



# Pathogens and epidemiologic feature of severe fever with thrombocytopenia syndrome in Hubei province, China



Jianbo Zhan<sup>a,b,1</sup>, Jing Cheng<sup>c,1</sup>, Bing Hu<sup>b</sup>, Jing Li<sup>b</sup>, Ruangang Pan<sup>b</sup>, Zhaohui Yang<sup>b</sup>, Wenjing Zou<sup>b</sup>, Faxian Zhan<sup>b,\*</sup>, Deyin Guo<sup>a,\*</sup>

<sup>a</sup> Institute of Medical Virology, Wuhan University School of Basic Medical Sciences, Wuhan, 430072, China

<sup>b</sup> Division for Viral Disease Detection, Hubei Provincial Center for Disease Control and Prevention, Wuhan, 430079, China

<sup>c</sup> College of Medicine, Wuhan university of Science and Technology, Wuhan, 430081, China

## ARTICLE INFO

### Article history:

Received 25 October 2016

Received in revised form 5 January 2017

Accepted 9 January 2017

Available online 12 January 2017

### Keywords:

Pathogens  
Epidemiologic  
Features  
SFTS

## ABSTRACT

To evaluate the aetiological agents and epidemiologic features of severe fever with thrombocytopenia syndrome (SFTS) in Hubei province, China, sera from patients were collected from January to December 2011. All cases occurred from April to December, and the epidemic peaked from May to August. The ages of patients ranged from 10 to 86 years (median = 55 years), and the incidence of SFTS increased with age. The female:male ratio of cases was 1.008:1, and 54.6% (77/141) and 1.4% (2/141) of the cases were confirmed by qPCR to be SFTSV and Hantavirus (HV) infection, respectively. No case of simultaneous infection with two or more pathogens was found. The research in this paper showed that some suspected SFTS cases are confused with HV infection due to similar symptoms. The analysis showed that the distribution of SFTSV has a marked regional aggregation in Hubei province.

© 2017 Elsevier B.V. All rights reserved.

## 1. Introduction

Beginning in March 2009, severe fever with thrombocytopenia syndrome (SFTS) was detected in the hilly region of Hubei province in central China. However, the cause of SFTS is unclear. The primary clinical manifestations of patients with SFTS were sudden-onset fever, thrombocytopenia, leukocytopenia, and gastrointestinal symptoms; these led to the disease being assigned the name SFTS. At first, the mortality rate of the infectious disease reached 30% (Yu et al., 2011). Subsequently, cases were reported in Henan, Shandong, Jiangsu, Liaoning, and other provinces of China, with clinical symptoms that were similar to those of human granulocytic anaplasmosis (HGA). Patients with such symptoms in Hubei

province were initially diagnosed with HGA (Yu et al., 2010; Xu et al., 2008), but in most cases the laboratory evidence was insufficient to verify the diagnosis. The Chinese Centers for Disease Control and Prevention (CDC) stated that such symptoms were not compatible with those of HGA, as described in the United States (Wellman et al., 1988). In March 2011, a new virus was isolated from a patient's blood by the Chinese CDC and named SFTS bunyavirus (SFTSV) (Li, 2011). An aetiological investigation of the disease was undertaken by the Hubei CDC. According to the above clinical characteristics and case definition, surveillance for SFTS was initiated in Hubei province. To evaluate the aetiology and epidemiology of SFTS, enhanced surveillance of acute febrile illness was carried out in Hubei province in 2011.

## 2. Materials and methods

### 2.1. Surveillance districts and blood collection

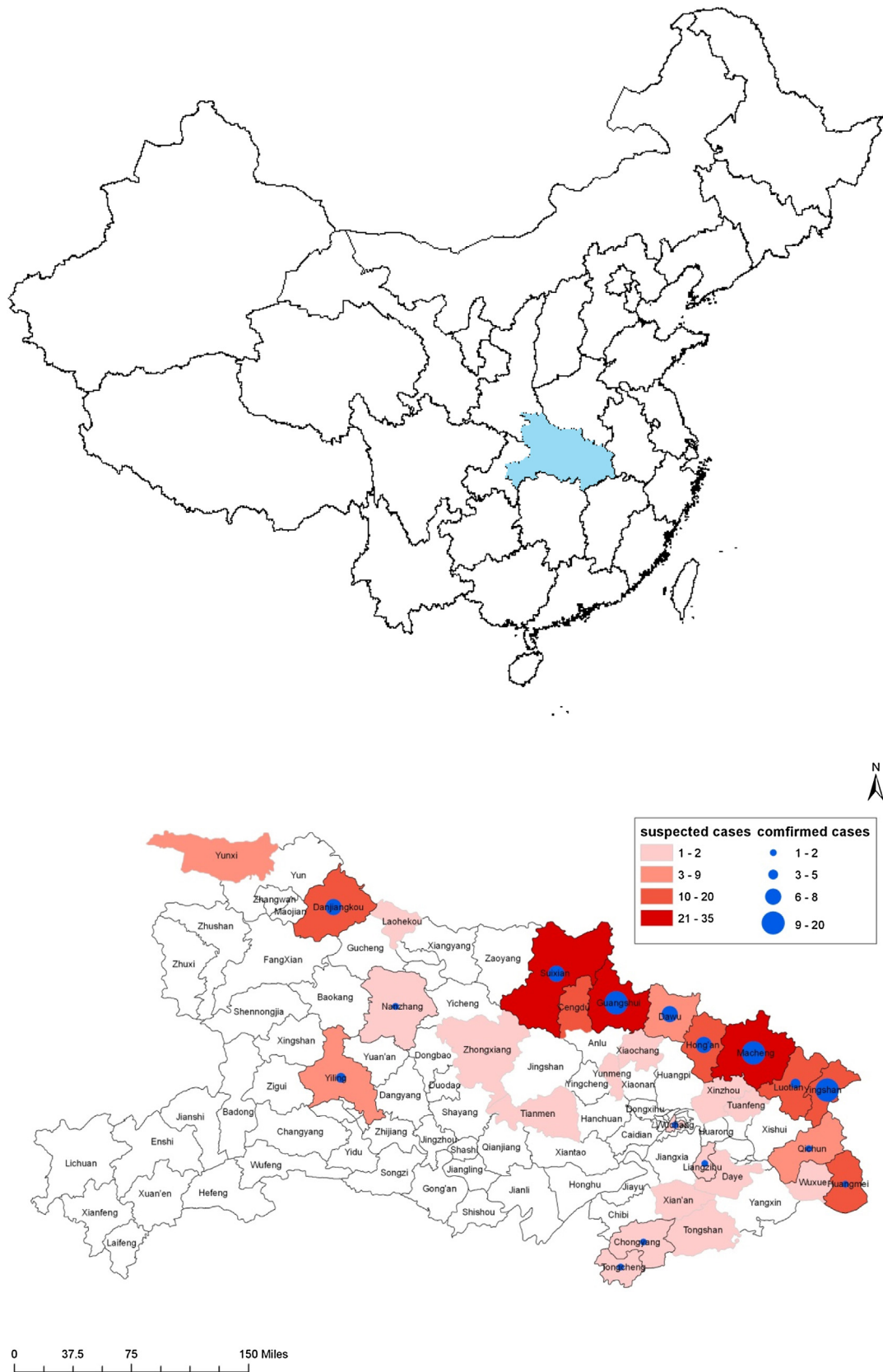
A surveillance network at town health centres and general hospitals was established in Hubei province (Fig. 1a). Cases were reported in the China Information System for Disease Control and Prevention. Acute-phase serum samples, clinical information and laboratory data of all patients with a diagnosis of SFTS in 2011 in Hubei province were obtained from the hospitals in the surveillance network.

**Abbreviations:** SFTS, severe fever with thrombocytopenia syndrome; SFTSV, severe fever with thrombocytopenia syndrome virus; HV, hantavirus; qPCR, quantitative real-time polymerase chain reaction; ELISA, enzyme-linked immunosorbent assay; CK, creatine kinase; LDH, lactate dehydrogenase; ALT, alanine aminotransferase; AST, aspartate aminotransferase; HTNV, Hantaan Virus; SARS, acute respiratory syndrome; HGA, human granulocytic anaplasmosis.

\* Corresponding author at: Institute of Medical Virology, Wuhan University School of Basic Medical Sciences, Wuhan 430072, China. Division for Viral Disease Detection, Hubei Provincial Center for Disease Control and Prevention, Wuhan 430079, China.

E-mail addresses: [zhanfx@163.com](mailto:zhanfx@163.com) (F. Zhan), [dguo@whu.edu.cn](mailto:dguo@whu.edu.cn) (D. Guo).

<sup>1</sup> These authors contributed equally to this study.



**Fig. 1.** a. Hubei Province, China (color area) where severe fever with thrombocytopenia syndrome was studied, 2011. b. Geographic distribution of reported cases with SFTS and confirmed cases infected with SFTSV in Hubei province in 2011.

Download English Version:

<https://daneshyari.com/en/article/5675563>

Download Persian Version:

<https://daneshyari.com/article/5675563>

[Daneshyari.com](https://daneshyari.com)