

Outbreak of Gastrointestinal Illness Aboard Cruise Ship, *MS Mariner of the Seas*, Cape Canaveral, Florida

On July 27, 2006, Royal Caribbean International Cruise Line (RCI) notified the VSP that 86 (2.4%) of 3,671 passengers had reported GI illness to the infirmary of their ship, *MS Mariner of the Seas*; five (0.4%) of 1,206 crew members had also reported GI illness. The ship had sailed from Port Canaveral, Florida on July 23, 2006 (Appendix A).

An Epidemic Intelligence Service (EIS) officer from CDC's National Center for Environmental Health assisted in the investigation to determine the characteristics and extent of GI illness aboard the *MS Mariner of the Seas*, the causal pathogen, the potential modes of illness transmission, and to help enact public health intervention and control. Three VSP Environmental Health officers and the EIS officer met the *MS Mariner of the Seas* in Port Canaveral, Florida on July 30, 2006 to conduct an outbreak investigation.

The primary objectives of this investigation were to:

- determine the etiology of the outbreak;
- determine the method of transmission among passengers and crew; and
- develop recommendations to stop the current spread of the illness and to prevent future occurrences of illness.

VSP inspectors met the ship at Port Canaveral, Florida to conduct a focused environmental inspection. This inspection concentrated on critical control areas of the ship.

Laboratory Results

Five of nine samples (56%) were positive for norovirus.

Passenger Survey

- 1,100 Passenger surveys distributed
- 398 Passenger surveys collected (response rate = 36%)
- 8 Passenger surveys indicated the respondent was ill before boarding
- 63 Passenger surveys indicated indeterminate illness
 - These respondents noted some symptoms but did not meet the case definition.
- 135 Passenger surveys met the case definition

The final GI illness log shows that the overall attack rate was 6.6% (244/3,671) among the passengers and 0.5% (6/1,206) among the crew.

The causative agent of this outbreak was norovirus, demonstrated through laboratory analysis and epidemiologic characteristics.

Appendix A

Itinerary for *MS Mariner of the Seas*, July 23, 2006 – July 30, 2006

23 July 2006	Port Canaveral, Florida (embarkation day)
24 July 2006	Coco Cay, Bahamas
25 July 2006	At sea
26 July 2006	St. Thomas, U.S. Virgin Islands
27 July 2006	St. Maarten, Dutch Antilles
28 July 2006	At sea
29 July 2006	At sea
30 July 2006	Port Canaveral, Florida (disembarkation day)