



Beyond Birth Control: Family Planning and Women's Lives

Women of Reproductive Age Lack Knowledge of Zika Virus Transmission and Effects

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Beyond Birth Control: Family Planning and Women's Lives is a multiyear project examining the current state of access to contraception and how this access influences women's lives in the short and long term. Supported by the William and Flora Hewlett Foundation, the Urban Institute is using mixed research methods to answer two main questions under the project: (1) how does expanded access to affordable contraception affect short- and long-term socioeconomic and health outcomes for women and their families; and (2) what are the persistent barriers to contraceptive access and use, who faces these barriers, and how can these barriers be reduced? This brief is one of a series of *Beyond Birth Control* products that will provide new and timely information to influence policy debates and highlight areas where progress has been most challenging and where additional resources could most productively be directed.

Key Findings

- As of late summer 2016, the majority of US women of reproductive age said they have heard some or a lot about Zika (76.2 percent), and about one-third said they are somewhat or very concerned about contracting Zika virus (33.0 percent).
- Although the majority of women are aware of Zika transmission through mosquito bites (82.7 percent), more than half of women do not know that Zika virus can be sexually transmitted (55.0 percent).
- Less than one-third of women (28.8 percent) are aware that Zika virus can cause an infection with no symptoms.
- The vast majority of women have gaps in knowledge of the transmission (81.6 percent) and health effects (90.6 percent) of Zika virus.

- Women with low educational attainment are more likely to have gaps in knowledge about Zika transmission (88.1 percent) and health effects (93.5 percent).
- A little more than half of women have taken action because of concerns about Zika (56.8 percent), but very few have talked with a health care provider about Zika (5.9 percent).
- Women who are pregnant or want to become pregnant have Zika knowledge similar to that of other women of reproductive age, but the former are more likely to be concerned about contracting Zika, to have taken action because of concerns about Zika, and to have spoken with a health care provider about Zika.

Background

Zika virus emerged as a public health threat in the Caribbean and South America in 2015 (box 1). As of October 12, there were 3,936 cases of Zika infection in the United States, including 878 pregnant women.¹ Most of these cases involve people who traveled to Zika-affected areas, but local transmission in the continental United States was first noted in July 2016, when public health officials reported transmission of Zika virus in two areas of Miami.²

Although its effect on adults is generally mild, Zika poses significant health risks for developing fetuses in women who become infected during pregnancy. Consequently, women of reproductive age (who are the focus of this research brief) are a key target group for public health efforts to address Zika virus.

Although prior surveys of Zika concern and awareness exist, most have examined the adult US population as a whole rather than focusing on women of reproductive age.³ Only one survey, fielded in March 2016, included estimates for higher-risk populations, including a sample of 105 adults living in households where someone is pregnant or considering pregnancy.⁴ This study is the first to specifically survey women of reproductive age—including a subgroup of women who are pregnant or intend to be pregnant in the next year—about their knowledge of Zika transmission mechanisms, effects, and symptoms. Our survey was conducted during the period in which the first locally transmitted cases of Zika occurred in the continental United States.

What We Did

This brief uses data from the second wave of the Urban Institute’s Survey of Family Planning and Women’s Lives (SFPWL) to describe knowledge of and concern about Zika virus among women of reproductive age (ages 18 to 44). The survey is a component of an ongoing research project assessing the short- and long-term effects of access to affordable contraception and barriers to its use.

BOX 1

What We Know about Zika Virus

Human cases of Zika virus infection have been documented as far back as 1952, but in the past the disease was largely limited to sporadic cases in Africa and Asia and associated with mild health effects (Kindhauser et al. 2016). Through 2015 and early 2016, the virus spread quickly in Brazil and other parts of South and Central America; in February 2016, the World Health Organization declared the spread of Zika virus an international public health emergency.^a

Zika virus is primarily transmitted through bites from infected *Aedes aegypti* and *Aedes albopictus* mosquitoes. If a pregnant woman becomes infected with Zika, the virus can pass to the developing fetus. Zika virus can also be transmitted through sexual contact, including vaginal, anal, and oral sex and the sharing of sex toys. Zika virus has been found in blood, semen, urine, and vaginal fluids of symptomatic and asymptomatic people, and Zika may stay in semen for several months (Atkinson et al. 2016). Recent evidence suggests that Zika virus can be transmitted through blood transfusions and laboratory exposure, although transmission through these methods is very rare. No current evidence suggests that Zika virus can be transmitted through handshakes, kissing, hugging, coughing, or breastfeeding infants.^b

Many people infected with Zika virus will not have any symptoms at all or may only have mild symptoms, such as fever, rash, conjunctivitis (red, itchy eyes), and joint pain. The health risks for a fetus infected with Zika virus during pregnancy, however, are much higher; Zika has been identified as a cause of microcephaly and other severe brain defects and found to be associated with stillbirth, miscarriage, and other birth defects.^c These health effects may not appear until late in the pregnancy (i.e., after 20 weeks of gestation) or even several months after the infant is born (Oliveira et al. 2016). Zika virus has also been associated with an increased risk for Guillain-Barré syndrome, a rare disease of the nervous system in which a person's own immune system damages nerve cells, leading to muscle weakness or paralysis. Only a small percentage of adults infected with Zika virus get Guillain-Barré syndrome.

Currently, there is no treatment for Zika virus and no vaccine to prevent infection. Consequently, efforts to minimize the disease's transmission and health effects have focused on advising at-risk individuals about how to prevent infection. The Centers for Disease Control and Prevention (CDC) recommend using insect repellent, wearing long sleeves or pants outdoors, remaining indoors if possible, closing doors and windows, and dumping standing water to avoid mosquito bites (CDC 2015).^d In August 2016, the US Food and Drug Administration released revised guidelines that call for universal testing of blood donations for Zika virus in the United States to prevent transmission through the blood supply.^e The American College of Obstetricians and Gynecologists issued practice guidelines for Zika prevention, testing, and management in women of reproductive age that include advising pregnant women and their partners to avoid travel to Zika-affected areas. If travel is necessary, pregnant women and their partners should take action to prevent mosquito bites and use condoms or other barrier methods to prevent sexual transmission.^f The CDC advises women to wait at least eight weeks after their own Zika symptoms or exposure before trying to get pregnant, and to wait at least six months after their partner's symptoms or exposure.^g The American College of Obstetricians and Gynecologists guidelines also recommend that doctors advise women to wait up to six months to attempt pregnancy if they or their partners get Zika virus, and advise women who do not want to become pregnant about birth control methods to avoid unintentional pregnancy. In order to take these precautionary steps, however, people must be aware of the risks of Zika virus as well as the steps they can take to minimize harm.

^a "WHO Director-General Summarizes the Outcome of the Emergency Committee Regarding Clusters of Microcephaly and Guillain-Barré Syndrome," World Health Organization, February 1, 2016, <http://www.who.int/mediacentre/news/statements/2016/emergency-committee-zika-microcephaly/en/>.

^b "Transmission and Risks," CDC, last updated August 27, 2016, <http://www.cdc.gov/zika/transmission/index.html>.

^c "Microcephaly and Other Birth Defects," CDC, last updated August 9, 2016, http://www.cdc.gov/zika/healtheffects/birth_defects.html.

^d "Help Control Mosquitoes That Spread Dengue, Chikungunya, and Zika Viruses," CDC, August 2015, http://www.cdc.gov/dengue/resources/factSheets/Control_Mosquitoes_CHIKV_DENV_ZIKA.pdf.

^e "FDA Advises Testing for Zika Virus in All Donated Blood and Blood Components in the US," US Food and Drug Administration, August 26, 2016, <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm518218.htm>.

^f “Practice Advisory on Zika Virus,” American College of Obstetricians and Gynecologists, last updated September 19, 2016, <http://www.acog.org/About-ACOG/News-Room/Practice-Advisories/Practice-Advisory-Interim-Guidance-for-Care-of-Obstetric-Patients-During-a-Zika-Virus-Outbreak>.

^g “Women Trying to Become Pregnant,” CDC, last updated October 3, 2016, <https://www.cdc.gov/zika/pregnancy/women-and-their-partners.html>.

The SFPWL is a nationally representative survey of 1,990 women of reproductive age from a sample drawn from NORC at the University of Chicago’s AmeriSpeak consumer panel. The survey addresses women’s experiences with family planning as well as their opinions about the short- and long-term effects of unplanned births and access to affordable contraception. The second wave of the survey (fielded July 18 to September 11, 2016) had a sample of 1,189 women and included questions about Zika virus. Estimates from this wave were weighted to be nationally representative of women of reproductive age using data from the US Census Bureau.⁵

The Zika questions included in the second wave of SFPWL were developed by Urban Institute researchers with feedback from the March of Dimes and the Centers for Disease Control and Prevention. The survey questions on Zika virus cover the following topics (additional detail provided in appendix table A.1):⁶

- Awareness of Zika virus
- Concern about Zika virus
- Knowledge of Zika virus transmission modes
- Knowledge of Zika virus symptoms and health effects
- Actions taken to prevent Zika virus infection
- Conversations with health care providers about Zika virus

All women were asked questions about Zika virus awareness, concern, and conversations with health care providers. Questions about Zika virus knowledge were only asked of women who had heard about Zika virus. Women who reported having heard nothing at all about the virus were assumed to also have no knowledge of Zika virus transmission modes, symptoms, or health effects. Percentages of women with knowledge about transmission modes, symptoms, and health effects are reported as the number of women responding “yes” to these questions out of the full sample of surveyed women, including those who were not asked the question because they said they had heard nothing about Zika virus.

Similarly, questions about actions taken to prevent Zika virus infection were only asked of women who expressed some level of concern about contracting Zika virus. Women who reported being not at all concerned about contracting Zika virus were assumed to also have taken no actions out of concern. Percentages of women who have taken actions to prevent Zika virus infection are reported as the number of women responding “yes” to these questions out of the full sample of surveyed women, including those who were not asked the question because they said they had no concerns about contracting Zika virus.

In addition to examining these topics for all women of reproductive age in our sample ($N = 1,189$), we focus on a subgroup of women who are pregnant or want to become pregnant in the next year ($n = 213$). We describe Zika virus awareness, concern, knowledge, and behaviors for all women of reproductive age in our sample and for those who are pregnant or want to become pregnant, compared with other women of reproductive age (i.e., those who are not pregnant or did not say that they wanted to become pregnant; $n = 976$). We tested differences between these two groups using two-tailed t -tests with survey weights. Unless otherwise noted, all differences discussed in the text are significant at the 0.1 level. Because of the small sample size of women who are pregnant or want to become pregnant, we report 95 percent confidence intervals for subgroup point estimates in each figure and in appendix table A.2. We also report differences in results for women residing in the South, where local transmission of Zika virus has been reported, compared with women residing in the Northeast, Midwest, and West.

We identified two types of knowledge gaps among women of reproductive age: transmission knowledge gaps and effects knowledge gaps. The group of women with transmission knowledge gaps is defined as (1) women who had heard nothing at all about Zika and (2) women who said Zika cannot be transmitted or who did not know Zika can be transmitted through mosquito bites, sexual intercourse, other sexual contact, or from mother to baby during pregnancy. Women were defined as knowledgeable if they correctly responded that Zika can be transmitted in those ways. The group of women with effects knowledge gaps is defined as (1) women who had heard nothing at all about Zika and (2) women who said Zika does not cause or who did not know Zika can cause serious birth defects such as microcephaly, stillbirth, and miscarriage; Guillain-Barré syndrome; cold-like symptoms; rash; or infection with no symptoms at all. Women were defined as knowledgeable if they correctly responded that Zika can have those effects.⁷

We also distinguished between women of reproductive age who have taken action because of concerns about Zika virus and women who have not. The group of women who have taken action is defined as women who reported doing any of the following because of Zika concerns: using insect repellent regularly, wearing long sleeves and long pants outdoors, using condoms during sex, using birth control to avoid getting pregnant right now, dumping standing water around the home to remove mosquito breeding areas, closing screens and windows to keep out mosquitoes, and avoiding travel to Zika-affected areas. Women who have not taken action did not report any of these behaviors.

We compared the percentages of women with and without knowledge gaps and the percentages of women who have and have not taken action across 11 key characteristics:

1. Age (18 to 25, 26 to 34, or 35 to 44)
2. Race and ethnicity (non-Hispanic white, non-Hispanic black or other, or Hispanic)
3. Educational attainment (high school degree or less, or some college education or higher)
4. Family income (at or below 138 percent of the federal poverty level [FPL], between 139 and 399 percent of FPL; or 400 percent of FPL or higher)
5. Region (South, Northeast, Midwest, or West)
6. Marital status (married; widowed, separated, or divorced; never married; or living with partner)
7. Sexual activity (sexually active with men in the past six months or not)

8. Pregnancy experience (never been pregnant or had one or more pregnancies)
9. Pregnancy intentions in the next year (wants to become pregnant or does not want to become pregnant)
10. Current birth control use, among women sexually active with men in the past six months (always, sometimes, rarely, or never)
11. Use of condoms in the past six months, among women sexually active with men in the past six months (yes or no)

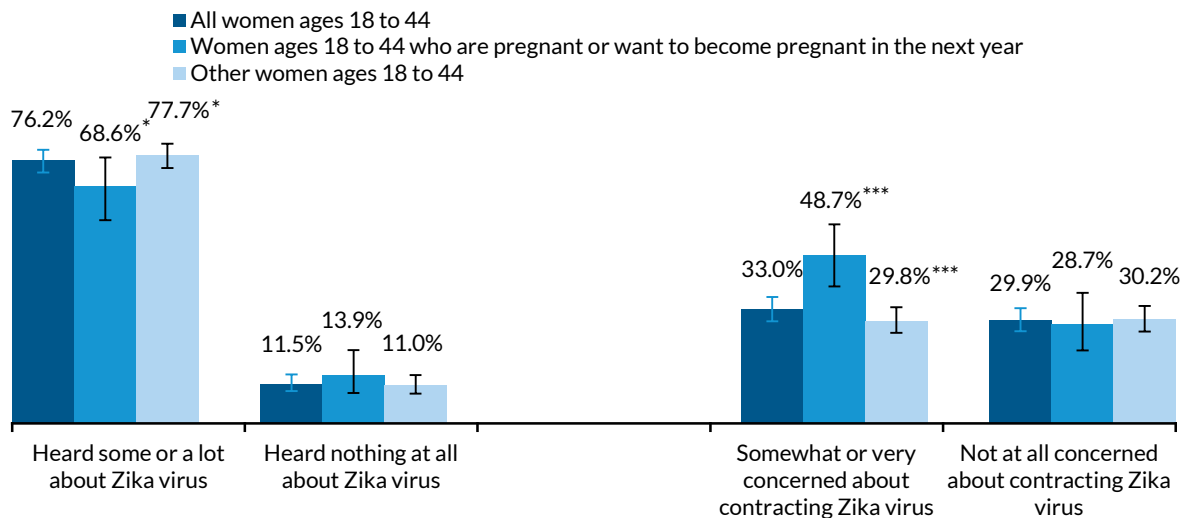
What We Found

Zika Virus Awareness and Concern

Within the survey period of mid-July through early September 2016, most women of reproductive age (76.2 percent, figure 1) said they had heard some or a lot about Zika virus (31.8 percent had heard a lot and 44.3 percent had heard some; data not shown). Fewer women who are pregnant or want to become pregnant in the next year had heard about Zika virus than other women of reproductive age—68.6 and 77.7 percent, respectively. Only a small share (33.0 percent) of all women were concerned that they may get infected with Zika virus during the next 12 months. But women who are pregnant or who want to become pregnant were more likely to say they were concerned about Zika infection (48.7 percent) compared to other women of reproductive age (29.8 percent).

FIGURE 1

Awareness of and Concern about Zika Virus among Women Ages 18 to 44, 2016



Source: Survey of Family Planning and Women's Lives, July–September 2016.

Notes: N all women = 1,189; pregnant or want to become pregnant = 213; other women = 976. Bars represent 95 percent confidence intervals. * Difference between groups is statistically significant at the $p < 0.1$ level; *** difference between groups is statistically significant at the $p < 0.01$ level.

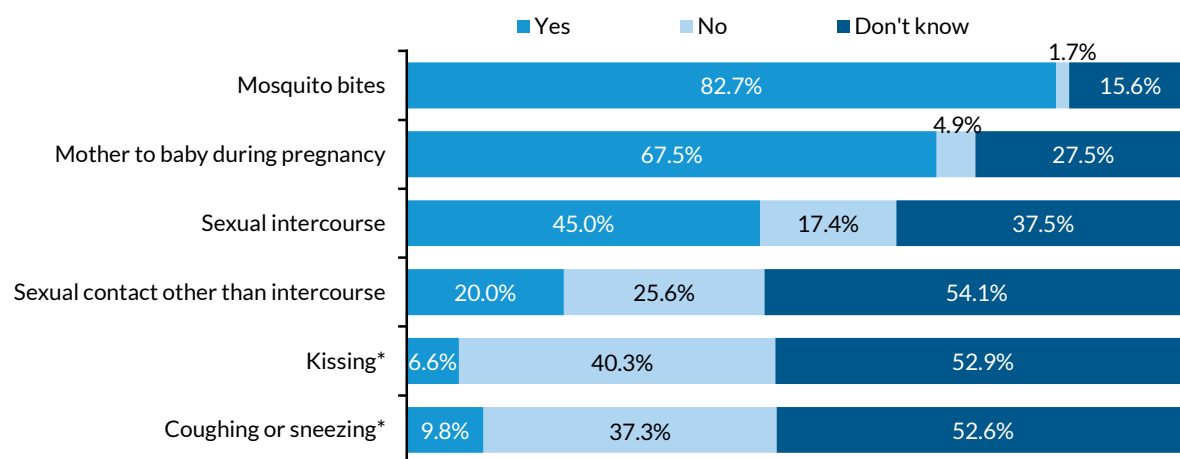
We found that women in the South—where the *Aedes* mosquitoes are more likely to live—were more concerned about Zika infection than women in other parts of the country. Four in ten women in the South (39.2 percent, data not shown) were concerned about Zika virus, compared with 29.2 percent of women who live in the Northeast, West, or Midwest. Concern about Zika virus among women who are pregnant or want to become pregnant was also highest in the South (56.5 percent) compared with women in other regions (43.4 percent, difference not significant).

Knowledge of Zika Virus Transmission

The majority of women (82.7 percent, figure 2) knew Zika could be transmitted via mosquito bites and from mother to baby during pregnancy (67.5 percent), with slightly smaller percentages (78.4 and 63.9 percent; differences not significant; data not shown) found among the subgroup of women who are pregnant or want to become pregnant in the next year. However, there were sizable gaps in knowledge of other ways Zika virus can be transmitted. Less than half of women (45.0 percent) knew that Zika could be transmitted through sexual intercourse, and about one in five women (20.0 percent) knew that Zika virus could be transmitted through other sexual contact. Women who are or want to become pregnant were only slightly more aware (49.8 and 22.9 percent; differences not significant; data not shown) of these sexual modes of Zika transmission.

FIGURE 2

Knowledge of Zika Virus Transmission Modes among Women Ages 18 to 44, 2016



Source: Survey of Family Planning and Women's Lives, July–September 2016.

Notes: N = 1,189. There is no current scientific evidence that Zika virus can be transmitted via the modes noted with *, so a “no” response indicates a correct answer. A “yes” response indicates a correct answer for the other transmission modes. Questions about transmission mode knowledge were not asked if women had heard nothing at all about Zika virus; these women are assumed to have no knowledge about transmission modes and are included as “don't know” in the percentages above.

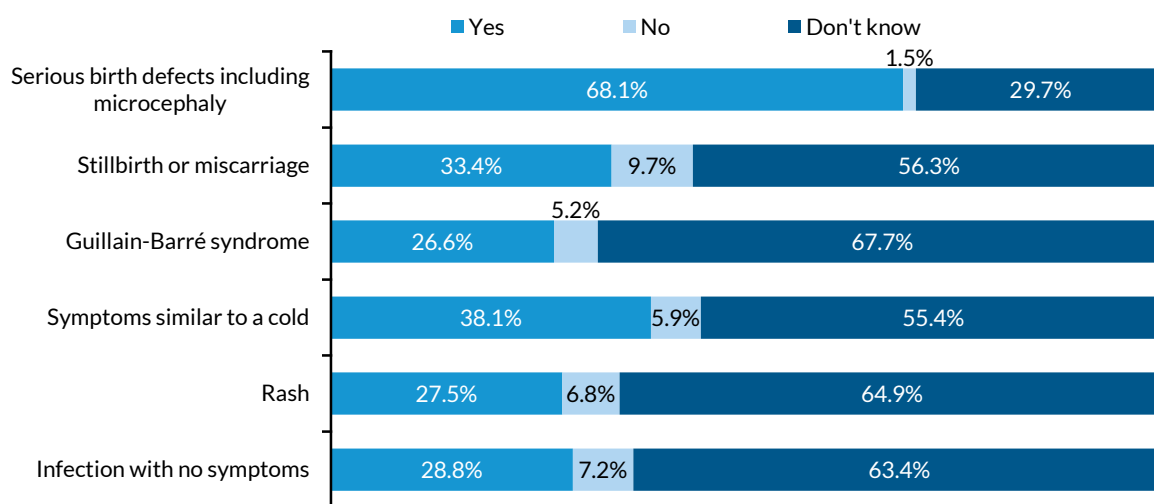
In addition to asking women about Zika transmission through established mechanisms, the survey asked about transmission through kissing and through coughing or sneezing, for which there is no evidence of Zika transmission.⁸ Although very few women said that Zika can be transmitted through kissing or coughing/sneezing (6.6 and 9.8 percent, respectively), more than half of women said they did not know if Zika virus can be transmitted in these ways. Reassuring women—particularly pregnant women—about safe contact with people infected with Zika could alleviate some anxiety they may experience.

Knowledge of Zika Virus Symptoms and Effects

Although the majority of surveyed women (68.1 percent, figure 3) knew that Zika is associated with birth defects such as microcephaly, knowledge of other health effects was lower. For all symptoms and effects, knowledge was similar for women who are pregnant or want to become pregnant and for other women of reproductive age (data not shown). Less than four in ten women of reproductive age were aware of Zika symptoms similar to the common cold (38.1 percent), and even fewer were aware of the association between Zika and stillbirth or miscarriage (33.4 percent), rash (27.5 percent), or Guillain-Barré syndrome (26.6 percent). Less than one-third of women of reproductive age were aware that Zika can cause infection with no symptoms at all (28.8 percent). This is of particular concern because women expecting Zika to cause visible physical symptoms may not take appropriate precautions to protect themselves against infection if their partners are not visibly ill.

FIGURE 3

Knowledge of Health Conditions and Symptoms Associated with Zika Virus among Women Ages 18 to 44, 2016



Source: Survey of Family Planning and Women’s Lives, July–September 2016.

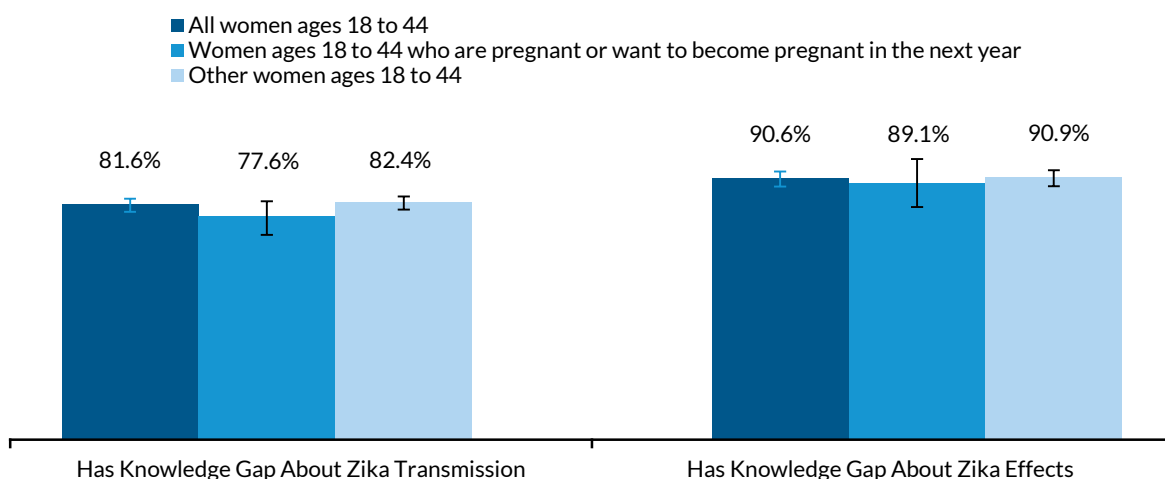
Notes: N = 1189. A “yes” response indicates a correct answer for all health conditions and symptoms. Questions about Zika effects were not asked if women had heard nothing at all about Zika virus; these women are assumed to have no knowledge about health conditions and symptoms caused by Zika virus and are included as “don’t know” in the percentages above.

Gaps in Knowledge of Zika Virus Transmission and Effects

The majority of women displayed gaps in knowledge of the transmission (81.6 percent, figure 4) and effects (90.6 percent) of Zika virus. Although women who are pregnant or who want to become pregnant reported greater levels of concern about contracting Zika virus (77.6 percent), they displayed knowledge gaps at rates similar to other women (89.1 percent).

FIGURE 4

Share of Women Ages 18 to 44 with Zika Virus Knowledge Gaps, 2016



Source: Survey of Family Planning and Women's Lives, July–September 2016.

Notes: N all women = 1,189; pregnant or want to become pregnant = 213; other women = 976. Women who had heard nothing at all about Zika virus are considered to have a knowledge gap and are included in the numerators of the percentages above. Bars represent 95 percent confidence intervals.

Table 1 shows variation in knowledge gaps with respect to Zika transmission modes and health effects across categories of women. Rates of knowledge gaps are high (above 70.0 percent) for all groups. Women who are younger, less educated, low-income, and unmarried are more likely than other women to have a gap in knowledge about Zika transmission. Larger knowledge gaps about transmission modes are found among women with lower educational attainment; 88.1 percent of women with a high school degree or less have a transmission knowledge gap, compared with 78.0 percent of women with some college or more education.

We find fewer differences in the rate of Zika effects knowledge gaps across groups of women, but we do see differences by educational attainment. Women with a high school degree or less were 4.5 percentage points more likely than women with some college or more education to have knowledge gaps about Zika effects (93.5 and 89.0 percent, respectively). Women who were uncertain of their pregnancy intentions in the next year were also more likely to have an effects knowledge gap. We found

no significant differences in knowledge gaps by women’s race/ethnicity, region, sexual activity, birth control use, or pregnancy experience.

TABLE 1

Rates of Zika Virus Knowledge Gaps, by Select Characteristics

	Sample size	Women with a transmission knowledge gap (%)	Women with an effects knowledge gap (%)
Age			
18 to 25	203	86.3	91.5
26 to 34	529	77.6**	90.5
35 to 44	457	81.7	90.0
Educational attainment			
High school degree or less	249	88.1	93.5
Some college or more	940	78.0***	89.0*
Family income			
At or below 138 percent of FPL	337	85.0	92.0
Between 139 and 399 percent of FPL	548	83.1	90.3
400 percent of FPL or higher	284	74.4***	88.8
Marital status			
Married	547	77.4	89.0
Widowed, separated, or divorced	118	85.8*	89.2
Never married	369	84.5**	92.1
Living with partner	155	84.3	93.0
Pregnancy intentions in next year			
Pregnant or wants to become pregnant	213	77.1	88.7
Does not want to become pregnant	867	82.1	90.0
Does not know	109	80.7	95.4*

Source: Survey of Family Planning and Women’s Lives, July–September 2016.

Notes: FPL = federal poverty level. Women with a transmission knowledge gap and women with an effects knowledge gap are defined on page 5. Reference groups are: ages 18 to 25; high school degree or less; at or below 138 percent of FPL; married; and pregnant or wants to become pregnant.

*/**/*** Estimate differs significantly from the reference group in *italics* at 0.1/0.05/0.01 levels, using two-tailed t-tests.

Actions Taken Because of Zika Virus Concerns

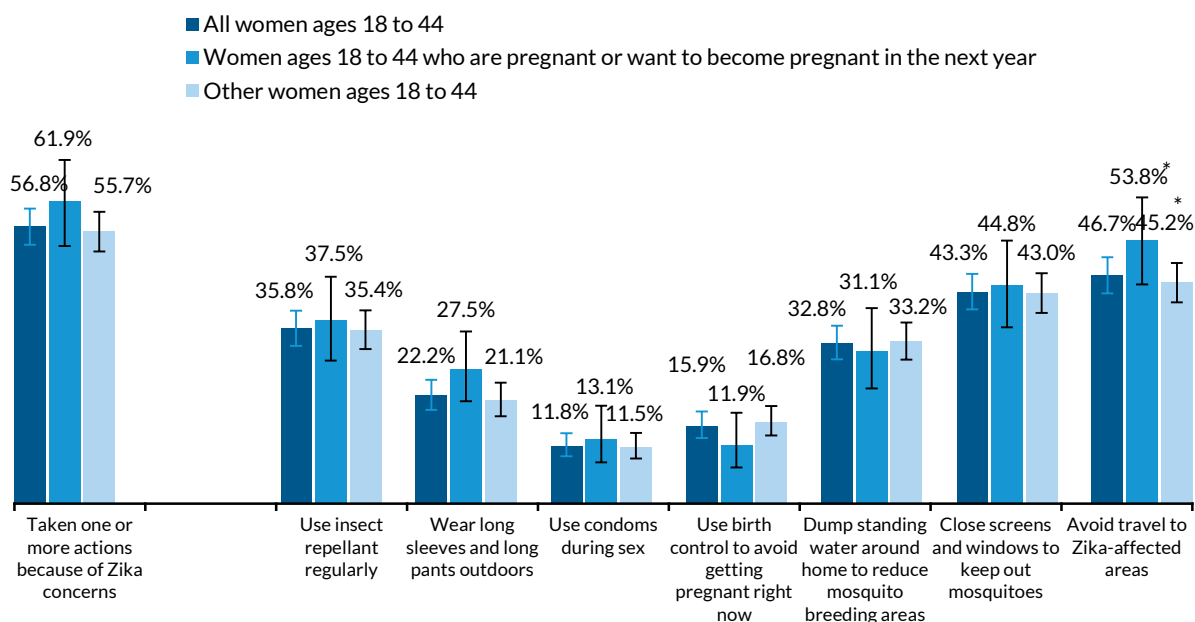
Many women of reproductive age reported taking steps to reduce their risk of contracting Zika virus because of their concerns (56.8 percent, figure 5). The most common actions taken were avoiding travel to Zika-affected areas (46.7 percent), closing screens and windows (43.3 percent), and wearing insect repellent (35.8 percent). Women who are pregnant or who want to become pregnant were more likely than other women of reproductive age to take action because of Zika concerns (61.9 percent; difference not significant), to avoid travel to Zika-affected areas (53.8 percent), and to wear long sleeves or pants outdoors (27.5 percent; difference not significant). Women in the South, including those who are pregnant or want to become pregnant, were not significantly more likely than women in other regions to take action as a result of Zika concerns (59.8 percent in the South versus 54.9 percent in other

regions, among all women; 63.6 percent in the South versus 60.8 percent in other regions, among women who are pregnant or want to become pregnant; differences not significant; data not shown).

Only a small share of women reported that they were more likely to use condoms during sex (11.8 percent, figure 5) or to use birth control to avoid getting pregnant right now (15.9 percent). Because this survey does not follow women over time or ask questions about historical contraceptive use, it is difficult to interpret these results. Women were asked if concerns about Zika virus made them *more likely* to use condoms during sex; it is unclear how a woman who consistently used condoms independent of Zika concerns would answer this question. Similarly, women who were already using birth control to prevent pregnancy may not have responded “yes” to being *more likely* to use birth control to avoid getting pregnant right now. Finally, this question was asked of all women who reported concerns about contracting Zika virus, including those who are not sexually active and thus would not use condoms. Despite these interpretation challenges, the small share of women reporting increased condom and birth control use is worrisome, since Zika virus can indeed be transmitted through sexual contact and which, as this study shows, many women do not know (figure 2).

FIGURE 5

Actions Taken by Women Ages 18 to 44 Because of Concerns about Zika Virus, 2016



Source: Survey of Family Planning and Women’s Lives, July–September 2016.

Notes: N all women = 1,189; pregnant or want to become pregnant = 213; other women = 976. Bars represent 95 percent confidence intervals. Questions about actions taken were not asked if women were not at all concerned about Zika virus; these women are assumed to have taken no action out of concerns about Zika virus and are included in the denominators of the percentages above.

* Difference between groups is statistically significant at the $p < 0.1$ level.

Table 2 shows variation in Zika-related action-taking across categories of women. Hispanic women are more likely to have taken action because of concerns about Zika virus (69.6 percent) compared with non-Hispanic white (55.4 percent) and non-Hispanic black or other women (49.0 percent). Women who are widowed, separated, or divorced were also more likely to say they have taken action, while women who are sexually active but rarely or never use birth control are less likely to have taken action. We found no significant differences in reported Zika-related action-taking by women’s age, educational attainment, family income, region, sexual activity, pregnancy experience, pregnancy intentions, or condom use (data not shown).

TABLE 2

Rates of Action Taken Because of Concerns about Contracting Zika Virus, by Select Characteristics

	Sample size	Women who took action because of Zika concerns (%)
Race/ethnicity		
<i>White, non-Hispanic</i>	677	55.4
Black or other, non-Hispanic	327	49.0
Hispanic	185	69.6***
Marital status		
<i>Married</i>	547	57.0
Widowed, separated, or divorced	118	67.5*
Never married	369	55.2
Living with partner	155	52.4
Current birth control use^a		
<i>Always</i>	562	61.5
Sometimes	111	57.9
Rarely or never	310	52.3**

Source: Survey of Family Planning and Women’s Lives, July–September 2016.

Notes: The group of women who took action because of Zika concerns is defined on page 5. Reference groups are white, non-Hispanic; married; and always uses birth control.

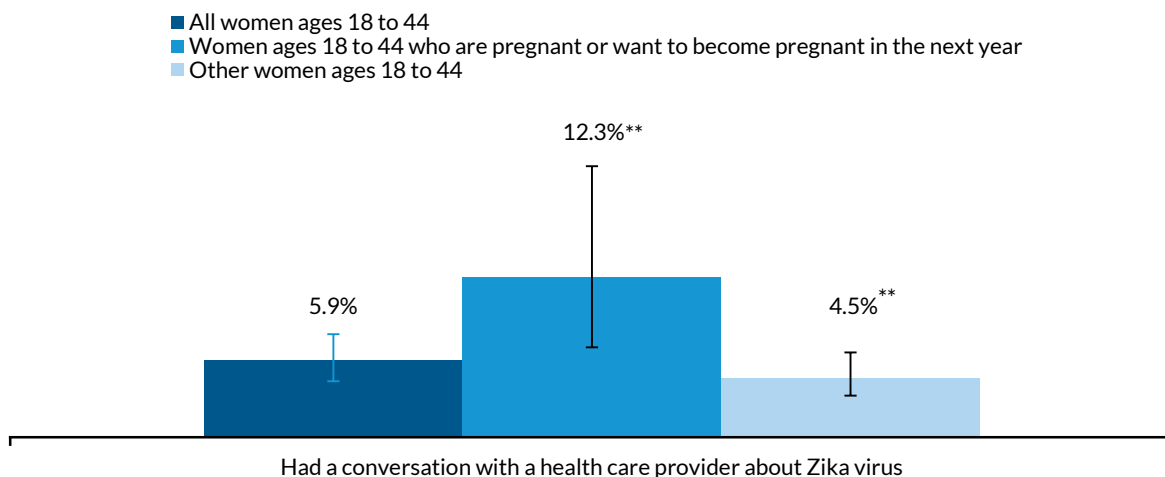
*/**/*** Estimate differs significantly from the reference group in *italics* at 0.1/0.05/0.01 levels, using two-tailed t-tests.

^a Among women sexually active with men in the past six months.

Very few women (5.9 percent, figure 6) reported having a conversation with a health care provider about Zika. A significantly larger, but still small, percentage of women who are pregnant or want to become pregnant reported having talked with a health care provider about Zika (12.3 percent).

FIGURE 6

Share of Women Ages 18 to 44 Who Had a Conversation with a Health Care Provider about Zika Virus, 2016



Source: Survey of Family Planning and Women’s Lives, July–September 2016.

Notes: N all women = 1189; pregnant or want to become pregnant = 213; other women = 976.

** Difference between groups is statistically significant at the $p < 0.05$ level. Bars represent 95 percent confidence intervals.

What It Means

Zika virus poses a serious threat to public health, particularly among women of reproductive age. As the bearers of both intended and unintended pregnancies, women in this demographic group are at the highest risk for severe consequences from Zika virus infection. Although local transmission of the virus has thus far been limited to the Miami area and the US Territories of Puerto Rico, American Samoa, and the US Virgin Islands, women are also at risk of contracting the virus when traveling to Zika-affected locations abroad and through sexual contact with infected individuals. Congress recently approved the allocation of \$1.1 billion in federal funding to fight Zika virus. Such funding is critical to support activities such as outreach and education about Zika virus, mosquito control, research and development of vaccines and treatments for Zika virus, and other maternal and child health protection efforts.

As federal, state, and local policymakers consider how to most effectively address the threat of Zika, these survey findings highlight the need for increased outreach and education about the virus among women of reproductive age. Despite high awareness of Zika, knowledge about the virus’s transmission modes and health effects is relatively low. Women who are pregnant or want to become pregnant in the next year are at the greatest risk of negative health effects from Zika, yet they report knowledge gaps at rates similar to women who do not want to become pregnant. These knowledge gaps are most common among young, low-income, unmarried women who have low educational attainment.

While most women know that Zika can be transmitted through mosquito bites and from mother to baby during pregnancy, many women are unaware that Zika can be transmitted through sexual intercourse and through sexual contact other than intercourse. This knowledge gap is especially troubling because women may feel they are protected by actions to prevent mosquito bites while neglecting measures to prevent sexual transmission of Zika. Further, most women do not know that an individual infected with Zika may show no symptoms, and most women have not changed their condom or birth control use because of concerns about Zika. Taken together, these findings suggest that many women are unaware of the possibility of Zika transmission through sexual contact with asymptomatic Zika-infected partners and may be inadvertently putting themselves at risk.

Although Zika is of particular concern for pregnant women and women who want to become pregnant, the possibility of unintended pregnancy makes Zika a concern for all sexually active women of reproductive age. Many women stand to benefit from outreach and education efforts focused on appropriate behaviors for avoiding Zika infection, such as condom use by pregnant women and their partners to prevent sexual transmission of Zika and condom use paired with effective birth control for women who do not want to become pregnant. Women with Zika knowledge gaps have a number of characteristics in common with women who lack consistent health insurance coverage: low income, low educational attainment, nonwhite race/ethnicity, unmarried status. Improving women's access to health care, including reproductive health services, could assist efforts to curb the spread of Zika virus. Among women with access to health care, the lack of reported communication between women and their health care providers about Zika suggests that providers could play a more active role in providing education and counseling on the virus.

The majority of women in the United States are not currently at risk of contracting Zika virus. But improving public understanding of Zika's transmission modes and health effects is still important, particularly for women of reproductive age who are pregnant or sexually active. Although existing outreach efforts have succeeded in educating a majority of women about Zika's mosquito-borne transmission and association with microcephaly, our study shows that many remain unaware that Zika can be transmitted via sexual contact and by people who exhibit no symptoms. The future of Zika's spread in the United States remains uncertain, but the virus's dangers are increasingly clear. The more women know about Zika, the better they can protect themselves against it.

Appendix

TABLE A.1

Zika Questions Asked in the Survey of Family Planning and Women's Lives

Question	Sample	Question stems	Response options
Awareness of Zika virus			
How much have you heard about Zika virus?	All respondents		Heard a lot Heard some Heard not much Heard nothing at all
Concern about Zika virus			
How concerned are you that you may get infected with Zika virus during the next 12 months?	All respondents		Very concerned Somewhat concerned Not very concerned Not at all concerned
Knowledge of Zika virus transmission modes			
As far as you know, can Zika virus be transmitted in the following ways?	Respondents who had heard a lot, some, or not much about Zika virus	Mosquito bites Mother to baby during pregnancy Sexual intercourse Sexual contact other than intercourse Kissing* Coughing or sneezing*	Yes No Don't know
Knowledge of Zika virus symptoms and health effects			
As far as you know, can Zika virus cause the following?	Respondents who had heard a lot, some, or not much about Zika virus	Stillbirth or miscarriage Serious birth defects to a fetus during pregnancy, such as a small, underdeveloped head and brain Guillain-Barré syndrome, a disease causing muscle weakness and sometimes paralysis Symptoms similar to the common cold Rash Infection with no symptoms at all	Yes No Don't know
Actions taken to prevent Zika virus infection			
Have concerns about Zika virus made you more likely to do any of the following actions?	Respondents who were very, somewhat, or not very concerned about contracting Zika virus	Use insect repellent regularly Wear long sleeves and long pants outdoors Use condoms during sex Use birth control to avoid getting pregnant right now Dump standing water around my home to remove mosquito breeding areas Close screens and windows to keep out mosquitoes Avoid travel to Zika-affected areas	Yes No Don't know
Conversations with health care providers about Zika virus			
Have you talked with a doctor, nurse, or other medical professional about Zika virus?			Yes No
Did the doctor, nurse, or other medical professional who discussed Zika virus with you mention any of the following ways to protect yourself from the health effects of Zika virus?	Respondents who had talked with a health care provider about Zika virus	The need to delay or avoid pregnancy after traveling to a Zika-affected area The need to delay or avoid pregnancy after a sexual partner(s) has traveled to a Zika-affected area The need to use condoms if you or your male partner travel to a Zika-affected area Measures to protect yourself from mosquito bites in case you travel to a Zika-affected area Avoidance of travel to a Zika-affected area if you are trying to get pregnant	Please select all that apply

Notes: * Not a documented mode of Zika virus transmission.

TABLE A.2

Confidence Intervals for Reported Subgroup Point Estimates in Figures 1, 4, 5, and 6

	All women ages 18–44 (N=1,189)			Women ages 18–44 who are pregnant or want to become pregnant (N=213)			Other women ages 18–44 (N=976)		
	%	95% confidence interval		%	95% confidence interval		%	95% confidence interval	
Figure 1									
Heard some or a lot about Zika virus	76.2	72.7	79.3	68.7	58.9	77.0	77.7	74.0	81.0
Heard nothing at all about Zika virus	11.5	9.3	14.2	13.9	8.8	21.2	11.0	8.6	14.0
Somewhat or very concerned about contracting Zika virus	33.0	29.6	36.6	48.7	39.7	57.7	29.8	26.2	33.6
Not at all concerned about contracting Zika virus	29.9	26.7	33.4	28.7	21.1	37.8	30.2	26.6	34.0
Figure 4									
Gap in knowledge about Zika transmission	81.6	78.7	84.1	77.6	69.1	84.3	82.4	79.3	85.0
Gap in knowledge about Zika effects	90.6	88.2	92.5	89.1	80.8	94.0	90.9	88.5	92.9
Figure 5									
Taken one or more actions because of Zika concerns	56.8	53.0	60.4	61.9	52.7	70.3	55.7	51.6	59.7
Use insect repellent regularly	35.8	32.3	39.5	37.5	29.3	46.4	35.4	31.6	39.5
Wear long sleeves and long pants outdoors	22.2	19.2	25.4	27.6	21.0	35.3	21.0	17.8	24.7
Use condoms during sex	11.8	9.7	14.4	13.1	8.4	20.0	11.5	9.2	14.4
Use birth control to avoid getting pregnant right now	15.9	13.4	18.8	11.9	7.4	18.6	16.8	14.0	20.0
Dump standing water around home to reduce mosquito breeding areas	32.8	29.5	36.4	31.1	23.6	40.0	33.2	29.5	37.1
Close screens and windows to keep out mosquitoes	43.3	39.7	47.0	44.8	36.1	53.8	43.0	39.0	47.1
Avoid travel to Zika-affected areas	46.7	43.0	50.4	53.8	44.8	62.6	45.3	41.2	49.3
Figure 6									
Had a conversation with a health care provider about Zika virus	5.9	4.3	7.9	12.3	6.9	20.8	4.5	3.2	6.5

TABLE A.3

Demographic and Socioeconomic Characteristics of Women of Reproductive Age, by Pregnancy Intention

	Women who are pregnant or want to be pregnant (%)	Other women of reproductive age (%)
Age		
18 to 25	36.6	27.7*
26 to 34	42.7	34.4*
35 to 44	20.8	37.9***
Race/ethnicity		
White, non-Hispanic	45.0	58.7***
Black or other, non-Hispanic	33.2	21.7**
Hispanic	21.8	19.6
Educational attainment		

	Women who are pregnant or want to be pregnant (%)	Other women of reproductive age (%)
High school degree or less	39.5	34.0
Some college or more	60.5	66.0
Family income		
At or below 138% of FPL	40.2	32.2
Between 139% and 399% of FPL	33.9	37.8
400% of FPL or higher	23.7	28.3
Region		
South	40.3	37.3
Northeast	11.9	18.6*
Midwest	20.8	20.6
West	27.0	23.5
Marital status		
Married	45.1	42.6
Widowed, separated, or divorced	4.4	10.7***
Never married	35.0	33.3
Living with partner	15.5	13.4
Sexual activity with men in past 6 months		
Sexually active	88.3	81.9*
Not currently sexually active	11.7	18.1*
Pregnancy experience		
Never been pregnant	28.5	32.9%
Pregnant one or more times	71.5	67.1%
Pregnancy intentions in next year		
Wants to become pregnant	76.9	0.0***
Does not want to become pregnant	0.0	88.4***
Currently pregnant	23.1	0.0***
Does not know	0.0	11.6***
Current birth control use^a		
Always	27.4	62.0***
Sometimes	20.2	9.3**
Rarely or never	44.4	22.7***
Use of condoms in past 6 months^a		
Reported condom use	49.5	41.0
No reported condom use	72.2	68.5
Sample size	213	976

Source: Survey of Family Planning and Women's Lives, July–September 2016.

Notes: FPL = federal poverty level.

^a Among women sexually active with men in the past six months.

*/**/*** Estimate differs significantly from women with an awareness gap at the 0.1/0.05/0.01 levels, using two-tailed tests.

Notes

1. As of October 12, there were an additional 25,955 cases of Zika infection in US territories; 1,806 of those infected were pregnant women. Of all Zika cases in the US territories, more than 90 percent have been reported in Puerto Rico. "Pregnant Women with Any Laboratory Evidence of Possible Zika Virus Infection in the United States and Territories, 2016," Centers for Disease Control and Prevention (CDC), last updated October 12, 2016, <http://www.cdc.gov/zika/geo/pregwomen-uscases.html>; "Case Counts in the US," CDC, last updated October 13, 2016, <http://www.cdc.gov/zika/geo/united-states.html>.
2. Daniel Chang, "Miami May Have Florida's First Locally Acquired Case of Zika Virus," *Miami Herald*, July 19, 2016, <http://www.miamiherald.com/news/health-care/article90617692.html>.
3. Recent surveys containing questions about Zika virus include those by Kaiser Family Foundation (2016a, 2016b, 2016c, 2016d), STAT and Harvard T.H. Chan School of Public Health (2016), and March of Dimes and NORC at the University of Chicago (2016), as well as the National Campaign to Prevent Teen and Unplanned Pregnancy, "Survey Says: Unplanned Pregnancy and the Zika Virus," accessed October 10, 2016, http://thenationalcampaign.org/sites/default/files/resource-primary-download/survey_says_june_zika.pdf.
4. Harvard T.H. Chan School of Public Health, "Many US Families Considering Pregnancy Don't Know Zika Facts," March 29, 2016, <https://www.hsph.harvard.edu/news/press-releases/zika-virus-awareness-pregnant-women/>.
5. Because of its small sample size and relatively low response rate (8.7 percent), SFPWL has been benchmarked against federal survey data. SFPWL estimates and variation across subgroups are generally consistent with estimates from federal survey data, which confirms SFPWL's standing as a source of timely and reliable information about women's experiences with contraception and reproductive health. For more information about the survey's design and methodology, see the technical appendix to this brief series, "Additional Information on the Survey of Family Planning and Women's Lives" (Shartzter and Johnston, forthcoming). For more information about the AmeriSpeak panel, see Dennis (2015).
6. For complete Zika virus question wording, see the SFPWL survey instrument, forthcoming.
7. This definition of effects knowledge gaps includes both conditions found to be caused by Zika virus and conditions found to be associated with Zika virus. A causal link has been established between Zika virus and microcephaly and other severe brain defects. Stillbirth, miscarriage, and other birth defects have been found to be associated with Zika virus, but a causal link has not been established for these conditions ("Microcephaly and Other Birth Defects," CDC, last updated August 9, 2016, http://www.cdc.gov/zika/healtheffects/birth_defects.html).
8. "Transmission and Risks," CDC, last updated August 27, 2016, <http://www.cdc.gov/zika/transmission/index.html>.

References

- Atkinson, Barry, Pasco Hearn, Babak Afrough, Sarah Lumley, Daniel Carter, Emma J. Aarons, Andrew J. Simpson, Timothy J. Brooks, and Roger Hewson. 2016. "Detection of Zika Virus in Semen." *Emerging Infectious Diseases* 22 (5): 940. http://wwwnc.cdc.gov/eid/article/22/5/16-0107_article.
- Dennis, Michael. 2015. "Technical Overview of the AmeriSpeak Panel, NORC's Probability-Based Research Panel." NORC. Accessed August 10, 2016. <http://www.norc.org/PDFs/AmeriSpeak%20Technical%20Overview%202015%2011%2025.pdf>.
- Kaiser Family Foundation. 2016a. "What Does the Public Know and Think about Zika?" <http://kff.org/slideshow/what-does-the-public-know-and-think-about-zika/>.
- . 2016b. "Kaiser Health Tracking Poll: June 2016." <http://kff.org/global-health-policy/poll-finding/kaiser-health-tracking-poll-june-2016/>.

- . 2016c. “Kaiser Health Tracking Poll: August 2016.” <http://kff.org/health-costs/poll-finding/kaiser-health-tracking-poll-august-2016/>.
- . 2016d. “Kaiser Health Tracking Poll: September 2016.” <http://kff.org/health-costs/report/kaiser-health-tracking-poll-september-2016/>.
- Kindhauser, Mary Kay, Tomas Allen, Veronika Frank, Ravi Santhana, and Christopher Dye. 2016. “Zika: The Origin and Spread of a Mosquito-borne Virus.” *Bulletin of the World Health Organization*. http://www.who.int/bulletin/online_first/16-171082/en/.
- March of Dimes and NORC at the University of Chicago. 2016. “The Zika Virus: Gaps in Americans’ Knowledge and Support for Government Action.” http://www.norc.org/PDFs/MarchOfDimes/Report_March_of_Dimes_NORC_Zika_Poll_090616.pdf.
- Oliveira, Danielle, Flavia Almeida, Edison Durigon, Erica Mendes, Carla Braconi, Ivan Marchetti, Viviane Botosso, and Eitan Berezin. 2016. “Prolonged Shedding of Zika Virus Associated with Congenital Infection.” *New England Journal of Medicine* 375: 1202–04. <http://www.nejm.org/doi/full/10.1056/NEJMc1607583>.
- STAT and Harvard T.H. Chan School of Public Health. 2016. “Zika Virus and the Election Season.” <https://cdn1.sph.harvard.edu/wp-content/uploads/sites/94/2016/08/STAT-Harvard-Poll-August-2016-Zika.pdf>.

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