

# SARS: Implications of the Changing Case Definition

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# Overview

- ▶ Background / Purpose
- ▶ Methods
- ▶ Case definitions
- ▶ Graphs
- ▶ Discussion
- ▶ Summary



# Background

- ▶ By end of July, SARS outbreak results:
  - Global - 8098 probable cases and 774 SARS-related deaths (9.6% fatality)
- ▶ For the U.S., number of cases reported were not always consistent between WHO and CDC

# Background (cont.)

- ▶ Reason? → Changing case definition
  - Interim US surveillance case definition (as stated by CDC)

# Purpose

- ▶ Purpose of project:
  - To examine the impact of the changing case definition in case ascertainment and case investigation

# Methods

- ▶ Literature review on SARS and review of case definition changes
- ▶ Examined how changing case definition impacted case ascertainment in the United States

# WHO Case Definition

<b>suspect</b>	3/19/2003	5/1/2003	7/18/2003
Epidemiologic	X	X	X
Clinical – temp.	X	X	X
Clinical – resp. illness	X	X	X
Clinical – other*			
Exclusion		X	X
Laboratory		X	X
<b>probable</b>			
Epidemiologic	X	X	X
Clinical – temp.	X	X	X
Clinical – resp. illness	X	X	X
Clinical – other*	X	X	X
Exclusion		X	X
Laboratory		X	X

\* Includes radiographic findings or respiratory distress syndrome

# CDC Case Definition

<b>suspect</b>	3/19/2003	5/1/2003	7/18/2003
Epidemiologic	X	X	X
Clinical – temp.	X	X	X
Clinical – resp. illness	X	X	X
Clinical – other*			
Exclusion			X
Laboratory		X	<u>X</u>
<b>probable</b>			
Epidemiologic		X	X
Clinical – temp.		X	X
Clinical – resp. illness		X	X
Clinical – other*		X	X
Exclusion			X
Laboratory		X	<u>X</u>

\* Includes radiographic findings or respiratory distress syndrome

# Case Definition changes

- ▶ Addition of laboratory criteria
- ▶ Having “suspected” and “probable” case definitions – two different levels
- ▶ Epidemiologic criteria for case definition changed due to advisories/alerts being added or removed

# Examples of case definition “issues”

- ▶ Lack of equivalent case definitions between countries and/or organizations
- ▶ Epidemiologic criteria: different travel date information between areas

Travel criteria as recommended by CDC for probable, suspect, and possible\* SARS cases  
(Table posted on CDC website on 7/2003)

Geographic Area	First date of illness onset for inclusion as a case	Last date of illness onset for inclusion as a case
China (Mainland)	November 1, 2002	July 13, 2003
Hong Kong	February 1, 2003	July 11, 2003
Hanoi, Vietnam	February 1, 2003	May 25, 2003
Singapore	February 1, 2003	June 14, 2003
Toronto, Canada	April 1, 2003	July 18, 2003
Taiwan	May 1, 2003	July 25, 2003
Beijing, China	November 1, 2002	July 21, 2003

\* Classification of SARS cases added for Maryland 4/10/2003

# SARS within Maryland

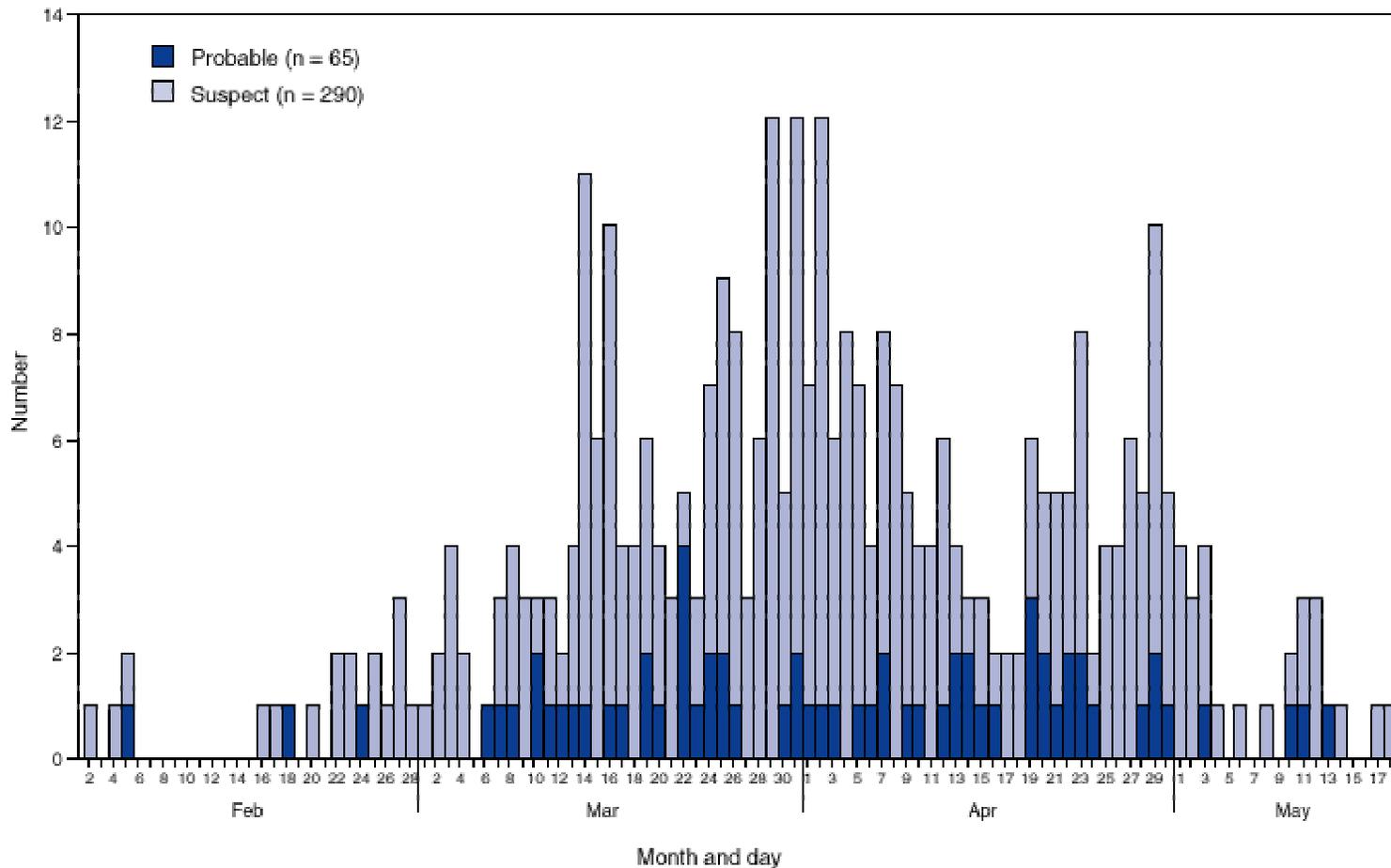
- ▶ At the beginning of the outbreak, the DHMH's case definition broadened the CDC case definitions to “possible” cases
- ▶ With details on SARS sparse, the DHMH opened the case definition to widen out its ability to capture any potential cases
- ▶ <http://www.dhmh.state.md.us> – see SARS page

# Results

- ▶ Final case numbers in the U.S.?
  - WHO, 29 probable cases (as of 09/26/2003)
  - CDC, 8 cases – confirmed with laboratory evidence of SARS-CoV (as of 12/12/2003)
    - ▶ Final case definition – extensive clinical, laboratory, epidemiologic, and exclusion criteria

# Number of cases as of 5/21/2003

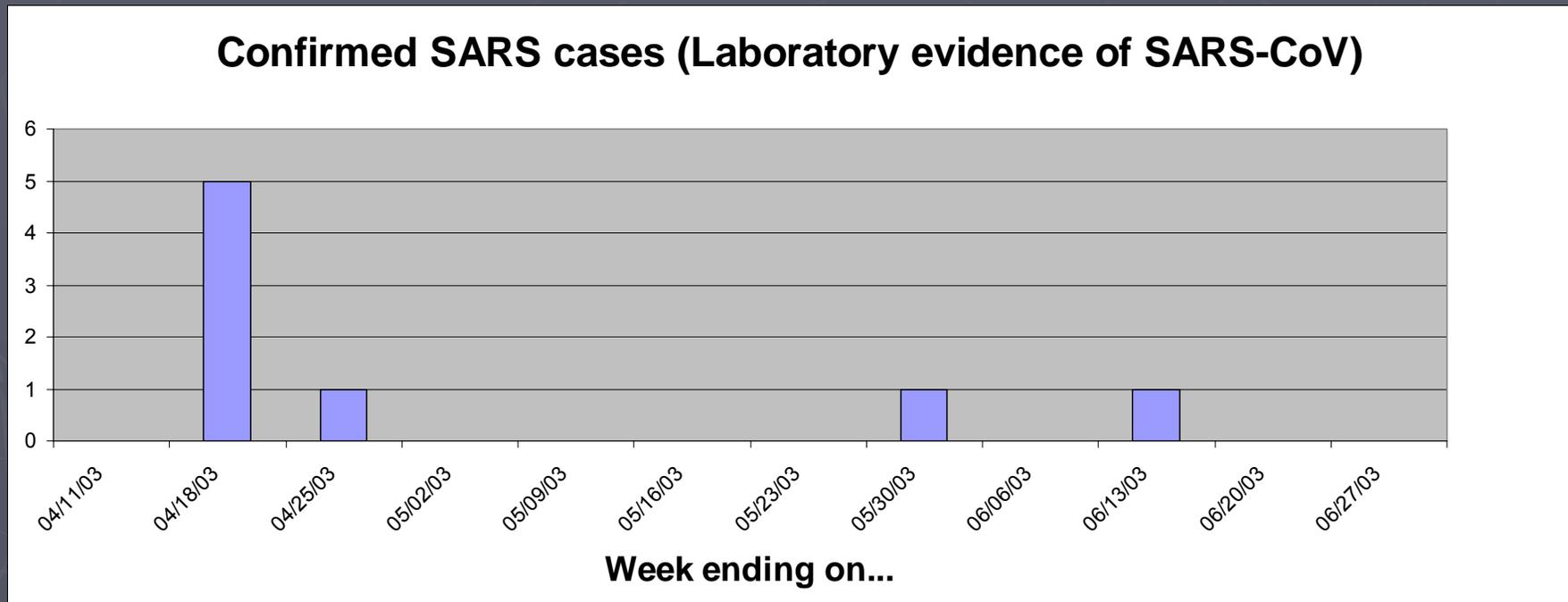
FIGURE. Number\* of reported cases of severe acute respiratory syndrome, by classification and date of illness onset — United States, 2003



\*N = 355.

Source: CDC. Update: Severe Acute Respiratory Syndrome --- United States, May 21, 2003. MMWR 2003; 52(20): 466-468

# Confirmed U.S. SARS cases by July 2003



8 cases total!

# Discussion

- ▶ initial broad case definition captured large numbers of people
- ▶ further understanding of SARS resulted in changes in case definition, affecting case numbers

# Discussion (2)

- ▶ Difficulty in establishing a “true” case
  - Clinical & laboratory criteria - “hard” science
  - science not always available
  - epidemiologic & case-exclusion criteria may be required to help understand disease and spread

## Discussion (3)

- ▶ Difficulty affected by issue of the changing case definition
  - Earlier reports of possible SARS cases were identified via epidemiologic and clinical criteria
  - Lab criteria not available early in outbreak
  - By July 2003, positive result of presence for SARS-CoV was required to ascertain a true SARS case

# Discussion (4)

- ▶ What would a health official recommend?

# Summary

- ▶ Shifting case definition has a tremendous impact on case ascertainment and case numbers
- ▶ Fortunately, global surveillance was very strong
- ▶ Continuing need for flexibility for Public Health response at all levels

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