

# The impact of Zika on local businesses

Timothy F. Page, Mark L. Williams, Graziana Cassella,  
Jessica L. Adler and Benjamin C. Amick, III  
*Health Policy and Management, Florida International University,  
Miami, Florida, USA*

Received 26 April 2017  
Revised 2 June 2017  
Accepted 3 June 2017

## Abstract

**Purpose** – In June 2016, the first cases of Zika were reported in the USA in the Wynwood neighborhood of Miami, Florida. The purpose of this paper is to present the results of a survey of Wynwood businesses about their perceptions of their financial well-being and the government and media's responses to the Zika outbreak.

**Design/methodology/approach** – A survey instrument was developed, and 44 owners/managers of Wynwood businesses were interviewed by telephone or in-person during the period when the outbreak was being managed.

**Findings** – Businesses reported downturns in revenues, profits, and customer traffic following the Zika outbreak. Believing that the downturn would be temporary, few businesses laid off workers or reduced prices. All businesses reported dissatisfaction with the government's response to the outbreak.

**Originality/value** – This is the first study to document the impact of Zika on businesses located in outbreak areas. The findings highlight the business impact of Zika outbreaks and suggest a need for improved communication and response from state and local governments to business concerns when future outbreaks occur.

**Keywords** Economics, Disaster prevention, Economic impact, Zika

**Paper type** Research paper

## Introduction

The medical costs associated with a Zika outbreak include diagnosing cases and treating the sick. The public health costs are much broader and include those associated with public education, developing and taking preventative measures, and case ascertainment (Staples *et al.*, 2014). Because of widespread media attention (Ungar, 1998; Dalrymple *et al.*, 2016; Sell *et al.*, 2016), costs may also be associated with negative impact on economic activity (Sands *et al.*, 2016) in high-risk areas (The World Bank, 2016). A variety of studies of economic impact of disease note that outbreaks can have a psychological impact on people far greater than the actual probability of being impacted by a disease outbreak (Smith, 2006). In studies on SARS in Beijing, China, and foot and mouth disease in the countryside of England, researchers concluded that businesses in outbreak areas were deeply impacted by a drop in demand, even if nationwide, long-term economic impacts were relatively minor (Thompson *et al.*, 2002; Hai *et al.*, 2004; Siu and Wong, 2004; Koegh-Brown and Smith, 2008). Furthermore, a study of outbreaks of influenza found that places with greater ties to the global economy, such as Miami, would be impacted greatly (Verikios *et al.*, 2015). Transmission rates are predicted to be the highest in the Southeastern USA (Shacham *et al.*, 2017). Limited data exist regarding the economic impact of Zika in particular, given the fact that it has only become highly prevalent in some localities relatively recently. One recent study (Macciocchi *et al.*, 2016) reported that companies sponsoring the 2016 Olympic Games experienced negative stock returns following early announcements from international organizations about Zika, but these negative shocks did not persist following subsequent advisories.

In June 2016, the first cases of Zika were reported in the continental USA in the Wynwood neighborhood of Miami, Florida (Fauci and Morens, 2016; Owens, 2016). Soon afterward, the CDC issued an advisory for pregnant women and couples wanting to become pregnant to avoid



traveling to the affected neighborhood. The purpose of this report is to present the results of a survey of Wynwood businesses about their perceptions of their financial well-being and the government and media’s responses to the Zika outbreak. It was hypothesized that the CDC advisory impacted local business, and that the impact on local businesses may have been out of proportion to the likelihood of infection or the virulence of the disease.

**Methods**

*Procedures*

Surveys of business owners/managers were conducted between August 15 and October 19, 2016. Lists of businesses were obtained from the Wynwood Arts District Association and the Midtown Miami directory. All 127 business included in the lists were contacted. Telephone interviews were conducted, and face-to-face interviews were conducted if the business owner or manager could not be reached by phone. A trained bilingual interviewer contacted businesses and asked to speak to the manager or owner of the business. The manager or owner was asked if she/he would answer questions in a brief interview taking no more than 15 minutes to complete. Interviews lasted 10-15 minutes. Responses were recorded in an Excel spreadsheet using an iPad. Although the study was exempt, procedures were reviewed by the Florida International University Institutional Review Board.

*Participants*

In total, 44 businesses agreed to be interviewed. The businesses consisted of 14 restaurants, four bars, 12 retail stores, nine art galleries, and five “others.” Table I compares the representation of business types in the study to the overall distribution of businesses in Wynwood. While all business types were represented, the percentage of galleries that participated (20.4 percent) was less than the gallery representation among Wynwood businesses (28.3 percent). The other large difference occurred with retail stores, where the percentage that participated (27.2 percent) was greater than the 22.0 percent restaurant representation among Wynwood businesses. For all other business types, differences were within 2 percentage points. Of the 44 interviews, ten were conducted in Spanish and 34 in English.

*Measures*

A survey instrument was developed for this study. The survey contained 15 items covering perceptions of revenues, profits, number of customers, sales prices, inventories, and expectations about these items in the future. For these items, businesses were asked if they thought the items had/would significantly decrease, somewhat decrease, stay about the same, somewhat increase, or significantly increase. The timeframe for questions posed in the past was “since the announcement of the presence of the Zika virus in Wynwood [...]” items asking about the future used a three-month timeframe. The survey included a “yes/no” question asking whether businesses had laid off workers in response to the Zika outbreak. If they answered “yes” a follow-up question was asked to determine the number of employees laid off.

Business type	Percentage of total businesses	Percentage of survey sample
Restaurants	29.9	31.8
Galleries	28.3	20.4
Retail stores	22.0	27.2
Bars	10.2	9.1
Other	9.4	11.3

**Notes:** There were a total of 127 businesses in Wynwood, consisting of 38 restaurants, 36 galleries, 28 retail stores, 13 bars, and 12 other

**Table I.**  
Business participation

In addition to these questions, two items asked businesses about their impressions of the local and state government response to the Zika outbreak. The first question posed was “In response to the Zika virus, do you think local/state government [...]?” and the four choices given were “Has taken a hands-on approach to help local businesses cope with expected changes,” “Has helped indirectly by providing information to local businesses about what to expect or what to do,” “Has provided little information to local businesses about what to expect or what to do” or “Has been concerned about the needs of local businesses.” The second question posed was “In response to the Zika virus, how responsive to the concerns of local businesses do you think local/state government been?,” and possible responses were “Very unresponsive,” “Somewhat unresponsive,” “Neither responsive or unresponsive,” “Somewhat responsive,” or “Very responsive.”

One item asked about media coverage of the Zika outbreak. The question posed was “Do you think the media’s coverage of the Zika virus has been [...]?” and possible responses were “Too sensational,” “Somewhat sensational,” “About right,” “Somewhat understated,” or “Very understated.”

#### *Analyses*

Descriptive analyses of each item were conducted. For each item, the number of businesses responding in a certain way and the proportion of businesses responding in a certain way were reported.

### **Results**

#### *Impact on revenues and profits*

Results of the survey are presented in Table II. The majority of businesses surveyed (91 percent) reported decreased revenues in the period following the Zika outbreak compared to the same time the prior year. Of these, three businesses (8 percent) reported revenue declines of 1-10 percent, 11 businesses (28 percent) reported revenue declines of 11-20 percent, while the majority (53 percent) reported revenue declines of 21-30 percent, and the remaining five (13 percent) reported revenue declines of 31-40 percent. The responses for profit declines during the same period compared to the prior year followed a similar pattern. In total, 37 businesses (84 percent) reported a decline in the number of customers compared to the same time period the prior year.

#### *Impact on inventories and staffing levels*

Despite these declines, few businesses changed their prices, inventories, or staff levels. Only 16 of the businesses (36 percent) reported decreasing the prices of their products following the Zika outbreak. Two business (5 percent) reported laying off employees as a result, and 12 (27 percent) reduced their inventories.

#### *Expectations about the future*

This lack of response to the business declines is likely due to the positive outlook that most businesses had about the future. In total, 37 businesses (84 percent) expected their revenues to increase in the next three months, and the remaining seven businesses (16 percent) expected revenues to stay at the same levels. In total, 43 of the 44 businesses (98 percent) expected customer volume to increase in the next three months.

#### *Perceptions of government and media response*

Businesses expressed concern about the government’s response. All businesses reported that the state/local government provided little information to businesses about what to expect or do in response to the outbreak. All businesses reported that the local/state government

Key findings	<i>n</i>
<i>Business type</i>	
Restaurant	14 (32%)
Alcohol or wine bar	4 (9%)
Retail store	12 (27%)
Art gallery	9 (20%)
Other	5 (11%)
<i>Revenue</i>	
Experienced revenue decline following Zika outbreak	40 (91%)
Revenue declined 1-10%	3 (8%)
Revenue declined 11-20%	11 (28%)
Revenue declined 21-30%	21 (53)
Revenue declined 31-40%	5 (13%)
<i>Profits</i>	
Experienced profit decline following Zika outbreak	40 (91%)
Profit declined 1-10%	3 (8%)
Profit declined 11-20%	11 (28%)
Profit declined 21-30%	21 (53)
Profit declined 31-40%	5 (13%)
<i>Other business indicators</i>	
Experienced decline in the number of customers	37 (84%)
Reduced prices	16 (36%)
Laid off employees	2 (5%)
Decreased inventory	12 (27%)
<i>Business perceptions and expectations</i>	
Revenues will increase in the next three months	37 (84%)
Customer volume will increase in the next three months	43 (98%)
Local/state government has provided little information to local businesses about what to expect or do	44 (100%)
Local/state government has been unresponsive to concerns of local businesses	44 (100%)
Very unresponsive	40 (91%)
Somewhat unresponsive	4 (9%)
The media's coverage of the Zika outbreak has been too sensational	43 (98%)

**Notes:** The table contains the number of businesses responding a certain way. Proportions are in parentheses

**Table II.**  
Study results

was unresponsive to the concerns of local businesses, with 40 (91 percent) indicating “very unresponsive” and four (9 percent) indicating “somewhat unresponsive.” Almost all businesses (98 percent) reported that media’s coverage of the Zika outbreak was too sensational.

## Discussion

Our study revealed some important findings. First, the majority of businesses reported declines in revenues and profits, suggesting that hysteria caused by a small number of confirmed Zika cases significantly impacted businesses. Despite the business downturn, very few laid off workers or reduced their prices. This was consistent with the business owners/managers belief that the downturn would be temporary and business would return once the outbreak was over. Laying off workers would have resulted in additional costs of hiring and training once business returned to normal, and changing prices would have required changing signage, print advertising, and website content. In addition, the Miami Bayside Foundation launched a microloan program, targeted at Wynwood businesses, to provide \$2,500-\$20,000 to cover payroll expenses. This program may also have mitigated the impact of Zika on employment. The most

consistent finding across businesses was frustration with the government; all reported dissatisfaction with the communication and responsiveness of state and local governments.

Our study supports findings regarding the economic impact of disease outbreaks, and highlights the need for public health and medical authorities to be strategic and forward-thinking in responding to emerging disease outbreaks. Miami business owners' Summer 2016 profit and revenue losses, their frustrations with local and state governments, and their optimism about the future signify a business community willing to engage with public health authorities. While long term, widespread economic impacts of disease outbreaks are contingent on a variety of factors, including the nature of the disease and the economic measures examined, localized, short-term impacts – those most relevant for small businesses like the ones surveyed in Miami – can be severe. It is important to better understand whether these short-term shocks to economic activity have longer-term consequences and how best to mitigate loss. A larger, more detailed survey of businesses should be conducted in future outbreak areas to support more robust statistical analyses.

The study had limitations. The response rate of businesses in the Wynwood area was 35 percent. Businesses that did not participate cited lack of time or availability of the owner or manager as the main reason. However, a variety of business types were included in the study; therefore, there is no reason to believe that the participating businesses were not an accurate representation of businesses in the one square-mile area of Wynwood. All business types were represented, but it did appear that galleries were underrepresented and retail stores were overrepresented. Responses were based on owner or manager self-report and were not verified using actual business records. There is a chance of measurement error from self-report data. However, the likelihood of error was mitigated or reduced because the timing of the interviews was close to the actual event. Despite these limitations, common themes emerged across the businesses, including declining revenues and profits, minimal changes to staffing levels or prices, and overwhelming dissatisfaction with the government's communication and response to concerns.

In the absence of an imminent solution to the spread of Zika, it is worth engaging local business associations and business owners to develop policies and programs that help alleviate the economic impact of an outbreak in a particular area (Gubler, 2002). While government health authorities committed resources to increase mosquito control efforts, as per the recommendation of the World Health Organization, (2016), such activity should be part of a wider plan to engage in pre-crisis planning. This planning should include resource allocation projections and program evaluation, wherein the government prepares for disease outbreaks before they occur by building an evidence base to support planning and decision making (Kuo *et al.*, 2008). Meanwhile, business owners could recognize that consumers' fears of contracting a disease may lead them to shift their discretionary spending from traditional shopping channels to online shopping or delivery services. Thus, business owners should explore alternatives to in-person shopping, if possible, where foot traffic is not a necessity for generating sales (Jung *et al.*, 2016).

## References

- Dalrymple, K., Young, R. and Tully, M. (2016), "Facts, not fear': negotiating uncertainty on social media during the 2014 Ebola crisis", *Science Communication*, Vol. 38 No. 4, pp. 442-467.
- Fauci, A. and Morens, D. (2016), "Zika virus in the Americas – yet another arbovirus threat", *New England Journal of Medicine*, Vol. 374 No. 7, pp. 601-604.
- Gubler, D.J. (2002), "Epidemic dengue/dengue hemorrhagic fever as a public health, social and economic problem in the 21st century", *Trends in Microbiology*, Vol. 10 No. 2, pp. 100-103.
- Hai, W., Zhao, Z., Wang, J. and Hou, Z. (2004), "The short-term impact of SARS on the Chinese economy", *Asian Economic Papers*, Vol. 3 No. 1, pp. 57-61.

- Jung, H., Park, M., Hong, K. and Hyun, E. (2016), "The impact of an epidemic outbreak on consumer expenditures: an empirical assessment for MERS Korea", *Sustainability*, Vol. 8 No. 5, Article No. 454, available at: [www.mdpi.com/2071-1050/8/5/454/htm](http://www.mdpi.com/2071-1050/8/5/454/htm)
- Koehlg-Brown, M.R. and Smith, R.D. (2008), "The economic impact of SARS: how does the reality match the predictions?", *Health Policy*, Vol. 88 No. 1, pp. 110-120.
- Kuo, H., Chen, C., Tseng, W., Ju, L. and Huang, B. (2008), "Assessing impacts of SARS and Avian flu on international tourism demand to Asia", *Tourism Management*, Vol. 29 No. 5, pp. 917-928.
- Macciocchi D., Lanini, S., Vairo, F., Zumla, A., Figueiredo, L.T.A., Lauria, F.N., Strada, G., Brouqui, P., Puro, V., Krishna, S., Kreamer, P., Scognamiglio, P., Köhler, C., Nicastri, E., Di Caro, A., Cieri, R.M., Ioannidis, J.P.A., Kobinger, G., Burattini, M.N. and Ippoli, G. (2016), "Short-term economic impact of the Zika virus outbreak", *New Microbiologica*, Vol. 39 No. 4, pp. 287-289.
- Owens, S. (2016), "Travel advisory for North Miami community issued in response to first reports of local mosquito-borne Zika virus", *Neurology Today*, available at: [www.journals.lww.com/neurotodayonline/blog/breakingnews/pages/post.aspx?PostID=566](http://www.journals.lww.com/neurotodayonline/blog/breakingnews/pages/post.aspx?PostID=566)
- Sands, P., Turabi, A., Saynisch, P. and Dzau, V. (2016), "Assessment of economic vulnerability to infectious disease crises", *The Lancet*, Vol. 388 No. 10058, pp. 2443-2448, available at: [www.dx.doi.org/10.1016/S0140-6736\(16\)30594-3](http://www.dx.doi.org/10.1016/S0140-6736(16)30594-3)
- Sell, T., Boddie, C., McGinty, E., Pollack, K., Smith, K., Burke, T. and Rutkow, L. (2016), "New media coverage of US Ebola policies: implications for communication during future infectious disease threats", *Preventive Medicine*, Vol. 93, pp. 115-120.
- Shacham, E., Nelson, E.J., Schootman, M. and Garza, A. (2017), "Potential high-risk areas for Zika virus transmission in the contiguous United States", *American Journal of Public Health*, Vol. 107 No. 5, pp. 724-731.
- Siu, A. and Wong, Y.C.R. (2004), "Economic impact of SARS: the case of Hong Kong", *Asian Economic Papers*, Vol. 3 No. 1, pp. 62-83.
- Smith, R.D. (2006), "Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management", *Social Science and Medicine*, Vol. 62 No. 2, pp. 3113-3123.
- Staples, J., Shankar, M., Sejvar, J., Meltzer, M. and Fischer, M. (2014), "Initial and long-term costs of patient hospitalized with west Nile virus disease", *American Journal of Tropical Medicine and Hygiene*, Vol. 90 No. 3, pp. 402-409.
- Thompson, D., Muriel, P., Russell, D., Osborne, P., Bromley, A., Rowland, M., Creigh-Tyte, S. and Brown, C. (2002), "Economic costs of the foot and mouth disease outbreak in the United Kingdom in 2001", *Revue Scientifique et Technique*, Vol. 21 No. 3, pp. 675-687.
- Ungar, S. (1998), "Hot crises and media reassurance: a comparison of emerging diseases and Ebola Zaire", *The British Journal of Sociology*, Vol. 49 No. 1, pp. 36-56.
- Verikios, G., Sullivan, M., Stojanovski, P., Giesecke, J. and Woo, G., (2015), "Assessing regional risks from pandemic Influenza: a scenario analysis", *The World Economy*, Vol. 39 No. 8, pp. 1225-1255.
- World Bank Group (2016), *The Short-Term Economic Costs of Zika in Latin America and the Caribbean*, World Bank, available at: <http://pubdocs.worldbank.org/en/410321455758564708/The-short-term-economic-costs-of-Zika-in-LCR-final-doc-autores-feb-18.pdf> (accessed December 1, 2016).
- World Health Organization (2016), "Mosquito control: can it stop Zika at source?", February 17, available at: [www.who.int/emergencies/zika-virus/articles/mosquito-control/en/](http://www.who.int/emergencies/zika-virus/articles/mosquito-control/en/) (accessed December 1, 2016).

### Corresponding author

Timothy F. Page can be contacted at: [tpage@fiu.edu](mailto:tpage@fiu.edu)

---

For instructions on how to order reprints of this article, please visit our website:

[www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)

Or contact us for further details: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)