



Trevor R. Wellington MD^{1,2,3}, Jamie Fraser MPH^{4,5}, Huai-Ching Kuo^{4,5} Patrick W. Hickey MD^{4,6}, David A. Lindholm MD^{3,7}

1 Walter Reed Army Institute of Research, Silver Spring, MD, USA
2 1st Area Medical Laboratory, Aberdeen Proving Grounds, MD, USA
3 Department of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD, USA

5 The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., Bethesda, MD, USA
6 Department of Pediatrics, Uniformed Services University of the Health Sciences, Bethesda, MD, USA
7 Brooke Army Medical Center, Joint Base San Antonio-Fort Sam Houston, TX, USA

4 Infectious Disease Clinical Research Program, Department of Preventive Medicine & Biostatistics, Uniformed Services University of the Health Sciences, Bethesda, MD, USA

Background

- Zika virus (ZIKV) is an emerging arthropod-borne viral disease capable of vertical transmission in pregnant patients exposed to the virus
- Serious fetal complications, such as microcephaly and other neurologic sequelae can occur
- Pregnant women are at risk of contracting ZIKV when they (or their sexual partners) travel to areas with known transmission
- Asymptomatic prenatal screening for ZIKV is not routinely recommended, regardless of travel history, though rates of birth defects are similar between symptomatic and asymptomatic women
- We sought to evaluate the rate of positivity in ZIKV screening in pregnant patients within the military health system (MHS) from fiscal years 2012-2019

Methods

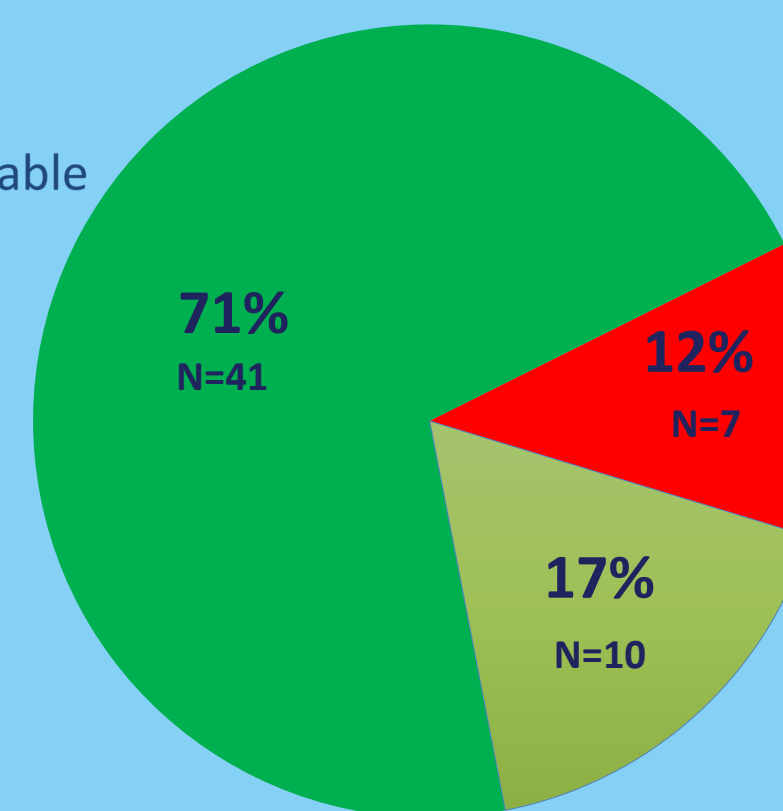
- The Infectious Diseases Clinical Research Program (IDCRP) Deployment and Travel Health: Knowledge, Attitudes, Practices, and Outcomes Study (KAPOS)
 - Multi-cohort study evaluating the burden of travel-associated diseases in the MHS
- The MHS Data Repository was searched for International Classification of Diseases (ICD)-10 codes for ZIKV infection in military members and other beneficiaries receiving inpatient and outpatient care in either military treatment facilities (direct care) or civilian centers (purchased care) for fiscal years 2012-2019
- Redundant codes of same subject were excluded
- A subset of charts of patients receiving outpatient care in military treatment facilities (direct care) were reviewed in the Armed Forces Health Longitudinal Technology Application (AHLTA) and the Joint Legacy Viewer (JLV)
- Chart documentation was reviewed for travel history (including location, purpose of travel), clinical presentation, indication for testing, and pregnancy status
- Lab evaluation was reviewed for ZIKV diagnostic confirmation
 - Validity of ZIKV diagnosis utilized the Armed Forces Health Surveillance Center (AFHSC) case definitions
- For pregnant subject with ZIKV, clinical notes and fetal ultrasound results were reviewed for evidence of fetal complications

Results

230 unique subjects with ICD-10 coding for ZIKV
124 subjects underwent chart review
58/124 subjects were pregnant (all asymptomatic)

Zika Virus Screening in Pregnancy FY 2012-2019 (n=58)

- Ruled out
- Zika case
- No data available



Fetal Evaluation

One patient (1/7; 14%) with positive ZIKV testing demonstrated fetal complications on ultrasound (polyhydramnios)
All (N=7) with full-term, live births; no microcephaly or other serious birth defects

Travel Evaluation

Most frequent locations of travel associated with positive ZIKV testing in pregnancy

- Puerto Rico (N=2)
- Guyana (N=2)
- Brazil (N=1)

Two patients reported only spousal travel (Cuba [N=1], Guyana [N=1])

Disclaimer / Funding Statement

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Discussion

- ZIKV is an emerging infectious disease that can result in fetal complications, though the role of asymptomatic screening remains unclear
- This study suggests the PPV of asymptomatic ZIKV screening in pregnancy is low 12% (7/58), but not insignificant
- No definitive fetal complications secondary to ZIKV infection were seen; however, study limited by small sample size
- Travel history of patients with ZIKV matched areas with known endemicity
- Spousal travel resulted in 29% (2/7) ZIKV cases supports significant role of sexual transmission
- Targeted ZIKV screening based on personal/partner travel history may help guide clinicians in appropriate testing in pregnancy
- Limitations of this study include a small sample size, as well as reliance on ICD-10 coding for ZIKV to capture screening in pregnancy
- Study limited to fetal evaluations available on pregnant patient's chart; did not examine neonatal/pediatric outcomes
- Additional studies are needed to further evaluate the role of ZIKV screening in pregnancy

Conclusions

- The role of ZIKV screening in pregnancy remains uncertain
- Overall low rates in asymptomatic pregnant patients observed in this study
- Clinicians should consider both patient and sexual partner travel history, as multiple cases of ZIKV with partner-travel-only observed

Correspondence

Trevor Wellington, MD: trevor.r.wellington.mil@health.mil
Walter Reed Army Institute of Research (WRAIR)
503 Robert Grant Ave, Silver Spring, MD, USA 20910