



# RESPIRATORY VIRUS SURVEILLANCE BY VIRUS ISOLATION FROM APRIL 2009 TO OCTOBER 2009 IN MARYLAND

Jing-Wen Tan\*, Heather Peters, Benjamin Healey, Carol Hogan, Mandy Tran, Marci Ziese, and Maria Paz Carlos DVM. PhD. Maryland Department of Health and Mental Hygiene, Laboratories Administration, Division of Virology and Immunology

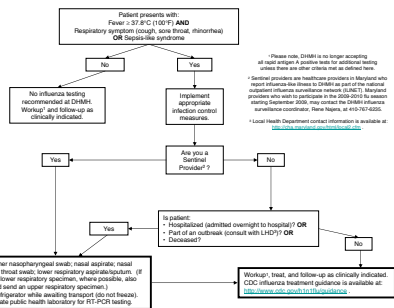
\*Corresponding author: TanJ@state.dhmm.md.us

## BACKGROUND

- Respiratory viruses include
  - Influenza viruses, human parainfluenza viruses (hPIV), adenoviruses, respiratory syncytial viruses (RSV), and rhinoviruses.
  - Non-polio enteroviruses such as coxsackieviruses, echoviruses, and other enteroviruses.
- Respiratory viral infections cause substantial morbidity and mortality.
- Comprehensive virus surveillance at MD DHMM
  - Molecular testing of influenza viruses by RT-PCR.
  - Identification of other respiratory diseases by cell culture method.

## TESTING ALGORITHM

- Healthcare providers and local health departments (LHD) are advised to follow the following algorithm:



- Testing algorithm were modified to focus on virologic surveillance as the 2009 H1N1 influenza pandemic progressed.
  - First focused on hospitalized patients and healthcare workers.
  - Later focused on identifying those most severely affected (hospitalized or deceased) and supporting cluster/outbreak investigations.
  - Specimens with test results negative for influenza are forwarded to the Virus Isolation Lab for inoculation.

## RESULTS

Table 1. Non-influenza respiratory viruses and enteroviruses isolated at the DHMM Virus Isolation Lab in April 2009 to October 2009

	No. Inoculated	hPIV	Adenovirus	RSV	Rhinovirus*	Enterovirus
Apr 2009	73	1	0	0	0	0
May 2009	226	8	3	0	0	0
Jun 2009	172	9	5	0	0	0
Jul 2009	205	0	3	0	0	0
Aug 2009	191	2	2	0	0	0
Sep 2009	368	7	2	0	3	10
Oct 2009	617	18	1	1	0	4
Total	1852	45	16	1	3	14

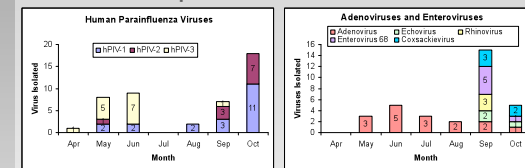
\* Rhinoviruses are identified by the Enterovirus Diagnostic Laboratory at CDC.

Table 2. Number, percentage, and rate of respiratory virus infection identified by the DHMM Virus Isolation Lab in April 2009 to October 2009

Characteristic	Total (N = 79)	Nonhospitalized (n = 30)		Hospitalized (n = 44)		Dead* (n = 5)	
		No.	(%)	No.	(%)	No.	(%)
<b>Age group (yrs)</b>							
0-4	33	7	(21)	21	(64)	5	(15)
5-14	9	6	(67)	3	(33)	0	(0)
15-24	9	5	(56)	4	(44)	0	(0)
25-59	17	7	(41)	10	(59)	0	(0)
≥ 60	8	5	(62.5)	3	(37.5)	0	(0)
Unknown	3	0	(0)	3	(100)	0	(0)
<b>Sex</b>							
Female	32	16	(50)	16	(50)	0	(0)
Male	44	13	(29.5)	26	(59)	5	(11)
Unknown	3	1	(33)	2	(67)	0	(0)
<b>Race/Ethnicity</b>							
Black	22	6	(27)	14	(64)	2	(9)
White	25	10	(40)	14	(56)	3	(4)
Hispanic	3	3	(100)	0	(0)	0	(0)
Asian/Pacific Islander	3	1	(33)	2	(67)	0	(0)
Unknown	24	10	(42)	14	(58)	0	(0)

\* 5 death cases were associated with viral infections of adenovirus (2), hPIV-1 (1), hPIV-2 (2), and rhinovirus (1).

Figure 1a and 1b. Human parainfluenza viruses and enteroviruses subtypes isolated at the DHMM Virus Isolation Lab in April 2009 to October 2009



## DISCUSSIONS

- HPIV-1 and hPIV-2 activities surged in October 2009.
  - HPIV-1 infection was associated with the death of a 5-month-old male infant in May 2009.
  - HPIV-2 infection was associated with the death of a 2-month-old male infant in September 2009.
  - HPIV-3 was a suspect agent of an ILI outbreak at a nursing home in April 2009.
- Adenovirus activity detected throughout the 2009 H1N1 influenza pandemic.
  - Except in April 2009 possibly due to small number of samples inoculated that month.
  - Adenovirus infections were associated with the death of a 3-month-old infant and a 5-month-old infant, both males, in May 2009.

## CONCLUSIONS

Non-influenza respiratory viruses and enteroviruses are common in the communities and can cause respiratory symptoms similar to influenza virus infections. Although the H1N1 2009 pandemic influenza has dominated the scene this flu season, infections by other respiratory viruses and enteroviruses can easily add to the complication and confusion of clinical interpretation. The DHMM Laboratories Administration Virus Isolation Lab will continue to participate in the surveillance effort to prevent and control diseases caused by these pathogens.

## ACKNOWLEDGEMENT

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## DISCLAIMER

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