THE ZIKA THREAT:

How to protect your employees & minimize disruption to your business

A Bryghtpath LLC White Paper

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EXECUTIVE SUMMARY

The Zika virus has made national and international news lately, and the virus shows no signs of slowing in spread. No vaccine exists for Zika virus, and the virus appears to be most prominent in Central and South America, and researchers are starting to understand the link between Zika virus and birth defects, reports the CDC. [i] Currently, the threat from Zika primarily affects women who may be or are planning to be pregnant. Although Brazil seems to have the highest incidence of transmission, reports of active Zika virus transmission stretch from Mexico to parts of the US Virgin Islands.

Zika virus is often not life-threatening, but the disease is a cause of microcephaly (a birth defect in which in the skull is dramatically reduced in size, limiting brain growth and development), Guillain-Barré syndrome—a type of autoimmune response similar to a severe allergic reaction—and other birth defects. Unfortunately, there is no cure for Zika virus, but its symptoms may be managed. Symptoms typically last 2 to 7 days and rarely require intensive medical treatment.

Zika virus may be transmitted via sexual intercourse. As a result, those with the virus may take steps to ensure the virus does not cause additional problems for potentially pregnant family members and friends. Unfortunately, many companies have existing operations inside the Zika "Hot Zones."[ii]

Business owners within the "Hot Zones" or who have employees working within these zones must consider how Zika virus could impact operations. For example, employees who are pregnant or planning to become pregnant could be exposed to the virus, resulting in developmental diseases in their children. In some cases, these companies could be held liable for an employee's Zika infection if the company fails to take steps to protect employees. Not only does this pose major implications for the company's workforce, but it could permanently damage its reputation.

As an executive or responsible party in your company, you need to understand how Zika impacts operations and what can be done to halt the progression of the infection. Unfortunately, the lack of a vaccine directly places the responsibility of Zika-response in your hands. Your company should follow this guide on how to address the Zika threat head-on and prevent permanent losses as the outbreak continues.

ZIKA OVERVIEW

Zika virus disease, otherwise known as Zika, is a mosquito-borne disease that is spread by the *Aedes* mosquito.[iii] Unlike most mosquito-borne diseases, Zika is not deadly, and up to 80 percent of those with Zika are asymptomatic (do not exhibit symptoms). However, that fact should not serve as a deterrent for addressing the Zika threat. Companies need to know how the *Aedes* mosquitoes differ in biting habits and activity, how the virus is growing in prevalence, and who is at the greatest risk for infection.

The *Aedes* Mosquito

The *Aedes* mosquito is active primarily during twilight and daylight. This means the typical protections against mosquitoes, which are often only applied after mosquitoes become active during the evening, may not necessarily be in-use during the day. As a result, mosquitoes carrying Zika may be actively feeding when workers are not concerned.

In addition to Zika, *Aedes* mosquitoes may carry dengue, chikungunya and yellow fever. The key to controlling these diseases must focus on reducing the *Aedes* population. The most effective means of mosquito-control involves interrupting the mosquitoes' life-cycle. For example, sources of stagnant water should be drained or treated with a pesticide to kill eggs and larvae.

The History of Zika

Zika virus was first identified in Uganda and the United Republic of Tanzania in 1947.[iv] Although the first large-scale outbreak in the Americas was not reported until 2013, the virus may have actually arrived in Latin countries earlier. Part of the missing information on prevalence may have been due to Zika's semblance to other diseases in underdeveloped countries. In other words, no one suspected Zika as a cause for illness, and testing was never conducted. In fact, prior to the outbreak of 2013 and 2015, only 14 cases of Zika had been confirmed in the Americas.[v]

However, the current outbreak appears to have first gained notoriety in May 2015, and the World Health Organization issued an alert on the spread of Zika on February 1, 2016.
It's also important to note that Zika is not comparable to Ebola. Ebola is not transmitted by *Aedes* mosquitoes, nor have cases of Ebola transmission been documented in the Americas. Furthermore, Zika is not life-threatening, but hydration and rest are the most commonly used means of recovery from infection.

The Future of Zika Transmissions

Recently, researchers identified active Zika transmission from men to women through semen during sexual contact.[vi] This conclusion is based on three cases. In two cases, men transmitted the virus to female partners prior to the onset of symptoms. In a third case, the male did not have any sexual partners. However, the virus was detected in his semen for at least 2 weeks up to 10 weeks after the onset of symptoms. Unfortunately, subsequent testing was not completed, and researchers cannot say if a safe time frame for resuming sexual activity after Zika infection without transmitting the virus exists. Currently, transmission of Zika from female to male sexual partners has not yet occurred.

The risk for Zika infection and transmission is very real in Central and Latin America, and the virus's link to birth defects represents a real threat to livelihood of those who work, live, or otherwise visit affected areas. The greatest risk is to women who are or planning to become pregnant. As a result of sexual transmission of the virus, the risk is also most prevalent for women's sexual partners. Unfortunately, the disease will probably continue to spread and grow in prevalence, and it could easily reach US soil in coming years.

The time to respond to the outbreak is now, when the virus's footprint is still limited and controllable.

ACTIONABLE STEPS TO SAFEGUARD AGAINST ZIKA

For businesses that primarily operate in the Caribbean, Latin, and South America, such as businesses in the coffee and cocoa trades, taking action against Zika seems unsurmountable.

However, organizations can start taking 11 steps today to protect their assets, including employees, reputations, and organizational structure, from Zika.

1. Identify Operations Inside "Hot Zones."

A crisis response to Zika does little good if the response is not applied to the correct areas.

Businesses should first identify what areas and operations are most impacted by Zika. This identification should follow this hierarchy:

- Operations that are currently active in the harvesting or production of goods or services in an active Zika zone.
- Operations that may involve the transport of goods or services through Zika "hot zones."
- Operations that may involve temporary placement or assignment of workers in "hot zones."
- The conduct of corporate-level business in "hot zones." In other words, any business-related meeting in active Zika transmission areas should be included.
- Operations that may have been discontinued, but have continued on a minimal basis in "hot zones."
- Operations that may be planned to begin in Zika "hot zones." This will be discussed more in Step 10.
- Operations that may relate to the 2016 Olympic Games or sporting events as meetings may occur with potential participants or vendors' representatives who may have recently traveled to Zika-affected areas.

Any business operation between the US-Mexico border and the southernmost border of Brazil is considered at-risk for Zika.

2. Relocate Parent-to-Be Employees.

Due to the link between birth defects and Zika, female employees who are or planning to become pregnant should be relocated from Zika-affected areas. Obviously, some workers may be unable to be relocated due to country-of-origin, immigration, or other laws. However, this does not excuse inaction on the part of a business.

Based on a growing body of research, there is scientific consensus that Zika virus is a cause of microcephaly and Guillain-Barre Syndrome. Responsible businesses must take a stance to stop female employees from being exposed to the virus if pregnancy is planned or a possibility.

Unplanned pregnancies bring up another valid point for businesses and female employees in active Zika transmission zones. Women of child-bearing age who are not currently on any form of contraception should take steps to prevent pregnancy.

According to the World Health Organization, the incubation period for Zika is "unclear, but believed to be a few days." [vii] Therefore, women may not have an active Zika infection at the time of conception, but the infection may impact the pregnancy. Furthermore, the known transmission of Zika from males to female sexual partners implies males with pregnant partners or partners whom are planning to become pregnant should not be exposed to Zika. As a result, these affected, male employees should be relocated in a manner similar to the relocation of female employees.

3. Move Operations Indoors.

The only conclusive solution to Zika rests in preventing the transmission of the virus from the *Aedes* mosquito. Businesses have traditionally avoided unnecessary exposure to mosquito-borne infections by conducting operations indoors during the night and outdoors during the day. However, the *Aedes* mosquito's biting habits directly contrast this ideal. In fact, holding outdoors' operations during the day exclusively would still place workers at risk for Zika transmission.

Businesses should move operations indoors if the operations can be carried out successfully indoors. Obviously, businesses that must harvest products or raw materials from crops, fields, or other areas outdoors would be incapable of moving all operation to a mosquito-free environment. However, the key to this step is avoiding the rotation of employees between outdoor and indoor operations. In other words, businesses should select male employees to work in outdoor environments.

Outdoor-working, male employees should not be actively attempting to impregnate their partners, and upper-level management should continually rescreen such employees for parenthood. This will prevent male-to-female transmission of Zika when a couple is attempting to conceive.

If possible, businesses should further cease all outdoor operations during twilight hours. This will help to keep employees from being exposed to the virus when leaving from or arriving to work. Obviously, a business cannot quarantine employees, but moving operations indoors is the best chance for minimizing the impact from Zika due to work-related requirements to perform work outdoors.

Shifting operations indoors may impact a variety of internal processes, such as labor agreements, job descriptions, job aids, and could have legal ramifications. We recommend working closely with your general counsel and human resources partners on determining the best course of action for your company.

4. Mosquito-Proof Structures.

An indoor environment does not necessarily equal a mosquito-free environment if doors, windows, and other entrances are improperly sealed. If available, the business should install durable windows, and seal any cracks or other potential entrances for invading mosquitoes. Damaged window screens should be repaired or replaced immediately.

Some businesses may be apt to think mosquito-proofing a structure requires 2-step entrance. While effective in nature, this type of entrance would be costly, especially if pesticides or other harmful gases are to be used. Mosquito netting is a more cost-effective, widely available solution to preventing physical entry of mosquitoes.

Businesses must consider the use of mosquito-repellant tactics. For example, larvicide or pesticides may be sprayed onto the grounds of the business or in nearby stagnant water sources. Although some pesticides may be avoided due to safety issues, any pesticide that have been approved for use by the World Health Organization should be considered. Furthermore, electrified “bug-zappers” may be used to draw mosquitoes to a source of light and kill the insects on the inside and outside of entrances to structures.

These measures will effectively mosquito-proof indoor operations and structures.

5. Drain Sources of Stagnant Water.

Unlike flowing sources of water, stagnant water is a favored breeding ground for mosquitoes, including *Aedes* mosquitoes. The Life-cycle of the *Aedes* mosquito is also shorter than many other types of mosquitoes. *Aedes* mosquitoes can hatch and reach full maturity in six days, and every adult, female mosquito can lay up to 100 eggs in one sitting. However, businesses can interrupt the *Aedes* mosquito's lifecycle by removing the breeding grounds.

Businesses should drain any existing sources of stagnant water on-premises. If sources of water are too large to drain, a high-quality larvicide may be used to kills eggs and larvae. One way businesses may address this issue is to reroute standing water to flowing water sources. For example, the business may install an irrigation duct that would use the area where water collects as a source. This would effectively eliminate the recurrence of standing water and provide a benefit to the business, especially those in agriculture-involved industries.

6. Provide Training on *Aedes* Mosquitoes.

Aedes mosquitoes are attracted to dark-colored clothing. Employees should wear, lightly-colored, long-sleeved clothing when going outdoors for work. Businesses can further take this measure proactively by making these types of clothing requirements for a work dress code or uniform.

However, high temperatures in Zika "hot zones" may require additional ventilation or air conditioning to prevent heat exhaustion and maintain the safety of employee. Aside from understanding the biting habits of *Aedes* mosquitoes (twilight and daylight), businesses should provide training on the mosquito's Life-cycle. This will emphasize the importance of proactive measures to prevent bites.

The Life-cycle of the *Aedes* mosquito is also shorter than many other types of mosquitoes.[viii] *Aedes* mosquitoes can hatch and reach full maturity in six days, and every one of these adult, female mosquitos can lay up to 100 eggs in one sitting. If you consider the speed of the *Aedes* mosquito's life millions of *Aedes* mosquitoes could be born within one month from a single source of water, accounting for the death of the parent mosquitoes in each cycle.

Growth of *Aedes* Mosquito population over time

Days 1-6	Days 7-12	Days 13-18	Days 19-24
1 Female *Aedes* Mosquitoes Lays:	100 Statistically Female Mosquitoes Lay:	5,000 Statistically Female *Aedes Mosquitoes*	250,000 Statistically Female *Aedes* Mosquitoes
200 Eggs in 2 Sittings	100 Eggs Per Mosquito	100 Eggs Per Mosquito	100 Eggs Per Mosquito
100 Statistically Female Larvae	5,000 Statistically Female Larvae	250,000 Statistically Female Larvae	12,500,000 Statistically Female Larvae
200 Adult *Aedes* Mosquitoes	10,000 Adult *Aedes* Mosquitoes	500,000 Adult *Aedes* Mosquitoes	25,000,000 Adult *Aedes* Mosquitoes

This is part of the reason mosquito populations can grow rapidly. Yet, it also implies a sense of impossibility in preventing bites. *Aedes* mosquitoes are susceptible to DEET-containing mosquito repellants. *Deep Woods OFF!* typically has the highest concentration (25 percent) of DEET in the United States, for example.

7. Provide Training on Zika Infection and Risk.

Preventing all Zika transmissions is both impractical and impossible. As a result, businesses should provide training on Zika infection and risk to employees who may be exposed to the virus.

This training should focus on recognizing the symptoms of Zika, which include the following:

- General feelings of illness or weakness.
- Conjunctivitis or Inflammation of the Conjunctivae (whites of the eyes).
- Fevers.
- Nausea and vomiting.
- Muscle and joint aches or soreness.

Understanding the symptoms of Zika will help employees recognize when a coworker may have Zika. However, Zika may not cause symptoms in many people, which will further make managing the virus difficult. (See “Overview of Zika” for more information)

8. Capture and Test Mosquito Population.

Zika is only carried by *Aedes* mosquitoes, and businesses can use this knowledge to their advantage. Businesses should deploy traps to sample mosquito populations for species. This will reveal how likely employees are to come into contact with *Aedes* mosquitoes. Any *Aedes* mosquitoes should be further tested for presence of Zika. Essentially, this will give businesses a definitive value for risk analysis in response to the Zika threat.

Governmental organizations may offer these tests at little to no cost to the respective businesses. Additionally, businesses may hire third-party laboratories or firms to collect and test mosquito populations in Zika "hot zones." This will provide a way to "double-check" any governmental testing and ensure the safety of employees is not compromised.

9. Provide Testing For Zika Infection in Exposed Employees.

Knowing if Zika-infected mosquitoes are near a business is only half the battle. The remaining half is identifying asymptomatic, Zika-infected workers. Businesses should provide testing to employees to check for exposure to Zika. Since the incubation period is roughly one work-week, testing may be best deployed on a weekly or biweekly basis. This could be as simple as checking employees on payday.

Employees who are returning to the US from Zika "hot zones" should also be checked for Zika infection. Infected employees should be advised to refrain from unprotected sexual activity. At this time, businesses should stress the importance of a barrier-method to contraception. In other words, male or female condoms should be used by potentially infected employees to ensure the virus is not transmitted. Oral contraception (birth control) would be an ineffective form as transmission may still occur. The only difference is that the non-infected partner is not likely to become pregnant. Yet, complications from Zika could arise, albeit a minimal risk.

10. Limit Expansion of Operations in Affected Areas.

Businesses with plans to expand operations in Zika "hot zones" should consider postponing expansion in such areas. However, business demands growth, and halting operations permanently is counterproductive. Therefore, businesses that have implemented thorough plans for addressing and reducing the Zika threat to employees may consider continuing expansion as planned. Most importantly, expansion of operations in outdoor environments should be exercised with extreme caution.

11. Create a Reputation Management Strategy.

An effective reputation management strategy helps a business respond to major crises and maintain the public and private image of the business. Unfortunately, the reputation management strategy is often thrown together last-minute and may lack critical steps to reducing the impact from the crisis. As it pertains to Zika, the reputation management strategy should focus on understanding the threat, responding the threat, and minimizing the damage to company from the threat.

Since this step is perhaps the most important, many businesses have sought out the experience of crisis management firms to ensure an appropriate, timely, and detailed approach to mitigating the risk from Zika.

PUTTING IT ALL TOGETHER

Businesses need to understand that Zika is a real threat and not going away any time soon.

Unfortunately, Zika is spreading, and the CDC has already identified how Zika has been transmitted in the US from a person with an active infection through sexual contact. While the majority of the pressure to respond to the Zika threat rests on the health of unborn children, businesses must carry the remainder. However, the most beneficial responses consider how the *Aedes* mosquito carries the virus, how it spreads, and what can be done to limit the spread.

The following resources are excellent reservoirs of more information about Zika:

- Centers For Disease Control and Prevention.[ix]
- World Health Organization.
- CNN.[x]
- American Pediatrics Association.[xi]

Let this whitepaper serve as a guide for your response to Zika, and your company can do something about the growing concern of the virus today by following these steps.

If nothing else, we hope you understand that the time to start thinking about a Zika response is **TODAY, NOT TOMORROW.**

CAN WE HELP?

Bryghtpath has designed and implemented the crisis management processes, training, and preparedness steps used today by organizations ranging from small businesses, to global Fortune 30 corporations, and major law enforcement agencies. Our team has directly managed crisis situations, security evacuations, and recovery efforts globally during previous pandemic situations.

We're always happy to have a conversation with you about your specific needs and see if we can help address the challenges that are currently in front of you.

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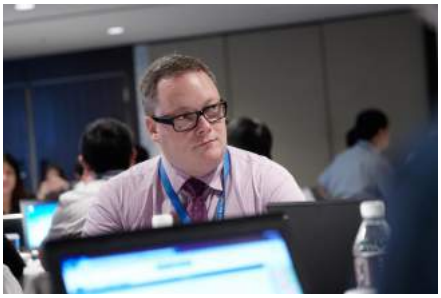
Bryan Strawser is a globally recognized strategist and thought leader who founded Bryghtpath LLC in 2014 after a 21-year career at Target Corporation where he built and led the retailer's Global Crisis Management and Business Continuity function. Under his leadership, Target received numerous awards from the Federal Emergency Management Agency (FEMA), the International Association of Emergency Managers (IAEM), and the Business Continuity Institute (BCI).



A valued industry leader, Bryan previously served as a board member and Chair of the Private Sector Committee for the National Emergency Management Association (2011 – 2013) and as the Vice Chairman of the Retail Industry Leader's Association's Disaster Recovery and Preparedness Committee. In these roles, Bryan worked closely with FEMA to develop the Private Sector Representative position in FEMA's Office of the Private Sector and with leaders across state and federal government, including the US Department of Homeland Security and the White House, to build stronger connections between the public and private sectors.

Bryan holds multiple professional certifications in business continuity, emergency management, information security, project management, and physical security.

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Bryan holds a Bachelor of Science in Criminal Justice Administration from the University of Phoenix and a Master's in Business Administration (MBA) from the University of Minnesota's Carlson School of Management. He is a graduate of the National Preparedness Leadership Initiative Program at Harvard University's School of Government.

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ABOUT BRYGHTPATH LLC

Bryghtpath LLC is a strategic advisory firm that specializes in global risk, business continuity, emergency/crisis management, crisis communications, and public affairs.

Our team of globally recognized experts offer strategic counsel on identifying, preparing for, and managing risk to your company, non-profit, or public sector agency.

Bryghtpath works with the world's leading brands, public sector agencies, and nonprofits to develop strategies to help them strategically navigate global uncertainty.

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We're always happy to provide examples of our work, free proposals, or to talk through any services that you may need. All of our services are customized for your specific needs.

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FOOTNOTES

Please Note: The following websites may have different Privacy Policies than the creators of this whitepaper. Visitors are encouraged to visit the respective Privacy Policies upon visiting each site.

[i] CDC: For Pregnant Women, Updated March 7, 2016, Accessed March 10, 2016, http://www.cdc.gov/zika/pregnancy/index.html

[ii] CDC: Areas With Zika, Updated February 19, 2016, Accessed March 10, 2016, http://www.cdc.gov/zika/geo/index.html

[iii] CDC: About Zika Virus Disease, Updated February 22, 2016, Accessed March 10, 2016, http://www.cdc.gov/zika/about/index.html

[iv] http://www.who.int/mediacentre/factsheets/zika/en/

[v] CDC: About Zika Virus Disease, Updated February 22, 2016, Accessed March 10, 2016, http://www.cdc.gov/zika/about/index.html

[vi] Oster AM, Brooks JT, Stryker JE, et al. Interim Guidelines for Prevention of Sexual Transmission of Zika Virus — United States, 2016. MMWR Morb Mortal Wkly Rep 2016;65place_Holder_For_Early_Release:120–121, Accessed March 10, 2016, http://www.cdc.gov/mmwr/volumes/65/wr/mm6505e1.htm

[vii] World Health Organization: Zika Virus, Updated February 2016, Accessed March 10, 2016, http://www.whvo.int/mediacentre/factsheets/zika/en/

[viii] CDC: Mosquito Life-Cycle, Updated September 27, 2012, Accessed March 10, 2016, http://www.cdc.gov/dengue/entomologyEcology/m_lifecycle.html

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[x] Search CNN, Accessed March 10, 2016, http://www.cnn.com/search/?text=Zika+Virus

[xi] American Academy of Pediatrics: Zika Virus, Updated Mach 7, 2016, Accessed March 10, 2016, https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Children-and-Disasters/Pages/ZikaVirus.aspx