


A Study: Chikungunya Using Social Media Analytics in Delhi

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ABSTRACT

Chikungunya, an infection which is difficult to treat, took a toll on Delhi in year 2016. In that scenario, detection and prevention of vector-borne diseases outbreak in Delhi have been a major cause of concern for government. For analyzing this epidemic outbreak, the authors have utilized the unstructured data generated through Twitter. Twitter is a social media platform that generates vast amount of epidemic-related information every day. This information is used to analyze the effect of epidemic outbreak in Delhi region. In this paper, the authors discussed an associated study of various machine learning techniques for analyzing and mining social media information. In this, the authors have also categorized and explore the steps involved in social media textual data to provide a pictorial view of the ongoing outbreak. Finally, the article discussed the challenges faced for mining social media data.

KEYWORDS

Chikungunya, Social Media Analysis, Social Media Data, Twitter

1. INTRODUCTION

In the recent time social media data is used for extraction of useful information such as patterns detection, trends analysis and event identification (Cui, Xiaohui, Nanhai Yang, Zhibo Wang, Cheng Hu, Weiping Zhu, Hanjie Li, Yujie Ji, and Cheng Liu., 2015). Social networking sites, like Twitter (Sangeeta Grover and Gagangeet Singh Aujla, 2015) a source provider of epidemic related information, enables public health officials to take early disease control measure in prone locations at right time. Mining social media data emulates the effect and spread of chikungunya outbreak in Delhi. Epidemic outbreak related data are generated in large numbers in Social media platform like Twitter. Twitter act as a platform which provide meaningful and useful information from unstructured data generated. Unlike other information sources, Twitter provides real-time data and exhibits ongoing events and latest updates around the world (Kumar, Shamanth, Fred Morstatter, and Huan Liu, 2014).The data generated has been analyzed not only to have a glimpse of public opinion, but also monitoring diseases and for providing health-related services efficiently at minimal cost.

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Chikungunya, an Alpha-virus, communicated by “Aedes” mosquitoes. Every year, a large number of people get affected by these mosquitoes and puts load on health care. Chikungunya is a virus, which is major cause of concern to public health in India. Chikungunya, which has never really been a big worry in north India, but the abrupt rise in Chikungunya, which has never been a great concern in the north India, but the sudden rise in this epidemic cases in Delhi and other parts of north India has shown in fig.1. According to the report, North Delhi has been the worst affected area this year i.e., 2016 (Chikungunya, dengue sting India, 2016) (Saxena, A., Goyal, L. M., & Mittal, M. 2015) (Figure 1).

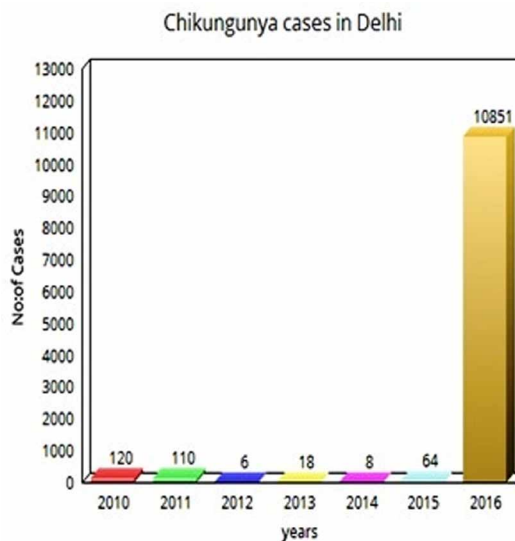
The paper is divided into different sections. Section 2 gives a brief about chikungunya and social media platform twitter. Section 3 listed the background study on the topic. Section IV explores the overall process of analyzing social media data. Section V we describe the main challenges faced while analyzing epidemic

2. BACKGROUND

2.1 Chikungunya

Chikungunya virus is transmitted when an infected “Aedes aegypti” mosquitoes bites a human, that was first found in modern day Tanzania in 1952–1953 (HO, World health day, 2014). Chikungunya virus (CHIKV) belongs to genus “Alpha-virus”, “Toga-viridae” family, the name ‘Chikungunya’ has been acquired from a word in the “Kimakonde” language, which defines “that which bends up” i.e. which becomes contorted. The name suggests the stooped appearance of the sufferers due to joint pain (arthralgia).Symptoms of a chikungunya infectioncome into sight after 4-7 days being bitten by the infected mosquito. Chikungunya is an infectious disease characterized by “fever”, “arthralgia”, and “myalgia”; found in all age group but severe and complex cases are often seen in children and old age group. According to the World Health Organization the disease is commonly found in tropical and sub-tropical regions and places where safe drinking water availability and sanitation systems accessibility is difficult for mass population. According NVBDCP report, 10851 chikungunya suspected cases found till October 2016; big upsurge due to chikungunya is being going on in the city of Delhi.

Figure 1. Delhi's sudden rise in Chikungunya cases



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