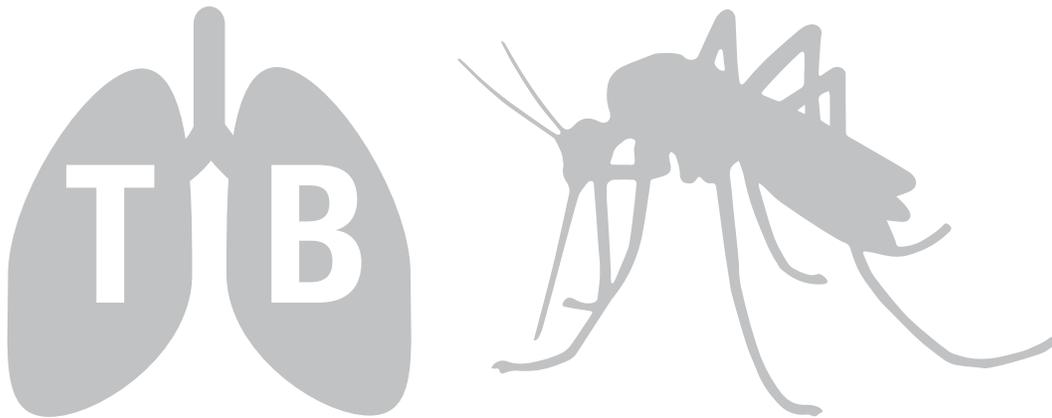




TECHNICAL BRIEF

TB and Zika Knowledge, Attitudes,
Practices and Behaviors Survey



Background and Rationale

It is challenging to appropriately address a health issue in a niche community without adequate baseline information to inform subsequent efforts and approaches. The Latin American migrant population is ubiquitous throughout much of the United States and it is imperative that a concerted effort be made to reach this vulnerable population with socially and culturally appropriate interventions that can have substantial impacts on wellbeing. While the challenge of tuberculosis bacteria amongst immigrant populations had been of concern for years, barriers and infection persist. Furthermore, the emergent mosquito-borne Zika virus is plaguing much of Latin America and research is showing that the virus can persist for months. It is important to capture current knowledge levels, commonly held attitudes and beliefs and prevalent practices in the Latino community in Lancaster, PA to determine appropriate next steps.

The Center for Human Services (CHS) previously worked in the Lancaster, PA Latino community to increase TB awareness in the community via community health volunteer training and engagement efforts. A baseline knowledge, attitudes, beliefs and practices (KABP) survey in Lancaster, PA covering both TB and Zika knowledge will allow an understanding of community retention of TB information and current saturation of Zika virus information in the community.

In the midst of the international efforts to study, understand and respond to the explosive number of new cases of Zika infection throughout Latin America, there have been limited efforts to engage with vulnerable populations within the domestic United States.

Table 1. Zika and TB statistics in Pennsylvania

Zika Statistics	TB Statistics
173 symptomatic cases of Zika reported since 2015	200 reported cases in 2015
4,747 amongst travelers returning from affected areas	1.6 cases per 100,000 persons
5,041 total cases of Zika virus reported in US	15.1 cases per 100,000 persons amongst foreign-born individuals in US

That being said, there have been significant educational awareness and access improvement efforts in areas such as South Florida due to locally transmitted cases and increased prevalence of *Aedes aegypti*, the virus transmitting mosquito,

ABOUT CHS

The Center for Human Services (CHS) and its for-profit affiliate, University Research Co., LLC (URC), are leaders in the development of mobile and connected solutions to help health program managers, health personnel and patients better track and manage care, especially for integrated health services. Our systems support patients and health care personnel to handle the routine details of complex and long-term care by providing tools to simplify and streamline processes, and help to collect and identify key information to inform decision making.

Our tools are designed with the needs of health staff in low-income and remote settings in mind, and are able to be supported by the infrastructure available in high-need, low resources settings. Our team has created an array of platforms that are intended to facilitate and strengthen decentralized management of critical health programs, and empower patients to take informed action to keep themselves healthy.

throughout the region. The efforts to increase awareness of Zika have faced barriers because up to 80% of infections are asymptomatic leading to a false sense of security amongst those without symptoms. Zika infection symptoms are similar to those of the common cold, but can include more unique symptoms of rash and conjunctivitis. There are no medical treatments available once a patient has been confirmed via diagnostic test to have Zika infection.

The potential range of the *Aedes* mosquito reaches far beyond Florida and can initiate local transmission if there is enough of a human reservoir with Zika infection in naïve populations. This potential risk is especially apparent when considering migrant workers moving from high risk to lower risk areas, including those with originations in Latin America or Florida with widespread Zika infection. Migrant workers are subject to high exposure risks due to their outdoor work, lack of regular access to medical care, poor living conditions and low income. Furthermore, there are significant language and literacy barriers preventing traditional Zika education initiatives from fully penetrating the migrant population.

The potential risks of Zika infection have been shown to be significant amongst pregnant women. Research has shown that migrant workers have reduced access and rates of utilization

of contraceptives to prevent pregnancy and once pregnant, do not have access to adequate antenatal care to recognize potential Zika infection and regularly monitor growth of the fetus. Since the inception of the substantial Latin American outbreak, research has shown that Zika virus can be transmitted via numerous other paths, outside of mosquito bite, most importantly via sexual contact from both males and females. Reduced access and utilization of condoms amongst this population poses increased risks of sexual transmission of Zika in light of recent developments that virus can persist in semen and vaginal secretions for an extended period of time.

In light of the barriers amongst migrant workers in the contiguous United States, an initial baseline cross-sectional study served to capture current knowledge, attitudes and beliefs as well as practices surrounding TB and Zika amongst this population. The baseline assessment will further inform subsequent interventions to increase knowledge of TB and Zika transmission methods, care seeking behaviors and prevalence of exposure reduction measures.

Primary Study Questions

This baseline survey aimed to determine the level of knowledge regarding impacts of TB and Zika infection, methods of transmission and understanding of disease risk amongst the vulnerable immigrant population.

Additionally, it aims to capture the attitudes of migrant workers regarding mosquito bite prevention measures, i.e. long clothing, bug spray and water drainage activities, and condom use.

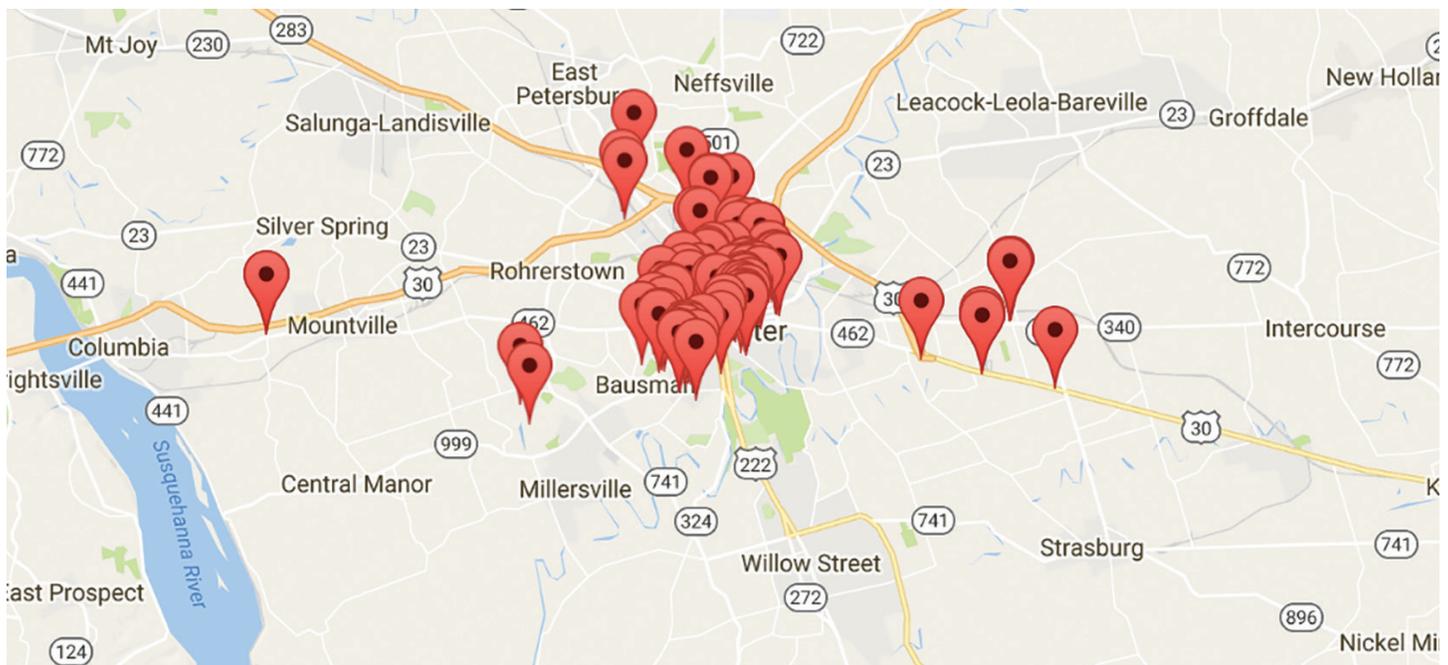
Finally, the survey worked to ascertain the practices held by migrant workers regarding pregnancy and believed risk level during pregnancy and health risk associated with infection.

Methods

In order to better understand the current knowledge, attitudes, practices and beliefs (KABP) regarding Zika virus infection and Tuberculosis bacteria a quantitative cross-sectional study was designed and implemented amongst Spanish-speaking migrant workers in Lancaster, PA. The survey included quantitative questions with prescribed answer options on a scale. Due to the early nature of this survey it would have been difficult to conduct qualitative data collection in this population. The quantitative data allows a cut-across view of current knowledge regarding Zika in the population and establishes a baseline for further interventions and efforts.

In order to increase the efficiency of survey collection efforts, the survey was administered on tablets with a digital version of the survey, available in both Spanish and English. All surveys were administered verbally by a research-team trained data collection volunteer to ensure data validity and common data collection

Figure 1. Map of survey response locations around Lancaster, PA



methods across the study. The data was collected on android tablets with the use of a data collection application that stored all collected data securely on the cloud.

The data collection volunteer team included ten Spanish-speaking immigrants residing in the Lancaster, PA area. Many of the volunteers had previous medical training and a passion for educational awareness raising in their communities. The volunteers included: three Medical doctors, one Nurse, one Lawyer, two Accountants, two Engineers, and one Physical Education and Sport Instructor. The data collection volunteers were provided with fundamental Zika virus and technology use training prior to their deployment. Additionally, each volunteer had access to a plethora of Spanish and English language resources from the Centers for Disease Control for distribution to survey participants.

The survey was designed to be completed in about 25 minutes with each participant responding to verbal prompts by the data collectors. The surveys were followed up by a question and answer period and data collectors provided informational handouts in both English and Spanish to all interested participants. The surveys were completed in public spaces, community centers, business and homes throughout the Lancaster, PA area. A map of locations for survey participation is provided.

Results and Discussion

The baseline KAPB survey was administered to 100 Spanish-speaking migrants in Lancaster by trained Spanish-speaking community data collection volunteers during January and February 2017. The survey included a total of 40 questions, including a consent question before initiating the survey.

Of the 100 respondents, 56% were female, 52% reported completing schooling to graduation, and 41% report visiting a health provider once a year while 15% report never seeing a health provider. In order to ascertain outdoor mosquito exposure risks, respondents were asked if they work outside for more than four hours a day, 77% of respondents replied yes.

Of the respondents that disclosed their country of origin, 11 countries in

Latin America were listed, including Puerto Rico, the Dominican Republic, Brazil, Mexico and Cuba. When asked, 58% reported that they intend to return at some point to their home country and 34% have no plans to return. The high number of individuals that plan to return to their home country indicate

Figure 2. Response to the statement: Zika is a preventable disease

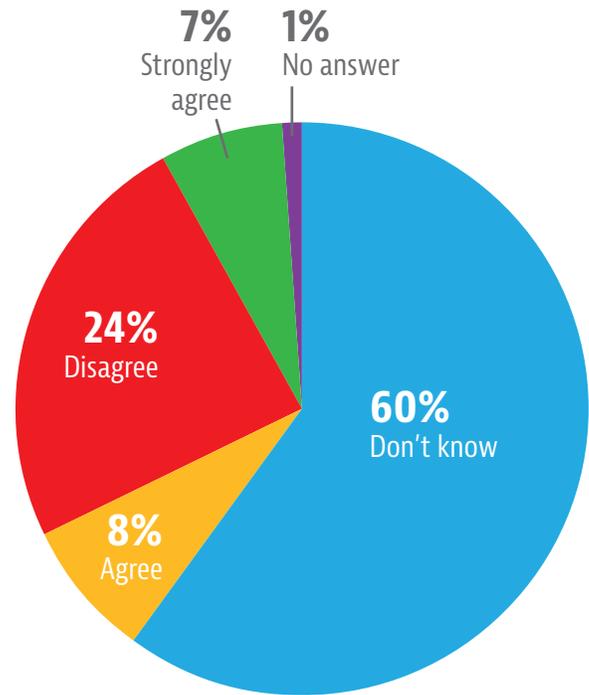
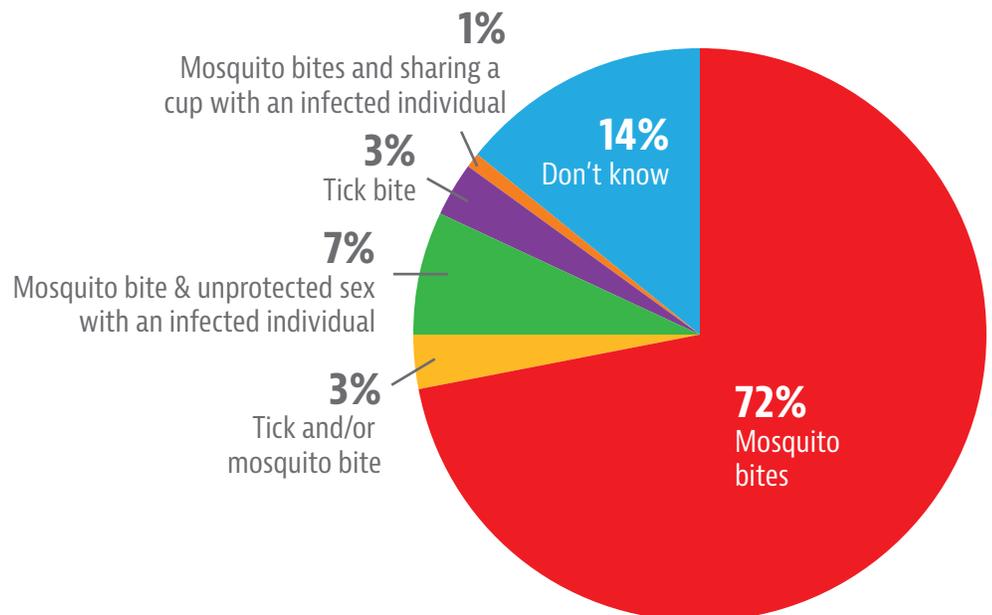


Figure 3. Respondent knowledge of how Zika transmits



a high potential risk of mosquito-borne infection and potential transmission upon return to the continental United States.

Data shows that 88% of respondents identified Zika virus as a disease or infection but **only 8% of respondents agreed that Zika virus is a preventable disease**, and 7% strongly agreed. Alternatively, 24% or about 1 in 4 respondents disagreed that Zika virus is a preventable disease. There is a significant proportion of the population that is not well educated on Zika and how they might prevent infection in their families.

Of the 100 respondents, 72% cited mosquito bite as the means of transmission but **only 7% of respondents selected mosquito bites and unprotected sex with an infected person**. There is a substantial gap in knowledge surrounding the transmission of Zika and potential means of protecting oneself.

Of the respondents surveyed, 49% agreed that those in Zika endemic areas should avoid pregnancy and 27% strongly agreed with that statement. While there are many that believe pregnancy should be avoided in areas of high Zika virus risk, only 13% of respondents stated that a condom use was an effective means of preventing Zika virus infection. 55% of respondents stated that they were unsure if a condom could prevent Zika infection and 15% disagreed with the statement. In addition, the survey included a question about respondent's ability to pay for contraceptives, 47% agreed that they can pay for contraceptives and 17% strongly agreed but 17% disagreed or strongly disagreed with the question. The numerous types of contraceptives in use amongst the immigrant and migrant population is quite vast and in future endeavors, additional awareness raising initiatives should be explored to ensure this population is able to access all potential contraceptive methods, including long-lasting options. Inability to access or purchase contraceptives is concerning amongst this population due to social and political barriers that can impede appropriate access. Questions about reproductive health were by far the most uncomfortable questions for the respondents to the survey due to high levels of discomfort in disclosing personal practices and discuss reproductive health with non-family members.

Respondents were then asked about the source of the contraceptives they utilize and 55% preferred not to answer the question. Of those that answered the question, 12%

Figure 4. Respondent reported pregnancy prevention method

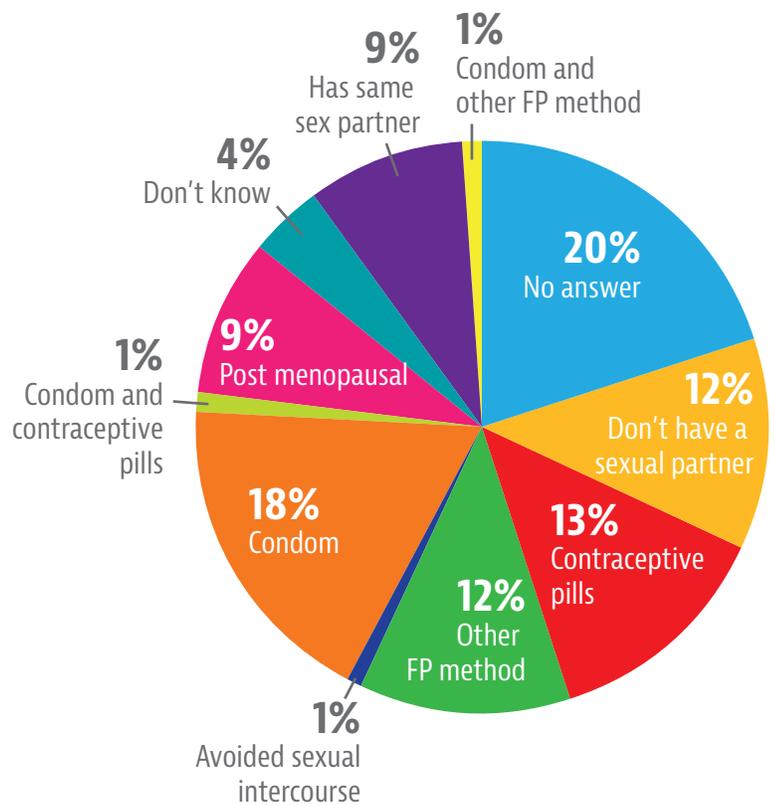


Figure 5. Respondent reported source of contraceptives

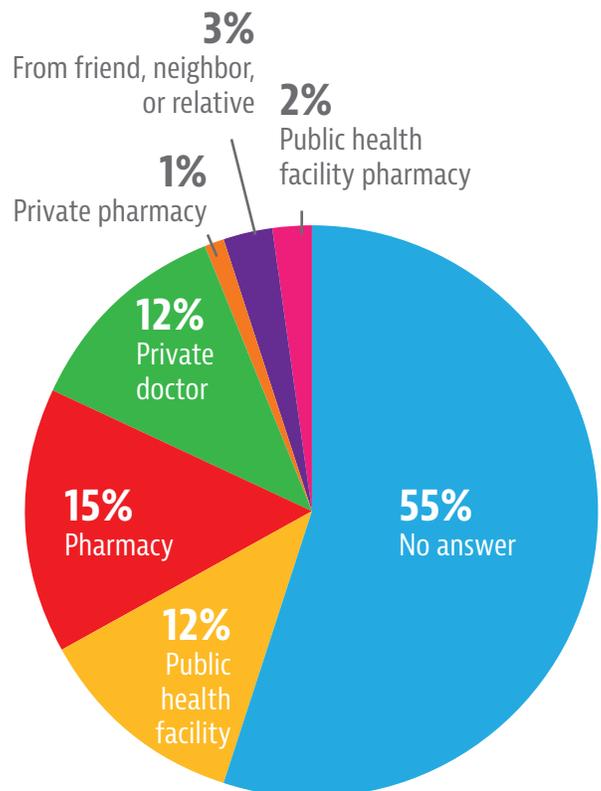
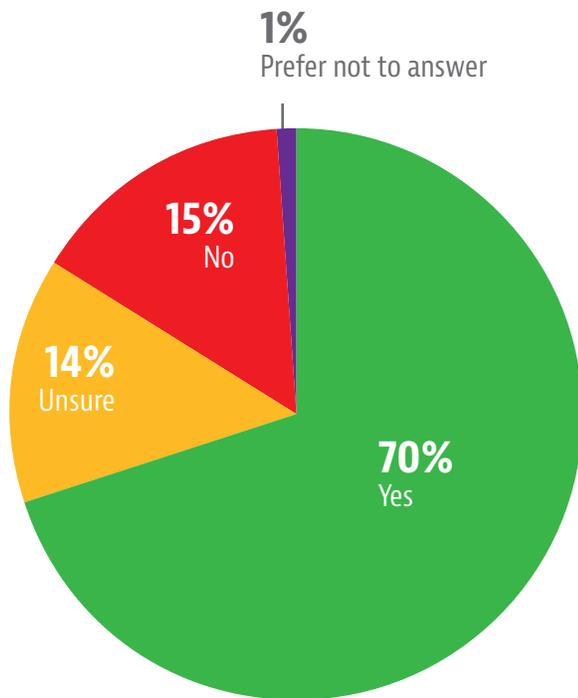


Figure 6. Willingness to get a vaccination for Zika



received their contraceptives from a public health facility, 15% from a pharmacy and 12% from a private physician or doctor. Other sources of contraceptives included private pharmacies (1%), from friends, family or neighbors (3%) and public health pharmacies (2%).

When asked about stigma associated with Zika infection in women, 25% agreed with this statement and 5% strongly agreed. A lack of access to appropriate diagnostic testing and informed decision making is a real concern in a community experiencing infection-related stigma.

Finally, the surveyed respondents expressed a willingness to obtain a Zika vaccination, if one were made available. Figure 6 demonstrates that 70% of respondents were willing to get a vaccination. The openness to vaccination might be an important entry point for future community education interventions because a Zika vaccination could be targeted towards populations with higher risk exposures, like agricultural migrants.

Challenges

The social and political environment in the United States was one of the greatest challenges to the participation of migrant workers during the months of January and February in 2017. Many respondents expressed fears related to registration and identification of illegal immigrants via participation in this

survey. As a result, many participants chose to meet outside of their homes and requested full confidentiality in shared information. During the consent process, data collection volunteers confirmed that no personal data was to be collected or shared in any resulting reports.

Furthermore, the breadth of questions regarding personal reproductive practices, the use of contraceptives and the role of religious leaders was a challenge for the respondents. Many participants were not comfortable disclosing or discussing their reproductive practices, specifically use of condoms, potential termination of a baby due to Zika virus infection and influence of religious leaders. The presence of these challenges will inform any future interventions undertaken and require additional attention to religious and social issues associated with reproductive health.

Further Considerations

The primary outcome of this KABP survey was a recognition that further analysis of the reproductive health practices amongst Latino migrants in Lancaster, PA and perceptions of risk associated with Zika virus is needed. While many of the surveyed respondents were aware of Zika virus, only 15% believe it be a preventable disease—indicating a potential disengagement amongst those at highest risk and the feeling of powerlessness to prevent potential infection. The supplemental information that the data collectors shared with the respondents after completion of survey was welcome but it was difficult to ascertain uptake and ensure significant changes in knowledge levels, beliefs or practices relative to Zika virus exposure and preventive measures. There is an opportunity to develop contextualized social and behavioral change communication (SBCC) messaging for Latino migrants to raise community knowledge levels about Zika virus and empower community members to take self-protective measures. Targeted SBCC messaging has the potential to reduce some of the stigma associated with discussing sexual and reproductive health which may have positive ripple effects on women's health in this vulnerable population. While the Zika virus outbreak in Latin America has decreased substantially, Zika virus exposure, especially amongst those who may become pregnant, is still high priority and efforts to bolster the social support systems to enable equitable access to appropriate healthcare are of utmost importance. CHS maintains strong ties with the Latino population in Lancaster, PA and is ready to further explore and respond to TB, Zika virus and health access issues should another opportunity arise.



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