-zika-babies-uncertain-future/index.html. The Senate failed to reach cloture when it voted again yesterday on the Zika bill. As last time, the majority party voted "aye." The minority party, led by Senator Harry Reid, voted "nay." The obstacles of not allowing Planned Parenthood to utilize Zika funds and of redirecting unused Obamacare money stood in the way. So, 68 senators who originally voted "aye" could not find 60 among them to vote for cloture on a bill to fund Zika defense. The bill would surely pass if it got to the floor of the Senate for a final vote.

These rotten XhG%#Tzards we have elected (for now) to govern us have again thrown the US citizenry under the bus.

Option one: We can do nothing. Accept that this is the way it is: Dozens and maybe hundreds or thousands of Zika babies will be born in the continental US and Puerto Rico, and the federal government's response to the crisis will be wholly inadequate.

OR: We can act. Readers. Please look at the video of the result of Zika infection and then act: http://www.cnn.com/2016/08/23/health/micaela-mendoza-born-with-zika-complications-in-miami/index.html.

Get angry. To quote the movie line, "I'm mad as hell and I'm not going to take it any more."

Here is the vote tally in the US Senate: http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm.cfm?congress=114&session=2&vote=00135. I wonder if Senators want this public. They make it hard to find.
Option two: Democrats. Tell Clinton, your running mate is a US Senator who voted "nay" on cloture the last time and didn't even vote this time. Where are you now, Mrs. Clinton? Where is Mr. Kaine? Does he recant his prior vote? Will he stand up to Harry Reid? You blame Republicans, but how can we trust you if your hands are not clean?

Option three: Trump and Republicans. This is a national risk. Mosquitos do not know about walls and borders and immigration. Why are you silent on Zika? Are you really afraid of Planned Parenthood? It is an agency that provides a wide range of reproductive healthcare services and that Republicans in Congress want to exclude from receiving Zika funding. *But Zika is not about abortion.* It is about lifetime care and disrupted families. You have bluster to spare, Mr. Trump. Why not select better targets, including those who would jeopardize the health of Americans through congressional negligence?
Libertarian Party candidate Gary Johnson. You are being handed a gift. You are rising in the polls. You can point out failures, including the lack of a Zika response, in the present two-party governance system. Act now.

Green Party candidate Jill Stein. Mosquitos and sickness and horror are handing you an issue. Where are you?

Larry Kotlikoff. You want to be a write-in presidential candidate in 50 states. Speak up. Here is a natural message for a thoughtful professor to address. Discuss why Zika is a federal issue, why funding has to be federal and not from the states. Mosquitos don't respect state borders. Databases are national. Some idiots think states and local jurisdictions can fix the issue. They don't get it, but you do. Speak out.

Readers. I believe we are governed by people who do not grasp threats but are trapped in their own party's ideologies instead. They cannot act preemptively. They are busily working to embed themselves politically. And that means the system as we know it is broken and needs

critical and quick repair. Zika is a current example of political dysfunction for Americans to contemplate and respond to.

So, who are we? What do we stand for?

This issue is not about Republicans or Democrats. They have both failed us.

There is a reason why third-party alternatives to the Republican and Democratic choices for the presidency are now collectively in double digits and rising in the polls every day.

Silence is easy. And we get what we ask for with that silence.

The caring option is to take action. I haven't decided how I will vote in November, but I will consider all options. The Democrats will not and do not own me. The Republicans will not and do not own me. So my choice will be a vote FOR rather than a vote against unacceptable options. That is not how I will act.

I want a reason, maybe even reasons plural, to vote *for* someone for president, not against someone. That is my standard.
And mosquito-borne viruses, the infection of mothers who are American citizens, and the risks to public health give me a metric to evaluate all options for my vote. It is only one vote, but it is mine, and I will exercise it carefully.

Lastly, for those who email me about state funding and regional funding and local funding of Zika, you don't get it. Would you fight polio or tuberculosis or dengue or Ebola or bird flu with local funds? We did that once in the 1918 bird flu epidemic and lost an estimated 675,000 lives in the US. There are two known types of mosquitos that carry Zika. Their range encompasses well over half of the continental US. The virus is thus a national threat, not merely a local one, and it requires a federal response. Many local jurisdictions are ill-equipped to cope on their own. Reported cases of Zika are in all states but two. There may be 50 unreported cases for each one that is documented.

Damn the US Senate.

And why don't the presidential candidates speak out? Will the media question them in the upcoming debates? What about our president, who is so intent on defending his unused and never-to-be-used Obamacare marketing money, who fails us and uses the veto threat as his legacy. And why does Harry Reid do the president's bidding in his farewell to service of the State of Nevada in the US Senate?

The system is sick, dear readers. It needs a lot of help, and it needs it now. The Congress should go back to the drawing board. Republicans should set aside their battle over Planned Parenthood and agree to provide new funding in keeping with the scale of the need and the threat. Democrats should likewise wrap their heads around the concept of compromise and cooperation, and together they should pass a bill that the President will sign so that the battle against Zika can be effectively waged instead of fizzling for lack of funds before it's even properly launched.

In researching this series of commentaries on Zika, I have engaged in discussions with physicians who have treated microencephaly cases. I have personally discussed with them and others the economics of Zika care. My conversations were with those who have to deliver such care. I have discussed with caregivers the pain and suffering inflicted on every family that has a Zika patient.

This is real. I'm not impartial. I'm damn angry at our failure of governance.

All I have is my words and my vote.

You have them, too.

Please join me.

CONGRESS GOES BACK TO WORK

ORIGINALLY PUBLISHED: SEPT. 06, 2016

After squandering months in partisan bickering and brinksmanship over Zika – and indulging in a two-month summer vacation – Congress goes back to work today. In the meantime, since Congress adjourned on July 15, the number of pregnant women in the US and its territories who are known to have contracted Zika has grown from 649 to 1595, a 246% increase. (Figures here and below are as of Aug. 31.)

The number of Zika-infected babies born with microcephaly or other deformities has now reached 17. Interestingly but alarmingly, 16 of those 17 reports come from the continental US, where the total known case count is 2,722, while only one such birth has been reported in Puerto Rico, which has 14,110 known cases.

We say "known cases" because Zika virus causes only a mild illness in most people, with few if any symptoms; and so most carriers of the virus don't even know they have it. Thus reported cases may be just the tip of a very damaging, very costly iceberg. In Puerto Rico, some health officials have estimated that the total number of cases may be more than 50 times greater than the reported cases. [60] If similar percentages obtained in Puerto Rico as in the 50 states, we would expect there now to be some 83 cases of Zika-caused birth defects in Puerto Rico, not just one. We have to wonder just how far the Zika virus has already outrun underfunded surveillance efforts.

In Miami, Florida, the number of locally acquired cases has grown from 4 on July 29 to 35 a month later, and health officials fear that local transmission will soon be reported in New Orleans, Houston, or other Southeastern cities.

In the absence of congressional action, as of August 26 the CDC had spent $194 million of the $222 million it was allocated to fight Zika. According to CDC Director Dr. Thomas R. Frieden, if Florida develops additional clusters of Zika cases, or if there are outbreaks in other states, the agency will not be able to provide emergency funds. [71] The Dept. of Health and Human Services reports that by the end of August it too had spent virtually all of the $584 million that the White House had diverted from Ebola funding to combat Zika. [16]

Republicans in the Senate have scheduled a vote on a $1.1 billion Zika package for *today*, Sept. 6. However, this is the very same package whose passage was blocked by Senate Democrats back in July – and they are expected to block it again. The Democrats have accused Republicans of booby-trapping the bill by adding provisions that restrict the role of Planned Parenthood and similar organizations in providing contraceptive services to fight Zika, which can be transmitted sexually. The Republicans counter that while Planned Parenthood isn't on the specific list of organizations that will receive *immediate* block-grant funding in Zika-hit locales like Puerto Rico, nothing prevents grant recipients from giving some of their money to Planned Parenthood as a sub-grantee. The attack on Planned Parenthood is a pack of lies. It is those clinics that are helping mothers. And Republican insistence on nailing Planned Parenthood over abortion is responsible for the failure in the House to use an existing public health infrastructure to fight Zika.

But the Democrats are hardly blameless. President Obama threatened a veto because unused Obamacare funds were to be allocated to fight Zika. And Senate Minority Leader Harry Reid mustered enough votes to block a cloture vote on the Zika bill in early July and sent Congress into recess with no decision taken on Zika.

There were other objections and counter-objections to the bill, too. Bottom line: the Senate didn't get the job done in July, and they lost an entire year of federally organized and funded defense of the millions of Americans at risk.

Now, unless considerable additional pressure is applied to these so-called leaders of ours, they won't pass a Zika bill this month, either. Even if they do pass something, it is likely to fall about a billion dollars short of the amount health officials project they will need to attack the virus. We urge you to contact your own Senators and Representatives and make clear to them that they must confront the Zika threat – even if that means they must work out a compromise! (And remember, there are Zika cases now in every state but Wyoming and Alaska.)

Mosquito season won't be over until late October or November in the South. The numbers of Zika-affected people will continue to grow rapidly, and the costs will multiply, too, not only for those who harbor the virus but also for local and regional economies. Those costs are already widespread and, at this stage, largely unpredictable. They range from impacts on tourism and the travel industry [20] to increased public healthcare costs. For instance, the FDA has strongly suggested that all blood donations be screened for Zika, but screening the nation's blood supply for a new illness is an enormous task, and many hospitals and clinics will struggle to handle it. [45]

And we remind readers that the CDC estimates the cost of care for each child born with Zika-caused microcephaly to be as high as $10 million over a lifetime. [44] Meanwhile the need for improved forms of mosquito control has been highlighted by a recent debacle in South Carolina. The Sept. 1 *Washington Post* reported a massive bee kill with this headline: "'Like it's been nuked': Millions of bees dead after South Carolina sprays for Zika mosquitoes." The bees died when the pesticide Naled was sprayed in Dorcester County. The development of less destructive and more precisely targeted forms of mosquito control requires research dollars. Democrats and Republicans in the House and Senate are the reason our government is failing. They own the outcomes on Zika. They are responsible for the failure of early action – but we will all pay the price. The greatest price, of course, will be paid by some of our youngest citizens and their families, and they will continue to pay that price for the rest of their lives.

I had this to say about the Zika debacle when I spoke with Bloomberg's Tom Keene on Sept. 1:

http://www.bloomberg.com/news/videos/2016-09-01/kotok-congress-rejected-american-people-on-zika.

THE COSTS OF POLITICAL FAILURE ON ZIKA

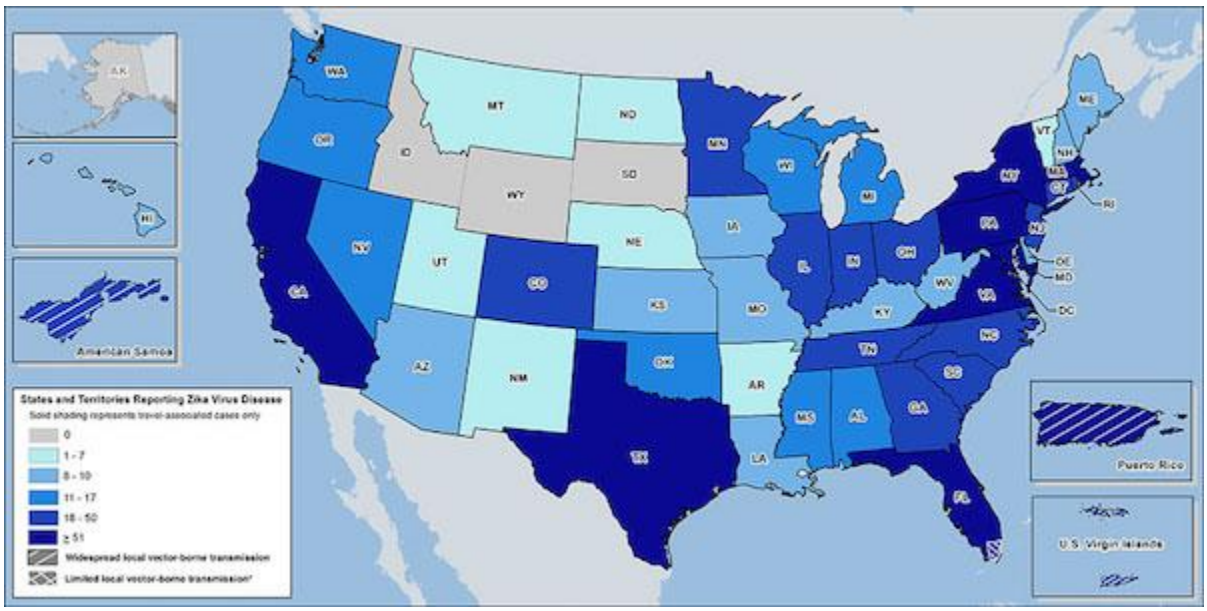
ORIGINALLY PUBLISHED: AUG. 12, 2016

As we reported in our Aug. 2 update on the Zika virus outbreak, the CDC has estimated that the cost of care for each child born with Zika-caused microcephaly will be as high as $10 million over a lifetime. And with the number of cases rapidly multiplying in the US and its territories (especially Puerto Rico), we know that there will be many cases of microcephaly and other brain-related birth defects. (See below for more on the numbers involved.)
But the bill for Zika will not be limited to the direct costs of patient care. Nor will it be limited to the costs of combatting the virus. There will be a substantial impact on tourism in the affected regions (particularly in Florida), which will mean reduced airline ticket sales and cancelled flights, lower earnings and falling stock prices for travel companies, and dwindling sales for local businesses.

These costs are so far difficult to quantify, but we do know that Tourist arrivals in Hong Kong fell by 68 percent two months after the World Health Organization issued a warning about the SARS epidemic in 2003, and by 54 percent in South Korea two months after the 2015 MERS outbreak. [46] So far, in Florida, the effects of Zika on airlines and hotels appear to be minimal, according to the Wall Street Journal. But for the more than 300 businesses in the Wynwood district of Miami, where transmission of the Zika virus by local mosquitoes has been concentrated, the impact has been "Pretty catastrophic," according to one restaurant owner.

See "Zika Weighs on Businesses in a Miami Neighborhood," [49] Moody's has released an Issuer Comment that affirms Zika as a municipal credit risk for Miami–Dade Co.

In responding to the Moody's action, Chris Mier of Loop Capital Markets said, "While we believe that the State of Florida is well-prepared to combat the Zika virus, our concerns lie with those local issuers, highly dependent on tourist activity, that may suffer revenue loss due precisely because of the newsworthy aspect of the virus. Thus, it is the unnerving headlines and the health risks they highlight to travelers in their child-bearing years that represents the avenue by which risk is imparted to certain local credits in areas identified as being focal points of Zika virus activity. While travelers may have limited fears about their own health, risks to unborn children represent a category of concern more likely to influence travel decisions." Zika cases have now appeared in every US state except Alaska, Idaho, Wyoming, and South Dakota. The US total stood at 1962 as of Aug. 10, according to the CDC. [79] New York actually has the highest number of cases, with 530; but Florida's 328 cases now include 17 cases of local transmission.



Meanwhile, in Puerto Rico the total number of cases has climbed to 6505, of which 98% are locally transmitted, according to the CDC. The island's already struggling economy is taking a huge hit from Zika. If what is happening in Puerto Rico starts to happen in Florida, it would be a national catastrophe," says Dr. Lyle Petersen, director of the CDC's division of vector-borne diseases. [60]

The risk now is that, like the West Nile virus, Zika could become endemic to the US, with recurrent outbreaks each summer, according to Dr. Scott Gottlieb. See "Confronting the Growing Risk from Zika," [28]

Hillary Clinton was campaigning in Florida last week. She toured a health clinic in Miami's Wynwood neighborhood and called on Republican congressional leaders to bring lawmakers back from their protracted summer recess so that they can vote on a Zika bill – a call that is either courageous or cynical, given Democratic intransigence on Zika funding to date. Our politicians on both sides of the aisle have given Zika a big head start in this country, and the costs are likely to run into the billions. The costs in needless individual and family suffering will be incalculable. When Congress does finally reconvene to take up a Zika bill, we must let our representatives know that further inaction is intolerable.

ZIKA POLITICS: DEMOCRATS & REPUBLICANS

ORIGINALLY PUBLISHED: AUG. 02, 2016

The haunting picture of the mother holding her infant who mostly cries in pain led to a new interpretation of Gaetano Donizetti's phrase describing love. Below is the English translation.

One tear that falls so furtively
from her sweet eyes has just sprung,
as if she envied all the youths
who laughingly passes her right by.

Our congressional representatives enjoy their summer recess. Both political parties have conventioned, nominated, and vilified each other's choices. Neither mentioned the political dysfunction they own with their respective behavior.

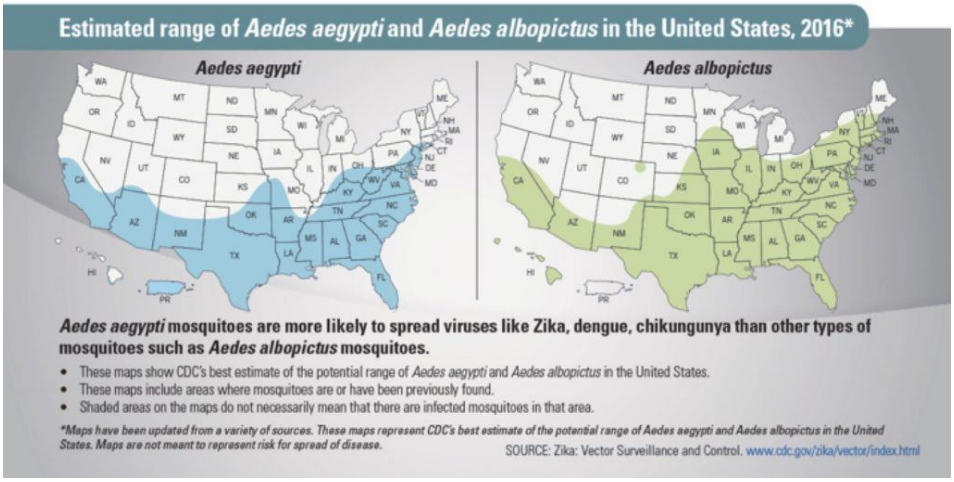
Meanwhile, a dangerous virus expands its reach as mosquito season advances. Zika has gained a foothold in the continental US. Health officials have concluded that local Miami mosquitoes are the likely carriers that infected four recent non-travel-related cases of Zika in Florida. Because the Senate has not passed a bill funding Zika prevention measures despite many months of partisan wrangling, the CDC is now "scrambling to come up with money" to combat Zika's spread. [15]

Zika spreads, largely unchecked by the kind of federal preventative initiatives that would effectively limit its impact. Meanwhile the CDC estimates the cost of care for each child born with Zika-caused microcephaly to be as high as $10 million over a lifetime. [44]
Let that sink in. The $1.1 billion Zika prevention bill voted down in the Senate earlier this month may represent the lifetime costs incurred for as few as 110 individuals born with microcephaly. Thirteen of these children are already with us. [1] The ultimate economic cost of a rampant Zika epidemic makes the cost of doing something now look like pocket change. The children themselves and their families matter more than dollars do. We do not know all the ways those children will be impacted – only time will tell. But the observation offered by ophthalmologist Camila Ventura, working in hard-hit Brazil, hints at what lies ahead: "The babies cannot stop crying". [68]

Neurological damage caused by Zika is not limited to microcephaly, as journalist Lena Sun explains, reporting from a special meeting in Atlanta convened by CDC and the American Academy of Pediatrics to develop guidelines for the care of children affected by Zika: "In addition to microcephaly, a rare condition usually characterized by an abnormally small head and underdeveloped brain, Zika can cause neurological harm affecting vision, hearing, and muscle and bone development, research shows. The range of impairment can be vast. Some babies lack the most basic sucking reflex, which means they might never develop the ability to swallow. "Even in babies who look 'absolutely fine' at birth, ongoing screening may be necessary to detect subtle changes that could signal serious problems. Abnormal movement and prolonged staring, for example, could indicate an emerging seizure disorder." [68]
Even now, there are 433 pregnant women known to be infected with Zika in the 50 states, and 422 more in US territories. The numbers continue to grow (by 77 women this past week alone). What will the totals be by the time Congress reconvenes after Labor Day? What will they be when our elected representatives finally come to terms on Zika funding?

This week in the Wall Street Journal, Ron Klain, former White House Ebola response coordinator and now an external adviser to the Skoll Global Threats Fund, theorizes that Senators failed to pass legislation because they failed to grasp the magnitude of the threat posed by Zika. [38] But their job is to grasp it and to address a public health emergency in the making. If a two-legged enemy had set about brain-damaging our population, with a hit list

in the thousands or tens of thousands and the long-term cost of that damage mounting to many billions, Congress would have thrown some funding at defense. Where is the resolve to defend our country when the tank that carries the enemy is an insect, and the enemy itself is microscopic? Zika is a threat that dwarfs the agendas of partisan politics and politicians' machinations, bickering, filibustering, and addiction to obstruction. The arrival of Zika in the US is not an occasion to wage a legislative skirmish over Planned Parenthood, or to hold up critical Zika prevention funding because of one. We Americans elect our representatives not to joust endlessly but to work together to govern and to protect. Partisan shenanigans have no place when the enemy is at the gate, time is of the essence, and American lives stand to be saved or squandered. Zika is spreading not only via mosquitoes but also by sexual contact; it is carried primarily by one type of mosquito, Aedes aegypti, but also by another, Aedes albopictus, and the two together range over half the nation. Zika is already circulating locally among Florida's mosquitoes, and a person-to-person transmission of the virus from a father to a son in Utah remains unexplained. [67] [55]



Fully half of the two million American women who will become pregnant in the next year live in parts of the US where Zika could become endemic if we cannot control its spread. Of those infected, up to 13% may give birth to infants devastated by microcephaly. [44]

Zika is not a bullet we can dodge entirely – that bullet is already lodged in hundreds of US babies' developing brains – but every day that passes without concerted preventative action ensures that human tragedies multiply, along with long-term societal costs.

CDC Director Tom Frieden responded to the congressional impasse this way: "We will do the best we can to protect Americans." But he added this caveat: "There are projects that will not happen because the funding isn't available." Listed below are just some of the crucial initiatives that stand to be delayed or scaled back because of congressional dysfunction. [54] [36]

• A second phase of clinical trials for a Zika vaccine which could otherwise be ready in 2017 (delayed)

• A study following 10,000 pregnant women during their pregnancies and shortly after they give birth

• Adequate funding for the CDC's emergency labs and teams to handle a surge in the number of possible cases

• Initiatives to improve diagnostic tests, so that the tests can distinguish between Zika and old dengue infections

• Initiatives to find new tools for improving mosquito control in affected areas

• Surveillance efforts in at-risk communities

The history of Congressional futzing around on Zika is damning…

• Feb. 22 – President Obama submits a request to Congress for $1.9 billion in emergency funds to fight the Zika virus – to develop a vaccine; to perform surveillance of at-risk areas; to provide accurate, readily available tests with speedy results; and to control the mosquito populations that spread the virus.

• May 17 – The Senate votes 68-29 in favor of a bipartisan $1.1 billion measure to combat Zika.

• May 18 – The House approves a $622 million Zika bill along partisan lines. (The text of that bill can be found here: https://www.congress.gov/bill/114th-congress/house-bill/5243/text.)

• June 8 – The Senate votes to go to conference with the House on the Zika bills. Subsequently, Democrats complain they are left out of conference negotiations.

• June 23 – The House approves a $1.1 billion package that includes only about $400 million in new spending – the remainder is siphoned from other health-related programs, such as the Affordable Care Act and the fight against Ebola. President Obama threatens to veto the measure if it is approved by the Senate, objecting to the Republican strategy of "robbing Peter to pay Paul."

• June 28 – The Senate blocks the $1.1 billion bill (H.R. 2577) on a vote of 52–48 (falling short of the 60 votes needed to overcome a Democratic filibuster). Democrats argue that the bill

would rob Obamacare of funding, impose new restrictions on Planned Parenthood, and provide some $800 million less than the Obama administration is seeking. Republicans counter that the $1.1 billion represents a spending level to which the Democrats had already agreed (on May 17) and assert that the bill represented an attempt to provide Zika funding in a fiscally responsible manner.

• July 14 – A cloture vote on H.R. 2577 (https://www.congress.gov/bill/114th-congress/house-bill/2577) fails, effectively deferring a vote on the bill and the funding it would have provided. (Cloture is the procedure by which the Senate places a time limit on consideration of a bill and thus ends a filibuster and moves to a vote. Three-fifths of the Senate must vote yea in order to successfully invoke cloture.) Having failed to fund Zika prevention, Congress adjourns for a seven-week summer recess (the longest recess in at least three decades, according to Roll Call). When lawmakers return in September, they'll be in session for only about a month and then gone again until after the elections. Time for action will again be short.

H.R. 2577 is not a perfect bill, and it falls far short of what health officials believe is needed. Democrats see it as deeply flawed. But passing it (had President Obama also relented and signed it into law) would have kept the fight against Zika moving forward. Those Senators who voted against cloture – against ending the filibuster, taking a vote, and passing a funding bill before summer recess – have blood on their hands. Readers can see how their own Senators voted here: http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm.cfm?congress=114&session=2&vote=00134. Hillary Clinton's VP pick, Tim Kaine, voted "nay," which means he voted to delay Zika defensive measures. Sanders voted nay. One Republican voted nay – Lankford of Oklahoma. One Democrat, Donnelly of Indiana, voted yea. Florida Senator Nelson, who has actual Zika cases spreading in his state, voted nay. And Utah Senator Lee, who has a Zika death in his state, was one of the four who did not vote. Responsibility for the impasse also falls on the legislators who crafted a bill too partisan and too parsimonious to win bipartisan support. Blood is on their hands, too.

Together the two parties have condemned additional unborn children to microcephaly. They have failed to prevent new cases of nervous system disease. And they have done a huge

disservice to the United States and all of its citizens as seven long weeks of mosquito season roll by without timely and adequate national response. Mosquitoes take no summer vacations.

How long will Congress fiddle like Nero while Rome burned, as Zika devastates lives and drives economic costs to levels that makes the sums they have been fighting over look trivial by comparison? How high will the toll of Zika-related birth defects and serious illnesses rise by the time this do-nothing Congress finally lays aside partisan bickering to address a public health emergency that stands to impact many thousands?

The Senate will convene for regular session on Tuesday, September 6, when Senators will resume consideration of H.R. 2577. Over the summer recess we have the ability as citizens and voters to tell Senators on both sides of the aisle to appreciate the magnitude of the Zika threat, to consider the monumental price of doing too little too late, and to engage in soul-searching regarding their own responsibility as legislators to serve their country above all.

A final note. Not once did you hear either party convention speaker mention Zika as a national threat. Not once did either party seize a national and well-publicized opportunity to mention preventive measures or to sponsor initiatives to advance them.

The behavior of Democrats and Republicans has become shameful and disgusting. They have abandoned national interests in favor of platitudes and intense, personalized vilification of their opponents.

Meanwhile, Zika numbers and Zika personal tragedies and Zika costs are destined to rise.

SEXUALLY TRANSMITTED ZIKA

ORIGINALLY PUBLISHED: JUL. 19, 2016

The US Senate and House must now take their critically needed summer vacations after not passing the funding of Zika virus-related measures. After all, they worked so diligently to (not) protect us.

Meanwhile, the Centers for Disease Control and Prevention (CDC) is revising its guidance now that we have, in New York, the first documented case of sexually transmitted Zika from female to male. (Transmission from male to female is more common.) The virus was passed from a non-pregnant woman in her 20s to a man the day after her return from travel in a high-mosquito-risk area. They each developed symptoms, visited the same physician, and tested positive for Zika. [48] [64] In Salt Lake County, Utah, transmission of the Zika virus from a travel-related case, an elderly male, to a family member who was caring for him, has baffled experts. The virus is thought to be transmitted from person to person only by means of mosquitoes or sexual contact, but neither vector applies here. The case remains under intensive investigation. [72]

On July 15, the Florida Department of Health in Manatee County announced that a travel-related case of Zika virus has been confirmed in a Manatee County resident. Manatee County, along with 27 others, [17] now falls under Governor Rick Scott's Declaration of Public Health Emergency for all counties with travel-related Zika cases. While all cases identified in the State

of Florida have been travel-related to date, the risk is quite real that a local mosquito might bite a returning traveler and begin to spread the infection. For us, this risk now hits close to home, as Manatee County borders Sarasota County. Across the state, of course, the number of travel-related Zika cases mounts daily. Here in Sarasota, we share the concerns of all Americans who live in parts of the country (or who travel to parts of the country) where Zika may become endemic unless timely efforts and investments are undertaken to stop the spread of the virus. The window of opportunity to prevent a widespread public health disaster is closing. A single mosquito could change everything.

Readers may recall that Zika threatens unborn children with severe birth defects, most dramatically microcephaly. Ongoing research suggests several ways that the virus can cross the placenta [7] and confirms that, though an infection in early pregnancy has the most profound effects, Zika poses hazards to an unborn child at all stages of pregnancy. More broadly, it threatens all with the potential for neurological complications.
So why has our national legislature failed to pass a bill authorizing funding to prevent the spread of this virus?

A bipartisan, $1.1 billion compromise "passed overwhelmingly" in the House, says the WSJ. Then Senate Democrats reversed their support, and the bill failed. Supporters who became detractors claim that the final bill would have injured Planned Parenthood and "restricted funding for birth control." But analysis by the WSJ indicates that this claim is not true. Planned Parenthood is simply not listed on the health clinic and health center list of Zika-risk locales. [34] Those listed centers would be receiving immediate block grants today. They would provide birth control, Zika testing, and prenatal care today.
The Zika bill has an exemption for pesticide spraying, with a 180-day sunset. And it redirects $543 million of Obamacare healthcare exchanges in Puerto Rico to fund Zika prevention. PR elected Medicaid expansion instead of Obamacare, so the money is unused.

Mosquitos don't vote, but they may attend political rallies in this election year. And their numbers will be larger and the healthcare support smaller as Harry Reid's final Senate leadership year elapses.

The CDC's count of Zika-infected pregnant women reached 649 as of July 7, 346 of those cases in US states and 303 of them in US territories, mainly Puerto Rico. Seventeen out of Zika's more than 4000 total victims to date have come down with Guillain-Barré syndrome, a debilitating nervous system disorder.

It is too bad the Senate leadership has failed a literacy test. They cannot blame the Republicans in the Senate for this gaffe. And they certainly cannot blame the House leadership, where both parties supported and passed the final bill.

Carry your repellent. Use it on any mosquito and 52 members of the US Senate who voted no for invalid reasons.

THE ZIKA VIRUS AND THE US CONGRESS

ORIGINALLY PUBLISHED: MAY. 23, 2016

While the Zika virus spreads in the US and other nations, the US Congress has fiddled like Nero in Rome. The debate has been over a relatively small amount of funding to be used for research and prevention of this mosquito-borne disease. Meanwhile, the number of cases in the US has tripled and continues to grow. [3] After months of delay and with mosquito season intensifying, the Senate and House have each passed Zika bills – but with funding levels greatly reduced from the initial White House request. Now the House and the Senate must conference to reconcile their differences, a process that can take weeks.

Those of us who await the birth of a child or grandchild find the sluggish and inadequate response of our Congressmen and Senators to be abhorrent and inexcusable. The same Congress that deals with trillions of dollars in budgets is unable to settle expeditiously on this relatively small but crucial budget item, despite a pernicious and growing viral threat to lifelong health.

The debate lumbers on while Zika-infected mosquitos breed. Should the monies allocated to the fight against Ebola stay put for future use, or should those funds be reallocated to Zika? The difference between those two approaches amounts to a speck in the US budget. Why has it been so difficult to make a decision?

If the federal government's budget were passed thoughtfully and legitimately instead of being squeezed through at the last minute without thoroughgoing dissection and debate, one might have a case for saying that a $500 or $600 million reallocation is significant. However, all who observe the lunacy of congressional budgetary deliberations know that $500 or $600 million has become a rounding error in the process.

In my view, both houses of Congress and both parties share responsibility for impacts caused by the spread of Zika. If someone dies from this disease, blood is on those officials' hands. If a child suffers from microcephaly, [21] the burden of care is imposed on all of us. You in Congress will have created that pressure on the budget. The suffering of families afflicted by the disease will be the result of your inability to make a suitable decision in an expeditious way. You have fiddled like Nero while a preventive apparatus has remained unfunded.
The spread of Zika is a war-like threat. Would the US Congress deliberate for months if there were a direct military threat to our nation? No, it would act immediately. We have to wonder about those whom we elect to govern us when they are the only ones who seem to be ignorant of the seriousness of this disease.

At Cumberland Advisors, we publish numerous commentaries that are read worldwide. We discuss unfunded pensions and the need for budgetary balance and governance; we tackle credit structures and investment policy. These matters are all important, but when there is a public health emergency from a known threat, a virus that can be fatal or highly damaging, we feel obligated to speak out.

I hope readers agree and will freely participate in urging to action the officials who have yet to represent us well in the fight against Zika, even as the virus's spread becomes harder to control. If they do not act now to fund the fight against Zika, we must vote them out of office and stop sending them money and attending their political events. You can tell them why you feel they did not represent you in the way this country should be run.

The Congress has let us down. The Zika disease rate in the US has tripled according to the CDC. Sadly for many, the number of cases is likely to go much higher as mosquito season intensifies and the Congress plays a game of catch-up.

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