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Pregnant women with suspected Zika virus infection: A claims data analysis

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Objective

Demonstrate the value of consolidated claims data from community healthcare providers in Zika Virus Disease surveillance at local level.

Introduction

Zika virus disease and Zika virus congenital infection are nationally notifiable conditions that became prominent recently as a growing number of travel-associated infections have been identified in the United States. The Centers for Disease Control and Prevention (CDC) have dedicated significant time and effort on determining and addressing the risks and impact of Zika on pregnant women and their babies who are most vulnerable to the disease. CDC relies on two sources of information, reported voluntarily by healthcare providers, to monitor Zika virus disease: ArboNET and the newly established U.S. Zika Pregnancy Registry. A study by IMS Health compared U.S. trends of the Zika virus disease in general and pregnant women with Zika virus disease in particular observed in an IMS healthcare claims database and the CDC ArboNET and the newly established U.S. Zika Pregnancy Registry.

Methods

IMS used for this analysis claims for reimbursement from office-based healthcare providers, which are widely accepted standard business practice records throughout the healthcare industry. IMS claims data is collected daily from office-based providers throughout the U.S. and processed, stored and analyzed in a centralized database. The information is available at the patient and visit level, with the ability to characterize deidentified patients by age, gender and ZIP3 location and to trace a patient's history of visits, diagnoses, procedures, drugs prescribed and tests performed or ordered.

The general IMS study sample captured all patients throughout the continental United States covered in claims between October 1, 2016 and May 24, 2016 with ICD 10 diagnosis code A92.8, Other Specified Mosquito-Borne Viral Fevers. This sample was compared to the sample of laboratory-confirmed Zika virus disease cases reported to ArboNET by state or territory from the CDC Arboviral Disease Branch from January 1, 2015 through May 18, 2016. In addition, IMS compared the subset of patients with both a Zika virus disease diagnosis and any ICD 10 pregnancy diagnosis to the CDC sample of patients captured by the U.S. Zika Pregnancy Registry with any laboratory evidence of possible Zika virus infection in the United States and territories.

Results

Throughout the continental United States, the IMS claims-based sample captured 875 patients with a Zika virus disease diagnosis compared to 548 travel-associated cases reported by CDC. At the state level, especially in New York, New Jersey, Illinois and Texas, the IMS data captured a much larger number of cases that the CDC reported cases. Most of these possible Zika cases are concentrated in the large metropolitan areas around New York City, Chicago and Houston. Many of them are diagnosed and treated by the same healthcare providers.

The IMS sample captured 577 pregnant women with a possible Zika virus infection compared to the 168 pregnant women with a possible Zika virus infection reported in the U.S. Zika Pregnancy Registry as of May 24, 2016. Many of the pregnant women in the IMS sample had multiple visits, often in consecutive months, associated with the Zika virus disease diagnosis. Pregnant women are more likely to be tested and diagnosed with a Zika virus infection due to the risk of fetal malformations from the disease. As many as 250 of the 577 pregnant women with a possible Zika virus infection also had a diagnosis of suspected fetal damage due to a viral disease. Of all women with a possible Zika virus infection in the IMS sample, 120 were in New Jersey, 111 in New York, 93 in Illinois and 74 in Texas, and most were concentrated in the large metropolitan areas around New York City, Chicago and Houston.

Conclusions

These findings suggest that all-payer claims data can be used succesfully to monitor Zika transmission trends at local and state level, especially with a focus on pregnant women. Healthcare claims data is fast, granular, relevant at local level and can be used to supplement CDC ArboNET data for local and state level surveillance and response to the evolving Zika virus infection outbreak. This study is an example of a novel approach to surveillance for Zika virus disease and potentially many other infectious diseases.

Patients with suspected Zika virus infections by state
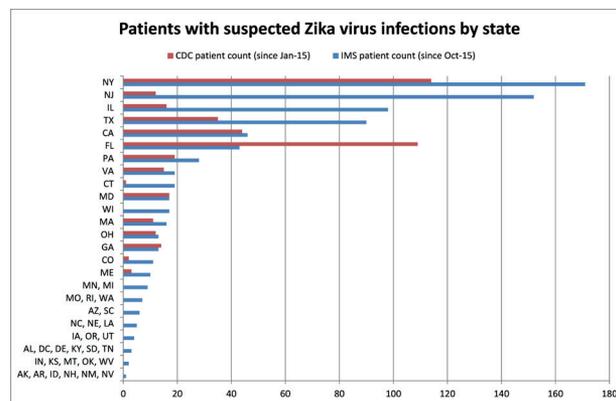
Keywords

Zika; pregnancy; local signal

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